APPENDIX H

Coastal Planning & Engineering, Inc.
Nearshore and Offshore Hardbottom Investigation Results

SUMMARY OF FIELD OBSERVATIONS

Date:	June 2006
Project:	North Topsail Beach Shoreline Protection Project
Location:	North Topsail Beach, North Carolina
Commission Number:	4600.21
Field Representatives:	Erin Hague, Robert Baron, Angela Delaney - Marine Biologists; and Patrick Bardes - Marine Biologist Technician

CPE marine biologists conducted *in situ* investigations in June, August and October 2005 in the near shore (-18 to -25 feet) and offshore (-36 to -44 feet) waters of North Topsail Beach. Field investigations were performed to confirm the delineations of potential and probable hardbottom resources in the project area to collect benthic community data from representative locations.

From June 21 through 24, 2005, CPE marine biologists confirmed the sidescan sonar results of potential and/or probable hardbottom located 1) in the near shore of Onslow Beach, 2) offshore of New River Inlet near a potential sand source location, 3) in the near shore of the north section of North Topsail Beach, and 4) at select sites in the vicinity of the offshore borrow area.

Field investigations conducted from August 3 through 7, 2005 included diver verification of potential and/or probable hardbottom areas located 1) in the New River Inlet Significant Natural Heritage Area, 2) in the central section, including the establishment of four (4) temporary transects (TS5 to TS8) on confirmed hardbottom, 3) along the northwest hardbottom edge between TS10 through TS13, and SNHA 4) at the three USACE sites resulting in only one site (TS9) as diver verified hardbottom. Refer to Figure 1.

The June and August 2005 investigations confirmed near shore hardbottom resources located approximately 350 meters (1,150 feet) from the February-March 2002 mean high water line; and offshore hardbottom areas located 121.9 to 304.9 meters (400 to 1,000 feet) from the proposed borrow area. The hardbottom communities identified by the sidescan sonar results and confirmed by marine biologists in June and August 2005, were quantified in the project GIS to determine the total identified near shore (2,000 feet or less from shore) and offshore (greater than 2,000 feet from shore) hardbottom resources. The near shore hardbottom community totaled 260,537m^2 and the offshore hardbottom totaled 1,652,857m^2. The 'rule of thumb' applied to hardbottom communities without a baseline dataset is to characterize +/-1/10,000th of the area to achieve adequate representation. In using this approach, the optimum sample area is approximately 26m^2 and 165m^2 for the near shore and offshore hardbottom communities, respectively.

Researchers conducted near shore and offshore investigations from October 20 through 23, 2005 to ground-truth and characterize diver verified hardbottom resources identified during the June and August 2005 field investigations. Ten (10) temporary transects (TS5

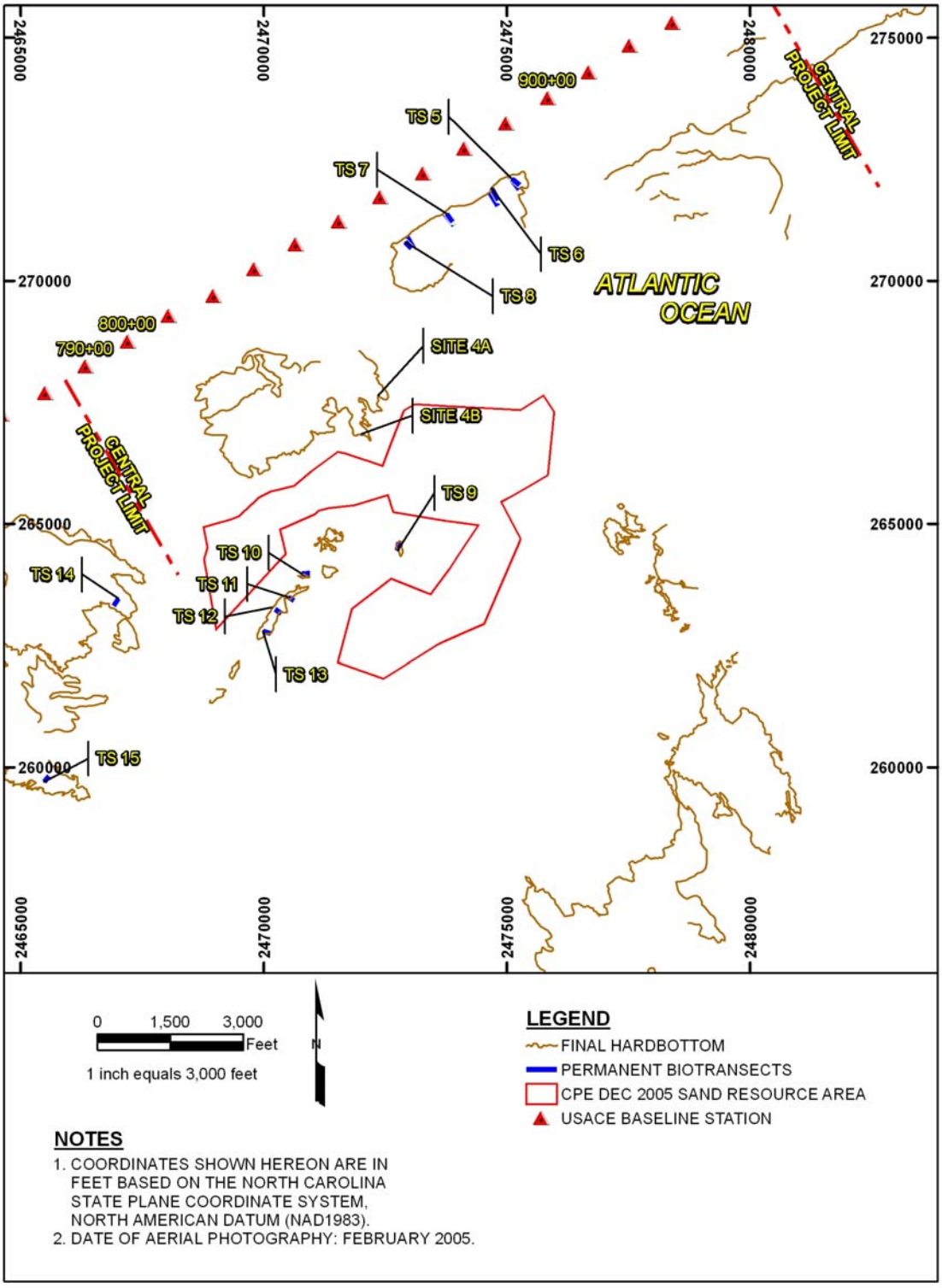


Figure 1

North Topsail Beach
Hardbottom Monitoring Stations

to TS15) were established to characterize the near shore (TS5 to TS8) and the offshore (TS9 to TS15) hardbottom resources. See Figure 1.

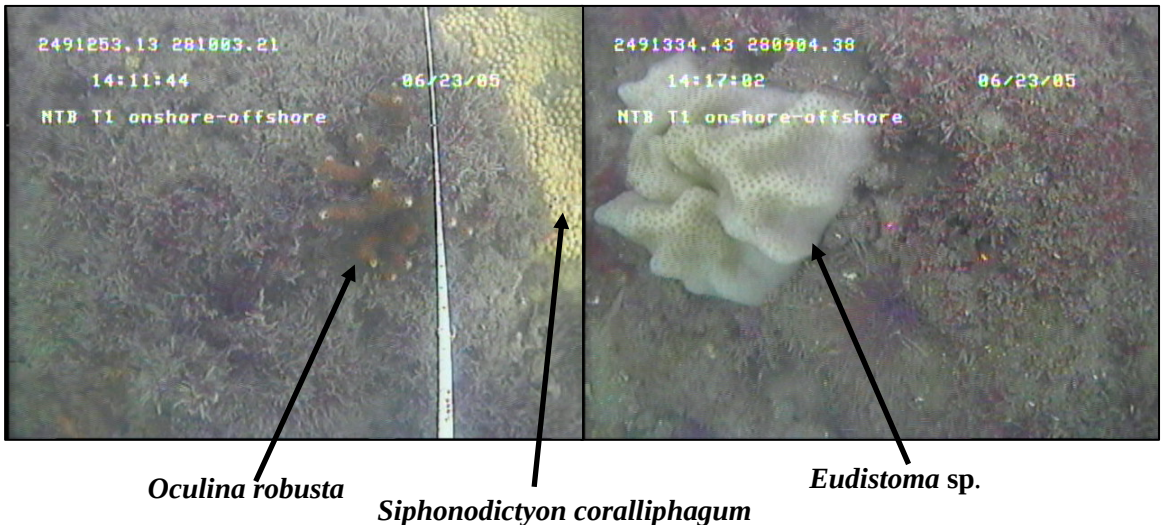
Two methods of habitat characterization and documentation were used during these investigations: 1) the Benthic Ecological Assessment for Marginal Reefs (BEAMR) developed by Coastal Planning & Engineering, Inc., and 2) digital video that may be used to further analyze the hardbottom communities present within each study area. The biological community data collected in October 2005 was input into the project database to be included in a comprehensive pre-construction baseline survey assessment. Refer to the December 2005 Marine Resources Baseline Investigation Plan regarding the BEAMR methodology and video documentation (CPE, 2005).

A summary of findings from the 2005 investigations are provided below.

Near shore Hardbottom Resources

Northern Section

Photos 1 and 2 shown below are representative of the hardbottom features confirmed in the north section (TS1) in June 2005. Heavy sediment and particulate loading observed in the water column during the video collection prevented CPE marine biologists from completing the flora and fauna surveys (visibility ranged from 0 to ≤30cm). The optical capabilities of a video camera far exceeds human visual optics, therefore the images shown below appear to be in relatively clear water. Further investigations of the north section confirmed hardbottom intermittently exposed between USACE baseline stations 1030+00 to 1070+50.



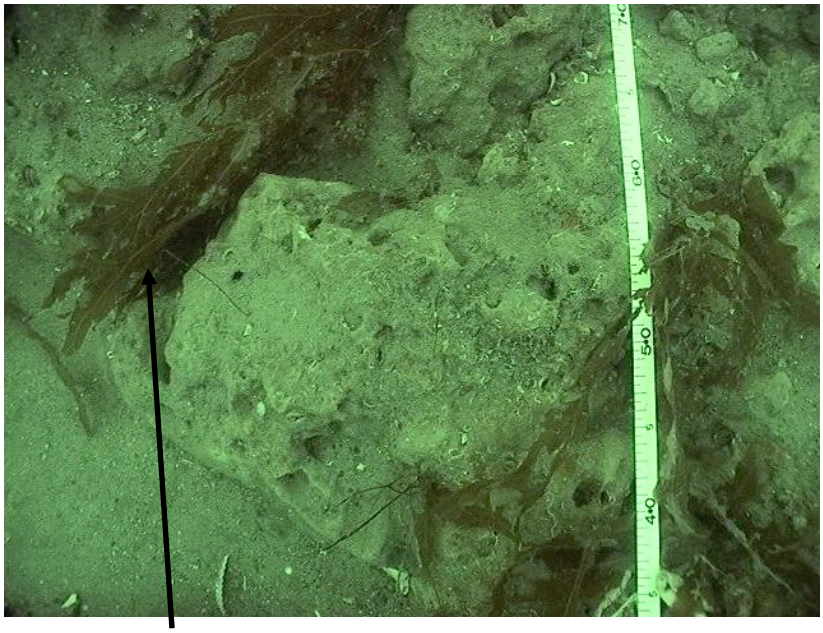
Photos 1 and 2 – Representative biotic coverage at TS1 shown above includes stony coral (*Oculina robusta*), sponge (*Siphonodictyon coralliphagum*) and tunicate (*Eudistoma* sp.).

During the June 2005 investigations at TS1, investigators used a $1m^2$ sample quadrat to collect a representative sample. The measuring tape was laid across the hardbottom feature and was stretched perpendicular to the shoreline for a total of 100 meters, sampling every 10 meters along the transect. Observations of the physical and biological

characteristics of the hardbottom features at TS1 documented the following: minimum and maximum relief recorded 0cm and 60cm, respectively; sediment type is comprised of sand and shell (average sediment depth is 3.2cm); macroalgae cover averaged 4.3% (algal species include *Gelidium*, *Graciliaria*, with *Cryptonemia* and *Dasya* as the dominant types); bare hard substrate averaged 15.4%; stony coral cover (*Oculina robusta*) averaged 1%, ranging in size from $\leq$1 to 7 cm; additional functional groups included bryozoans, annelids, porifera, hydroids and tunicates. Poor visibility (averaging 1 to 4 inches) prevented CPE marine biologists from conducting further detailed benthic characterizations on the near shore hardbottom communities of the north section during August and October 2005 investigations. As a result of these limiting conditions, the near shore sample area was limited to the central section.

Central Section

In the central section, hardbottom is exposed between stations 850+50 to 880+50. Four (4) temporary monitoring transects (TS5 to TS8) were established in August and October 2005 on the confirmed hardbottom area. In October, investigators used a 0.25 square meter ($0.25m^2$) quadrat to sample every 2.5 meters along the 60m temporary transects, for a total sample size of $24m^2$. Similar to the offshore monitoring efforts, the BEAMR methodology was used to collect physical and biological characteristics of the hardbottom features in the central section. Results of these investigations confirmed an average relief of 7.32 cm, with a maximum relief measuring 35 cm. Sediment depth averaged 2.3 cm with a maximum depth measured to 10 cm. Sediment type was dominated by sand and shell, with occasional mud, averaging 36% cover of the total sample area. See Photo 3 showing the irregular topography and Rhodophyte (*Cryptonemia* sp.) observed at TS7. *Cryptonemia* is typically found in low-light habitats, which is supported by the poor visibility observed during the 2005 in-water investigations (Littler and Littler, 2000).



***Cryptonemia* sp.**

Photo 3 – Exposed hardbottom in near shore zone of central section (TS7).

Shell fragments were commonly observed in the limestone substrate, along with a thin veneer of sediment on the limestone. Bryozoans were occasionally observed representing 1% of the sample quadrat in the central section. As opposed to sessile annelids (feather duster worms) which ranged from 0 to 80% cover (ave. 6%) along TS7. Macroalgae cover at stations TS5 through TS8 was documented on 1% of the sample quadrats, dominated by *Cryptonemia* sp. shown above, with occasional *Gracilaria* sp.

The average non-biotic cover (e.g., turf, cyanobacteria, sediment, and bare hard substrate) occurring along the near shore hardbottom sample area is 87.3%. While the average macrobiotic cover is 10.5%.

The fish species observed during the near shore characterization was limited to the black sea bass (*Centropristis striata*). No other fish species were seen during the in-water investigations due to the limited visibility.

A summary of the hardbottom investigations conducted offshore of New River Inlet in June 2005 are not included in this report since the proposed activities for this area are no longer included in the project.

The June 2005 in-water investigations of the nine (9) sites conducted in the near shore of Onslow Beach confirmed coarse sand, fine silt and wooden debris.

Offshore Hardbottom Resources

In June 2005, CPE marine biologists investigated eight (8) probable hardbottom areas (formerly NTB BA Sites 1 through 8) within 300 meters of the proposed borrow area. All eight sites were confirmed hardbottom of varying relief and benthic community coverage. In August 2005, three (3) additional sites (USACE Sites 1 through 3) were investigated for the presence or absence of hardbottom habitats. Only USACE Site 3 was confirmed as hardbottom by CPE marine biologists; while USACE Sites 1 and 2 were confirmed as shell hash. These sites were documented by visual observations of the benthic communities, video documentation and mapping using DGPS positioning and HYPACK®MAX software. A summary of in-water observations conducted at USACE Sites 1 and 2 are not provided in this report.

Due to their proximity to the borrow area, the rock/sand interface at TS10 through TS13 were mapped in August 2005 to delineate the extent of hardbottom communities near the borrow area. The offshore hardbottom located near TS 11 through TS 13 measured 1 to 4 feet in height.

Hardbottom characterizations of the offshore communities were conducted in October 2005, which included the establishment of seven (7) 50 m temporary transects at TS9 through TS15 (formerly USACE 3, BA 1 and 2, 7 and 8). In June 2005, CPE marine biologists confirmed hardbottom at Sites 4A and 4B. However, in October 2005, the hardbottom at these sites was found covered with greater than 60 cm of mud. Therefore a temporary transect was not established at this location.

Transects were established at the sand/rock interface and extended in a southerly direction, away from the borrow area. The distance from the proposed borrow area to

TS15 is approximately 4,400 feet. Project dredging affects are not anticipated due to the distance from the sand resource area, therefore this site will be reported as the control transect (see Figure 1).

Sample stations were established every 2.5 m along the temporary transects using a $1m^2$ sample quadrat for a total representative sample size of $140m^2$. The BEAMR surveying method was conducted at each of these offshore sites to identify benthic community coverage and diversity, as well as sediment depth and cover.

The average macrobiotic cover per sample quadrat is 5.4% along the offshore transects. Sessile benthos observed along the hardbottom is dominated by macroalgae, octocorals, encrusting red algae, sessile worms and stony corals (presented in decreasing order). The dominant macroalgae observed along the offshore transects is the red algae *Cryptonemia*. The octocoral *Leptogorgia virgulata* averages the greatest percent cover along the offshore transects. This octocoral is one of the most common types found in the South Atlantic Bight, ranging from Chesapeake Bay to Georgia, to the western coasts of Florida and Brazil (SERTC, 2006). *Titanideum frauenfeldii* occurs less frequently on the offshore hardbottom. This octocoral commonly occurs on rock and sand mixed substrates located in current-swept environments (NOAA, 2006). The stony coral *Oculina robusta* is present along most offshore transects as recruits ($\leq$3cm). This shallow water form of *Oculina* has a temperature range of 52 to 93 ^{o}F and is abundant off the west coast of Florida (Reef, 2006; Humann, 2002). Results from aquarium observations conducted by the Reef Ball Foundation, Inc. indicated that *O. robusta* is "very hardy" and has a high silt tolerance (Reef, 2006). Refer to Photo 4.

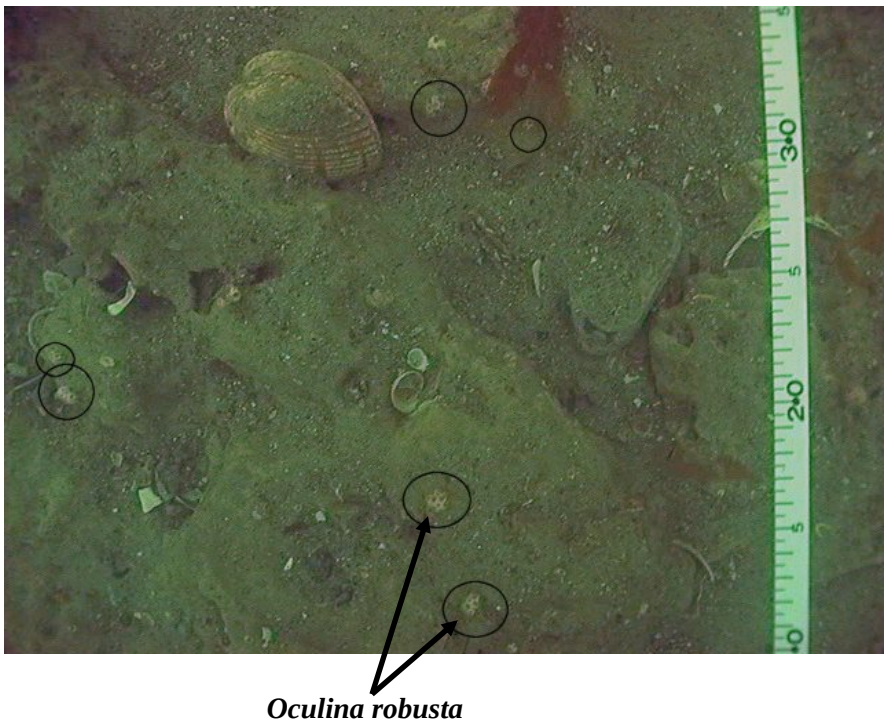


Photo 4 – *Oculina robusta* stony coral recruits observed at TS9 during the October 2005 in-water investigations.

The average non-biotic cover (e.g., turf, cyanobacteria, sediment, and bare hard substrate) occurring along the offshore hardbottom, as observed along the representative monitoring transects, is 94.2%. The maximum height measured within the offshore sample quadrats is 35 cm (average 4 cm). The average sediment cover per sample quadrat is 83.5% with a maximum depth measured at 30 cm (average depth 9 cm). Visual observations of the surface sediment indicated that it is primarily composed of sand and shell fragments.

New River Inlet Outcrop- Significant Natural Heritage Area (SNHA)

In August 2005, CPE marine biologists investigated four (4) probable hardbottom areas identified from the side scan sonar results and located in the New River Inlet Outcrop SNHA. The four areas are identified in the project GIS as SNHA 1, 2, 4 and 4A. All four probable hardbottom areas are located in the western region of the SNHA. Both SNHA 1 and 2 are low relief ($\leq$ 30 cm) hardbottom features with 3 to 4 cm of sediment covering the rock. Tunicates, sponges, encrusting red algae and the stony coral *Oculina robusta* were common at both sites. The *O. robusta* corals ranged in size from 2 to 5 cm at SNHA 2. No attached macroalgae was observed at SNHA 1. At SNHA 2, the chlorophytes *Caulerpa* and *Codium* were present, as well as the phaeophytes *Dictyota*, *Lobophora* and *Sargassum*.

Investigation areas SNHA 4 and 4A are located in proximity to one another near the northwest corner of the New River Inlet Outcrop SNHA. SNHA 4 is a ridge and trough feature that was observed with a thin veneer of sand and silt. The maximum relief measured at this site was 45 cm. CPE marine biologists observed a 2.1 meter stepping ledge with a maximum base depth of 32 feet and a minimum platform depth of 25 feet. In addition to the organisms observed at SNHA 1 and 2; hydroids, red cyanobacteria mats, the rhodophyte *Gracilaria* and the red coralline algae *Amphiroa* were also observed. *O. robusta* colonies observed at SNHA 4A were measured between 2 and 3 cm, with an occasional 5 cm colony.

The following table lists the finfish observed near the offshore hardbottom stations during the August 2005 investigations.

Common Name	Scientific Name
GRUNTS	**HAEMULIDAE**
White Grunts	*Haemulon plumierii*
Tomtate	*Haemulon aurolineatum*
pigfish	*Orthopristis chrysoptera*
Unidentified juvenile grunts	*Haemulon* sp.
PORGIES	**SPARIDAE**
Spottail Pinfish	*Diplodus holbrooki*
Pinfish	*Lagodon rhomboides*
Longspine Porgy	*Stenotomus caprinus*
Sheepshead	*Archosargus probatocephalus*
Scup	*Steotomus chrysops*
DRUMS	**SCIAENIDAE**
Highhat	*Pareques acuminatus*
GOATFISH	**MULLIDAE**
Dwarf Goatfish	*Upeneus parvus*
COMBTOOTH BLENNIES	**BLENNIIDAE**
Seaweed Blenny	*Parablennius marmoreus*
MACKERELS	**SCOMBRIDAE**
Spanish Mackerel	*Scomberomorus maculatus*
PUFFERFISH	**TETRAODONTIDAE**
Bandtail Puffer	*Sphoeroides spengleri*
Sharpenose Puffer	*Canthigaster rostrata*
SEABASSES AND GROUPERS	**SERRANIDAE**
Black Sea Bass	*Centropristis striata*
Pygmy Sea Bass	*Seranniculus pumilio*
Belted Sandfish	*Serranus subligarius*
JACKS	**CARANGIDAE**
Bar Jack	*Caranx ruber*
Mackerel Scad	*Decapterus macarellus*
Unidentified Scad	*Selar/Decapterus* sp.
SPADEFISH AND SILVERSIDES	**EPHIPPIDAE**
Atlantic Spadefish	*Chaetodipterus faber*
TOADFISH AND SCORPIONFISH	**BATRACHOIDIDAE**
Leopard Toadfish	Opsanus pardus
WRASSES	**LABRIDAE**
Slippery Dick	*Halichoeres bivittatus*
FLOUNDER	**PARALICHTHYIDAE**
Summer Flounder	Paralichthyus dentatus
LIZARDFISH	**SYNODONTIDAE**
Sand Diver	*Synodus intermedius*
REMORA	**ECHENEIDAE**
Whitefin Sharksucker	*Echeneis neucratoides*

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FIELD OBSERVATION REPORT

DATE:	August 29-30, 2006
PROJECT:	North Topsail Beach Shoreline Protection Project
COMMISSION NUMBER:	4600.55/5
LOCATION:	North Topsail Beach, North Carolina
FIELD REPRESENTATIVES:	E. Hague (Senior Marine Scientist), M. Lybolt (Senior Marine Biologist), C. Barrett (Marine Biologist), J. Craft (Marine Biologist), K. Willson (Coastal Geologist), A. Spencer (Marine Technician)

Introduction

In June 2006, the Southern Section (USACE baseline stations 580+00 to 781+00) was added to the North Topsail Beach Shoreline Protection project. Investigations were therefore needed to determine if hardbottom resources are located in the nearshore (152 to 457 m)of the South Section or near the extended offshore borrow area approximately 767 m from the 2002 mean high water line at USACE baseline stations 850+00 to 890+00.

Sidescan sonar surveys were first conducted in August 2006 by Coastal Planning & Engineering, Inc. (CPE) geologists to determine if potential and probable hardbottom resources exist in the extended project area. Following the survey data reduction, CPE marine biologists and geologists conducted underwater (SCUBA) reconnaissance surveys to confirm the presence or absence of these resources. In addition to confirming hardbottom resources, goals of these investigations included: 1) establish two additional temporary monitoring transects (TS 16 and TS 17) near the offshore borrow area, as requested by the NCDCM; 2) collect baseline turbidity samples in the nearshore and offshore water column; and 3) collect relief measurements monitoring stations TS 11 and TS 12; and 4) determine the feasibility of placing hardbottom monitoring stations in the nearshore of the Southern Section.

Mobilization

Two field boats (Scuba Tech – *M/V Tsunami* and *M/V Seahawk*) were mobilized at 0700 hours on August 29th. The CPE crews arrived at the first investigation sites at approximately 0900 hours. Air temperature during the survey was approximately 83°F (28°C). Sea state conditions were 0.6 to 0.9 m at 0900 hours and increased to 1.2 to 1.8 m at 1400 hours. Winds ranged from 10 to 15 mph and a north current of $\leq$0.5 knots was observed. The two boats with CPE crew returned to the dock at 1600 hours.

On August 30th, one field boat (*M/V Tusnami*) was mobilized by the CPE crew with a captain from Scuba Tech. The crew left the fuel dock at 0730 hours and arrived at the first site at 0825 hours. Air temperature during the survey was approximately 83°F (28°C). Sea state conditions were 0.6 to 0.9 m seas at 0900 hours and increased to 1.2 to 1.8 m at 1430 hours. Winds ranged from 10 to 25 mph with a slight north current. The CPE crew returned to the dock at 1700 hours.

Methods

The divers descended on a buoy deployed near the center of each potential and/or probable hardbottom area, and proceeded to conduct an exploratory search around the buoy for significant benthic resources. If none were found in the vicinity of the buoy, divers would then swim a compass bearing through the longest axis of the potential habitat. If an isolated resource or point of interest was observed, divers would record the location by pulling the dive flag below the surface of the water several times, signaling the boat crew to record the position using a Trimble AgDGPS Global Positioning System (GPS) with Pro Beacon. The buoy was on the shortest possible tether, such that the buoy was positioned directly over the sampling location. The positioning data were recorded and stored in the HYPACK 6.2a software program, a multi-functional navigation and hydrographic surveying program. Transitions in sediment were also recorded (*e.g.*, mud to sand, shellhash).

Benthic characterization along the temporary transects (confirmed hardbottom habitat) included the BEAMR methodology supported by videographic documentation.

Results

Investigations conducted offshore of USACE baseline station 850+00 (seaward of TS 5 to TS 8) confirmed mud, sand and shellhash. No hardbottom resources were found in this area. Refer to Figure 1.

Temporary transects were established offshore of USACE baseline station 800+00, identified as TS 16 and TS 17. BEAMR data was collected at these sites by a qualified marine biologist to characterize the benthic community. Underwater video was also collected along the transect line. Sample data was recorded every 2.5 m along the 50 m transect. Species observed were similar to those recorded at the offshore transects, with the exception of the octocorals *Titanidium* sp. and *Carijoa* sp.

At TS 11 and TS 12, relief measurements were collected landward side of the exposed hardbottom formation to determine if these features qualified as "high relief" under the North Carolina definition. The North Carolina code NCAC 07H. 0208(b)(12)(A)(iv)) states "*Mining activities shall not be conducted on or within 500 meters of significant biological communities, such as high relief hardbottom areas. High relief is defined for this standard as relief greater than or equal to one-half meter per five meters of horizontal distance*." Vertical relief was measured for five meters in either direct (northeast and southwest) from the start of the transect. The results determined that the average relief along TS 11 is 0.16 m; while average relief along TS 12 ranges from 0.40 to 0.45 m. Relief measurements collected at the time of these investigations determined that these resources do not qualify as high relief under the State definition. BEAMR data and video was also collected at TS 11 and TS 12.

Underwater investigations conducted in the nearshore of the Southern Section confirmed to areas of hardbottom resources (near USACE baseline station 670+00 and between 725+00 and 750+00). CPE marine biologists attempted to establish temporary transects (TS 18 and TS 19) between 725+00 and 750+00, however poor visibility prevented divers from collecting data. These sites will be included in future investigations. Refer to Figure 2.

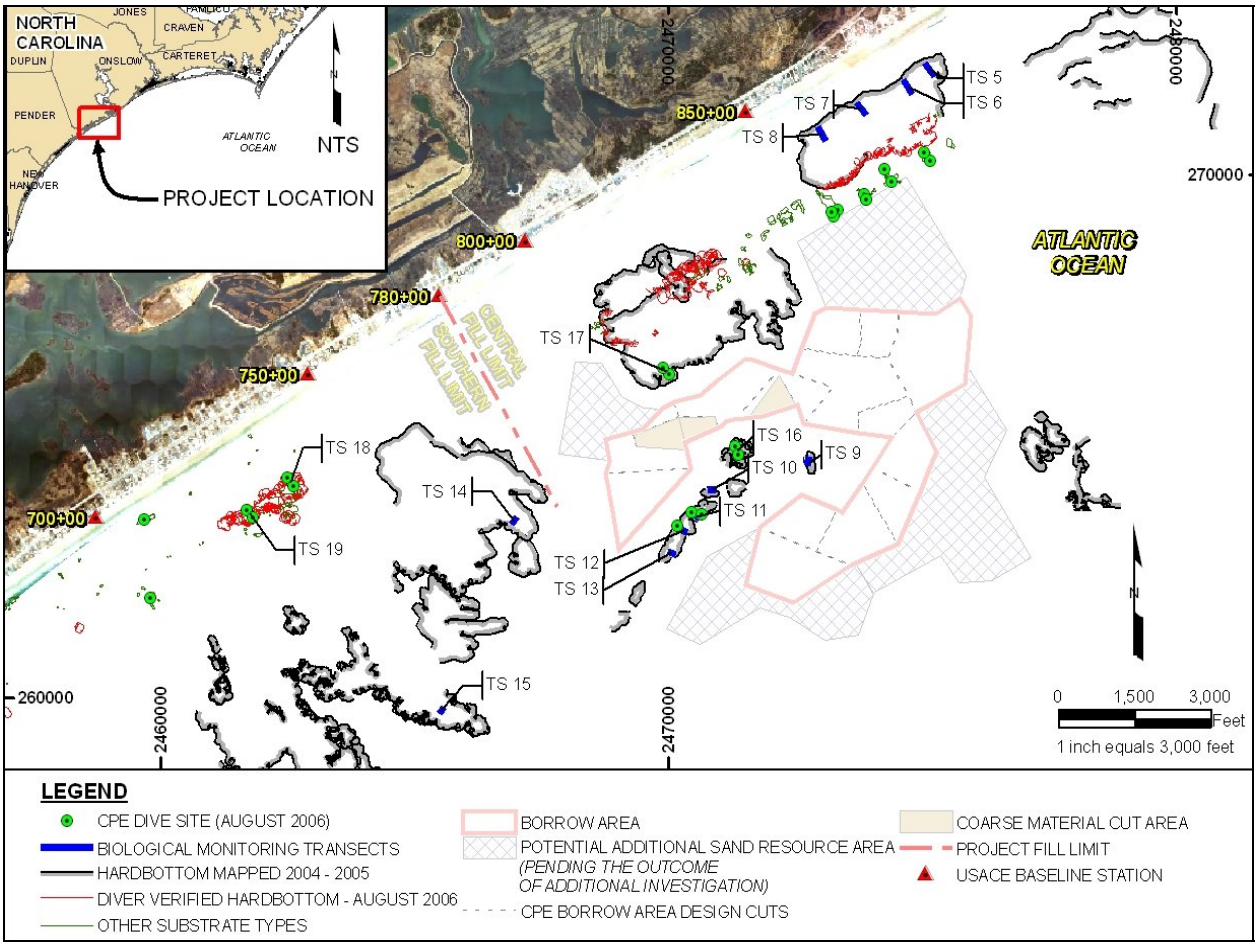

Figure 1. Underwater investigation sites of potential and probable hardbottom resources. August 2006 dive locations shown as green targets.

Water quality data was also collected at four sites in the nearshore and offshore during the August 2006 investigations. Turbidity levels were measured using a LaMotte 2020 turbidimeter. In the nearshore (USACE baseline stations 590+00 and 595+00), turbidity levels were measured at 35.2 and 9.67 Nephelometric Turbidity Units (NTU). Samples were collected at depth, approximately 2 m above the seafloor.

Turbidity samples collected in the offshore, at depth, include TS 12 (4.5 NTU), TS 16 (0.50 and 0.76 NTU) and TS 19 (-17.6, 22.5 and 23.0 NTU). Surface samples were also collected at TS 17 which averaged 0.43 NTU. The results of the turbidity sampling confirmed the poor visibility observed during the underwater investigations.

Additionally, the hardbottom edge digitized from the 2005 and 2006 sidescan sonar surveys at TS 18 and TS 19 indicated a change in exposed hardbottom from 5.25 acres in 2005 to 8.27 acres in 2006. The three acre change in exposed hardbottom confirms the ephemeral nature of this resource.

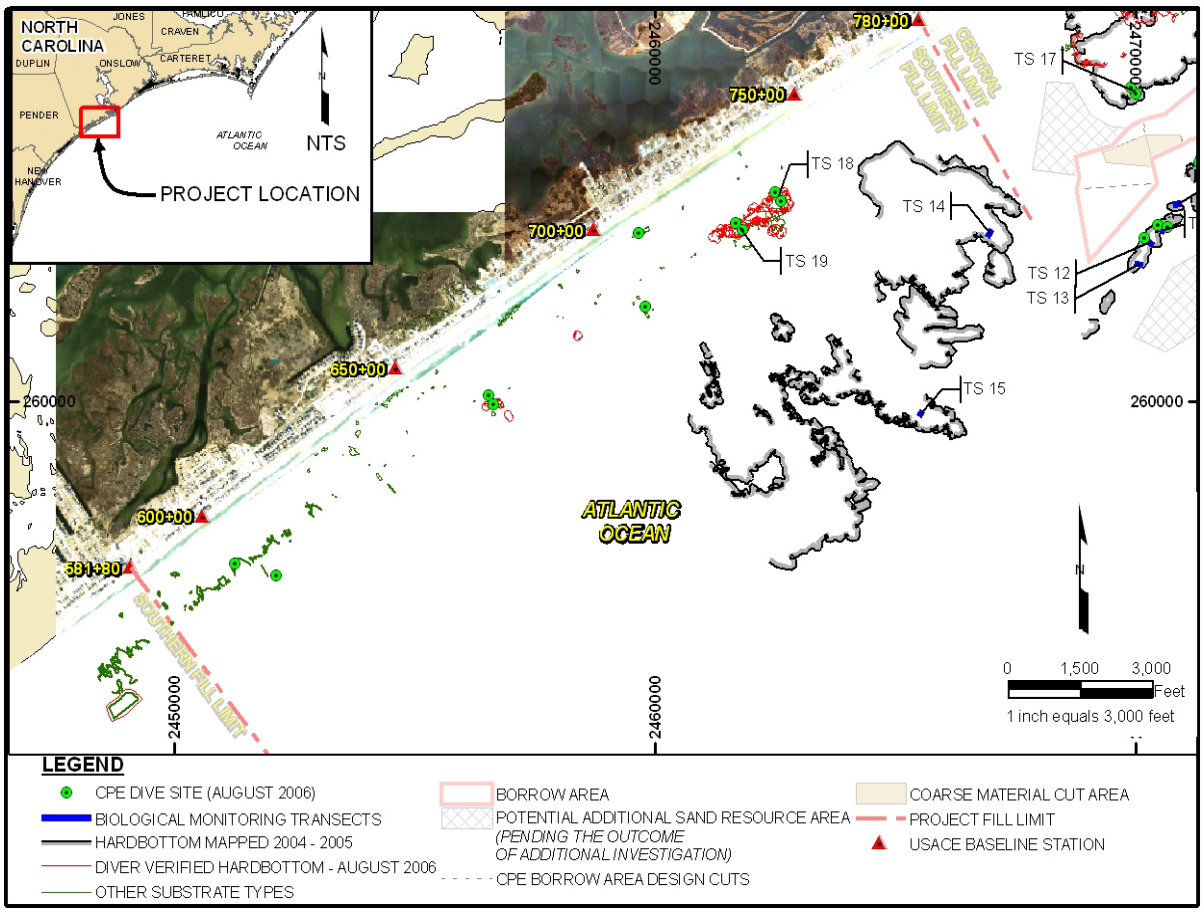

Figure 2. Underwater investigations in the nearshore of the Southern Section confirmed two hardbottom areas (near USACE baseline station 670+00 and between 725+00 and 750+00).

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Project Name NC **Site Name / Transect Name** TS 16 41ft deep (?)

Date 29-Aug-06 **Data Collector** ML **Data Entry**

Quad Label: 0 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Tridemnum	2
Max Sediment Depth (cm)	2	Lepto-V	31/35/28
Sessile Benthos...	**% Cover**	O.rob=1cm	14
Sediment- (circle all: sand shell mud)	86	Lepto-V	16/15
Macroalgae- Fleshy+Calcareous	1	Carijoa	2/2/1
Turf- algae+cyanobacteria (circle all: g r b)	2	O.rob=1cm	9
Encrusting Red Algae	2		
Sponge	1		
Hydroid	0		
Octocoral	2		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	1		
other-... Bivalve	1		
Bryoz	1	Annelid	1

Total Must = 100%

182

Quad Label: 12.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	-		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	75		
Macroalgae- Fleshy+Calcareous	1	Tridemnum	6/4
Turf- algae+cyanobacteria (circle all: g r b) 10	15	Tridemnum	6/5
Encrusting Red Algae	3	Lepto-h	7
Sponge	0	O.rob=1cm	16
Hydroid	0	O.rob=1cm	26
Octocoral	1	O.rob=1cm	17
Stony Coral	1		
Tunicate	2		
Bare Hard Substrate	1		
other-... Bryoz	1		

Total Must = 100%

260

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Lepto-V	3/9
Max Sediment Depth (cm)	7	Tridemnum	3/3
Sessile Benthos...	**% Cover**	Carijoa	2/2
Sediment- (circle all: sand shell mud)	55	Lepto-h	7
Macroalgae- Fleshy+Calcareous	1	O.rob=1cm	23
Turf- algae+cyanobacteria (circle all: g r b) 20	34	O.rob=1cm	6
Encrusting Red Algae	3		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	1		
other-... Annelid	1		
Bryoz	1		

Total Must = 100%

259

Quad Label: 17.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Tridemnum	5
Max Sediment Depth (cm)	5	Tridemnum	8/5 10
Sessile Benthos...	**% Cover**	Carijoa	1/2
Sediment- (circle all: sand shell mud)	65	Lepto-V	4/17 2/18
Macroalgae- Fleshy+Calcareous	1	Carijoa	34/1/2
Turf- algae+cyanobacteria (circle all: g r b)	16	O.rob	1/3/1/1
Encrusting Red Algae	12		4/1/1/2
Sponge	0		1/1/1
Hydroid	1		1/1
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	1		
other-... Bryoz	1		

Total Must = 100%

258

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S ir
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name NC **Site Name / Transect Name** TS1C

Date 8/24/10 **Data Collector** ML **Data Entry**

Quad Label: Sample Name or # 0		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	14		
Max Sediment Depth (cm)	3	Cariyoa	3
Sessile Benthos...	**% Cover**	Lepto-V	33
Sediment- (circle all: sand shell mud)	55	O.rob	1/1/1/1/1
Macroalgae- Fleshy+Calcareous	1		1/1/1/1/1
Turf- algae+cyanobacteria (circle all: g r b) 20	47		1/1/1/1/1
Encrusting Red Algae	3		1/1/1/1/1
Sponge	1		1/1/1/1
Hydroid	1		1/1/1
Octocoral	1		
Stony Coral	1		
Tunicate	3		
Bare Hard Substrate	2		
other-... Annelid	2		
Bryozoan	2	Anemone	1

Total Must = 100%

Quad Label: Sample Name or # 2.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	4	Cariyoa	2/3
Sessile Benthos...	**% Cover**	O.rob	1/1/1
Sediment- (circle all: sand shell mud)	65		1/1/1
Macroalgae- Fleshy+Calcareous	1		1/1/1
Turf- algae+cyanobacteria (circle all: g r b) 10	27		1/1/1/1
Encrusting Red Algae	2		1/1/1/1
Sponge			1/1/1
Hydroid	1		1/1/1
Octocoral	1		1
Stony Coral	1	Lepto-V	2
Tunicate	1		
Bare Hard Substrate			
other-... Anemone	1		

Total Must = 100%

Quad Label: Sample Name or # 5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Cariyoa	3/3
Max Sediment Depth (cm)	2	Lepto-V	23
Sessile Benthos...	**% Cover**	O.rob	1/1/1/1
Sediment- (circle all: sand shell mud)	60		1/1/1/1
Macroalgae- Fleshy+Calcareous	1		1/1 1/1
Turf- algae+cyanobacteria (circle all: g r b) 10	31		1/1/1/1
Encrusting Red Algae	3		1/1
Sponge	0		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	2		
other-... Bryozoan	1		

Total Must = 100%

Quad Label: Sample Name or # 7.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% co or max ...e (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**	O.rob = 1cm	1/3
Sediment- (circle all: sand shell mud)	50	O.rob = 1cm	
Macroalgae- Fleshy+Calcareous	1	O.rob = 1cm	3
Turf- algae+cyanobacteria (circle all: g r b) 30	40		
Encrusting Red Algae	4		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	1		
other-... Bryoz	2		
Annelid	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Brythamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A age, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name 1C **Site Name / Transect Name** TS16

Date 29-Aug-06 **Data Collector** ML **Data Entry**

Quad Label: Sample Name or # 20		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	7		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99	Lepto-V	28
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-...	0		

Total Must = 100%

Quad Label: Sample Name or # 22.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	89	Lepto-V	43/28/13
Macroalgae- Fleshy+Calcareous	1	Lepto-V	39 37
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	=		
Sponge	0	O. rob	
Hydroid	0		
Octocoral	5		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	1		
other-... Annelid	1		

Total Must = 100%

Quad Label: Sample Name or # 25		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	5	Carijoa	1/2
Sessile Benthos...	**% Cover**	Lepto-V	15
Sediment- (circle all: sand shell mud)	10	Lepto-V	37/35/32
Macroalgae- Fleshy+Calcareous	1	Tridemnum	8.7
Turf- algae+cyanobacteria (circle all: g r b) 10	17	O. rob=1cm	10
Encrusting Red Algae	4	O. rob= 1cm	4
Sponge	1	O. rob= 1cm	11
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	2		
other-... Bryoz	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Serg,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psr
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name FLB NC **Site Name / Transect Name** TLC

Date 8/2 **Data Collector** JC **Data Entry**

Quad Label: Sample Name or # 20		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	O.rob III	1
Max Sediment Depth (cm)	7	O.rob III	2
Sessile Benthos...	**% Cover**	Titan	7
Sediment- (circle all: sand shell mud)	83	Titan	5
Macroalgae- Fleshy+Calcareous	1	C.vir	32
Turf- algae+cyanobacteria (circle all: g r b)	8	C vir	31
Encrusting Red Algae	1	Cari	4
Sponge	2		
Hydroid	1		
Octocoral	2		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	2		
other-... bud	1		

Total Must = 100%

Quad Label: Sample Name or # 27.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	98		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name NTSB-MC **Site Name / Transect Name** T16

Date 8/28/06 **Data Collector** JC **Data Entry**

248

Quad Label: 50 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	94		
Macroalgae- Fleshy+Calcareous	3		
Turf- algae+cyanobacteria (circle all: g r b)	3		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	3	Titan	2
Octocoral	1	Ca.	1
Stony Coral	1	[illegible]	[illegible]
Tunicate	0		[illegible]
Bare Hard Substrate	1	O mo	1
other-... worm	1	[illegible]	[illegible]
		(new coral [illegible])	

Total Must = 100%

245

Quad Label: 475 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Titan	5
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	95	O. mb	1
Macroalgae- Fleshy+Calcareous		bi	
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae	1		
Sponge			
Hydroid			
Octocoral	1		
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1		
other-... bryo	1		

Total Must = 100%

246

Quad Label: 45 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	L. virg	40
Max Sediment Depth (cm)	9	L. virg	4
Sessile Benthos...	**% Cover**	L. virg	40
Sediment- (circle all: sand shell mud)	96	Titan	3
Macroalgae- Fleshy+Calcareous		Titan	3
Turf- algae+cyanobacteria (circle all: g r b)		L. virg	30
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	3		
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...			

Total Must = 100%

247

Quad Label: 425 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4	L. virg	34
Max Sediment Depth (cm)	8	Titan	7
Sessile Benthos...	**% Cover**	Titan	9
Sediment- (circle all: sand shell mud)	94	Titan	4
Macroalgae- Fleshy+Calcareous	0	Cau	5
Turf- algae+cyanobacteria (circle all: g r b)	0	Cau	3
Encrusting Red Algae	1		
Sponge	1		
Hydroid	0		
Octocoral	1		
Stony Coral	0		
Tunicate			
Bare Hard Substrate	1		
other-... bryo	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: [illegible] to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp...

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name**

Date | **Data Collector** | **Data Entry**

Quad Label: Sample Name or # 40		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3	L.vir	25
Max Sediment Depth (cm)	5	L.heb	10
Sessile Benthos...	**% Cover**	L.heb	2
Sediment- (circle all: sand shell mud)	94	Titan	10
Macroalgae- Fleshy+Calcareous	3	Titan	6
Turf- algae+cyanobacteria (circle all: g r b)	0	Titan	3
Encrusting Red Algae	1	Titan	2
Sponge		Titan	3
Hydroid	0	Titan	6
Octocoral	2	Titan	2
Stony Coral	0	Titan	5
Tunicate	0	Titan	2
Bare Hard Substrate	1		
other-... worm	1		

249

Total Must = 100%

Quad Label: Sample Name or # 37.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	O.ob	1
Max Sediment Depth (cm)	9	"	
Sessile Benthos...	**% Cover**	Titan	2
Sediment- (circle all: sand shell mud)	89		6
Macroalgae- Fleshy+Calcareous	0	"	6
Turf- algae+cyanobacteria (circle all: g r b)	0	"	9
Encrusting Red Algae	0	"	1
Sponge	1	L.vir	
Hydroid	0	L.vir	
Octocoral	3	L.vir	
Stony Coral	1	L.vir	
Tunicate	1	L.heb	
Bare Hard Substrate	3	Cor. C	
other-... bryo	1	Prob	
worm	1	Titan	

250

Total Must = 100%

L.heb

Quad Label: Sample Name or # 35		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	O rob	2
Max Sediment Depth (cm)	5	O rbp	10
Sessile Benthos...	**% Cover**	O rob (III)	
Sediment- (circle all: sand shell mud)	88	L.vir g	28
Macroalgae- Fleshy+Calcareous	0	L.vir g	56
Turf- algae+cyanobacteria (circle all: g r b)	1	L.vir g	140
Encrusting Red Algae	1	L.vir g	56
Sponge	2	Titan	5
Hydroid	0		10
Octocoral	3		3
Stony Coral	1		7
Tunicate	0		6
Bare Hard Substrate	1		7
other-... anem	1		4
bryo	1	worm = 1	

251

Total Must = 100%

Quad Label: Sample Name or # 32		List macroalgae Genus % List every corat colony ~and coral condition(s)	% cov or max (cm)
Max Relief (cm)	5	L.vir	30
Max Sediment Depth (cm)	3	L.vir	34
Sessile Benthos...	**% Cover**	Titan	
Sediment- (circle all: sand shell mud)	70		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	1		9
Sponge	2		8
Hydroid	0	(II)	6
Octocoral	2	(II)	5
Stony Coral	1		3
Tunicate	0	(II)	
Bare Hard Substrate	5		10
other-... worm	2		7
bryo	1	O ob	

252

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name FLTB **Site Name / Transect Name** Offshore TS17

Date 8/29/06 **Data Collector** JC **Data Entry**

Quad Label: Sample Name or #	0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	25	O ma	7
Max Sediment Depth (cm)	9	Cay sp	
Sessile Benthos...	**% Cover**		5
Sediment- (circle all: sand shell mud)	25		7
Macroalgae- Fleshy+Calcareous	0	Cir ma	5
Turf- algae+cyanobacteria (circle all: g r b)	34		
Encrusting Red Algae	4		
Sponge	2		
Hydroid	1		
Octocoral	2		
Stony Coral	1		
Tunicate	10		
Bare Hard Substrate	3		
other-...	2		
brYO	5		

276

Total Must = 100%

Quad Label: Sample Name or #	25	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	O mb	
Max Sediment Depth (cm)		O mb	11
Sessile Benthos...	**% Cover**	O rd	9
Sediment- (circle all: sand shell mud)	0	O rd	18
Macroalgae- Fleshy+Calcareous mix	5	rd	3
Turf- algae+cyanobacteria (circle all: g r b)	14	O rd	
Encrusting Red Algae	2		
Sponge	1		
Hydroid	0		
Octocoral	1A		
Stony Coral	5		
Tunicate			
Bare Hard Substrate	2		
other-... worm	2		

277

Total Must = 100%

Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	grac	10
Max Sediment Depth (cm)	3	Dmp	1
Sessile Benthos...	**% Cover**	O mb	5
Sediment- (circle all: sand shell mud)	12	O mb	10
Macroalgae- Fleshy+Calcareous	8	O mb bo	5
Turf- algae+cyanobacteria (circle all: g r b)	53	O mb	7
Encrusting Red Algae	2	O	12
Sponge	0	L vir	92
Hydroid	1		
Octocoral	0		
Stony Coral	3	L vir	60
Tunicate	3	Cor sp	14
Bare Hard Substrate			5
other-... worm	2		3
brYO	3		3

278

Total Must = 100%

Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% c or max size (cm)
Max Relief (cm)	5		
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		58
Sediment- (circle all: sand shell mud)	8		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	8		
Encrusting Red Algae	2	vir	17
Sponge	2	L vir	23
Hydroid	1	Lept sp	18
Octocoral	2		15
Stony Coral	4		20
Tunicate	1		12
Bare Hard Substrate	1		11
other-... worm	2		3
brYO			

279

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Serr.
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name | Site Name / Transect Name

Date | Data Collector | Data Entry

Quad Label: 10 (Sample Name or #)

		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	Amph	4
Max Sediment Depth (cm)	3	Grac	3
Sessile Benthos...	**% Cover**	Sarg	8
Sediment- (circle all: sand shell mud)	12	O rob	8
Macroalgae- Fleshy+Calcareous	10	O. rob	11
Turf- algae+cyanobacteria (circle all: g r b)	54		9
Encrusting Red Algae	2		4
Sponge	8		2
Hydroid	2		3
Octocoral	2		6
Stony Coral	3		5
Tunicate	0	O rob	10
Bare Hard Substrate	2	Cari sp.	3, 6, 9, 6, 5, 5 [illegible]
other-... worm	[illegible]		
bryo	1		

Total Must = 100%

Quad Label: 12.5 (Sample Name or #)

		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Grac-6	
Max Sediment Depth (cm)	2	Amph-4	
Sessile Benthos...	**% Cover**	Sarg-3	
Sediment- (circle all: sand shell mud)	12	O rob	9
Macroalgae- Fleshy+Calcareous	15	O. rob	7
Turf- algae+cyanobacteria (circle all: g r b)	49	O. rob	2
Encrusting Red Algae	3		8
Sponge	6		11
Hydroid	1		5
Octocoral	5		8
Stony Coral	2		7
Tunicate	1	Titan	
Bare Hard Substrate	3		11
other-... worm	2	Titan	15
bryo	1	Cari [illegible]	[illegible]

Total Must = 100%

Quad Label: 15 (Sample Name or #)

		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Grac	3
Max Sediment Depth (cm)	1	Amph	4
Sessile Benthos...	**% Cover**	Dicty	
Sediment- (circle all: sand shell mud)	15	Sarg	1
Macroalgae- Fleshy+Calcareous	10	Ep Vir	42
Turf- algae+cyanobacteria (circle all: g r b)	50	Vir	62
Encrusting Red Algae	2	Titan	10
Sponge	4	O. rob	4
Hydroid	1		10
Octocoral	5		2
Stony Coral	4		
Tunicate	2		13
Bare Hard Substrate	3		9
other-... worm	2	Cari sp.	2,2,3,4 / 2,2,3,4 / 2,4,4,2
bryo	2		

Total Must = 100%

Quad Label: 17.5 (Sample Name or #)

		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max (cm)
Max Relief (cm)	15	Grac	12
Max Sediment Depth (cm)	1	Amph	5
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	12	O rob	2
Macroalgae- Fleshy+Calcareous	18		4
Turf- algae+cyanobacteria (circle all: g r b)	40		3
Encrusting Red Algae	4	Cari sp.	3
Sponge	4		5
Hydroid	2		1
Octocoral	1		2
Stony Coral	1		
Tunicate	6		
Bare Hard Substrate	5		
other-... worm	3		
bryo	4		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, S...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name | Site Name / Transect Name: TS17

Date | Data Collector | Data Entry

Quad Label: Sample Name or # 20		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	15		
Macroalgae- Fleshy+Calcareous	13		
Turf- algae+cyanobacteria (circle all: g r b)	55		
Encrusting Red Algae	3		
Sponge	10		
Hydroid	2		
Octocoral	3		
Stony Coral	2		
Tunicate	2		
Bare Hard Substrate	6		
other-...	5		
	2		

Total Must = 100%

Quad Label: Sample Name or # 22.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	8		
Macroalgae- Fleshy+Calcareous	12		
Turf- algae+cyanobacteria (circle all: g r b)	52		
Encrusting Red Algae	2		
Sponge	6		
Hydroid	1		
Octocoral	3		
Stony Coral	1		
Tunicate	3		
Bare Hard Substrate	10		
other-...	1		
	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Desycladus, Grac, Hali, Hypn, Sarg..
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name VC **Site Name / Transect Name** 1st 330' from On TS17

Date 8/29/06 **Data Collector** ML **Data Entry**

Quad Label: Sample Name or # 10		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Amphiroa	6
Max Sediment Depth (cm)	2	Sarg	1
Sessile Benthos...	**% Cover**	Grac	1
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	9	Carijoa	10/1/4/3
Turf- algae+cyanobacteria (circle all: g f b)	50	Lepto-V	42/45
Encrusting Red Algae	4	Carijoa	5/4/1/-
Sponge	6	O. rob	3/1/1 o
Hydroid	2	Carijoa	2/12/2
Octocoral	4	O. rob	10/1/2/2
Stony Coral		Lepto-h	16/7
Tunicate	6	Carijoa	2/2
Bare Hard Substrate	2	Tridemnum	6
other-... Bryoz	3		
Annelid	1		

Total Must = 100%

Quad Label: Sample Name or # 25		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Amphiroa	6
Max Sediment Depth (cm)	1	Sarg	2
Sessile Benthos...	**% Cover**	Grac	1
Sediment- (circle all: sand shell mud)	2	Carijoa	2/2/1/1
Macroalgae- Fleshy+Calcareous	10	O. rob	2/3/2/1
Turf- algae+cyanobacteria (circle all: g f b)	61	Tridemnum	18/6
Encrusting Red Algae	4	Carijoa	1/2/1/1/1
Sponge	8	O. rob	1/2/2
Hydroid	3	Carijoa	1/1/1 2
Octocoral	1	O. rob	4/3
Stony Coral	1	Cirra	3/1/1 4
Tunicate	6	Carijoa	1/2/1/2
Bare Hard Substrate	1	Carijoa	1
other-... Bryoz	2		
Bivalve	1		

Total Must = 100%

Quad Label: Sample Name or # 25m 330		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		like Grac + long	1
Max Sediment Depth (cm)	3	Sarg	2
Sessile Benthos...	**% Cover**	Amphiroa	4
Sediment- (circle all: sand shell mud)	6	Carijoa	3/2/5
Macroalgae- Fleshy+Calcareous	8 ML	Lepto-h	7
Turf- algae+cyanobacteria (circle all: g r b)	60 ML	Lepto-V	14/65/47
Encrusting Red Algae	6	Lepto-V	40/70
Sponge	5	Carijoa	1/2/2
Hydroid	3	2	1/2/1
Octocoral	4	O. rob	5 4/1
Stony Coral	1	Carijoa	3/2/1
Tunicate	5		
Bare Hard Substrate	1 ML		
other-... Annelid	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

31 ft @ 5 m

Project Name [illegible] **Site Name / Transect Name** #1 TS17

Date 3/29/11 **Data Collector** [illegible] **Data Entry** [illegible]

Quad Label: Sample Name or # 1-C		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	Sarg	4
Max Sediment Depth (cm)	2	[illegible]	3
Sessile Benthos...	**% Cover**	[illegible]	8
Sediment- (circle all: sand shell mud)	7		
Macroalgae- Fleshy+Calcareous	10	Carijoa	3/2
Turf- algae+cyanobacteria (circle all: g r b) 10	54	[illegible]	[illegible]
Encrusting Red Algae	4	[illegible]	6/5
Sponge	8	O. rob	2/3
Hydroid	2	Carijoa	1/8/6
Octocoral	2	O. rob	4/4
Stony Coral	2	O. rob	7/3
Tunicate	4	Carijoa	1/2/9
Bare Hard Substrate	2	O. rob	1/1
other-...	1		3/3/1
	1		4

Total Must = 100%

Quad Label: Sample Name or # 37.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9	Sarg	—
Max Sediment Depth (cm)	1	Grac	
Sessile Benthos...	**% Cover**	Amphiroa	5
Sediment- (circle all: sand shell mud)	1		
Macroalgae- Fleshy+Calcareous	13	O. rob	1/3/1/3
Turf- algae+cyanobacteria (circle all: g r b) 2	55	Carijoa	1/3/1
Encrusting Red Algae	4	Carijoa	1/2/
Sponge	12	O. rob	3/4
Hydroid	2	O. rob	1/3/4
Octocoral	0	Carijoa	1/3/1
Stony Coral	2	Carijoa	1/
Tunicate	5	O. rob	1/1
Bare Hard Substrate	3		
other-... Bivalve	1		
Annelid	1	Bryoz	1

Total Must = 100%

Quad Label: Sample Name or # 35		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	[illegible]	Sarg	3
Max Sediment Depth (cm)	2	Vidyella	3
Sessile Benthos...	**% Cover**	Amphiroa	5
Sediment- (circle all: sand shell mud)	12		
Macroalgae- Fleshy+Calcareous	2	O. rob	4/1/5
Turf- algae+cyanobacteria (circle all: g r b) 20	39	Carijoa	1/2/4/1
Encrusting Red Algae	5	Lepto-V	100
Sponge	12	O. rob	3/3/6
Hydroid	5	Carijoa	5/3/1/1
Octocoral	2	Carijoa	1/1/1/2
Stony Coral	2	O. rob	6/1
Tunicate	8	Carijoa	2/1/3
Bare Hard Substrate	2	Lepto-h	6
other-... Annelid	1	Tridemnum	24
Bivalve	1	Barnacle	1

Total Must = 100%

Quad Label: Sample Name or # 32.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% c or max size (cm)
Max Relief (cm)		Sarg	5
Max Sediment Depth (cm)		Grac	7
Sessile Benthos...	**% Cover**	Amphiroa	5
Sediment- (circle all: sand shell mud)	5	Lepto-V	13/34
Macroalgae- Fleshy+Calcareous	12	O. rob	2/2/12
Turf- algae+cyanobacteria (circle all: g r b)	52	Lepto-h	13
Encrusting Red Algae	4	Carijoa	4/1/1/1
Sponge	8	Carijoa	1/9/1/1
Hydroid	3	O. rob	1/1/5
Octocoral	2	Tridemnum	6/8
Stony Coral	2	Carijoa	2/4/
Tunicate	6	Carijoa	4/1/1/1
Bare Hard Substrate	2	O. rob	1/5/2
other-... Annelid	1	Carijoa	2

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus; Avra, Bryopsis, Brythamnion, Caul, Codi, Dasya, Dasycladus, Grac, Heli, Hypn, Sarg
Octocoral: Genus of each colony = Genu; Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plle, Pseudoplexaura=Ps
Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hys, S ir
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

O. rob recruit onto surface of Colony [illegible] never seen some like this

Project Name [illegible] Stingray/C **Site Name / Transect Name** 1st [illegible] 340° from 0 m

Date 8/29/06 **Data Collector** ML **Data Entry**

272

Quad Label: 50 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12	Sarg	3
Max Sediment Depth (cm)	1	Amphiroa	3
Sessile Benthos...	**% Cover**	Lik<Grac	3
Sediment- (circle all: sand shell mud)	2		
Macroalgae- Fleshy+Calcareous	10	Lepto-h	1
Turf- algae+cyanobacteria (circle all: g r b) 10	67	4 Titanideum octo	28
Encrusting Red Algae	5	Carijoa	8
Sponge	5	O. rob	3
Hydroid	1	Lepto-v	42
Octocoral	32	Carijoa	16
Stony Coral	1	Carijoa	3
Tunicate	3	Carijoa	3
Bare Hard Substrate	2	Orob	3
other-...	2	Carijoa	4/6/3
	2		

Total Must = 100%

273

Quad Label: 77.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Grac	3
Max Sediment Depth (cm)	2	Sarg	1
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	35	Lepto-v	29
Macroalgae- Fleshy+Calcareous	5	Carijoa	8/8
Turf- algae+cyanobacteria (circle all: g r b) 15	39	4 Titanideum octo	9
Encrusting Red Algae	3	Carijoa	3/4
Sponge	5	[illegible]	63
Hydroid	2	Lepto-v	5
Octocoral	2	4 Titanideum octo	17
Stony Coral	1	4 Titanideum octo	5
Tunicate	4		
Bare Hard Substrate	1		
other-... Bryoz	2		
Annelid	[illegible]		

Total Must = 100%

274

Quad Label: [illegible]5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Sarg	4
Max Sediment Depth (cm)	1	Grac	5
Sessile Benthos...	**% Cover**	Amphiroa	1
Sediment- (circle all: sand shell mud)	15		
Macroalgae- Fleshy+Calcareous	1	O. rob	3
Turf- algae+cyanobacteria (circle all: g r b) 20	41	Lepto-v	32
Encrusting Red Algae	9	Carijoa	2
Sponge	4	[illegible]	[illegible]
Hydroid	[illegible]	Lepto-v	[illegible]
Octocoral	3	[illegible]	[illegible]
Stony Coral	1	O. rob	3
Tunicate	10	O. rob	3
Bare Hard Substrate	1		
other-... Annelid	32		
Bryoz	1		

Total Must = 100%

275

Quad Label: 42.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cov or max (cm)
Max Relief (cm)	27	Grac	30
Max Sediment Depth (cm)	1	Sarg	1
Sessile Benthos...	**% Cover**	Lepto-v	21
Sediment- (circle all: sand shell mud)	2	Lepto-v	30
Macroalgae- Fleshy+Calcareous	32	O. rob	9
Turf- algae+cyanobacteria (circle all: g r b) 20	42	Carijoa	8/2
Encrusting Red Algae	5	〃	2/2
Sponge	1	Carijoa	2/3/11
Hydroid	2	O. rob	1
Octocoral	1		
Stony Coral	1		
Tunicate	10		
Bare Hard Substrate	1		
other-... Bryoz	2		
Annelid	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name NTB-NC **Site Name / Transect Name** TS11

Date 30-Aug-06 **Data Collector** **Data Entry**

Quad Label: Sample Name or #	0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20	Lvira	H
Max Sediment Depth (cm)	4	Orbi Co x1	
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous	1		4
Turf- algae+cyanobacteria (circle all: g r b)	57	Cari	1
Encrusting Red Algae	2		
Sponge	2		
Hydroid	1		
Octocoral	2		
Stony Coral	2		
Tunicate	3		
Bare Hard Substrate	2		
other-...	1		
	1	Orb 1	

Total Must = 100%

Quad Label: Sample Name or #	2.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	23	Cari	2
Max Sediment Depth (cm)	9	Lvira	2
Sessile Benthos...	% Cover	Orb	1
Sediment- (circle all: sand shell mud)	14	Orb	2
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	2		
Bare Hard Substrate	1		
other-... worm	1		
bryo	1		

Total Must = 100%

Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20	Sfra	1
Max Sediment Depth (cm)	8	Cari	1
Sessile Benthos...	% Cover	Orb	2
Sediment- (circle all: sand shell mud)	70	Orb	1
Macroalgae- Fleshy+Calcareous	2	Orb	4
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	3		
other-... worm	1		
bryo	1		

Total Must = 100%

Quad Label: Sample Name or #	7.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		5,8,2,5
Max Sediment Depth (cm)	4	Lvir	2,12
Sessile Benthos...	% Cover	Tara	7
Sediment- (circle all: sand shell mud)	05	Orb 5	x1
Macroalgae- Fleshy+Calcareous	1	Orb	2
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	2		
Sponge	2		
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	4		
Bare Hard Substrate	3		
other-... worm	1		
bryo	2		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name [illegible] **Site Name / Transect Name** TS11

Date 8-10-06 **Data Collector** CAB **Data Entry**

Quad Label: Sample Name or # 17.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Tridemnum	6
Max Sediment Depth (cm)	11	Tridemnum	4
Sessile Benthos...	**% Cover**	Padina	
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-... worm	1		

291

Total Must = 100%

Quad Label: Sample Name or # 15		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	18		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

292

Total Must = 100%

Quad Label: Sample Name or # 25		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

283

Total Must = 100%

Quad Label: Sample Name or # 10		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Tridem	3
Max Sediment Depth (cm)	4	tridem	26
Sessile Benthos...	**% Cover**	Oculin	4
Sediment- (circle all: sand shell mud)	80	"	
Macroalgae- Fleshy+Calcareous	1	"	
Turf- algae+cyanobacteria (circle all: g r b)	5	"	
Encrusting Red Algae	2	"	
Sponge	1	"	
Hydroid		"	
Octocoral	2		
Stony Coral	15		
Tunicate	1		
Bare Hard Substrate	19		
other-... worm	1		
Bryoz	1	Dictyota	

294

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg..
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name**

Date 8-30-01 | **Data Collector** CMS | **Data Entry**

295

Quad Label: 27.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	17		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

296

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	20		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

297

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

298

Quad Label: 20 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	Tridemnum	5
Max Sediment Depth (cm)	7	Leptogorg	42
Sessile Benthos...	**% Cover**	Oculina	4
Sediment- (circle all: sand shell mud)	94		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-... worm	1		
BRYOZ	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name** TS11

Date | **Data Collector** | **Data Entry**

Quad Label: Sample Name or # 37.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

299

Total Must = 100%

Quad Label: Sample Name or # 35		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	19		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

308

Total Must = 100%

Quad Label: Sample Name or # 32.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	17		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

301

Total Must = 100%

Quad Label: Sample Name or # 30		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	20		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

302

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Serg,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Psgi, Plexaurella=Plla, Pseudoplexaura=Psi
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name N. Tortugas **Site Name / Transect Name**

Date 8-30-06 **Data Collector** AB **Data Entry**

Quad Label: Sample Name or # 47.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	11		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 45		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 42.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 40		List macroalgae Genus % List every coral colony ~and coral condition(s)	% co or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name NTR, NC **Site Name / Transect Name** 1S12

Date 6-9-06 **Data Collector** JC **Data Entry**

Quad Label: Sample Name or #	0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	O diff 10x	1cm
Max Sediment Depth (cm)	4	Cau	1
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	73		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	5		
other-... Ophi	1		
worm	1		

Total Must = 100%

Quad Label: Sample Name or #	2.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	96		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-... worm	1		

Total Must = 100%

Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-... worm	1		

Total Must = 100%

Quad Label: Sample Name or #	7.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name **Site Name / Transect Name**

Date **Data Collector** **Data Entry**

319

Quad Label: 10 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	—		
Max Sediment Depth (cm)	15		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral		(100% Sand	
Stony Coral		Wall sand	
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name N Topsail **Site Name / Transect Name** TS12
Date 8-30-06 **Data Collector** CAB **Data Entry**

320

Quad Label: 1.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	19		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

321

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

322

Quad Label: 12.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge		branches	
Hydroid		Typically 2-3	
Octocoral			
Stony Coral		@ 28m & 3m right	
Tunicate		Tridemnum?	
Bare Hard Substrate		Seen the Octocoral =	
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Papt, Plexaurella=Plla, Pseudoplexaura=Psp...
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name**

Date | **Data Collector** | **Data Entry**

Quad Label: Sample Name or # 21.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	[illegible]		
Max Sediment Depth (cm)	15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 25		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	14		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 22.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	11		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 20		List macroalgae Genus % List every coral colony ~and coral condition(s)	% co or ma. (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	13		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Desycladus, Grac, Hali, Hypn, Serg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int,
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Box crab

Project Name N. Topsail **Site Name / Transect Name** TS12

Date 8-30-10 **Data Collector** CAR **Data Entry**

Quad Label: Sample Name or # 307	17.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	N		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 308	15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	11		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 309	42.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	9		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 310	40	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	11		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg..
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Psgt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M enn, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name**

Date | **Data Collector** | **Data Entry**

Quad Label: Sample Name or # 37.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	11		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

311

Total Must = 100%

Quad Label: Sample Name or # 35		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

312

Total Must = 100%

Quad Label: Sample Name or # 32.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	11		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

327

Total Must = 100%

Quad Label: Sample Name or # 30		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

314

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Desva, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int..
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, *Millepora* sp., Seagrass, Zoanthid.

Project Name NTB **Site Name / Transect Name** TS5

Date 10/21/05 **Data Collector** ET

Quad Label: Sample Name or # *0		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 2.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # *5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5		
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 7.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	1		
Octocoral	0		
Stony Coral	1	Oculina var.	21 x 8
Tunicate	0		
Bare Hard Substrate	85		
other-... Bryo	12		

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid

Project Name | **Site Name / Transect Name**

Date | **Data Collector**

10/21/15 ID: 13

TJS EH

Quad Label: Sample Name or #	10	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13	Dicty ofc 1	
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0	Gaulinella rob 4 x 3	
Octocoral	0		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	94		
other-... Bryo	1		
Spg, amn	1		

Total Must = 100%

Quad Label: Sample Name or #	12.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	9		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #	15	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0	Gaulinella rob	1cm x 5
Bare Hard Substrate	93		
other-... rmnfld	5		

Total Must = 100%

Quad Label: Sample Name or #	17.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	4		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	85		
Macroalgae- Fleshy+Calcareous	7		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate		Gaulinella rob	1cm dead ?
Bare Hard Substrate	7		
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

10/7-8/05

Project Name | **Site Name / Transect Name** | TS

Date | **Data Collector** | ET

Quad Label: Sample Name or # 20		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	80		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	19		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 22.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	73		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	25		
other-... Ammothid	2		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

tandard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopteroqorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aqa, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name** | 1.55 AD

Date | **Data Collector**

Quad Label: Sample Name or # 2.25		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	3		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-... worm	3		

Total Must = 100%

Quad Label: Sample Name or # 2.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	16	(?)	
Max Sediment Depth (cm)	0	Dictyota	1
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	20		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	1	Orulina robusta	1
Tunicate	2		
Bare Hard Substrate	48		
other-... worm	25		
bryozoan	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate	2		
Bare Hard Substrate			
other-... bryo			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Ayra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name North Topsail Beach **Site Name / Transect Name** TS5

Date 10/21/05 **Data Collector** AD

Quad Label: 37.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	75		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	3		
other-... Worm	20		

Total Must = 100%

Quad Label: 35 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	2		
other-... Worm	2		

Total Must = 100%

Quad Label: 32.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	45		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	23		
other-... Worm	30		

Total Must = 100%

Quad Label: 30 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	85		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	2	Ovima robusta	2
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	7		
other-... Worm	3		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name North Topail Beach **Site Name / Transect Name** TS5

Date 10/21/05 **Data Collector** AD

Quad Label: 47.5 Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 45 Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	1		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	20		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	3		
Encrusting Red Algae	0		
Sponge	2		
Hydroid	0	Lepto. sp	8 dead
Octocoral	0	Dalings	1
Stony Coral	1		
Tunicate	3		
Bare Hard Substrate	74		
other-...			

Total Must = 100%

Quad Label: 42.5 Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	98		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	1		
other-...			

Total Must = 100%

Quad Label: 40 Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	16		
Max Sediment Depth (cm)	4		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	22		
other-... worm	40		

Total Must = 100%

Standard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
and abbreviation formats Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterpgorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB **Site Name / Transect Name** B5

Date 10/21/05 **Data Collector** JD

Quad Label: Sample Name or # 57.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	85		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	15		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 55		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11	Dictyota	1
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0	O. robusta	1
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	83		
other-... Worm	2		

Total Must = 100%

Quad Label: Sample Name or # 52.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	10	O. robusta	1
Encrusting Red Algae	0		
Sponge	2		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	84		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 50		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	91		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	5		
other- brown	1		

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N Topsail Beach **Site Name / Transect Name** TS6

Date 10/21/05 **Data Collector** RB

Quad Label: Sample Name or #	0	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	9		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #	2.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	10		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	25		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	90		
Macroalgae- Fleshy+Calcareous	C		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	6		
Tunicate	3		
Bare Hard Substrate	20		
other-...	0		

Total Must = 100%

Quad Label: Sample Name or #	7.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	90		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	5		
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N Topsail Beach **Site Name / Transect Name** TSG

Date 10/21/05 **Data Collector** RH

Quad Label: Sample Name or #	10	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	4		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	97		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	3		
other-...			

Total Must = 100%

Quad Label: Sample Name or #	12.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	2		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	88		
other-...			

Total Must = 100%

Quad Label: Sample Name or #	15	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	22		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	92		
other-...			

Total Must = 100%

Quad Label: Sample Name or #	17.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	30		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	59		
other-... Bivv2	1		

Total Must = 100%

Standard Abbreviations and abbreviation formats:

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name [illegible] **Site Name / Transect Name** TS 6

Date N Topsail Beach **Data Collector** RB

Quad Label: 20 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12		
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-... Ses worm	3		

Total Must = 100%

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15		
Max Sediment Depth (cm)	4		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	15		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	54		
Encrusting Red Algae			
Sponge	1		
Hydroid	5		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	5		
other-... Ses worm	20		

Total Must = 100%

Quad Label: 27.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	14	Ocul sp robusta	1
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	39		
other-... Ses worm	5		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N. Topsail Beach **Site Name / Transect Name** TS 6

Date 10/21/05 **Data Collector** RB

Quad Label: Sample Name or # 30		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12		
Max Sediment Depth (cm)	4		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	35		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	20		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	2		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	30		
other-... Sesuvium	10		

Total Must = 100%

Quad Label: Sample Name or # 32.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	75		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae			
Sponge	3		
Hydroid	1		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	14		
other-... Sesuvium	2		

Total Must = 100%

Quad Label: Sample Name or # 35		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae			
Sponge			
Hydroid	1		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	80		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 37.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	telesto	1
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	85		
Encrusting Red Algae			
Sponge	4		
Hydroid			
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate	10		
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg..
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int..
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N Topsail Beach **Site Name / Transect Name** TS6

Date [illegible] **Data Collector** RB

Quad Label: 140 (Sample Name or #)		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud) — sand, shell circled	15		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b) — b circled	27		
Encrusting Red Algae			
Sponge	1		
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	45		
other-... Ses mem	10		
Bryoz	1		

Total Must = 100%

Quad Label: 40.5 (Sample Name or #)		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Oculina sub	5
Max Sediment Depth (cm)	0	lepto virg	14
Sessile Benthos...	% Cover	lepto hebes	7
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b) — b circled	30		
Encrusting Red Algae			
Sponge	10		
Hydroid			
Octocoral	1		
Stony Coral	1		
Tunicate			
Bare Hard Substrate	58		
other-...			

Total Must = 100%

Quad Label: 45 (Sample Name or #)		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	35	# sargsk MP #	5
Max Sediment Depth (cm)	0	lepto hebes	10
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	5		
Turf- algae+cyanobacteria (circle all: g r b) — b circled	15		
Encrusting Red Algae			
Sponge	3		
Hydroid			
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate	66 / 61		
other-... Bryoz	10+5		

Total Must = 100%

Quad Label: 275 (Sample Name or #)		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	30	Grac	1
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b) — b circled	15		
Encrusting Red Algae	3		
Sponge	3		
Hydroid	10		
Octocoral			
Stony Coral			
Tunicate	1		
Bare Hard Substrate	57		
other-... Bryoz	1		
Ses mem	10		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N. Topsail Beach **Site Name / Transect Name** TS6

Date 10/21/05 **Data Collector** AA

Quad Label: Sample Name or # 50		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 52.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	Dvulva r.	1
Max Sediment Depth (cm)	3	Dvulva r.	1
Sessile Benthos...	% Cover	Flesh	4cm+2
Sediment- (circle all: sand shell mud)	40	Dict	1
Macroalgae- Fleshy+Calcareous	1	Dvulva r.	1
Turf- algae+cyanobacteria (circle all: g r b)	52		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	1		
Stony Coral	1		
Tunicate			
Bare Hard Substrate			
other-... Ses mm	5		

Total Must = 100%

Quad Label: Sample Name or # 55		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	7		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	98		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	2		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 57.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	97		
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N. Topsail Beach **Site Name / Transect Name** TS 7

Date 10/21/05 **Data Collector** EH

Quad Label: Sample Name or #	10	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	10		
other-... Vermetid	80		

Total Must = 100%

Quad Label: Sample Name or #	17.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	1		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	80		
other-... vermitid	10		

Total Must = 100%

Quad Label: Sample Name or #	15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	40		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	8		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	30		
other-... vermitid	20		

Total Must = 100%

Quad Label: Sample Name or #	12.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	70		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	0		
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	10		
other-... vermitid	15		

Total Must = 100%

Standard Abbreviations and abbreviation formats:

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

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Project Name N. Topsail Beach **Site Name / Transect Name** ~~[illegible]~~ FH TS7

Date 10/21/05 **Data Collector**

Quad Label: ~~22.5~~ 20 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	89		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	10		
other-...			

Total Must = 100%

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	94		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	5		
other-...			

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	70		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0	Oculina sp	<1cmx[illegible]
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	20		
other-... Sess. ann.	8		

Total Must = 100%

Quad Label: 27.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	9		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N. Topsail Beach **Site Name / Transect Name** TS 7

Date 10/21/05 **Data Collector** EH

ID: 213

Quad Label: Sample Name or # 30		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	10		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0	Ocellina rob	10cm 15 good
Bare Hard Substrate	48		
other-... vermit	20		

Total Must = 100%

ID: 214

Quad Label: Sample Name or # 32.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	6		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0	Ocellina ros	Clavix 5
Bare Hard Substrate	44		
other-... vermitid	25		

Total Must = 100%

ID: 215

Quad Label: Sample Name or # 35		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0	Briareum rob	<1cm 1
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	57		
other-... Byo	1		
vermitid	10		

Total Must = 100%

Quad Label: Sample Name or # 37.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12		
Max Sediment Depth (cm)	1		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	75		
other-... Byo	1		
vermitid	10		

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB **Site Name / Transect Name** TS7

Date 10/21/05 **Data Collector** AD

Quad Label: Sample Name or # 7S		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	5		
Turf- algae+cyanobacteria (circle all: g r b)	20		
Encrusting Red Algae	2		
Sponge	1		
Hydroid	0	2 ulima 1	
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	61		
other-... worm	10		

Total Must = 100%

Quad Label: Sample Name or # 4S		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	20		
Encrusting Red Algae	4		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	60		
other-... worm	10		

Total Must = 100%

Quad Label: Sample Name or # 4 2.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae	2		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	52		
other-... worm	25		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg..
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int..
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

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Project Name North Topsail Beach **Site Name / Transect Name** TS7

Date 10/21/05 **Data Collector** AD

Quad Label: Sample Name or # 57.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	15		
Sponge	0	Oculina sp x4	1
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	64		
other-... worm	5		

Total Must = 100%

Quad Label: Sample Name or # 55		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	4		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	25		
Encrusting Red Algae	4	Oculinaldu	2
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	61		
other-... worm	5		

Total Must = 100%

Quad Label: Sample Name or # 52.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	70		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	30		
Sponge	0	O. robusta	1
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	13		
other-... worm	40		
bryozoan	1		

Total Must = 100%

Quad Label: Sample Name or # 50		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	50		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	5		
Sponge	0	Oculina robusta x2	1
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	24		
other-... worm	5		

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid

Project Name N. Topsail Beach **Site Name / Transect Name** TS8

Date 10/21/05 **Data Collector** RB

Quad Label: Sample Name or #	0	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	2		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	93		
other-...			

Total Must = 100%

Quad Label: Sample Name or #	2.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	65		
other-... Ses worm	5		

Total Must = 100%

Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	35		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	60		
other-... Ses worm	5		

Total Must = 100%

Quad Label: Sample Name or #	7.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	1		
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	94		
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N. Topsail Beach **Site Name / Transect Name** TS8

Date 10/21/05 **Data Collector** RB

Quad Label: Sample Name or #	14	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4	Ocul mr	1cm x5
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae	1		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	88		
other-...			

Total Must = 100%

Quad Label: Sample Name or #	16	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4	Ocul mr	1cm
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae	2		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	[illegible]	87	
other-...			

Total Must = 100%

Quad Label: Sample Name or #	15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	Ocul mr	1cm 3
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	40		
Encrusting Red Algae	1		
Sponge	2		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	57		
other-... sps w/m	5		

Total Must = 100%

Quad Label: Sample Name or #	17.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max siz (cm)
Max Relief (cm)	4	Ocul m	1cm x 8
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	84		
Encrusting Red Algae	3		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	10		
other-... SPS w/m	2		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB **Site Name / Transect Name**

Date 10/21/05 **Data Collector**

Quad Label: 20 **Sample Name or #**		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Ocu Ring r.	1cm
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	50		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	31		
Encrusting Red Algae	10		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	3		
other-... Sls worm	5		

Total Must = 100%

Quad Label: 225 **Sample Name or #**		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Oculina r.	1cm
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	65		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	26		
Encrusting Red Algae	2		
Sponge	2		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1		
other-... Sls worm	3		

Total Must = 100%

Quad Label: 25 **Sample Name or #**		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Oculina r.	1
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	69		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae	10		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	20		
other-...			

Total Must = 100%

Quad Label: 275 **Sample Name or #**		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Oculina r.	1cm 3
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	82		
Encrusting Red Algae	3		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	5		
other-... Bryozo	1		
Sls worm	3		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp!
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB **Site Name / Transect Name** TS8

Date 10/21/05 **Data Collector** RB

Quad Label: Sample Name or # 30		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Ocul/m	1cm/3
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	59		
Encrusting Red Algae	3		
Sponge	1		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	10		
other-... Sess worm	1		

Total Must = 100%

Quad Label: Sample Name or # 30.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3	Ocul/m	1cm x 9
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	64		
Encrusting Red Algae	10		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	10		
other-... SES worm	5		

Total Must = 100%

Quad Label: Sample Name or # 35		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Ocul/m	1cm/3
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	68		
Encrusting Red Algae	1		
Sponge	3		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1		
other-... Barnacle	1		

Total Must = 100%

Quad Label: Sample Name or # 37.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Ocul/m	1cm/7
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	75		
Encrusting Red Algae	10		
Sponge	2		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	10		
other-... Ses worm	2		

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid

Project Name NTB | **Site Name / Transect Name** TS8

Date 10/21/05 | **Data Collector** RB

Quad Label: Sample Name or # 40		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Dicty	1cm x 3
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	91		
Encrusting Red Algae	2		
Sponge	4		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1		
other-... SOS mm	1		

Total Must = 100%

Quad Label: Sample Name or # 42.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Dictya	1cm x 2
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	13		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	77		
Encrusting Red Algae	5		
Sponge			
Hydroid	1		
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate			
other-... SS mm	1		

Total Must = 100%

Quad Label: Sample Name or # 45		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	Dictya	1cm x 4
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	78		
Encrusting Red Algae	8		
Sponge	1		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	10		
other-... SOS mm	2		

Total Must = 100%

Quad Label: Sample Name or # 47.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Dictya	1cm x 2
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	85		
Encrusting Red Algae	10		
Sponge	1		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	3		
other-...			

Total Must = 100%

tandard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
nd abbreviation formats Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB **Site Name / Transect Name** TS 8

Date 10-21-05 **Data Collector** RB

Quad Label: Sample Name or # 30		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Oa/wa r.	1cmx18
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	69		
Encrusting Red Algae	10		
Sponge	10		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	0		
other-... Ses wrm	10		

Total Must = 100%

Quad Label: Sample Name or # 52.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Olwiva r.	1cm x 2
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	84		
Encrusting Red Algae	3		
Sponge	5		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	3		
other-... Ses wrm	4		

Total Must = 100%

Quad Label: Sample Name or # 15		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3	Oa/wa r	3
Max Sediment Depth (cm)	0	Olwiva r.	2
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	35		
Encrusting Red Algae	20		
Sponge	5		
Hydroid			
Octocoral			
Stony Coral	2		
Tunicate			
Bare Hard Substrate	35		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 57.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	Teleste	1
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r (b))	83		
Encrusting Red Algae	5		
Sponge	5		
Hydroid	1		
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate	3		
other-... Sponge	1		

Total Must = 100%

Standard Abbreviations and abbreviation formats:

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name	NTB	**Site Name / Transect Name**	BAL Transect
Date	0-20-05	**Data Collector**	EH

ID: 49

Quad Label: 0 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	[illegible]	X
Max Sediment Depth (cm)	4	Undetermined bryozoan	
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	80		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1		
Sponge	1	Oculina c??	<1cm
Hydroid	1	Bryo	
Octocoral	5	Lepto	34
Stony Coral	1	lepto	20
Tunicate	0	lepto	15cm
Bare Hard Substrate	4	Lepto	49cm
other-... Vermitid	3	lepto	30
	1	lepto	38

Total Must = 100%

ID: 50

Quad Label: Sample Name or # 2.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	88		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	1		
Sponge	0	Lepto hebes	6cm
Hydroid	0	~~Branching hydro~~	~~1cm~~
Octocoral	4	Purple oct	10
Stony Coral	1	Oculina rob x5	<1cm
Tunicate	0	lepto	50
Bare Hard Substrate	4	lepto	30
other-... Vermitid	3	lepto	19
Bryo	2		

Total Must = 100%

ID: 51

Quad Label: 5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9	glaudie	1
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	30		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	3	Oculina x57	2.5
Stony Coral	4	lepto	35
Tunicate	0	lepto	30
Bare Hard Substrate	57	lepto	40
other-... Vermitid	7	lepto	25
Bryo	1		

Total Must = 100%

ID: 52

Quad Label: 7.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0	Oculina sp	<1cm x15 (1 bleached)
Bare Hard Substrate	0		
other-... Vermitid	1		
Bryo	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Black Sta ban

Project Name NTB | Site Name / Transect Name BA 1

Date 10-20-05 | Data Collector EH

10:53

Quad Label: Sample Name or #	10	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud) [all circled]	~~94~~ 93		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b) [all circled]	1		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	1	Carijoa r.	<1cm x1
Stony Coral	1	~~[illegible]~~	~~<1cm~~
Tunicate	0		
Bare Hard Substrate	1		
other-... Vermetid	1		
Bryo	1		

Total Must = 100%

10:54

Quad Label: Sample Name or #	12.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	~~[illegible]~~ → determined to be bryozoan	+
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud) [all circled]	95		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b) [all circled]	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1	Oculina r.	<1 cm
Tunicate	0	Carijoa r.	<1 x 3
Bare Hard Substrate	1		2 poor health
other-...			
bryozoan	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

10/20/05

Project Name NTB **Site Name / Transect Name** 3A 1

Date 10/20/05 **Data Collector** RS

Quad Label: Sample Name or # 1.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	lepto	4
Max Sediment Depth (cm)	1	lepto	25
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	97	Dicty	1
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-...	1		

Total Must = 100%

Quad Label: Sample Name or # 15		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	lepto	5 2
Max Sediment Depth (cm)	5	lepto	5 2
Sessile Benthos...	**% Cover**	lepto	30 cm x 4
Sediment- (circle all: sand shell mud)	83		
Macroalgae- Fleshy+Calcareous	5	Dicty	3
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1	Oculina r.	1cm x 6
Sponge	2		
Hydroid	1		
Octocoral	4		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-... Bryoz	1		
Ses worm	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopteroqorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Pufish

NC

BA 1

Project Name | **Site Name / Transect Name**

Date | **Data Collector** RB

Quad Label: Sample Name or # 27.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	13		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 25		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 22.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 20		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	lepto	22
Max Sediment Depth (cm)	7	lepto	28
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	97		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-... Ses worm	1		

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name** BA 1

Date | **Data Collector**

Quad Label: Sample Name or # 37.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	19		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 35		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	15		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 32.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	lepto	33
Max Sediment Depth (cm)	17	lepto	50
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	98		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	2		
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 30		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	19		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

'andard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
id abbreviation formats Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

7/20/05 NC

Project Name | **Site Name / Transect Name**

Date | **Data Collector** RB

Quad Label: Sample Name or # 47.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 45		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	lepto	23
Max Sediment Depth (cm)	13		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 42.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	20		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 40		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	19		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg..
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopteroqorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

long Spine Porgy

BR 2

Project Name **Site Name / Transect Name**

Date 10/23/05 **Data Collector**

Quad Label: 0 / 5 (Sample Name or #)		List macroalgae Genus % / List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	35 / 6	Dicty	[illegible]	7	[illegible]
Max Sediment Depth (cm)	[illegible] / 3	[illegible]	lept. V	1cm <1cm	2cm
Sessile Benthos...	**% Cover**				
Sediment- (circle all: sand shell mud)	[illegible] / 45				
Macroalgae- Fleshy+Calcareous	7 / 0				
Turf- algae+cyanobacteria (circle all: g r b)	69 / 43				
Encrusting Red Algae	5 / 0				
Sponge	0 / 0				
Hydroid	4 / 0				
Octocoral	7 / 1				
Stony Coral	1 / 1				
Tunicate	2 / 0				
Bare Hard Substrate	10 / 0				
other-... Bryz	1 / 1				
Seagrass	/ 7				

Total Must = 100%

Quad Label: 10 / 15 (Sample Name or #)		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 / 0		
Max Sediment Depth (cm)	13 / 13		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100 / 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 20 / 25 (Sample Name or #)		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 / 0		
Max Sediment Depth (cm)	23 / 30		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100 / 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 30 / 35 (Sample Name or #)		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 / 0	lepto V	50
Max Sediment Depth (cm)	8 / 17	lepto V	5
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	98 / 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	2		
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Atlantic Spadefish
Black sea bass

Project Name | **Site Name / Transect Name**

Date | **Data Collector**

Quad Label:

Sample Name or # 40 / 45

			List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	0	0				
Max Sediment Depth (cm)	23	18				
Sessile Benthos...	**% Cover**					
Sediment- (circle all: sand shell mud)	100	100				
Macroalgae- Fleshy+Calcareous						
Turf- algae+cyanobacteria (circle all: g r b)						
Encrusting Red Algae						
Sponge						
Hydroid						
Octocoral						
Stony Coral						
Tunicate						
Bare Hard Substrate						
other-...						

Total Must = 100%

Quad Label:

Sample Name or # [illegible]

			List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	0					
Max Sediment Depth (cm)	20					
Sessile Benthos...	**% Cover**					
Sediment- (circle all: sand shell mud)	100					
Macroalgae- Fleshy+Calcareous						
Turf- algae+cyanobacteria (circle all: g r b)						
Encrusting Red Algae						
Sponge						
Hydroid						
Octocoral						
Stony Coral						
Tunicate						
Bare Hard Substrate						
other-...						

Total Must = 100%

[illegible]

Quad Label:

Sample Name or #

			List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)						
Max Sediment Depth (cm)						
Sessile Benthos...	**% Cover**					
Sediment- (circle all: sand shell mud)						
Macroalgae- Fleshy+Calcareous						
Turf- algae+cyanobacteria (circle all: g r b)						
Encrusting Red Algae						
Sponge						
Hydroid						
Octocoral						
Stony Coral						
Tunicate						
Bare Hard Substrate						
other-...						

Total Must = 100%

Quad Label:

Sample Name or #

			List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)						
Max Sediment Depth (cm)						
Sessile Benthos...	**% Cover**					
Sediment- (circle all: sand shell mud)						
Macroalgae- Fleshy+Calcareous						
Turf- algae+cyanobacteria (circle all: g r b)						
Encrusting Red Algae						
Sponge						
Hydroid						
Octocoral						
Stony Coral						
Tunicate						
Bare Hard Substrate						
other-...						

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

10/23/05

Project Name North Topsail Beach **Site Name / Transect Name** B42

Date 10/23/05 **Data Collector** AD AD

Quad Label: Sample Name or #	2.5	7.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	11		
Max Sediment Depth (cm)	6	2		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	94	20		
Macroalgae- Fleshy+Calcareous	0	0		
Turf- algae+cyanobacteria (circle all: g r b)	1	5		
Encrusting Red Algae	1	1		
Sponge	1	1		
Hydroid	0	0		
Octocoral	0	0	O.R	ORx2 1
Stony Coral	1	1		
Tunicate	0	0		
Bare Hard Substrate	1	[illegible]		
other-... INVERT	1	10		

Total Must = 100%

Quad Label: Sample Name or #	12.5	17.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	18	15		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	22.5	27.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	1		
Max Sediment Depth (cm)	24	23		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	32.5	37.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	15	17		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caut, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name North Topsail Beach **Site Name / Transect Name** BA 2

Date 10/23/05 **Data Collector** AD

Quad Label: Sample Name or #	425	475	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	18	30		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)				
Max Sediment Depth (cm)				
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)				
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)				
Max Sediment Depth (cm)				
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)				
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max siz (cm)
Max Relief (cm)				
Max Sediment Depth (cm)				
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)				
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

10/23/15

Project Name NTD **Site Name / Transect Name** RB BR 2a

Date **Data Collector**

Quad Label: Sample Name or # 789		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	lepto	4
Max Sediment Depth (cm)	9	lepto	6
Sessile Benthos...	% Cover	Dicty	1
Sediment- (circle all: sand shell mud)	86	squiggly	2
Macroalgae- Fleshy+Calcareous	3	Ochrac.	3
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	1		
Octocoral	1	Squiggly determined to be bryozoan	
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate			
other-... sed worm	1		
bryozoan	2		

Total Must = 100%

Quad Label: Sample Name or # 5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	Ochrac.	4
Max Sediment Depth (cm)	4	Ochrac.	4
Sessile Benthos...	% Cover	Ochrac.	6
Sediment- (circle all: sand shell mud)	96	lepto V	20
Macroalgae- Fleshy+Calcareous	2	Dicty	2
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	1		
Stony Coral	1		
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 25		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Ochrac	1
Max Sediment Depth (cm)	7	Ochrac	1
Sessile Benthos...	% Cover	Ochrac	1
Sediment- (circle all: sand shell mud)	83	lepto V	15
Macroalgae- Fleshy+Calcareous	0	lepto V	7
Turf- algae+cyanobacteria (circle all: g r b)	15	lepto V	5
Encrusting Red Algae	0	Ochrac	7
Sponge	0		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-...	4		

Total Must = 100%

Quad Label: Sample Name or # 0		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	17	Ochrac.	3cm 5
Max Sediment Depth (cm)	5	Ochrac.	1cm 2
Sessile Benthos...	% Cover	lepto V	20
Sediment- (circle all: sand shell mud)	3	Dicty	8
Macroalgae- Fleshy+Calcareous	10		
Turf- algae+cyanobacteria (circle all: g r b)	55		
Encrusting Red Algae	10		
Sponge	1		
Hydroid	2		
Octocoral	1		
Stony Coral	4		
Tunicate	3		
Bare Hard Substrate	10		
other-... Sed worm	1		

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caut, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

BA 2a

Project Name | **Site Name / Transect Name**

Date | **Data Collector** EH

Quad Label: Sample Name or #	12.5	11C	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	10		
Max Sediment Depth (cm)	14	15		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	42.5	41	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	10		
Max Sediment Depth (cm)	12	18		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

ID: 101

Quad Label: Sample Name or #	37.5	38	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	10		
Max Sediment Depth (cm)	12	9		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	21.5	30	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	10		
Max Sediment Depth (cm)	4	6		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	85	99		
Macroalgae- Fleshy+Calcareous	0	0		
Turf- algae+cyanobacteria (circle all: g r b)	1	1		
Encrusting Red Algae	0	0		
Sponge	0	0	Dob	1.5
Hydroid	1	0	Dob	1.5
Octocoral	0	0	DOD	1.5
Stony Coral	2	0		
Tunicate	0	0		
Bare Hard Substrate	11	0		
other-...				

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopteroqorgia=Pspt, Plexaurella=Pila, Pseudoplexaura=Psph
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid

did you start (a) 5

Project Name | **Site Name / Transect Name** BA 2a

Date | **Data Collector**

Quad Label: 22.5 / Sample Name or #			List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	5	4		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	99	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)	1			
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

ID: 105/106

Quad Label: 22.5 / Sample Name or #			List macroalgae Genus % / List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	0	12	Coily	Coily	3	5
Max Sediment Depth (cm)	3	11	Dicty	Dicty	2	5
Sessile Benthos...	**% Cover**		Dasya			5
Sediment- (circle all: sand shell mud)	71	25				
Macroalgae- Fleshy+Calcareous	5	21				
Turf- algae+cyanobacteria (circle all: g r b)	1	5				
Encrusting Red Algae	0	2				
Sponge	2	0	LR		N	
Hydroid	2	0				
Octocoral	0	2	OR	OR	1	4x4
Stony Coral	1	1	OR			
Tunicate	0	0		LV		30
Bare Hard Substrate	0	4 / 50				
other- bryozoan	3	5		OR		6

Total Must = 100%

ID: 107/108

Quad Label: 17.5 15 / Sample Name or #			List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	13	Dasya	1
Max Sediment Depth (cm)	18	24		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	90	12		
Macroalgae- Fleshy+Calcareous	0	2		
Turf- algae+cyanobacteria (circle all: g r b)	8	3		
Encrusting Red Algae	0	5	OR	4
Sponge	0	0	OR	15
Hydroid	0	0	[illegible]	[illegible]
Octocoral	1	0	OR	1x
Stony Coral	1	4	[illegible]	1
Tunicate	0	0		
Bare Hard Substrate	0	69		
other- Clion	1	1		
Bryo		1		

Total Must = 100%

Quad Label: 17.5 10 / Sample Name or #			List macroalgae Genus % / List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	0	2	Dicty	Dicty	2	5
Max Sediment Depth (cm)	0	12	Coily		8	
Sessile Benthos...	**% Cover**		Dasya	OR	2	4
Sediment- (circle all: sand shell mud)	0	15		OR		3
Macroalgae- Fleshy+Calcareous	6	5		OR D		7
Turf- algae+cyanobacteria (circle all: g r b)	30	30		LV		40
Encrusting Red Algae	1	4	OR	LR	4	1
Sponge	0	0	OR	OR	3	5
Hydroid	2	2	OR	OR	9	2
Octocoral	0	1		OR	6	[illegible]
Stony Coral	6	7		OR	5	1
Tunicate	0	0		[illegible]	5	5
Bare Hard Substrate	5	25		OR D	4	2
other- Anemone	1			OR D	2x	5
Bryo 8		4		OR D		2

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name **Site Name / Transect Name**

Date **Data Collector**

12.1
0
NO VIS.

Quad Label: Sample Name or #	325	375	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	10	23		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid

Project Name NCRS — Site 3 - revised

Date AD

0 & 12.5 Not taken No Visibility

Quad Label: Sample Name or #	2.5 | 5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12 | 0		
Max Sediment Depth (cm)	11 | 14		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	90 | 100		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	1		
Octocoral	0		
Stony Coral	1	0.5 Spido x2	1
Tunicate	0	0 Spirob	3
Bare Hard Substrate	5		
other-... WOR M	2		

Total Must = 100%

Quad Label: Sample Name or #	1.5 | 10	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 | 0		
Max Sediment Depth (cm)	15 | 15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100 | 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #	15 | 17.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 | 0		
Max Sediment Depth (cm)	>20 | 15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100 | 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #	22.5 | 25	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 | 0		
Max Sediment Depth (cm)	10 | 13		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100 | 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name LTER

Site Name / Transect Name BA3

Date

Data Collector EH RB

Quad Label: Sample Name or #	45	40	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	13	18		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	35	30	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	1		
Max Sediment Depth (cm)	19	13		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	25	20	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	14	13		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	45	40	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	12	12		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

BA7

Project Name **Site Name / Transect Name**

Date **Data Collector**

ID: 131 / 132

Quad Label: Sample Name or #	0	2.5	List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	0	1		0 nob		2x2
Max Sediment Depth (cm)	3	3		0 nob		2
Sessile Benthos...	% Cover			0 nob		2
Sediment- (circle all: sand shell mud)	90	85	84	0 ...		3x2
Macroalgae- Fleshy+Calcareous	0	2		0 nob		4
Turf- algae+cyanobacteria (circle all: g r b)		3		0 nob		5
Encrusting Red Algae	1	1		0 nob		1
Sponge	0	3		0 nob		3
Hydroid	0	1		0 nob		5
Octocoral	1	2	Lepto		4	
Stony Coral	0	4	0 Willing	Lepto		12
Tunicate	0	0		Leptoll		7
Bare Hard Substrate	1	0		Leptoll		8
other-... sess anem	0	1		Lepto		24
bryozoan		1		Colly		1

Total Must = 100%

ID: 133 / 134

Quad Label: Sample Name or #	5	7.5	List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	3	2	Colly	Dicty	2	1
Max Sediment Depth (cm)	3	3		Colly		2
Sessile Benthos...	% Cover					
Sediment- (circle all: sand shell mud)	88	89	OR		32	
Macroalgae- Fleshy+Calcareous	2	3	OR		4	
Turf- algae+cyanobacteria (circle all: g r b)	1	1	OR		32	
Encrusting Red Algae	1	1	[illegible]		21	
Sponge	1	0	OR	OR	1	2
Hydroid	0	0	OCul	OR	2	1x2
Octocoral	3	1	OCu R	LR	6	4
Stony Coral	3	1	Lepto H	Lepto V	4	38
Tunicate	1	1	Lepto V	Lepto H		4
Bare Hard Substrate	1	0	Lepto V	Lepto H		6
other-... sess anem		1	Lepto H	Lepto V	6	9
Bryo	2	3				1

Total Must = 100%

ID: 135 / 136

Quad Label: Sample Name or #	10	12.5	List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	10	10	Avrainvillea	Dicty	1	3
Max Sediment Depth (cm)	1	3	dicty		1	
Sessile Benthos...	% Cover		OR	OR	48	
Sediment- (circle all: sand shell mud)	11	10	OR		7	
Macroalgae- Fleshy+Calcareous	3	4	LR		1	
Turf- algae+cyanobacteria (circle all: g r b)	7	2	LR		1	
Encrusting Red Algae	3	10	LR		1	37
Sponge	53	2	Lepto	OR		4
Hydroid	0	0	Lepto			
Octocoral	11	15	LV		48	
Stony Coral	2	1	Lepto		6	
Tunicate	0	0			30	
Bare Hard Substrate	10	10			41	
other-... Anemone	Anem	3	5			16
Bryo		1				30

Total Must = 100%

ID: 137 / 138

Quad Label: Sample Name or #	15	17.5	List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	5	6	Colly		1	
Max Sediment Depth (cm)	1	1	Dicty		2	
Sessile Benthos...	% Cover					
Sediment- (circle all: sand shell mud)	58	68		OR		4
Macroalgae- Fleshy+Calcareous	3	0		OR B		2
Turf- algae+cyanobacteria (circle all: g r b)	1	1	OR	LV	4	48
Encrusting Red Algae	15	10	OR	OR	1	2x
Sponge	4	2	OR	OR	1	3
Hydroid	0	0	LR	OR		2
Octocoral	12	5	LP	OR	1	1
Stony Coral	1	3	LP	LV	15	2
Tunicate	0	0	OR	LH	2	5
Bare Hard Substrate	15	5	LR	OR	4	4x
other- Bryo	Bryo	2	1			
Clams	sess anem	1	5			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

running out of O2, freezing @ 20 m. ...

Project Name **Site Name / Transect Name**

Date **Data Collector**

ID: 139

Quad Label: Sample Name or # 20		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3	Dichy	1
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	~~50~~ 45		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	1	CR	2
Encrusting Red Algae	10	CR	3x2
Sponge	12 ~~10~~	LV	48
Hydroid	2	LP	10
Octocoral	3	LP	4
Stony Coral	3	OR	2x5
Tunicate	1	OR-B	3
Bare Hard Substrate	25	OR	4x2
other-... Sess. an	5	OR	5
Bry	1	OR	6

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla; Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NIB **Site Name / Transect Name** E → W BN+

Date 10/22/03 **Data Collector**

Quad Label: 475 | 45 (Sample Name or #)			List macroalgae Genus % List every coral colony -and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	8	10	Dicty	lepto v	3	63
Max Sediment Depth (cm)	1	2	lepto	lepto lobo	3x7	30
Sessile Benthos...	**% Cover**		lepto	lepto V	8x3	16
Sediment- sand (circle all: sand shell mud)	60	25	Oculina	lepto V	[illegible]	1cm
Macroalgae- Fleshy+Calcareous	3	5		lepto v		20
Turf- algae+cyanobacteria (circle all: g r b)	30	61		Oculina		3
Encrusting Red Algae	3	0		Oculina		1cm
Sponge	1	1		Dicty		5
Hydroid	0	0				
Octocoral	1	3				
Stony Coral	1	1				
Tunicate	0	0				
Bare Hard Substrate	1	3				
other-... Bar...	1					
Ses worm		1				

Total Must = 100%

Quad Label: 105 | 40 (Sample Name or #)			List macroalgae Genus % List every coral colony -and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	4	6	lepto h	lepto V	23	56
Max Sediment Depth (cm)	3	2	lepto h	Oculina	10	1cm
Sessile Benthos...	**% Cover**		lepto h	Oculina	8x2	2cm
Sediment- (circle all: sand shell mud)	60	30	lepto v	lepto V	29	16
Macroalgae- Fleshy+Calcareous	2	3	lepto V	lepto V	7	7
Turf- algae+cyanobacteria (circle all: g r b)	32	57	Oculina	lepto h	3	7
Encrusting Red Algae	2	4	Oculina	Dicty	1cm	3
Sponge	0	1	Dicty		2	
Hydroid	0	1				
Octocoral	3	2				
Stony Coral	1	1				
Tunicate	0	0				
Bare Hard Substrate	0	1				
other-...	0					

Total Must = 100%

Quad Label: 32.5 | 35 (Sample Name or #)			List macroalgae Genus % List every coral colony -and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	7	3	Oculina	Oculina	1cm	5
Max Sediment Depth (cm)	1	1	Oculina	Oculina	3	3
Sessile Benthos...	**% Cover**		lepto h	Oculina	10	7
Sediment- (circle all: sand shell mud)	30	15	lepto V	Oculina	7	4
Macroalgae- Fleshy+Calcareous	2	2	lepto V	Oculina	16	5
Turf- algae+cyanobacteria (circle all: g r b)	58	75	lepto V	Oculina	1cm	1cm
Encrusting Red Algae	4	2	lepto V	lepto h	2cm	7
Sponge	1	1	Dicty	lepto V	2	13
Hydroid	1	0		lepto V		1cm
Octocoral	2	2		lepto		7cm
Stony Coral	1	2		lepto V		90
Tunicate	0	0		Dicty		1
Bare Hard Substrate	0	0		Sarg		1
other-... Ses worm	1					
Bryoz		1				

Total Must = 100%

Quad Label: 32.5 | 30 (Sample Name or #)			List macroalgae Genus % List every coral colony -and coral condition(s)		% cover or max size (cm)	
Max Relief (cm)	7		Oculina nb		4	
Max Sediment Depth (cm)	0		Oculina nb		4	
Sessile Benthos...	**% Cover**		Oculina nb		5	
Sediment- (circle all: sand shell mud)	0		Oculina nb		3	
Macroalgae- Fleshy+Calcareous	3		Oculina nb		9	
Turf- algae+cyanobacteria (circle all: g r b)	37		Oculina		1	
Encrusting Red Algae	1		Oculina		1	
Sponge	2		lepto h		27	
Hydroid	1		lepto V		9	
Octocoral	2		lepto V		10	
Stony Coral	2		Dicty		2	
Tunicate	1					
Bare Hard Substrate	0	2				
other- Ses worm	1					

Total Must = 100%

Standard Abbreviations: and abbreviation formats

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Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Do you want to start here, stretch the tape out and see how it looks?

Project Name | **Site Name / Transect Name**

Date | **Data Collector**

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	97		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	2	lepto	7
Sponge	4	lepto	16
Hydroid	0	O. robusta	5
Octocoral	1	O. robusta	2
Stony Coral	1	O. rubusta x2	4
Tunicate	1	O. robusta x5	1
Bare Hard Substrate	2	O. robusta x4	3
other-...worm	1	O. robusta	4

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	3	dark red lepto	4
Sessile Benthos...	**% Cover**	Purple, white poly Titanidium	9
Sediment- (circle all: sand shell mud)	88	Purple white poly Titanidium	6
Macroalgae- Fleshy+Calcareous	0	Lepto	22
Turf- algae+cyanobacteria (circle all: g r b)	2	Lepto	31
Encrusting Red Algae	1	Lepto	39
Sponge	2	O. robusta x3	1
Hydroid	0	O. robusta	4
Octocoral	2	O. robusta x3	3
Stony Coral	1	O. robusta	2
Tunicate	1	O. robusta	5
Bare Hard Substrate	2	O. robusta	4
other-...Worm	1	O. robusta	7
		O. robusta	10

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5		
Max Sediment Depth (cm)	3	O. robusta x5	1
Sessile Benthos...	**% Cover**	lepto dark red	12
Sediment- (circle all: sand shell mud)	88	dark red lepto	11
Macroalgae- Fleshy+Calcareous	0	dark red lepto	4
Turf- algae+cyanobacteria (circle all: g r b)	1	dark red lepto	11
Encrusting Red Algae	2	dark red lepto	6
Sponge	2	Purple white Titanidium	4
Hydroid	1	Titanidium	4
Octocoral	2	Titanidium	7
Stony Coral	1	Titanidium	4
Tunicate	0	Titanidium	9
Bare Hard Substrate	3	Titanidium	8
other-...	1	Titanidium	2
		Titanidium	3

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	88		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1	Titanidium	3
Sponge	3	Purple lepto white poly Titanidium	7
Hydroid	0	Purple lepto white poly	15 Titanidium
Octocoral	1	lepto	52
Stony Coral	1	Oculina spp x3	2
Tunicate	1	Oculina spp x20	1
Bare Hard Substrate	2	Oculina spp x3	3
other-...Zoanthid	1		
Worm	1		

Total Must = 100%

Standard Abbreviations and abbreviation formats

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Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

DIVE
Flag

Project Name NTB **Site Name / Transect Name** 2A 8

Date 10/23/05 **Data Collector** RB, LB

Quad Label: Sample Name or #	01	15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	1	lepto V, lepto H	18, 31
Max Sediment Depth (cm)	4	3	lepto V, lepto H	2, 7
Sessile Benthos...	% Cover		lepto V, lepto H	24, 4
Sediment- (circle all: sand shell mud)	14	86	lepto V	7, 32
Macroalgae- Fleshy+Calcareous		3	lepto V, lepto V	5, 25
Turf- algae+cyanobacteria (circle all: g r b)		5	lepto V, lepto V	6, 24
Encrusting Red Algae			lepto V	32, 11
Sponge			lepto V	6
Hydroid			lepto V	3
Octocoral	2	6		
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	10	15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	0	lepto H, lepto V	25, 3
Max Sediment Depth (cm)	2	4	lepto H	6, 3
Sessile Benthos...	% Cover		lepto V	10, 20
Sediment- (circle all: sand shell mud)	70	98	turf	1, 13
Macroalgae- Fleshy+Calcareous	0		lepto V	4, 3
Turf- algae+cyanobacteria (circle all: g r b)	25		lepto V	20
Encrusting Red Algae	0			
Sponge	1			
Hydroid	1			
Octocoral	3	2		
Stony Coral	0			
Tunicate	0			
Bare Hard Substrate	1			
other-...	0			

Total Must = 100%

Quad Label: Sample Name or #	20	25	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	1	lepto V, lepto V	35, 18
Max Sediment Depth (cm)	2	4	lepto V, lepto V	7, 32
Sessile Benthos...	% Cover		lepto V, lepto V, lepto V	1, 15
Sediment- (circle all: sand shell mud)	97	91	lepto V, lepto V	3, 25
Macroalgae- Fleshy+Calcareous			lepto V	30, 32, 24
Turf- algae+cyanobacteria (circle all: g r b)		3	lepto V	30
Encrusting Red Algae				
Sponge	5	1		
Hydroid				
Octocoral	4	5		
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: Sample Name or #	30	35	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max siz (cm)
Max Relief (cm)	0	0	lepto, lepto V	11, 40
Max Sediment Depth (cm)	3	2	lepto V	3, 2
Sessile Benthos...	% Cover		lepto V	37, 20
Sediment- (circle all: sand shell mud)	87	97		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral	1	3		
Stony Coral				
Tunicate				
Bare Hard Substrate	8			
other-... Zoanthid	2			
Hydroid	2			

Total Must = 100%

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Stony Corat: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name**

Date | **Data Collector**

Quad Label: Sample Name or #	40	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	~~3~~ 3	lepto	5
Max Sediment Depth (cm)	3		8
Sessile Benthos...	**% Cover**		24
Sediment- (circle all: sand shell mud)	94		10
Macroalgae- Fleshy+Calcareous			4
Turf- algae+cyanobacteria (circle all: g r b)			15
Encrusting Red Algae			3
Sponge	1		
Hydroid			
Octocoral	4		
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...			

Total Must = 100%

Quad Label: Sample Name or #	45	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	lepto V	13
Max Sediment Depth (cm)	1		19
Sessile Benthos...	**% Cover**		22
Sediment- (circle all: sand shell mud)	75		32
Macroalgae- Fleshy+Calcareous	5		8
Turf- algae+cyanobacteria (circle all: g r b)	12		5
Encrusting Red Algae		lepto V	23
Sponge		Dicty	3
Hydroid			
Octocoral	5		
Stony Coral			
Tunicate			
Bare Hard Substrate	3		
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge	1		
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			1
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

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Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB **Site Name / Transect Name** BA 8?

Date 10/23/05 **Data Collector** AD

Quad Label: 2.5 Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4 0		
Max Sediment Depth (cm)	3 4	Gorg Lept	18 8
Sessile Benthos...	**% Cover**	Titanidium	7 8
Sediment (circle all: sand shell mud)	93 96	Titanidium	5
Macroalgae-Fleshy+Calcareous	0 0	Titanidium	4
Turf- algae+cyanobacteria (circle all: g r b)	1 1	Lepto	38
Encrusting Red Algae	0 0	Titanidium	16
Sponge	1 0	Lepto	36
Hydroid	0 0	Titanidium	7
Octocoral	3 1	Titanidium	7
Stony Coral	0 0	Lepto	24
Tunicate	0 0	Titanidium	6
Bare Hard Substrate	2 2	Titanidium	6
other-...	0 0	Titanidium	10

Total Must = 100%

Quad Label: 12.5 Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 0		
Max Sediment Depth (cm)	8 3		
Sessile Benthos...	**% Cover**	Lept Lepto	32 30
Sediment (circle all: sand shell mud)	98 99	Lept Lepto	37 24
Macroalgae-Fleshy+Calcareous	0 0	Lept Titanidium	10 5
Turf- algae+cyanobacteria (circle all: g r b)	0 0		
Encrusting Red Algae	0 0		
Sponge	0 0		
Hydroid	0 0		
Octocoral	2 1		
Stony Coral	0 0		
Tunicate	0 0		
Bare Hard Substrate	0 0		
other-...	0 0		

Total Must = 100%

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 0	Gorg	22
Max Sediment Depth (cm)	5 3	Lepto	34
Sessile Benthos...	**% Cover**	Lepto	36
Sediment (circle all: sand shell mud)	98 91	Lepto	29
Macroalgae-Fleshy+Calcareous	0 0	Titanidium	11
Turf- algae+cyanobacteria (circle all: g r b)	0 0	Lepto	35
Encrusting Red Algae	0 0	Titanidium	10
Sponge	0 0		
Hydroid	0 0		
Octocoral	3 1		
Stony Coral	0 0		
Tunicate	0 0		
Bare Hard Substrate	0 0		
other-...	0 0		

Total Must = 100%

Quad Label: 32.5 Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max siz (cm)
Max Relief (cm)	0 1	Dict	1
Max Sediment Depth (cm)	4 10		
Sessile Benthos...	**% Cover**		
Sediment (circle all: sand shell mud)	99 94		
Macroalgae-Fleshy+Calcareous	0 1		
Turf- algae+cyanobacteria (circle all: g r b)	0 2		
Encrusting Red Algae	0 0		
Sponge	0 0		
Hydroid	0 0	LPV	32
Octocoral	2 3		
Stony Coral	0 0	Lepto	35
Tunicate	0 6	Lp	2
Bare Hard Substrate	0 0		
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopteroqorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aqa, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int.

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid

Project Name | **Site Name / Transect Name**

Date | **Data Collector**

Quad Label: Sample Name or # 425		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)	4		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0	lepto V	12
Hydroid	0		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 45		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	5		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	5		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 475		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4	Dicty	1
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae			
Sponge			
Hydroid	0		
Octocoral	0	lepto V	17
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-... Bryo	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max siz (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NV | **Site Name / Transect Name** BA...

Date 11/20/07 | **Data Collector**

Quad Label: 0 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	4		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	1		
other-... Bryoz	1		
Ses...	2		

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	Oculina	1
Max Sediment Depth (cm)	5	Colo	10
Sessile Benthos...	% Cover	Oculina	1
Sediment- (circle all: sand shell mud)	60	" Oculina	1
Macroalgae- Fleshy+Calcareous	0	" Oculina	1
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	0		
Sponge	3		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	27		
other-... Ses...	2		
Bryoz	1		

Total Must = 100%

Quad Label: 5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5		
Max Sediment Depth (cm)	15		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	97		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	1		
other-... Ses...	1		

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	Oculina	1 x6
Max Sediment Depth (cm)	6		
Sessile Benthos...	% Cover	Sarg	1
Sediment- (circle all: sand shell mud)	60		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	3		
Encrusting Red Algae	3		
Sponge	1		
Hydroid	2		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	26		
other-... Bryoz	2		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid

Tail came back to start BEARING @ 0...

USACE 5

Project Name | **Site Name / Transect Name**

Date '8 | **Data Collector**

Quad Label: 10 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Lepto	60
Max Sediment Depth (cm)	3	Sarg	5
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous	5		
Turf- algae+cyanobacteria (circle all: g r b)	3		
Encrusting Red Algae	2		
Sponge	1		
Hydroid	4		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	54 (~~64~~)		
other-... Bryoz	5		

Total Must = 100%

Quad Label: 12.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	OR	1 + [illegible]
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	96		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-... Ses whip	1		

Total Must = 100%

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9	Lept.	32
Max Sediment Depth (cm)	6	Sarg	2
Sessile Benthos...	**% Cover**	Telesto	6
Sediment- (circle all: sand shell mud)	70		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	7		
other-... ses whip	2		
Bryoz	1		

Total Must = 100%

Quad Label: 17.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	Lepto	60
Max Sediment Depth (cm)	5	Sarg	10
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	10		
Turf- algae+cyanobacteria (circle all: g r b)	44		
Encrusting Red Algae	15		
Sponge	0		
Hydroid	6		
Octocoral	2		
Stony Coral	0		
Tunicate	3		
Bare Hard Substrate	15		
other-...	0		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name BH DSCUBAS **Site Name / Transect Name** USACE Site 3

Date 10/20/05 **Data Collector** ADel

Quad Label: Sample Name or # 27.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	4		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0	O robusta	2
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 25		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	94		
Macroalgae- Fleshy+Calcareous	0	O. robusta x1	1
Turf- algae+cyanobacteria (circle all: g (r) b)	2		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	1		
other-... Worm	2		

Total Must = 100%

Quad Label: Sample Name or # 22.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	21		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	89		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g (r) (b))	2		
Encrusting Red Algae	1	O robusta x3	1
Sponge	0		
Hydroid	1		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	4		
other-... Worm	3		

Total Must = 100%

Quad Label: Sample Name or # 20		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	92		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r (b))	1		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	5		
other-... Worm	1		

Total Must = 100%

Sorry to disappoint

Standard Abbreviations and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Fish
- Long spine porgy
- Blackseabass
- Sand diver
- Toadfish
- Echino.
- Jelly

Project Name	NJTB	**Site Name / Transect Name**	USACE 3
Date	20-Oct-05	**Data Collector**	EH

Quad Label: 47.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) (shell) (mud))	85		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: (g) (r) (b))	1		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	1	Leptoptero, yellow	24cm
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	4		
other-... vermitid	7		
Bryo	1		

Total Must = 100%

Quad Label: 45 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	13		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) (shell) (mud))	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 42.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	14		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) (shell) (mud))	97		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0	Acenaria sp	4cm
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	1		
other-... vermitid	1		

Total Must = 100%

Quad Label: 40 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	14		
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) (shell) (mud))	~~92~~ 91		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: (g) (r) (b))	2	clear, pink	
Encrusting Red Algae	1	w/ 2 pore openings	
Sponge	2		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0 1		
Bare Hard Substrate	1		
other-... Bryo.	2		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

[illegible]
[illegible]

Project Name | **Site Name / Transect Name**

Date | **Data Collector**

ID: 188

Quad Label: Sample Name or #	37.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13	~~fruit roll up~~	1
Max Sediment Depth (cm)	4	Dicty	1
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	83		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	2		
Sponge	1		
Hydroid	1		
Octocoral	1	Leptoptero	34
Stony Coral	1	Oculina sp	2 cm
Tunicate	0	Oculina R: 10 cm	x2
Bare Hard Substrate	1	telesto ~~orange bryo~~	<1
other-... Bryo	1	bryo	bleached
Vermitid	1		

Total Must = 100%

ID: 189

Quad Label: Sample Name or #	35	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	45		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	3		
Encrusting Red Algae	5		
Sponge	1		
Hydroid	0	telesto	<1
Octocoral	1	~~orange bryo~~	~~<1~~
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	[illegible]	Oculina rob.	2 cm
other-... Vermitid	3	" recruits	<1 cm x 3
Bryo	3		

Total Must = 100%

ID: 190

Quad Label: Sample Name or #	32.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	4		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	80		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0	Oculina sp	<1 cm x22
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	9		
other-... Vermitid	6		

Total Must = 100%

Quad Label: Sample Name or #	30	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12	Dictyota	1
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	86		
Macroalgae- Fleshy+Calcareous	1	O. robusta	3
Turf- algae+cyanobacteria (circle all: g r b)	5	dead O. robusta	
Encrusting Red Algae	1	Lepto	25
Sponge	1		
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	2		
other-... bryozoan	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.