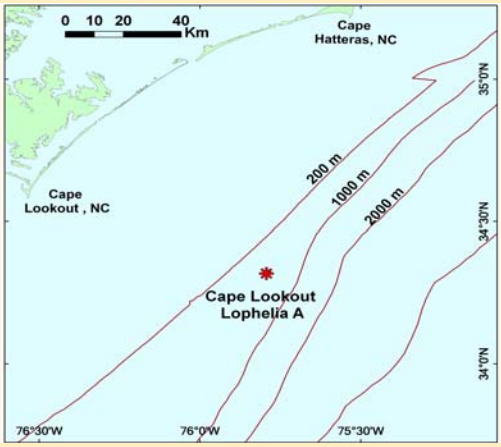
DIVE NUMBER: JSLI-4890 *STUDY AREA: Cape Lookout Lophelia A*

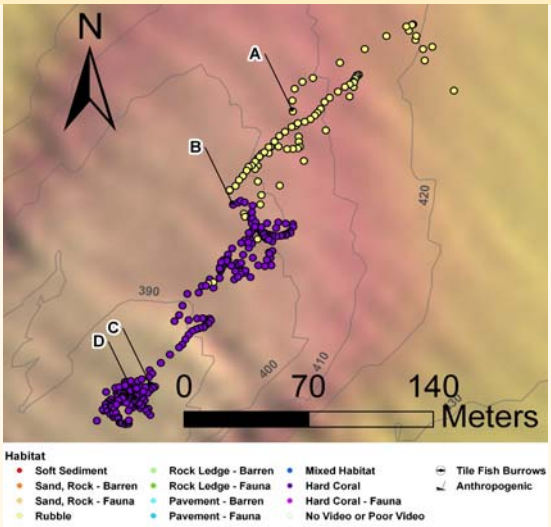
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	S Ross (bow), M Nizinski (stern)
External Video Tapes	2 mini DVs
Internal Video Tapes	2 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	3/31/2011
PI Station Number	JSLI-05-4890

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	17-Oct-05
Minimum Bottom Depth (m)	386
Maximum Bottom Depth (m)	420
Start Bottom Time (EDT)	8:35
End Bottom End (EDT)	10:42
Starting Latitude (N)	34° 19.590'
Starting Longitude (W)	75° 47.040'
Ending Latitude (N)	34° 19.470'
Ending Longitude (W)	75° 47.220'
Surface Current (Kts)	
Bottom Current (Kts)	0.3

Image A: Rubble
34º 19.580' N, 75º 47.159' W

DIVE NUMBER: JSLI-4890 *STUDY AREA: Cape Lookout Lophelia A*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
34º 19.547' N, 75º 47.177' W

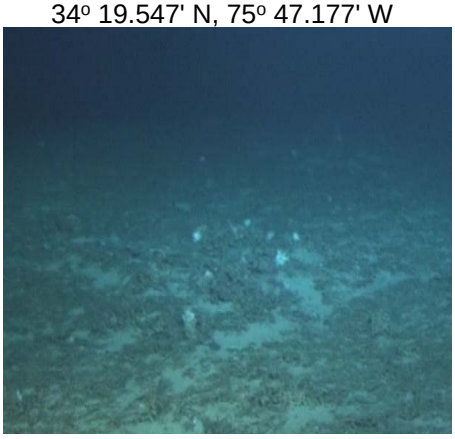


Image C: Hard Corals - without Attached Fauna
34º 19.495' N, 75º 47.196' W

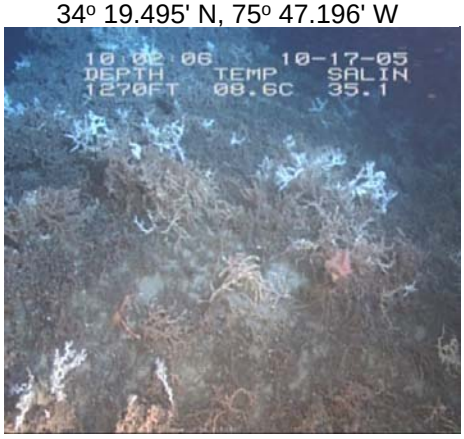
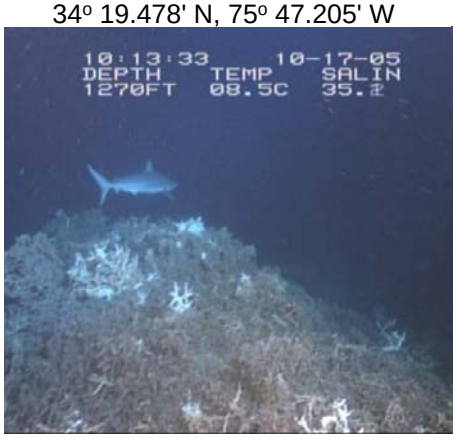


Image D: Hard Corals - without Attached Fauna
34º 19.478' N, 75º 47.205' W



RELEVANT WORK AND/OR LITERATURE CITED

Uchupi (1967)
R/V Eastward training cruise 1966 (photo in Rowe and Menzies 1968 and Menzies et al. 1973)
NR-1 submersible cruise Nov 1993 (Sulak and Ross unpubl. data)
R/V Cape Hatteras cruises Aug 2001 & Sep 2006 (S.W. Ross, unpubl. data)
EEZ-SCAN 87 Scientific Staff (1991)
Reed and Ross (2005)
Brooks et al. (2007)

BIOLOGICAL ENVIRONMENT

Several fish and invertebrate species were observed during this dive. The dive began on dense rubble with *Helicolenus dactylopterus*, *Laemonema* spp., squid, and scorpaenids. Scorpaenids and *Nezumia* spp. were observed in rubble and hard coral habitats. The dominant coral in the area was *Lophelia pertusa* and was colonized by *Echinus* spp., numerous galatheids, and brittle stars. Galatheids were observed feeding on a salp. A large (~6ft) carcharhinid was observed on the reef (Image D).

PHYSICAL ENVIRONMENT

The beginning of the dive was characterized by a gentle sloping rubble habitat and currents ranging from 0.2-1 kn. A thermocline was observed and was associated with a strong current. Temperature changed from 5.5°C to 8.5°C traveling up the slope. This dive transected over rubble habitat with low relief that transitioned into a dense dead coral matrix with small growths of living *L. pertusa.* The coral mound was medium to high relief Hard Corals along a series of ridges and valleys; currents were enhanced in the valleys.

ADDITIONAL COMMENTS

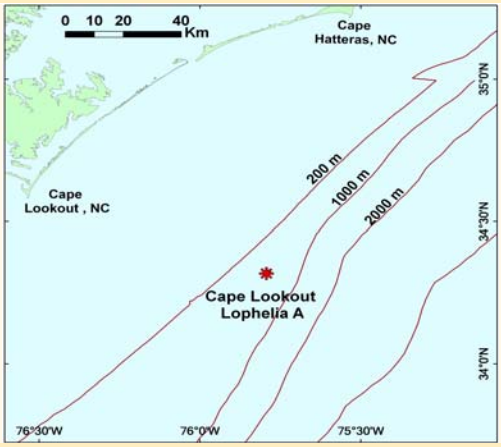
The external video was captured on 2 mini DVs and archived on 3 DVDs. Internal stern video was captured on 2 mini DVs and archived on 2 DVDs. No internal bow video was captured. There was a lot of stationary time for collections, but overall video quality was good. The carcharhinid was captured on the external camera as well as the hand-held stern camera. There is also good footage of three Galatheids feeding on a salp.

DIVE NUMBER: JSLI-4891 *STUDY AREA: Cape Lookout Lophelia A*

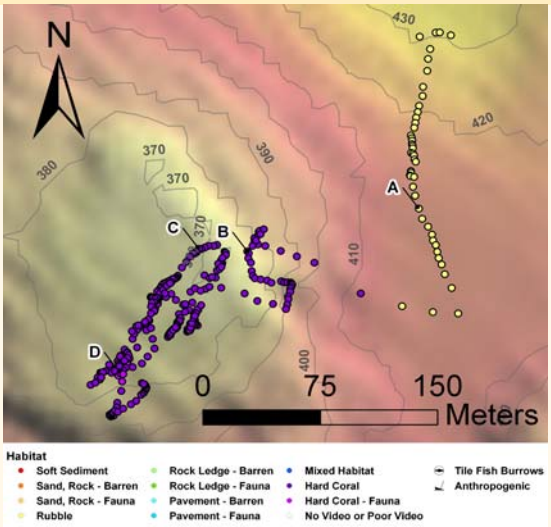
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	M Nizinski (bow), C Morrison (stern)
External Video Tapes	2 mini DVs
Internal Video Tapes	5 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	4/1/2011
PI Station Number	JSLI-05-4891

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	17-Oct-05
Minimum Bottom Depth (m)	366
Maximum Bottom Depth (m)	433
Start Bottom Time (EDT)	16:32
End Bottom End (EDT)	18:27
Starting Latitude (N)	34° 19.494'
Starting Longitude (W)	75° 47.400'
Ending Latitude (N)	34° 19.368'
Ending Longitude (W)	75° 47.520'
Surface Current (Kts)	
Bottom Current (Kts)	0.3

Image A: Rubble
34º 19.435' N, 75º 47.443' W

DIVE NUMBER: JSLI-4891 *STUDY AREA: Cape Lookout Lophelia A*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
34º 19.411' N, 75º 47.519' W

Image C: Hard Corals - without Attached Fauna
34º 19.422' N, 75º 47.534' W

Image D: Hard Corals - with Attached Fauna
34º 19.367' N, 75º 47.568' W

RELEVANT WORK AND/OR LITERATURE CITED

Uchupi (1967)
R/V Eastward training cruise 1966 (photo in Rowe and Menzies 1968 and Menzies et al. 1973)
NR-1 submersible cruise Nov 1993 (Sulak and Ross unpubl. data)
R/V Cape Hatteras cruises Aug 2001 & Sep 2006 (S.W. Ross, unpubl. data)
EEZ-SCAN 87 Scientific Staff (1991)
Reed and Ross (2005)
Brooks et al. (2007)

BIOLOGICAL ENVIRONMENT

Several fishes and invertebrates were observed in coral rubble and hard coral habitats. *Helicolenus dactylopterus, Laemonema barbatulum, Eumunida picta,* squid and a few pencil urchins were observed in the rubble zone. In the hard coral area a few *Beryx decadactylus* and *Helicolenus dactylopterus* were observed. Other common organisms included brittle stars, basket stars, urchins, flytrap anemones, hexactinellid sponges, *Plumarella* sp. and *Madrepora oculata*. Flytrap anemones and glass sponges were concentrated on the slope facing the current.

PHYSICAL ENVIRONMENT

This dive began over a gently sloping rubble plain. The submersible quickly reached a steep slope (~50º) covered in a dense dead (<10% live) coral matrix. The majority of the dive was spent over a large *Lophelia pertusa* reef with sparse attached fauna. The reef was medium to high profile with ~25% live branches at the peak. Current at the top of the mound was consistently over 1 kn and made it difficult to handle the sub.

ADDITIONAL COMMENTS

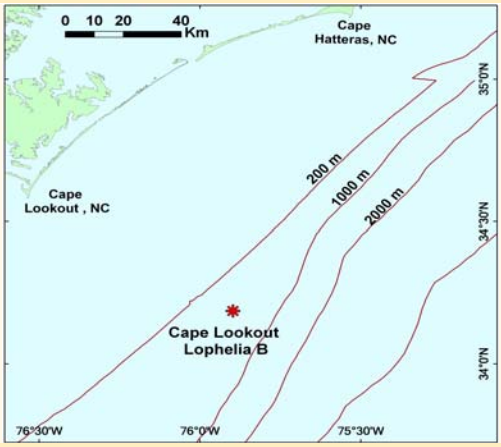
The external video was captured on 2 mini DVs and archived on 3 DVDs. Internal bow video was captured on 2 mini DVs and archived on 2 DVDs. Internal stern video was captured on 3 mini DVs and archived on 3 DVDs. Constistently high currents made controlling the sub and collecting difficult. Overall, video quality was clear.

DIVE NUMBER: JSLI-4892 *STUDY AREA: Cape Lookout Lophelia B*

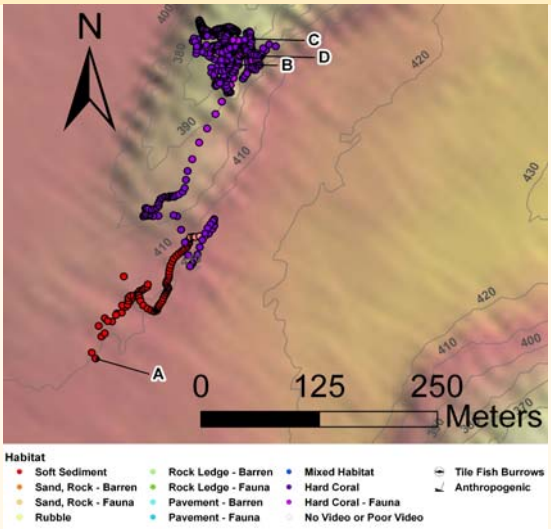
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	C Morrison (bow), L Baird (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	6/1/2011
PI Station Number	JSLI-05-4892

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	18-Oct-05
Minimum Bottom Depth (m)	370
Maximum Bottom Depth (m)	411
Start Bottom Time (EDT)	8:22
End Bottom End (EDT)	10:42
Starting Latitude (N)	34° 13.896'
Starting Longitude (W)	75° 52.436'
Ending Latitude (N)	34° 14.076'
Ending Longitude (W)	75° 52.328'
Surface Current (Kts)	1
Bottom Current (Kts)	0.6

Image A: Soft Substrate
34º 13.892' N, 75º 52.434' W

DIVE NUMBER: JSLI-4892 *STUDY AREA: Cape Lookout Lophelia B*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
34º 14.067' N, 75º 52.350' W

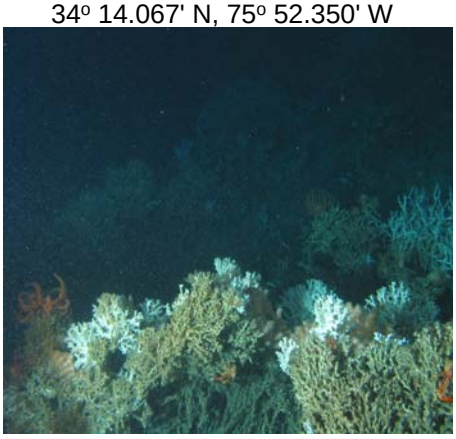
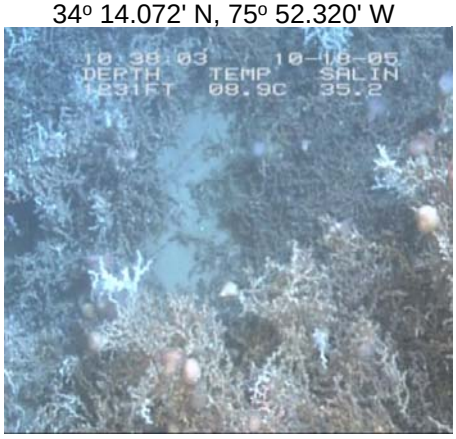


Image C: Hard Corals - without Attached Fauna
34º 14.083' N, 75º 52.330' W

Image D: Hard Corals - with Attached Fauna
34º 14.072' N, 75º 52.320' W



RELEVANT WORK AND/OR LITERATURE CITED

Uchupi (1967)
R/V Eastward training cruise 1966 (photo in Rowe and Menzies 1968 and Menzies et al. 1973)
NR-1 submersible cruise Nov 1993 (Sulak and Ross unpubl. data)
R/V Cape Hatteras cruises Aug 2001 & Sep 2006 (S.W. Ross, unpubl. data)
EEZ-SCAN 87 Scientific Staff (1991)
Reed and Ross (2005)
Brooks et al. (2007)

BIOLOGICAL ENVIRONMENT

A large number of fishes and invertebrates were observed on this dive. On the sand bottom leading to the mound there were hermit crabs, skates, and squid. Common vertebrates on reef included scorpaenids, *Laemonema* sp., *Beryx decadactylus*, and *Helicolenus dactylopterus*. *Anthias woodsi* was also observed on reef, as well as a shark. A manta ray was recorded on internal cameras swimming over the top of the mound. Much of the hard coral had attached fauna, including brissingid sea stars, urchins, anemones, and sponges. Gorgonians (unidentified), flytrap anemones, and *Aphrocallistes* spp. were abundant on this mound. Other invertebrates on mound included hermit crabs in sandy patches and numerous galatheid crabs on *Lophelia pertusa*.

PHYSICAL ENVIRONMENT

This site is located at the northern end of the Cape Lookout B mounds. The mound consisted of moderately steep slopes leading to ridges. Troughs between ridges were flat and sandy with some coral rubble. The area was very rugged with a profile of around 0.5-1 m throughout. At the tops of ridges currents reached upwards of 1 kn, while in the troughs currents were still stable at around 0.6-0.7 kn. There were a lot of particulates in the water column. Off mound was a sand bottom habitat, and the base of the mound was a mix of soft substrate and rubble. The mound itself was almost entirely hard coral matrices with some areas of attached fauna. Areas observed with steeper slopes lacked attached fauna.

ADDITIONAL COMMENTS

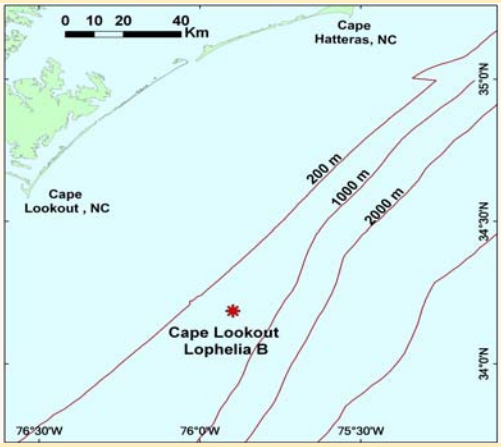
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 3 mini DVs and archived on 3 DVDs. Constistently high currents made controlling the sub and collecting difficult. The video was good quality, with very few unusable sections.

DIVE NUMBER: JSLI-4893 *STUDY AREA: Cape Lookout Lophelia B*

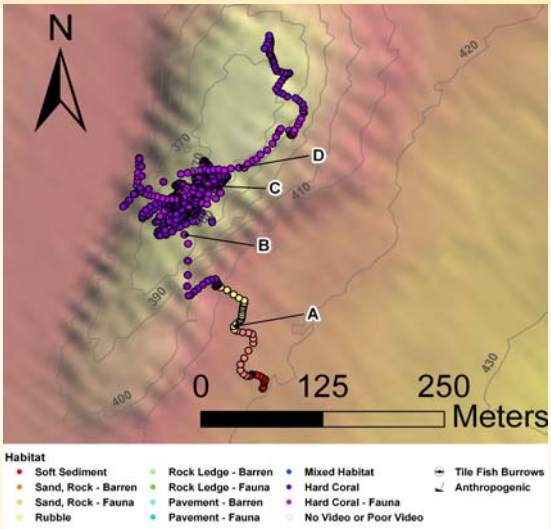
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	A Howard (bow), S Ross (stern)
External Video Tapes	5 mini DVs
Internal Video Tapes	HD video (A. Howard)
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of stern audio log
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	6/21/2011
PI Station Number	JSLI-05-4893

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	18-Oct-05
Minimum Bottom Depth (m)	366
Maximum Bottom Depth (m)	420
Start Bottom Time (EDT)	16:30
End Bottom End (EDT)	18:31
Starting Latitude (N)	34° 13.998'
Starting Longitude (W)	75° 52.298'
Ending Latitude (N)	34° 14.184'
Ending Longitude (W)	75° 52.282'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Rubble
34º 14.023' N, 75º 52.314' W

DIVE NUMBER: JSLI-4893 *STUDY AREA: Cape Lookout Lophelia B*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
34º 14.083' N, 75º 52.336' W

Image C: Hard Corals - with Attached Fauna
34º 14.104' N, 75º 52.338' W

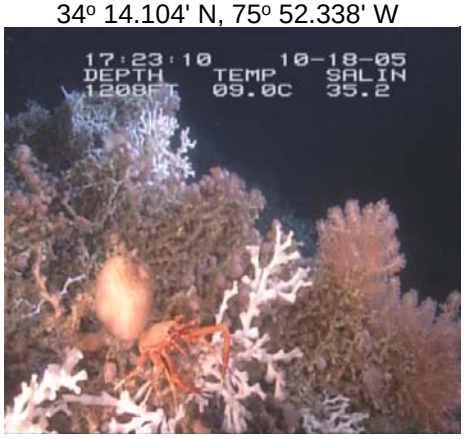
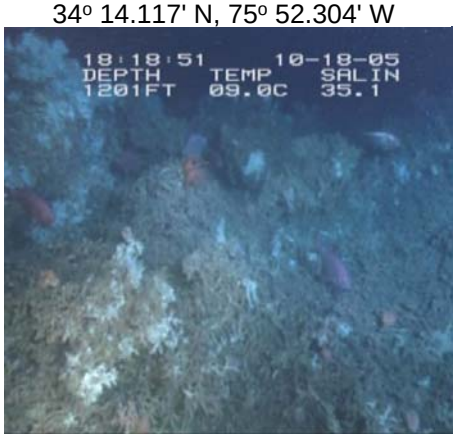


Image D: Hard Corals - with Attached Fauna
34º 14.117' N, 75º 52.304' W



RELEVANT WORK AND/OR LITERATURE CITED

Uchupi (1967)
R/V Eastward training cruise 1966 (photo in Rowe and Menzies 1968 and Menzies et al. 1973)
NR-1 submersible cruise Nov 1993 (Sulak and Ross unpubl. data)
R/V Cape Hatteras cruises Aug 2001 & Sep 2006 (S.W. Ross, unpubl. data)
EEZ-SCAN 87 Scientific Staff (1991)
Reed and Ross (2005)
Brooks et al. (2007)

BIOLOGICAL ENVIRONMENT

A few fishes were observed on this dive, while attached fauna was very abundant. Soft substrate and rubble bottom leading to the mound was inhabited by *Rochinia* sp. crabs, *Fenestraja plutonia*, *Laemonema melanurum*, and a few *Beryx decadactylus*. Common fishes on reef induded scorpaenids, *L. melanurum, L. barbatulum, B.decadactylus, Anthias woodsi, C. oceanicus*, and *Helicolenus dactylopterus. Scyliorhinus meadi* and a squalid shark were also observed. *Eumunida picta* was also common on mound and was caught in traps deployed durring the dive. Much of the hard coral had attached fauna, including brissingid sea stars, anemones, and sponges. Gorgonians (unidentified), flytrap anemones, (white and pink anemones), and glass sponges were abundant on this mound.

PHYSICAL ENVIRONMENT

This site is located at the northern end of the Cape Lookout B mounds. Visibility was about 25ft, with an overall current of 0.5 kn from the West. The dive started on soft sand bottom and approached the mound base, a mix of soft substrate and rubble. On mound was rugged and very dense with a moderate profile around 0.5-1m. The mound consisted of few troughs and ridges with moderate to steep slopes. This dive transected numerous areas of attached fauna on a mostly dead *Lophelia pertusa* matrix (<10% living).

ADDITIONAL COMMENTS

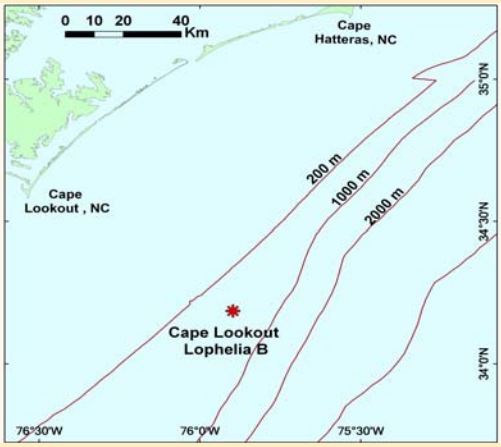
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 2 mini DVs and archived on 2 DVDs. Internal bow video was a digital copy placed on a hard drive. The video quality was clear.

DIVE NUMBER: JSLI-4894 *STUDY AREA: Cape Lookout Lophelia B*

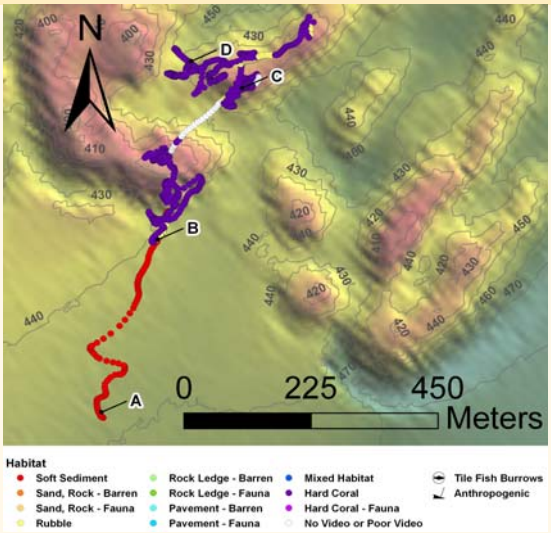
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln. Wilmington NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	S Ross (bow), M Roberts (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	6/16/2011
PI Station Number	JSLI-05-4894

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	19-Oct-05
Minimum Bottom Depth (m)	397
Maximum Bottom Depth (m)	450
Start Bottom Time (EDT)	8:22
End Bottom End (EDT)	10:59
Starting Latitude (N)	34° 10.656'
Starting Longitude (W)	75° 53.580'
Ending Latitude (N)	34° 10.998'
Ending Longitude (W)	75° 53.340'
Surface Current (Kts)	
Bottom Current (Kts)	0.1

Image A: Soft Substrate
34º 10.610' N, 75º 53.595' W

DIVE NUMBER: JSLI-4894 *STUDY AREA: Cape Lookout Lophelia B*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Rubble
34º 10.781' N, 75º 53.530' W

Image C: Hard Corals - without Attached Fauna
34º 10.928' N, 75º 53.442' W

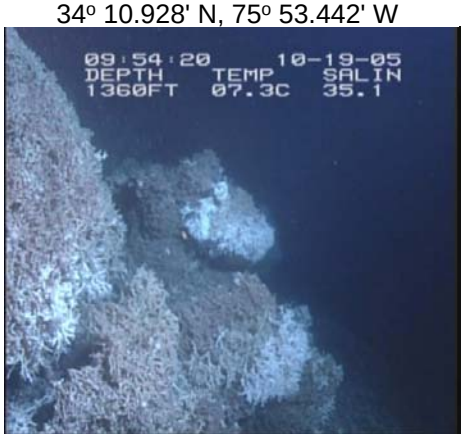
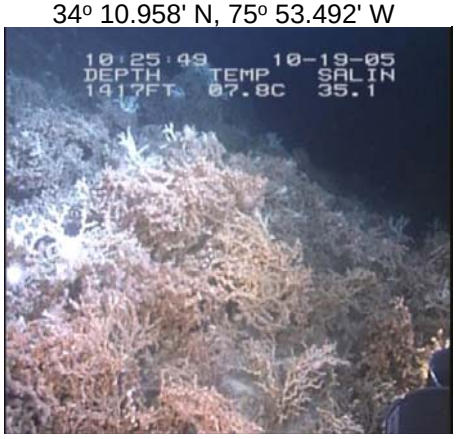


Image D: Hard Corals - without Attached Fauna
34º 10.958' N, 75º 53.492' W



RELEVANT WORK AND/OR LITERATURE CITED

Uchupi (1967)
R/V Eastward training cruise 1966 (photo in Rowe and Menzies 1968 and Menzies et al. 1973)
NR-1 submersible cruise Nov 1993 (Sulak and Ross unpubl. data)
R/V Cape Hatteras cruises Aug 2001 & Sep 2006 (S.W. Ross, unpubl. data)
EEZ-SCAN 87 Scientific Staff (1991)
Reed and Ross (2005)
Brooks et al. (2007)

BIOLOGICAL ENVIRONMENT

This dive transected two mounds. Soft substrate leading to the mound was inhabited by a few hagfish and numerous crabs, including *Rochinia* sp. Schools of squid were common throughout the dive, as well as shrimps attracted to the light. *Ateleopus* sp. was observed at the base of the first mound on rubble habitat. Other fishes included *Laemonema barbatulum, L. melanurum*, and *Chloropthalmus agassizi*. *Dysommina rugosa* was extremely abundant throughout the entire dive on both mounds. *Echinus* spp. was common. Very few Galatheids were observed. Sessile invertebrates were largely lacking.

PHYSICAL ENVIRONMENT

Two Cape Lookout B mounds were transected as part of this dive, both were characterized by a moderate profile of mostly dead (>75%) *Lophelia pertusa*. The base of each mound had a transition zone from soft substrate to rubble to hard coral habitat. There was little current over the mound, although current increased slightly as the JSL reached the summit. Both mounds had slopes between 30º and 60º.

ADDITIONAL COMMENTS

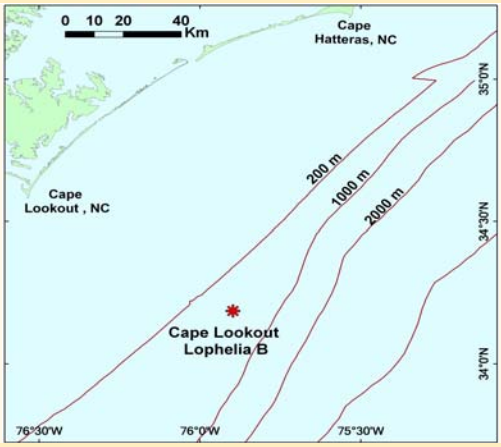
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 3 mini DVs and archived on 3 DVDs. Video contains good footage of *Ateleopus* sp.

DIVE NUMBER: JSLI-4895 *STUDY AREA: Cape Lookout Lophelia B*

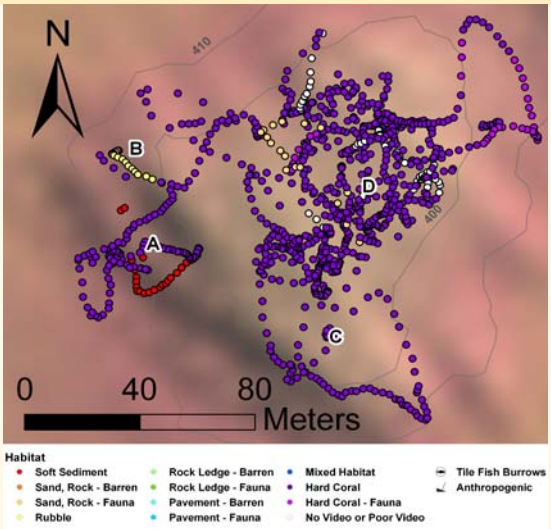
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	L Baird (bow), A Quattrini (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	HD video (A. Howard)
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	9/16/2011
PI Station Number	JSLI-05-4895

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	19-Oct-05
Minimum Bottom Depth (m)	390
Maximum Bottom Depth (m)	413
Start Bottom Time (EDT)	16:22
End Bottom End (EDT)	18:51
Starting Latitude (N)	34° 12.954'
Starting Longitude (W)	75° 53.040'
Ending Latitude (N)	34° 12.960'
Ending Longitude (W)	75° 52.980'
Surface Current (Kts)	
Bottom Current (Kts)	0.1

Image A: Soft Substrate
34º 12.946' N, 75º 53.081' W

DIVE NUMBER: JSLI-4895 *STUDY AREA: Cape Lookout Lophelia B*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Rubble
34º 12.965' N, 75º 53.087' W

Image C: Hard Corals - without Attached Fauna
34º 12.926' N, 75º 53.039' W

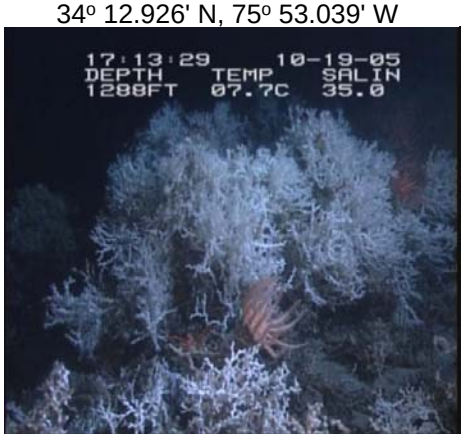
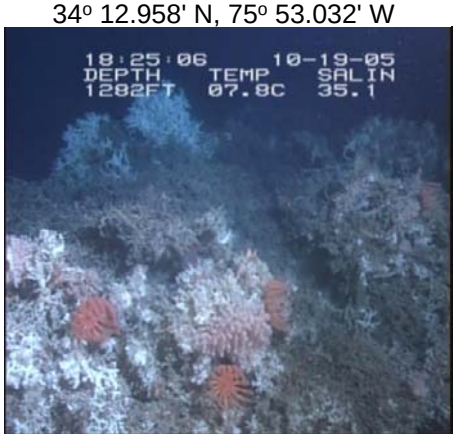


Image D: Hard Corals - without Attached Fauna
34º 12.958' N, 75º 53.032' W



RELEVANT WORK AND/OR LITERATURE CITED

Uchupi (1967)
R/V Eastward training cruise 1966 (photo in Rowe and Menzies 1968 and Menzies et al. 1973)
NR-1 submersible cruise Nov 1993 (Sulak and Ross unpubl. data)
R/V Cape Hatteras cruises Aug 2001 & Sep 2006 (S.W. Ross, unpubl. data)
EEZ-SCAN 87 Scientific Staff (1991)
Reed and Ross (2005)
Brooks et al. (2007)

BIOLOGICAL ENVIRONMENT

The majority of this dive transected hard coral habitat with abundant fauna. Fishes commonly observed throughout the entire dive included *Conger oceanicus*, *Synaphobranchus* sp., *Laemonema melanurum*, *Beryx decadactylus*, and *Helicolenus dactylopterus*. Other scorpaenids were observed less commonly as well as *Nezumia* sp. Galatheid crabs were extremely abundant in patchy distributions throughout the entire dive, as were flytrap anemones, hexactinellid sponges, and brissingid sea stars. Common invertebrates included pencil urchins, pillow stars, and white anemones. *Lophelia pertusa* was the dominant coral; *Anthothela sp.* was commonly observed, while *Enallopsammia profunda* was rare.

PHYSICAL ENVIRONMENT

This dive began transecting over soft substrate leading up to hard coral habitat. The majority of the dive covered hard coral habitat without attached fauna. Soft substrate was visible between *L. pertusa* matrices of moderate to high profile (0.5-1 m). The area was very patchy, less than 50% of the *L. pertusa* was living, with most of that occurring at the tips of coral bushes. Moderate slopes between ridges and troughs characterized the overall area. Some troughs contained soft substrate with rubble habitat, with and without attached fauna. Visibility was approximately 25 ft and currents were steady around 0.1 kn.

ADDITIONAL COMMENTS

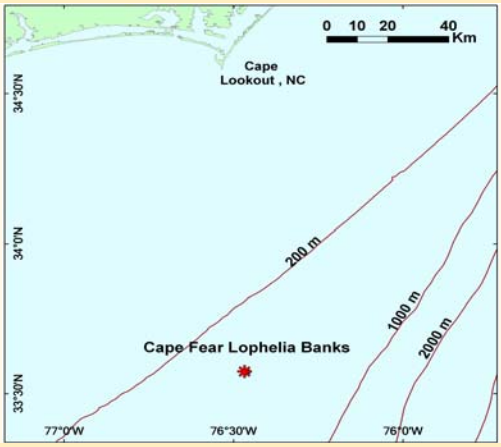
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was a digital copy placed on a hard drive. The majority of the last half of the dive was spent looking for crab traps that were set out at the begining of the dive, the were found but the video has a lot of footage that overlaps areas of the reef. The quality of video is extremely clear.

DIVE NUMBER: JSLI-4896 *STUDY AREA: Cape Fear Lophelia*

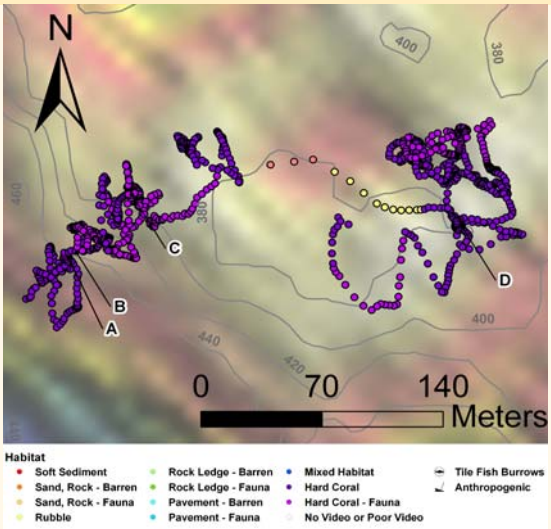
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	C Morrison (bow), T Birdsong (stern)
External Video Tapes	3 mini DVs
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of bow audio log
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	6/21/2011
PI Station Number	JSLI-05-4896

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	20-Oct-05
Minimum Bottom Depth (m)	372
Maximum Bottom Depth (m)	399
Start Bottom Time (EDT)	8:24
End Bottom End (EDT)	10:50
Starting Latitude (N)	33° 34.176'
Starting Longitude (W)	76° 27.894'
Ending Latitude (N)	33° 34.170'
Ending Longitude (W)	76° 27.770'
Surface Current (Kts)	
Bottom Current (Kts)	0.1

Image A: Hard Corals - without Attached Fauna
33º 34.187' N, 76º 27.885' W

DIVE NUMBER: JSLI-4896 *STUDY AREA: Cape Fear Lophelia*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
33º 34.190' N, 76º 27.888' W

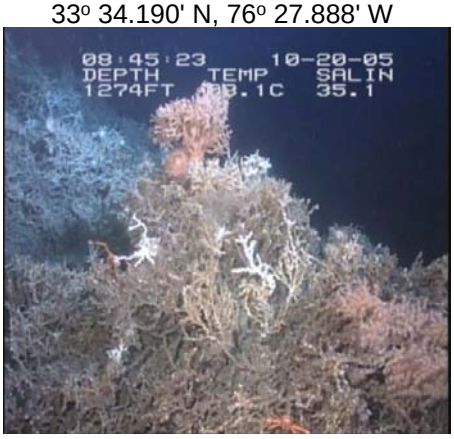
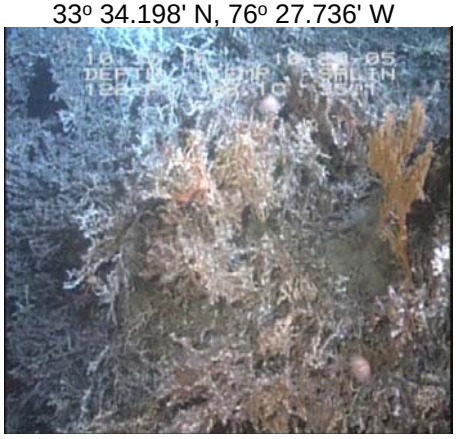


Image C: Hard Corals - with Attached Fauna
33º 34.208' N, 76º 27.862' W

Image D: Hard Corals - without Attached Fauna
33º 34.198' N, 76º 27.736' W



RELEVANT WORK AND/OR LITERATURE CITED

EEZ-SCAN 87 Scientific Staff (1991)
Reed and Ross (2005)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Quattrini et al. (in press)

BIOLOGICAL ENVIRONMENT

Various invertebrates and fishes were common during this dive. Cup corals were common on the dead *Lophelia pertusa* matrix, as were areas of abundant orange anemones. Flytrap anemones were also abundant throughout the dive. Octocorals were commonly observed, while only a single colony of *Madrepora oculata* was observed (not alive). A single antipatharian was observed and collected. *Aphrocallistes* spp. were commonly observed. *Eumunida picta* was abundant. Fishes observed included *Helicolenus dactylopterus, Nezumia* spp., *Conger oceanicus,* and one *Polyprion americanus*.

PHYSICAL ENVIRONMENT

The dive started directly on the Cape Fear mound in hard coral habitat. Most of the dive occured on hard coral habitat with some areas of attached fauna. The only rubble observed was in a trough mid-mound. Ridges and valleys with moderate slope were characteristic of this site. Tops of ridges were low profile *L. pertusa*, while the slopes were moderate to high profile. The entire mound was covered by a dense matrix of mostly dead *L. pertusa* (<20% live). A current of 0.1-0.2 kn from the south was present throughout the dive, except at the top of the mound where currents reached 0.5 kn. Good visibility occurred throughout the dive.

ADDITIONAL COMMENTS

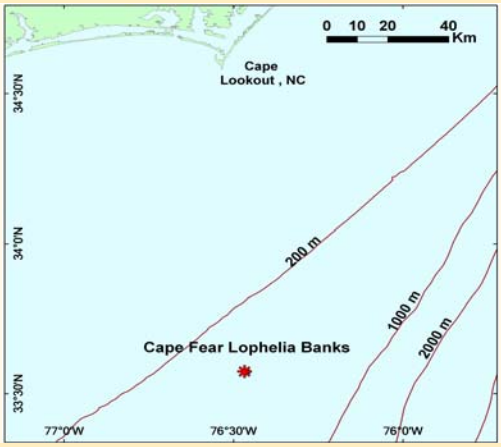
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 3 mini DVs and archived on 3 DVDs. The video quality was clear.

DIVE NUMBER: JSLI-4897 *STUDY AREA: Cape Fear Lophelia*

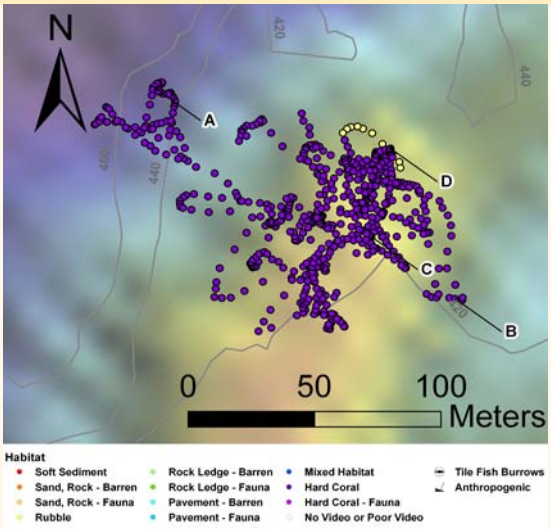
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	M Nizinski (bow), R Greene (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	6/30/2011
PI Station Number	JSLI-05-4897

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	20-Oct-05
Minimum Bottom Depth (m)	404
Maximum Bottom Depth (m)	443
Start Bottom Time (EDT)	16:21
End Bottom End (EDT)	18:26
Starting Latitude (N)	33° 34.446'
Starting Longitude (W)	76° 27.978'
Ending Latitude (N)	33° 34.644'
Ending Longitude (W)	76° 27.952'
Surface Current (Kts)	
Bottom Current (Kts)	0.2

Image A: Hard Corals - without Attached Fauna
33º 34.656' N, 76º 27.981' W

DIVE NUMBER: JSLI-4897 *STUDY AREA: Cape Fear Lophelia*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
33º 34.612' N, 76º 27.905' W

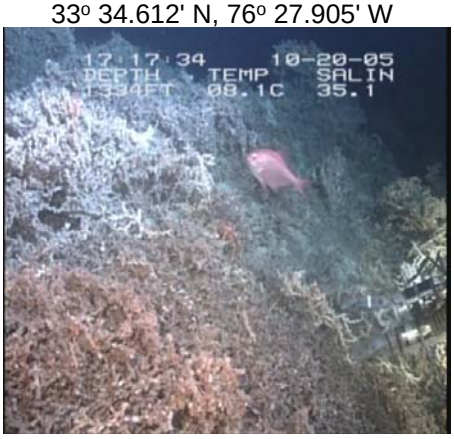


Image C: Hard Corals - without Attached Fauna
33º 34.625' N, 76º 27.928' W

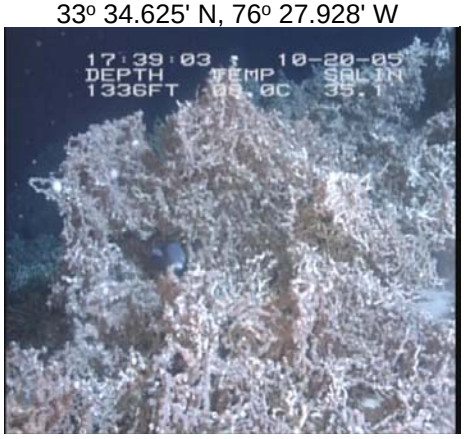


Image D: Hard Corals - without Attached Fauna
33º 34.645' N, 76º 27.915' W

RELEVANT WORK AND/OR LITERATURE CITED

EEZ-SCAN 87 Scientific Staff (1991)
Reed and Ross (2005)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Quattrini et al. (in press)

BIOLOGICAL ENVIRONMENT

The entire dive took place over a dense *Lophelia pertusa* reef made up of primarily dead *L. pertusa* boulders and rubble. Only about 5-10% of the coral observed was living. Cup corals were abundant on the dead *L. pertusa*, while sponges and soft corals were rare. The most common mobile invertebrates were *Eumunida picta* and brittle stars. A single *Rochinia crassa* was observed and collected. Flytrap anemones and basket stars were observed occasionally. Fishes observed on this dive included *Helicolenus dactylopterus*, *Laemonema melanurum*, *L. barbatulum*, *Conger oceanicus*, *Beryx decadactylus*, *Nezumia* spp. and a large wreckfish (*Polyprion americanus*).

PHYSICAL ENVIRONMENT

This dive traversed ridges and troughs of hard coral habitat the entire time, except for a small section of rubble in a valley. Hard coral coverage was mostly dead (less than 10% live) and moderate profile (~0.5m). Coverage was moderately dense, areas of soft sand substrate were consistently visible beneath the coral. Coral rubble and fallen *L. pertusa* matrices were present throughout the dive. Visibility was 35-40 ft with a 0.2 kn current from 330º.

ADDITIONAL COMMENTS

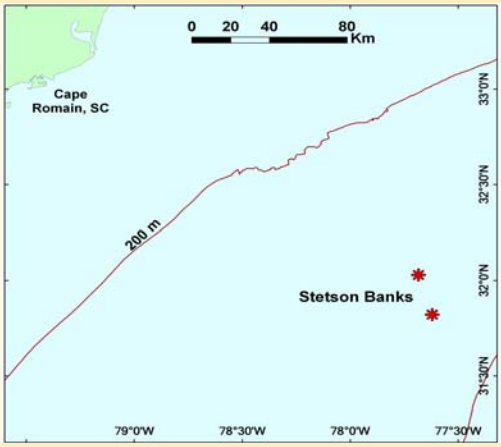
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 2 mini DVs and archived on 2 DVDs. The video quality was clear.

DIVE NUMBER: JSLI-4898 *STUDY AREA: Stetson Banks*

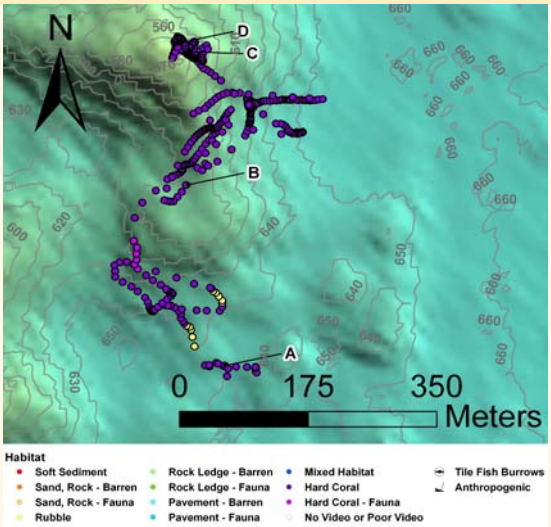
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	M Roberts (bow), C Morrison (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	7/5/2011
PI Station Number	JSLI-05-4898

GENERAL LOCATION



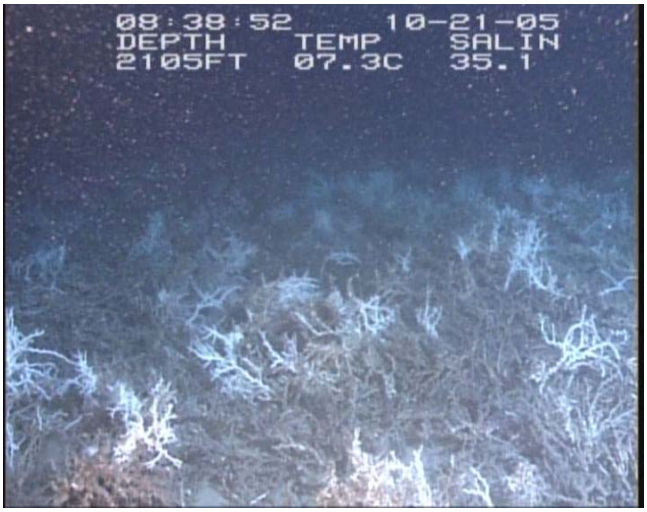
Dive Track:



DIVE DATA

Date	21-Oct-05
Minimum Bottom Depth (m)	549
Maximum Bottom Depth (m)	646
Start Bottom Time (EDT)	8:37
End Bottom End (EDT)	10:35
Starting Latitude (N)	32° 15.936'
Starting Longitude (W)	77° 28.422'
Ending Latitude (N)	32° 16.170'
Ending Longitude (W)	77° 28.474'
Surface Current (Kts)	
Bottom Current (Kts)	0.1

Image A: Hard Corals - without Attached Fauna
32º 15.941' N, 77º 28.423' W



DIVE NUMBER: JSLI-4898 *STUDY AREA: Stetson Banks*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
32º 16.062' N, 77º 28.498' W

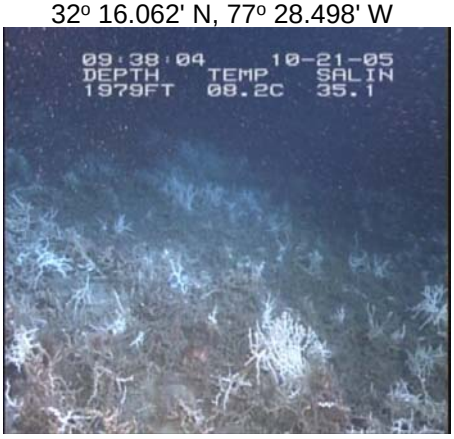
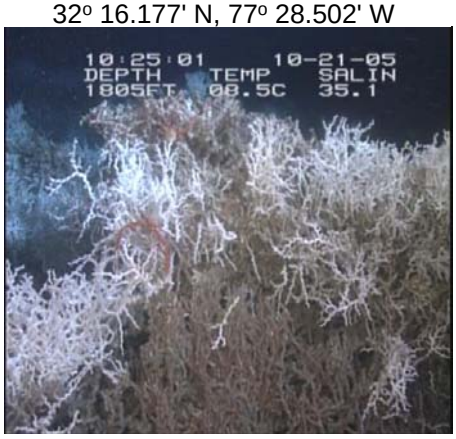


Image C: Hard Corals - without Attached Fauna
32º 16.182' N, 77º 28.490' W

Image D: Hard Corals - without Attached Fauna
32º 16.177' N, 77º 28.502' W



RELEVANT WORK AND/OR LITERATURE CITED

Stetson (1961)
Stetson et al. (1962)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Williams et al. (2006)
Williams et al. (2007)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

This dive transected a large portion of off-mound habitat and some on-mound habitat in the end. The low profile, off mound habitat had less than 10% live *Lophelia pertusa* coverage. A few species were seen in the off-mound area. The most common fish species was *Laemonema barbatulum*, and the most common invertebrate was *Plumarella* sp. (both on- and off-mound). Urchins and anemones were common. Galatheids were not present off-mound. In the last 30 minutes of the dive, the sub transected the top of a mound where *L.pertusa* was of higher relief and a greater percentage was alive (>25%). Galatheid crabs, brissingid sea stars, and sponges were common on top of the mound. Other fish species observed included *Conger oceanicus*, *Nezumia* spp., *Beryx decadactylus*, and a few scorpaenids. Sessile invertebrates observed included barrel sponges, glass sponges, *Madrepora oculata*, and a few gorgonians.

PHYSICAL ENVIRONMENT

The majority of this dive took place off mound, with only the last 30 minutes transecting the top of a *L. pertusa* mound. Off mound was characterized by low rolling hills, and low profile (less than 0.5 m relief) *L. pertusa*. Bottom coverage was moderate with visible patches of sand between coral rubble. Off mound had currents of 0.1-0.2 kn from ~120º. On mound had moderate to high profile *L. pertusa* coral and 100% bottom coverage. Current at the top of the mound exceeded 0.5 kn. Visibility was impeded throughout the dive by particulates in the water column.

ADDITIONAL COMMENTS

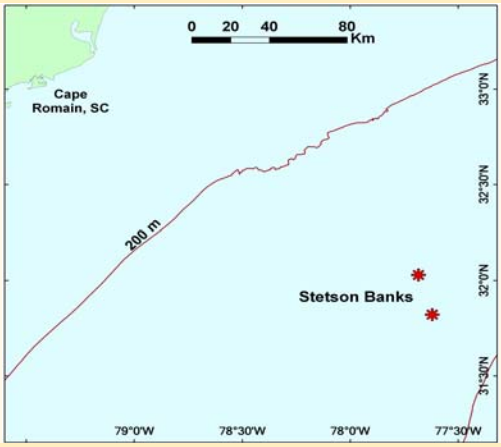
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 2 mini DVs and archived on 2 DVDs. Video and audio quality was poor on the first external bow DVD. Currents on the top of the mound made controlling the sub and collecting difficult.

DIVE NUMBER: JSLI-4899 *STUDY AREA: Stetson Banks*

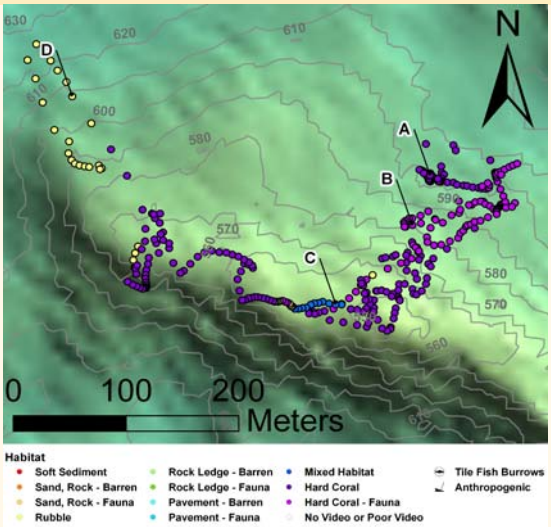
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	S Ross (bow), J McClain (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	2 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	6/27/2011
PI Station Number	JSLI-05-4899

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	21-Oct-05
Minimum Bottom Depth (m)	540
Maximum Bottom Depth (m)	603
Start Bottom Time (EDT)	16:22
End Bottom End (EDT)	18:25
Starting Latitude (N)	32° 15.834'
Starting Longitude (W)	77° 28.817'
Ending Latitude (N)	32° 15.882'
Ending Longitude (W)	77° 29.028'
Surface Current (Kts)	
Bottom Current (Kts)	0.4

Image A: Hard Corals - without Attached Fauna
32° 15.836' N, 77° 28.847' W

DIVE NUMBER: JSLI-4899 *STUDY AREA: Stetson Banks*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
32º 15.805' N, 77º 28.846' W

Image C: Mixed Habitat
32º 15.770' N, 77º 28.887' W

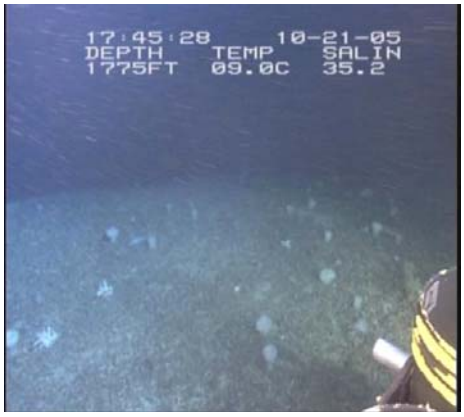


Image D: Rubble
32º 15.884' N, 77º 29.066' W

RELEVANT WORK AND/OR LITERATURE CITED

Stetson (1961)
Stetson et al. (1962)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Williams et al. (2006)
Williams et al. (2007)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

Several fishes were seen throughout this area. *Laemonema melanurum* and *Nezumia sclerorhynchus* were most abundant and observed throughout all habitats. Other fishes observed included *Trachyscorpia cristulata*, *Idiastion kyphos*, *Scyliorhinus retifer*, *Helicolenus dactylopterus*, and squalid sharks. Sessile invertebrates were diverse and common and included several corals and sponges. Small octocorals were abundant and most visible when the sub was stopped. *Madrepora oculata* and a few cup corals were observed. Numerous glass and barrel sponges were present in rubble habitat, but were also common within the *Lophelia pertusa* matrix. Other common invertebrates were brissingid sea stars, urchins, galatheids and *Bathynectes longispina*.

PHYSICAL ENVIRONMENT

The dive began in medium coverage *L. pertusa* habitat without attached fauna. Current was variable throughout the dive ranging from 0.4 kn in low areas to over 1.5 kn on ridges. Visibility was approximately 30 feet. *L. pertusa* was low profile throughout, coverage was moderate to high, but there was a good percentage of live coral. In some places 60% of *L. pertusa* was alive. Some hard coral habitats had attached fauna. The dive also traversed a low profile mixed habitat containing coral rubble with attached sponges, corals, and anemones.

ADDITIONAL COMMENTS

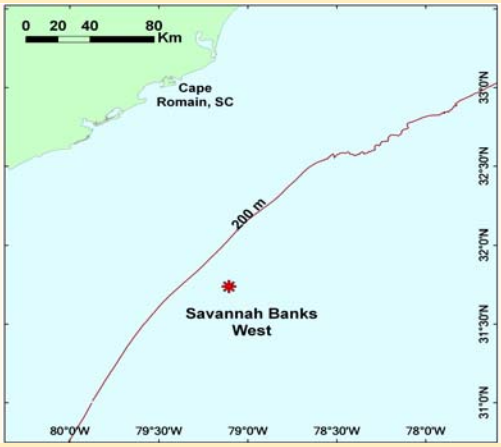
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 2 mini DVs and archived on 2 DVDs. Some parts of the video were dark and made classification difficult. There are good examples of mixed habitat on this dive.

DIVE NUMBER: JSLI-4900 *STUDY AREA: Savannah Banks West*

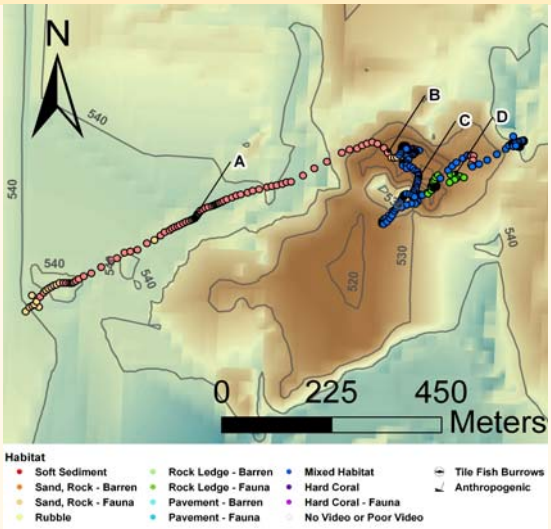
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	B Lubinski (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	0
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Training dive, hard copy stern audio log
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	7/7/2011
PI Station Number	JSLI-05-4900

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	22-Oct-05
Minimum Bottom Depth (m)	500
Maximum Bottom Depth (m)	544
Start Bottom Time (EDT)	17:03
End Bottom End (EDT)	19:17
Starting Latitude (N)	31° 44.358'
Starting Longitude (W)	79° 06.159'
Ending Latitude (N)	31° 44.568'
Ending Longitude (W)	79° 05.526'
Surface Current (Kts)	2
Bottom Current (Kts)	0.2

Image A: Sand/Rubble/Rock - with Attached Fauna
31º 44.469' N, 79º 05.942' W

DIVE NUMBER: JSLI-4900 *STUDY AREA: Savannah Banks West*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Sand/Rubble/Rock-Barren
31º 44.570' N, 79º 05.694' W

Image C: Mixed Habitat
31º 44.523' N, 79º 05.652' W

Image D: Rock Ledge - with Attached Fauna
31º 44.537' N, 79º 05.626' W

RELEVANT WORK AND/OR LITERATURE CITED

Milliman et al. (1967)
Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

Very few fish were observed on this dive and were represented by very few individuals. The most common fish was *Laemonema melanurum* in all habitats observed. A few *Nezumia* spp. and squalid sharks were observed on mound. *Fenestraja plutonia* was observed on the soft substrate rubble mix. In the soft substrate rubble mix *Phykalleia* spp. was abundant in patches. Mound substrate of rock ledge and rubble was covered with abundant mixed fauna. Hard corals were represented by individuals of *Lophelia pertusa*, *Madrepora oculata*, *Enallopsammia profunda*, and numerous cup corals. Gorgonians were abundant but too small to be properly identified. Samples of *Leiopathes* sp. and *Bathypathes* sp. were taken. Sponges were abundant, and numerous dead sponges were observed. Live sponges included *Aphrocallistes* spp., *Hertwigia* spp., *Phakallia* spp., and other hexactinellids. Galatheid crabs and one other crab (unidentified) were the only motile invertebrates observed; both were closer to the top of ridges.

PHYSICAL ENVIRONMENT

Four habitat types were observed during this dive: 1) mixed coral community, 2) rock ledges with attached fauna, 3) soft substrate with rubble, and 4) soft substrate and rubble with attached fauna. Soft substrate habitats had patchy distributions of sponges and large rubble. The mixed and rock ledge communities consisted of numerous small corals and sponges. Two ridges were traversed; both exhibited slopes of around 40º and were low profile (< 1m). A few *L. pertusa* boulders were present at the top of the first ridge. Currents were magnified at the top of ridges.

ADDITIONAL COMMENTS

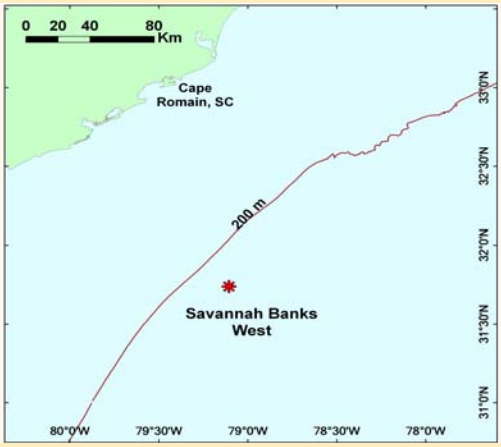
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. This dive was a training dive; the sub often moved inconsistently and video was blurry at times. Good example of mixed habitat on this dive.

DIVE NUMBER: JSLI-4901 *STUDY AREA: Savannah Banks West*

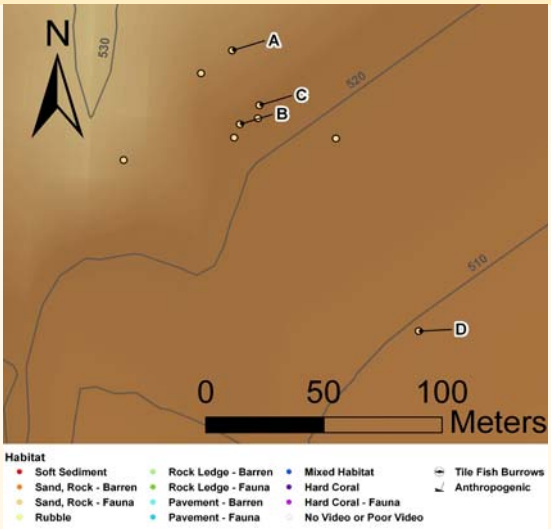
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	T Casazza (bow), M Partyka (stern)
External Video Tapes	1 mini DV
Internal Video Tapes	1 mini DV
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	7/26/2011
PI Station Number	JSLI-05-4901

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	23-Oct-05
Minimum Bottom Depth (m)	507
Maximum Bottom Depth (m)	508
Start Bottom Time (EDT)	8:28
End Bottom End (EDT)	8:35
Starting Latitude (N)	31° 42.360'
Starting Longitude (W)	79° 07.424'
Ending Latitude (N)	31° 42.306'
Ending Longitude (W)	79° 07.390'
Surface Current (Kts)	1.6
Bottom Current (Kts)	0.6

Image A: Sand/Rubble/Rock - with Attached Fauna
31º 42.366' N, 79º 07.416' W *

DIVE NUMBER: JSLI-4901 *STUDY AREA: Savannah Banks West*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Sand/Rubble/Rock - with Attached Fauna
31º 42.349' N, 79º 07.413' W *

Image C: Sand/Rubble/Rock - with Attached Fauna
31º 42.354' N, 79º 07.408' W *

Image D: Sand/Rubble/Rock - with Attached Fauna
31º 42.302' N, 79º 07.363' W *

RELEVANT WORK AND/OR LITERATURE CITED

Milliman et al. (1967)
Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

For the short time the sub was on the bottom, a soft rubble habitat with attached fauna was observed. Small scleractinian corals, soft corals, and sponges were attached to rock and rubble. Large *Phakellia* sp. sponges were present. Fishes observed included *Laemonema melanurum, Nezumia sclerorhynchus*, *Chloropthalmus agassizi*, and *Squalus cubensis*.

PHYSICAL ENVIRONMENT

This dive landed in a soft rubble and rock mix with attached fauna. The bottom was low profile and had a gentle slope (~10º). Currents were strong and visibility was cloudy.

ADDITIONAL COMMENTS

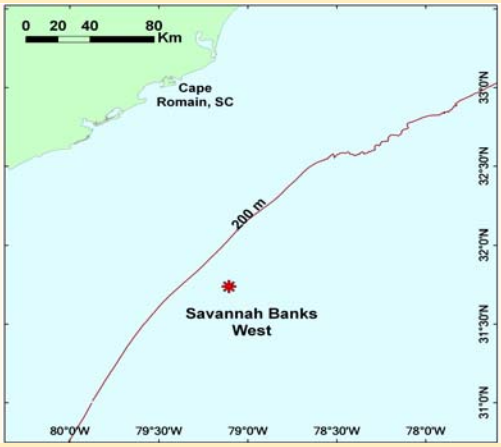
The internal bow video was captured on 1 mini DV and archived on 1 DVD. External stern video was captured on 1 mini DV and archived on 1 DVD. A *Nezumia sclerorhynchus* was collected. The dive was called short due to inclement weather.

DIVE NUMBER: JSLI-4902 *STUDY AREA: Savannah Banks West*

STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	T Casazza (bow), M Partyka (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	3 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	8/4/2011
PI Station Number	JSLI-05-4902

GENERAL LOCATION



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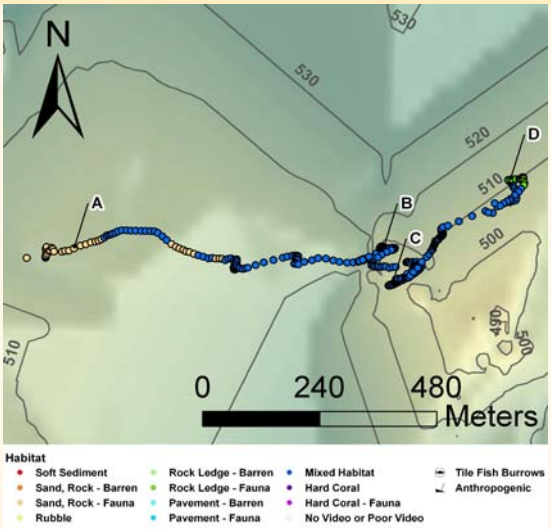


DIVE DATA

Date	26-Oct-05
Minimum Bottom Depth (m)	497
Maximum Bottom Depth (m)	519
Start Bottom Time (EDT)	16:38
End Bottom End (EDT)	18:57
Starting Latitude (N)	31° 42.258'
Starting Longitude (W)	79° 07.884'
Ending Latitude (N)	31° 42.318'
Ending Longitude (W)	79° 07.310'
Surface Current (Kts)	2.8
Bottom Current (Kts)	0.7

Image A: Sand/Rubble/Rock - with Attached Fauna
31º 42.255' N, 79º 07.857' W

DIVE NUMBER: JSLI-4902 *STUDY AREA: Savannah Banks West*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Mixed Habitat
31º 42.272' N, 79º 07.445' W

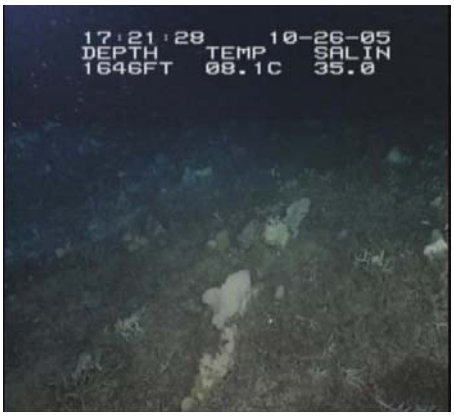


Image C: Mixed Habitat
31º 42.231' N, 79º 07.430' W

Image D: Rock Ledge - with Attached Fauna
31º 42.354' N, 79º 07.291' W

RELEVANT WORK AND/OR LITERATURE CITED

Milliman et al. (1967)
Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

The majority of the dive took place over mixed habitat. Demosponges and gorgonians were abundant, while individual hard corals, cup corals, and hexactinellid sponges were common. *Lophelia pertusa* and *Stylaster* sp. were the most commonly observed corals. Other corals, *Madrepora oculata* and *Leiopathes* spp., were observed rarely and collected. Motile invertebrates were common and included galatheid crabs, cancer crabs, *Rochinia* spp. crabs, urchins, squid, octopus, and a sea star. Fishes were observed throughout the dive. Squalid sharks were observed the entire dive and may have been following the sub. Other than the sharks, the most commonly observed fishes were *Nezumia sclerorhynchus* and *Laemonema melanurum*. Other fishes observed included scorpionfishes and a small eel.

PHYSICAL ENVIRONMENT

Three habitat types were observed on this dive. The dive started on a soft substrate rock/rubble mix with attached fauna and moved into a mixed habitat on rock/rubble substrate. A rock ledge with attached fauna was observed in an area that appeared to have experienced a disturbance which uncovered the rock ledge. The entire area displayed gentle rolling slopes with low profile habitat. No sections were dominated by hard corals. Currents were around 0.7 - 0.8 kn and there were particulates in the water column.

ADDITIONAL COMMENTS

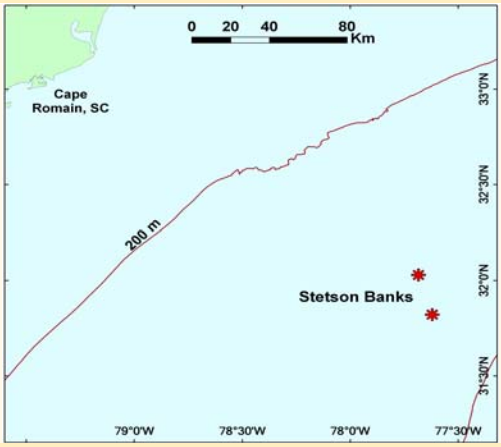
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 3 mini DVs and archived on 3 DVDs. Some parts of the video were dark and made classification difficult. There were good examples of mixed habitat on this dive.

DIVE NUMBER: JSLI-4903 *STUDY AREA: Stetson Banks*

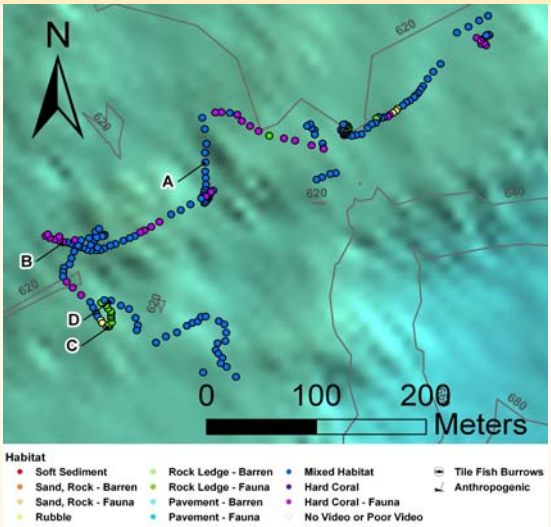
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	M Nizinski (bow), D Angell (stern)
External Video Tapes	4 mini DVs
Internal Video Tapes	2 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	8/19/2011
PI Station Number	JSLI-05-4903

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	27-Oct-05
Minimum Bottom Depth (m)	613
Maximum Bottom Depth (m)	633
Start Bottom Time (EDT)	8:30
End Bottom End (EDT)	10:21
Starting Latitude (N)	32° 01.122'
Starting Longitude (W)	77° 40.004'
Ending Latitude (N)	32° 00.948'
Ending Longitude (W)	77° 40.163'
Surface Current (Kts)	0.2
Bottom Current (Kts)	0.1

Image A: Mixed Habitat
32º 01.048' N, 77º 40.159' W

DIVE NUMBER: JSLI-4903 *STUDY AREA: Stetson Banks*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
32º 01.006' N, 77º 40.242' W

Image C: Rock Ledge - with Attached Fauna
32º 00.963' N, 77º 40.205' W

Image D: Mixed Habitat
32º 00.980' N, 77º 40.222' W

RELEVANT WORK AND/OR LITERATURE CITED

Stetson (1961)
Stetson et al. (1962)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Williams et al. (2006)
Williams et al. (2007)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

Very few fishes were observed on this dive and were represented by very few individuals. Fishes observed included *Laemonema melanurum*, *Nezumia sclerorhynchus*, *Squalis cubensis*, a hatchet fish, and a large charcarinid. Motile invertebrates were rare. *Eumunida picta* and *Bathynectes* sp. were observed away from hard coral matrices. Echinoderms were common and included pillow stars, urchins, and other sea stars. Corals and sponges were abundant. *Plumarella* sp. appeared to be the dominant coral species. Other octocorals were extremely abundant, but too small to be properly identified from the video. Individual colonies of *Lophelia pertusa*, *Enallopsammia profunda*, and *Stylaster* sp., were common, with occasional matricies being formed by *L. pertusa* and *E. profunda*. Cup corals were abundant in a patchy distribution. Demosponges were abundant throughout the dive and hexactinellid sponges were common in some areas.

PHYSICAL ENVIRONMENT

This dive transected four habitat types: 1) hard corals with attached fauna, 2) rubble, 3) mixed, and 4) rock ledge with attached fauna. Rubble habitat was the least common. The majority of the area was mixed habitat with numerous attached corals and sponges. Hard corals did not dominate this area and rarely created matrices characteristic of hard coral habitat. Hard coral habitat was a mix of *L. pertusa* and *E. profunda*. The entire dive was low profile (< 1m), with only slightly more relief on hard coral areas and rock ledges. Rock ledges were rare. Current was steady around 0.1 - 0.2 kn.

ADDITIONAL COMMENTS

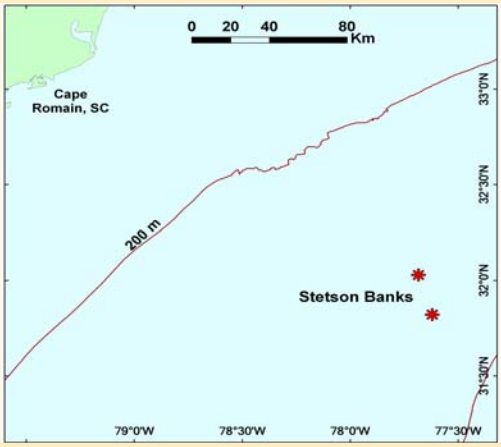
The external bow video was captured on 2 mini DVs and archived on 2 DVDs. External stern video was captured on 2 mini DVs and archived on 2 DVDs. Internal bow video was captured on 2 mini DVs and archived on 2 DVDs. The video quality was clear.

DIVE NUMBER: JSLI-4904 *STUDY AREA: Stetson Banks*

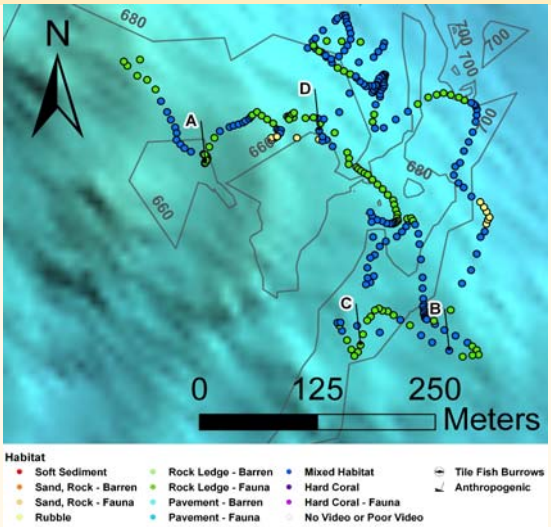
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	A Quattrini (bow), M Palmer (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	3 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	9/1/2011
PI Station Number	JSLI-05-4904

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	27-Oct-05
Minimum Bottom Depth (m)	649
Maximum Bottom Depth (m)	705
Start Bottom Time (EDT)	16:29
End Bottom End (EDT)	18:52
Starting Latitude (N)	31° 50.808'
Starting Longitude (W)	77° 36.833'
Ending Latitude (N)	31° 50.792'
Ending Longitude (W)	77° 36.741'
Surface Current (Kts)	1
Bottom Current (Kts)	1

Image A: Rock Ledge - with Attached Fauna
31º 50.759' N, 77º 36.786' W

DIVE NUMBER: JSLI-4904 *STUDY AREA: Stetson Banks*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Mixed Habitat
31º 50.642' N, 77º 36.599' W

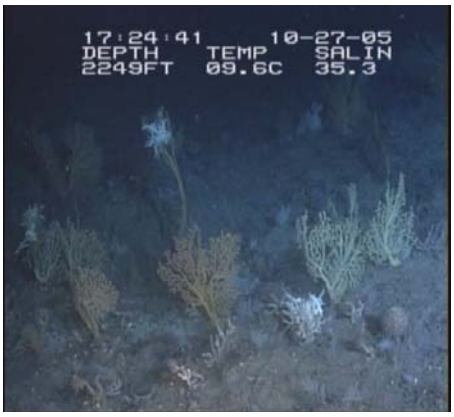


Image C: Rock Ledge - with Attached Fauna
31º 50.652' N, 77º 36.679' W

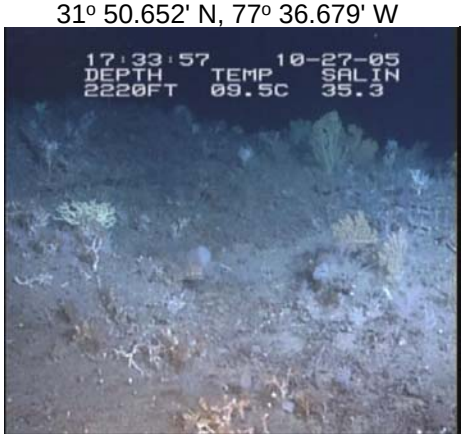


Image D: Mixed Habitat
31º 50.771' N, 77º 36.713' W

RELEVANT WORK AND/OR LITERATURE CITED

Stetson (1961)
Stetson et al. (1962)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Williams et al. (2006)
Williams et al. (2007)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

The two most common fish species observed on this dive were *Laemonema melanurum*, and *Nezumia sclerorhynchus*. Other species included *Eptatretus lopheliae*, *Beryx decadactylus*, *Trachyscorpia cristulata*, *Conger oceanicus*, and *Polyprion americanus*. Motile invertebrates included *Bathynectes* sp. crabs, galatheid crabs, and urchins. Octocorals were the most abundant organisms and included primnoids, isidids, and plexaurids. Some individual scleractinians were present such as *Enallopsammia profunda* and *Lophelia pertusa*. *Stylaster* sp. and cup corals were abundant in places, but patchy in distribution. Flytrap anemones were common, and hexatinellid sponges were abundant.

PHYSICAL ENVIRONMENT

Currents were strong throughout this dive and the visibility was approximately 20-30 ft. The majority of the dive took place over mixed habitat; rock ledges with attached fauna were common. Very few areas of rubble habitat were encountered. Rock ledges were of moderate relief (0.5-1 m) with numerous overhangs. Mixed habitat had patchy distributions of attached fauna. Mixed and rubble habitats appeard to have a thin layer of sediment on top. Water mixing was visible and recorded on video. Garbage was also observed on the bottom.

ADDITIONAL COMMENTS

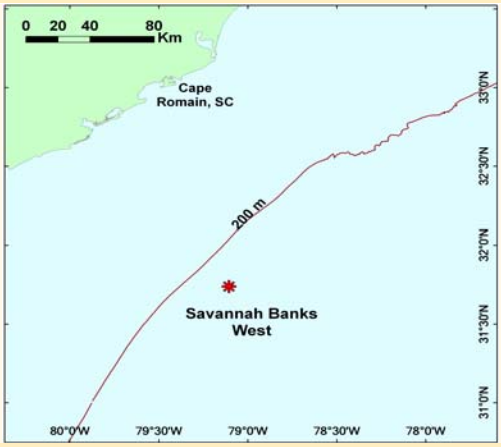
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 3 mini DVs and archived on 3 DVDs. Constistently high currents made controlling the sub and collecting difficult. The video quality was clear.

DIVE NUMBER: JSLI-4905 *STUDY AREA: Savannah Banks West*

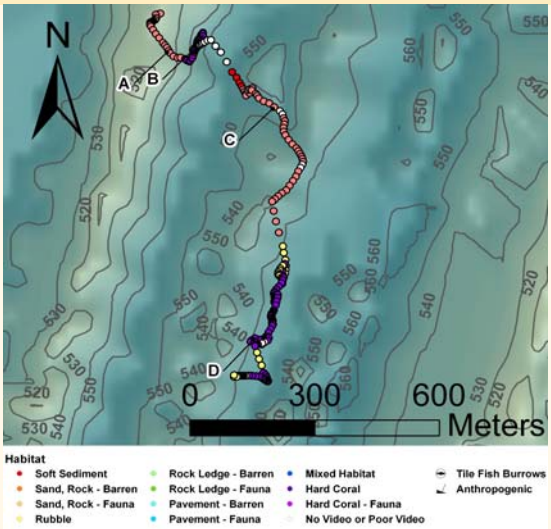
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	C Morrison (bow), S Ross (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	3 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of bow audio log
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	9/8/2011
PI Station Number	JSLI-05-4905

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	30-Oct-05
Minimum Bottom Depth (m)	505
Maximum Bottom Depth (m)	558
Start Bottom Time (EDT)	16:12
End Bottom End (EDT)	18:35
Starting Latitude (N)	31° 46.908'
Starting Longitude (W)	79° 12.261'
Ending Latitude (N)	31° 46.434'
Ending Longitude (W)	79° 12.104'
Surface Current (Kts)	1
Bottom Current (Kts)	0.1

Image A: Sand/Rubble/Rock - without Attached Fauna
31º 46.859' N, 79º 12.226' W

DIVE NUMBER: JSLI-4905 *STUDY AREA: Savannah Banks West*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
32º 46.868' N, 79º 12.187' W

Image C: Sand/Rubble/Rock - without Attached Fauna
31º 46.796' N, 79º 12.081' W

Image D: Hard Corals - without Attached Fauna
31º 46.492' N, 79º 12.057' W

RELEVANT WORK AND/OR LITERATURE CITED

Milliman et al. (1967)
Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

Soft rubble bottom was inhabited by a few invertebrates such as pancake urchins, *Stylaster* sp., and cancer crabs. Hard coral habitats were mostly dead *Lophelia pertusa* with only 0-10% alive. Very few areas had attached octocorals or glass sponges. Other corals included *Madrepora oculata*, *Enallopsammia profunda*, and cup corals. Fishes were commonly observed throughout the dive and included *Laemonema melanurum*, *Nezumia sclerorhynchus*, *Scyliorhinus retifer*, *Helicolenus dactylopterus*, *Breviraja claramaculata*, *Synaphobranchus* sp., *Benthobatis marcida*, and *Chimaera monstrosa*. Golden crabs were observed numerous times in pairs, possibly mating.

PHYSICAL ENVIRONMENT

The majority of the dive took place over hard coral habitat of low profile with few intact matrices of mostly dead (0-10% live) *L. pertusa*. The second most abundant habitat transected was soft substrate rubble mix with little to no attached fauna. The entire dive was low profile (<0.5 m relief) with very little live invertebrate fauna. Some coral matrices approached 0.5 m relief at the top of the ridge. All slopes were gradual (<30º). Visibility was good at 30-40 feet, and currents were moderate making maneuvering and collections manageable.

ADDITIONAL COMMENTS

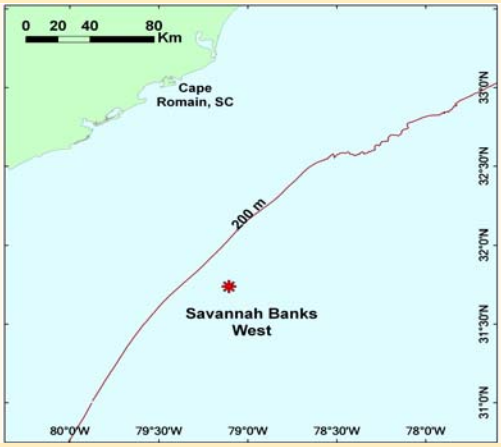
The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 3 mini DVs and archived on 3 DVDs. The video quality was clear with good footage of paired golden crabs.

DIVE NUMBER: JSLI-4906 *STUDY AREA: Savannah Banks West*

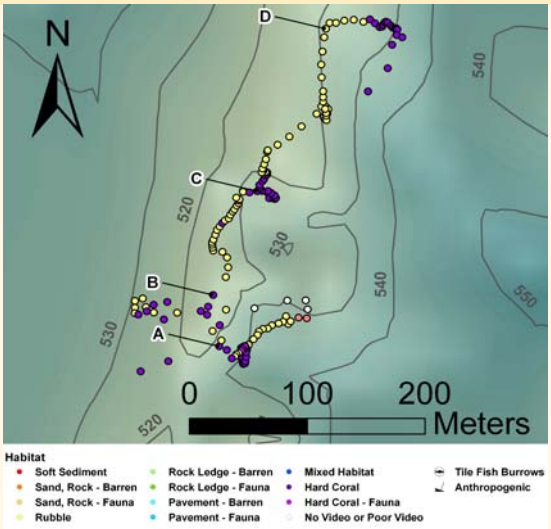
STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	S Ross (bow), A Quattrini (stern)
External Video Tapes	4 mini DVs
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	9/22/2011
PI Station Number	JSLI-05-4906

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	31-Oct-05
Minimum Bottom Depth (m)	507
Maximum Bottom Depth (m)	543
Start Bottom Time (EDT)	17:26
End Bottom End (EDT)	18:52
Starting Latitude (N)	31° 46.578'
Starting Longitude (W)	79° 11.640'
Ending Latitude (N)	31° 46.620'
Ending Longitude (W)	79° 11.555'
Surface Current (Kts)	1
Bottom Current (Kts)	0.2

Image A: Hard Corals - without Attached Fauna
31º 46.483' N, 79º 11.640' W

DIVE NUMBER: JSLI-4906 *STUDY AREA: Savannah Banks West*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
31º 46.499' N, 79º 11.660' W

Image C: Hard Corals - without Attached Fauna
31º 46.559' N, 79º 11.640' W

Image D: Rubble
31º 46.641' N, 79º 11.593' W

RELEVANT WORK AND/OR LITERATURE CITED

Milliman et al. (1967)
Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

The dive covered mostly rubble habitat, and hard coral areas were mostly dead (0-10% live). Living branches were often of *Enallopsammia profunda*, not *Lophelia pertusa*. *Madrepora oculata* and patches of cup corals were also observed. Stylasterids were common throughout the dive. Glass sponges were rare. Numerous species of fish were observed, but they were represented by few individuals. They included *Laemonema melanurum*, *Squalus cubensis*, *Nezumia sclerorhynchus*, *Helicolenus dactylopterus*, *Scyliorhinus retifer*, *Dysommina rugosa*, *Benthobatis marcida*, a chamerid, and a scorpaenid. Motile invertebrates included a pancake urchin, a starfish, and golden crabs which were commonly observed in pairs, possibly mating.

PHYSICAL ENVIRONMENT

This dive transected low profile (<0.5 m relief) hard coral and rubble habitat. Clumps of live and dead coral were present along the transect. Attached fauna was extremely rare. Small sections of soft rubble bottom were observed as well. A ridge was present but the slope leading to the top was gradual. Current was moderate and visibility was clear.

ADDITIONAL COMMENTS

The external bow video was captured on 2 mini DVs and archived on 2 DVDs. External stern video was captured on 2 mini DVs and archived on 2 DVDs. Internal bow video was captured on 2 mini DVs and archived on 2 DVDs. The video quality was clear with good footage of paired golden crabs.

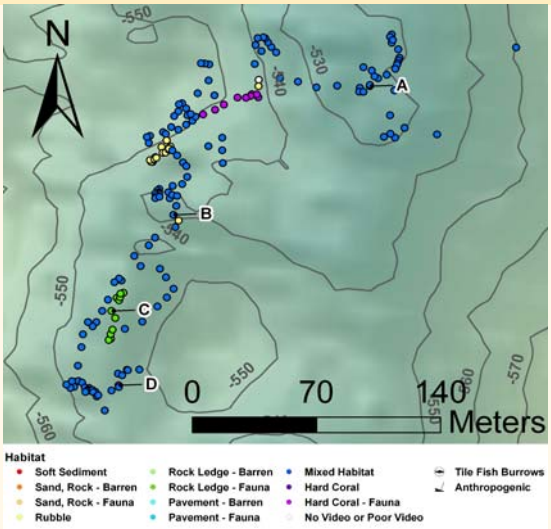
DIVE NUMBER: JSLI-4907 *STUDY AREA: Jacksonville*

STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	M Roberts (bow), T Casazza (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of bow audio log
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	9/28/2011
PI Station Number	JSLI-05-4907

GENERAL LOCATION

Dive Track:



DIVE DATA

Date	01-Nov-05
Minimum Bottom Depth (m)	517
Maximum Bottom Depth (m)	553
Start Bottom Time (EDT)	8:28
End Bottom End (EDT)	10:47
Starting Latitude (N)	30° 48.150'
Starting Longitude (W)	79° 38.385'
Ending Latitude (N)	30° 48.032'
Ending Longitude (W)	79° 38.505'
Surface Current (Kts)	2.5
Bottom Current (Kts)	0.1

Image A: Mixed Habitat
30º 48.128' N, 79º 38.413' W

DIVE NUMBER: JSLI-4907 *STUDY AREA: Jacksonville*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Mixed Habitat
30º 48.094' N, 79º 38.485' W

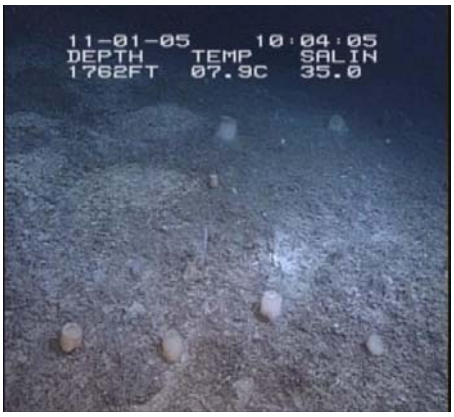


Image C: Rock Ledge - with Attached Fauna
30º 48.051' N, 79º 38.507' W

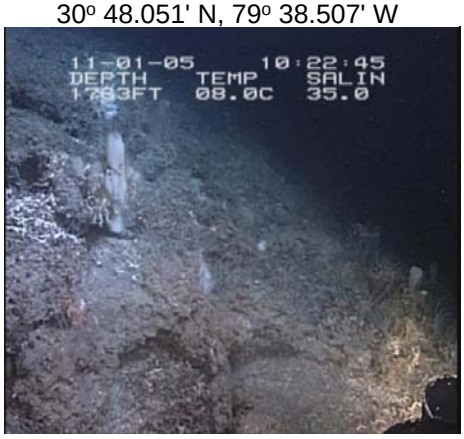


Image C: Hard Corals - with Attached Fauna
30º 48.024' N, 79º 38.495' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Paull et al. (2000)
Reed (2002)
Reed and Ross (2005)
Williams et al. (2007)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

Very few fishes were observed on this dive and included *Laemonema melanurum*, *Trachyscorpia cristulata*, and *Squalus cubensis*. Motile invertebrates included octopus, pancake urchins, cancer crabs, and galatheid crabs, which were common. The habitat was not dominated by hard coral, although a few individual living branches of *Enallopsammia profunda* and *Lophelia pertusa* were observed. Other common corals were stylasterids and cup corals. The area was largely dominated by small gorgonians difficult to identify on video. Collections were taken of *Keratoisis* sp., *Chrysogorgia* sp., *Bathypathes* sp., *Leiopathes* sp. and others. Both hexactinellid sponges and demosponges were abundant throughout the dive, sometimes in patchy distributions.

PHYSICAL ENVIRONMENT

The majority of the dive transected low profile (<0.5 m relief) rubble with approximately 90% bottom coverage. Except for a few sections, the rubble had abundant attached mixed fauna. Long ridges with steep slopes (>45º) on either side were characteristic of this area. A section of rock ledge was encountered and had abundant attached fauna. A small area of hard coral habitat was also observed, also with attached fauna, and with a relief of around 0.5 m. Currents varied from 0.1-0.5 kn and visibility was approximately 40 ft.

ADDITIONAL COMMENTS

The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 3 mini DVs and archived on 3 DVDs. The camera was often out of focus, making identifications difficult.

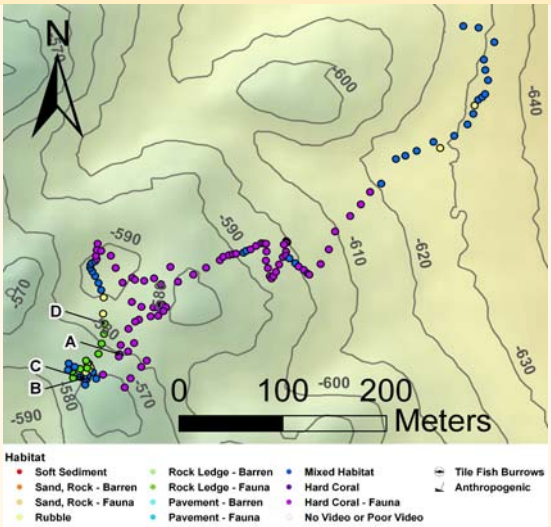
DIVE NUMBER: JSLI-4908 *STUDY AREA: Jacksonville*

STATION OVERVIEW

Project	Life on the Edge 2005
Principal investigators	SW Ross[1] MS Nizinski, E Baird, C Morrison
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	M Nizinski (bow), C Young (stern)
External Video Tapes	6 mini DVs
Internal Video Tapes	3 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copies of bow and stern audio logs
Acknowledgements	NOAA-OE, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	10/6/2011
PI Station Number	JSLI-05-4908

GENERAL LOCATION

Dive Track:



DIVE DATA

Date	01-Nov-05
Minimum Bottom Depth (m)	568
Maximum Bottom Depth (m)	628
Start Bottom Time (EDT)	16:38
End Bottom End (EDT)	18:55
Starting Latitude (N)	30° 31.122'
Starting Longitude (W)	79° 39.633'
Ending Latitude (N)	30° 31.254'
Ending Longitude (W)	79° 39.407'
Surface Current (Kts)	1.9
Bottom Current (Kts)	0.4

Image A: Hard Corals - with Attached Fauna
30º 31.099' N, 79º 39.606' W

DIVE NUMBER: JSLI-4908 *STUDY AREA: Jacksonville*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
30º 31.098' N, 79º 39.636' W

Image C: Mixed Habitat
30º 31.078' N, 79º 39.633' W

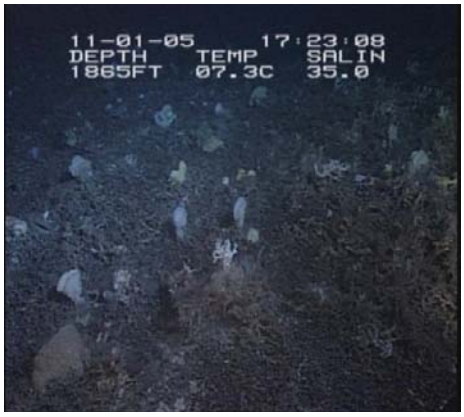


Image D: Rock Ledge - with Attached Fauna
30º 31.105' N, 79º 39.617' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Paull et al. (2000)
Reed (2002)
Reed and Ross (2005)
Williams et al. (2007)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

This dive was characterized by extremely abundant attached fauna. An intact matrix of hard corals, *Enallopsammia profunda*, *Lophelia pertusa*, and *Madrepora oculata*, covered the sea floor and housed numerous sponges and other corals. *Enallopsammia profunda* was the most common scleractinian. Solitary cup corals were abundant, and *Stylaster* spp. was common. Small Gorgonians were extremely abundant and covered hard coral and mixed habitats. *Keratoisis* sp., *Plumarella* sp., *Anthomastus* sp., and *Leiopathes* sp. were all observed. Various forms of hexactinellid sponges were abundant; *Aphrocallistes beatrix* was the dominant sponge, although other vase sponges were also very abundant. Demosponges were present in high numbers, but less abundant than hexactinellids. Galatheid crabs were the most abundant motile invertebrate, cancer crabs and seastars were observed occasionally. Very few fishes were observed and included *Laemonema melanurum* and *Scyliorhinus meadi*.

PHYSICAL ENVIRONMENT

This dive transected four habitat types: 1) hard corals with attached fauna, 2) mixed, 3) rubble, and 4) rock ledge with attached fauna. Hard coral habitat was characterized as such due to the 100% bottom coverage of moderate relief (0.5 - 1 m) coral bushes and matrices made up of *E. profunda*, *L. pertusa*, and *M. oculata*. The majority of the coral was dead, but matrices were still intact. Fauna attached to the matrices were extremely abundant and dominated the area. Mixed habitat was only classified when the attached fauna was found on crushed coral rubble. Rubble habitats had sparse to no attached fauna. Rock ledges were rare and also had less attached fauna than the surrounding hard coral areas. Current was consistent around 0.4 kn.

ADDITIONAL COMMENTS

The external bow video was captured on 3 mini DVs and archived on 3 DVDs. External stern video was captured on 3 mini DVs and archived on 3 DVDs. Internal bow video was captured on 3 mini DVs and archived on 3 DVDs. The video quality was clear.

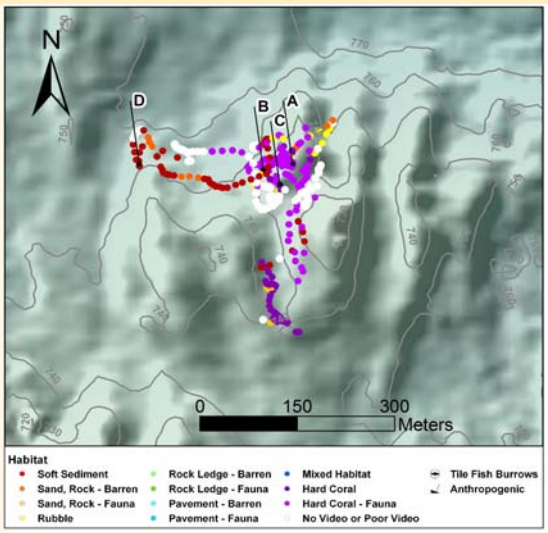
DIVE NUMBER: JSLI-4909 *STUDY AREA: Cape Canaveral South*

STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of Deep-water Coral Ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	S Brooke (bow), G Gilmore (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/2/2011
PI Station Number	8-XI-05-1

GENERAL LOCATION

Dive Track:



DIVE DATA

Date	08-Nov-05
Minimum Bottom Depth (m)	724
Maximum Bottom Depth (m)	757
Start Bottom Time (EDT)	8:24
End Bottom End (EDT)	11:55
Starting Latitude (N)	28° 17.064'
Starting Longitude (W)	79° 36.828'
Ending Latitude (N)	28° 17.082'
Ending Longitude (W)	79° 36.852'
Surface Current (Kts)	
Bottom Current (Kts)	0.7

Image A: Hard Coral - with Attached Fauna
28º 17.105' N, 79º 36.858' W

DIVE NUMBER: JSLI-4909 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
28º 17.089' N, 79º 36.888' W

Image C: Hard Coral - without Attached Fauna
28º 17.078' N, 79º 36.864' W

Image D: Soft Substrate
28º 17.073' N, 79º 36.990' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

Soft sediment and a mixture of soft sediment with coral rubble surround the mound and support few mobile fauna including two sting rays and a few fish. The *Lophelia pertusa* mound is composed largely of a dead coral matrix (~90% dead) with rare live patches. Attached abundant sessile invertebrates include soft corals such as gorgonians (e.g. *Acanella* sp.) and *Anthomastus* sp. and a variety of large hexactinellid sponges some with yellow zooanthids. Mobile fauna were limited to cidaroid and echinoid urchins and a few rattail fish.

PHYSICAL ENVIRONMENT

The *L. pertusa* lithoherm is surrounded by soft sediment to the west and a mixture of soft sediment and rubble with very sparse fauna to the south. Substrate rapidly turned to primarily dead hard coral matrices with attached fauna as the sub traversed the steep slopes and top of the mound. The top of the mound consists of peaks of high relief dead *L. pertusa* interspersed with small areas of coral rubble and soft sediment.

ADDITIONAL COMMENTS

Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard. Video quality was clear with only brief sections of unusable footage. Collections were taken of *L. pertusa*, a gorgonian and an acoustic monitoring unit was deployed.

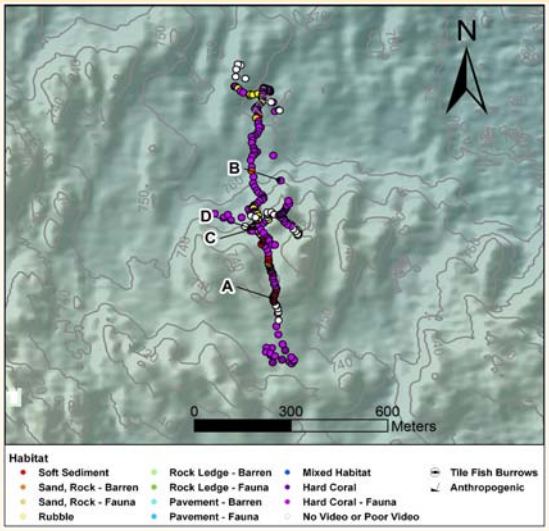
DIVE NUMBER: JSLI-4910 *STUDY AREA: Cape Canaveral South*

STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of Deep-water Coral Ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	M Ludvigsen (bow), C Messing (stern)
External Video Tapes	External Hard Dive
Internal Video Tapes	2 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/8/2011
PI Station Number	8-XI-05-2

GENERAL LOCATION

Dive Track:



DIVE DATA

Date	08-Nov-05
Minimum Bottom Depth (m)	716
Maximum Bottom Depth (m)	768
Start Bottom Time (EDT)	17:32
End Bottom End (EDT)	19:45
Starting Latitude (N)	28° 16.883'
Starting Longitude (W)	79° 36.872'
Ending Latitude (N)	28° 17.039'
Ending Longitude (W)	79° 36.848'
Surface Current (Kts)	
Bottom Current (Kts)	0.5

Image A: Soft Substrate
28º 16.969' N, 79º 36.858' W

DIVE NUMBER: JSLI-4910 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
28º 17.132' N, 79º 36.846' W

Image C: Rubble
28º 17.086' N, 79º 36.888' W

Image D: Hard Corals - with Attached Fauna
28º 17.095' N, 79º 36.882' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

The *Lophelia pertusa* lithoherm of Cape Canaveral South was composed primarily of moderate and high relief dead coral matrix that occasionally supported live patches of *Lophelia* at higher elevations on mounds. Abundant attached fauna on the dense coral beds include the small hydrozoan corals (Stylasteridae), gorgonians such as *Plumarella* sp., bamboo corals (e.g. *Acanella* sp.) and the Alcyoniid *Anthomastus* sp., and numberous large demospongia and hexactinellid sponges. Mobile fauna included crinoids, galatheid crabs, cidaroid and echinoid urchins and fishes such as eels and ratfish and a few stingrays in soft sediment habitat interspersed between hard corals.

PHYSICAL ENVIRONMENT

This dive began on a southern coral mound in a series comprising a *L. pertusa* lithoherm with moderate to high relief dead hard coral habitat with abundant attached fauna. In two northerly transects, the sub traversed a few coral mounds with almost linear strips and "fences" of dead coral interspersed with patches of soft sediment and rubble. Soft sediment and rubble "valleys" also separated small lithoherms. The most northern mound of the lithoherm leveled off into a plateau covered in coral rubble with hard coral habitat on the peripheral ridges. Overall, coral cover was typically composed of 100% dead *L. pertusa*, the occurrence of live patches and tips of *L. pertusa* increased with elevation near feature peaks and ridges.

ADDITIONAL COMMENTS

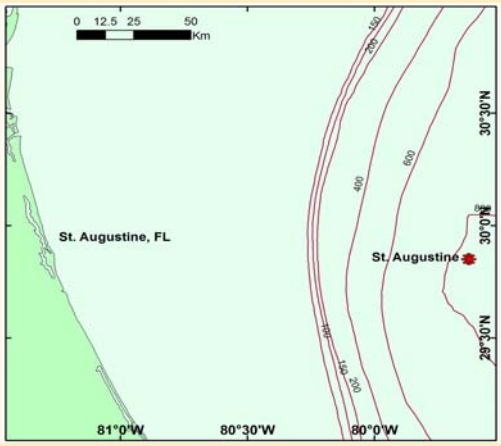
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard. Video quality was clear with only brief sections of unusable footage. Collections were taken of live and dead *L. pertusa* and a hexactinellid sponge. Grants acoustic monitoring unit was collected.

DIVE NUMBER: JSLI-4911 *STUDY AREA: St. Augustine*

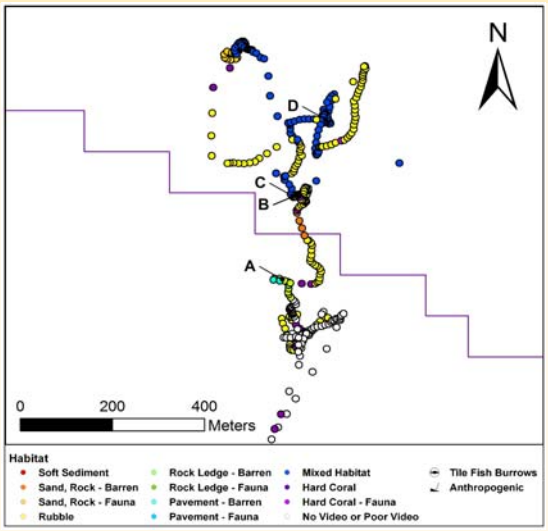
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of Deep-water Coral Ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	J Reed (bow), V Paul (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/2/2011
PI Station Number	9-XI-05-1

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	09-Nov-05
Minimum Bottom Depth (m)	742
Maximum Bottom Depth (m)	828
Start Bottom Time (EDT)	8:08
End Bottom End (EDT)	11:08
Starting Latitude (N)	29° 50.922'
Starting Longitude (W)	79° 37.98'
Ending Latitude (N)	29° 51.312'
Ending Longitude (W)	79° 36.912'
Surface Current (Kts)	
Bottom Current (Kts)	0.2

Image A: Rock Ledge - Barren
29º 50.644' N, 79º 37.962' W

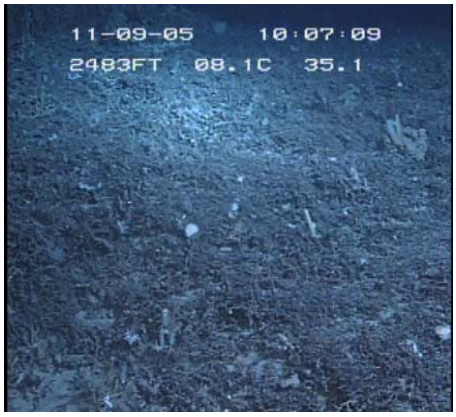
DIVE NUMBER: JSLI-4911 *STUDY AREA: St. Augustine*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Mixed Habitat
29º 50.750' N, 79º 37.950' W

Image C: Rubble
29º 50.743' N, 79º 37.956' W

Image D: Mixed Habitat
29º 50.831' N, 79º 37.908' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

The St. Augustine lithoherm was composed primarily of a dead *Lophelia pertusa* rubble matrix on a carbonate rock substrate. Live hard coral was very sparse consisting of a single large *Madrepora oculata* colony and occasional patches of dead *L. pertusa* with live tips. Mixed habitat on the top of the mound plateau and peripheral ridges consisted of abundant attached soft corals such as gorgonians, bamboo corals (e.g. a few large *Keratoisis* sp.), a few black corals (e.g. *Bathypathes* sp.), demospongia (e.g. fan sponges), and hexactinellid sponges attached to the coral rubble. Mobile fauna include urchins, rattail fish, eels, a golden crab, a swordfish, and *Laemonema melanurum*.

PHYSICAL ENVIRONMENT

This site is a carbonate substrate lithoherm with rock slabs and outcrops covered in consolidated and unconsolidated coral rubble. The dive started on the southern perimeter of the mound, with a transect in a northerly direction traversing a series of step-like terraces with low diversity to the top of the mound. Carbonate rock outcrops were common. The ridges along the periphery and the flat plateau of the top of the mound were characterized as mixed habitat with a variety of soft corals and sponges attached to the coral rubble substrate. Hard coral habitat (aside from low relief rubble) was rare and composed primarily of >90% dead *L. pertusa* and an occasional colony of *M. oculata*.

ADDITIONAL COMMENTS

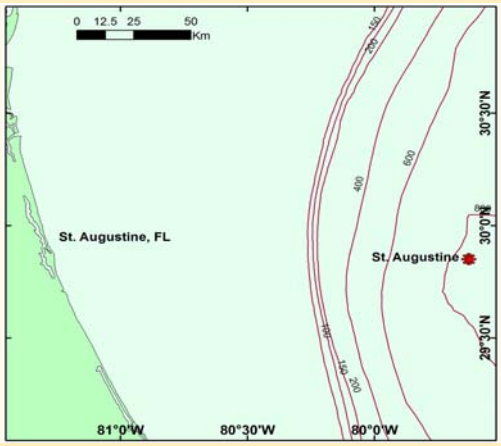
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage. Collections were taken of coral rubble, gorgonians, bamboo coral and various sponges.

DIVE NUMBER: JSLI-4912 *STUDY AREA: St. Augustine*

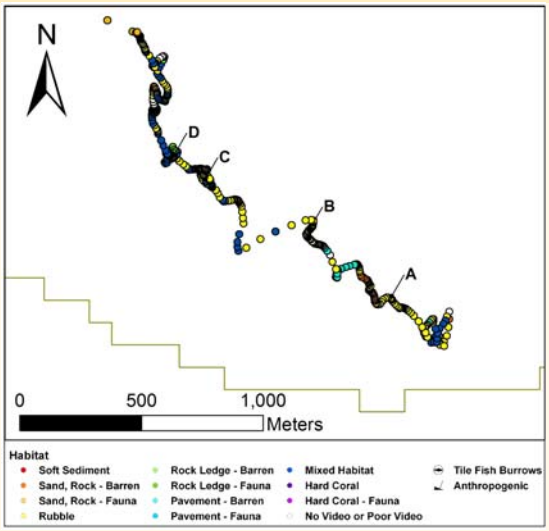
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of Deep-water Coral Ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	W Schroeder (bow), J Harasewych (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/2/2011
PI Station Number	9-XI-05-2

GENERAL LOCATION



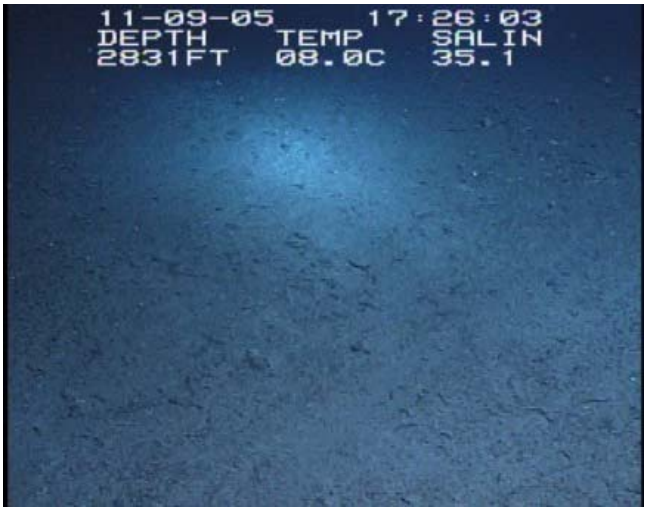
Dive Track:



DIVE DATA

Date	09-Nov-05
Minimum Bottom Depth (m)	746
Maximum Bottom Depth (m)	871
Start Bottom Time (EDT)	16:15
End Bottom End (EDT)	19:47
Starting Latitude (N)	29° 50.550'
Starting Longitude (W)	79° 37.014'
Ending Latitude (N)	29° 51.486'
Ending Longitude (W)	79° 37.992'
Surface Current (Kts)	
Bottom Current (Kts)	0

Image A: Rubble
29º 50.653' N, 79º 37.130' W



DIVE NUMBER: JSLI-4912 *STUDY AREA: St. Augustine*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Rock Ledge - Barren
29º 50.804' N, 79º 37.323' W

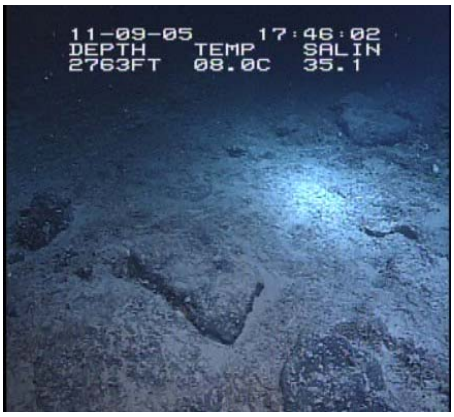


Image C: Mixed Habitat
29º 50.911' N, 79º 37.546' W

Image D: Rock Ledge - with Attached Fauna
29º 50.969' N, 79º 37.618' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

The southeast transect leading up to and around the south and east sides of the lithoherm was covered in low relief *Lophelia pertusa* rubble sometimes over rock pavement and phosphoretic rock slabs. Attached fauna was primarily mixed including abundant stalked hexactinellid and large fan demospongia sponges, as well as occasional small gorgonians, bamboo and black corals (*Leiopathes* sp.) and small colonies of hydrozoan corals (Stylasteriae). Mobile fauna consisted primarily of urchins and eels with a rare golden crab, rattail fish, and gadoid, *Laemonema melanurum*. There was no hard coral habitat of moderate to high relief and no live *L. pertusa* were evident.

PHYSICAL ENVIRONMENT

The habitat to the southeast of the lithoherm was primarily coral rubble with interspersed soft sediment or mixed habitat. At the southern base of the feature black grapefruit-sized rubble of phosphate rock covered hard, pocked rock pavement. Phosphoretic rock slabs and ledges with and without fauna and occasional carbonate rocks were apparent at the south and east sides of the lithoherm mound with occasional areas of barren rock pavement below the predominant coral rubble. The mound consisted of terraced steps with gradual inclines leading to flat plateaus with a mix of rubble and mixed fauna habitat of sponges and sparse soft and ~99% dead hard coral cover. On the east side of the mound there was an area covered with a substantial accumulation of deep coral rubble. This site also had an abundance of trash.

ADDITIONAL COMMENTS

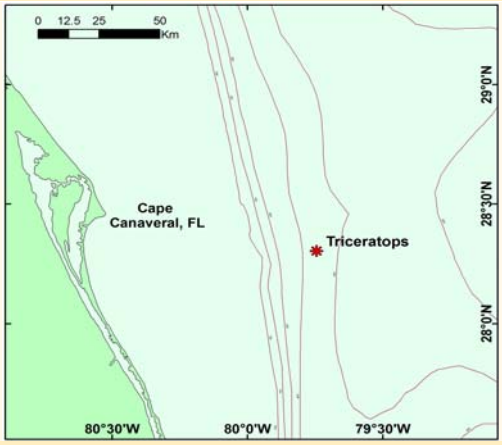
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard. Video quality was clear with only brief sections of unusable footage. However, the camera was typically zoomed out far enough that differences in rubble versus pocked rock pavement were difficult to discern as well as the identification of small white hard corals and sponges. Collections were taken of *L. pertusa* rubble, black coral, bamboo coral, sponge, a small gorgonian and a piece of the hard phosphate rock.

DIVE NUMBER: JSLI-4913 *STUDY AREA: Triceratops*

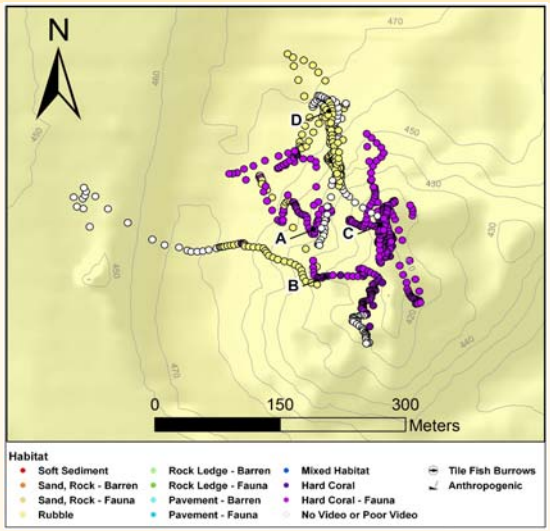
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	G Gilmore (bow), A Schulze (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	9/19/2011
PI Station Number	10-XI-05-1

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	10-Nov-05
Minimum Bottom Depth (m)	393
Maximum Bottom Depth (m)	462
Start Bottom Time (EDT)	8:33
End Bottom End (EDT)	11:16
Starting Latitude (N)	28° 19.338'
Starting Longitude (W)	79° 45.309'
Ending Latitude (N)	28° 19.383
Ending Longitude (W)	79° 45.126
Surface Current (Kts)	
Bottom Current (Kts)	0.5

Image A: Hard Corals - with Attached Fauna
28º 19.332' N, 79º 45.120' W

DIVE NUMBER: JSLI-4913 *STUDY AREA: Triceratops*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
28º 19.302' N, 79º 45.132' W

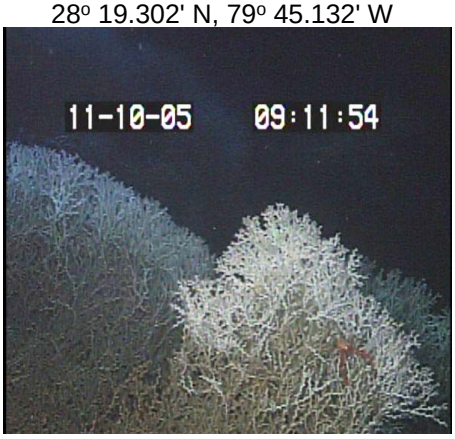


Image C: Hard Corals - with Attached Fauna
28º 19.338' N, 79º 45.096' W

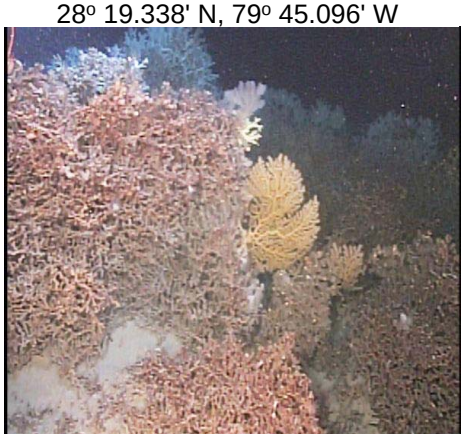


Image D: Rubble
28º 19.422' N, 79º 45.132' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

This dive traversed the central and largest *Lophelia pertusa* bioherm of the coral mounds of "Triceratops" of South Cape Canaveral, called "The Pinnacle" in the OE 2005 dive logs. Coral rubble leading up to the mound supported fauna such as cup corals and *Plumarella* sp. The coral mound was comprised of dense, high relief live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as cup corals, white anemones, gorgonians (e.g. *Plumarella* sp. and Paramuriceids), bamboo coral (e.g. *Acanella* sp.), a diversity of hexactinellid sponges and rare patches of the hard coral *Madrepora oculata*. Mobile fauna included cidaroid urchins, cancer, golden, and galatheid crabs, squid, scorpionfish (e.g. blackbelly rosefish), roughies, rattail fish, coral hake, skates, catsharks, a flatfish and a *Mola mola*.

PHYSICAL ENVIRONMENT

This dive begin southwest of the central *L. pertusa* bioherm, requiring an easterly traverse over coral rubble and low relief, 100% dead hard coral covered with abundant sessile fauna. At the base of the bioherm the slope increased to a 50° incline, flattened after an initial rise of a *L. pertusa* mound step to a plateau before continuing to the peak of the bioherm pinnacle. The main bioherm consisted of hard coral habitat, primarily with attached fauna, and was comprised of high relief, 50-90% live *L. pertusa* on a dead coral matrix. The steep north slope of the feature supported dead coral rubble with sparse attached fauna and a diversity of fishes.

ADDITIONAL COMMENTS

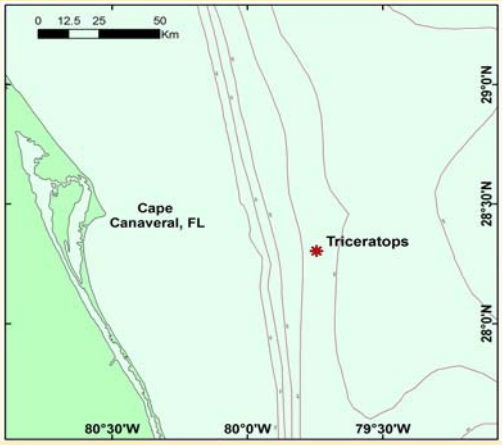
Original dives are on mini DVs transfer to digital on a mini DV reader and stored on an external hard. Video quality was mostly clear. However, the bow scientist periodically turned off the camera. As the majority of the dive did not have a time stamp on the video, it was difficult to determine the time and location of the footage when the video was turned back on. Time and location of events recorded in the dive log was used to calculate the approximate time for some video segments, though a small margin of error is likely. Collections were taken of live and dead *L. pertusa* and rubble, an orange Paramuriceid, and a skate. Twice, the lights on the submersible were turned off or dimmed for 10-15

DIVE NUMBER: JSLI-4914 *STUDY AREA: Triceratops*

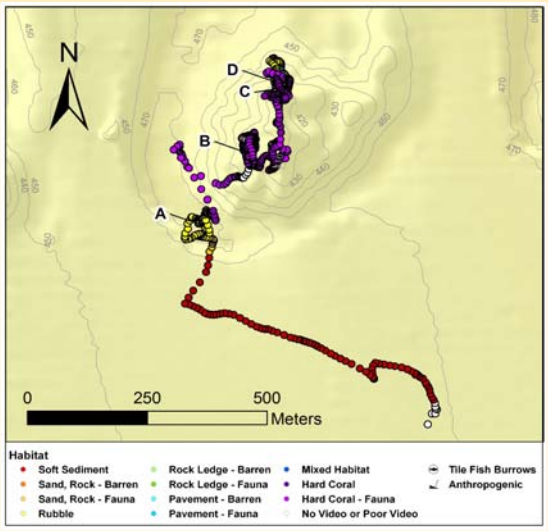
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of Deep-water Coral Ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	S Brooke (bow), J Reed (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/2/2011
PI Station Number	10-XI-05-2

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	10-Nov-05
Minimum Bottom Depth (m)	397
Maximum Bottom Depth (m)	467
Start Bottom Time (EDT)	15:49
End Bottom End (EDT)	18:55
Starting Latitude (N)	28° 19.326'
Starting Longitude (W)	79° 45.120'
Ending Latitude (N)	28° 19.320'
Ending Longitude (W)	79° 45.102'
Surface Current (Kts)	
Bottom Current (Kts)	0.4

Image A: Hard Coral - with Attached Fauna
28º 19.195' N, 79º 45.187' W

DIVE NUMBER: JSLI-4914 *STUDY AREA: Triceratops*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28º 19.275' N, 79º 45.131' W

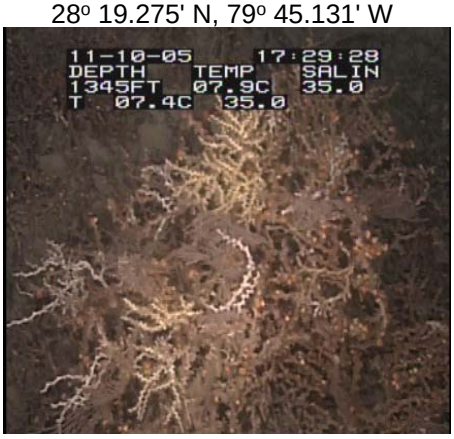


Image C: Hard Coral - with Attached Fauna
28º 19.358' N, 79º 45.076' W

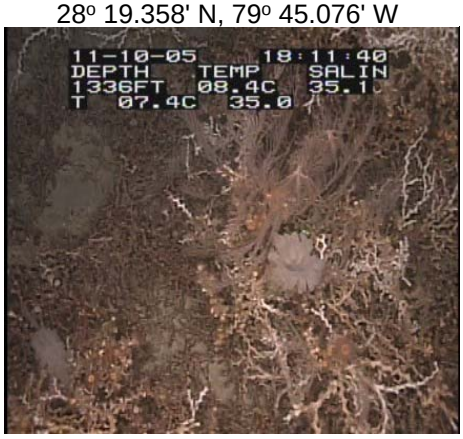


Image D: Hard Coral - without Attached Fauna
28º 19.366' N, 79º 45.096' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

This dive traversed the central and largest *Lophelia pertusa* lithoherm of the three *L. pertusa* mounds of "Triceratops" of South Canaveral, called "The Pinnacle" in the OE 2005 dive logs. Soft sediment surrounding the mound had anemones and evidence of bioturbation. The coral rubble leading up to the mound supported fauna such as small brown cnidarians and gorgonians such as *Plumerella* sp.. Dense, live *L . pertusa* were found on top of a dead coral matrix on the slopes and plateau of the mound. Abundant attached fauna on the dense coral beds include gorgonians such as *Plumerella* sp., cup corals, anemones and hexactinellid sponges some with yellow zooanthids. Rare patches of *Madrepora oculata* and soft corals such as gorgonians were also present. Mobile fauna included galatheid, golden, and cancer crabs, cidaroid urchins and fishes such as blackbelly rosefish, dogfish, and a black tipped shark.

PHYSICAL ENVIRONMENT

The *L. pertusa* lithoherm is surrounded by soft sediment, turning into coral rubble with attached fauna at the base of the mound. This dive began at the southern side of the mound before progressing around the west slope to the center and up to the northern peak. The cover of live *L. pertusa* increases with distance up the mound, reaching 100% cover of live coral on top of dead coral matrices at the top of the mound. The top of the mound consists of peaks of high relief with dense live *L. pertusa* with or without fauna separated by small "valleys" of coral rubble and soft sediment. Some sections of *L. pertusa* on the northern extent of the mound had sparse attached fauna.

ADDITIONAL COMMENTS

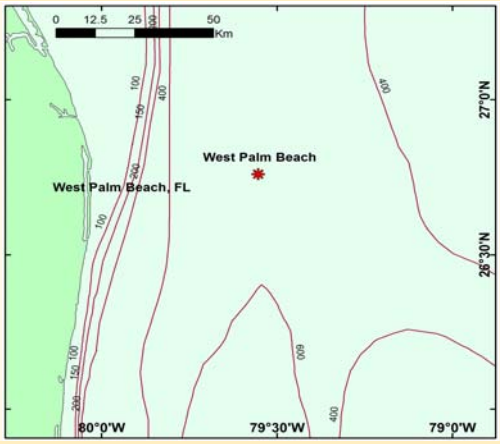
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard. Video quality was clear with only brief sections of unusable footage. Collections were taken of *L. pertusa*, a yellow gorgonian, and a hard coral of the family Dendrophylliidae.

DIVE NUMBER: JSLI-4915 *STUDY AREA: West Palm Beach*

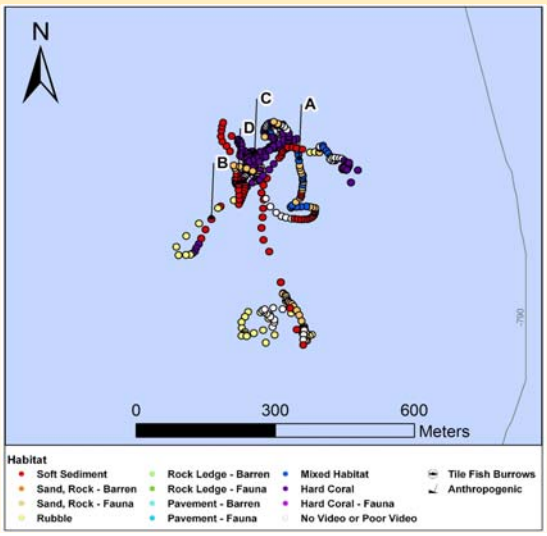
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	C Messing (bow), E Jacobi (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	9/19/2011
PI Station Number	11-XI-05-1

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	11-Nov-05
Minimum Bottom Depth (m)	759
Maximum Bottom Depth (m)	776
Start Bottom Time (EDT)	8:52
End Bottom End (EDT)	11:20
Starting Latitude (N)	26° 38.853'
Starting Longitude (W)	79° 32.562'
Ending Latitude (N)	26° 39.037'
Ending Longitude (W)	79° 32.472'
Surface Current (Kts)	
Bottom Current (Kts)	0.2

Image A: Mixed Habitat
26º 39.060' N, 79º 32.532' W

DIVE NUMBER: JSLI-4915 *STUDY AREA: West Palm Beach*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Soft Substrate
26º 38.962' N, 79º 32.658' W

Image C: Hard Corals - with Attached Fauna
26º 39.064' N, 79º 32.598' W

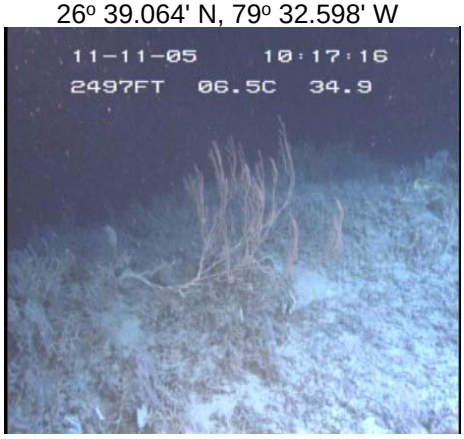
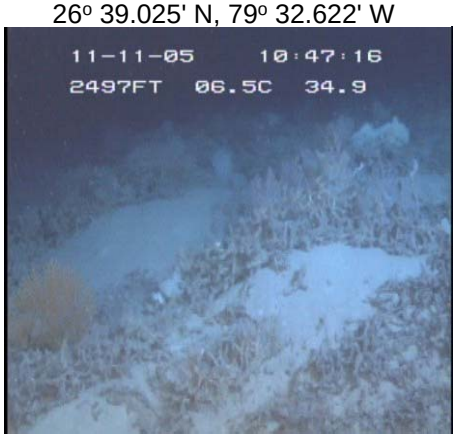


Image D: Hard Corals - with Attached Fauna
26º 39.025' N, 79º 32.622' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)

BIOLOGICAL ENVIRONMENT

Soft sediment habitat surrounding the low relief *Lophelia pertusa* mounds supported sparse fauna including the stalked hexactinellid sponge, *Hyalonema* sp., with attached zooanthids, sea urchins, and *Acanthacaris caeca*. Hard coral habitat was composed of 100% dead standing *L. pertusa* and dense coral rubble. Sessile invertebrates attached to the hard coral matrix include the hydrozoan coral (Stylasteridae), numerous soft corals such as gorgonians (e.g. *Plumarella* sp., *Eunicella* sp.) including a large orange Paramuriceid gorgonian, bamboo coral, black coral (e.g.*Bathypathes* sp.) and a large diversity of hexactinellid (e.g. *Asconema* sp.) and demospongia (e.g. *Phakellia* sp.) sponges and stalked crinoids. Mobile fauna included echinoid and cidaroid urchins, a brittle star, galatheid crabs, rattail fish (e.g. marlin spike grenadier), eels, midwater fish, an offshore hake, skates and squids.

PHYSICAL ENVIRONMENT

This dive began to the south of the *L. pertusa* bioherm in rubble habitat before traversing over soft sediment and soft sediment with coral rubble and attached fauna. The first coral bioherm supported a mixed habitat of sponges and soft coral attached to coral rubble and hard coral habitat with attached fauna. The habitat transitioned into primarily hard coral habitat with fauna at the northern extent of the dive. Hard coral habitat was comprised of 100% dead, low relief, standing *L. pertusa* or dense coral matrix with attached fauna (e.g. sponges and soft corals). Five small peaks of low elevation coral mounds were interspersed with patches and valleys of soft sediment and coral rubble.

ADDITIONAL COMMENTS

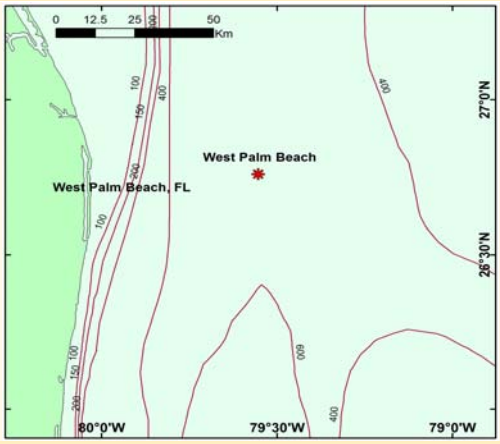
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard drive. Video quality was mostly clear with only a few sections of unusable footage. Collections included dead *L. pertusa* rubble, *Bathypathes* sp., a galatheid crab, numerous white octocorals, *Eunicella* sp., *Plumarella* sp., an orange Paramuriceid gorgonian, an ophiuroid, a purple crinoid, bamboo coral, white hexactinellids, including *Hyalonema* sp. with zooanthids on the stalk, and a yellow sponge.

DIVE NUMBER: JSLI-4916 *STUDY AREA: West Palm Beach*

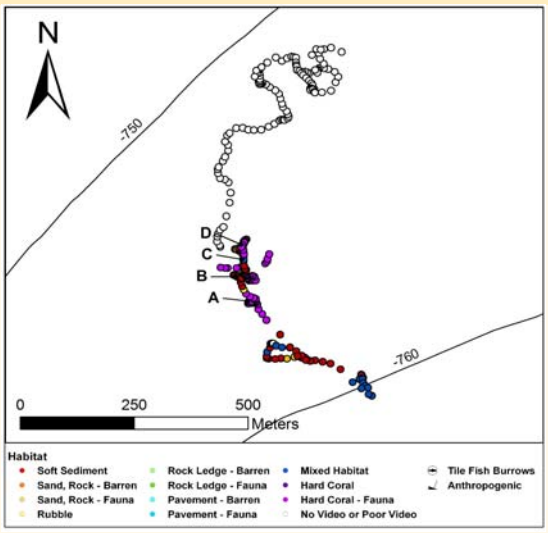
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	W Schroeder (bow), J Thomas (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	9/19/2011
PI Station Number	11-XI-05-2

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	11-Nov-05
Minimum Bottom Depth (m)	737
Maximum Bottom Depth (m)	757
Start Bottom Time (EDT)	16:39
End Bottom End (EDT)	18:41
Starting Latitude (N)	26° 45.480'
Starting Longitude (W)	79° 33.180'
Ending Latitude (N)	26° 45.480'
Ending Longitude (W)	79° 33.000'
Surface Current (Kts)	
Bottom Current (Kts)	0.1

Image A: Hard Corals - with Attached Fauna
26º 45.578' N, 79º 33.294' W

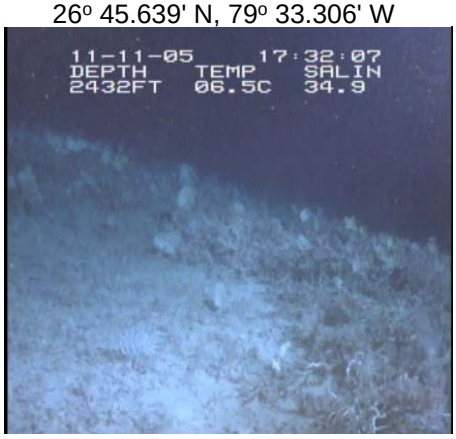
DIVE NUMBER: JSLI-4916 *STUDY AREA: West Palm Beach*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Soft Substrate
26º 45.602' N, 79º 33.300' W

Image C: Mixed Habitat
26º 45.606' N, 79º 33.306' W

Image D: Hard Corals - with Attached Fauna
26º 45.639' N, 79º 33.306' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)

BIOLOGICAL ENVIRONMENT

Soft sediment habitat surrounding the low relief *Lophelia pertusa* mounds supported sparse fauna including the stalked hexactinellid sponge, *Hyalonema*, sp. with attached zooanthids, sea urchins, and *Acanthacaris caeca*.. Hard coral habitat was composed of 100% dead standing *L. pertusa* or coral rubble matrix. Sessile invertebrates attached to the hard coral included the hydrozoan coral (Stylasteridae), gorgonians (e.g. *Plumarella* sp., *Eunicella* sp.), bamboo coral, and a large diversity of hexactinellid sponges. Mobile fauna included echinoid urchins, rattail fish, eels, and skates.

PHYSICAL ENVIRONMENT

This dive traversed soft sediment habitat interrupted by a series of low relief coral mounds with abundant attached fauna. The sub transitioned through soft sediment and coral rubble with fauna through mixed habitat with abundant attached fauna on low relief dead coral. Hard coral habitat consisted of standing, 100% dead *L. pertusa* with attached fauna such as sponges and soft corals.

ADDITIONAL COMMENTS

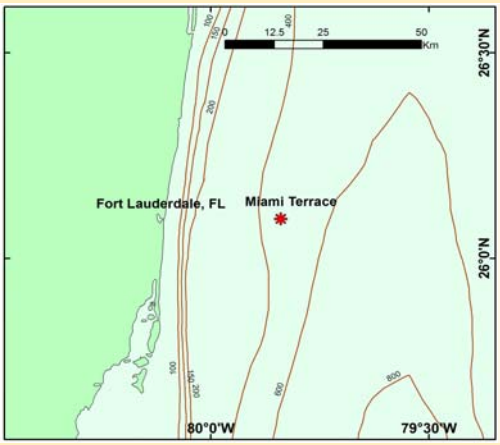
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard drive. Video quality was mostly clear with only a few sections of unusable footage. However, there was only one mini DV tape covering the first hour of the dive. The remainder of the dive was not documented with video. Collections caught on video included dead *L. pertusa* rubble, a bamboo coral, a white hexactinellid and a yellow sponge though live coral, more sponges and a crinoid were collected also.

DIVE NUMBER: JSLI-4917 *STUDY AREA: Miami Terrace*

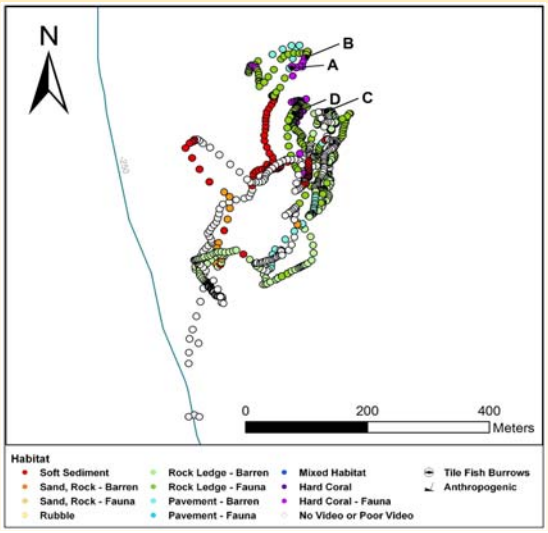
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	J Harasewych (bow), T Griffin (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	9/19/2011
PI Station Number	16-XI-05-1

GENERAL LOCATION



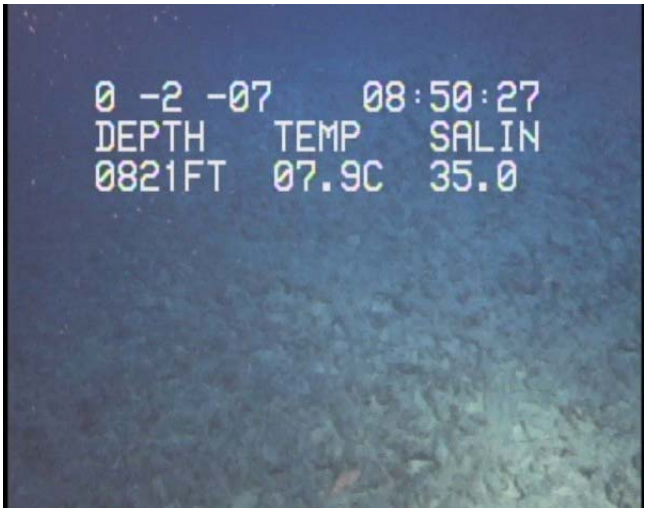
Dive Track:



DIVE DATA

Date	16-Nov-05
Minimum Bottom Depth (m)	245
Maximum Bottom Depth (m)	267
Start Bottom Time (EDT)	8:24
End Bottom End (EDT)	11:13
Starting Latitude (N)	25° 51.360'
Starting Longitude (W)	80° 01.980'
Ending Latitude (N)	25° 51.540'
Ending Longitude (W)	80° 01.920'
Surface Current (Kts)	2.2
Bottom Current (Kts)	0.1

Image A: Pavement - Barren
25° 51.684' N, 80° 01.92' W



DIVE NUMBER: JSLI-4917 *STUDY AREA: Miami Terrace*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
25º 51.709' N, 80º 01.902' W

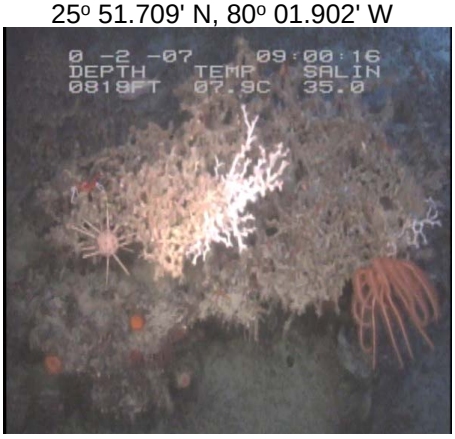
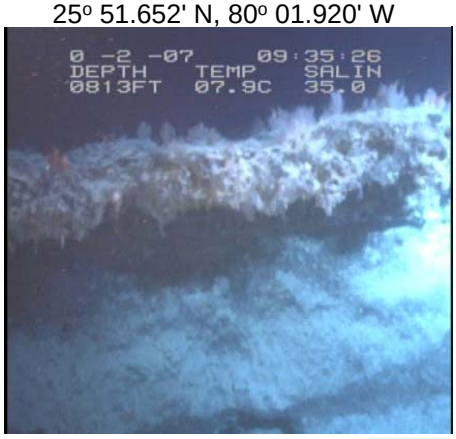


Image C: Rock Ledge - Barren
25º 51.6528' N, 80º 01.890' W

Image D: Rock Ledge - with Attached Fauna
25º 51.652' N, 80º 01.920' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)

BIOLOGICAL ENVIRONMENT

The north and northeast edges of the rock feature supported small regions of 100% dead standing *Lophelia pertusa* on the face and base of the rock and 10% live hard coral on the upper edge of the rock. Both the outer perimeter of the rock feature and the hard corals supported significant attached fauna including anemones (e.g. venus flytrap), ballshaped hexactinellid sponges, gorgonians (e.g. *Plumerella* sp. and *Eunicella* sp.), bamboo and black coral, *Anthomastus* sp., cup corals and zooanthids. Mobile fauna were abundant and included cidaroid and echinoid urchins, galatheid, golden, and hermit crabs, a brisingid star, crinoids, a topshell snail, numerous swallowtail bass, blackbellyrosefish and other scorpionfish, shortbeard codling, and a ragged-toothed shark.

PHYSICAL ENVIRONMENT

This dive began on soft sediment with the sub traversing along a northerly path to the base of a 3m high rock feature. At the north and northeast edge of the feature, small patches of dead *L. pertusa* could be found at the base of the rock feature and live *L. pertusa* at the top edge of the rock ridge with abundant attached fauna. Continuing along the east and south of the feature the rock face and top ledge transitions from supporting sessile invertebrates to barren rock with increasing sediment cover. The top of the rock feature plateaus into barren pavement with variable soft sediment cover. This site possessed an abundance of trash and discarded fishing gear.

ADDITIONAL COMMENTS

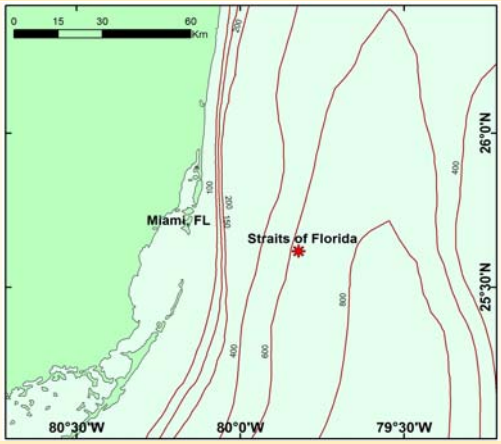
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard drive. Video quality was sufficient to categorize the habitat present in most of the video though the video was often zoomed out or lacked
enough light to identify sessile invertebrates. Also, the tape was turned off occasionally for a few minutes by the bow scientist resulting in parts of the dive with no data collection. Collections were taken of a brisingid seastar, galatheid crab, topshell snail, dead *L. pertusa*, and a rock.

DIVE NUMBER: JSLI-4918 *STUDY AREA: Straits of Florida*

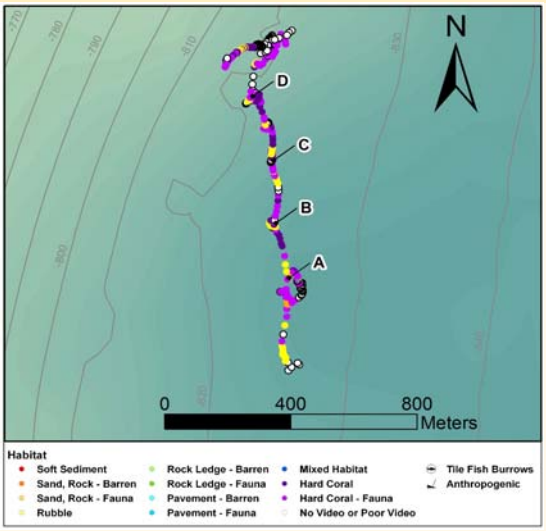
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	J Olson (bow), J Jamegren (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	0
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	10/11/2011
PI Station Number	16-XI-05-2

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	16-Nov-05
Minimum Bottom Depth (m)	744
Maximum Bottom Depth (m)	868
Start Bottom Time (EDT)	16:55
End Bottom End (EDT)	19:42
Starting Latitude (N)	25° 44.808'
Starting Longitude (W)	79° 47.082'
Ending Latitude (N)	25° 45.343'
Ending Longitude (W)	79° 47.208'
Surface Current (Kts)	3.6
Bottom Current (Kts)	0.1

Image A: Rubble
25º 44.959' N, 79º 47.106' W

DIVE NUMBER: JSLI-4918 *STUDY AREA: Straits of Florida*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - without Attached Fauna
25º 45.055' N, 79º 47.130' W

Image C: Hard Corals - with Attached Fauna
25º 45.168' N, 79º 47.130' W

Image D: Hard Corals - with Attached Fauna
25º 45.289' N, 79º 47.166' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)

BIOLOGICAL ENVIRONMENT

Coral ridges were comprised of moderate to high relief 90% dead *Enallopsammia profunda* with 10% live distal tips interrupted by valleys of soft sediment and coral rubble. The hard coral habitats supported attached fauna such as abundant small hydrozoan corals (e.g. Stylasteridae), aggregations of *Anthomastus* spp., purple Stoloniferan octocorals, gorgonians, and hexactinellid sponges. Mobile fauna included crinoids, *Bathynectes* sp., Atlantic deep lobsters, shrimp, eels, rattail fish and a dogfish. Fauna were difficult to identify from a distance due to high concentrations of flocculent in the water.

PHYSICAL ENVIRONMENT

The habitat at the base of this Florida Strait bioherm was soft substrate with low relief coral rubble. The bioherm consisted of frequent ridges of hard coral interspersed with valleys of soft sediment and coral rubble. Moderate and high relief hard coral habitat increased with elevation and was comprised of 90 -100% dead *E. profunda* with and without significant attached fauna.

ADDITIONAL COMMENTS

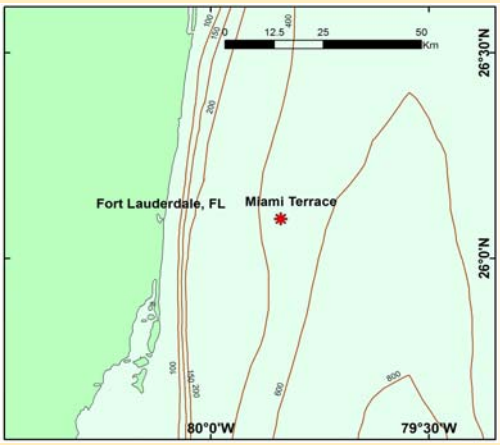
Original dives are on mini DVs transfer to digital on a mini DV reader and stored on an external hard drive. Video quality was mostly clear though visibility was poor at a distance due to flocculent in the water. The few sections of unusable footage were places where the submersible coasted over periodic soft sediment and coral rubble valleys or where the bow scientist turned the camera off for short intervals. Collections were taken of *E. profunda*, Stylasteridae, a purple Stoloniferan octocoral, an orange gorgonian, a hexactinellid sponge, and water samples.

DIVE NUMBER: JSLI-4919 *STUDY AREA: Miami Terrace*

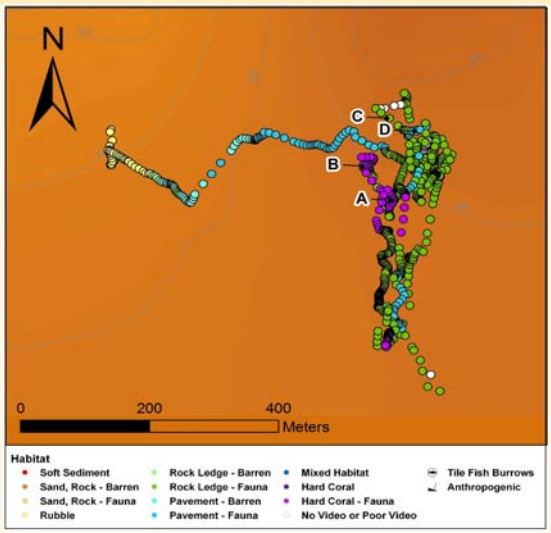
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	D Weaver (bow), A VanGaest (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	0
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	9/22/2011
PI Station Number	17-XI-05-1

GENERAL LOCATION



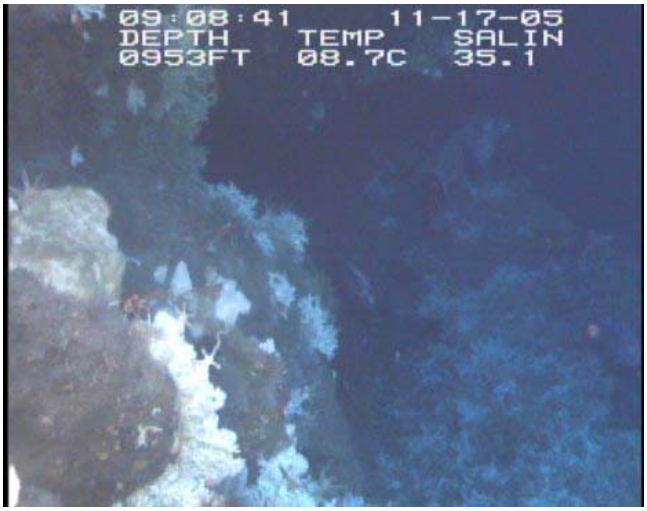
Dive Track:



DIVE DATA

Date	17-Nov-05
Minimum Bottom Depth (m)	282
Maximum Bottom Depth (m)	377
Start Bottom Time (EDT)	8:28
End Bottom End (EDT)	11:11
Starting Latitude (N)	26° 05.713'
Starting Longitude (W)	79° 50.625'
Ending Latitude (N)	26° 05.544'
Ending Longitude (W)	79° 50.394'
Surface Current (Kts)	4
Bottom Current (Kts)	

Image A: Hard Corals - without Attached Fauna
26º 05.641' N, 79º 50.388' W



DIVE NUMBER: JSLI-4919 *STUDY AREA: Miami Terrace*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
26º 05.671' N, 79º 50.412' W

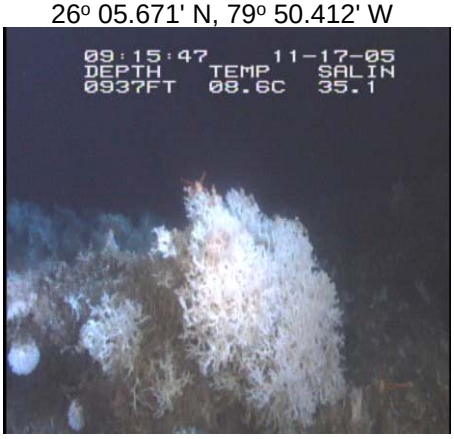


Image C: Rock Ledge - with Attached Fauna
26º 05.723' N, 79º 50.412' W

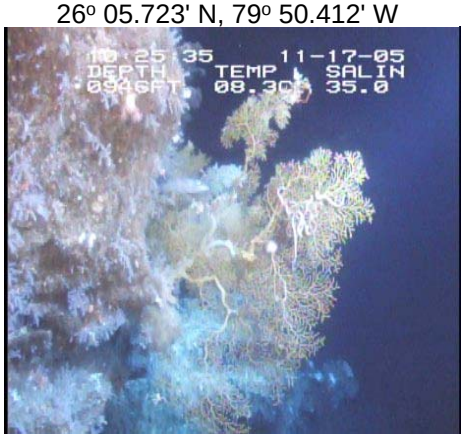
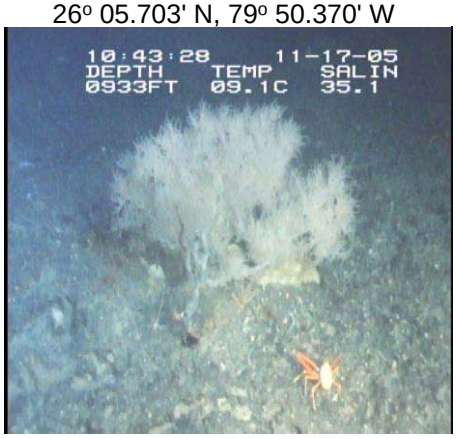


Image D: Pavement - with Attached Fauna
26º 05.703' N, 79º 50.370' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)

BIOLOGICAL ENVIRONMENT

The western and southern edges of the rock feature supported small regions of 90% live standing *Lophelia pertusa* on the top edge and accumulated dead coral rubble below ledges. Both the rock ledges and the hard coral habitat supported significant attached fauna including anemones (e.g. white and venus flytrap), hexactinellid and demospongia sponges, various gorgonians (including an abundant small white, whip-like species, *Eunicella* sp., *Paramuricea* spp. and *Plumarella* sp.), black corals (e.g. *Antipathes* sp.), bamboo corals, *Anthomastus* sp., abundant large hydrozoan corals (family Stylasteridae), and cup corals. Mobile fauna were abundant and included cidaroid and echinoid urchins, crinoids, brittlestars (including basketstars), numerous sea star species (e.g. brissingids and goniasterids), galatheid and golden crabs, scorpionfish (e.g. blackbelly rosefish), red dory, red bream, a conger eel, wreckfish, barrelfish, coral hakes, shortbeard codlings, a red eye gaper, *Polymixia* sp., a skate, and a sand tiger shark.

PHYSICAL ENVIRONMENT

This dive began over rubble habitat to the west side of the rock feature. The submersible traversed along an easterly path over barren pavement that transitioned into pavement with attached fauna. At the west side of the 2-3m high rock feature the habitat changed to rock ledges with abundant attached fauna. The submersible conducted a southerly transect along the west side of the feature encountering regions of hard coral habitat with attached fauna. Subsequently, the submersible headed to the northeast, running back and forth along the top, north and east sides of the feature. The sides of the feature consisted primarily of rock ledges with fauna while the top was often pocked rock pavement with attached fauna. The submersible continued to the southern end of the feature, traversing rock pavement with fauna before reaching hard coral and rock ledge habitat with fauna at the southern edge. Hard coral consisted primarily of live *L. pertusa* with occasional patches of dead coral rubble.

ADDITIONAL COMMENTS

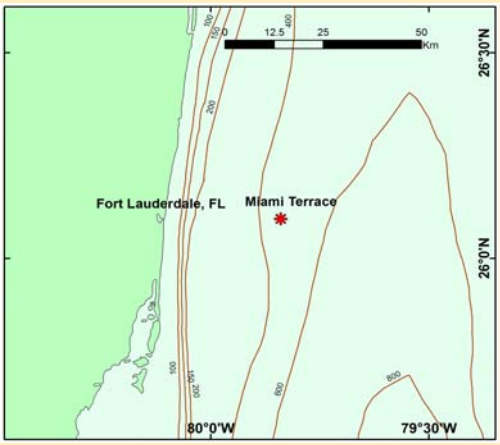
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage. Collections were taken of live and dead *L. pertusa*, hydrozoans (Stylasteridae), large orange and small whip gorgonians, and brittle stars.

DIVE NUMBER: JSLI-4920 *STUDY AREA: Miami Terrace*

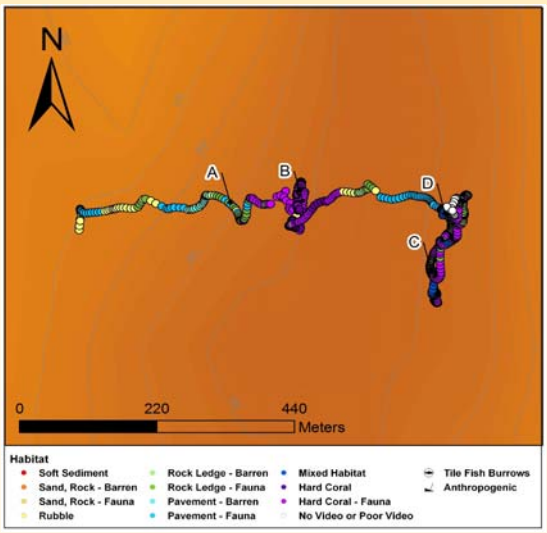
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	C Messing (bow), S Farrington (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	0
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	9/26/2011
PI Station Number	17-XI-05-2

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	17-Nov-05
Minimum Bottom Depth (m)	322
Maximum Bottom Depth (m)	381
Start Bottom Time (EDT)	17:32
End Bottom End (EDT)	19:37
Starting Latitude (N)	25° 42.023'
Starting Longitude (W)	79° 52.336'
Ending Latitude (N)	25° 42.023'
Ending Longitude (W)	79° 52.016'
Surface Current (Kts)	
Bottom Current (Kts)	0.5

Image A: Pavement - with Attached Fauna
25º 42.031' N, 79º 52.212' W

DIVE NUMBER: JSLI-4920 *STUDY AREA: Miami Terrace*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
25º 42.032' N, 79º 52.146' W

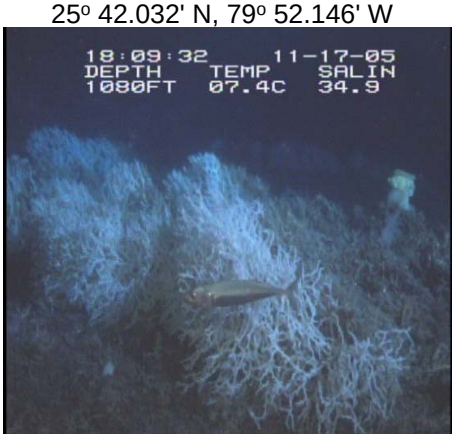


Image C: Rock Ledge - with Attached Fauna
25º 41.966' N, 79º 52.032' W

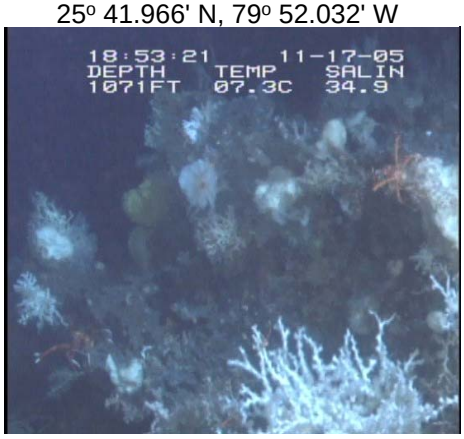


Image D: Mixed Habitat
25º 42.021' N, 79º 52.020' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)

BIOLOGICAL ENVIRONMENT

The east and west edges of the rock escarpment supported abundant fauna including regions of 50-100% live standing *Lophelia pertusa* on the top of ledges and accumulated dead coral rubble below ledges and dense matrices on the top of the feature. Both the rock ledges and the hard coral habitat supported significant attached fauna including anemones (white and venus flytrap), a diversity of hexactinellid and demospongia sponges (e.g. *Phakellia* sp.), various gorgonians (including an abundant small white, whip-like species and dense fields of *Plumarella* sp.), black corals (e.g. *Antipathes* sp.), bamboo corals, *Anthomastus* sp., abundant large hydrozoan corals (Stylasteridae), and cup corals. Mobile fauna were abundant and included cidaroid urchins, crinoids, brittlestars, sea stars, galatheid and golden crabs, squid, scorpionfish (e.g. blackbelly rosefish), wreckfish, coral hakes, a chimera, cat sharks, and a large and persistent school of rough scad, *Trachurus lathami.*

PHYSICAL ENVIRONMENT

This dive began with drifts of black, fine rubble over rock pavement habitat with attached fauna to the west side of the rock feature. Along an easterly traverse, the submersible passed over outcrops of large rocks covered in fauna before reaching the vertical rock face of the escarpment. The west side of the rock feature was comprised of rock ledges with abundant attached fauna. Many ledges and the top of the west edge of the escarpment supported dense beds of *L. pertusa* with and without fauna. In an easterly transect across the top of the feature the submersible traversed rubble, rock ledges with fauna, and pavement with fauna habitat. A southerly transect along the west edge of the escarpment revealed rock ledges with fauna often with dense hard coral habitat with attached fauna on upper ledges with a coral rubble matrix below. The subsequent northern transect 3-4m in from the edge supported primarily mixed habitat with dense assemblages of soft corals and sponges on a rubble matrix.

ADDITIONAL COMMENTS

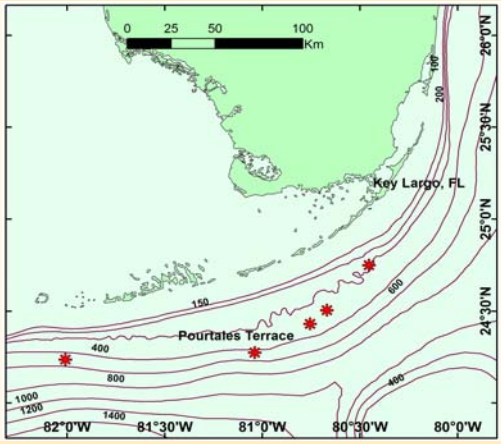
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage. The dense school of *T. lathami* periodically blocked the view of the camera. Collections were taken of live and dead *L. pertusa*, hydrozoan corals (Stylasteridae), *Plumerella sp.*, a crinoid, a yellow sponge and a cup hexactinellid sponge.

DIVE NUMBER: JSLI-4921 *STUDY AREA: Pourtales Terrace*

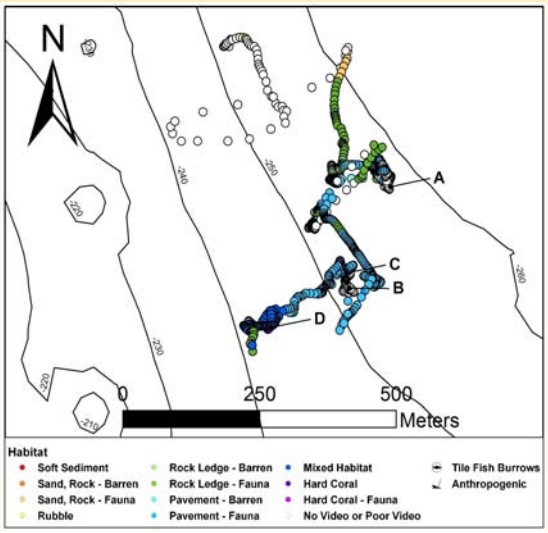
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	pilot training (bow), J Harasewych (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	0
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Training dive
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	9/28/2011
PI Station Number	18-XI-05-1

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	18-Nov-05
Minimum Bottom Depth (m)	176
Maximum Bottom Depth (m)	298
Start Bottom Time (EDT)	8:20
End Bottom End (EDT)	11:12
Starting Latitude (N)	24° 30.292'
Starting Longitude (W)	80° 40.152'
Ending Latitude (N)	24° 30.006'
Ending Longitude (W)	80° 40.127'
Surface Current (Kts)	
Bottom Current (Kts)	0.6

Image A: Pavement - with Attached Fauna
24º 30.163' N, 80º 39.984' W

DIVE NUMBER: JSLI-4921 *STUDY AREA: Pourtales Terrace*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rock Ledge - with Attached Fauna
24º 30.090' N, 80º 40.008' W

Image C: Pavement - with Attached Fauna
24º 30.077' N, 80º 40.032' W

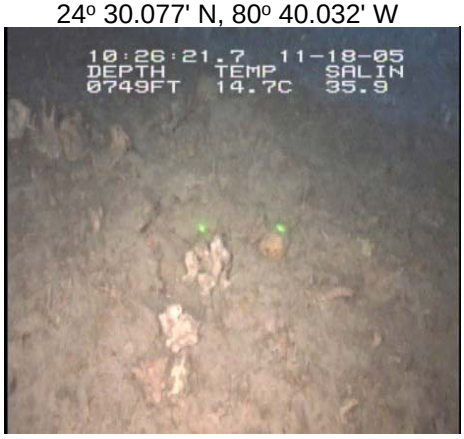


Image D: Mixed Habitat
24º 30.028' N, 80º 40.110' W

RELEVANT WORK AND/OR LITERATURE CITED

EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2005)
Reed et al. (2006)

BIOLOGICAL ENVIRONMENT

Abundant sessile fauna attached to the low relief rock, pavement and ledge habitats included numerous species of hexactinellid and demospongia sponges ranging from small vase, ball and large plate forms, a large diversity of hydrozoan corals (Stylasteridae), black coral (e.g. *Antipathes* sp.) and small gorgonians. No *Lophelia pertusa* were evident. Mobile fauna included slit shell snails, seastars, hermit crabs, cidaroid urchins, scorpionfish, snowy grouper, red bream, redeye gapers, an amberjack, and a boarfish.

PHYSICAL ENVIRONMENT

This dive began to the northwest of a rock ridge beginning over a mix of soft substrate and rock with fauna and traversing a region with periodic boulders and low-lying rock slabs with attached fauna. The submersible continued along a gradual incline with expanses of solid rock pavement with a thin layer of sediment and attached fauna that was interrupted by periodic vertical rock faces and ledges with attached fauna. The southern extent of the dive covered mixed habitat with dense assemblages of hydrozoan corals and sponges.

ADDITIONAL COMMENTS

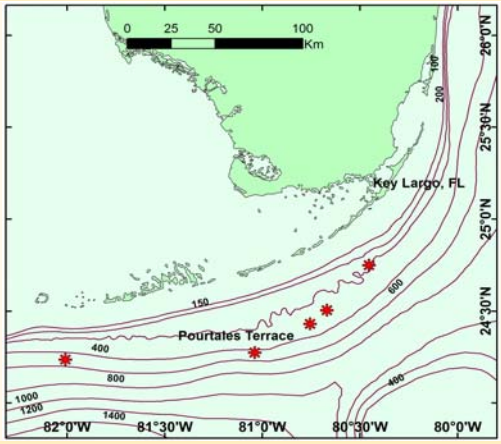
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard drive. Video quality was clear though the bow pilot frequently turned off the camera resulting in large sections of the dive track being labeled 'no data'. This dive was a pilot training dive so only a stern scientist was present. Collections were taken of numerous slit shell snails, an unknown conical snail, hydrozoans (Stylasteridae), and a redeye gaper.

DIVE NUMBER: JSLI-4922 *STUDY AREA: Pourtales Terrace*

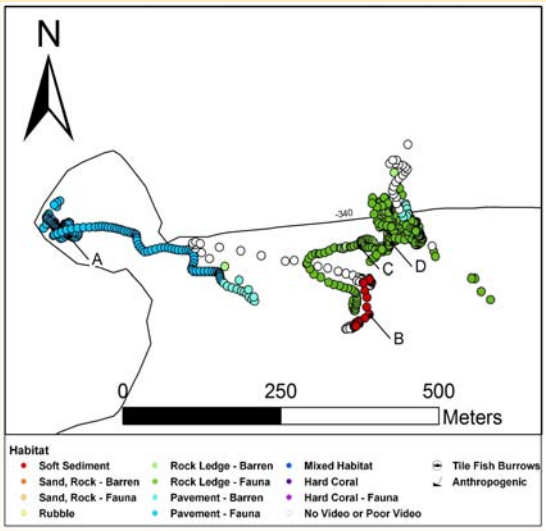
STATION OVERVIEW

Project	Ocean Exploration 2005
Principal investigators	SD Brooke[1] J Reed, C Messing
PI Contact Info[1]	Oregon Institute of Marine Biology, 63466 Boat Basin Rd., Charleston, OR 97420
Purpose	Exploration of deep-water coral ecosystems off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link I Submersible
Science Divers	J Reed (bow), A Maness (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	0
Digital Still Photos	0
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	10/21/2011
PI Station Number	18-XI-05-2

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	18-Nov-05
Minimum Bottom Depth (m)	329
Maximum Bottom Depth (m)	530
Start Bottom Time (EDT)	16:44
End Bottom End (EDT)	20:00
Starting Latitude (N)	24° 16.450'
Starting Longitude (W)	81° 02.482'
Ending Latitude (N)	24° 16.515'
Ending Longitude (W)	81° 02.176'
Surface Current (Kts)	
Bottom Current (Kts)	0.4

Image A: Pavement - with Attached Fauna
24º 16.440' N, 81º 02.440' W

DIVE NUMBER: JSLI-4922 *STUDY AREA: Pourtales Terrace*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Soft Substrate
24º 16.380' N, 81º 02.220' W

Image C: Rock Ledge - with Attached Fauna
24º 16.440' N, 81º 02.220' W

Image D: Rock Ledge - with Attached Fauna
24º 16.440' N, 81º 02.220' W

RELEVANT WORK AND/OR LITERATURE CITED

EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2005)
Reed et al. (2006)

BIOLOGICAL ENVIRONMENT

Abundant sessile fauna attached to the rock pavement and rock ledges surrounding Jordan sinkhole included numerous species of hexactinellid and demospongia sponges (e.g. *Phakellia* sp. and an abundant encrusting blue sponge), a large diversity of hydrozoan corals (family Stylasteridae), black coral (e.g. *Antipathes* sp.), bamboo coral, small white gorgonians, and anemones (e.g. venus flytrap anemone) as well as small patches of *Lophelia pertusa* and *Madrepora oculata*. Mobile fauna included seastars (e.g. brissingids), galatheid crabs, shrimp, cidaroid urchins, comatulid crinoids, a slit shell snail, scorpionfish (including blackbelly rosefish), coral hake, shortbeard codling, western roughy, a conger eel, a requiem shark, and a large school of squid.

PHYSICAL ENVIRONMENT

This dive began to the west of Jordan sinkhole on a steady decline across rock pavement habitat with attached fauna. The submersible reached an abrupt ledge of barren pavement before rapidly descending 175 meters into Jordon sinkhole. At the bottom of the sinkhole a northerly transect crossed soft sediment habitat before meeting a 90° vertical wall. The submersible alternated between vertical transects up the rock ledge and horizontal transects following in the contour of the rock face. This habitat was rock ledge with attached fauna before transitioning to barren pavement at the top of the feature.

ADDITIONAL COMMENTS

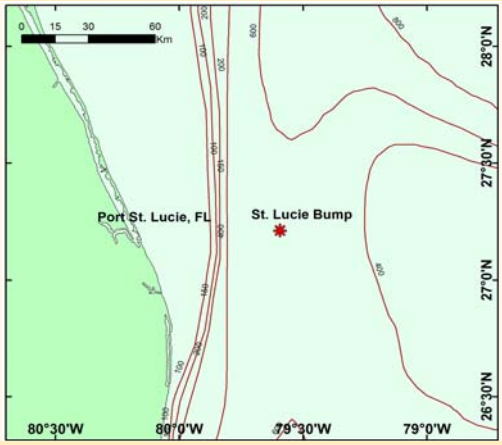
Original dives are on mini DVs transferred to digital on a mini DV reader and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage. Collections were taken of a slit shell snail, bamboo coral, crinoids, hydrozoans (Stylasteridae), *M. oculata, L. pertusa,* a small white gorgonian, and sediment samples.

DIVE NUMBER: JSLII-3583 *STUDY AREA: St. Lucie Bump*

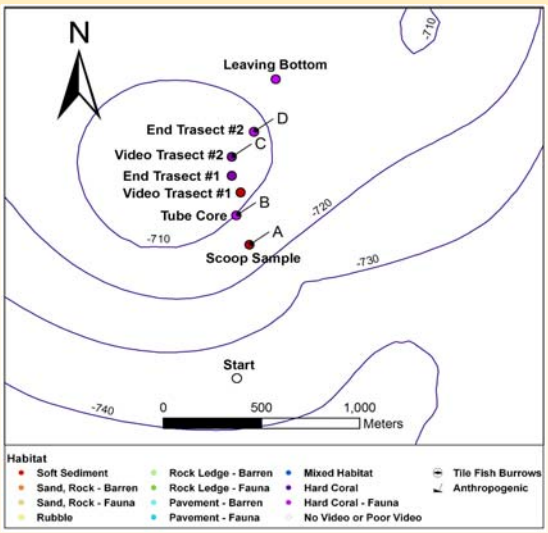
STATION OVERVIEW

Project	Ocean Exploration Deep Coral Expedition
Principal investigators	C Messing[1] SD Brooke, J Reed
PI Contact Info[1]	Nova Southeastern University, Oceanographic Center, 8000 N Ocean Drive, Dania Beach, FL 33004
Purpose	Exploration and characterization of deep sea coral habitats off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	S Brooke (bow), K Shirus (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	
Positioning System	dGPS
CTD File	☐
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/18/2011
PI Station Number	28-V-07-1

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	28-May-07
Minimum Bottom Depth (m)	683
Maximum Bottom Depth (m)	751
Start Bottom Time (EDT)	17:00
End Bottom End (EDT)	18:37
Starting Latitude (N)	27° 11.930'
Starting Longitude (W)	79° 35.687'
Ending Latitude (N)	27° 12.788'
Ending Longitude (W)	79° 35.597'
Surface Current (Kts)	
Bottom Current (Kts)	0.4

Image A: Soft Substrate
27° 12.310' N, 79° 35.653' W

DIVE NUMBER: JSLII-3583 *STUDY AREA: St. Lucie Bump*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
27° 12.398' N, 79° 35.687' W

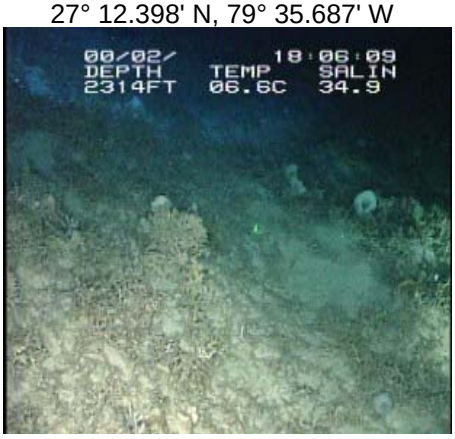


Image C: Hard Corals - without Attached Fauna
27° 12.567' N, 79° 35.697' W

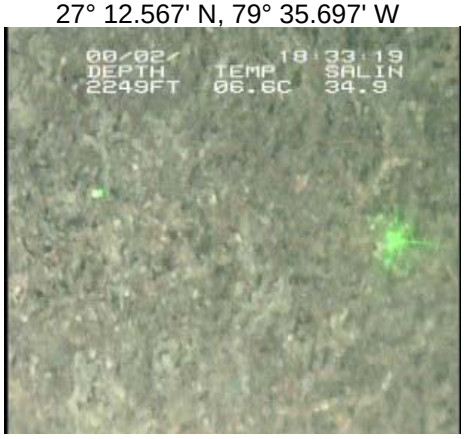
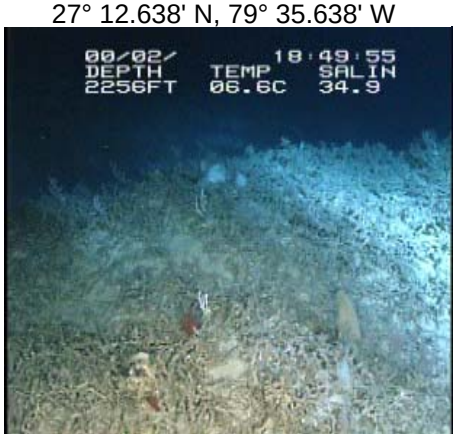


Image D: Hard Corals - with Attached Fauna
27° 12.638' N, 79° 35.638' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)

BIOLOGICAL ENVIRONMENT

The habitat of interest at St. Lucie Bump consisted of low to high relief coral mounds comprised of 99% dead *Lophelia pertusa* matrix with occasional live tips. The hard coral rubble and matrix habitats supported abundant attached fauna such as small hydrozoan corals (Stylasteridae), gorgonians (e.g. *Acanella* sp.), bamboo coral, *Anthomastus* sp., and a huge diversity of both hexactinellid and demospongia sponges. Mobile fauna included cidaroid and echinoid urchins, crinoids, eels, scorpionfish, rattail and coral hake. Soft sediments and rubble surrounding and leading up to the mounds often had stalked hexactinellid sponges with and without zooanthids as well as numerous sea cucumbers, urchins and a skate.

PHYSICAL ENVIRONMENT

This dive begin 700m west of the waypoint 7, requiring a easterly traverse over soft sediment often mixed with coral rubble before turning north to head to the main coral feature and other waypoints. Before reaching the target coral mound (waypoint 4) the sub passed through three small regions of low relief 100% dead coral rubble covered with abundant mixed fauna and interspersed with soft sediment. The main coral lithoherm was surrounded by coral rubble and the center comprised of 99% dead *L. pertusa* matrices and abundant attached fauna with patches of soft sediment.

ADDITIONAL COMMENTS

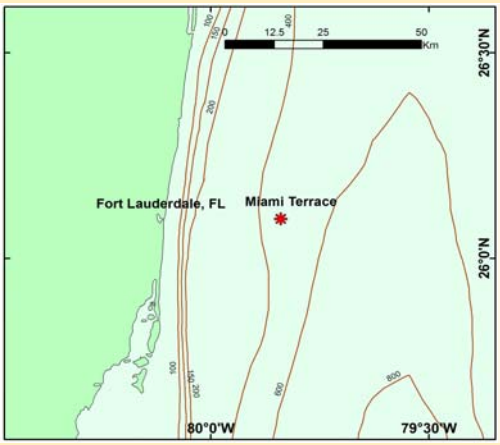
Original dives are on mini DVs transfered to digital on a mini DV reader and stored on an external hard. Video quality was mostly clear with a few sections of unusable footage. CTD and navigation data for this JSL dive are missing. Therefore, only fixes taken during the dive and recorded in dive logs are shown on the dive track map with pictures taken at those fixes. Sediment cores were taken. Collections were taken of live and dead *L. pertusa,* Geodiidae and *Polymastia* sp. sponge, and attempted for a chimera.

DIVE NUMBER: JSLII-3584 *STUDY AREA: Miami Terrace*

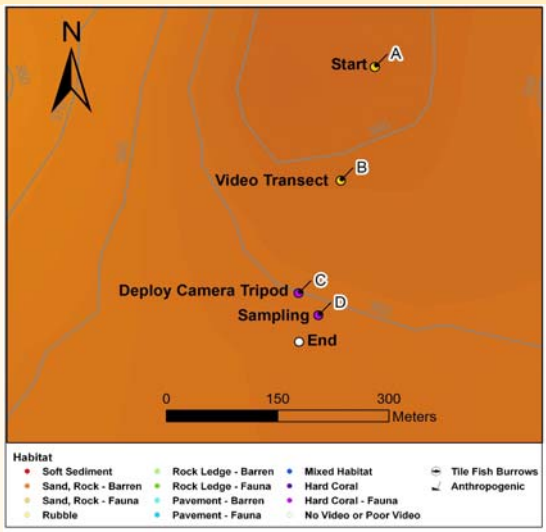
STATION OVERVIEW

Project	Ocean Exploration Deep Coral Expedition
Principal investigators	C Messing[1] SD Brooke, J Reed
PI Contact Info[1]	Nova Southeastern University, Oceanographic Center, 8000 N Ocean Drive, Dania Beach, FL 33004
Purpose	Exploration and characterization of deep sea coral habitats off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	R Gilmore (bow), S Brooke (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini Dvs
Digital Still Photos	
Positioning System	dGPS
CTD File	☐
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/18/2011
PI Station Number	29-V-07-1

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	29-May-07
Minimum Bottom Depth (m)	287
Maximum Bottom Depth (m)	316
Start Bottom Time (EDT)	8:23
End Bottom End (EDT)	11:06
Starting Latitude (N)	26° 05.816'
Starting Longitude (W)	79° 50.324'
Ending Latitude (N)	26° 05.608'
Ending Longitude (W)	79° 50.380'
Surface Current (Kts)	
Bottom Current (Kts)	0.6

Image A: Sand/Rubble/Rock - with Attached Fauna

26° 5.816' N, 79° 50.325' W

DIVE NUMBER: JSLII-3584 *STUDY AREA: Miami Terrace*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Sand/Rubble/Rock - with Attached Fauna
26° 5.730' N, 79° 50.350' W

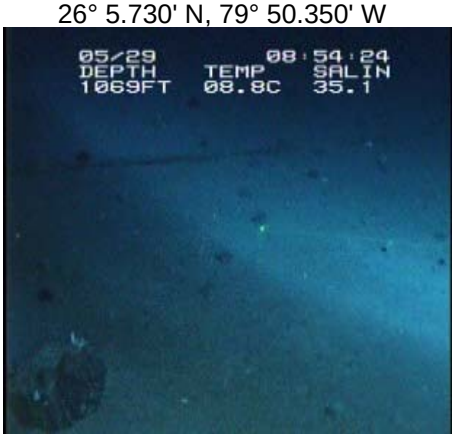


Image C: Hard Corals - with Attached Fauna
26° 5.645' N, 79° 50.380' W

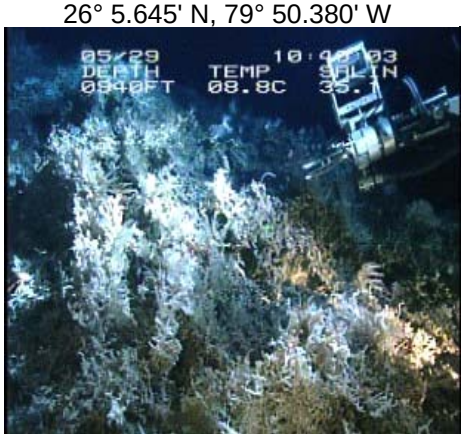
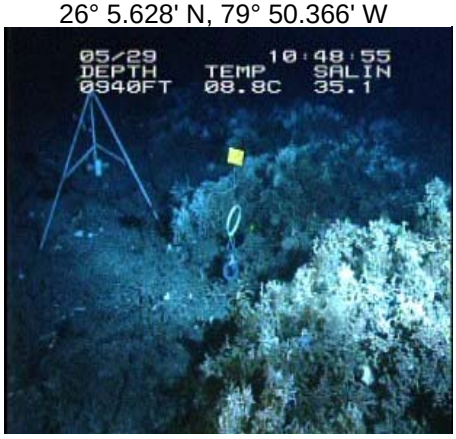


Image D: Hard Corals - with Attached Fauna
26° 5.628' N, 79° 50.366' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)

BIOLOGICAL ENVIRONMENT

Soft sediment and rock habitat leading up to the north side of the terrace had diverse assemblage of invertebrates including hexactinellid sponges, small unidentifiable white hard coral, anemones, crabs, sea stars, sea urchins. The terrace supported rock ledges with fauna and hard coral habitat with areas of dense 50-70% live *Lophelia pertusa* Attached fauna included hydrozoan corals (Stylasteridae) and cup corals, anemones (white and venus flytrap), hexactinellid sponges, gorgonians (e.g. *Acanella* sp.), and zooanthids. Mobile fauna were abundant and included cidaroid and echinoid urchins, galatheid crabs, basket stars, crinoids, sea stars, a large school of wreckfish, grouper, conger eel, and dogfish.

PHYSICAL ENVIRONMENT

This dive began to the north of the rock terrace, in soft sediment with small rocks and rubble with attached fauna. The high relief rock terrace was composed of layered horizontal rock ridges with abundant attached fauna. The top of the terrace flattens out into rock slabs and small rock fields with attached fauna. The edge of the terrace (1-3 meters) supported a dense region of live hard coral with and without attached fauna.

ADDITIONAL COMMENTS

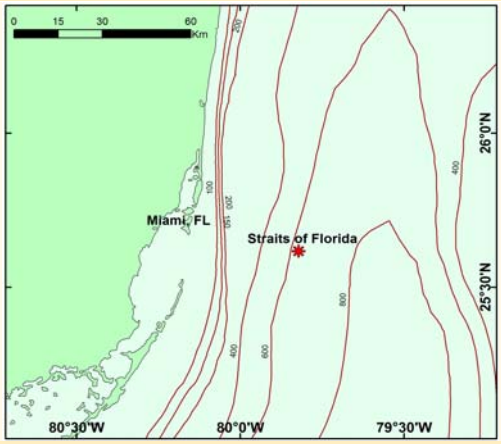
Original dives are on mini DVs transfered to digital on a mini DV reader and stored on an external hard. Video quality of the first tape was poor with low light and unfocused, zoomed out imaging that made habitats vaguely inferable and identification of coral and associated invertebrates impossible. CTD and navigation data for this JSL dive are missing. Therefore, only fixes taken during the dive and recorded in dive logs are shown on the dive track map with pictures taken at those fixes. Sediment cores were taken. *L. pertusa* samples were collected. A camera tripod, hydrophone, and bait bucket were deployed.

DIVE NUMBER: JSLII-3585 *STUDY AREA: Straits of Florida*

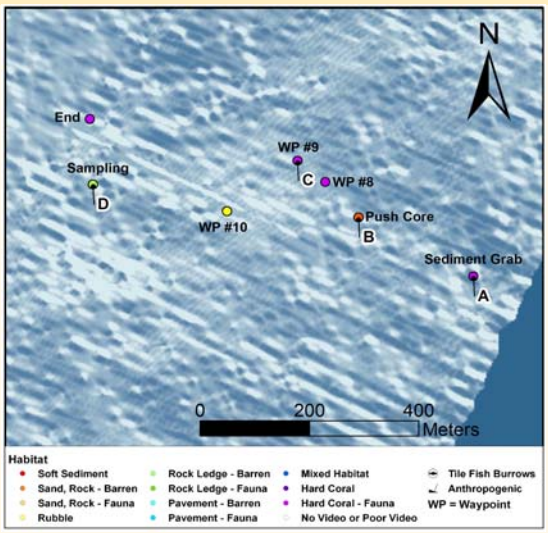
STATION OVERVIEW

Project	Ocean Exploration Deep Coral Expedition
Principal investigators	C Messing[1] SD Brooke, J Reed
PI Contact Info[1]	Nova Southeastern University, Oceanographic Center, 8000 N Ocean Drive, Dania Beach, FL 33004
Purpose	Exploration and characterization of deep sea coral habitats off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	C Kellogg (bow), J Reed (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	
Positioning System	dGPS
CTD File	☐
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/18/2011
PI Station Number	29-V-07-2

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	29-May-07
Minimum Bottom Depth (m)	700
Maximum Bottom Depth (m)	831
Start Bottom Time (EDT)	16:15
End Bottom End (EDT)	19:23
Starting Latitude (N)	25° 37.065'
Starting Longitude (W)	79° 49.176'
Ending Latitude (N)	25° 37.114'
Ending Longitude (W)	79° 49.694'
Surface Current (Kts)	
Bottom Current (Kts)	0.1

Image A: Hard Corals - with Attached Fauna
25° 36.953' N, 79° 49.315' W

DIVE NUMBER: JSLII-3585 *STUDY AREA: Straits of Florida*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Sand/Rubble/Rock - Barren
25° 37.014' N, 79° 49.429' W

Image C: Hard Corals - with Attached Fauna
25° 37.072' N, 79° 49.489' W

Image D: Rock Ledge - Barren
25° 37.047' N, 79° 49.691' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)

BIOLOGICAL ENVIRONMENT

Coral ridges were comprised primarily of low relief 100% dead *Enallopsammia profunda* matrix interspersed with a mix of soft sediment and coral rubble. The dead hard coral rubble and matrix habitats supported attached fauna such as small hydrozoan corals (Stylasteridae), slender whip-like gorgonians and numerous hexactinellid sponges. Mobile fauna included crinoids, golden crabs, rock lobsters, shrimp, eels, a skate, and a dogfish. Soft sediments and rubble surrounding and leading up to the mounds occasionally had stalked hexactinellid sponges and rock lobster holes.

PHYSICAL ENVIRONMENT

The Straits of Florida site consisted of frequent ridges of 100% dead hard coral covered and interspersed with soft sediment and mixed coral rubble. Major waypoints were reached by traversing flats or valleys of soft sediment and coral rubble with or without fauna that would transition abruptly into steep inclines with dead hard coral habitat with attached fauna interspersed areas of coral rubble and soft sediment. Around waypoint 12, the habitat changed at the base of an incline composed of large rocks and slabs that were mostly barren of fauna.

ADDITIONAL COMMENTS

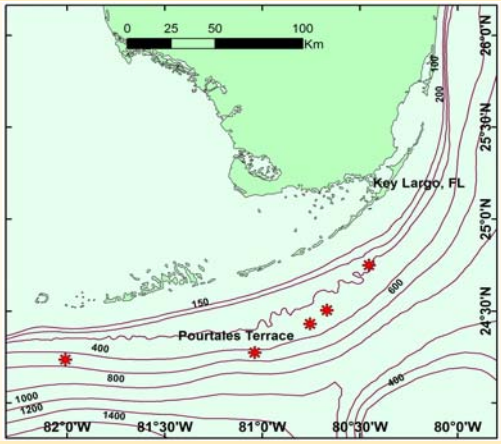
Original dives are on mini DVs transfered to digital on a mini DV reader and stored on an external hard drive. Video quality was mostly clear. There were very few sections of unusable footage for habitat characterization though the camera rarely focused in to allow more than rudimentary identification of corals and associated invertebrates. CTD and navigation data for this JSL dive are missing. Therefore, only fixes taken during the dive and recorded in dive logs are shown on the dive track map with pictures taken at those fixes. Sediment cores were taken. Collections were taken of dead *E. profuna* rubble and surrounding sediment, sediment punch cores and a rock.

DIVE NUMBER: JSLII-3586 *STUDY AREA: Pourtales Terrace*

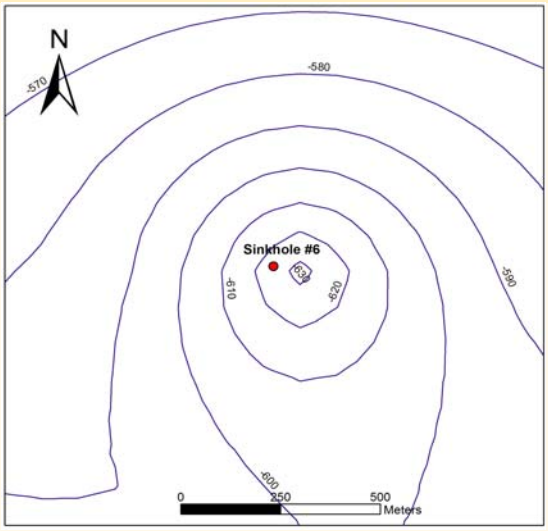
STATION OVERVIEW

Project	Ocean Exploration Deep Coral Expedition
Principal investigators	C Messing[1] SD Brooke, J Reed
PI Contact Info[1]	Nova Southeastern University, Oceanographic Center, 8000 N Ocean Drive, Dania Beach, FL 33004
Purpose	Exploration and characterization of deep sea coral habitats off the east coast of Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	
Positioning System	dGPS
CTD File	☐
Specimens Collected	☑
Other	
Acknowledgements	NOAA-OE
SEADESC Analyst	M Watts
Date Compiled	8/18/2011
PI Station Number	3-VI-07-1

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	03-Jun-07
Minimum Bottom Depth (m)	601
Maximum Bottom Depth (m)	677
Start Bottom Time (EDT)	10:11
End Bottom End (EDT)	12:46
Starting Latitude (N)	24° 14.106'
Starting Longitude (W)	82° 00.486'
Ending Latitude (N)	
Ending Longitude (W)	
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Rock Ledge - Barren
Specific location of image is unknown

DIVE NUMBER: JSLII-3586 *STUDY AREA: Pourtales Terrace*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rock Ledge - Barren
Specific location of image is unknown

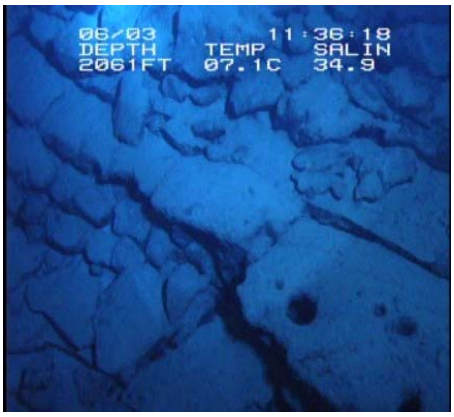


Image C: Soft Substrate
Specific location of image is unknown

Image D: Soft Substrate
Specific location of image is unknown

RELEVANT WORK AND/OR LITERATURE CITED

EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2005)
Reed et al. (2006)
Ross and Nizinski (2007)

BIOLOGICAL ENVIRONMENT

The region around Poutales Terrace Sinkhole #6 consisted primarily of soft sediment habitat interspersed with barren limestone rocks and ledges. The soft sediment habitat showed extensive evidence of bioturbation and supported sparse invertebrate fauna including burrowing anemones, stalked and puff ball hexactinellid sponges, zooanthids, stalked crinoids, sea cucumbers, *Bathynomus* sp., galatheid and golden crabs, shrimp and lobster as well as their burrows. The limestone rocks and ledges were almost completely barren except for small aggregations of the black coral *Stichopathes* sp. golden crabs and rare sponges. Mobile fauna consisted of the aforementioned crustaceans and numerous fishes including grenadiers, codling, coral and offshore hake, eel, dogfish, goosefish, gaper, tripodfish, and armored searobin.

PHYSICAL ENVIRONMENT

The dive began with extensive soft sediment habitat with evidence of frequent bioturbation. After traversing the soft sediment, the sub encountered an abrupt habitat change to barren phosphoritic limestone rock ledges and thin rock slabs covered in a layer of soft sediment. A steep rock ledge surrounds the main sinkhole, then plateaus into flat, thin slabs of limestone with very sparse attached fauna and some fishes. Soft sediment continued upslope of the rock ledges with sparse benthic and demersal fauna and continued in all regions lacking rock/ledge habitat. Two smaller rock slab features with low relief ledges were encountered and supported the same sparse fauna as feature surrounding Sinkhole #6.

ADDITIONAL COMMENTS

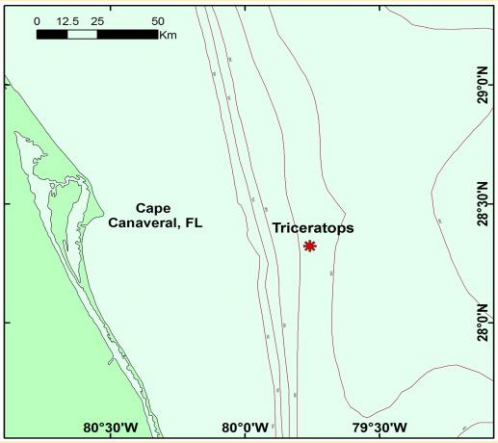
Original dives are on mini DVs transfered to digital on a mini DV reader and stored on an external hard. Video quality was clear with almost no sections of unusable footage. CTD and navigation data for this JSL dive are missing. Therefore, only waypoints taken during the dive and recorded in dive logs are shown on the dive track map. Collections were taken of stalked crinoids, stalked and puff ball hexactinellid sponges, burrowing anemones, black corals (*Stichopathes* sp.), and phosphoritic rock. Sediment punch cores were also taken.

DIVE NUMBER: JSLII-3700 *STUDY AREA: Triceratops*

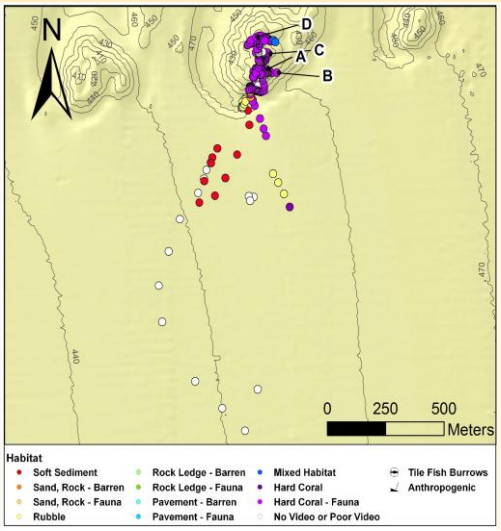
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	S Ross (bow), S Brooke (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	11/22/2011
PI Station Number	JSLII-2009-Atl-3700

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	06-Aug-09
Minimum Bottom Depth (m)	424
Maximum Bottom Depth (m)	450
Start Bottom Time (EDT)	15:38
End Bottom End (EDT)	18:26
Starting Latitude (N)	28° 18.979'
Starting Longitude (W)	79° 45.123'
Ending Latitude (N)	28° 19.318'
Ending Longitude (W)	79° 45.052'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Coral - with Attached Fauna
28° 19.272' N, 79° 45.108' W

DIVE NUMBER: JSLII-3700 *STUDY AREA: Triceratops*

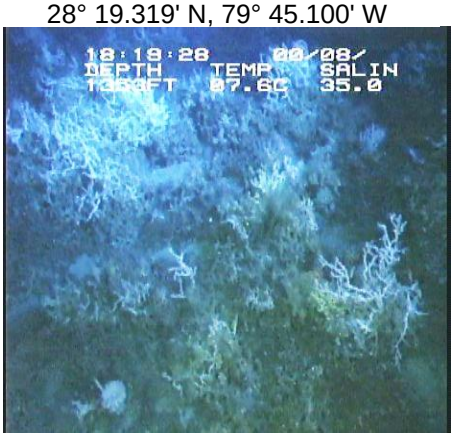
IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
28° 19.248' N, 79° 44.898' W

Image C: Hard Corals - with Attached Fauna
28° 19.278' N, 79° 45.048' W

Image D: Hard Corals - with Attached Fauna
28° 19.319' N, 79° 45.100' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed the central and largest *Lophelia pertusa* bioherm of the coral mounds called "Triceratops" off Cape Canaveral. Coral rubble leading up to the top of the bioherm supported fauna such as cup corals and *Plumarella* sp. The top of the bioherm was comprised of dense, high relief live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as cup corals, anemones, gorgonians, bamboo coral, hydroids, a diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp., *Hertwigia* sp., and *Vazella* sp.) and rare patches of the hard coral *Madrepora oculata*. Mobile fauna included echinoid and cidaroid urchins, golden and galatheid crabs, squid and octopus, blackbelly rosefish, a red bream, rattail fish, coral hakes, a Cuban dogfish, catsharks, and conger eels.

PHYSICAL ENVIRONMENT

This dive began south of the central *L. pertusa* bioherm, requiring a northerly traverse over soft sediment, then coral rubble. At the base of the bioherm the slope increased and was dominated by hard coral habitat with and without abundant attached fauna. The bioherm consisted of a series of high relief coral thickets separated by narrow valleys of soft sediment and rubble with attached fauna. Almost the entire pinnacle consisted of hard coral habitat with attached fauna, and was comprised of high relief, 50-90% live *L. pertusa* on a dead coral matrix.

ADDITIONAL COMMENTS

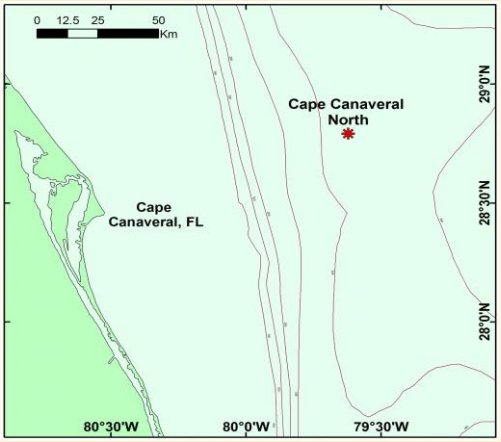
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was unclear for the first hour on bottom before condensation on the lens mostly cleared. Due to this lack of video clarity, representative pictures of habitat were not taken in the first hour of the dive. Collections were taken of live and dead *L. pertusa* and rubble, *Aphrocallistes* sp., a yellow gorgonian, numerous galatheid crabs, a salp, a cidaroid urchin, *Echinus* sp., a conger eel, and a catshark.

DIVE NUMBER: JSLII-3701 *STUDY AREA: Cape Canaveral North*

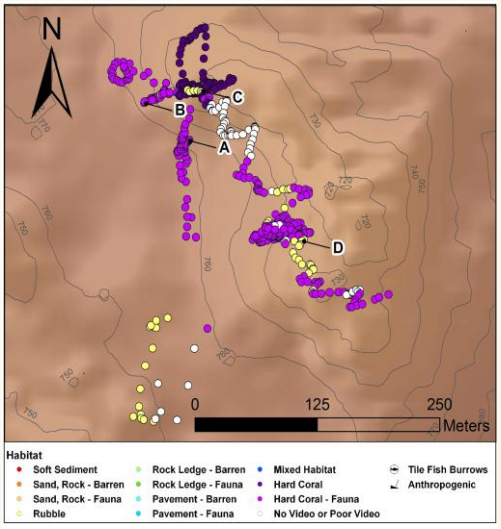
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	S Ross (bow), J Roberts (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	12/27/2011
PI Station Number	JSLII-09-Atl-3701

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	07-Aug-09
Minimum Bottom Depth (m)	732
Maximum Bottom Depth (m)	759
Start Bottom Time (EDT)	9:25
End Bottom End (EDT)	11:43
Starting Latitude (N)	28° 47.518'
Starting Longitude (W)	79° 37.458'
Ending Latitude (N)	28° 47.534'
Ending Longitude (W)	79° 37.311'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Coral - with Attached Fauna
28° 47.617' N, 79° 37.440' W

DIVE NUMBER: JSLII-3701 *STUDY AREA: Cape Canaveral North*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
28° 47.633' N, 79° 37.464' W

Image C: Hard Corals - without Attached Fauna
28° 47.635' N, 79° 37.428' W

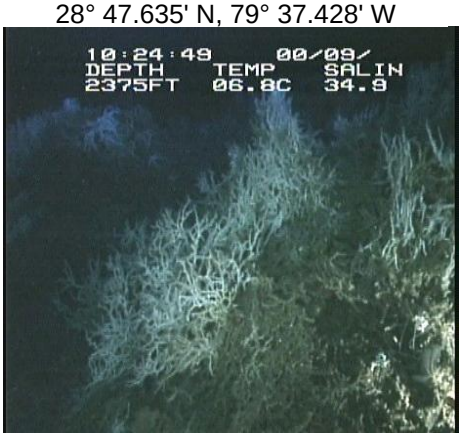


Image D: Rubble
28° 47.570' N, 79° 37.356' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive explored a large *Lophelia pertusa* bioherm off Cape Canaveral. Coral rubble leading up to the bioherm supported fauna such as hexactinellid sponges and small white bamboo coral. The bioherm was comprised of dense dead and live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., gorgonians (e.g. *Plumarella* sp.), bamboo coral (e.g. *Keratoisis* sp.), anemones, hydroids, a diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp., *Hertwigia* sp., and *Vazella* sp.) and demospongia sponges (e.g. *Phakellia* sp.), and a patch of the hard coral *Madrepora oculata*. Mobile fauna included an echinoid urchin, a scorpionfish, rattail fish, a codling, a hagfish, and numerous chimaeras and synaphobranchid eels.

PHYSICAL ENVIRONMENT

This dive began south of the *L. pertusa* bioherm, requiring a northerly traverse over coral rubble habitat. At the base of the bioherm the slope increased and was dominated by hard coral habitat with abundant attached fauna. The bioherm consisted of a series of high relief coral thickets separated by narrow valleys of rubble with attached fauna. Rubble habitat comprised the steep slopes of the bioherm, with standing coral and the percentage of live *L. pertusa* increasing (0 to 70%) with elevation of the bioherm.

ADDITIONAL COMMENTS

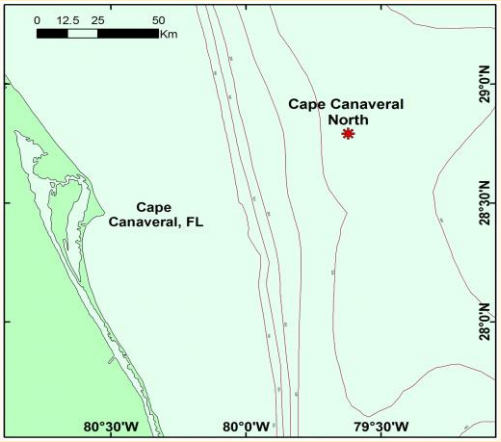
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was mostly clear though large portions of transects were dark and too far from the substrate to identify the invertebrate fauna. Collections were taken of live and dead *L. pertusa*, bamboo coral, and a *Hertwigia* sp.

DIVE NUMBER: JSLII-3702 *STUDY AREA: Cape Canaveral North*

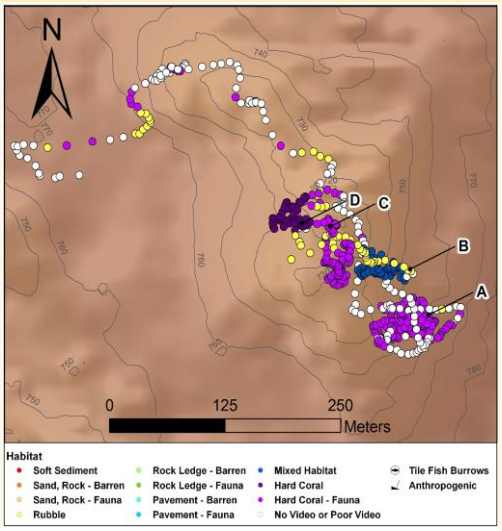
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	J Roberts (bow), M Nizinski (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	12/14/2011
PI Station Number	JSLII-2009-Atl-3702

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	07-Aug-09
Minimum Bottom Depth (m)	712
Maximum Bottom Depth (m)	754
Start Bottom Time (EDT)	19:21
End Bottom End (EDT)	20:57
Starting Latitude (N)	28° 47.579'
Starting Longitude (W)	79° 37.281'
Ending Latitude (N)	28° 47.570'
Ending Longitude (W)	79° 37.366'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Coral - with Attached Fauna
28° 47.528' N, 79° 37.272' W

DIVE NUMBER: JSLII-3702 *STUDY AREA: Cape Canaveral North*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
28° 47.544' N, 79° 37.284' W

Image C: Hard Corals - with Attached Fauna
28° 47.562' N, 79° 37.338' W

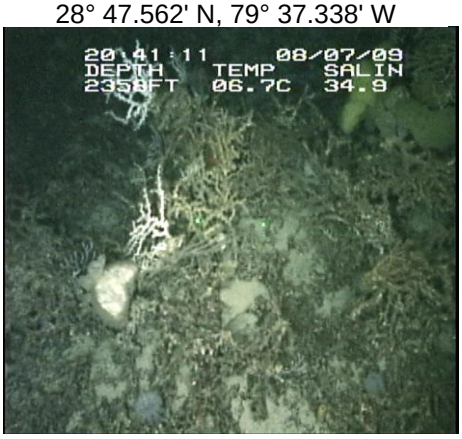
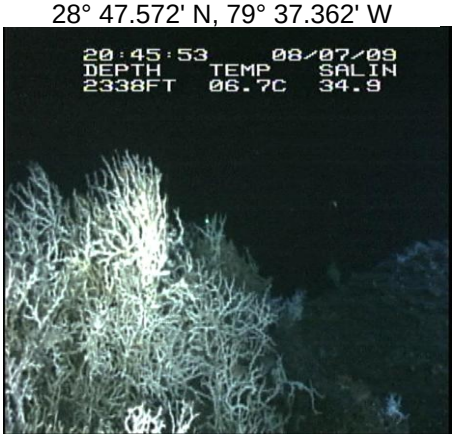


Image D: Hard Corals - without Attached Fauna
28° 47.572' N, 79° 37.362' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive explored a large *Lophelia pertusa* bioherm off Cape Canaveral. Coral rubble leading up to the bioherm supported fauna such as hexactinellid sponges, *Plumerella* sp., and bamboo coral. The bioherm was comprised of dense dead and live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., gorgonians (e.g. *Plumarella* sp.), bamboo corals (e.g. *Keratoisis* sp.), anemones, hydroids, a diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp. and *Hertwigia* sp.), and the hard coral *Madrepora oculata*. Mobile fauna included cidaroid urchins, a hagfish, eels, a chimaera, and a goosefish.

PHYSICAL ENVIRONMENT

This dive began northwest of a *L. pertusa* bioherm, requiring a southeasterly traverse over coral rubble habitat and sporadic patches of standing dead coral. At the base of the bioherm the slope increased and was dominated by dense rubble with abundant attached fauna. The abundance of standing dead coral with live patches and attached fauna increased with elevation up the bioherm. The percentage of live *L. pertusa* increased (0 to 80%) with elevation.

ADDITIONAL COMMENTS

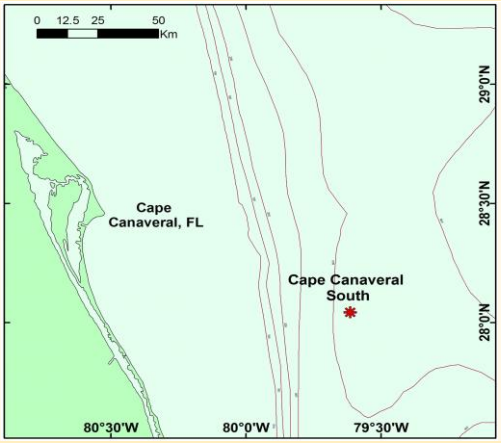
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was too dark to discern the habitat for the first 40 min. of the dive as the submersible was too far off the bottom and one of the external lights was pointed off to the side of the submersible to prevent the light from reflecting off the lander and blinding the pilot. A lander was deployed and collections taken of live and dead *L. pertusa*, *M. oculata*, cidaroid urchins, bamboo coral, an *E. lopheliae*, and a *Hertwigia* sp..

DIVE NUMBER: JSLII-3703 *STUDY AREA: Cape Canaveral South*

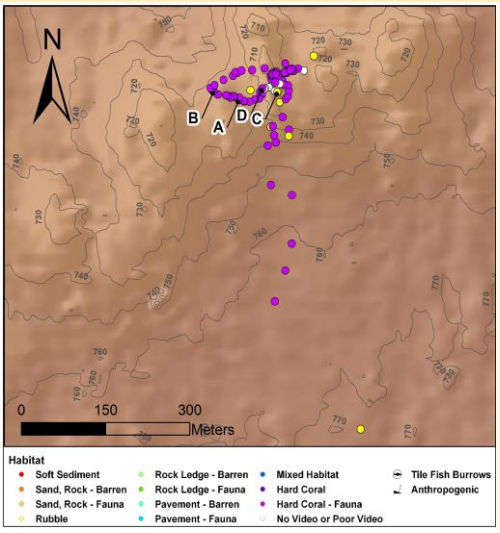
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	J Reed (bow), A Demopoulos (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	12/5/2011
PI Station Number	JSLII-09-Atl-3703

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	08-Aug-09
Minimum Bottom Depth (m)	700
Maximum Bottom Depth (m)	703
Start Bottom Time (EDT)	8:33
End Bottom End (EDT)	10:47
Starting Latitude (N)	28° 27.819'
Starting Longitude (W)	79° 37.598'
Ending Latitude (N)	28° 27.802'
Ending Longitude (W)	79° 37.657'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Coral - with Attached Fauna
28° 27.781' N, 79° 37.698' W

DIVE NUMBER: JSLII-3703 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
28° 27.804' N, 79° 37.716' W

Image C: Rubble
28° 27.822' N, 79° 37.632' W

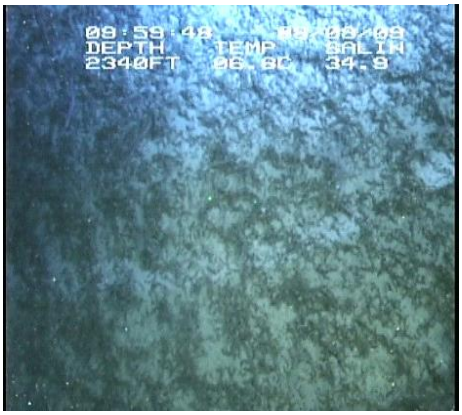


Image D: Hard Corals - with Attached Fauna
28° 27.792' N, 79° 37.692' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive explored a large *Lophelia pertusa* bioherm off Cape Canaveral to the north. Coral rubble leading up to the bioherm supported fauna such as hexactinellid sponges and small white bamboo coral. The bioherm was comprised of dense dead and live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp. and *Clavularia* sp., gorgonians (e.g. *Plumarella* sp.), bamboo coral (e.g. *Keratoisis* sp. and *Acanella* sp.), hydroids, a diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp. and *Hertwigia* sp.) and demospongia sponges (e.g. *Phakellia* sp.), and rare patches of the hard coral *Madrepora oculata*. Mobile fauna included cidaroid urchins, crinoids, galatheid crabs, rattail fish, a codling, chimaeras and synaphobranchid eels.

PHYSICAL ENVIRONMENT

This dive began at the northeast of the *L. pertusa* bioherm over hard coral habitat with attached fauna. The bioherm consisted of a series of high relief coral ridges separated by narrow valleys of rubble with attached fauna. Rubble habitat comprised the steep slopes of the bioherm, with standing coral and the percentage of live *L. pertusa* increasing (0 to 50%) with elevation, as did the number of attached invertebrates such as hexactinellid sponges.

ADDITIONAL COMMENTS

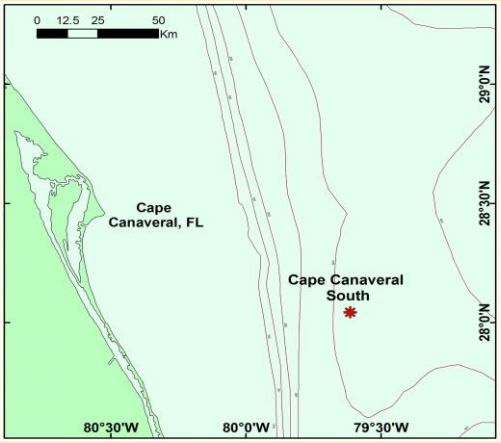
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was mostly clear. Collections and transects were somewhat limited by the strong current's influence on the submersible as it moved up the bioherm. Sediment cores and suction for sediment at the base of corals were taken along with collections of live and dead *L. pertusa*, a galatheid crab, bamboo coral, a *Hertwigia* sp. and an *Aphrocallistes* sp.

DIVE NUMBER: JSLII-3704 *STUDY AREA: Cape Canaveral South*

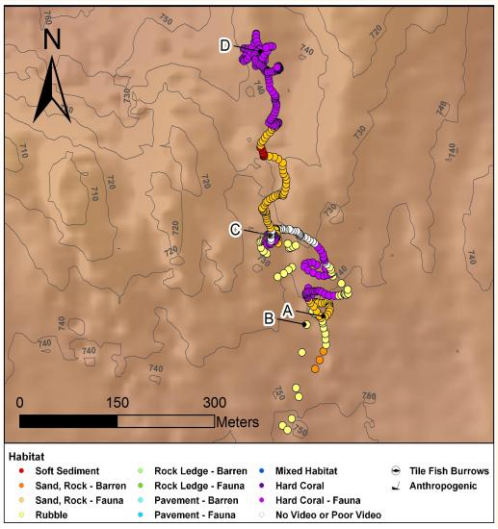
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	C Morrison (bow), E Baird (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/3/2012
PI Station Number	JSLII-09-Atl-3704

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	08-Aug-09
Minimum Bottom Depth (m)	725
Maximum Bottom Depth (m)	729
Start Bottom Time (EDT)	17:50
End Bottom End (EDT)	19:48
Starting Latitude (N)	28° 27.868'
Starting Longitude (W)	79° 38.203'
Ending Latitude (N)	28° 28.050'
Ending Longitude (W)	79° 38.272'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Sand/Rubble/Rock - with Attached Fauna

28° 27.850' N, 79° 38.208' W

DIVE NUMBER: JSLII-3704 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
28° 27.856' N, 79° 38.226' W

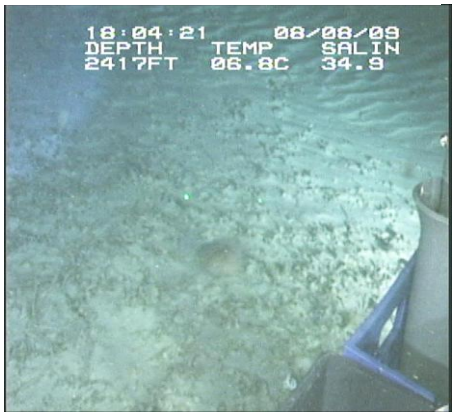


Image C: Hard Corals - with Attached Fauna
28° 27.916' N, 79° 38.256' W

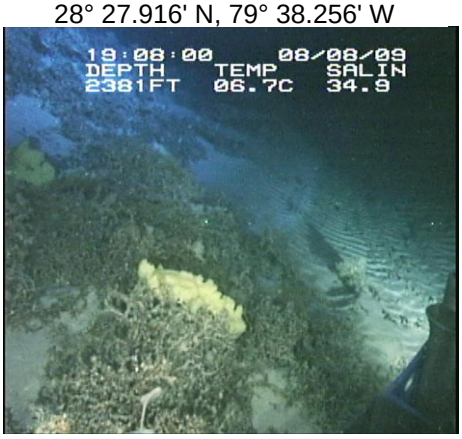


Image D: Hard Corals - with Attached Fauna
28° 28.058' N, 79° 38.274' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive explored a series of *Enallopsammia profunda* hummocks off Cape Canaveral. The hard coral habitat was comprised of patches of primarily dead *E. profunda* interspersed with regions of rubble habitat and soft sediment mixed with rubble. The hard coral rubble and hard coral habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., gorgonians, bamboo coral (e.g. *Keratoisis* sp.), *Paramuricea* sp., a diversity of hexactinellid sponges (e.g. *Farrea* sp., *Hertwigia* sp. and an unidentified stalked hexactinellid species), and patches of the hard coral *Madrepora oculata*. Mobile fauna included echinoid and cidaroid urchins, crinoids, galatheid and golden crabs, a skate, rattail fish, a blackbelly rosefish, a squid, a dogshark, and synaphobranchid eels.

PHYSICAL ENVIRONMENT

This dive extended over patches of low relief, mostly dead, hard coral habitat with attached fauna interspersed with regions of coral rubble and soft sediment with attached fauna and rubble habitats. The submersible varied in depth by only a few meters. Habitat types were not dispersed consistently with elevation as seen at many sites. For example, hard coral habitat was not at higher elevation than rubble or rubble and soft sediment habitats. Hard coral habitat consisted of 95% dead *E. profunda* with roughly 5% live coral at the distal tips and was frequently the substrate for hexactinellid sponges and soft corals.

ADDITIONAL COMMENTS

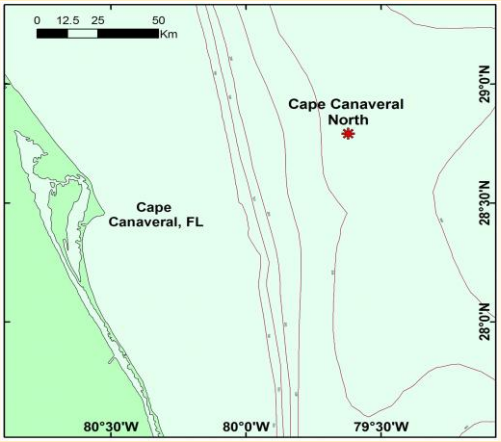
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was mostly clear though a few sections of tape were darker than desirable for habitat characterization and invertebrate identification where the submersible was too far off the bottom or pointing the lights too far out in front. Sediment cores and suction for sediment at the base of corals were taken along with collections of live and dead *E. profunda*, *M. oculata*, an echinoid and cidaroid urchin, a squid, a stalked hexactinellid sponge, a *Farrea* sp. sponge, and a *Paramuricea* sp.

DIVE NUMBER: JSLII-3705 *STUDY AREA: Cape Canaveral North*

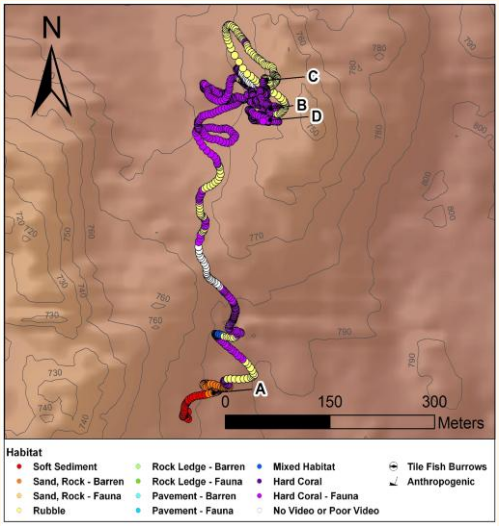
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	J Galkiewicz (bow), J McClain (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/4/2012
PI Station Number	JSLII-09-Atl-3705

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	09-Aug-09
Minimum Bottom Depth (m)	743
Maximum Bottom Depth (m)	778
Start Bottom Time (EDT)	8:47
End Bottom End (EDT)	11:08
Starting Latitude (N)	28° 46.306'
Starting Longitude (W)	79° 37.024'
Ending Latitude (N)	28° 46.526'
Ending Longitude (W)	79° 36.955'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Sand/Rubble/Rock - Barren
28° 46.326' N, 79° 37.002' W

DIVE NUMBER: JSLII-3705 *STUDY AREA: Cape Canaveral North*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
28° 46.534' N, 79° 36.948' W

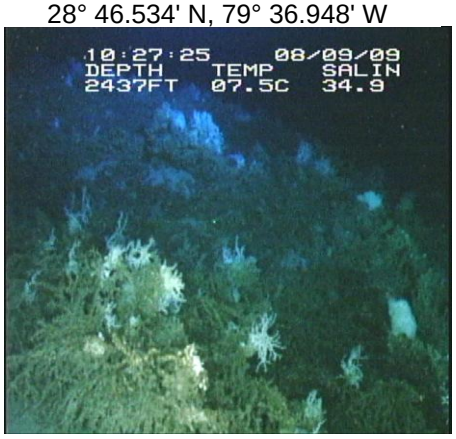


Image C: Rubble
28° 46.556' N, 79° 36.954' W

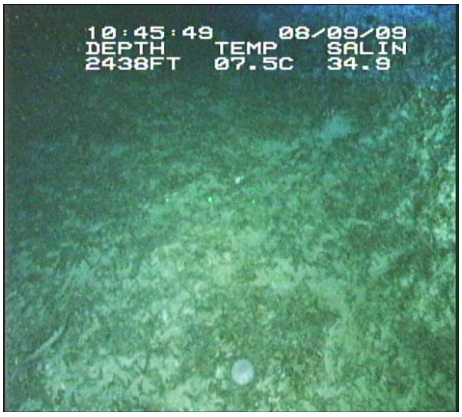
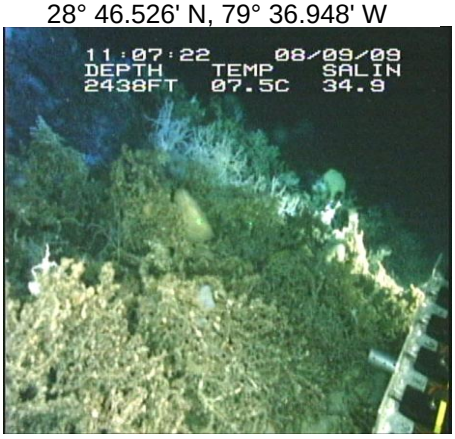


Image D: Hard Corals - with Attached Fauna
28° 46.526' N, 79° 36.948' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive explored a *Lophelia pertusa* bioherm off Cape Canaveral. The hard coral habitat was comprised of 99% dead, low relief *L. pertusa*. The hard coral and rubble habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., gorgonians (e.g. *Plumarella* sp.), bamboo coral (e.g. *Keratoisis* sp.), anemones, hydroids, a large diversity of hexactinellid sponges (e.g. *Hertwigia* sp.) and demospongia sponges, and a patch of the hard coral *Madrepora oculata*. Mobile fauna included cidaroid and echinoid urchins, chimaeras and synaphobranchid eels.

PHYSICAL ENVIRONMENT

This dive began south of a *L. pertusa* bioherm off Cape Canaveral, requiring a northerly traverse over first soft sediment, then soft sediment and rubble, then coral rubble before reaching hard coral habitat with attached fauna. The feature consisted of a series of coral ridge spurs separated by grooves of rubble and soft sediment. Hard coral habitat consisted of 99% dead, low relief *L. pertusa* with occasional tips of live coral. The height of standing coral and the percentage of live distal tips increased with elevation of the bioherm at the northern extent of the dive. Rubble habitat comprised the steep north slope of the bioherm. Attached sponges and soft corals were very abundant on both the hard coral and rubble habitats.

ADDITIONAL COMMENTS

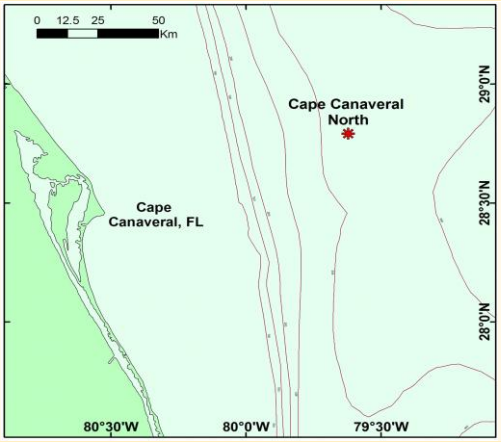
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was mostly clear though large portions of transects were dark with lots of debris in the water making the visibility too poor to identify many invertebrates to lower taxonomic levels. Suction samples for sediment were taken at the base of corals along with collections of live and dead *L. pertusa*, an anemone, and a piece of a hexactinellid sponge.

DIVE NUMBER: JSLII-3706 *STUDY AREA: Cape Canaveral North*

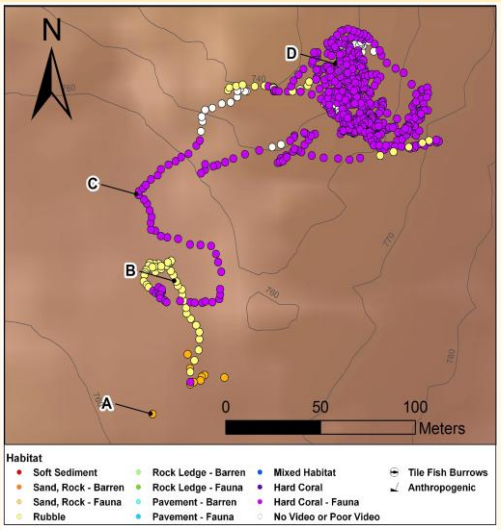
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	M Nizinski (bow), S Harter (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/6/2012
PI Station Number	JSLII-09-Atl-3706

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	09-Aug-09
Minimum Bottom Depth (m)	728
Maximum Bottom Depth (m)	758
Start Bottom Time (EDT)	17:10
End Bottom End (EDT)	19:05
Starting Latitude (N)	28° 47.421'
Starting Longitude (W)	79° 37.360'
Ending Latitude (N)	28° 47.478'
Ending Longitude (W)	79° 37.334'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Sand/Rubble/Rock - with Attached Fauna
28° 47.416' N, 79° 37.362' W

DIVE NUMBER: JSLII-3706 *STUDY AREA: Cape Canaveral North*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
28° 47.450' N, 79° 37.350' W

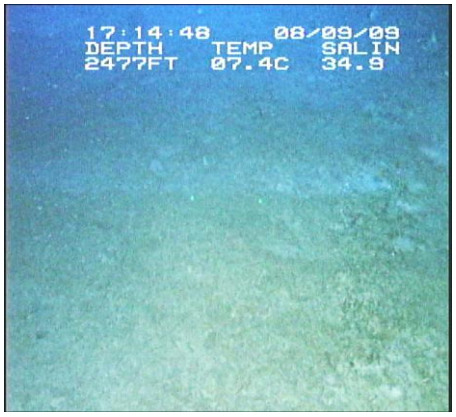
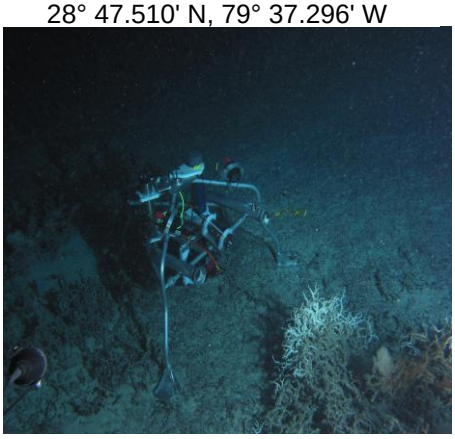


Image C: Hard Corals - with Attached Fauna
28° 47.477' N, 79° 37.368' W

Image D: Hard Corals - with Attached Fauna
28° 47.510' N, 79° 37.296' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive recovered a benthic lander at the northern base of a *Lophelia pertusa* bioherm off Cape Canaveral. The hard coral habitat was comprised of 99% dead, low relief *L. pertusa* and *Enallopsammia profunda*. The hard coral and rubble habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., gorgonians (e.g. *Plumarella* sp.), bamboo coral (e.g. *Keratoisis* sp.), hydroids, hydrozoan corals (e.g. Stylasteridae), a large diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp. and *Hertwigia* sp.), and demospongia sponges, and a small section of the hard coral *Madrepora oculata*. Mobile fauna included cidaroid and echinoid urchins, a seastar, a rattail fish, a chimaera, synaphobranchid eels, and a skate.

PHYSICAL ENVIRONMENT

This dive began at the base of a *L. pertusa* bioherm off Cape Canaveral. The submersible conducted a short northeasterly traverse over the bioherm to collect a benthic lander on the north side of the mound. The dive began in soft sediment and rubble and transitioned into coral rubble before reaching hard coral habitat with attached fauna as the submersible moved up the steep slope of the bioherm. Once the submersible found the lander, the majority of the dive was spent collecting around that area. Hard coral habitat consisted of 99% dead, low relief *L. pertusa* and *E. profunda* with occasional tips of live coral. The height of standing coral increased with elevation of the bioherm. Attached sponges and soft corals were very abundant on both the hard coral and rubble habitats.

ADDITIONAL COMMENTS

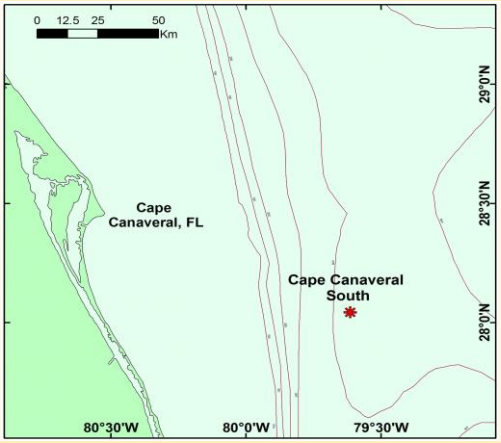
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was unclear in the first 30 min. of the dive due to condensation on the external camera lens and sections of the dive were too dark to identify many invertebrates to lower taxonomic levels. The main purpose of the dive was to recover the benthic lander. Additionally, suction samples for sediment were taken at the base of corals along with collections of live and dead *L. pertusa* and *E. profunda*, numerous cidaroid urchins, *Keratoisis* sp., hydrozoan coral (Stylasteridae), pieces of two hexactinellid sponges, a seastar and a skate.

DIVE NUMBER: JSLII-3707 *STUDY AREA: Cape Canaveral South*

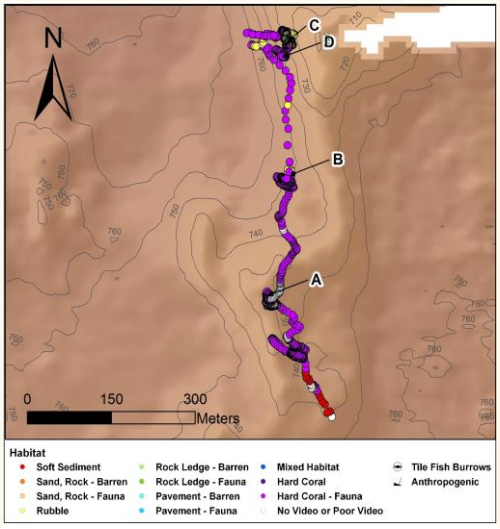
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	S Brooke (bow), C Morrison (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	1 mini DV
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/11/2012
PI Station Number	JSLII-09-Atl-3707

GENERAL LOCATION



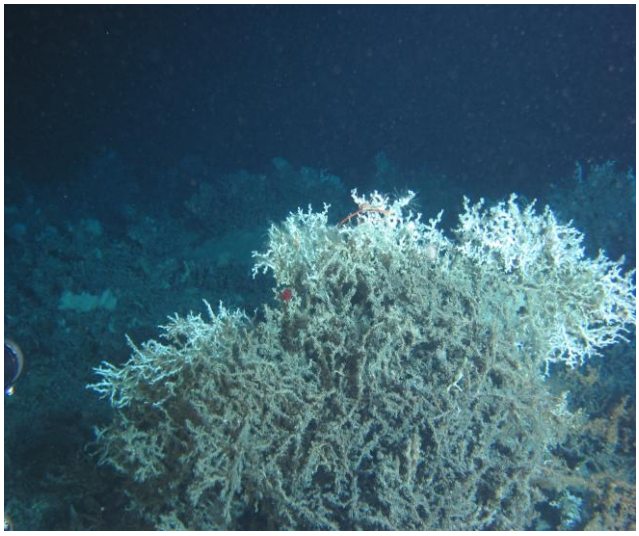
Dive Track:



DIVE DATA

Date	10-Aug-09
Minimum Bottom Depth (m)	713
Maximum Bottom Depth (m)	734
Start Bottom Time (EDT)	8:36
End Bottom End (EDT)	10:46
Starting Latitude (N)	28° 19.092'
Starting Longitude (W)	79° 36.886'
Ending Latitude (N)	28° 19.426'
Ending Longitude (W)	79° 36.926'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Coral - with Attached Fauna
28° 19.208' N, 79° 36.948' W



DIVE NUMBER: JSLII-3707 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
28° 19.338' N, 79° 36.924' W

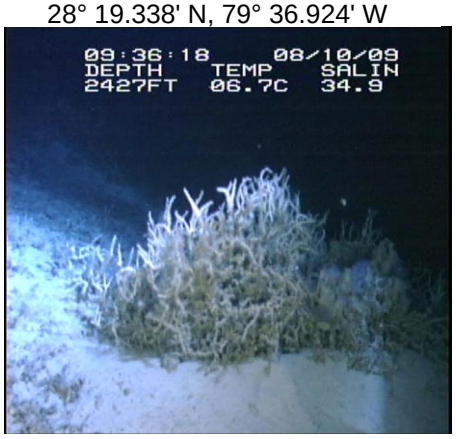


Image C: Rubble
28° 19.440' N, 79° 36.924' W

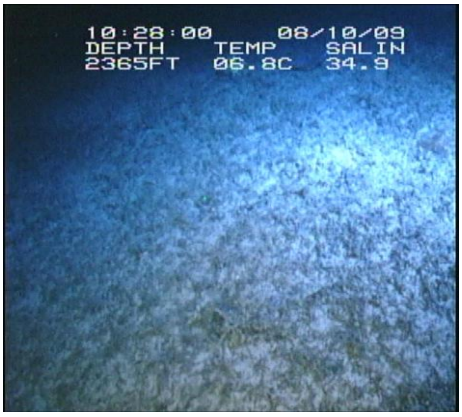
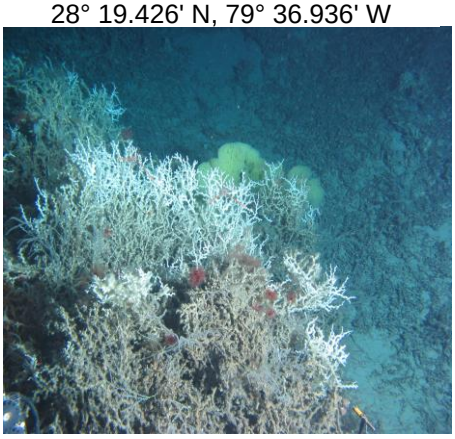


Image D: Hard Corals - with Attached Fauna
28° 19.426' N, 79° 36.936' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed a *Lophelia pertusa* bioherm off Cape Canaveral. The hard coral habitat was comprised of 50-100% dead, variable relief *L. pertusa* and *Enallopsammia profunda*. The hard coral and rubble habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp. and *Clavularia* sp., gorgonians, bamboo coral (e.g. *Keratoisis* sp.), hydroids, hydrozoan corals (e.g. Stylasteridae), a huge diversity of demospongia and hexactinellid sponges (e.g. *Aphrocallistes* sp. and euplectellids) including an abundance of *Hertwigia* sp. Mobile fauna included cidaroid and echinoid urchins, galatheid crabs, and synaphobranchid eels.

PHYSICAL ENVIRONMENT

This dive began at the southern base of a *L. pertusa* bioherm off Cape Canaveral. The submersible conducted a northerly transect over soft sediment before moving upslope into hard coral habitat with abundant attached fauna. At the base of the bioherm hard coral habitat consisted of 60-70% coral cover interrrupted by soft sediment. Coral cover was 99% dead, low relief *L. pertusa* and *E. profunda* with occasional tips of live coral. With greater elevation up the bioherm, there was higher relief, 5-50% live *L. pertusa* and *E. profunda* with 90-100% percent cover. Additionally, these standing coral regions were often adjacent to areas that rapidly flattened out into rubble habitat. There was a large diversity of sponges attached to both the hard coral and rubble habitats.

ADDITIONAL COMMENTS

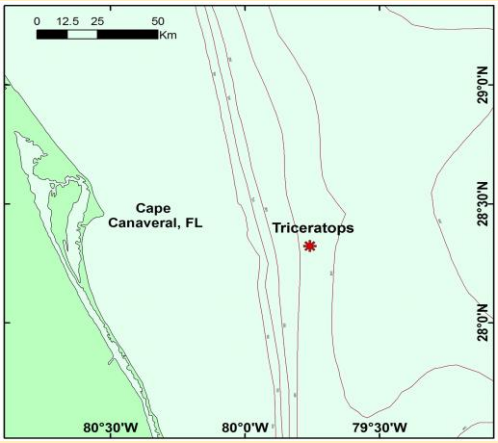
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear throughout the dive except for the first 20 min. of the dive due to condensation on the external camera lens. Suction samples and punch cores for sediment were taken at the base of corals along with collections of live and dead *L. pertusa* and *E. profunda*, *Anthomastus* sp., two galatheid crabs, *Echinus* sp. and cidaroid urchins, four different white hexactinellid sponges including one stalked sponge with zooanthids on its stalk, and a *Hertwigia* sp.

DIVE NUMBER: JSLII-3708 *STUDY AREA: Triceratops*

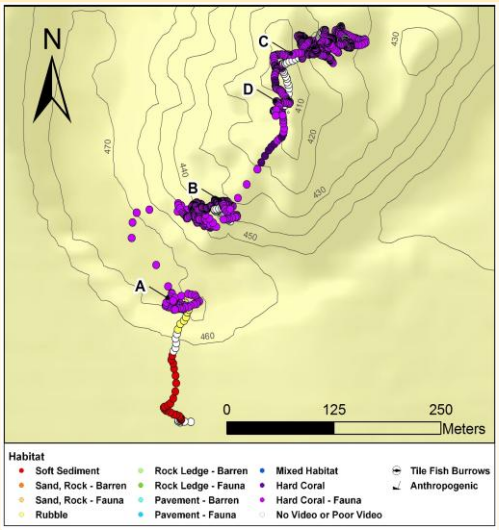
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	A Howard (bow), T Casazza (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/12/2012
PI Station Number	JSLII-09-Atl-3708

GENERAL LOCATION



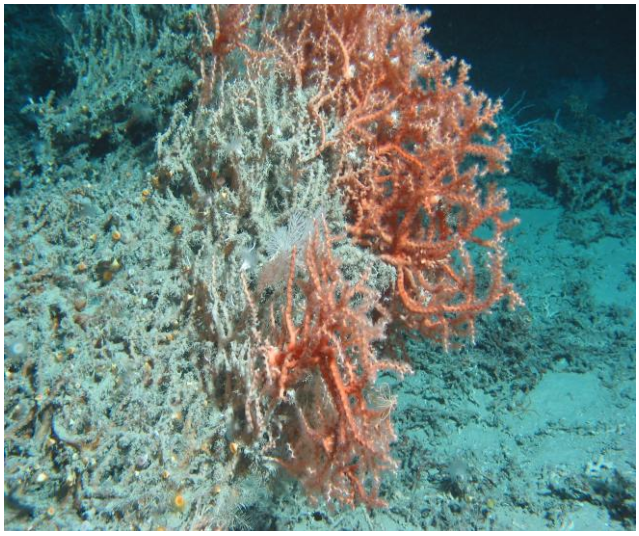
Dive Track:



DIVE DATA

Date	10-Aug-09
Minimum Bottom Depth (m)	398
Maximum Bottom Depth (m)	453
Start Bottom Time (EDT)	17:16
End Bottom End (EDT)	20:05
Starting Latitude (N)	28° 19.102'
Starting Longitude (W)	79° 45.155'
Ending Latitude (N)	28° 19.289'
Ending Longitude (W)	79° 45.097'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Coral - with Attached Fauna
28° 19.180' N, 79° 45.186' W



DIVE NUMBER: JSLII-3708 *STUDY AREA: Triceratops*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 19.238' N, 79° 45.138' W

Image C: Hard Coral - with Attached Fauna
28° 19.324' N, 79° 45.078' W

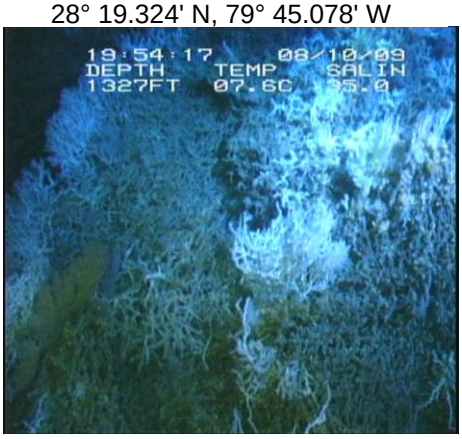
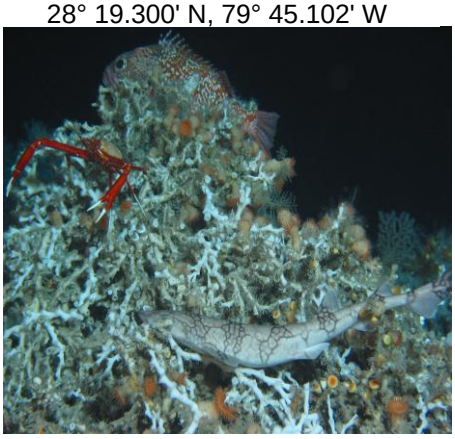


Image D: Hard Coral - with Attached Fauna
28° 19.300' N, 79° 45.102' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed the central and largest *Lophelia pertusa* bioherm of the coral bioherms of "Triceratops" off Cape Canaveral. The bioherm was comprised of dense, high relief live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as cup corals, anemones, gorgonians (e.g. *Plumarella* sp.), hydroids, a diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp. and *Hertwigia* sp.), and patches of the hard coral *Madrepora oculata*. Mobile fauna included echinoid and cidaroid urchins, a seastar, crinoids, golden and galatheid crabs, blackbelly rosefish, rattail fish, coral hakes, and catsharks.

PHYSICAL ENVIRONMENT

This dive begin south of the central *L. pertusa* bioherm, requiring a northerly traverse over soft sediment, then coral rubble. At the base of the bioherm the slope increased and was dominated by hard coral habitat with and without abundant attached fauna. The bioherm consisted of a series of high relief coral ridges separated by narrow valleys of low relief coral patches interspersed with soft sediment. Almost the entire pinnacle consisted of hard coral habitat with attached fauna, and was comprised of high relief, 10-90% live *L. pertusa* on a dead coral matrix.

ADDITIONAL COMMENTS

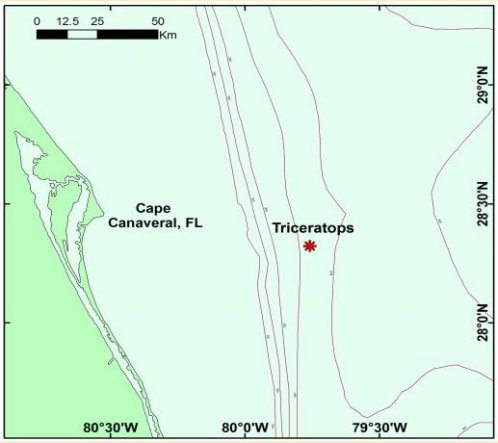
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage. Suction samples and punch cores for sediment were taken at the base of corals along with collections of live and dead *L. pertusa*, *M. oculata*, *Plumarella* sp., galatheid crabs, a golden crab, a cidaroid urchin, and a seastar. Also, a baited trap was briefly deployed and nothing was caught before it was retrieved.

DIVE NUMBER: JSLII-3709 *STUDY AREA: Triceratops*

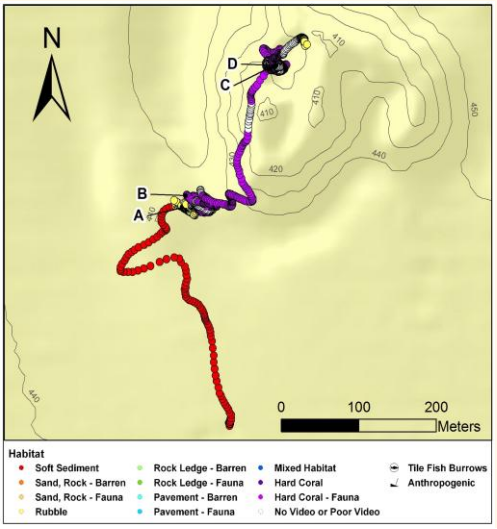
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	J Reed (bow), S Ross (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/13/2012
PI Station Number	JSLII-09-Atl-3709

GENERAL LOCATION



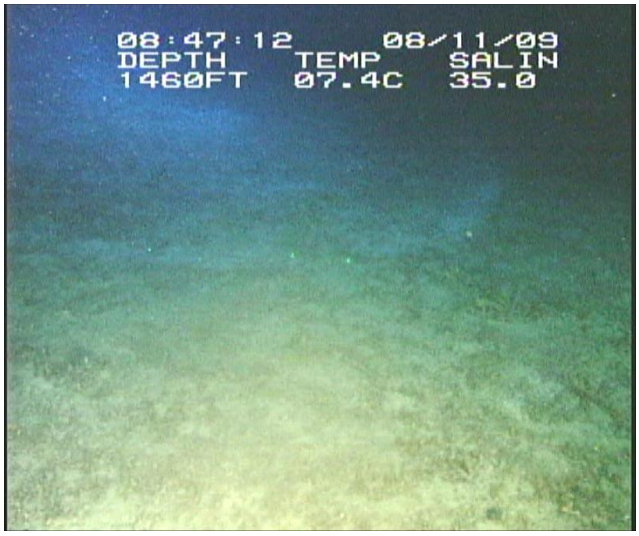
Dive Track:



DIVE DATA

Date	11-Aug-09
Minimum Bottom Depth (m)	419
Maximum Bottom Depth (m)	439
Start Bottom Time (EDT)	8:23
End Bottom End (EDT)	10:52
Starting Latitude (N)	28° 19.032'
Starting Longitude (W)	79° 45.601'
Ending Latitude (N)	28° 19.283'
Ending Longitude (W)	79° 45.540'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Rubble
28° 19.174' N, 79° 45.636' W



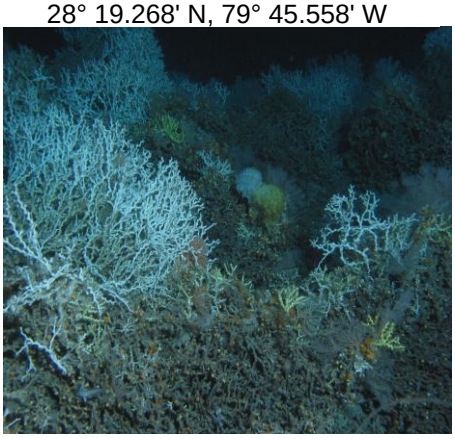
DIVE NUMBER: JSLII-3709 *STUDY AREA: Triceratops*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 19.181' N, 79° 45.630' W

Image C: Hard Coral - with Attached Fauna
28° 19.267' N, 79° 45.564' W

Image D: Hard Coral - with Attached Fauna
28° 19.268' N, 79° 45.558' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed the western *Lophelia pertusa* bioherm of "Triceratops" off Cape Canaveral. The bioherm was comprised of dense, high relief live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as cup corals, anemones, gorgonians (e.g. *Plumarella* sp.), hydroids, a diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp.), and patches of the hard corals *Madrepora oculata* and *Enallopsammia profunda*. Mobile fauna included echinoid and cidaroid urchins, an octopus, crinoids, golden and galatheid crabs, *Bathynomus giganteus*, blackbelly rosefish, rattail fish, coral hakes, a red bream, a western roughy, and a yellow shark.

PHYSICAL ENVIRONMENT

This dive begin south of the western *L. pertusa* bioherm, requiring a northerly traverse over soft sediment, then coral rubble. At the base of the bioherm the slope increased and was dominated by low relief, 70% cover of hard coral habitat with abundant attached fauna. The bioherm consisted of a series of high relief coral ridges separated by narrow valleys of low relief coral patches interspersed with soft sediment. Almost the entire pinnacle consisted of hard coral habitat with attached fauna, and was comprised of high relief, 40-70% live *L. pertusa* on a dead coral matrix.

ADDITIONAL COMMENTS

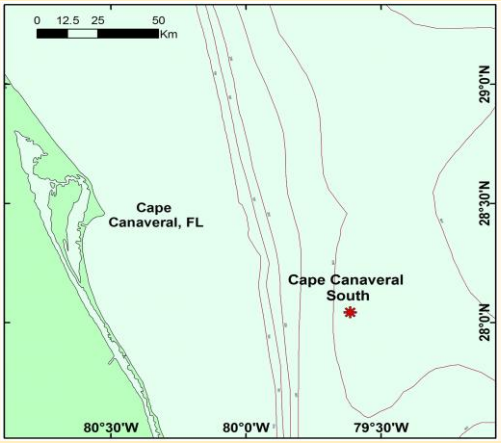
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage when the submersible was too far off the bottom. Between the second and third tape, 15 min. of the dive was not recorded. Suction samples and punch cores for sediment were taken at the base of corals along with collections of live and dead *L. pertusa*, *E. profunda*, *Plumarella* sp., cup corals, *Aphrocallistes* sp., galatheid crabs, a rattail fish, an octopus, a blackbelly rosefish, and a hexactinellid sponge with yellow zooanthids. Also, a baited trap was briefly deployed and nothing was caught before it was retrieved.

DIVE NUMBER: JSLII-3710 *STUDY AREA: Cape Canaveral South*

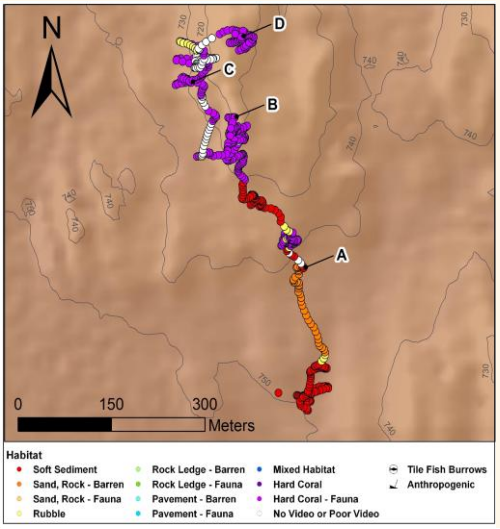
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	S Harter (bow), L Wickes (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/16/2012
PI Station Number	JSLII-09-Atl-3710

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	11-Aug-09
Minimum Bottom Depth (m)	711
Maximum Bottom Depth (m)	746
Start Bottom Time (EDT)	17:16
End Bottom End (EDT)	19:16
Starting Latitude (N)	28° 16.271'
Starting Longitude (W)	79° 37.002'
Ending Latitude (N)	28° 16.555'
Ending Longitude (W)	79° 37.059'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Soft Substrate
28° 16.376' N, 79° 36.996' W

DIVE NUMBER: JSLII-3710 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 16.496' N, 79° 37.050' W

Image C: Hard Coral - with Attached Fauna
28° 16.527' N, 79° 37.092' W

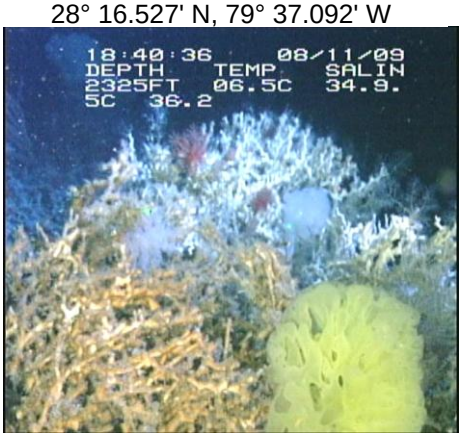
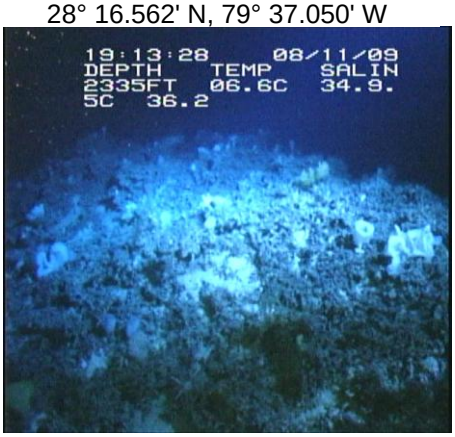


Image D: Hard Coral - with Attached Fauna
28° 16.562' N, 79° 37.050' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed a *Lophelia pertusa* bioherm off Cape Canaveral. The hard coral habitat was comprised of 95-100% dead, low to high relief *L. pertusa*. The hard coral and soft sediment habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., bamboo coral (e.g. *Keratoisis* sp.), hydroids, a large diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp., *Hertwigia* sp., and an euplectellid species) and demospongia sponges. Mobile fauna included cidaroid and echinoid urchins, a seastar, a rattail fish, an offshore hake, synaphobranchid eels, and skates.

PHYSICAL ENVIRONMENT

This dive began 300 meters south of the base of a *L. pertusa* bioherm off Cape Canaveral. The submersible conducted a northwesterly traverse over soft sediment, barren soft sediment with small rocks and brief sections of coral rubble before reaching hard coral habitat with attached fauna. The first coral ridge was a steep wall with low relief, 100% dead *L. pertusa*. Two subsequent coral ridges began as low relief, 100% dead coral and transitioned into medium to high relief coral stands with 5% live *L. pertusa* with increasing elevation up the bioherm.

ADDITIONAL COMMENTS

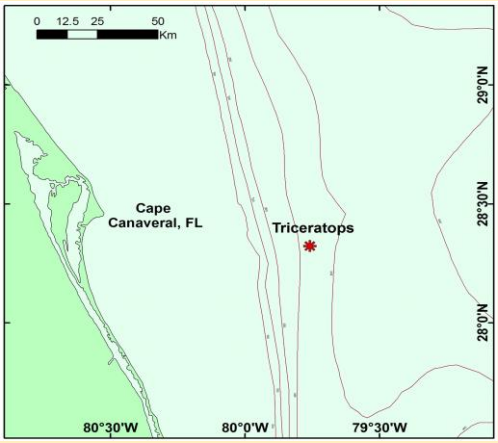
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear with brief sections of video too dark to discern habitat type. Suction samples for sediment as well as a single bushmaster collection of a patch of live *L. pertusa* were taken along with collections of live and dead *L. pertusa*, a yellow octocoral, *Keratoisis* sp., *Anthomastus* sp., an euplectellid sponge, *Hertwigia* sp., a white hexactinellid sponge, a cidaroid and an echinoid urchin, a seastar, a galatheid crab, and a skate.

DIVE NUMBER: JSLII-3711 *STUDY AREA: Triceratops*

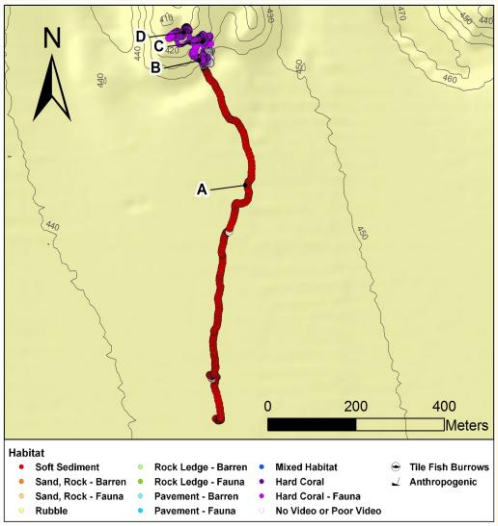
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	A Demopoulos (bow), J McClain (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/18/2012
PI Station Number	JSLII-09-Atl-3711

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	12-Aug-09
Minimum Bottom Depth (m)	411
Maximum Bottom Depth (m)	439
Start Bottom Time (EDT)	8:23
End Bottom End (EDT)	10:52
Starting Latitude (N)	28° 18.767'
Starting Longitude (W)	79° 45.508'
Ending Latitude (N)	28° 19.226'
Ending Longitude (W)	79° 45.554'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Soft Substrate
28° 19.042' N, 79° 45.462' W

DIVE NUMBER: JSLII-3711 *STUDY AREA: Triceratops*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 19.192' N, 79° 45.522' W

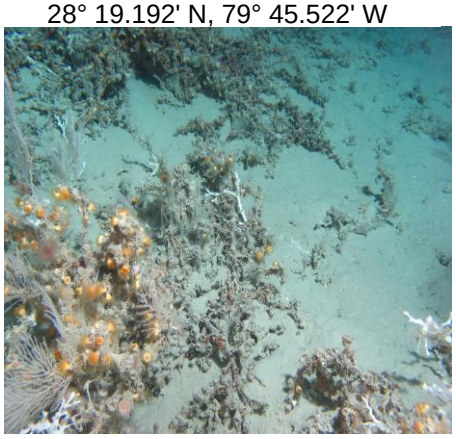


Image C: Hard Coral - with Attached Fauna
28° 19.211' N, 79° 45.516' W

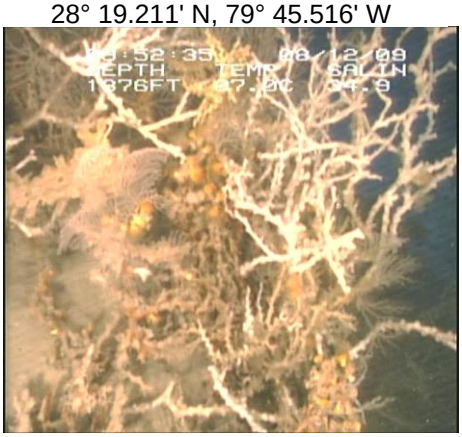


Image D: Hard Coral - with Attached Fauna
28° 19.223' N, 79° 45.540' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed the western *Lophelia pertusa* bioherm of "Triceratops" off Cape Canaveral. The bioherm was comprised of dense, high relief live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as cup corals, anemones, gorgonians (e.g. *Plumarella* sp.), *Paramuricea* sp., hydroids, hexactinellid sponges (e.g. *Aphrocallistes* sp. with and without yellow zooanthids), and patches of the hard corals *Madrepora oculata* and *Enallopsammia profunda*. Mobile fauna included echinoid and cidaroid urchins, crinoids, golden and galatheid crabs, blackbelly rosefish, coral hakes, hatchetfish, and an offshore hake.

PHYSICAL ENVIRONMENT

This dive begin south of the western *L. pertusa* bioherm, requiring a northerly traverse over soft sediment before reaching a small area of coral rubble at the base of the bioherm. At the base of the bioherm the slope increased and was dominated by low to medium relief, 50% cover of 60% live hard coral habitat with abundant attached fauna. Moving upslope, coral cover increased to 95% and consisted of high relief, 70% live *L. pertusa* with occassional patches of *M. oculata* and *E. profunda*. The submersible traversed only a few of the southernmost ridges of the bioherm.

ADDITIONAL COMMENTS

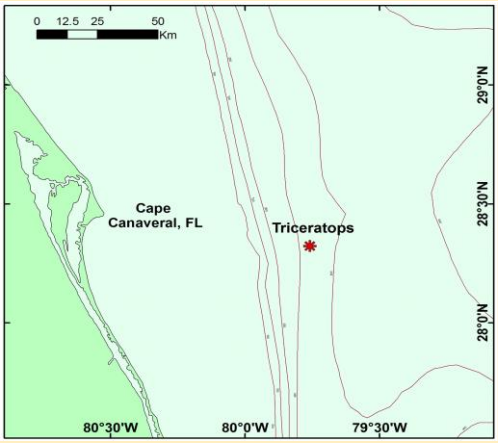
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage when the submersible was too far off the bottom. Suction samples and punch cores for sediment were taken at the base of corals along with collections of live and dead *L. pertusa*, *E. profunda*, a hatchetfish, cup corals, a golden crab, a cidaroid and an echinoid urchin, and an *Aphrocallistes* sp.

DIVE NUMBER: JSLII-3712 *STUDY AREA: Triceratops*

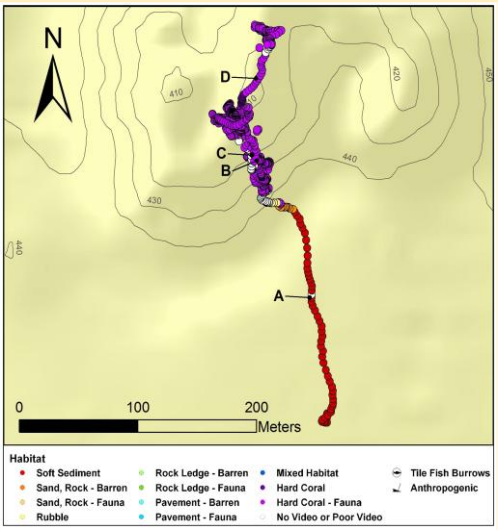
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	J Galkiewicz (bow), C Ames (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	No
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/19/2012
PI Station Number	JSLII-09-Atl-3712

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	12-Aug-09
Minimum Bottom Depth (m)	408
Maximum Bottom Depth (m)	439
Start Bottom Time (EDT)	16:52
End Bottom End (EDT)	19:03
Starting Latitude (N)	28° 19.092'
Starting Longitude (W)	79° 45.495'
Ending Latitude (N)	28° 19.257'
Ending Longitude (W)	79° 45.521'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Soft Substrate
28° 19.147' N, 79° 45.498' W

DIVE NUMBER: JSLII-3712 *STUDY AREA: Triceratops*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 19.206' N, 79° 45.528' W

Image C: Hard Coral - with Attached Fauna
28° 19.217' N, 79° 45.528' W

Image D: Hard Coral - with Attached Fauna
28° 19.240' N, 79° 45.528' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed the western *Lophelia pertusa* bioherm of "Triceratops" off Cape Canaveral. The bioherm was comprised of dense, high relief live *L. pertusa* on a dead coral matrix. The hard coral rubble and matrix habitats supported abundant attached fauna such as cup corals, anemones, gorgonians (e.g. *Plumarella* sp.), hydroids, hexactinellid sponges (e.g. *Aphrocallistes* sp. with and without yellow zooanthids). Mobile fauna included echinoid and cidaroid urchins, crinoids, golden and galatheid crabs, scorpionfish, coral hakes, and hatchetfish.

PHYSICAL ENVIRONMENT

This dive begin south of the western *L. pertusa* bioherm, requiring a 150 m northerly traverse over soft sediment before reaching an area of soft sediment and coral rubble without fauna, then coral rubble at the base of the bioherm. At the base of the bioherm the slope increased and was dominated by low to medium relief, 60% cover of 40% live hard coral habitat with abundant attached fauna. Moving upslope, coral cover increased to 90% and consisted of high relief, 70% live *L. pertusa*.

ADDITIONAL COMMENTS

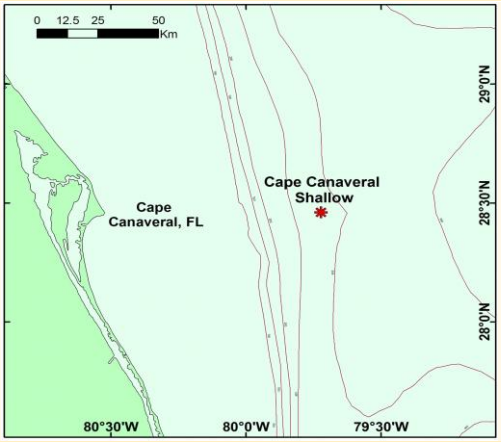
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage when the submersible was too far off the bottom. Suction samples for sediment were taken at the base of corals along with collections of numerous live *L. pertusa* with a Kellog sampler, a golden and a galatheid crab, and an *Aphrocallistes* sp. covered in yellow zooanthids.

DIVE NUMBER: JSLII-3713 *STUDY AREA: Cape Canaveral Shallow*

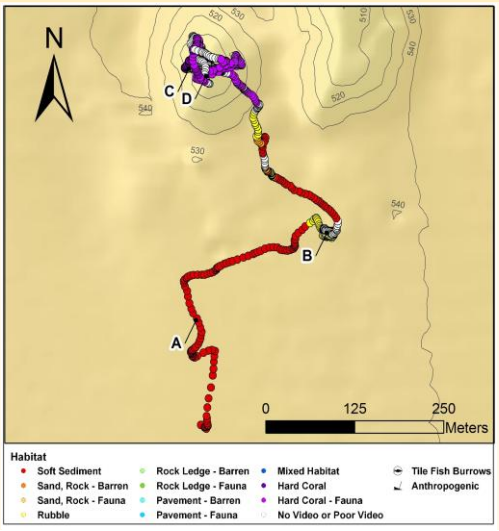
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	J Roberts (bow), A Demopoulos (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/20/2012
PI Station Number	JSLII-09-Atl-3713

GENERAL LOCATION



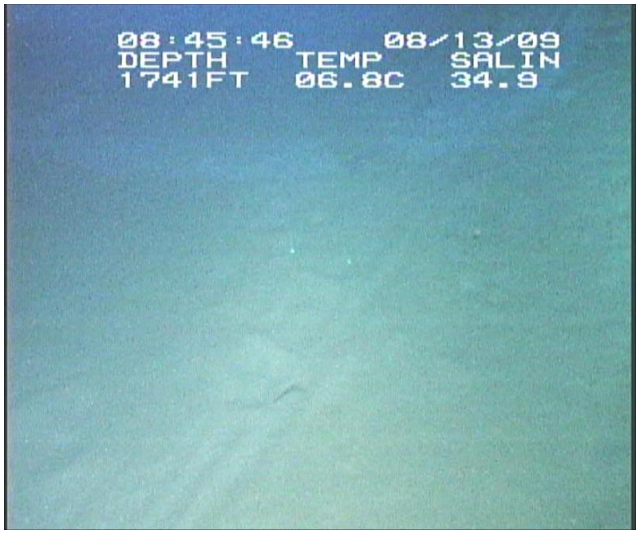
Dive Track:



DIVE DATA

Date	13-Aug-09
Minimum Bottom Depth (m)	499
Maximum Bottom Depth (m)	532
Start Bottom Time (EDT)	8:36
End Bottom End (EDT)	11:23
Starting Latitude (N)	28° 27.254'
Starting Longitude (W)	79° 43.410'
Ending Latitude (N)	28° 27.520'
Ending Longitude (W)	79° 43.392'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Soft Substrate
28° 27.329' N, 79° 43.404' W



DIVE NUMBER: JSLII-3713 *STUDY AREA: Cape Canaveral Shallow*

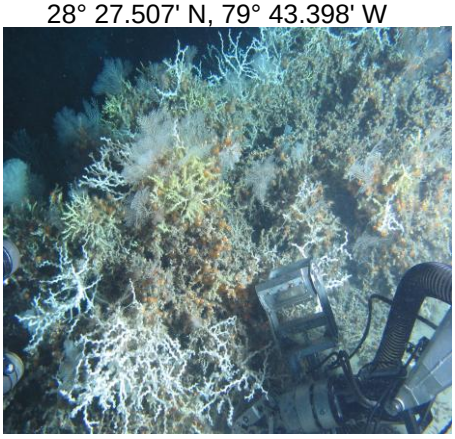
IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
28° 27.394' N, 79° 43.302' W

Image C: Hard Coral - without Attached Fauna
28° 27.514' N, 79° 43.416' W

Image D: Hard Coral - with Attached Fauna
28° 27.507' N, 79° 43.398' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed a large *Lophelia pertusa* bioherm off Cape Canaveral. The bioherm was comprised of very dense, high relief, live *L. pertusa* on a dead coral matrix. The hard coral often supported abundant attached fauna such as cup corals, anemones, gorgonians (e.g. *Plumarella* sp.), hydroids, hexactinellid sponges (e.g. *Aphrocallistes* sp. with and without yellow zooanthids), and frequent, large patches of the hard coral *Enallopsammia profunda*. Mobile fauna included a swimming sea cucumber, echinoid and cidaroid urchins, crinoids, golden and galatheid crabs, an octopus, rattail fish, scorpionfish, coral hakes, and a *Scyliorhinus meadi*.

PHYSICAL ENVIRONMENT

This dive begin south of a large *L. pertusa* bioherm, requiring a 300 m northerly traverse to reach the base of the bioherm. This traverse extended over soft sediment with patches of soft sediment and coral rubble without fauna, then coral rubble at the base of the bioherm. At the base of the bioherm the slope increased and the habitat quickly transitioned into hard coral habitat with and without attached fauna. Hard coral habitat consisted of extensive, very high relief, 75-90% live, densely packed hard coral thickets that were oriented in walls perpendicular to the current. This site contained some of the healthiest and most extensive *L. pertusa* habitat off the Cape Canaveral area.

ADDITIONAL COMMENTS

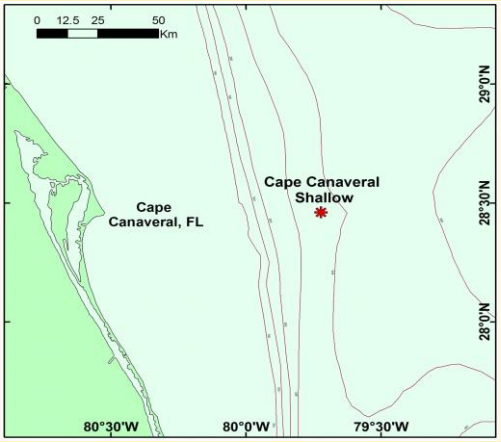
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was overall too dark with frequent periods when the submersible was too far off the bottom or without enough light to identify invertebrates. The submersible deployed a mini benthic lander for photo work. The JSL external camera was shut off for 45 min. while the lander was deployed. Suction samples for sediment were taken along with collections of live *L. pertusa*, cup corals, *Plumerella* sp., a golden and a galatheid crab, an echinoid urchin, a crinoid, a scorpionfish, and an *Aphrocallistes* sp. covered in yellow zooanthids.

DIVE NUMBER: JSLII-3714 *STUDY AREA: Cape Canaveral Shallow*

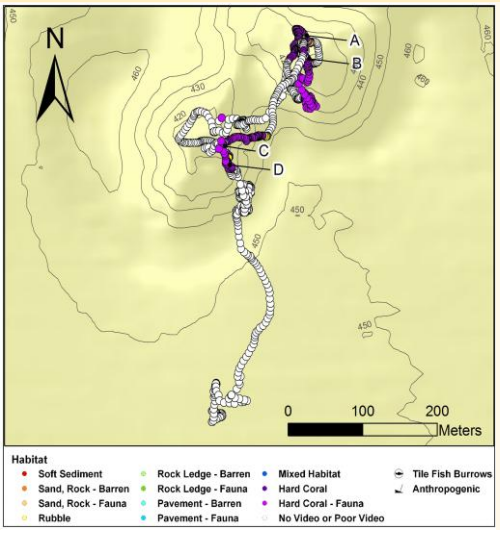
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	S Brooke (bow), T Casazza (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/24/2012
PI Station Number	JSLII-09-Atl-3714

GENERAL LOCATION



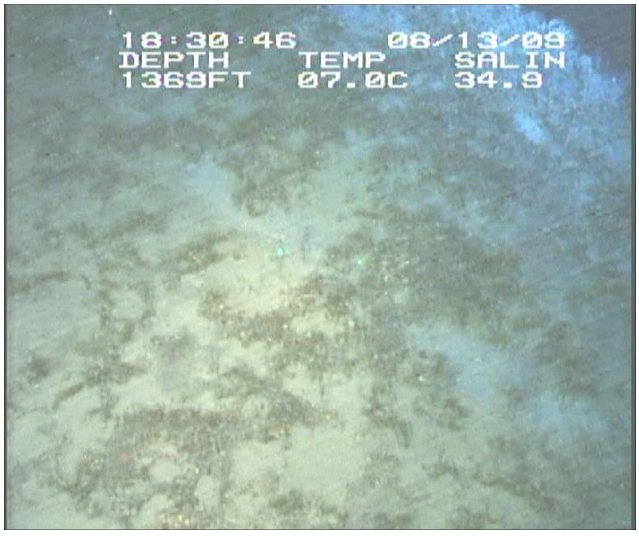
Dive Track:



DIVE DATA

Date	13-Aug-09
Minimum Bottom Depth (m)	408
Maximum Bottom Depth (m)	446
Start Bottom Time (EDT)	16:57
End Bottom End (EDT)	19:43
Starting Latitude (N)	28° 23.152'
Starting Longitude (W)	79° 45.989'
Ending Latitude (N)	28° 23.345'
Ending Longitude (W)	79° 45.991'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Rubble
28° 23.413' N, 79° 45.918' W



DIVE NUMBER: JSLII-3714 *STUDY AREA: Cape Canaveral Shallow*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Coral - without Attached Fauna
28° 23.395' N, 79° 45.918' W

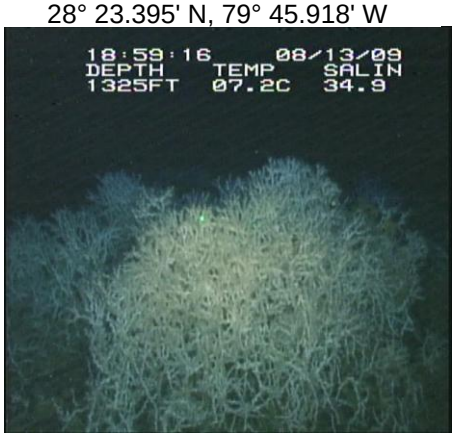


Image C: Hard Coral - with Attached Fauna
28° 23.337' N, 79° 45.990' W

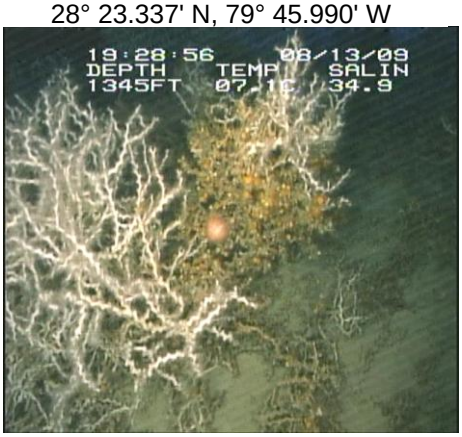


Image D: Hard Coral - with Attached Fauna
28° 23.323' N, 79° 45.978' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed a *Lophelia pertusa* bioherm off Cape Canaveral. The coral bioherm was comprised of very dense, high relief, live *L. pertusa* on a dead coral matrix. The hard coral often supported abundant attached fauna such as cup corals, anemones, gorgonians (e.g. *Plumarella* sp.), *Paramuricea* sp., hydroids, hexactinellid sponges (e.g. *Aphrocallistes* sp. with and without yellow zooanthids) and frequent, large patches of the hard corals *Enallopsammia profunda* and *Madrepora oculata*. Mobile fauna included echinoid and cidaroid urchins, crinoids, golden and galatheid crabs, an octopus, an armored searobin, a red bream, scorpionfish, coral hakes, and a chain catshark.

PHYSICAL ENVIRONMENT

This dive begin south of a *L. pertusa* bioherm, requiring a northerly traverse to reach the bioherm. The habitat on the bioherm turned quickly from sparse rubble and standing coral mixed with soft sediment into dense (60-90% cover) hard coral habitat with and without attached fauna as the submersible moved up the slope. Hard coral habitat consisted of extensive, very high relief, 60-80% live, densely packed hard coral thickets that were oriented in several ridges along the bioherm. This site contained some of the healthiest and most extensive *L. pertusa* habitat off the Cape Canaveral area.

ADDITIONAL COMMENTS

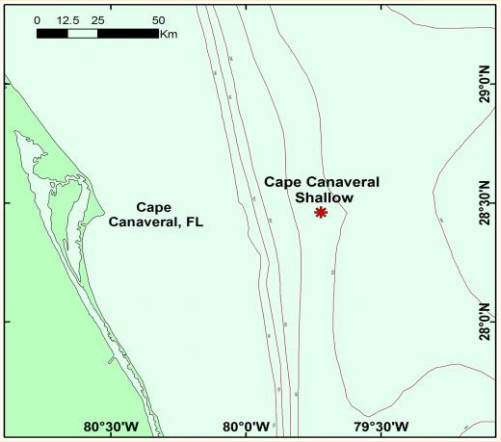
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. The first hour of the dive was not recorded. Video quality was clear except for sections of dark footage as the submersible passed over deep areas between ridges. Suction samples for sediment were taken at the base of corals and a clump of *L. pertusa* was retrieved with the Bushmaster along with collections of *E. profunda*, cup corals, a black coral, galatheid crabs, and a scorpionfish.

DIVE NUMBER: JSLII-3715 *STUDY AREA: Cape Canaveral Shallow*

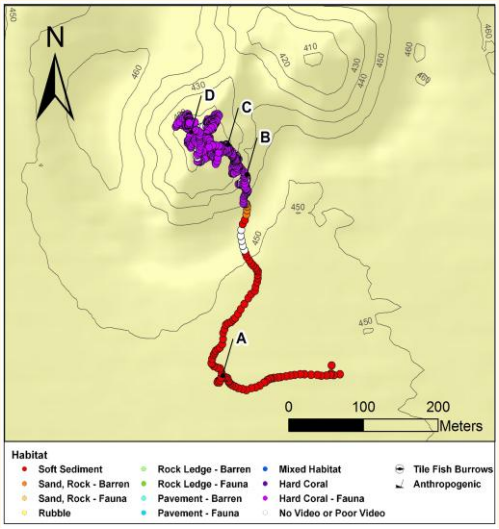
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	M Nizinski (bow), E Baird (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/26/2012
PI Station Number	JSLII-09-Atl-3715

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	14-Aug-09
Minimum Bottom Depth (m)	407
Maximum Bottom Depth (m)	446
Start Bottom Time (EDT)	8:27
End Bottom End (EDT)	11:19
Starting Latitude (N)	28° 23.186'
Starting Longitude (W)	79° 45.901'
Ending Latitude (N)	28° 23.350'
Ending Longitude (W)	79° 46.017'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Soft Substrate
28° 23.185' N, 79° 45.984' W

DIVE NUMBER: JSLII-3715 *STUDY AREA: Cape Canaveral Shallow*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 23.317' N, 79° 45.972' W

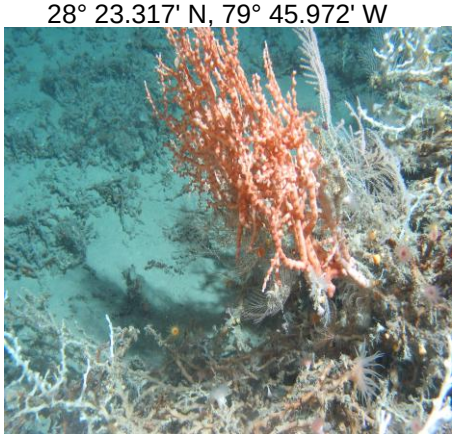


Image C: Hard Coral - with Attached Fauna
28° 23.336' N, 79° 45.984' W

Image D: Hard Coral - with Attached Fauna
28° 23.335' N, 79° 46.020' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed a *Lophelia pertusa* bioherm off Cape Canaveral. The coral bioherm was comprised of very dense, high relief, live *L. pertusa* on a dead coral matrix. The hard coral often supported abundant attached fauna such as cup corals, anemones, gorgonians (e.g. *Plumarella* sp.), *Paramuricea* sp., hydroids, hexactinellid sponges (e.g. *Aphrocallistes* sp. with and without yellow zooanthids) and frequent, large patches of the hard coral *Enallopsammia profunda* and *Madrepora oculata*. Mobile fauna included cidaroid urchins, crinoids, golden and galatheid crabs, blackbelly rosefish, coral hakes, and a shortbeard codling.

PHYSICAL ENVIRONMENT

This dive begin southeast of a *L. pertusa* bioherm, requiring a northwesterly traverse to reach the bioherm. The habitat on the bioherm turned quickly from sparse rubble and standing coral mixed with soft sediment into dense (60-80% cover) hard coral habitat with and without attached fauna as the submersible moved up the slope. Hard coral habitat consisted of extensive, very high relief, 60-80% live, densely packed hard coral thickets that were oriented in several ridges along the bioherm. This site contained some of the healthiest and most extensive *L. pertusa* habitat off the Cape Canaveral area.

ADDITIONAL COMMENTS

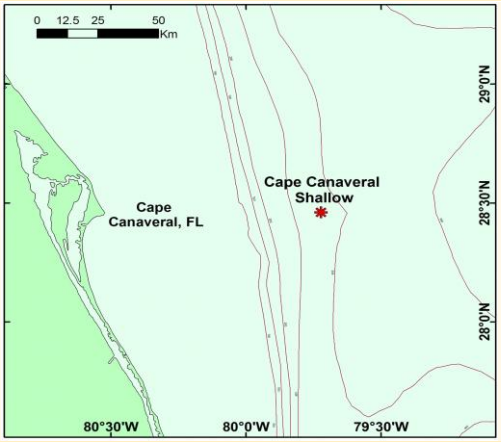
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear except for brief sections of dark footage as the submersible passed over deep areas between ridges and times when the JSL external camera was turned off. Suction samples and punch cores for sediment were taken at the base of corals along with collections of live *L. pertusa*, *M. oculata*, cidaroid urchins, golden and galatheid crabs, and a blackbelly rosefish.

DIVE NUMBER: JSLII-3716 *STUDY AREA: Cape Canaveral Shallow*

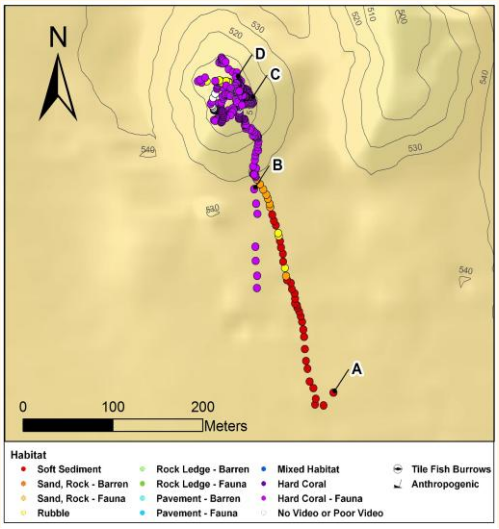
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	J Reed (bow), C Morrison (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/29/2012
PI Station Number	JSLII-09-Atl-3716

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	14-Aug-09
Minimum Bottom Depth (m)	491
Maximum Bottom Depth (m)	534
Start Bottom Time (EDT)	17:03
End Bottom End (EDT)	19:25
Starting Latitude (N)	28° 27.343'
Starting Longitude (W)	79° 43.331'
Ending Latitude (N)	28° 27.516'
Ending Longitude (W)	79° 43.395'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Soft Substrate
28° 27.342' N, 79° 43.332' W

DIVE NUMBER: JSLII-3716 *STUDY AREA: Cape Canaveral Shallow*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 27.478' N, 79° 43.386' W

Image C: Hard Coral - without Attached Fauna
28° 27.514' N, 79° 43.386' W

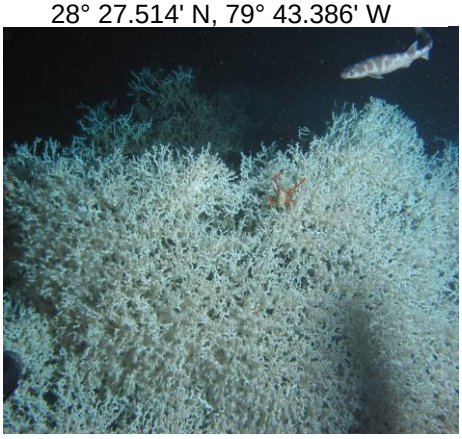


Image D: Hard Coral - with Attached Fauna
28° 27.523' N, 79° 43.392' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed a *Lophelia pertusa* bioherm off Cape Canaveral. The coral bioherm was comprised of very dense, high relief, live *L. pertusa* on a dead coral matrix. The hard coral often supported abundant attached fauna such as cup corals, anemones, gorgonians (e.g. *Plumarella* sp.), *Paramuricea* sp., hydroids, hexactinellid sponges (e.g. *Aphrocallistes* sp. with and without yellow zooanthids) and frequent, large patches of the hard coral *Enallopsammia profunda* and *Madrepora oculata*. Mobile fauna included echinoid and cidaroid urchins, crinoids, golden and galatheid crabs, blackbelly rosefish, coral hakes, rattail fish, and chain catsharks.

PHYSICAL ENVIRONMENT

This dive begin south of a *L. pertusa* bioherm, requiring a northerly traverse over soft sediment and rubble habitats to reach the bioherm. The habitat on the bioherm turned quickly from sparse rubble and standing coral mixed with soft sediment into dense (100% cover) hard coral habitat with and without attached fauna as the submersible moved up the slope. Hard coral habitat consisted of extensive, very high relief, 60-80% live, densely packed hard coral thickets that were oriented in several ridges along the bioherm. This site contained some of the healthiest and most extensive *L. pertusa* habitat off the Cape Canaveral area.

ADDITIONAL COMMENTS

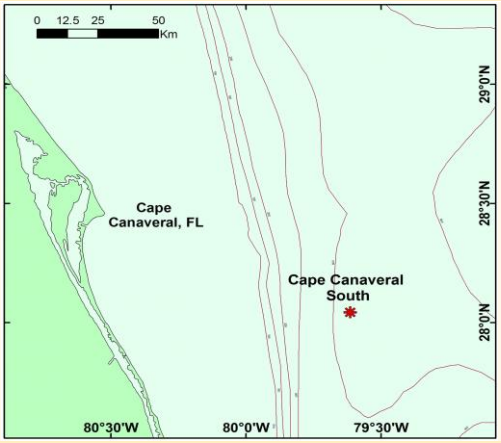
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear except for brief sections of dark footage as the submersible passed over deep areas between ridges. Suction samples and punch cores for sediment were taken in soft sediment at the base of corals along with collections of live *L. pertusa*, *E. profunda*, *Aphrocallistes* sp., and a pachastrellid cup sponge. A benthic lander was also recovered.

DIVE NUMBER: JSLII-3717 *STUDY AREA: Cape Canaveral South*

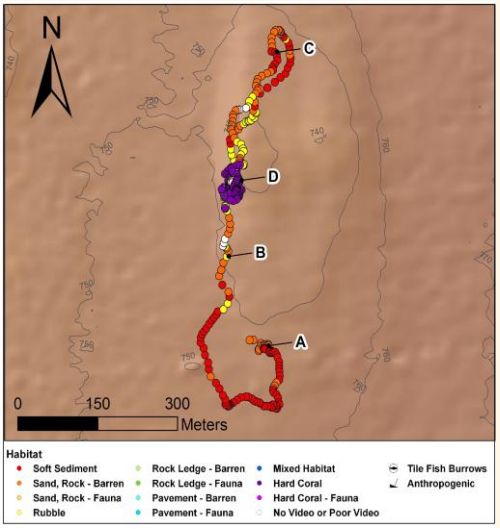
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	S Ross (bow), A Demopoulos (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/31/2012
PI Station Number	JSLII-09-Atl-3717

GENERAL LOCATION



Dive Track:

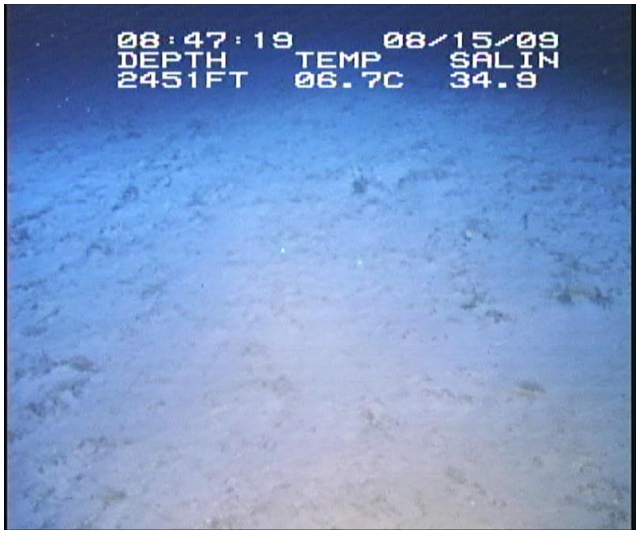


DIVE DATA

Date	15-Aug-09
Minimum Bottom Depth (m)	737
Maximum Bottom Depth (m)	746
Start Bottom Time (EDT)	8:42
End Bottom End (EDT)	10:45
Starting Latitude (N)	28° 09.547'
Starting Longitude (W)	79° 36.782'
Ending Latitude (N)	28° 09.682'
Ending Longitude (W)	79° 36.789'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Sand/Rubble/Rock - Barren

28° 09.545' N, 79° 36.762' W



DIVE NUMBER: JSLII-3717 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
28° 09.649' N, 79° 36.810' W

Image C: Soft Substrate
28° 09.822' N, 79° 36.738' W

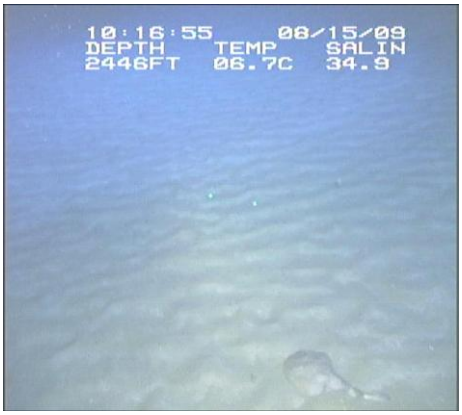
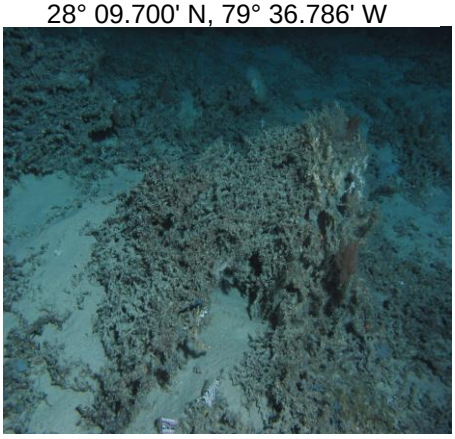


Image D: Hard Coral - with Attached Fauna
28° 09.700' N, 79° 36.786' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed mostly soft sediment, rubble, and barren soft sediment mixed with small rocks and debris with a small region of low elevation *Lophelia pertusa* habitat off Cape Canaveral. The hard coral habitat was comprised of 99% dead, low to medium relief *L. pertusa*. The hard coral and soft sediment habitats supported abundant attached fauna such as hydroids, a diversity of hexactinellid sponges (e.g. *Aphrocallistes* sp., *Farrea* sp., and euplectellid species) and demospongia sponges including an unidentified blue sponge and a few sprigs of small hydrozoan corals (e.g. Stylasteridae). Mobile fauna included echinoid urchins, golden crabs, shrimp, rattail fish, synaphobranchid eels, and skates.

PHYSICAL ENVIRONMENT

This dive began 300 meters south of a low elevation *L. pertusa* area off Cape Canaveral. The submersible conducted a circuitous traverse over soft sediment, barren soft sediment with small rocks and coral rubble habitat both before and after exploring a small, flat hard coral habitat with attached fauna. The coral habitat consisted of low to medium relief, 99% dead *L. pertusa* interspersed with patches of soft sediment.

ADDITIONAL COMMENTS

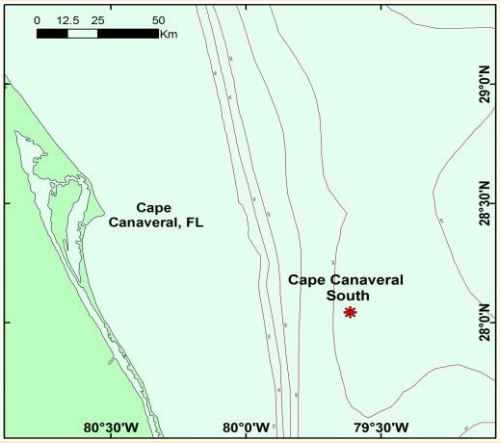
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear with brief sections of video too dark to discern habitat type. Suction samples and punch cores for sediment were taken along with collections of dead *L. pertusa*, a skate, and a synaphobranchid eel.

DIVE NUMBER: JSLII-3718 *STUDY AREA: Cape Canaveral South*

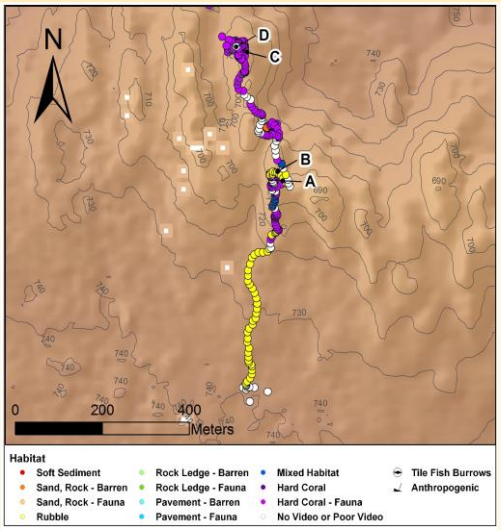
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	E Baird (bow), M Rhode (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	1/31/2012
PI Station Number	JSLII-09-Atl-3718

GENERAL LOCATION



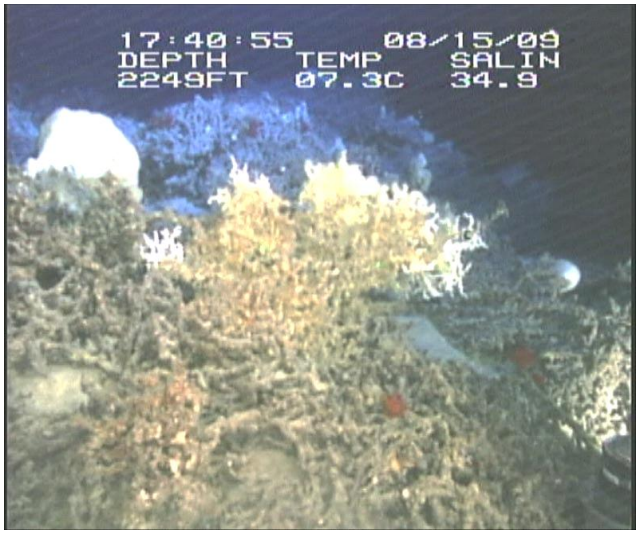
Dive Track:



DIVE DATA

Date	15-Aug-09
Minimum Bottom Depth (m)	693
Maximum Bottom Depth (m)	736
Start Bottom Time (EDT)	17:08
End Bottom End (EDT)	19:23
Starting Latitude (N)	28° 02.088'
Starting Longitude (W)	79° 36.867'
Ending Latitude (N)	28° 02.492'
Ending Longitude (W)	79° 36.862'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Coral - with Attached Fauna
28° 02.340' N, 79° 36.822' W



DIVE NUMBER: JSLII-3718 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
28° 02.351' N, 79° 36.834' W

Image C: Hard Coral - with Attached Fauna
28° 02.494' N, 79° 36.864' W

Image D: Hard Coral - with Attached Fauna
28° 02.494' N, 79° 36.876' W

RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed a few *Lophelia pertusa* bioherms off Cape Canaveral. The hard coral habitat was comprised of 99% dead, low to medium relief *L. pertusa*. The hard coral and rubble habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., bamboo coral (e.g. *Keratoisis* sp.), hydroids, hydrozoan corals (e.g. Stylasteridae), and a huge diversity of demospongia and hexactinellid sponges (e.g. *Aphrocallistes* sp. and *Hertwigia* sp.). Mobile fauna included cidaroid and echinoid urchins, crinoids, galatheid and golden crabs, synaphobranchid eels, chimaeras, rattail fish, a coral hake, and a goosefish.

PHYSICAL ENVIRONMENT

This dive began 300 meters to the south of a few small *L. pertusa* bioherms off Cape Canaveral. The submersible conducted a northerly transect over rubble habitat before reaching the base of the first bioherm. Coral cover of each bioherm was 99% dead, low to medium relief *L. pertusa* with occasional tips of live coral. Additionally, these standing coral regions were often adjacent to areas that rapidly flattened out into rubble and mixed habitat. There was a huge diversity of sponges attached to both the hard coral and rubble habitats.

ADDITIONAL COMMENTS

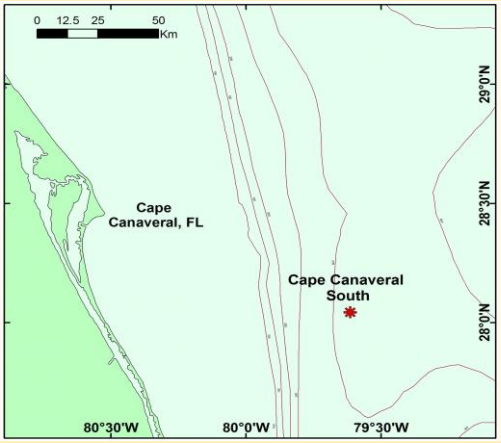
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was generally clear though the submersible was often too far off the bottom and the lights not directed downward enough to identify invertebrates and habitat type. Suction samples and punch cores for sediment were taken at the base of corals along with collections of live and dead *L. pertusa*, galatheid crabs, echinoid and cidaroid urchins, a blue sponge and an unidentified sponge, a synaphobranchid eel and a goosefish.

DIVE NUMBER: JSLII-3719 *STUDY AREA: Cape Canaveral South*

STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	J Reed (bow), M Nizinski (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	2 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	2/3/2012
PI Station Number	JSLII-09-Atl-3719

GENERAL LOCATION



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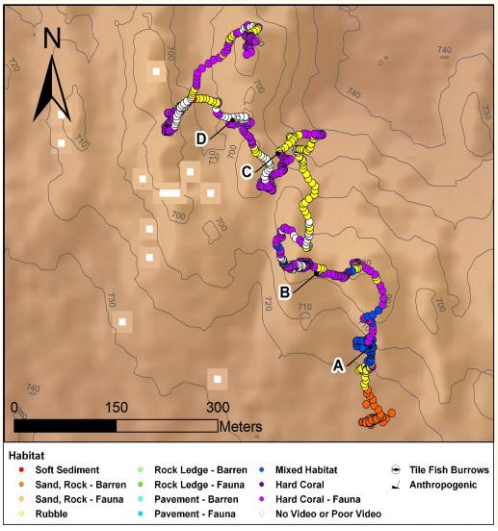


DIVE DATA

Date	16-Aug-09
Minimum Bottom Depth (m)	691
Maximum Bottom Depth (m)	719
Start Bottom Time (EDT)	8:32
End Bottom End (EDT)	11:02
Starting Latitude (N)	28° 02.200'
Starting Longitude (W)	79° 36.748'
Ending Latitude (N)	28° 02.483'
Ending Longitude (W)	79° 36.873'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Mixed Habitat
28° 02.261' N, 79° 36.762' W

DIVE NUMBER: JSLII-3719 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 02.312' N, 79° 36.816' W

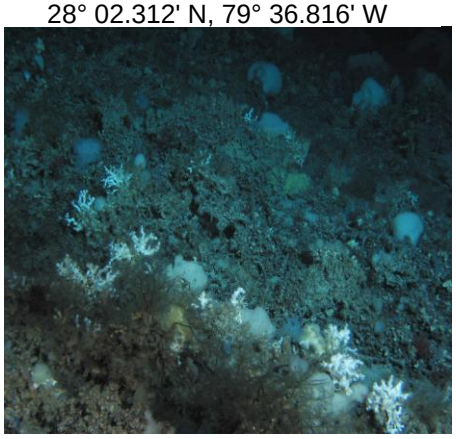
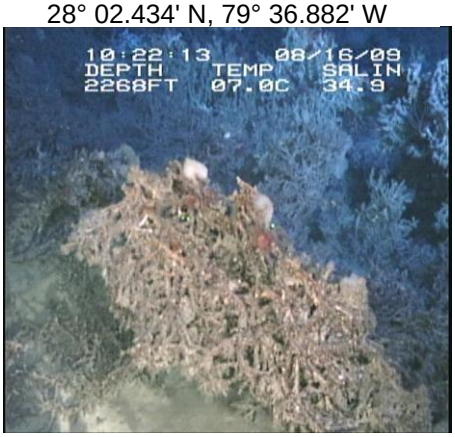


Image C: Rubble
28° 02.402' N, 79° 36.846' W

Image D: Hard Coral - with Attached Fauna
28° 02.434' N, 79° 36.882' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed two *Lophelia pertusa* bioherms off Cape Canaveral. The hard coral habitat was comprised of 60-99% dead, variable relief *L. pertusa*. The hard coral and rubble habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., bamboo coral (e.g. *Keratoisis* sp. and *Acanella* sp.), *Paramuricea* sp., hydroids, hydrozoan corals (e.g. Stylasteridae), a huge diversity of demospongia (e.g. *Phakellia* sp. and *Geodia* sp.) and hexactinellid sponges (e.g. *Aphrocallistes* sp., *Hertwigia* sp., and *Farrea* sp.) and a few large patches of the hard coral *Madrepora oculata*. Mobile fauna included cidaroid and echinoid urchins, crinoids, a couple galatheid crabs, synaphobranchid eels, a chimaera, a blackbelly rosefish, rattail fish, a red shrimp, and coral hakes.

PHYSICAL ENVIRONMENT

This dive began to the south of two *L. pertusa* bioherms off Cape Canaveral. The submersible conducted a northerly transect through barren, soft sediment habitat mixed with debris and rubble, then transitioned into coral rubble habitat before reaching the base of the first bioherm. The base of the southern bioherm was characterized by mixed habitat with abundant sponge and soft coral communities attached to a dense coral rubble substrate. Coral rubble habitat separated the two bioherms. Coral cover increased from 50% to 100% with elevation up the bioherms. Hard coral habitat on both bioherms ranged from 60-99% dead, low to high relief *L. pertusa* with abundant attached fauna. Each bioherm consisted of a series of coral ridges alternating with small valleys of rubble and soft sediment. There was a huge diversity of sponges attached to both the hard coral and rubble habitats.

ADDITIONAL COMMENTS

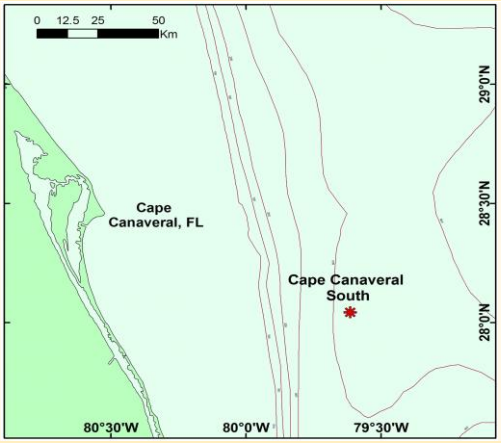
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear with only brief sections of unuseable footage as the submersible passed over deep valleys. Only a punch core for sediment was taken before the manipulator arm of the submersible broke.

DIVE NUMBER: JSLII-3720 *STUDY AREA: Cape Canaveral South*

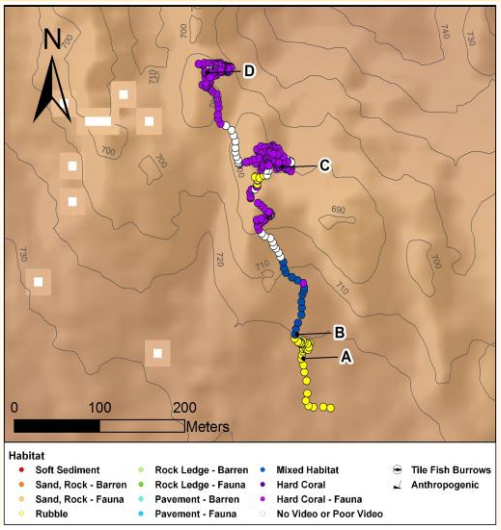
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	S Ross (bow), S Brooke (stern)
External Video Tapes	External Hard Drives
Internal Video Tapes	3 mini DVs
Digital Still Photos	No
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	2/7/2012
PI Station Number	JSLII-09-Atl-3720

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	16-Aug-09
Minimum Bottom Depth (m)	690
Maximum Bottom Depth (m)	725
Start Bottom Time (EDT)	17:28
End Bottom End (EDT)	19:41
Starting Latitude (N)	28° 02.204'
Starting Longitude (W)	79° 36.780'
Ending Latitude (N)	28° 02.326'
Ending Longitude (W)	79° 36.991'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Rubble
28° 02.236' N, 79° 36.798' W

DIVE NUMBER: JSLII-3720 *STUDY AREA: Cape Canaveral South*

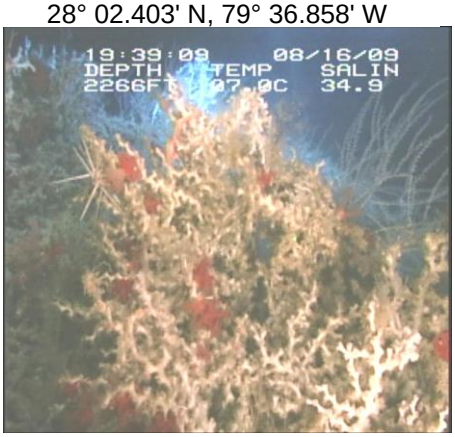
IMAGE GALLERY

*** indicates image position is approximated**

Image B: Mixed Habitat
28° 02.240' N, 79° 36.798' W

Image C: Hard Coral - with Attached Fauna
28° 02.339' N, 79° 36.804' W

Image D: Hard Coral - with Attached Fauna
28° 02.403' N, 79° 36.858' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed two *Lophelia pertusa* bioherms off Cape Canaveral. The hard coral habitat was comprised of 80-99% dead, variable relief *L. pertusa*. The hard coral and rubble habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp., bamboo coral (e.g. *Keratoisis* sp.), *Paramuricea* sp., hydroids, a huge diversity of demospongia (e.g. *Phakellia* sp.) and hexactinellid sponges (e.g. *Aphrocallistes* sp., *Farrea* sp., and *Hyalonema* sp.) and a few large patches of the hard coral *Madrepora oculata*. Mobile fauna included cidaroid urchins, crinoids, brittle stars, galatheid and golden crabs, a skate, synaphobranchid eels, chimaeras, a scorpionfish, rattail fish, coral hakes, hagfish, and a goosefish.

PHYSICAL ENVIRONMENT

This dive began to the south of two *L. pertusa* bioherms off Cape Canaveral. The submersible conducted a northerly transect through coral rubble habitat before reaching the base of the first bioherm. The base of the southern bioherm was characterized by mixed habitat with abundant sponge and soft coral communities attached to a dense coral rubble substrate. Coral cover increased from 50% to 100% with elevation up the bioherms. Hard coral habitat on both bioherms ranged from 80-99% dead, low to high relief *L. pertusa* with abundant attached fauna. Each bioherm consisted of a series of coral ridges alternating with small valleys of rubble and soft sediment. There was a huge diversity of sponges attached to both the hard coral and rubble habitats.

ADDITIONAL COMMENTS

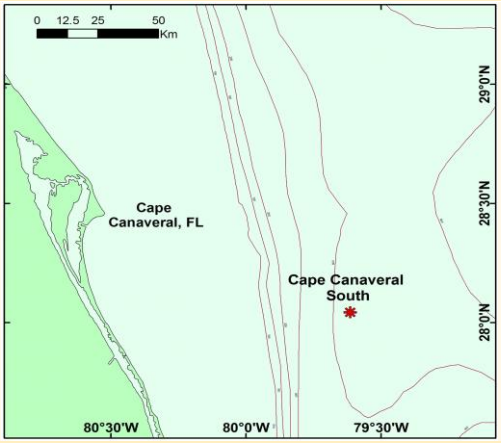
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was clear with only brief sections of unusable footage as the submersible passed over deep areas. Suction samples and punch cores for sediment were taken at the base of corals along with collections of live *L. pertusa*, *Keratoisis* sp. and an unidentified bamboo coral, galatheid crabs, a goosefish, and a hagfish.

DIVE NUMBER: JSLII-3721 *STUDY AREA: Cape Canaveral South*

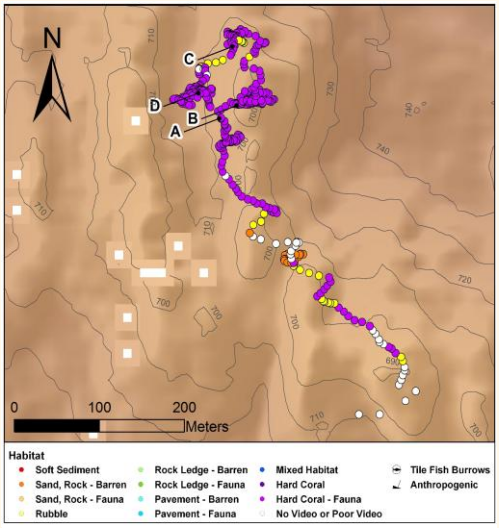
STATION OVERVIEW

Project	Deep-sea Coral Research
Principal investigators	SW Ross[1]
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Exploration of Deep-water Coral Ecosystems off Cape Canaveral, Florida
Vessel	R/V Seward Johnson, Johnson Sea Link II Submersible
Science Divers	C Morrison (bow), M Nizinski (stern)
External Video Tapes	External Hard Drive
Internal Video Tapes	3 mini DVs
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	
Acknowledgements	NOAA, USGS, SAFMC, OIMB, NC Museum of Natural Sciences
SEADESC Analyst	M Watts
Date Compiled	2/8/2012
PI Station Number	JSLII-09-Atl-3721

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	17-Aug-09
Minimum Bottom Depth (m)	684
Maximum Bottom Depth (m)	709
Start Bottom Time (EDT)	8:42
End Bottom End (EDT)	11:12
Starting Latitude (N)	28° 02.303'
Starting Longitude (W)	79° 36.759'
Ending Latitude (N)	28° 02.469'
Ending Longitude (W)	79° 36.887'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Coral - with Attached Fauna
28° 02.469' N, 79° 36.882' W

DIVE NUMBER: JSLII-3721 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
28° 02.476' N, 79° 36.858' W

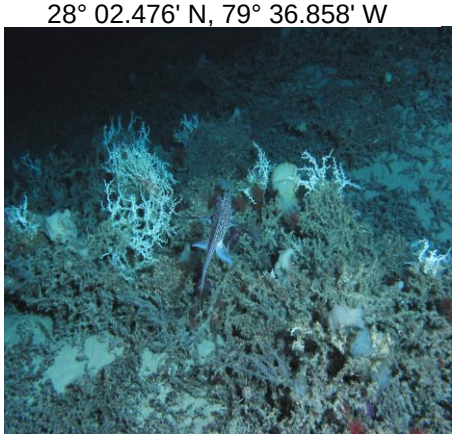


Image C: Rubble
28° 02.511' N, 79° 36.888' W

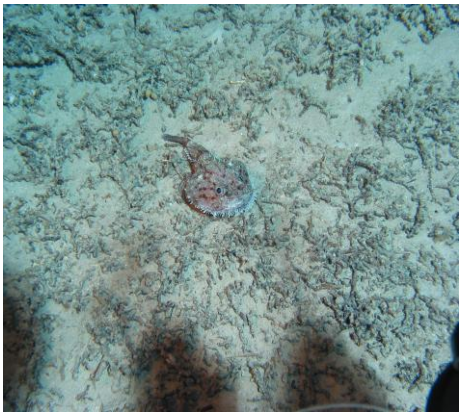
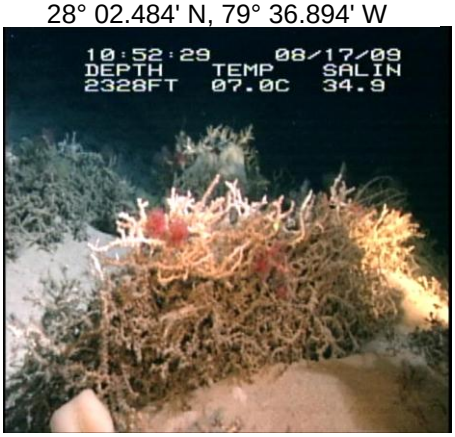


Image D: Hard Coral - with Attached Fauna
28° 02.484' N, 79° 36.894' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (2012)

BIOLOGICAL ENVIRONMENT

This dive traversed a few *Lophelia pertusa* bioherms off Cape Canaveral. The hard coral habitat was comprised of 60-99% dead, variable relief *L. pertusa*. The hard coral and rubble habitats supported abundant attached fauna such as the alcyonacea *Anthomastus* sp.,gorgonians (e.g. *Plumarella* sp.), bamboo coral (e.g. *Keratoisis* sp.and an orange bamboo coral), *Paramuricea* sp., hydroids, a huge diversity of demospongia (e.g. *Phakellia* sp.) and hexactinellid sponges (e.g. *Aphrocallistes* sp., *Hertwigia* sp., and *Hyalonema* sp.), a few large patches of the hard coral *Madrepora oculata* and a small patch of *Enallopsammia profunda*. Mobile fauna included echinoid and cidaroid urchins, crinoids, galatheid crabs, synaphobranchid eels, a chimaera, scorpionfish, rattail fish, coral hakes, hagfish, a goosefish, and a hatchetfish.

PHYSICAL ENVIRONMENT

This dive began to the southeast of a few *L. pertusa* bioherms off Cape Canaveral. The submersible reached bottom near the base of the southern bioherm and conducted a northwesterly transect upslope through coral rubble and hard coral habitat with attached fauna. Coral cover increased from 50% to 100% with elevation up the bioherms. Hard coral habitat on both bioherms ranged from 60-99% dead, low to high relief *L. pertusa* with abundant attached fauna. Each bioherm consisted of a series of coral ridges alternating with small valleys of rubble and soft sediment. There was a huge diversity of sponges attached to both the hard coral and rubble habitats.

ADDITIONAL COMMENTS

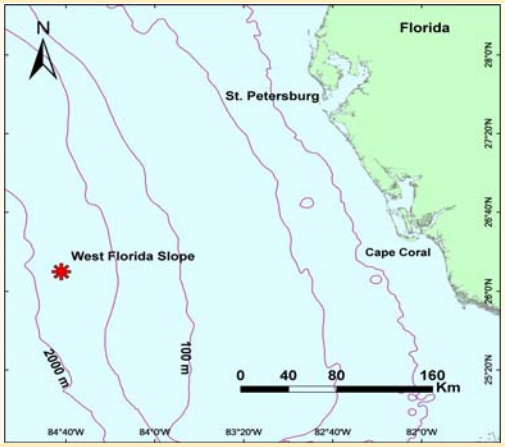
Original dives are on mini DVs that were transferred to digital and stored on an external hard drive. Video quality was generally clear except for the first 45 min. of the dive due to condensation on the external camera lens. Suction samples and punch cores for sediment were taken at the base of corals along with collections of live *L. pertusa*, *M. oculata*, *E. profunda*, *Keratoisis* sp. and an orange bamboo coral, a cidaroid urchin, a hexactinellid sponge, a galatheid crab, a goosefish, and a hatchetfish.

DIVE NUMBER: J2-542 *STUDY AREA: West Florida Slope*

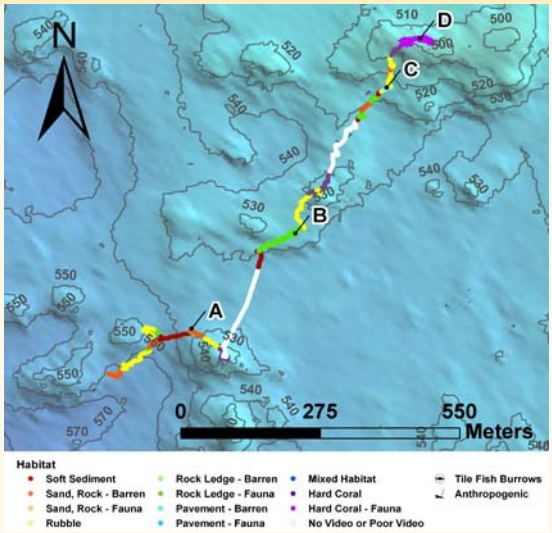
STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	S Ross, S Brooke, J Thoma
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	S Ross
Date Compiled	7/18/2011
PI Station Number	ROV-2010-RB-542

GENERAL LOCATION



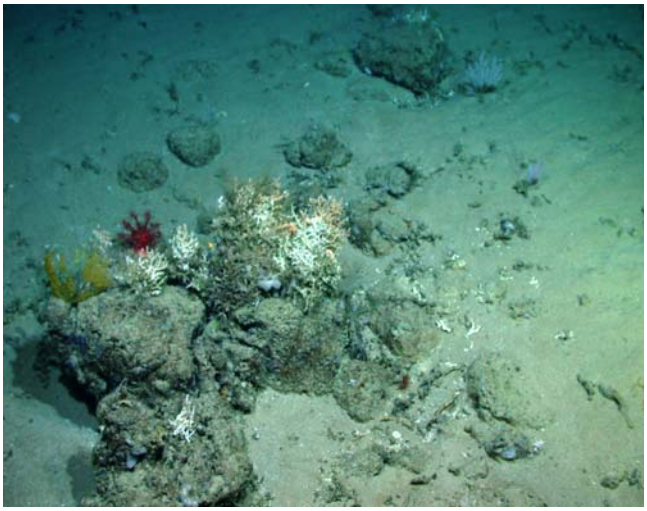
Dive Track:



DIVE DATA

Date	10-Nov-10
Minimum Bottom Depth (m)	495
Maximum Bottom Depth (m)	734
Start Bottom Time (EDT)	20:08
End Bottom End (EDT)	1:31
Starting Latitude (N)	26° 12.228'
Starting Longitude (W)	84° 45.295'
Ending Latitude (N)	26° 12.312'
Ending Longitude (W)	84° 43.712'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Rock Ledge - with Attached Fauna
26º 11.971' N, 84º 43.964' W



DIVE NUMBER: J2-542 *STUDY AREA: West Florida Slope*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rock Ledge - with Attached Fauna
26º 12.076' N, 84º 43.854' W

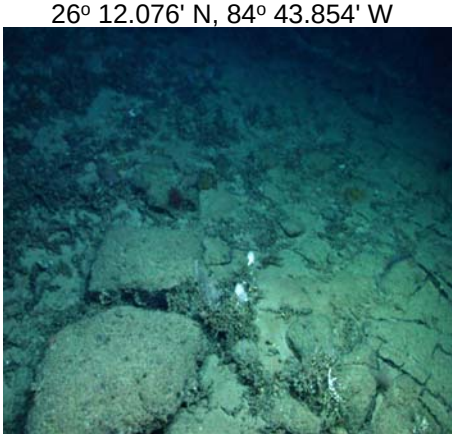


Image C: Pavement - Barren
26º 12.236' N, 84º 43.756' W

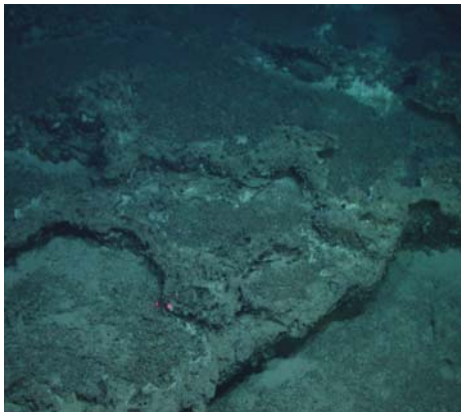
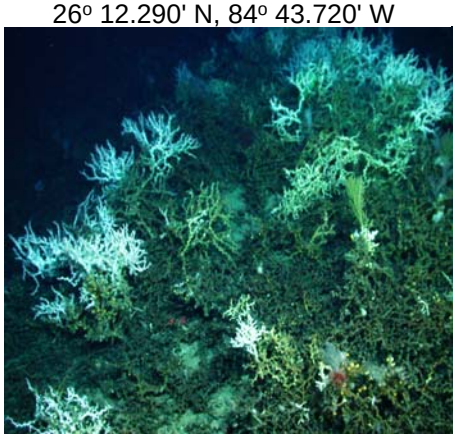


Image D: Hard Corals - with Attached Fauna
26º 12.290' N, 84º 43.720' W



RELEVANT WORK AND/OR LITERATURE CITED

Newton et al. (1987)
Reed et al. (2006)
Brooke and Schroeder (2007)
Hubscher et al. (2010)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

Of all the dives in this area, this particular dive encountered generally fewer fishes and invertebrates even though there was well developed habitat. *Nezumia* spp., and *Laemonema* spp. were the most common fishes, while golden crabs, crinoids, and squid were the most abundant mobile invertebrates. This dive covered a diversity of habitats ranging from soft substrate to rocks to high *Lophelia pertusa* cover areas. *Lophelia pertusa* was the dominant sessile invertebrate, but other corals (*Madrepora oculata*, cup corals, alcyonaceans) also occurred frequently. In places there was a high percentage of living coral (tops of mounds or ridges), but overall most of the coral cover was dead.

PHYSICAL ENVIRONMENT

Soft substrates surrounded rocky areas with varying profiles of < 0.5 m to over 2 m. In places there appeared to be bioherm formation (by *L. pertusa*) which often overlapped the rocky areas. There were some areas of dense living *L. pertusa* development. Currents did not appear to be strong. The overall appearance was a patchwork of sand, rocks, and coral.

ADDITIONAL COMMENTS

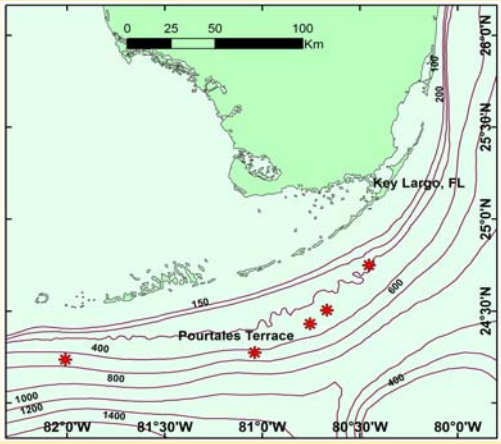
Video is stored on a Mac-formatted external hard drive. Video time in GMT. Video quality during this dive was poor, with segments missing and with poor lighting. Color balance was also not properly set.

DIVE NUMBER: J2-543 *STUDY AREA: Pourtales Terrace*

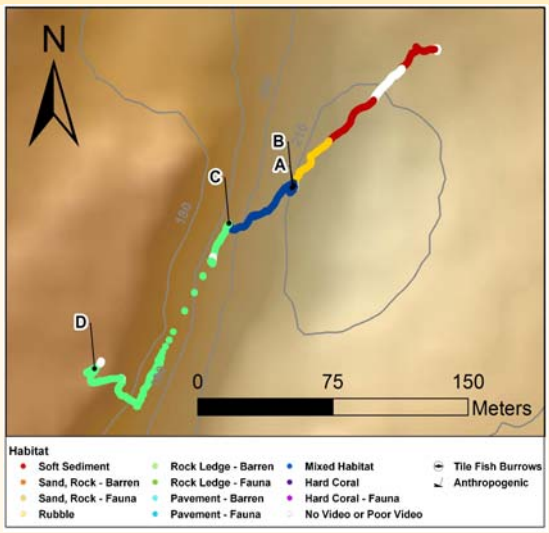
STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	S Brooke, J Reed, M Dunn
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☐
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	M Wolf
Date Compiled	8/3/2011
PI Station Number	ROV-2010-RB-543

GENERAL LOCATION



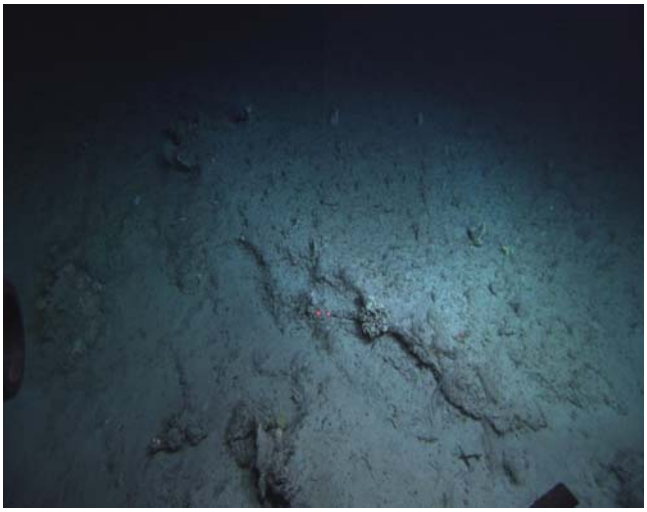
Dive Track:



DIVE DATA

Date	12-Nov-10
Minimum Bottom Depth (m)	169
Maximum Bottom Depth (m)	212
Start Bottom Time (EDT)	17:58
End Bottom End (EDT)	19:41
Starting Latitude (N)	24° 45.028'
Starting Longitude (W)	80° 27.196'
Ending Latitude (N)	24° 44.948'
Ending Longitude (W)	80° 27.298'
Surface Current (Kts)	2.5
Bottom Current (Kts)	2.3

Image A: Sand/Rubble/Rock - with Attached Fauna
24º 44.989' N, 80º 27.240' W



DIVE NUMBER: J2-543 *STUDY AREA: Pourtales Terrace*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Mixed Habitat
24º 44.988' N, 80º 27.240' W

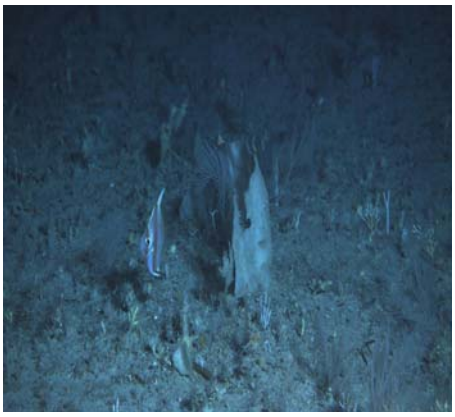


Image C: Mixed Habitat
24º 44.978' N, 80º 27.264' W

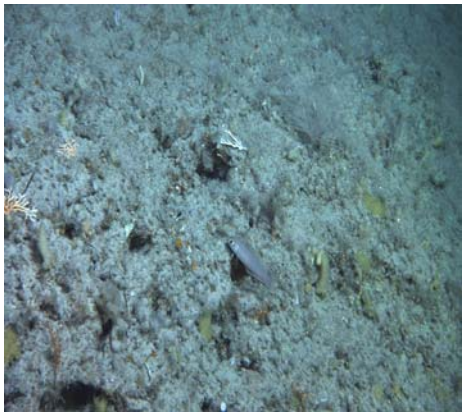
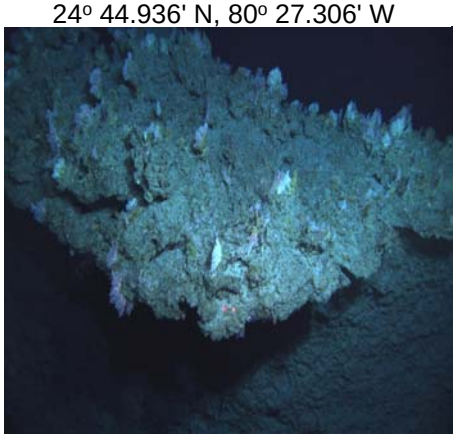


Image D: Rock Ledge - with Attached Fauna
24º 44.936' N, 80º 27.306' W



RELEVANT WORK AND/OR LITERATURE CITED

EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2005)
Reed et al. (2006)
Ross and Nizinski (2007)

BIOLOGICAL ENVIRONMENT

At the northeast corner of the dive track, soft sediment with little fauna was replaced with small rocks that support small attached invertebrates such as gorgonians, small hard corals and hexactinellid sponges. Abundant sessile fauna attached to the low relief rock and ledge habitats were highly diverse, including numerous species of hexactinellid and demospongia sponges ranging from small vase, ball and large plate forms, orange and white stylasterid hydrocorals, soft corals such as *Plumerella* sp. and *Acanella* sp. and hard corals such as *Enallopsammia profunda*, *Cladocora* sp. and cup corals. No *Lophelia pertusa* were evident. Mobile fauna included blackbelly rosefish, codling and a boarfish.

PHYSICAL ENVIRONMENT

This dive began to the northeast of rock ridges beginning over soft substrate and traversing through a mix of soft substrate and rock with attached fauna over a gradual decline in elevation. In a low flat valley there was primarily low profile rock slabs and small ledges of eroded rock with abundant attached fauna interspersed with low relief areas of mixed hard and soft coral and sponge habitat. The western edge of the valley met an abrupt vertical rock face with attached fauna. The sub moved laterally along the rock face before increasing in elevation up the rock face to a flattened area with numerous small rocks and ledges and ending with a large undercut rock ledge covered in sessile fauna.

ADDITIONAL COMMENTS

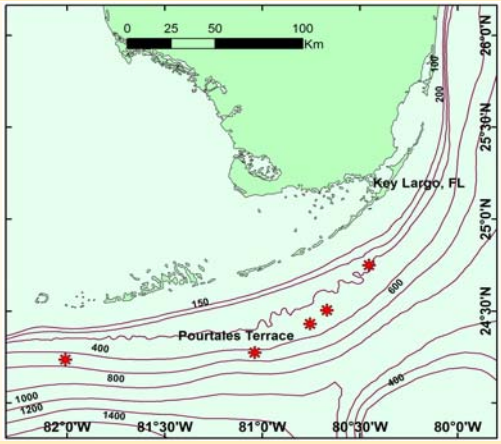
Video is stored on a Mac-formatted external hard drive. Quality was extremely clear, with very few sections of unusable footage. Video time in GMT. However, there was no audio recorded. Collections were taken of hexactinellid and demospongia sponges, styasterid hydrocorals, *Plumerella* sp., and a blackbelly rosefish.

DIVE NUMBER: J2-544 *STUDY AREA: Pourtales Terrace*

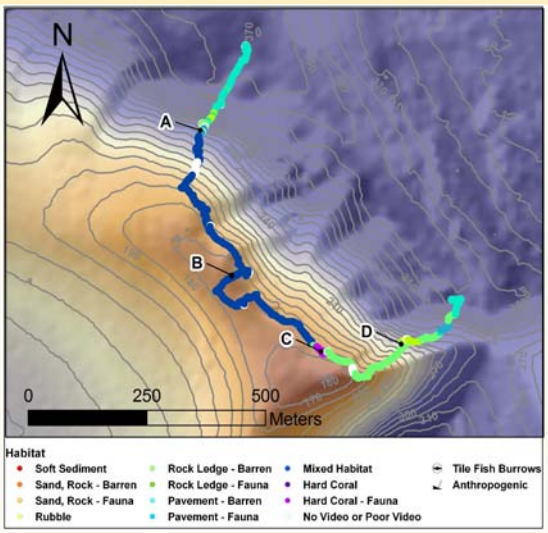
STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	J Reed, S Ross, J Tomczuk
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	M Wolf
Date Compiled	8/3/2011
PI Station Number	ROV-2010-RB-544

GENERAL LOCATION



Dive Track:



DIVE DATA

Date	13-Nov-10
Minimum Bottom Depth (m)	162
Maximum Bottom Depth (m)	367
Start Bottom Time (EDT)	12:21
End Bottom End (EDT)	17:32
Starting Latitude (N)	24° 25.989'
Starting Longitude (W)	80° 45.281'
Ending Latitude (N)	24° 25.697
Ending Longitude (W)	80° 45.044'
Surface Current (Kts)	2.5
Bottom Current (Kts)	

Image A: Pavement - with Attached Fauna
24º 25.894' N, 80º 45.336' W

DIVE NUMBER: J2-544 *STUDY AREA: Pourtales Terrace*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Mixed Habitat
24º 25.734' N, 80º 45.300' W

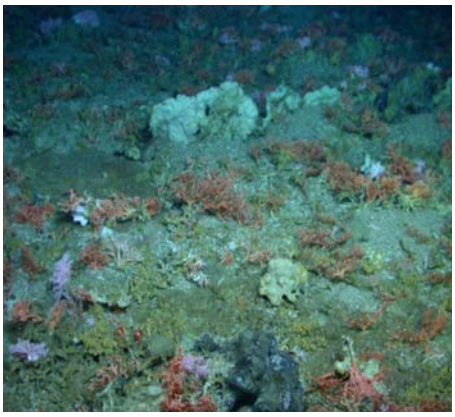


Image C: Hard Corals - with Attached Fauna
24º 25.650' N, 80º 45.186' W

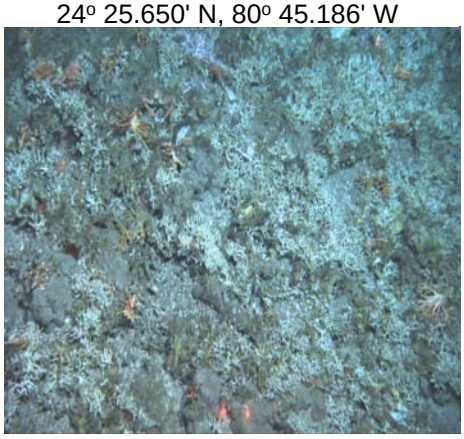
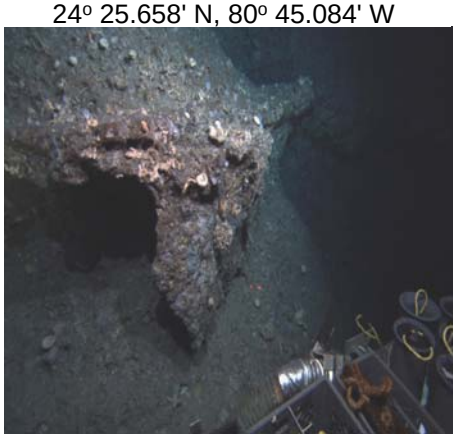


Image D: Rock Ledge - with Attached Fauna
24º 25.658' N, 80º 45.084' W



RELEVANT WORK AND/OR LITERATURE CITED

EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)

BIOLOGICAL ENVIRONMENT

At the northeast corner of the dive track, flat pocked pavement was barren of any fauna save dead hydrozoan coral (Stylasteridae) rubble in the pocks. A mixed habitat consisted primarily of white, pink, and orange stylasterid hydrocorals, cup corals, rare colonies of *Lophelia pertusa* and a huge diversity of erect and encrusting sponges both demospongia and hexactinellids (e.g. finger, plate, conical, bulbous, and ball forms) along vertical rock faces (i.e., rock ledge with fauna) and the terrace plateau. The hard coral with fauna habitat on the ridge of the terrace was dominated by *Madracis* sp. mixed with a variety of stylasterid hydrocorals species and sponges. Mobile fauna included numerous galatheid crabs on the lower, otherwise barren, rock pavement, spider and grapsid crabs, a hermit crab, slit shell snails, cidaroid and other urchins, asteroids, a large school of amberjacks, scorpionfish, boarfish, and a bignose shark.

PHYSICAL ENVIRONMENT

This dive began to the northeast of the terrace beginning over flat pocked pavement substrate with no attached fauna. Approaching the terrace slope the rock pavement turns into a series of rock steps alternating with areas of vertical rock faces (i.e., rock/ledge) and rock pavement with faunal cover increasing with elevation. The top of the terrace plateaus into a large region of mixed habitat with dense fauna. The ROV descended in a southerly direction along the terrace ridge through an area of low relief white hard coral. The eastern terrace rock face (designated rock/ledge with fauna) descended down alternating steps of vertical rock faces and more gradual rock pavement. As the terrain flattened out to barren pavement to the east of the terrace, regular vertical ridges occurred at roughly 5m intervals and accumulated coral rubble and other debris. The northeast of the terrace had an abundance of trash, including glass bottles.

ADDITIONAL COMMENTS

Video is stored on a Mac-formatted external hard drive. Quality was extremely clear, with very few sections of unusable footage. Video time in GMT. Collections were taken of hydrozoan corals (Stylasteridae), numerous demospongia sponges, galatheid, spider and hermit crabs, a cidaroid urchin and sea stars.

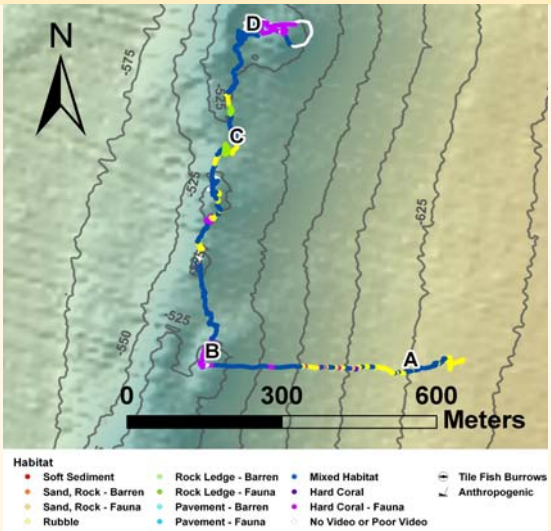
DIVE NUMBER: J2-545 *STUDY AREA: Jacksonville*

STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	M Nizinski, A David, K Coykendall
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	7/21/2011
PI Station Number	ROV-2010-RB-545

GENERAL LOCATION

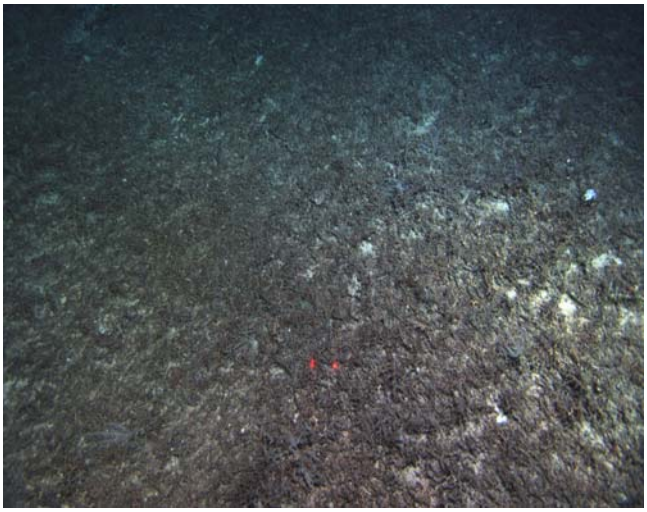
Dive Track:



DIVE DATA

Date	15-Nov-10
Minimum Bottom Depth (m)	471
Maximum Bottom Depth (m)	633
Start Bottom Time (EDT)	9:39
End Bottom End (EDT)	19:37
Starting Latitude (N)	30° 41.850'
Starting Longitude (W)	79° 40.677'
Ending Latitude (N)	30° 43.826'
Ending Longitude (W)	79° 39.679'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Rubble
30º 43.445' N, 79º 39.558' W



DIVE NUMBER: J2-545 *STUDY AREA: Jacksonville*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Coral - with Attached Fauna
30º 43.457' N, 79º 39.798' W

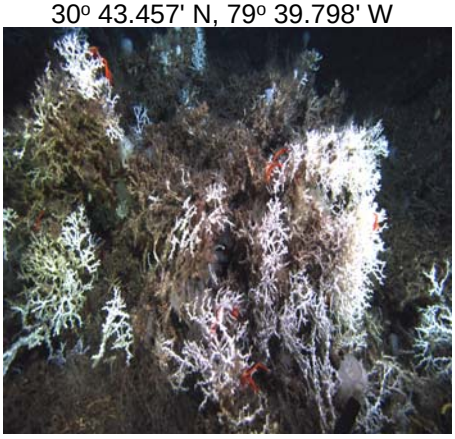


Image C: Rock Ledge - with Attached Fauna
30º 43.689' N, 79º 39.768' W

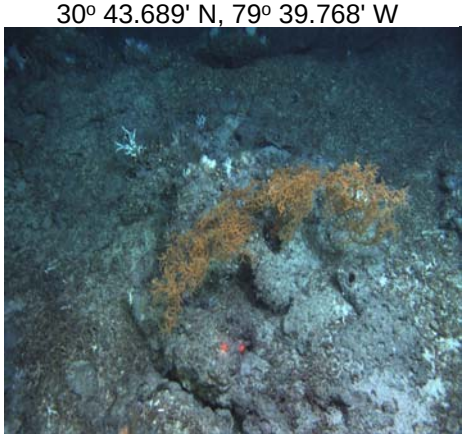
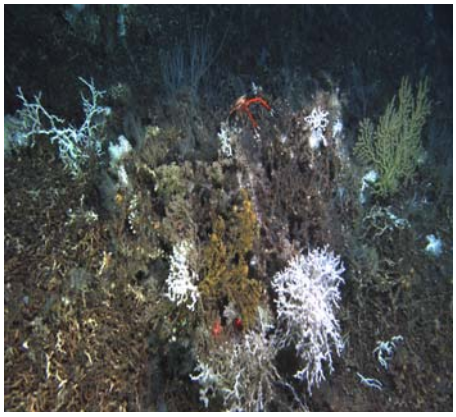


Image D: Mixed Habitat
30º 43.811' N, 79º 39.744' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Paull et al. (2000)
Reed (2002)
Reed and Ross (2005)
Williams et al. (2007)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

Fishes observed on this dive were infrequent for the amount of time and distance covered. The two most common fishes were *Laemonema melanurum* and *Nezumia* sp. Other individuals observed were *Beryx decadactylus*, *Eptatretus lopheliae*, *Trachyscorpia cristulata*, and *Scyliorhinus retifer.* Rubble habitat had sparse fauna including isidids, gorgonians, *Bathynectes* crabs, sponges, and comatulids. All other habitat types had abundant attached fauna. Both hexactinellid sponges and dermosponges were abundant. Individual corals were also abundant and included *Chrysogorgia* sp.,*Plumarella* sp.,*Bathypathes* sp., *Leiopathes* sp.,*Stylaster* sp., *Lophelia, pertusa, Madrepora oculata, Enallopsammia profunda, Anthomastus* sp., isidids, cup corals, and other octocorals. Hard coral areas were dominated by *L. pertusa*; colonies of *M. oculata* and*E. profunda* were common as well as numerous *Aphrocallistes* spp. sponges. Few motile invertebrates were observed such as *Rochinia* sp., galatheids, pancake urchins, octopus, and a holothurian.

PHYSICAL ENVIRONMENT

Four habitat types were observed during this dive: 1) rubble, 2) mixed habitat, 3) hard corals with attached fauna, and 4) rock ledge with attached fauna. Leading up to the ridge, very fine rubble was encountered with sparse attached fauna. Some areas under the rubble appeared to be rock or pavement bottom. Mixed habitat varied in composition, but occured mostly on rubble bottom (high coverage ~ 90%), and was low profile. Hard coral habitat was patchy and of moderate to high profile with *L. pertusa* matrices, live coral varied from 10-50%. Hard coral areas had 100% bottom coverage. Rock ledges were infrequently encountered, were low to moderate profile, and had attached fauna.

ADDITIONAL COMMENTS

Video is stored on a Mac-formatted external hard drive. Video time in GMT. Video quality was extremely clear, with very few sections of unusable footage. Good footage of *Emunida picta* catching and eating a *Nezumia* sp. At times, currents made collections difficult.

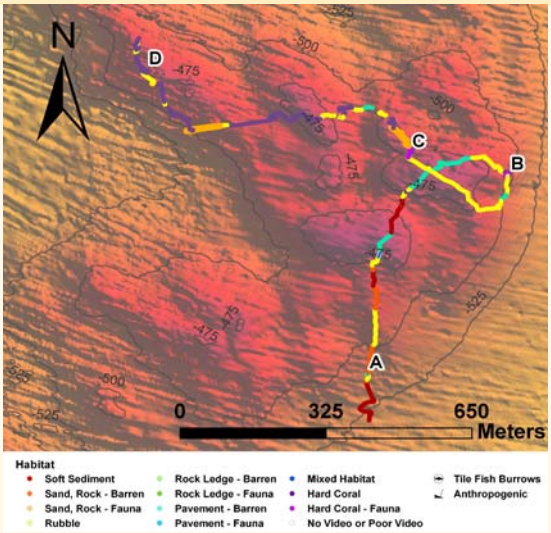
DIVE NUMBER: J2-546 *STUDY AREA: Jacksonville*

STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	S Ross, M Nizinski, J Thoma
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg, M Wolf
Date Compiled	5/24/2011
PI Station Number	ROV-2010-RB-546

GENERAL LOCATION

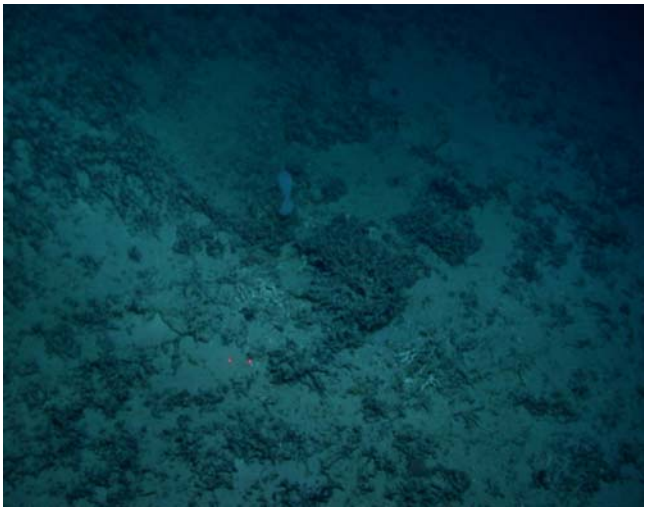
Dive Track:



DIVE DATA

Date	17-Nov-10
Minimum Bottom Depth (m)	455
Maximum Bottom Depth (m)	518
Start Bottom Time (EDT)	9:22
End Bottom End (EDT)	19:32
Starting Latitude (N)	30° 07.009'
Starting Longitude (W)	79° 56.260'
Ending Latitude (N)	30° 05.029'
Ending Longitude (W)	79° 57.404'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Pavement - Barren
30º 04.607' N, 79º 57.132' W



DIVE NUMBER: J2-546 *STUDY AREA: Jacksonville*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
30º 04.853' N, 79º 56.964' W

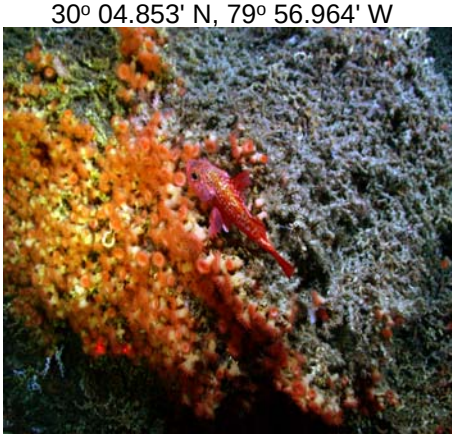


Image C: Hard Corals - with Attached Fauna
30º 04.882' N, 79º 57.084' W

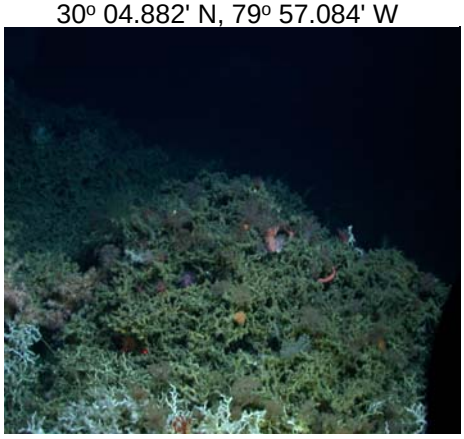
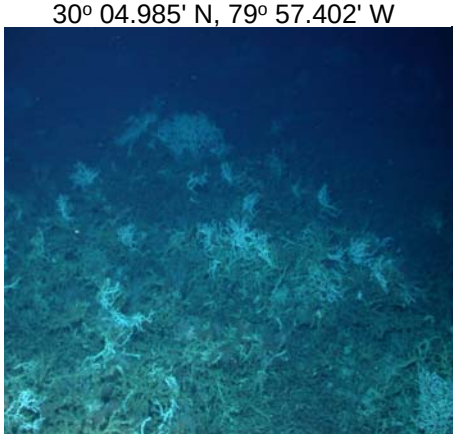


Image D: Hard Corals - without Attached Fauna
30º 04.985' N, 79º 57.402' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Paull et al. (2000)
Reed (2002)
Reed and Ross (2005)
Williams et al. (2007)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

Few fishes were observed during this dive. Those seen included *Laemonema melanurum*, *Chloropthalmus* spp., and a few Scorpaenids. Mobile invertebrates were common, including urchins, brittle stars, and crinoids; crabs included golden crabs, *Bathynectes* sp., and galatheids. The sessile invertebrate community was both diverse and dense. Hard and soft corals, such as *Keratoisis* sp., *Madrepora oculata*, cup corals, and various gorgonians were observed on the mound. *Stylaster* spp. was observed adjacent to the mound on rubble habitat. A variety of hexactinellid sponges and anemones were abundant. Two large *Lophelia pertusa* matrices had one side with 100% coverage of anemones.

PHYSICAL ENVIRONMENT

Due to the length of this dive, numerous habitat types were encountered. This dive began on soft substrate and transitioned into a soft rubble mix with sparse attached fauna. As rubble increased, the bottom was observed to be a hard pavement leading up to the first mound. Subsequent areas with live *L. pertusa* were not surrounded by pavement bottom. The main habitat types observed were a soft rubble bottom with attached fauna, barren pavement with some rubble, coral rubble with attached fauna, and hard corals with or without attached fauna. Areas with live *L. pertusa* were generally high profile. The slope was mild to moderate in transition from soft substrate to the coral mound.

ADDITIONAL COMMENTS

Video is stored on a Mac-formatted external hard drive. Video time in GMT. Quality was extremely clear, with very few sections of unusable footage. This dive video has footage of the abundant anemones that covered sides of *L. pertusa* boulders. Most common collections were of of *L. pertusa*, *M. oculata,* and *Aphrocallistes* sp.

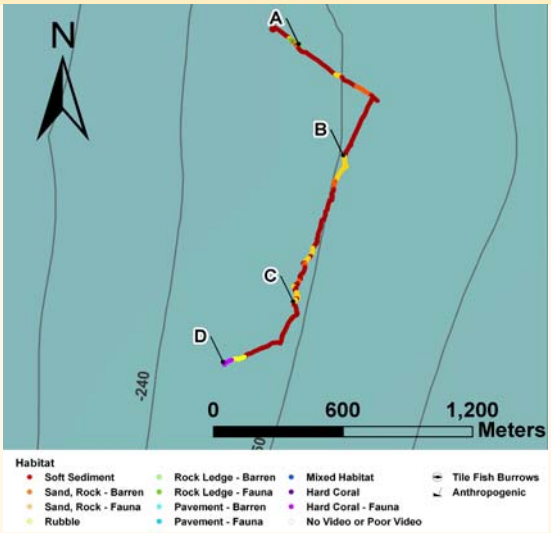
DIVE NUMBER: J2-547 *STUDY AREA: Jacksonville*

STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	M Nizinski, A David, M Dunn
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	S Ross
Date Compiled	7/19/2011
PI Station Number	ROV-2010-RB-547

GENERAL LOCATION

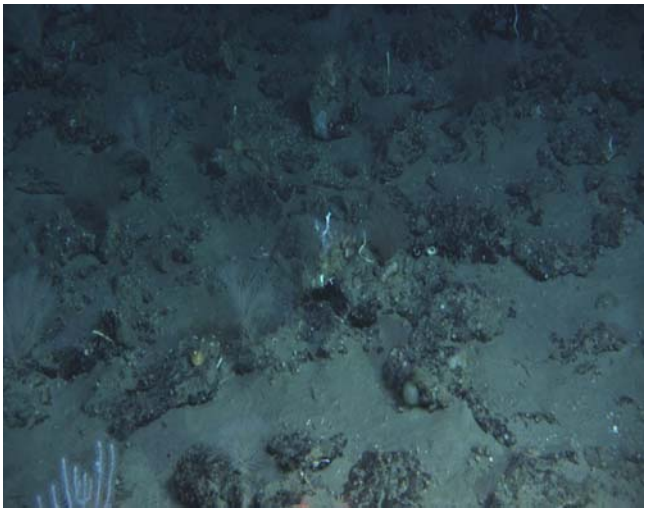
Dive Track:



DIVE DATA

Date	18-Nov-10
Minimum Bottom Depth (m)	210
Maximum Bottom Depth (m)	249
Start Bottom Time (EDT)	9:43
End Bottom End (EDT)	17:40
Starting Latitude (N)	30° 02.173'
Starting Longitude (W)	80° 11.780'
Ending Latitude (N)	30° 01.508'
Ending Longitude (W)	80° 11.788'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Rock Ledge - with Attached Fauna
30º 02.332' N, 80º 11.595' W



DIVE NUMBER: J2-547 *STUDY AREA: Jacksonville*

IMAGE GALLERY *** indicates image position is approximated**

Image B: Sand/Rubble/Rock-with Attached Fauna
30º 02.044' N, 80º 11.483' W

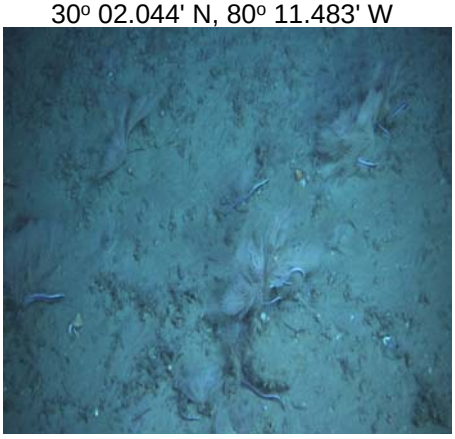


Image C: Sand/Rubble/Rock-with Attached Fauna
30º 01.666' N, 80º 11.608' W

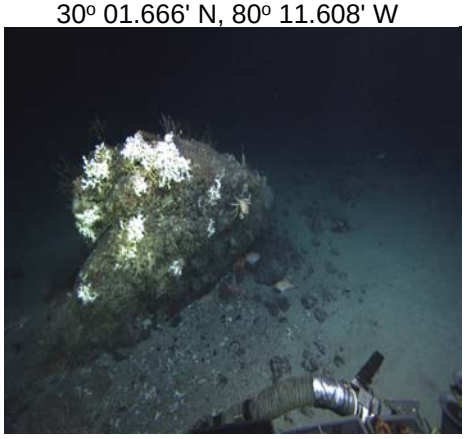
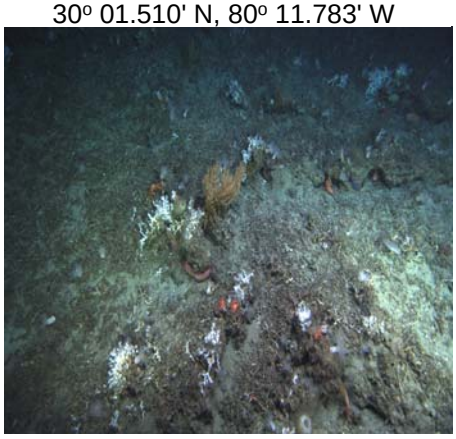


Image D: Hard Corals - with Attached Fauna
30º 01.510' N, 80º 11.783' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Paull et al. (2000)
Reed (2002)
Reed and Ross (2005)
Williams et al. (2007)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

This is to date the shallowest site discovered off the SEUS that has substantial deep-sea corals and other cold water fauna. Corals occurred in scattered patches on the rocky habitat. Near the end of the dive there was an indication of a bioherm feature composed mostly of *Lophelia pertusa*. Faunal diversity was not very high but biomass of some fauna was noticeably higher than many other sites. *Helicolenus dactylopterus* and *Dysommina rugosa* were very common around reef areas and greeneyes and tongue fish were common on sand habitat. Invertebrates were less abundant with golden crabs, and other crabs being observed frequently.

PHYSICAL ENVIRONMENT

This was an area of very patchy habitat through most of the dive. Patches of low profile rocks and boulders occurred in areas surrounded by sand. Very little continuous reef habitat was observed until the end of the dive. At that time a *L. pertusa* rubble zone was encountered leading up to a small *L. pertusa* mound, and more live corals were observed in this reef area. Currents were moderate through most of the dive.

ADDITIONAL COMMENTS

Video is stored on a Mac-formatted external hard drive. Video time in GMT. Video quality during this dive was fair.

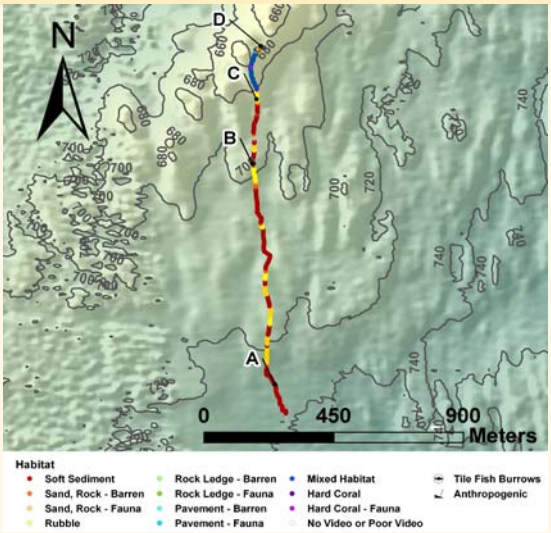
DIVE NUMBER: J2-548 *STUDY AREA: Cape Canaveral South*

STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	S Brooke, J Reed, K Coykendall
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg
Date Compiled	7/20/2011
PI Station Number	ROV-2010-RB-548

GENERAL LOCATION

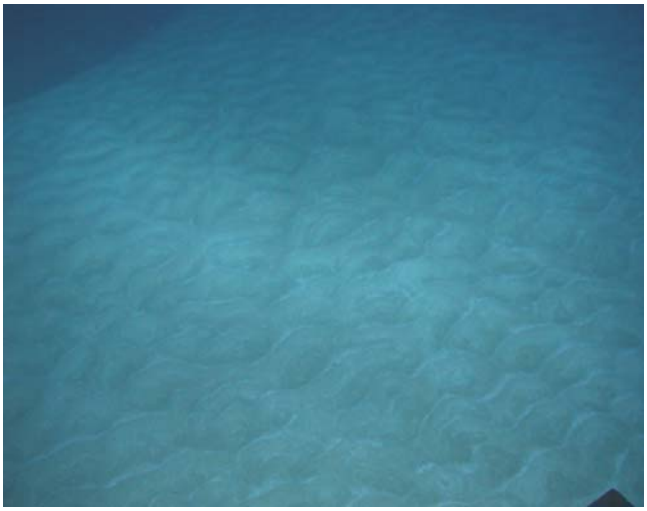
Dive Track:



DIVE DATA

Date	20-Nov-10
Minimum Bottom Depth (m)	634
Maximum Bottom Depth (m)	731
Start Bottom Time (EDT)	10:34
End Bottom End (EDT)	13:09
Starting Latitude (N)	27° 53.245'
Starting Longitude (W)	79° 36.933'
Ending Latitude (N)	27° 53.935'
Ending Longitude (W)	79° 36.982'
Surface Current (Kts)	2.8
Bottom Current (Kts)	0.25

Image A: Soft Substrate
27° 53.284' N, 79° 36.957' W



DIVE NUMBER: J2-548 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Rubble
28º 53.709' N, 79º 36.999' W

Image C: Sand/Rubble/Rock- with Attached Fauna
27º 53.835' N, 79º 36.992' W

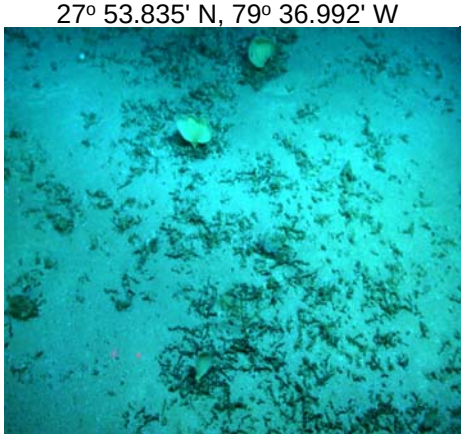
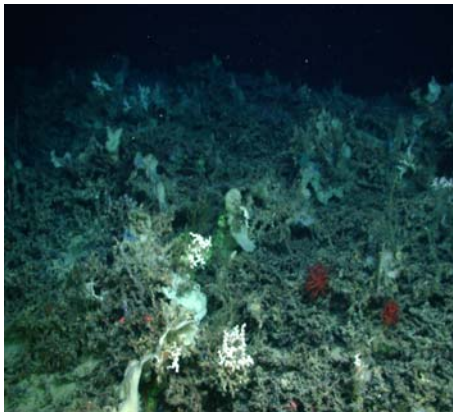


Image D: Mixed Habitat
27º 53.939' N, 79º 36.982' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

Few species were observed on this dive. In the soft substrate a skate and a few urchins were observed. The entire dive was characterized by abuntant dermosponges in all habitat types except for soft substrate. Soft substrate with rubble and rubble habitats also had sparse stylasterids, isidids, and octocorals. Hard coral habitats were characterized by >90% dead *Enallopsammia profunda* or *Lophelia pertusa*. Attached fauna in mixed and hard coral habitats included species seen in rubble habitats plus *Anthomastus* sp., *Chrysogorgia* sp. and a blue encrusting sponge. Fishes included *Laemonema melanurum, L. barbatulum, Nezumia* sp., small eels (unidentified), and a squalid shark. Other motile invertebrates included an octopus and pencil urchins.

PHYSICAL ENVIRONMENT

This dive traversed large areas of soft sediment with some rubble mixed. Areas with rubble mix often had attached fauna. Areas of rubble (>50% rubble coverage) had abundant attached sponges. Few areas were classified as mixed habitat with sponges, soft corals, and hard corals; these areas had a rubble base. Few hard coral areas were encoutered but were mostly dead (>90%). Rubble, mixed, and hard corals were all low profile with moderate coverage. Dead coral matricies and rubble were covered with a light dusting of sediment in all areas. Garbage was also observed on bottom.

ADDITIONAL COMMENTS

Video is stored on a Mac-formatted external hard drive. Video time in GMT. Video quality was extremely clear. Areas of this dive were very dark or too far from the bottom for proper identification of species.

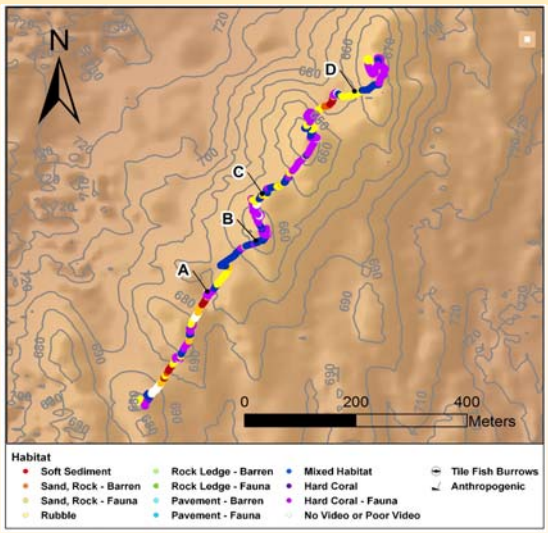
DIVE NUMBER: J2-549 *STUDY AREA: Cape Canaveral South*

STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	S Ross, M Nizinski, B Owens
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	M Wolf
Date Compiled	8/3/2011
PI Station Number	ROV-2010-RB-549

GENERAL LOCATION

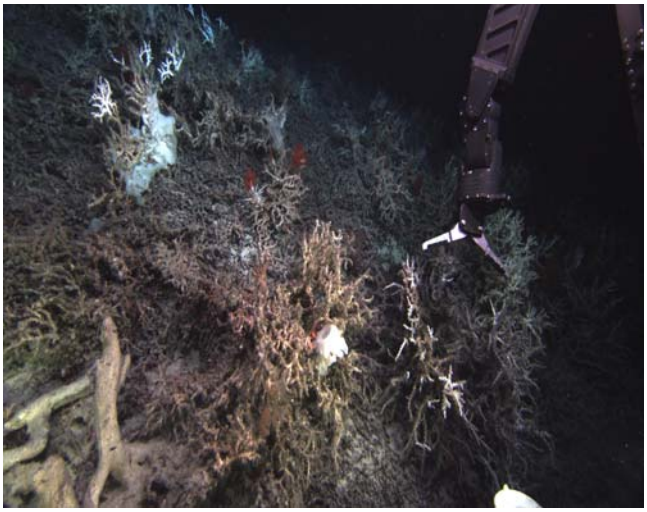
Dive Track:



DIVE DATA

Date	21-Nov-10
Minimum Bottom Depth (m)	633
Maximum Bottom Depth (m)	687
Start Bottom Time (EDT)	10:42
End Bottom End (EDT)	17:32
Starting Latitude (N)	27° 53.735'
Starting Longitude (W)	79° 37.050'
Ending Latitude (N)	27° 54.097'
Ending Longitude (W)	79° 36.899'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Corals - with Attached Fauna
27º 53.860' N, 79º 37.080' W



DIVE NUMBER: J2-549 *STUDY AREA: Cape Canaveral South*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Mixed Habitat
27º 53.911' N, 79º 27.026' W

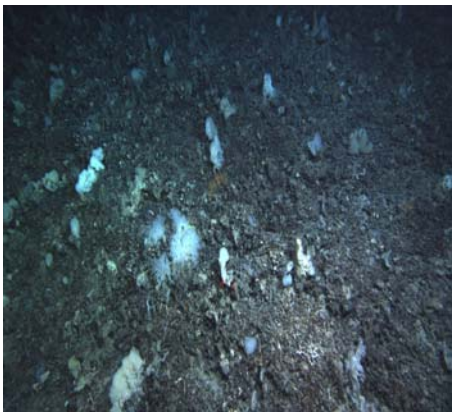


Image C: Sand/Rubble/Rock - with Attached Fauna
27º 53.959' N, 79º 37.014' W

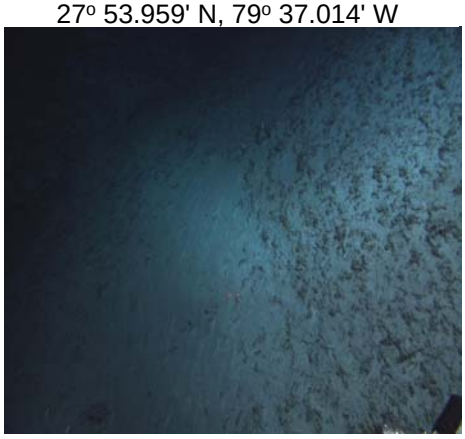
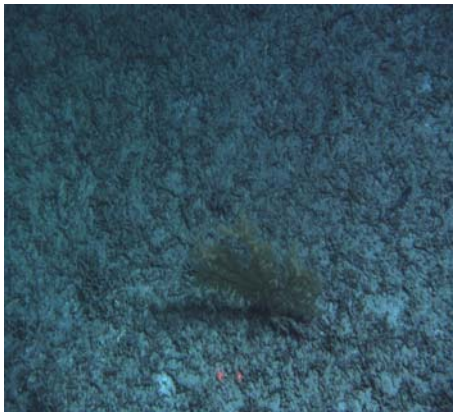


Image D: Rubble
27º 54.062' N, 79º 36.912' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

Lophelia pertusa mounds were composed largely of a dead coral matrix (~90% dead) with live patches and distal tips. The percentage of live *L. pertusa* was highest at the top of ridges. Sessile invertebrates attached to the hard coral matrix and live colonies include the hydrozoan coral (Stylasteridae), soft corals such as gorgonians (e.g. *Plumarella* sp.), bamboo coral, and *Anthomastus* sp., and a large diversity of hexactinellid sponges some with yellow zooanthids and an encrusting blue sponge. Mobile fauna included gastropods, asteroids, galatheid crabs, cidaroid and echinoid urchins, rattail fish, coral hake, and eels.

PHYSICAL ENVIRONMENT

This dive traversed a series of moderate relief coral mounds separated by shallow valleys and flats of soft sediment. The ROV transitioned through soft sediment with rubble with fauna to dense coral rubble with fauna. The size and density of coral rubble chunks increased with proximity to the mounds. The mounds were primarily low to moderate relief dead (70-99% dead) *L. pertusa* matrix with interspersed small to large live patches with abundant attached fauna. The percentage of live coral appeared to increase with elevation up the mound. These hard coral habitats were evenly dispersed with areas of low relief *L. pertusa* rubble that supported mixed habitats with a diversity of sponges, hard and soft corals.

ADDITIONAL COMMENTS

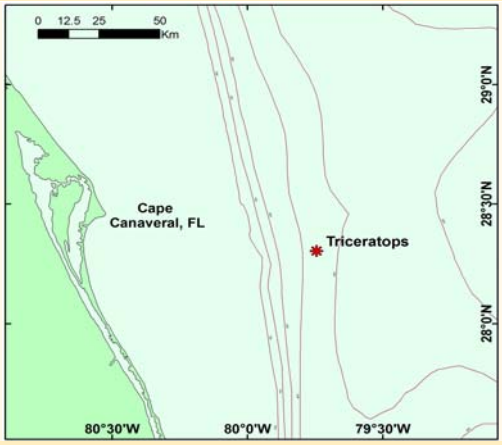
Video is stored on a Mac-formatted external hard drive. Quality was extremely clear, with very few sections of unusable footage. No audio was recorded for the first four hours of footage. Video time in GMT. Collections were taken of live and dead *L. pertusa*, bamboo coral, gorgonians, cidaroid urchins, *Anthomastus* sp., galatheid crabs, squid, hydrozoan coral (Stylasteridae), hexactinellid sponges with and without yellow zooanthids and a crinoid.

DIVE NUMBER: J2-550 *STUDY AREA: Triceratops*

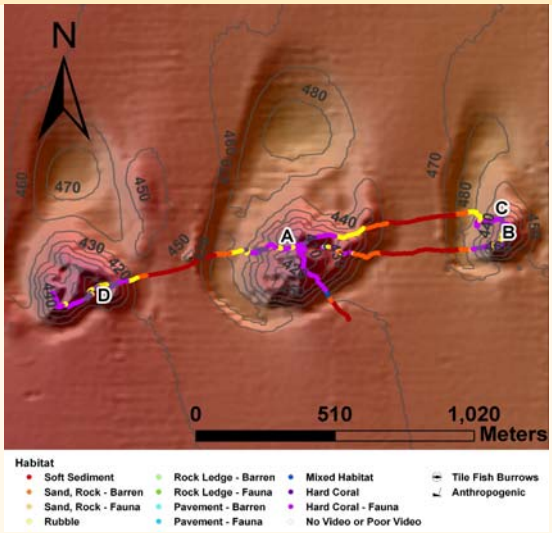
STATION OVERVIEW

Project	Extreme Corals 2010
Principal investigators	SW Ross[1], SD Brooke
PI Contact Info[1]	Center for Marine Science, 5600 Marvin Moss Ln., Wilmington, NC 28409
Purpose	Mapping of deep coral banks, ecological studies of macroinvertebrates and fishes, paleoclimate studies, coral genetics and education outreach
Vessel	NOAA Ship Ronald H. Brown, Jason 2 ROV
Science Divers	S Brooke, S Ross, J Tomczuk
External Video Tapes	External Hard Drive
Internal Video Tapes	
Digital Still Photos	Yes
Positioning System	dGPS
CTD File	☑
Specimens Collected	☑
Other	Hard copy of observation log. Virtual van logs.
Acknowledgements	NOAA- DSCRT, NOAA-OER, NOAA Fisheries, USGS, UNCW, NC Museum of Natural Sciences
SEADESC Analyst	A Zilg, M Wolf
Date Compiled	5/24/2011
PI Station Number	ROV-2010-RB-550

GENERAL LOCATION



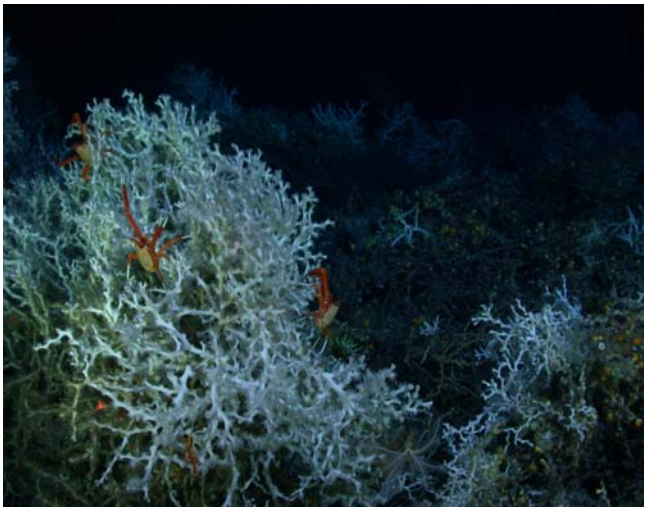
Dive Track:



DIVE DATA

Date	22-Nov-10
Minimum Bottom Depth (m)	399
Maximum Bottom Depth (m)	480
Start Bottom Time (EDT)	9:24
End Bottom End (EDT)	19:37
Starting Latitude (N)	28° 19.177'
Starting Longitude (W)	79° 44.988'
Ending Latitude (N)	28° 19.232'
Ending Longitude (W)	79° 45.562'
Surface Current (Kts)	
Bottom Current (Kts)	

Image A: Hard Corals - with Attached Fauna
28° 19.319' N, 79° 45.087' W



DIVE NUMBER: J2-550 *STUDY AREA: Triceratops*

IMAGE GALLERY

*** indicates image position is approximated**

Image B: Hard Corals - with Attached Fauna
28° 19.330' N, 79° 44.691' W

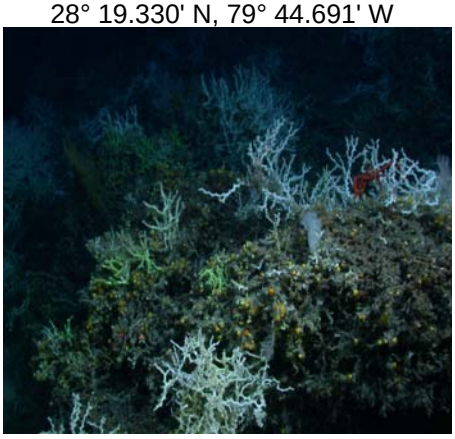


Image C: Hard Corals - with Attached Fauna
28° 19.378' N, 79° 44.704' W

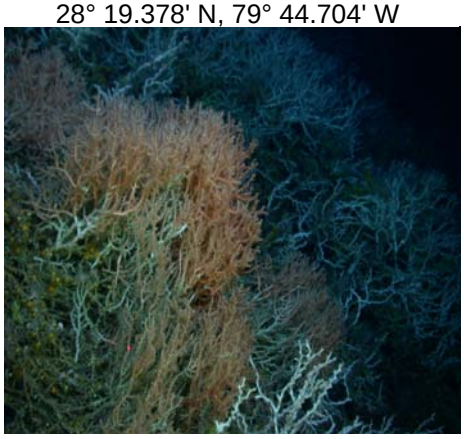
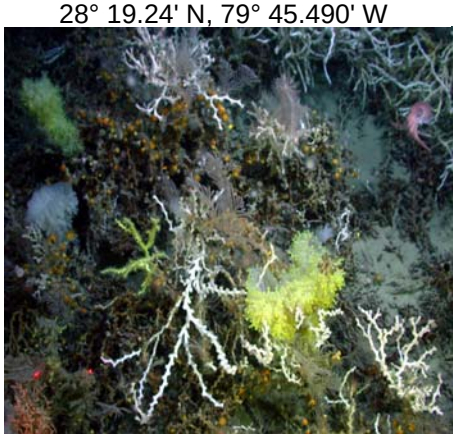


Image D: Hard Corals - with Attached Fauna
28° 19.24' N, 79° 45.490' W



RELEVANT WORK AND/OR LITERATURE CITED

Ayers and Pilkey (1981)
EEZ-SCAN 87 Scientific Staff (1991)
Reed (2002)
Reed and Ross (2005)
Reed et al. (2006)
Ross and Nizinski (2007)
Ross and Quattrini (2007, 2009)
Ross et al. (unpubl. cruise data)

BIOLOGICAL ENVIRONMENT

This dive traversed three coral mounds with dense live *Lophelia pertusa* and abundant fauna. The biological community was generally the same for each mound.The top of each mound was covered with a *L. pertusa* matrix with attached fauna on dead *L. pertusa*. Large colonies of *Madrepora oculata* were observed on the south slope of the east mound. *Enallopsammia profunda*, *Plumarella* sp., *Keratoisis* sp., and numerous cup corals were present on all three mounds. Glass sponges and anemones were abundant. Motile fauna were more abundant on the slopes of the mounds and included golden crabs, galatheid crabs, cancer crabs, cidaroid urchins, crinoids, and a few fishes.

PHYSICAL ENVIRONMENT

This site is characterized by three *L. pertusa* mounds, hence the name of "Triceratops" for these mounds, with flat, barren, soft substrate surrounding the mounds. The mounds have sections of gentle slope as well as areas of steep slope. The smallest mound lies to the east and the largest is in the middle. Around each mound lies rubble with attached fauna. Slopes and tops of mounds have dense live *L. pertusa* on a dead *L. pertusa* matrix. These areas have abundant attached fauna. Some sections of hard coral on the west slopes have noticably less attached fauna.

ADDITIONAL COMMENTS

Video is stored on a Mac-formatted external hard drive. Video time in GMT. Quality was extremely clear, with very few sections of unusable footage. Collections were taken of *L. pertusa*, *M. oculata, E. profunda*, cup corals, crinoids, and glass sponges.