

## NOAA CIOERT Cruise Report

### Survey of the Deep-Sea Coral and Sponge Ecosystem of Pourtales Terrace

**NOAA Ship *Nancy Foster***  
**Florida Shelf-Edge Exploration II (FLoSEE) Cruise**  
**Leg 2- September 23 – 30, 2011**

**NOAA Project Number:** NF-11-09-CIOERT

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# HARBOR BRANCH

FLORIDA ATLANTIC UNIVERSITY

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## EXECUTIVE SUMMARY

In September 2011, a three week research cruise was conducted by the Cooperative Institute for Ocean Exploration, Research, and Technology (CIOERT) at Harbor Branch Oceanographic Institute-Florida Atlantic University (HBOI-FAU) in collaboration with NOAA. This CIOERT Florida Shelf-Edge Exploration II (FLoSEE) Cruise was conducted in two legs using the NOAA Ship *Nancy Foster* and the University of Connecticut's (UCONN) *Kraken 2* ROV. This Preliminary Cruise Report is for Leg 2 of the cruise which was funded in part by the NOAA Deep Sea Coral Research and Technology Program (DSCRTP) which supported seven days of ROV time to explore and sample deep-sea coral and sponge ecosystems (DSCeS) within the newly designated Deepwater Coral Habitat Areas of Particular Concern (CHAPC) and the 'East Hump' Marine Protected Area (MPA) on the Pourtales Terrace off the Florida Keys (Figure 1). This Preliminary Cruise Report includes SEADESC Level I data analysis (Appendix 1) which describes in detail each ROV dive including: cruise metadata, figures showing each dive track overlaid on the new multibeam sonar maps, dive track data (start and end latitude, longitude, depth), objectives, general description of the habitat and biota, and images of the biota and habitat that characterize the dive site. The Final Cruise Report will include the SEADESC Level II Report which will provide quantitative analyses for each dive site detailing the densities of the benthic biota and CPCE 4.0<sup>©</sup> Coral Point Count for percent cover of substrate type and sessile biota.

As part of the CIOERT program at HBOI-FAU, the deepwater benthic team developed a new and efficient Database Solution for Benthic Surveys that was used for the first time for this cruise and will be used in all future CIOERT mesophotic and deepwater surveys. Over the past two years a Microsoft Access database was developed to compile and manage all data collected during CIOERT cruises, including: ROV navigation data, CTD data, samples data, site data, video and photographic data, ROV dive notes, multibeam sonar data, and metadata. The Access database is then linked to ArcGIS 10 to georeference all spatial data. The second phase of the Database Solution for Benthic Surveys, was development of a Graphical User Interface called AnthSOA by CIOERT partner SRI in collaboration with CIOERT researchers at HBOI-FAU. This program which has been developed over the past year will be used for this cruise and future CIOERT cruises for the following:

- Import, filter and standardize raw ROV dive track data and CTD data
- Import digital images characterizing habitat and biota
- Link data sets for import into AnthoSOA, HBOI-FAU and CIOERT at-Sea Database, and ArcGIS.

The goal of the FLoSEE II expedition's education and outreach activities is to promote ocean literacy, knowledge of ocean ecosystems, and challenges of exploring and managing deep ocean frontiers, for public and classroom audiences, with a focus on CIOERT's research themes. Related activities included: 1) expedition Web Site ([www.cioert.org/FLoSEE2](http://www.cioert.org/FLoSEE2)); 2) extensive news media and press releases; 3) at-sea, live Skype<sup>TM</sup> event that linked the cruise participants inside the ROV van during an actual dive with students and teachers of the Marine & Oceanographic Academy (MOA), which is located on the HBOI-FAU campus; and 4) a course *Immersion in Ocean Sciences* taught at HBOI-FAU, which involved a total of eight FAU graduate students (four each leg) who participated in the cruise. This expedition was the second

of a series of CIOERT “Ocean Discovery” cruises that are increasing “hands-on”, at-sea, multi-disciplinary opportunities for university students in the CIOERT region, with each cruise focused on one or more of CIOERT’s themes. The student research posters that resulted from this cruise will be presented in the Final Cruise Report.

Leg 2 (September 23-30) of the FLoSEE II cruise resulted in 14 ROV dives on Pourtalès Terrace for a total bottom time of 52 hours, covering 16 km, at depths from 154 to 838 m (Fig. 3). This Preliminary Cruise Report includes the SEADESC Level I Report (Southeastern United States Deep-Sea Corals) describing each ROV dive site (Appendix 1). A total of 58 hours of ROV dive videotapes with audio annotations (Appendix 2) were recorded on hard drives, with copies on DV-Cam tape and DVD. A total of 2,866 *in situ* digital images were taken and include 118 images of collected species, 358 general habitat and species photos, and 2,253 quantitative transect photos which will be used for the SEADESC Level II Report. A total of 150 specimens were collected, including 49 Cnidaria (11 Scleractinia, 11 Octocorallia, 7 Antipatharia), 29 Porifera, 11 Echinodermata, and 6 Mollusca. MOCNESS trawls and CTD casts were conducted at five sites. Ten sites were surveyed on Pourtalès Terrace with multibeam sonar by the survey team of the *Nancy Foster* and covered a total of 397.1 km<sup>2</sup> (Fig. 3). Except for one site, these had never been surveyed previously with high-resolution multibeam sonar. A total of eight sites were mapped within the newly designated deepwater coral HAPC (Fig. 3,4). We also prepared three sonar maps inside the recently designated ‘East Hump’ Marine Protected Area (MPA) site; this site has not been previously mapped. These new *Nancy Foster* sonar maps enabled us to discover and dive on many new features and reefs that had not been previously documented. In particular, we discovered four deepwater sinkholes where only one had been known previously (Marathon Sinkhole, *Kraken* dive 2-24). Also we discovered a large live, deepwater *Lophelia* coral mound which is the southern-most *Lophelia* mound known in U.S. waters (*Kraken* dive 2-25).

The new sonar maps and ground truthing by ROV dives, MOCNESS trawls, and CTD casts have provided data characterizing for the first time the newly designated ‘East Hump’ MPA site and eight additional sites within the newly designated deepwater coral HAPC on Pourtalès Terrace. New information was also collected on several high-relief features outside of the CHAPC which showed that extensive essential fish habitat and coral/sponge habitat exists outside the protected CHAPC boundaries. These areas outside the current CHAPC should be of priority for future research cruises. The new multibeam maps also provided a wealth of information of potential sites within the CHAPC for future ROV dives especially in the regions where we found *Lophelia* coral mounds for the first time on Pourtalès Terrace. These data will be important for managers and scientists within NOAA Fisheries, the South Atlantic Fishery Management Council, The Florida Keys National Marine Sanctuary, NOAA Deep Sea Coral Research and Technology Program, and NOAA Mesophotic Reef Ecosystem Program. New data were collected on habitat, benthic species’ distributions, coral health, and commercially and recreationally important fish populations.

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## DELIVERABLES AND DATA MANAGEMENT

This Preliminary Cruise Report includes the SEADESC Level I Report (Appendix 1) which details each ROV dive site including: cruise metadata, figures of dive tracks overlaid on multibeam sonar maps, dive track data (start and end latitude, longitude, depth), objectives, general description of habitat and biota, and images of biota and habitat characteristic of each dive site. Appendix 2 is the detailed log of each ROV dive. The Final Cruise Report will have the SEADESC Level II Report which includes quantitative analyses of each dive site showing percent cover of substrate type, biota and density of biota.

The Chief Scientist is responsible for the disposition of data. Under NAO 216-101, managers of programs are responsible for ensuring that data and related information are available in a timely manner (within 1 year) at the NOAA national processing centers and national data centers. To date, all data have been archived as required; these data include shipboard data, raw and processed multibeam sonar data, CTD, ROV navigation data, ROV videotapes and digital images, samples, and ROV dive annotations (Table 1). The ship survey department, under the direction of the Operations Officer, has archived all multibeam data at the National Geophysical Data Center. This archiving will be conducted in consultation with the Principal Investigator to ensure there is no unintentional release of sensitive data.

The Chief Scientist retains responsibility for management of all other data collected, including habitat and biologic assessments, fish movement, marine debris, and data downloaded from the acoustic receivers and water quality sensors (Table 2). The Benthic Science Team (J. Reed, S. Farrington) will maintain data logs and archives using MS Access and Excel logs to record site, sample, and ROV dive annotations. A complete set of original data (including shipboard data, ROV tracking, ROV video, ROV digital images, CTD, raw and processed multibeam sonar) are archived by the Chief Scientist on hard drives and servers at HBOI-FAU. A second complete set of data are archived with NOAA Fisheries (Andrew David) who will ensure these data are submitted to the NOAA Deep Sea Coral Research and Technology Program (DSCRTP) and in accordance with Procedure 1102.25 Section 3.2.3, to the National Geophysical Data Center (NGDC) within 1 year of the end of the project.

**Table 1.** FLoSEE II Expedition archived data; NOAA Ship *Nancy Foster*, Leg 2, September 23-30, 2011. Archives and archivists : HBOI-FAU (John Reed, Chief Scientist), NOAA NMFS (Andrew David, Panama Lab), NOAA DSCRTP (Dan Dorfman, Data Manager), NOAA NGDC (Dave Fischman, Data Manager, NOAA National Geophysical Data Center, NCL= NOAA Central Library, MOC = NOAA Marine Operations Center-Atlantic, CS = Chief Scientist.

Type	Product Description	Format	MD rec.	Archive	Date Submitted
Data	Video imagery- digital copies of all dive tapes	DVD	Y	NCL	9/30/12
Data	Still imagery- sub	DVD	Y	NCL	9/30/12
Data	Multibeam raw files	PDS	Y	NGDC	9/30/12
Data	Processed MB files (corrected for tides and sound velocity)	CARIS, HDCS, XYZ, ASCII	Y	NGDC	9/30/12

Data	MB Geotifs using processed data	TIFF	Y	NGDC	9/30/12
Data	CTD	CSV	Y	NGDC	9/30/12
Log	ROV dive logs	MDB	Y	NCL	9/30/12
Log	Sample logs	MDB	Y	NCL	9/30/12
Data	ROV DAT file (dive tracks and sensor data)	CSV	Y	NCL	9/30/12
Report	Web site	HTML	N	Cioert.org/ FLoSEE2	9/30/12
Report	Foster Cruise Plan	PDF	Y	NOAA/MOC	8/11/11
Report	Foster Evaluation Report	PDF	N	NOAA/MOC	10/7/11
Report	CIOERT Cruise Report	PDF	Y	NCL	1/30/12
Report	SEADESC I report- dive logs, site characterizations, and video logs	PDF	Y	NCL	1/30/12
Report	SEADESC II report- Final CIOERT Cruise Report	PDF	Y	NCL	9/30/12
Report	Publications	PDF	N	NCL	As available

In addition to the data products to be archived at NOAA in Table 1, other data sets will be generated and retained by the expedition Chief Scientist at HBOI-FAU (Table 2).

**Table 2.** Data sets produced by ROV, ship and science team that will be archived with the Chief Scientist at HBOI-FAU.

Source	Description	Format
Ship	Multibeam raw files	PDS
Ship	Processed MB files (corrected for tides and sound velocity)	CARIS, HDCS,XYZ (ASCII)
Ship	MB Geotifs using processed data	TIFF
Ship	CTD	CSV
ROV	Waypoint file	CSV
ROV	Event log	CSV
Science	Dive track polygons	ArcGIS shapefile
Science	Cruise database	Access MDB

## BACKGROUND

In September 2011, a three week research cruise was conducted by the Cooperative Institute for Ocean Exploration, Research, and Technology (CIOERT) at Harbor Branch Oceanographic Institute-Florida Atlantic University (HBOI-FAU) in collaboration with NOAA. This CIOERT Florida Shelf-Edge Exploration II (FLoSEE) Cruise was conducted over two legs using the NOAA Ship *Nancy Foster* in conjunction with the University of Connecticut's (UConn) *Kraken 2* ROV. Leg 1 was the CIOERT Mesophotic Project to characterize and document the habitat, benthic and fish communities on the Pulley Ridge Habitat Area of Particular Concern

(HAPC) and to assess the coral health. The NOAA Deep Sea Coral Research and Technology Program (DSCRTP) supported seven days of ROV time during Leg 2 of the FLoSEE II expedition to explore and sample deep-sea coral and sponge ecosystems (DSCEs) on Pourtales Terrace off the Florida Keys (Figure 1) that included sites within the newly designated Deepwater Coral Habitat Areas of Particular Concern (CHAPC) and the ‘East Hump’ Shelf-edge Marine Protected Area (MPA) where data on habitat and coral health assessment of this region is of priority to NOAA DSCRTP, NOAA Sanctuaries, and the Gulf of Mexico and South Atlantic Fishery Management Councils which have oversight of the HAPCs and MPAs in this region. In addition to the DSCRTP’s funding of ROV time, additional funding included a supplemental CIOERT grant to allow CIOERT PI’s to conduct and analyze ROV video/photographic transects, and create SEADESC Level I and II dive logs and site characterizations in collaboration with NOAA NMFS scientists.

The overall scope of work envisioned for the DSCE and mesophotic reef projects reflects the need to conduct broad surveys to understand the large scale dimensions of deep-sea coral reefs (e.g., geomorphological structure and forcing, biodiversity and biogeography, geographic connectivity) coupled with detailed work at selected sites to understand the functioning of mesophotic reefs (e.g., connectivity to shallow reefs, dynamics and life histories, effects of anthropogenic stress and climate change, historical development and their support of fisheries resources and endangered species).

### **CIOERT/NOAA COLLABORATION**

The primary focus of the CIOERT FLoSEE II Cruise is to advance NOAA Ocean Exploration and Research (OER) goals while complementing the management objectives of the NOAA DSCRTP, the NOAA Mesophotic Reef Ecosystem Program, Florida Keys National Marine Sanctuary (FKNMS), and regional fishery management councils. The expedition integrated the research objectives of five CIOERT projects including: Mesophotic Reef Project (Project #5.3.1), Deep-Sea Coral Project (#5.3.2), Benthic-Pelagic Project (Project # 4.2.1), New Biomedical Resources Project (Project # 4.3.1), and Education/Outreach Project (Project #6.3.1).

For this cruise we collaborated with NOAA NMFS (Andrew David, Stacey Harter, Panama City) in order to assess habitat and fish communities, targeting grouper, snapper and tilefish. These data will be of value to the South Atlantic and Gulf of Mexico Fishery Management Councils for management decisions on these key species and habitat. Pulley Ridge region is also of priority to the NOAA Mesophotic Ecosystem Program (pers. comm., K. Puglise) and is funded for additional research through NOAA CRCP for testing the hypothesis of connectivity of mesophotic reefs and adjacent shallow water reefs in this region. Ultimately the primary benefits are critical data that characterize mesophotic and deep water reef resources, habitat and ecosystem functions, ecosystem services, and, when applicable, the impact of management actions on these resources.

### **GOALS AND OBJECTIVES**

Goal 1-- Explore and research DSCEs and shelf-edge mesophotic reefs off Florida:

The goal of this cruise is to map, explore, document, and characterize the deepwater and mesophotic coral habitats off the coast of Florida including: Pulley Ridge and Pourtalès Terrace. The Pourtalès Terrace is part of the Deepwater Coral Habitat Areas of Particular Concern (CHAPC) designated by NOAA and the South Atlantic Fishery Management Council (SAFMC) in 2010. In addition, the region of Pourtalès Terrace includes the newly designated 'East Hump' shelf-edge MPA, which never has been surveyed by submersible or ROV or mapped with multibeam sonar. This cruise provides critical data by mapping and characterizing essential fish habitat for NOAA and the regional Fishery Management Councils. The CIOERT PI's in collaboration with NOAA NMFS scientists will provide analyses of fish and benthic habitats. We will evaluate the coral samples for the coral health assessment component of this project, and samples will also be targeted for molecular and genetic research with the goal of assessing the connectivity and relative health of both deep and shallow coral populations.

Goal 2-- Generate SEADESC Level I and II Reports for ROV Dive Sites:

A major objective in the DSCRTP plan is to generate synthesized products from DSCRTP sponsored expeditions that convey the location and condition of DSCEs. An approach being used is generation of Southeast Atlantic Deep-Sea Coral (SEADESC) dive logs and site characterizations (NOAA/OER, 2008). There are two levels of these reports:

- Level I—rapid turn-around log similar to logs generated for the OER 2008 report; intention is to provide general metadata on dive locations and areas, with description of DSCE.
- Level II—inclusion of more detailed metadata describing dives and site characterization that includes quantified measures of coral, sponge, and fish abundance and diversity.

The Level II effort requires analysis of ROV videotapes and quantitative photographic transects from ROV dives. NOAA NMFS scientists (A. David, S. Harter) will review the video and still images for fish populations. CIOERT scientists, Chief Scientist John Reed and technicians will analyze imagery for coral and sponge communities, and synthesize all data sets to create Level II dive logs for the dives supported by the DSCRTP-sponsored ROV dives during the expedition.

Specific objectives included:

1. Characterize and map benthic hard bottom habitats at select DSCE sites with emphasis on macro-benthic, sessile species including: scleractinian corals, gorgonians, sponges, and algae.
2. Characterize fish populations at each dive site with emphasis on commercially and recreationally important species including grouper, snapper, and tilefish.
3. Conduct shipboard multibeam sonar surveys at each dive site, prior to ROV dives, for ROV dive planning, ROV dive tracking, and for habitat classification.
4. Conduct quantitative and qualitative ROV video and photographic transects at each site.
5. Document percent hard coral cover and hard bottom at each site.
6. Conduct coral health assessment.
7. Collect corals for health assessment, reproductive studies, genetic studies and for various experiments.
8. Collect benthic invertebrates (scleractinia, gorgonacea, black coral, sponges, and algae for biodiversity, habitat characterization, and biomedical research).

9. Collect any apparent oil impacted fauna or sediment.
10. Collect and document physical water column data (CTD).
11. Collect and document mid-water plankton over reef sites with MOCNESS trawls.
12. Conduct education/outreach activities (students- at-sea, CIOERT web site, daily blogs).

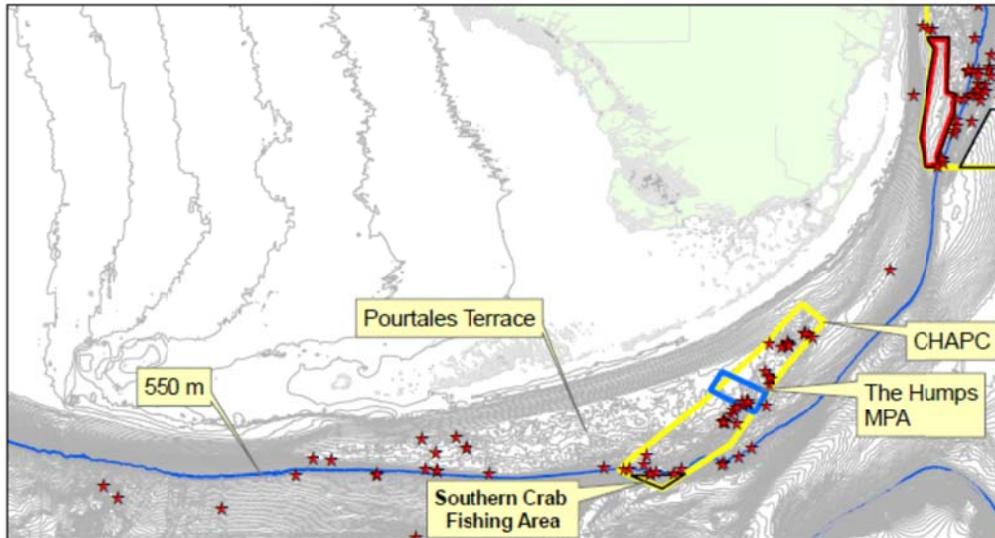


Figure 1. Region of the CIOERT Florida Shelf-Edge Exploration II (FLoSEE) Cruise on Pourtales Terrace, Florida Keys, September 23-30, 2011. Red stars= potential DSCE sites; yellow box= Deepwater Coral Habitat Area of Particular Concern; blue box= 'East Hump' Shelf-edge Marine Protected Area.

## METHODS

Quantitative and qualitative ROV video and photographic surveys were made at each site to quantify and characterize the benthic habitats, fish populations and coral cover. Coral samples were collected for coral health surveys; sponges, gorgonians, black corals, and algae were targeted for species documentation. Plankton samples were collected during nightly MOCNESS trawls to document plankton over the mesophotic and deepwater reef habitats. Shipboard CTD casts were conducted at each MOCNESS site. Shipboard multibeam sonar surveys were conducted to assist with dive planning, ROV dive tracking and habitat characterization.

## STUDY AREAS

During Leg 2 of the expedition, the focus was on deepwater protected areas off the Florida Keys, including the 'East Hump' shelf-edge MPA and the Deepwater Coral Habitat Areas of Particular Concern (CHAPC) on Pourtales Terrace. The East Hump is part of a network of eight marine protected areas from North Carolina to Florida, established by the South Atlantic Fishery Management Council to sustain and restore reef fish populations and their habitat. A large portion of Pourtales Terrace is within the CHAPC which consist of five regions extending from North Carolina to south Florida to protect deep-sea coral ecosystems from destructive fishing practices, such as bottom trawling.

Portalès Terrace is a deepwater Miocene-age terrace that parallels the Florida Keys. It consists of high relief ledges and mounds and also massive sinkholes at depths of 200-600 m (Reed et al. 2005). This region is within the axis of the Florida Current and surface currents are often 2-4 knots; bottom currents documented during *Johnson-Sea-Link* submersible dives have exceeded 1-2 knots, especially near the peaks and up-current side of the mounds. The lee-side of the mounds may have very slight current of 0-0.5 knots. As a result of these currents, this region is very challenging for ROV dives.

## PERMITS

All dives and collections were conducted outside Florida state waters but within Federal waters. Sampling was conducted under the Southeast NMFS Regional Permit (Letter of Authorization F/SER25:KM, received August 3, 2011).

## PARTICIPATING INSTITUTIONS

- CIOERT/Academic Partners: HBOI-FAU, University of North Carolina Wilmington, University of Miami, SRI International, and Florida State University, University of Connecticut
- NOAA Partners: NOAA Fisheries, NCDDC, DSCRTP, NOAA Mesophotic Ecosystem Program, OER, NCOS, AOML, NOAA Sanctuaries, CSCOR

## COLLABORATORS

- Andrew David, NOAA National Marine Fisheries Service (NMFS)
- Scott Donahue, NOAA Florida Keys National Marine Sanctuary (FKNMS)
- Dan Dorfman, NOS/NCCOS Biogeography Branch
- Kimberly Puglise- NOAA/CSCOR Coral Reef Ecosystem Studies Program
- Greg Piniak- NOAA Center for Coastal Fisheries and Habitat Research
- Roger Pugliese- South Atlantic Fishery Management Council

## SCIENCE AND ROV PERSONNEL (Leg 2)

Name	Affiliation	Role
John Reed	HBOI-FAU	Chief Scientist, Principal Investigator
Charles Messing	Nova SE Univ.	Deep water benthic ecologist
Esther Guzman	HBOI-FAU	Biomedical research
Stephanie Farrington	HBOI-FAU	Data Manager, Research Assistant
Andrew David	NMFS-Panama City	Fish ecologist
Jim Lovin	Univ. of Miami	MOCNESS technician
Lisa Cohen	HBOI-FAU	Research Assistant
Noelle Notarnicola	FAU	Student
Courtney Kehler	FAU	Student
Richard Mulroy	FAU	Student
Georgios Kallifatidis	FAU	Post Doc

Dennis Arbige	Univ. Conn.	ROV team
Michael McKee	Univ. Conn.	ROV team
Chris Cooper	Univ. Conn.	ROV team
Rudy Schlepp	DOER	ROV team

### ADMINISTRATIVE

Name	Affiliation	Role
John Reed	HBOI-FAU	Chief Scientist
Captain David Score	NOAA Commanding Officer, Marine Operations Center – Atlantic	CO, MOC
LT Joshua Slater	NOAA Ship <i>Nancy Foster</i>	Ship Operations Officer
Kevin Joy	Univ. Connecticut	ROV Operations
Shirley Pomponi	HBOI-FAU	CIOERT, Director
Ivar Babb	Univ. Connecticut	ROV Operations

### ITINERARY

- Sept. 9-11: Staging at USCG pier, Key West, FL; ROV, MOCNESS, and Science mobilization
- Sept. 12: Depart for Leg 1 operations
- Sept. 12-19: Conduct operations on Pulley Ridge
- Sept 20-22: Staging at USCG pier; crew rest days; switch out science and ROV crews for Leg 2
- Sept. 23: Depart for Leg 2 operations
- Sept. 23-30: Conduct operations on deepwater reefs sites on Pourtalès Terrace
- Sept. 30: Staging at USCG pier
- Sept. 31: Demobilization of ROV, MOCNESS, and science gear

### SHIP AND ROV OPERATIONS

Vessel operations are on a 24 hour workday. Routine daily operations included ROV dives during the day (0700-1900); at night (2000-0600) were MOCNESS plankton tows, shipboard multibeam acoustic surveys, and CTD-rosette operations.

Prior to each dive, the ship crew provided live ADCP current data from the surface to the bottom of the water column to the ROV team. Also the ship crew provided set and drift data for current and wind effects approximately 1 hour prior to ROV launch. The ROV team and ship crew then determined the necessary launch site in order for the ROV to land near the on-bottom target site. In some situations, depending on depth, current and wind, the launch site was 0.5-1.0 nmi from the target site. It is critical that the ROV crew and the personnel on the ship's bridge have verbal contact throughout the dive and especially during launch and recovery. It was very helpful for tracking the ROV and concurrent ship positioning that the bridge was provided with a video feed showing the multibeam sonar map with the ROV position. This allowed the ROV team to show the bridge where they intended to move throughout the dive.

## KRAKEN 2 ROV

University of Connecticut's *Kraken 2* ROV, a 1000-meter light-work class ROV, was used for benthic surveys and sampling (Figure 2). This system operates with an electro-optic tether and can support two simultaneous high definition camera and up to four standard definition cameras. The K2 also has a 6 function robotic arm, an extensible, insulated biobox and suction sample system with eight buckets for sample collection. The ROV was deployed from the aft deck with the main deck crane, and the ROV depressor was deployed with the aft deck A-frame. Major items that support ROV operations include:

- ROV Control Van: 8'W x 20'L x 8-1/2'H ~ 12,000 lbs max
- Isolation Transformer (460Vac to 208Vac): approximately 36"W x 24"D x 36"H ~ 550 lbs in weight
- Oceanographic Winch: 8'W x 6-1/2'D x 6-1/2'H ~ 5,500 lbs
- Hydraulic Pressure Unit (HPU): 56-1/2"W x 41"D x 75"H ~ 1,750 lbs
- Sheave for Umbilical: 36" diameter x 15"W
- ROV Depressor Frame: 22"W x 45"L x 50-1/2"H ~ 1,050 lbs
- Kraken2 (K2) ROV w/tool skid: 48"W x 96"L x 72"H ~ 2,300 lbs
- K2 Tether Box (optional backup to 1000'): 54"W x 43"L x 33"H ~ approximately 500 lbs
- Storage Totes (quantity 4): 43"L x 28"W x 20"H ~ stackable on deck



Figure 2. *Kraken 2* ROV, 1000-m working depth, equipped with HD camera, still camera, manipulator arm. Sampling array is mounted on sled beneath vehicle.

### ROV Research Tasks

1. Conduct video and photo transects over selected areas of different habitat types.
2. Make collections of benthic invertebrates (primarily scleractinian coral, black coral, gorgonians, sponges, and algae) from various habitats including high relief rock ledges and walls using various sampling gear.
3. Collect live corals from selected sites and maintain in cold-water biobox on ROV.
4. Collect invertebrates (sponges, gorgonians, algae) for biomedical research and maintain in cold water biobox on ROV.

5. Collect various invertebrates for general taxonomy and analyses and place in quivers, suction buckets, or external boxes (*in situ* temp not required).
6. Collect sediment core samples for oil analyses (if observed).
7. Document habitat and samples with video and digital still images.
8. Collect near-bottom water samples using a Niskin bottle mounted on the ROV.

### **ROV Dive Schedule**

The following was the tentative daily schedule:

- 0700: Prep ROV
- 0800: Launch ROV. Each dive typically lasted 4-5 hours, with 1-2 hour surface interval between dive sites. Digital still images were downloaded following each dive if required or at the end of the day.
- 1800-1900: ROV on deck after final dive of day.
- 1900- 2000: Complete download of ROV video and data, and maintenance.

### **ROV Navigation and Event Data**

Following each dive day the ROV team provided the Chief Scientist with ROV tracking data from the WinFrog Integrated Navigation System for subsequent import into ArcGIS 10.0 for plotting dives on bathymetric maps. The science team used a programmable X-Key<sup>®</sup> keyboard tied into WinFrog system to log dive annotations throughout each dive. This was used to log events, habitat and species documentation along with real-time depth, coordinates and CTD data.

### **ROV Video/Photo Transects**

During each dive the primary objectives were to document benthic habitat and fauna (fish, corals, sponges, algae), collect samples, and conduct photo transects which will be used for quantitative point counts of percent cover of coral and habitat type. During the dive and especially during timed photo transects, the ROV was <1 m off bottom with a speed over ground of ~1/4 knot. Other times the SOG could be 0.5-1.0 knot depending on objectives.

The high-definition (HD) video was the main camera for documenting the general benthic habitat. The Kongsberg Maritime HD camera (Kongsberg OE14-502A, 800 TY lines resolution, 50.5 dg wide field of view) was mounted on the K2 ROV's pan/tilt unit with parallel lasers spaced at 20 cm. The video footage was recorded continuously throughout the dive from surface to surface. The camera was typically angled down ~30° and to view both near and far to the horizon for fish aggregations. A headset microphone was used for continuous audio annotations by the lead scientist describing events, habitat, and fauna which were recorded onto the video recordings. A standard definition camera (Insite Pacific, Aurora; 570 horizontal TV lines, 73 dg angle width view) was mounted to the underside of the Kongsberg HD camera providing a wide angle, fixed focal length field of view overlapping that of the HD video camera with 20 cm parallel lasers in full view. Along with being used for quantitative video data collection, this camera was used as the primary "pilot" view and also for recording fish observations.

Digital still images were used primarily for the quantitative timed transects, providing images that will be used with CPCE<sup>®</sup> (Kohler and Gill, 2006) to document percent cover of hard bottom, coral, and other benthic species. The camera (Scorpio Plus from Insite Pacific with Nikon CoolPix 995 camera, 3.2 MP) was angled down close to 90° and had parallel lasers (10 cm). The

camera settings were set at: shutter speed priority-  $1/125$  second; aperture variable; focal length (manual or automatic- as needed); each image was ~1-2 MB. During quantitative transects, images were taken as quickly as possible to provide non-overlapping images (3-4/minute depending on strobe recycling rate). Non-transect images taken of specific animals or habitat were noted in the database log. Several hundred images were taken per dive. Each photo filename was coded with corresponding UTC time code (using Stamp 2.8) of the image collection which was imported into Access and linked to the ROV navigation data for site specific data of coordinates and depth and then imported into ArcGIS 10.0.

### **ROV Video and Photo Media**

The high-definition video was recorded directly to a 3 terabyte (TB) hard disk array utilized as part of the UCONN ROV group's HD video recording system. The video recorded to this array was compressed and stored at 220 Mbps using the Apple ProRes 422 QuickTime™ video compression codec. Approximately 30 hr of video can be accommodated for temporary storage by this hard disk array. These recordings will have no burned in data overlay (time, date, depth, coordinates), but have the corresponding UTC time code recorded to the time code track of the QuickTime™ file. These video files can be played back and viewed on a Mac or PC with a standard QuickTime™ Player. QuickTime Players of version 7.1.6 or greater are also capable of displaying the UTC time code associated with the video. It should be noted that all drives connected to this video recording system will need to be formatted with the Mac OS Extended Volume Hard Drive Format (HFS+) to ensure proper storage of video files to hard disk. At the conclusion of each dive day, the corresponding HD video files were copied to secondary 2 TB hard drives provided by the science party for science use and archiving. At 220 Mbps, ten hours of video required approximately 1 TB of drive space.

The video from the standard definition camera was routed in series to a pair of Sony DSR-20 DV-Cam decks and then onto a Pioneer DVD recorder. Additionally, a Horita GPT RM-50 II video titler was placed just prior to the recording decks and configured to provide a data overlay of UTC data/time, ROV latitude, longitude & depth burned into the video being recorded. The Science Team provided two Sony DSR 11 DV-Cam recorders (HBOI-FAU) as spares and two Voyager Q docking stations to copy the HD video to 2 TB hard drives.

### **ROV Collections and Samples**

Periodically during the dive and as directed by the lead scientist, sessile invertebrates (coral, gorgonians, sponges, algae, and other invertebrates) were collected using the ROV manipulator arm (6 function with fingers). A coral cutting blade was attached to the manipulator claw for sampling soft corals. The ROV team provided the following collection gear with the *Kraken 2* ROV: 6-function HYDRO-LEK hydraulic manipulator; 8-bucket rotary carousel with 7- liter sample buckets and suction hose; and a hydraulically extensible sample tray containing either 1) one 1" thick-walled polypropylene Biobox having external dimension of 36"L x 12"W x 10"H; or 2) 18 4"-diameter sampling quivers (PVC tubes) on a rotating tray. Additional T-handle punch cores may be mounted in place of one of the quivers. Because of the limitation of keeping specimens separated in the Biobox (especially important for coral genetic samples), the quivers and suction samples were used exclusively.

General collections of marine invertebrates, algae, and microorganisms will be used for baseline assessment of taxonomy and biodiversity. When available hard corals were collected for molecular coral health assessment and to determine genetic connectivity between regions (Drs. Joshua Voss, and Sara Edge; with funding from NOAA CIOERT and FIO). Shallow and mesophotic species were targeted on Pulley Ridge, including: *Agaricia*, *Leptoseris*, *Scolymia*, *Montastraea*, and *Madracis*. On Pourtalès Terrace deepwater species were targeted: *Sylaster*, *Lophelia*, and *Enallopsammia*. Up to five scleractinian specimens (5 cm<sup>2</sup> each) were collected at each site when possible.

Some samples were subdivided onboard for microbial community profiling (flash frozen), gene expression profiling (TRIzol<sup>®</sup> preservative and frozen), population genetics (95-100% ethanol and frozen). Voucher specimens were made of each sample for museum archives (Harbor Branch Oceanographic Museum and/or USNM). The subsamples for gene expression, microbial profiling, and population genetics will be exhausted following the experiments. If oil had been apparent on coral or sediment, subsamples would have been preserved (frozen) for HPLC analysis; however, no oil was observed.

Some non-scleractinian samples were frozen and preserved for chemical fractionation, microbial isolations, genetic analysis of microbial communities and biosynthetic gene clusters. After the expedition, some materials will be evaluated in a broad range of biological assays related to human disease both in the PIs' laboratories and through collaborative agreements with researchers having complementary assays. The active components will be purified and the structures defined through spectroscopic methods.

## **MULTIBEAM SONAR SURVEYS AND MAPS**

Acoustic mapping with the *Nancy Foster's* multibeam echosounders used the Simrad EM1002 System (95 kHz, 20m-1000m; 0.5 Gb/hr for survey and processing) and Reson 7125 System (400 kHz and 200 kHz, 500 m max; 4 Gb/hr). Target sites were selected by the Chief Scientist on Pulley Ridge (50-150 m) and Pourtalès Terrace (200-800 m). At shallow depths of Pulley Ridge the Reson provided 1 m resolution, but deeper depths required the EM1002 at 5-10 m resolution. Sonar water column data was not collected. Approximately 6 hours of sonar survey (24:00-06:00) was conducted each night when not in transit.

Targets included areas for which the science team does not having existing maps, and were used to guide subsequent ROV dive operations. Whenever possible, shipboard sonar surveys were made the night prior to the ROV dive and the NOAA sonar team provided the Chief Scientist and ROV team GeoTIFF maps for each dive site as soon as possible after each sonar survey. Each survey was on the order of 3x 5 nmi depending on depth and time constraints. These maps were loaded into the ROV team's WinFrog integrated navigation system to be used during the dive to track the ROV's position relative to bottom features. Prior to each dive the Chief Scientist met with the ROV team to review the GeoTIFF map and to overlay waypoints for the ROV to navigate to during the dive.

In addition the Chief Scientist has the following GeoTIFF maps which were used for some of the dive sites and will be made available to the ROV team prior to the cruise:

- 1) Pulley Ridge HAPC multibeam sonar map- Conducted and provided by D. Naar, USF.
- 2) Pourtalès Terrace multibeam maps- Shipboard sonar during NOAA Ron Brown cruise, November 2010 (map source- T. Baptista, NOAA). Currently only two small areas (~2 nmi<sup>2</sup>) have been surveyed and are available. These are of very low resolution and poor quality.
- 3) Regional NOAA bathymetric charts- Several NOAA charts for the region along the Florida coastline are available through NOAA as TIFF and/or SID images. These have bathymetric contour lines but are not digitized; that is, the contour lines are not digitized. These have been georeferenced by the Chief Scientist and imported into ArcGIS 9.3 as GeoTIFF files. Where multibeam data are not available (i.e., most of the Pourtalès Terrace), these maps were used for the ROV dive navigation and dive site planning.

## **MOCNESS PLANKTON TRAWLS**

The Multiple Opening and Closing Net Sampling System (MOCNESS) was equipped with conductivity, temperature, fluorometer, transmissometer, dissolved oxygen and depth sensors, and EM conducting cable. The ship provided the winch and EM conducting cable, and the University of Miami provided the MOCNESS gear. Eight nets can be triggered from surface to open/close and sample at discrete depths to maximum depth of 500 m. The MOCNESS plankton tows were conducted nightly for ~4 hours (~20:00- 24:00) whenever practical and when not transiting. Two science team members assisted the UM technician and the ship's deck crew for deployment and recovery.

## **CTD**

The ship provided a SBE 911 CTD-rosette system which collected conductivity, temperature, depth, and fluorometry, and turbidity. These data were used both to support sonar surveys (sound velocity) and to characterize hydrographic conditions at the dive sites. CTD casts with the ship's CTD-rosette were deployed nightly at each MOCNESS and multibeam site.

## **BLUEFIN GLIDER OPERATIONS**

One Bluefin Robotics Spray Glider was deployed during Leg 1 on Pulley Ridge to collect oceanographic mid-water data and was recovered after the cruise near Pulley Ridge after 56 days and 3,211 dives. It was programmed to conduct transects in the Pulley Ridge vicinity for nearly two months and then to surface for recovery at a specific time. The glider is 2 m long, 0.2 m diameter with two 0.5 m wings, weighs 120 lbs, and has sensor configuration of: CTD, DO, Chl-a, and Scattering. A second glider (with sensor configuration: CTD, Refined Oil, Crude Oil) was to be deployed at Pulley Ridge and then to follow the Florida Current, across Pourtalès Terrace, and up the east coast of Florida for recovery. Unfortunately the second glider had electronic problems and was not deployed. A FAU student deployed the glider and received position updates and sensor datasets from the glider by email throughout the cruise; position updates were also via satellite phone from HBOI-FAU to prepare for recovery. Once launched, the glider was piloted remotely (i.e., from the operation's center at HBOI-FAU in consultation with CIOERT scientists).

## CRUISE RESULTS

### HBOI-FAU AT-SEA DATABASE

As part of our CIOERT Mesophotic Program, the HBOI-FAU deepwater benthic team developed a new and efficient Database Solution for Benthic Surveys that was used for the first time for this cruise and will be used in all future CIOERT mesophotic and deepwater surveys. First, all time-stamped ROV equipment (ROV video and still cameras, WinFrog, CTD, etc.) were synchronized before departure. Over the past two years a Microsoft Access 2007 database was developed to compile and manage all data collected during CIOERT cruises, including: ROV navigation data, CTD data, samples data, site data, video and photograph data, ROV dive notes, multibeam sonar data, and metadata. Any data collected that contains continuous real time date and time information was linked to ROV tracking data based on this information. The Access database is then linked to ArcGIS 10 to visualize all the georeferenced spatial data. This system will then later be used to aid in the characterization of the habitats.

- In this database, all data sets are linked to the ROV track data every 1-2 seconds
- These data are archived at HBOI-FAU's DBMR Museum (Hard Drives and DVDs) and backed up on HBOI's computer server
- These data are then compiled in ArcGIS (version 10.0) which shows detailed maps of all the collection sites, and hot links to each sample, photograph, and other data

A second part of this Solution for Benthic Surveys, was development of a Graphical User Interface called AnthSOA by SRI in collaboration with HBOI-FAU CIOERT. This program which has been developed over the past year will be used for this cruise and future CIOERT cruises for the following:

- Import and filter raw dive track data
- Import and standardize CTD data
- Import dive images
- Links data sets for import into AnthoSOA, HBOI-FAU at-Sea Database, and ArcGIS

Many ROVs used for science rely on Ultrashort Baseline Navigation (USBL) for tracking the ROV's position throughout the dive every 1-2 seconds. Depending on the equipment (transponders, software), depth, and other factors such as rugged topography, these data are inherently 'noisy' and often produce false echoes that may be 10s of meters from the actual ROV position. Typical error is 10-20 m but may exceed 50-100 m. The AnthoSOA software allows the user to add various layers of filter to the dive track data; altering several parameters including ROV speed, nearest neighboring points and other factors. This then allows all the other data that will be linked to the ROV navigation data to have the most accurate location possible. In combination with the HBOI-FAU at-Sea Database, these will provide CIOERT cruises the best Database Solution for Benthic Surveys, including:

- Increase data entry:
  - Speed
  - Accuracy
  - Consistency

- User Friendly
- Increase data reporting speed
  - With standardized automated reports
- ArcGIS Mapping
  - Quick and easy shape files
  - Automatically updated into ArcGIS

## EDUCATION AND OUTREACH

Education and outreach activities associated with the FLoSEE II expedition included:

- Web site to include daily logs from sea, press kit, and links to educational resources related to DSCE
- University student participation during the expedition, sponsored by CIOERT project 6.3.1, “*Ocean Discovery*”: *At-Sea Research Opportunities for the Next Generation of Ocean Scientists*.

The goal of the expedition education and outreach activities was to promote ocean literacy, knowledge of ocean ecosystems, and challenges of exploring and managing deep ocean frontiers, for public and classroom audiences, with a focus on CIOERT’s research themes. Related activities included:

**Expedition Web Site-** Dennis Hanisak, HBOI-FAU (at-sea lead), [dhanisak@hboi.fau.edu](mailto:dhanisak@hboi.fau.edu); Andy Shepard, UNCW (Webmaster), [sheparda@uncw.edu](mailto:sheparda@uncw.edu):

The FLoSEE II expedition web site ([www.cioert.org/FLoSEE2](http://www.cioert.org/FLoSEE2)) resembled the FLoSEE 2010 expedition web site ([www.cioert.org/FLoSEE](http://www.cioert.org/FLoSEE)) and includes information on the expedition (including the expedition plan, track, and overall schedule, and daily blogs), science resources (on CIOERT themes: mesophotic and deep water coral reefs, water column, and biomedical resources), and technology resources (e.g., undersea vehicles, featuring the *Kraken* ROV, seafloor mapping, and plankton sampling).

**News Media-** Linda Joy, NOAA/OAR CIs, [linda.joy@noaa.gov](mailto:linda.joy@noaa.gov); Kim Amendola, NOAA SEFSC, [kim.amendola@noaa.gov](mailto:kim.amendola@noaa.gov); Jan Petri, HBOI, [petri@hboi.fau.edu](mailto:petri@hboi.fau.edu); Keeley Belva, NOAA/OER, [keeley.belva@noaa.gov](mailto:keeley.belva@noaa.gov)); also coordination with David Hall, OMAO Public Affairs Officer:

A press release on post-cruise discoveries was drafted by the Chief Scientist, reviewed by key participants, and distributed by the CIOERT partners and NOAA’s OER Communication network.

**Skype™ to High School Students** – With NOAA’s approval to permit Skype™ on the cruise, a 30-minute Skype™ session was held during the cruise that linked the cruise participants inside the ROV van during an actual dive with students and teachers of the Marine & Oceanographic Academy (MOA), which is located on the HBOI-FAU campus.

**At-Sea Opportunity for University Students** - This expedition includes the second of a series of CIOERT “Ocean Discovery” cruises that will increase “hands-on”, at-sea, multi-disciplinary opportunities for university students in the CIOERT region, with each cruise focused on one or more of CIOERT’s themes. The goal of this program is to facilitate students to become successful scientists through active participation and immersion in a multi-disciplinary ocean sciences research and monitoring cruise, followed by a rigorous, laboratory-based oceanographic research course. A total of eight FAU graduate students (four each leg) participated in this cruise and participated in a course *Immersion in Ocean Sciences* taught this fall at HBOI-FAU (Lead Instructor: Dennis Hanisak).

### **Student Reports**

The student reports that resulted from this cruise are the following which will be presented in the Final Cruise Report:

- Morphological Characterization and Identification of Sponges Collected During FLoSEE II, J. Grima
- Zooplankton Diversity and Abundance Within and Outside the Pourtalès Gyre, C. Kehler
- Vertical Distribution and Development of Flatfish Larvae, B. Lieuwen
- Characterization of the Water Column During FLoSEE II, R. Mulroy
- Biodiversity and Abundance of Zooplankton in Two Regions of the Gulf of Mexico, N. Notarnicola
- Bluefin Spray Glider, Survey of Pulley Ridge, D. Krupski

## CRUISE SUMMARY

Leg 2 (September 23-30) of the FLoSEE II cruise on the *Nancy Foster* was very productive for an eight day cruise which included port and transit time. Table 3 summarizes these results including ROV dives, MOCNESS trawls, ROV samples collected, ROV photographs and videotapes, and multibeam sonar surveys.

Table 3. Summary of 2011 CIOERT FLoSEE II cruise on the NOAA Ship *Nancy Foster*.

Leg:	2				
Number of sites:	24				
ROV Sites:	14	Bottom Time:	52.3		
# of MOCNESS Sites:	5				
Sonar Type:	Multibeam	Number of Sonar:	10	Total km2 covered:	
				397.1	
<b>Number of Specimens:</b>	<b>150</b>	<b># of Total Images:</b>	<b>3095</b>	<b>Total Subsamples:</b>	<b>228</b>
<b>Annelida:</b>	<b>1</b>	<b># of InSitu Sample Images:</b>	<b>118</b>	<b>MIC ISO:</b>	<b>0</b>
<b>Arthropoda:</b>	<b>3</b>	<b># of Deck Images:</b>	<b>229</b>	<b>MIC FREZ:</b>	<b>31</b>
<b>Bryozoa:</b>	<b>0</b>	<b># of All In Situ:</b>	<b>2866</b>	<b>TLC:</b>	<b>0</b>
<b>Chlorophyta:</b>	<b>0</b>	<b># of General:</b>	<b>358</b>	<b>HPLC:</b>	<b>0</b>
<b>Chordata:</b>	<b>1</b>	<b># of Transect Images:</b>	<b>2253</b>	<b>Extract:</b>	<b>26</b>
<b>Cnidaria:</b>	<b>49</b>	<b>DVD:</b>	<b>29</b>	<b>CELL CULT:</b>	<b>0</b>
<b>Scleractinia:</b>	<b>11</b>	<b>MiniDV:</b>	<b>0</b>	<b>DNA:</b>	<b>70</b>
<b>Octocorallia:</b>	<b>11</b>	<b>Other Media:</b>	<b>0</b>	<b>Portol:</b>	<b>0</b>
<b>Antipatharia:</b>	<b>7</b>	<b>HDCam:</b>	<b>29</b>	<b>RNA Later:</b>	<b>0</b>
<b>Echinodermata:</b>	<b>11</b>	<b>Hard Drive #'s:</b>	<b>4 - 7</b>	<b>Other:</b>	<b>101</b>
<b>Mollusca:</b>	<b>6</b>	<b>Hours of Video:</b>	<b>58</b>		
<b>Phaeophyta:</b>	<b>0</b>				
<b>Porifera:</b>	<b>29</b>				
<b>Rhodophyta:</b>	<b>0</b>				
<b>Sediment:</b>	<b>7</b>				
<b>Water/Plankton:</b>	<b>40</b>				

## ROV DIVE SITES

Leg 2 (September 23-30) of the FLoSEE II cruise resulted in 14 ROV dives on Pourtalès Terrace for a total bottom time of 52.3 hours (Table 4; Fig. 3). The depths ranged from 154 to 838 m and total distance traveled on bottom was 16.0 km.

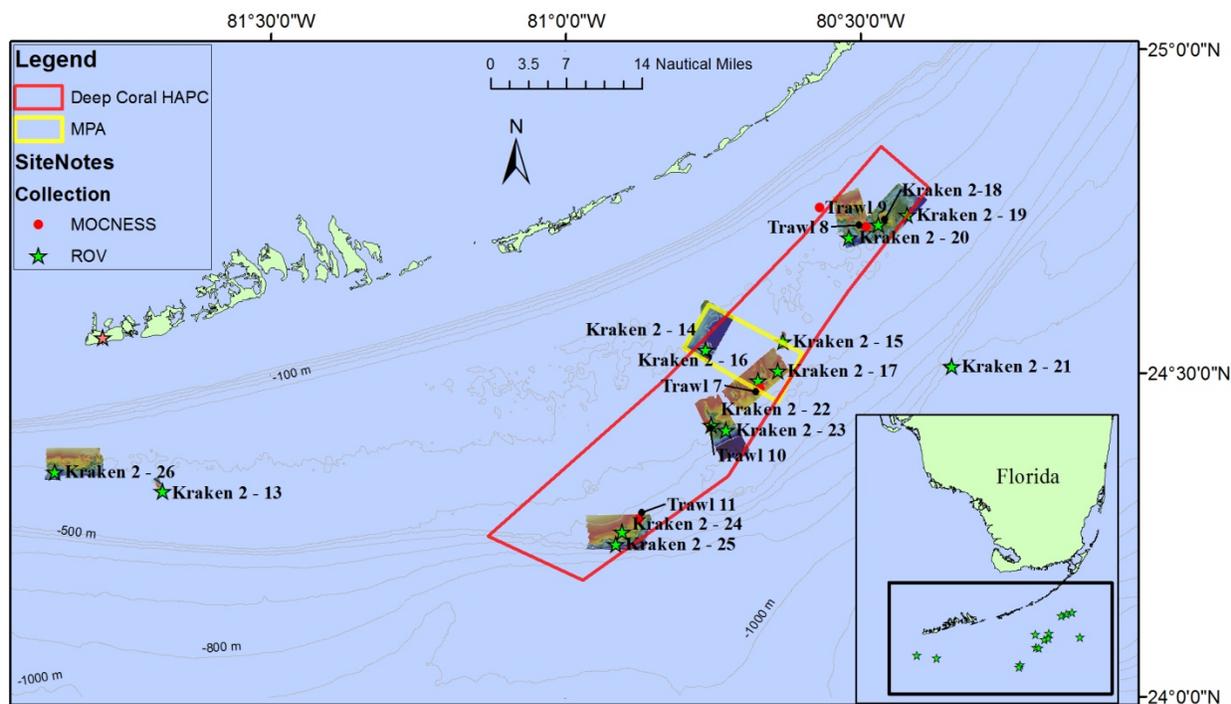


Figure 3. Map of Pourtalès Terrace showing all *Kraken* ROV dive sites (star), MOCNESS trawls (red dots), and 2011 *Nancy Foster* multibeam sonar surveys (color boxes) during Leg 2 of the CIOERT FLoSEE II Cruise on the NOAA Ship *Nancy Foster*, September 23-30, 2011. Yellow polygon= ‘East Hump’ MPA Site; red polygon= Deepwater Coral Habitat Areas of Particular Concern.

Table 4. List of collection sites for Leg 2 of the CIOERT FLoSEE II Cruise on Pourtalès Terrace including ROV dives, CTD casts, and MOCNESS trawls.

SITE #	Method	Bottom Time (min)	Total Distance (km)	Latitude (On Bottom)	Longitude (On Bottom)	Latitude (Off Bottom)	Longitude (Off Bottom)	Depth Range (m)
23-IX-11-1	Kraken II-13	276	0.54	24°19.8057'N	81°41.0539'W	24°19.5988'N	81°41.0817'W	60-285
24-IX-11-1	Kraken II-14	247	1.21	24°32.3414'N	80°45.7354'W	24°32.6167'N	80°45.6535'W	56-212
24-IX-11-2	Kraken II-15	208	0.81	24°33.1038'N	80°37.8961'W	24°33.3295'N	80°37.8995'W	286-246
24-IX-11-3	MOC-NESS-7	56		24°28.7610'N	80°40.3220'W	24°27.8730'N	80°41.8130'W	17-119
24-IX-11-4	CTD			24°30.9800'N	80°46.1000'W			63
25-IX-11-1	Kraken II-16	237	1.55	24°29.5248'N	80°40.4337'W	24°30.0718'N	80°39.9631'W	286-242
25-IX-11-2	Kraken II-17	213	1.34	24°30.4161'N	80°38.4527'W	24°30.8627'N	80°38.1918'W	200-255
25-IX-11-3	MOC-NESS-8	57		24°43.7100'N	80°29.4640'W	24°42.5810'N	80°30.0120'W	24-100
25-IX-11-4	CTD			24°27.6700'N	80°41.8100'W			238

26-IX-11-1	Kraken II-18	245	1.26	24°43.9444'N	80°28.1576'W	24°44.3720'N	80°27.7402'W	177-207
26-IX-11-2	Kraken II-19	205	1.23	24°44.8350'N	80°25.2704'W	24°45.2032'N	80°25.1402'W	225-226
26-IX-11-3	MOC-NESS-9			24°45.4910'N	80°34.1730'W			25-99
27-IX-11-1	Kraken II-20	220	1.15	24°42.7611'N	80°31.1647'W	24°42.9882'N	80°31.2514'W	166-195
27-IX-11-2	Kraken II-21	83	0.8	24°30.4470'N	80°20.9926'W	24°30.3222'N	80°21.1003'W	834-837
27-IX-11-3	MOC-NESS-10			24°25.3590'N	80°45.3790'W	24°24.8500'N	80°46.3870'W	27-101
28-IX-11-1	Kraken II-22	251	1.14	24°25.3198'N	80°45.2225'W	24°25.6258'N	80°45.1883'W	154-298
28-IX-11-2	Kraken II-23	197	1.4	24°24.9404'N	80°43.6936'W	24°25.3221'N	80°43.2504'W	283-306
28-IX-11-3	MOC-NESS-11			24°16.6420'N	80°52.5440'W	24°15.4600'N	80°53.8840'W	47-299
28-IX-11-4	CTD			24°21.8900'N	80°44.4000'W			387
29-IX-11-1	Kraken II-24	239	1.33	24°15.4407'N	80°54.2753'W	24°15.7462'N	80°53.7192'W	487-489
29-IX-11-2	Kraken II-25	213	1.31	24°14.3178'N	80°54.8882'W	24°14.7589'N	80°54.6950'W	468-547
29-IX-11-3	CTD			24°14.5800'N	80°51.7300'W			617
30-IX-11-1	Kraken II-26	195	0.95	24°20.8432'N	81°51.6737'W	24°20.1985'N	81°51.7227'W	185-230
30-IX-11-2	CTD			24°20.4700'N	81°47.0800'W			208

### **SEADESC Report- Habitat and Biota Characterizations**

The SEADESC Level I Report (Southeastern United States Deep-Sea Corals) for each ROV dive is presented in Appendix 1. This provides the following data for each ROV dive: cruise metadata, dive track overlaid on multibeam map, dive track data (start and end latitude/longitude, depth, distance traveled), objectives, general description of habitat and biota, and images of biota and habitat characteristic of the dive site.

### **ROV Dive Annotations**

Throughout each dive the PIs continuously annotated the video logging events every 1-5 minutes. Each event was coded with a date/time stamp which allowed it to be linked to the exact coordinates and depth of the ROV navigation log. Commentary was provided describing geology, habitat, and biota. These entire logs for all dives are presented in Appendix 2. The full data set along with the ROV Navigation logs have been submitted to NOAA on CDs.

In general, the sites were quite variable in habitat and species which are summarized below (Fig. 4).

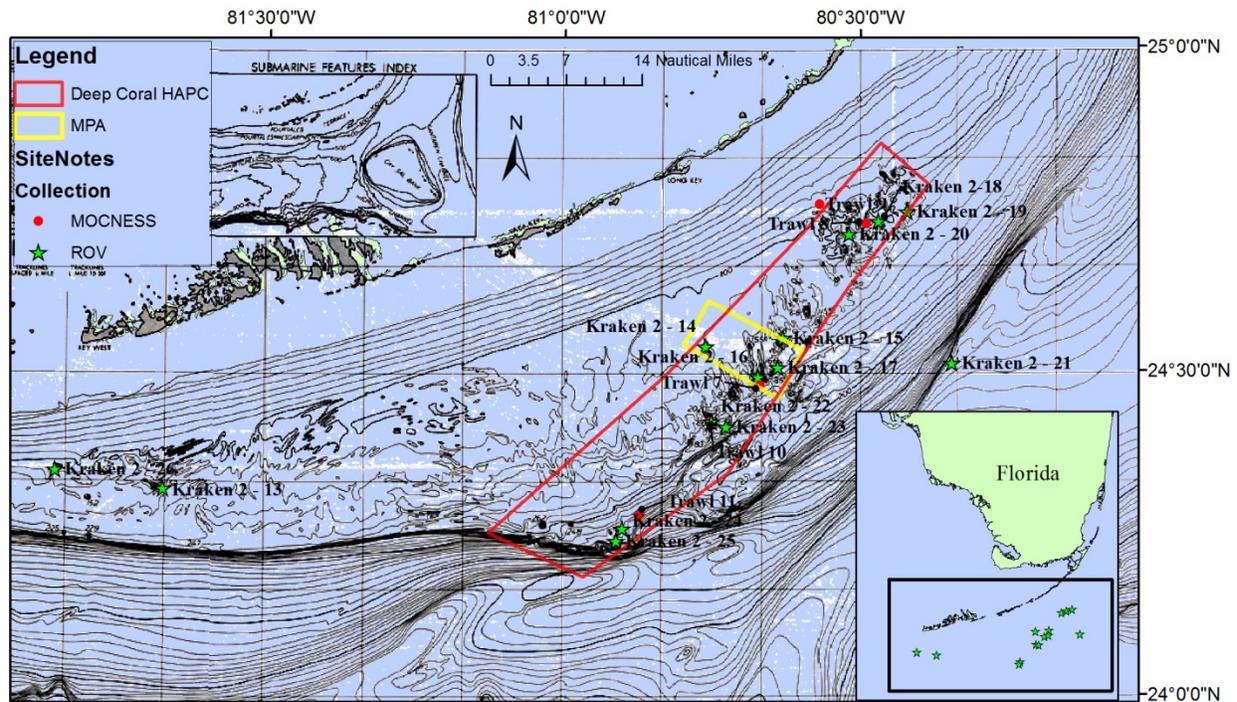


Figure 4. Map of Pourtalès Terrace showing *Kraken* ROV dive sites over NOAA bathymetric contour map which shows apparent high-relief topography inside and outside the protected ‘East Hump’ MPA site (yellow polygon) and the CHAPC site (red polygon) especially off the lower Keys and along the Pourtalès Escarpment.

#### Sites within the ‘East Hump’ MPA (also within CHAPC)

The majority of the newly designated ‘East Hump’ MPA is within the Pourtalès Terrace CHAPC. Four ROV dives were made within this site which are the first dives (ROV or submersible) ever made within this MPA.

*Kraken 2-14* (‘East Hump’ MPA, Northwest Peak)- *Nancy Foster* multibeam sonar shows a large 25-m tall, flat topped mound (180 m depth on top, 205 m at base), nearly 1 nmi N-S. The ROV transected up and along southeast slope, then north across top, covering about half of the top plateau. The lower slope is 30° rock and sediment, and the upper slope is near vertical with 2 m ledges. The top edge and ledges have very dense cover of stylaster coral and diverse demosponges. Snowy grouper, blueline tilefish, and roughy were present.



Figure 5. Snowy grouper under ledge at East Hump MPA; *Kraken* dive 2-14.

*Kraken 2-15* ('East Hump' MPA, Southeast Peak)- *Nancy Foster* multibeam sonar (one pass) shows a peak near border of the MPA; but mostly outside the MPA. The NW-SE oriented mound (peak 197 m) is 941 m long, 600 m wide, and with a trench scoured to 292 m at the northeast. The south slope is pavement with sediment, some boulders and ledges; the north face is 60-90° rock slope with numerous ledges. Cover is dense stylaster, diverse demosponges, hexactinellid sponges, and black coral. Large schools of boarfish were present along with snowy grouper and anthiids. Some fishing line was observed on the coral.



Figure 6. Fishing line on stylaster coral in East Hump MPA; *Kraken* dive 2-15.

*Kraken 2-16* ('East Hump' MPA, Tennessee Bioherm #1)- *Nancy Foster* multibeam survey covered 5x2 miles which included ROV dives 16 and 17. Tennessee Bioherm #1, which was first dived on and described in Reed et al. (2005), is an elongate mound (170 m on top) oriented N-S, 1450 m long; the south base is 256 m deep and a deep scoured trench at the NE base is 322 m. The south face of the mound is 10-30° rock pavement and ledges; the east slope is 45° with 1-2 m ledges; the top is a rounded rock covered with stylaster coral and rubble. The dominant fauna are dense and diverse demosponges, hexactinellids, stylaster, plexaurid gorgonians, large schools of boarfish, anthiids, snowy grouper, queen grouper, and amberjack.

*Kraken 2-17* ('East Hump' MPA, escarpment SE of Tennessee Bioherm)- *Nancy Foster* multibeam sonar shows 3-km long wall oriented N-S; 270 m in trench at base of wall, and 190 m at top. East face is 30-60° rock slope, with steep facies, ledge and boulders. Dense biota include demosponges, stylaster coral, primnoid gorgonacea, snowy grouper, roughy, barrellfish, and queen snapper.

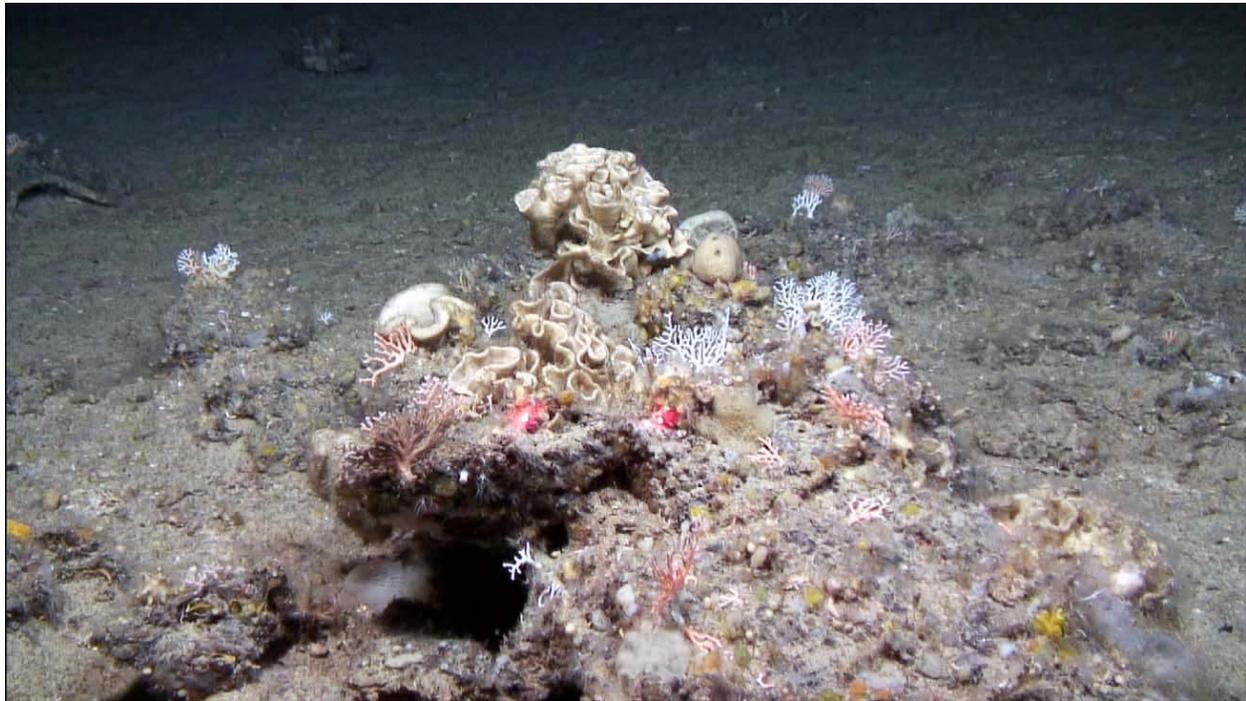


Figure 7. Sponge and coral habitat in East Hump MPA; *Kraken* dive 2-17.

#### **Sites inside the Pourtalès Terrace CHAPC (but outside the 'East Hump' MPA)**

These include a variety of high-relief mounds, escarpments, and a newly discovered deep-water *Lophelia* coral reef.

*Kraken 2-18* (Alligator Bioherm #4)- *Nancy Foster* multibeam of Bioherm #4 shows an elongate, flat topped mound (depth 170 m on top) oriented NE to SW, 3000 m long, with a sinkhole depression at south base at 195 m, and a scour at north base to 220 m. This mound was first dived on and reported in Reed et al. (2005). The sinkhole rim and upper slope is very rugged karst-like topography with rock ledges and vertical wall. The mound consists of rock pavement, coral rubble, rugged topography and ledges. Various parts of the mound have dense

cover of stylaster coral and rubble, dense and diverse demosponges, and hexactinellids. Fish included blueline tilefish, roughy, anthiids, and snowy grouper.



Figure 8. Blueline tilefish on Alligator bioherm; *Kraken* dive 2-18.

*Kraken 2-19* (EscarPMENT east of Alligator Bioherm)- *Nancy Foster* multibeam shows a long escarpment at the eastern-most end of humps region (outside of MPA). The base of the wall is a scoured depression, 246 m deep, and top of wall is 186 m. The slope is 45-60° rock with vertical escarpments and ledges. Biota consist of areas of 100% cover of stylaster coral, dense primnoid gorgonacea, 1.5 m black coral, and dense sponges. Fish include snowy grouper, roughy, blueline tilefish, and boarfish schools. Large amounts of fishing line was observed.

*Kraken 2-10* (Alligator Bioherm #3)- This site was first dived and described by Reed et al. (2005). *Nancy Foster* multibeam shows double flat top mounds; the larger north mound (165 m depth on top) is elongate 1150 m, oriented NW to SE with a deep scour on the east base to 225 m. The lower slopes are 10-45° rock, increasing to 45-90 degrees on the upper slopes with ledges and rugged karst-like topography. The top is mostly rock pavement with fields of dense stylaster coral, dense sponges, and gorgonacea. Fish included blueline tilefish, anthiids, roughy, snowy grouper, and barrelfish. Some fishing line was observed.

*Kraken 2-21* (Pourtalès Terrace Escarpment)- Only one dive was made on the escarpment of the outer edge of Portalès Terrace which was the deepest dive to 838 m and near the EEZ. Near the axis of the Florida Current, tracking and maneuvering the ROV was very difficult with the strong pull on the tether. NOAA bathymetric contour chart shows a steep slope from 700 m to 850 m but we were not able to get to the intended location. The ROV dive was on sandy bottom but had good video of royal red shrimp, tripod fish, *Laemonema* codling, sea robin, and red crab *Chaceon quinquegens*.

*Kraken 2-22* (Reed Peak #311)- This site was first discovered and dived on by HBOI in 2006. *Nancy Foster* multibeam shows an elongate mound (minimum depth 150 m) oriented NW-SE 920 m long, and maximum depth of 374 m at the SE base. The east face is very steep from 40-60° rock slope to 80-90° rock escarpments and ledges. The cover is very dense in areas with up to 100% stylaster coral and rubble. Other coral included *Madrepora*, *Madracis* and *Dendrophyllia*. Dense biota included stylaster coral, dense and diverse sponges, few roughy, queen snapper, anthiids, and amberjack. This site appears to be the most heavily impacted by fishing as few large fish were present and the mound was crisscrossed with lost fishing line and lures.

*Kraken 2-23* (Escarpment southeast of Reed Peak #311)- *Nancy Foster* multibeam shows a long wall E-W, 305 m at the base and 270 m at the top, with isolated mounds at the base. Black coral are common along with stylaster coral, sponges, various gorgonacea, and black coral to 2 m tall. The slope consists of rock pavement, and low relief ledges and outcrops. Fish included boarfish, few roughy, snipefish, and red dory.



Figure 9. Roughy with anemones, crinoids and gorgonians; *Kraken* dive 2-23.

*Kraken 2-24* (Marathon Sinkholes)- The Marathon Sinkhole was first discovered in the 1950s and surveyed by Jordan (1954), then later described by Land and Paul (2000) with the Navy NR 1 submarine. Reed et al. (2005) described the sinkhole from *Johnson-Sea-Link* submersible dives but only one sinkhole was known then. The 2011 *Nancy Foster* multibeam discovered three additional sinkholes in the vicinity of Marathon Sinkhole. Sinkhole 1 (actual Marathon Sinkhole)- is a double sinkhole, 900 m diameter E-W, 580 m N-S, maximum depth 527 m, top N rim 445 m; 900 m to south is Sinkhole 2- 400x320 m diameter, maximum depth 529 m; 380 m south of Sinkhole 2 is Sinkhole 3- 350x450 m, 525 m depth; Sinkhole 4 to the west is 550x650

m, 513 m depth. The ROV transect started at the north rim of Sinkhole 3, continued to the SE rim of Sinkhole 2; then to SE rim of Sinkhole 1 (Marathon). The upper rims of the sinkholes are very rugged, karst limestone with undercut ledges and vertical escarpments. Between the sinkholes is rock pavement with low relief ledges and small boulders. This site is very interesting and dominated by demosponges, dense gorgonians, and black coral. Various corals occur around the rims including *Lophelia pertusa*, *Enallopsammia profunda*, *Madrepora*, and *Dendrophyllia*. Fish included beardfish, sharks, and *Beryx*; also the commercially fished golden crab (*Chaceon fenneri*).

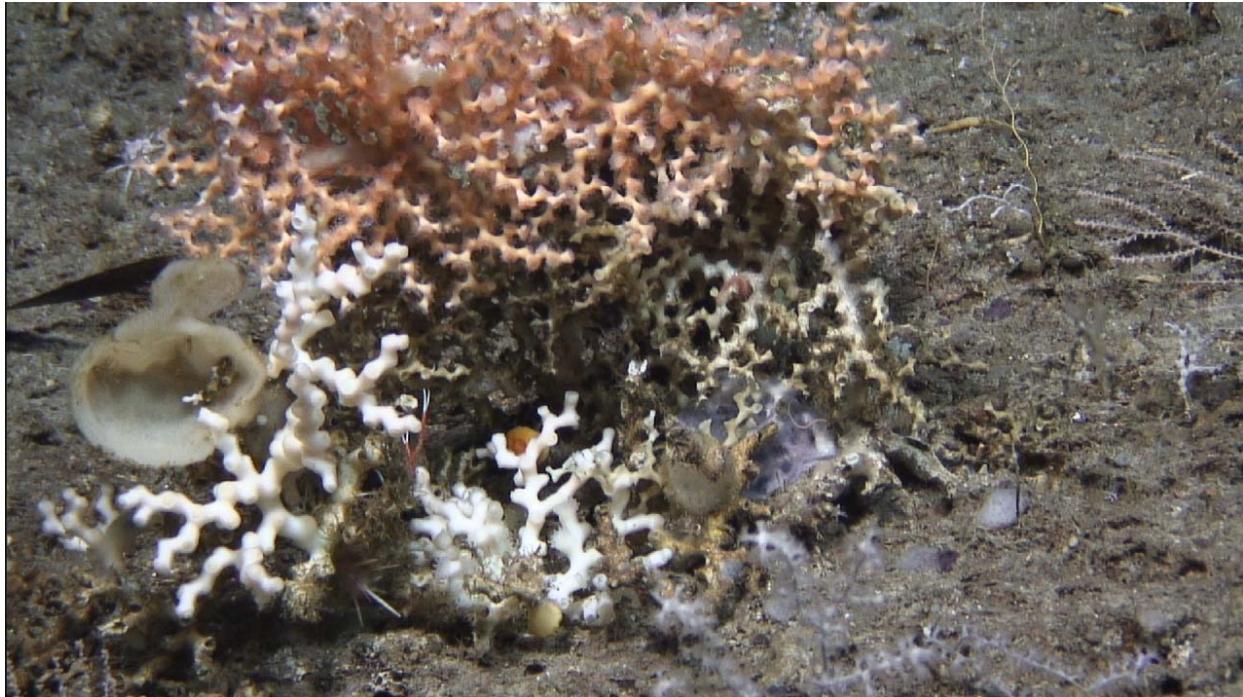


Figure 10. *Lophelia* and *Madrepora* coral at sinkhole site; *Kraken* dive 2-24.

*Kraken 2-25 (Lophelia coral mound south of Marathon Sinkhole)- Nancy Foster* multibeam shows an extensive N-S oriented ledge, 2450 m long, to the east of the sinkholes, 490 to 545 m depth. This ledge curves south of the sinkholes for 1360 m where it is oriented E-W, with a 460 to 575 m drop. At the base of this ledge are several mounds; one surveyed is a 48-m tall *Lophelia* coral bioherm, 548 m at S base, and 500 m at peak. This is the southern-most *Lophelia* reef yet discovered in U.S. waters. It appears from the multibeam that other coral mounds may be present and even common along this outer edge of the Pourtalès Terrace. The peak and upper slope of the coral mound is covered with thickets of live *L. pertusa* coral, in 5-8 m long hedge-like rows and up to 50 cm tall, and coral rubble. Hexactinellid sponges and black coral are common but few fish other than *Laemonema* were observed. The escarpment to the north is smooth rock pavement, with rock slabs, cobble, and rock outcrops. Sponges, gorgonians, and gorgonians are common.



Figure 11. Large *Lophelia* coral with black coral in front and codling; *Kraken* dive 2-25.

### Sites outside the CHAPC

Two dives were made on Pourtalès Terrace, south of Key West, but outside of the CHAPC boundaries. Extensive areas of high-relief topography are apparent in available NOAA bathymetric charts extending all along the Terrace to the west of the CHAPC boundaries (Fig. 4). These two dives may be characteristic of the other unprotected areas on the Terrace and certainly are essential fish habitat as well as coral and sponge ecosystem habitat.

*Kraken 2-13* (Jordan Site F; Reed Peak #382)- *Nancy Foster* multibeam sonar shows a 100-m tall peak (177 m depth), with slopes of 30-45°, and a scoured trench to the north at 277 m. The mound is rocky pavement, boulders, and coral and rock rubble with up to 80% cover of live stylaster coral, numerous demosponges, and black coral. Snowy grouper, blueline tilefish, and roughy were present.



Figure.12. Snowy grouper and black coral; *Kraken* dive 2-13.

*Kraken 2-26* (Key West Bioherm)- *Nancy Foster* multibeam shows an escarpment oriented N-S from 193 m to 235 m with a deeper basin and a mound to depth of 254 m to the east. A 25-m tall mound at the base of the escarpment consists of steep slopes with 1-2 m relief ledges and rock outcrops. Gorgonians, sponges, and black coral are common along with roughies and snowy grouper. The escarpment is a 45° rock slope with rugged karst-like topography. Very dense biota occurs along the top edge of the ledge with gorgonians, black coral, stylaster coral, but few sponges. Snowy grouper, tilefish, and roughies were observed.

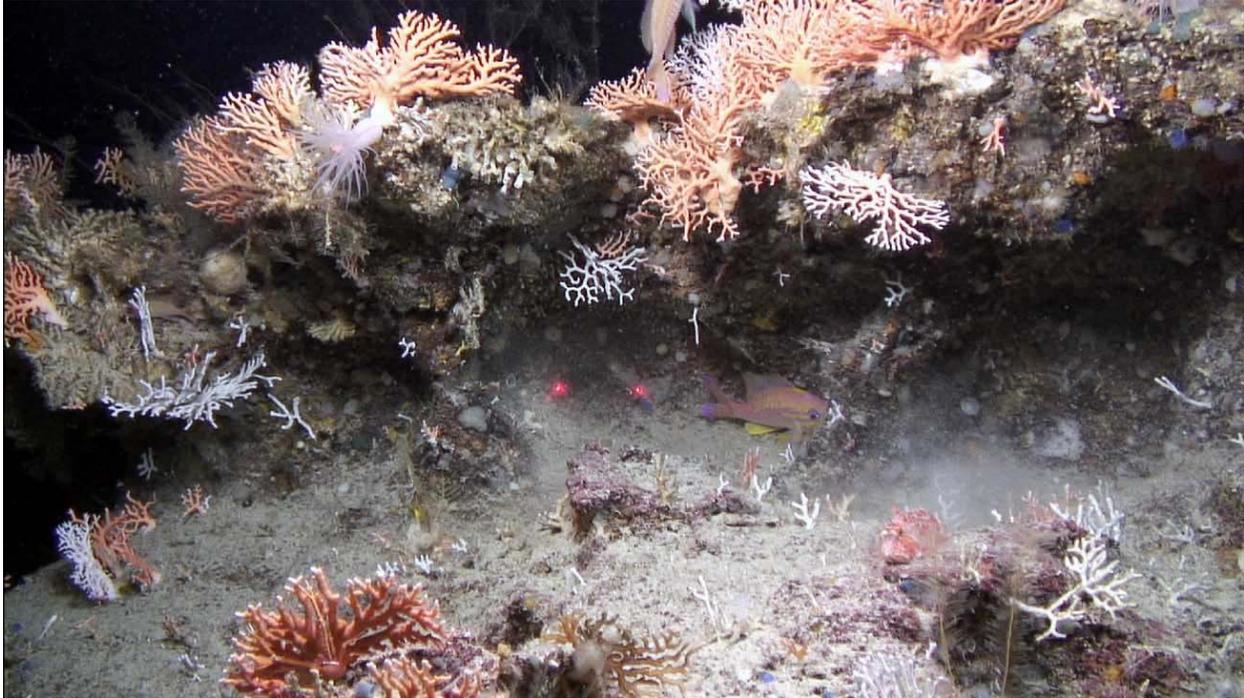


Figure 13. Dense stylaster coral habitat with anthiid; *Kraken* dive 2-26.

### **ROV *In situ* Photos and Video**

A total of 58 hours of ROV dive videotapes with audio annotations (Appendix 2) were made which were recorded on hard drives, with copies on DV Cam and DVD. A total of 2,866 *in situ* digital images were taken which included 118 images of collected species, 358 general habitat and species photos, and 2,253 quantitative transect photos. The transect photos were taken generally straight down, perpendicular to the bottom, with parallel lasers so that the area of each image can be calculated using CPCe<sup>®</sup> to determine species densities and percent cover of substrate and fauna. These data will be analyzed and presented in the Final SEADESC Type II Report. One copy of the video and photos is archived at HBOI-FAU, one set is with NOAA Fisheries (A. David), and one set is archived at NOAA Central Library (Table 1).

The following sets of video were saved:

Leg 1 (CIOERT): HD Videotapes- One set of 2-TB hard drives to HBOI-FAU (CIOERT), and 1 set to NOAA Fisheries (Andrew David, AD). Total = Eight 2-TB hard drives (HBOI-FAU- 4, AD- 4). Standard definition videotapes- 1 set of DV-Cam tapes to HBOI-FAU (CIOERT), 1 set

of DV-Cam tapes to Andrew David. Total = 7 dive days, 56 hours of tape; 56 DV-Cam tapes (HBOI- 28, AD- 28).

Leg 2 (NOAA DSCRIP): HD Videotapes- One set to HBOI-FAU (CIOERT), 1 set to Andrew David (NOAA Fisheries); AD will copy a third set for NOAA. Total = Nine 2-TB hard drives (HBOI- 3, AD- 6). Standard definition videotapes- 1 set of DV-Cam tapes to HBOI-FAU (CIOERT), 1 set of DV-Cam tapes to Andrew David; 1 set of DVDs for NOAA. Total = 6 dive days, 48 hours of tape; 48 DV-Cam tapes; 48 DVDs (HBOI-FAU- 24 tapes, AD- 24 tapes)

### Samples

In general, relatively few samples were collected with the *Kraken* ROV during Leg 2 of the cruise. This was due to the Florida Current over the Pourtales Terrace which at some sites restricted us from stopping or maneuvering the ROV adequately to make collections. This problem has occurred with all ROVs that we have attempted to use in the Straits of Florida. Even large, more powerful ROVs, such as WHOI's *Jason* ROV was unable to maneuver or in some cases even get to the bottom during dives on Pourtales Terrace in 2010. During Leg 1 of the FLoSEE II Cruise on Pulley Ridge where currents were much lower, collections were less challenging. A total of 150 specimens were collected during Leg 2 including 49 Cnidaria (11 Scleractinia, 11 Octocorallia, 7 Antipatharia), 29 Porifera, 11 Echinodermata, and 6 Mollusca (Table 5). Museum specimens are archived at HBOI-FAU; subsamples will go the National Museum of Natural History and specialists. Samples were also collected for CIOERT's coral health and biomedical research programs. A total of 228 subsamples of the specimens were used for microbial analysis, chemical extracts, and DNA extracts.

Table 5. Samples collected by *Kraken* II ROV and MOCNESS trawls (plankton) during Leg 2 of the CIOERT FLoSEE II Cruise on Pourtales Terrace, September 23-30, 2011.

Sample #	Phylum	Taxonomy	Dive #	Depth (m)
23-IX-11-1-001	Cnidaria	Paramuriceidae	Kraken 2 - 13	284
23-IX-11-1-002	Cnidaria	Stylasteridae	Kraken 2 - 13	284
23-IX-11-1-003	Cnidaria	Stylasteridae	Kraken 2 - 13	284
23-IX-11-1-004	Cnidaria	ANTIPATHARIA	Kraken 2 - 13	284
23-IX-11-1-005	Porifera	Petrosiidae	Kraken 2 - 13	281
23-IX-11-1-006	Porifera	Petrosiidae	Kraken 2 - 13	228
23-IX-11-1-007	Cnidaria	ANTIPATHARIA	Kraken 2 - 13	209
23-IX-11-1-008	Cnidaria	ISIDIDAE	Kraken 2 - 13	189
23-IX-11-1-009	Mollusca	Marginellidae	Kraken 2 - 13	189
23-IX-11-1-010	Cnidaria	Sagartiidae	Kraken 2 - 13	228
23-IX-11-1-011	Arthropoda	Pedunculata	Kraken 2 - 13	189
23-IX-11-1-012	Echinodermata	Asteroidea	Kraken 2 - 13	189
24-IX-11-1-001	Cnidaria	Stylasteridae	Kraken 2 - 14	210
24-IX-11-1-002	Cnidaria	Stylasteridae	Kraken 2 - 14	210
24-IX-11-1-003	Porifera	Leiodermatium sp.	Kraken 2 - 14	190
24-IX-11-1-004	Porifera	Zyzzya sp.	Kraken 2 - 14	190

24-IX-11-1-005	Cnidaria	Plexauridae	Kraken 2 - 14	185
24-IX-11-1-006	Chordata	Anthiinae	Kraken 2 - 14	190
24-IX-11-1-201	Sediment	Sediment	Kraken 2 - 14	210
24-IX-11-2-001	Porifera	Aphrocallistes beatrix	Kraken 2 - 15	246
24-IX-11-2-002	Porifera	Topsentia sp.	Kraken 2 - 15	239
24-IX-11-2-003	Mollusca	Gastropoda	Kraken 2 - 15	239
24-IX-11-2-004	Porifera	DEMOSPONGIAE	Kraken 2 - 15	214
24-IX-11-2-005	Porifera	Astrophorida	Kraken 2 - 15	211
24-IX-11-2-007	Mollusca	Perotrochus amabilis	Kraken 2 - 15	220
24-IX-11-2-008	Hemichordata	Pterobranchia	Kraken 2 - 15	220
24-IX-11-3-301	Water/Plankton	Water/Plankton	Trawl 7	113.4
24-IX-11-3-302	Water/Plankton	Water/Plankton	Trawl 7	99.9
24-IX-11-3-303	Water/Plankton	Water/Plankton	Trawl 7	79.4
24-IX-11-3-304	Water/Plankton	Water/Plankton	Trawl 7	64.3
24-IX-11-3-305	Water/Plankton	Water/Plankton	Trawl 7	53
24-IX-11-3-306	Water/Plankton	Water/Plankton	Trawl 7	41.4
24-IX-11-3-307	Water/Plankton	Water/Plankton	Trawl 7	28.4
24-IX-11-3-308	Water/Plankton	Water/Plankton	Trawl 7	17.2
25-IX-11-1-001	Cnidaria	Distichopora foliacea	Kraken 2 - 16	241
25-IX-11-1-002	Porifera	Topsentia sp.	Kraken 2 - 16	241
25-IX-11-1-003	Porifera	DEMOSPONGIAE	Kraken 2 - 16	242
25-IX-11-1-004	Cnidaria	Plexauridae	Kraken 2 - 16	242
25-IX-11-1-005	Cnidaria	Pliobothrus sp.	Kraken 2 - 16	241
25-IX-11-1-006	Porifera	Aphrocallistes beatrix	Kraken 2 - 16	241
25-IX-11-1-007	Porifera	Ircinia sp.	Kraken 2 - 16	234
25-IX-11-1-008	Porifera	Corallistes sp.	Kraken 2 - 16	236
25-IX-11-1-009	Porifera	DEMOSPONGIAE	Kraken 2 - 16	236
25-IX-11-1-010	Porifera	Auletta sp.	Kraken 2 - 16	236
25-IX-11-1-201	Sediment	Sediment	Kraken 2 - 16	241
25-IX-11-2-001	Porifera	Leiodermatium sp.	Kraken 2 - 17	269
25-IX-11-2-002	Porifera	Theonella sp.	Kraken 2 - 17	203
25-IX-11-2-003	Cnidaria	Plumarella sp.	Kraken 2 - 17	203
25-IX-11-3-301	Water/Plankton	Water/Plankton	Trawl 8	95.5
25-IX-11-3-302	Water/Plankton	Water/Plankton	Trawl 8	79.2
25-IX-11-3-303	Water/Plankton	Water/Plankton	Trawl 8	68.6
25-IX-11-3-304	Water/Plankton	Water/Plankton	Trawl 8	58.2
25-IX-11-3-305	Water/Plankton	Water/Plankton	Trawl 8	52.7
25-IX-11-3-306	Water/Plankton	Water/Plankton	Trawl 8	40.3
25-IX-11-3-307	Water/Plankton	Water/Plankton	Trawl 8	39.1
25-IX-11-3-308	Water/Plankton	Water/Plankton	Trawl 8	23.7
26-IX-11-1-001	Porifera	Hexactinellida	Kraken 2 - 18	206

26-IX-11-1-002	Cnidaria	Stylasteridae	Kraken 2 - 18	206
26-IX-11-1-003	Echinodermata	Holothuria sp.	Kraken 2 - 18	200
26-IX-11-1-004	Hemichordata	Pterobranchia	Kraken 2 - 18	200
26-IX-11-1-005	Cnidaria	Stylasteridae	Kraken 2 - 18	200
26-IX-11-1-006	Cnidaria	Scleractinia	Kraken 2 - 18	200
26-IX-11-1-201	Sediment	Sediment	Kraken 2 - 18	200
26-IX-11-2-001	Cnidaria	Leiopathes sp.	Kraken 2 - 19	249
26-IX-11-2-002	Porifera	Leiodermatium sp.	Kraken 2 - 19	233
26-IX-11-2-003	Cnidaria	Plumarella sp.	Kraken 2 - 19	234
26-IX-11-2-201	Sediment	Sediment	Kraken 2 - 19	227
26-IX-11-2-202	Annelida	Polychaeta	Kraken 2 - 19	223
26-IX-11-3-301	Water/Plankton	Water/Plankton	Trawl 9	95.8
26-IX-11-3-302	Water/Plankton	Water/Plankton	Trawl 9	78.8
26-IX-11-3-303	Water/Plankton	Water/Plankton	Trawl 9	71.5
26-IX-11-3-304	Water/Plankton	Water/Plankton	Trawl 9	60.8
26-IX-11-3-305	Water/Plankton	Water/Plankton	Trawl 9	46.3
26-IX-11-3-306	Water/Plankton	Water/Plankton	Trawl 9	44.4
26-IX-11-3-307	Water/Plankton	Water/Plankton	Trawl 9	31
26-IX-11-3-308	Water/Plankton	Water/Plankton	Trawl 9	24.8
27-IX-11-1-001	Cnidaria	Leiopathes sp.	Kraken 2 - 20	231
27-IX-11-1-002	Porifera	Hexactinellida	Kraken 2 - 20	229
27-IX-11-1-003	Porifera	Hexactinellida	Kraken 2 - 20	227
27-IX-11-1-004	Foraminifera	Foraminifera	Kraken 2 - 20	229
27-IX-11-1-005	Foraminifera	Foraminifera	Kraken 2 - 20	229
27-IX-11-1-006	Cnidaria	Stylasteridae	Kraken 2 - 20	229
27-IX-11-1-007	Cnidaria	Hydrozoa	Kraken 2 - 20	229
27-IX-11-1-008	Cnidaria	Scleractinia	Kraken 2 - 20	229
27-IX-11-2-201	Sediment	Sediment	Kraken 2 - 21	837
27-IX-11-3-301	Water/Plankton	Water/Plankton	Trawl 10	91.2
27-IX-11-3-302	Water/Plankton	Water/Plankton	Trawl 10	80.4
27-IX-11-3-303	Water/Plankton	Water/Plankton	Trawl 10	71.9
27-IX-11-3-304	Water/Plankton	Water/Plankton	Trawl 10	65.8
27-IX-11-3-305	Water/Plankton	Water/Plankton	Trawl 10	51.4
27-IX-11-3-306	Water/Plankton	Water/Plankton	Trawl 10	42.7
27-IX-11-3-307	Water/Plankton	Water/Plankton	Trawl 10	31.4
27-IX-11-3-308	Water/Plankton	Water/Plankton	Trawl 10	27
28-IX-11-1-001	Porifera	DEMOSPONGIAE	Kraken 2 - 22	239
28-IX-11-1-002	Cnidaria	Stylasteridae	Kraken 2 - 22	238
28-IX-11-1-003	Cnidaria	Scleractinia	Kraken 2 - 22	239
28-IX-11-1-004	Porifera	Lithistida	Kraken 2 - 22	240
28-IX-11-1-005	Porifera	Discodermia sp.	Kraken 2 - 22	240

28-IX-11-1-006	Cnidaria	Stylasteridae	Kraken 2 - 22	240
28-IX-11-1-007	Cnidaria	Pliobothrus echinatus	Kraken 2 - 22	240
28-IX-11-1-008	Mollusca	Perotrochus midas	Kraken 2 - 22	233
28-IX-11-1-009	Cnidaria	Madracis sp.	Kraken 2 - 22	201
28-IX-11-1-010	Cnidaria	Madrepora oculata	Kraken 2 - 22	176
28-IX-11-1-011	Cnidaria	Stylasteridae	Kraken 2 - 22	176
28-IX-11-1-012	Porifera	Hexactinellida	Kraken 2 - 22	240
28-IX-11-1-013	Cnidaria	Pliobothrus echinatus	Kraken 2 - 22	201
28-IX-11-1-014	Cnidaria	Scleractinia	Kraken 2 - 22	176
28-IX-11-2-001	Cnidaria	Leiopathes sp.	Kraken 2 - 23	306
28-IX-11-2-002	Cnidaria	Plexaura sp.	Kraken 2 - 23	305
28-IX-11-2-003	Cnidaria	Paramuriceidae	Kraken 2 - 23	303
28-IX-11-2-004	Echinodermata	Crinometra brevipinna	Kraken 2 - 23	302
28-IX-11-2-005	Echinodermata	Crinometra brevipinna	Kraken 2 - 23	283
28-IX-11-2-006	Echinodermata	Ophiacanthidae	Kraken 2 - 23	283
28-IX-11-2-007	Echinodermata	Ophiuroidea	Kraken 2 - 23	305
28-IX-11-2-008	Cnidaria	Hydrozoa	Kraken 2 - 23	283
28-IX-11-3-301	Water/Plankton	Water/Plankton	Trawl 11	261
28-IX-11-3-302	Water/Plankton	Water/Plankton	Trawl 11	229.6
28-IX-11-3-303	Water/Plankton	Water/Plankton	Trawl 11	195.8
28-IX-11-3-304	Water/Plankton	Water/Plankton	Trawl 11	160.5
28-IX-11-3-305	Water/Plankton	Water/Plankton	Trawl 11	123.6
28-IX-11-3-306	Water/Plankton	Water/Plankton	Trawl 11	87
28-IX-11-3-307	Water/Plankton	Water/Plankton	Trawl 11	57.2
28-IX-11-3-308	Water/Plankton	Water/Plankton	Trawl 11	47
29-IX-11-1-001	Echinodermata	Crinoidea	Kraken 2 - 24	490
29-IX-11-1-002	Cnidaria	Isidella sp.	Kraken 2 - 24	492
29-IX-11-1-003	Porifera	Hexactinellida	Kraken 2 - 24	492
29-IX-11-1-004	Porifera	Hexactinellida	Kraken 2 - 24	492
29-IX-11-1-005	Cnidaria	Lophelia pertusa	Kraken 2 - 24	490
29-IX-11-1-006	Echinodermata	Democrinus brevis	Kraken 2 - 24	490
29-IX-11-1-007	Cnidaria	Lophelia pertusa	Kraken 2 - 24	489
29-IX-11-1-008	Cnidaria	Leiopathes sp.	Kraken 2 - 24	489
29-IX-11-1-009	Mollusca	Gastropoda	Kraken 2 - 24	490
29-IX-11-1-010	Arthropoda	Brachyura	Kraken 2 - 24	
29-IX-11-2-001	Porifera	Aphrocallistes beatrix	Kraken 2 - 25	548
29-IX-11-2-002	Cnidaria	Lophelia pertusa	Kraken 2 - 25	540
29-IX-11-2-003	Porifera	Porifera	Kraken 2 - 25	533
29-IX-11-2-004	Cnidaria	Gorgonacea	Kraken 2 - 25	533
29-IX-11-2-005	Cnidaria	Lophelia pertusa	Kraken 2 - 25	533
29-IX-11-2-006	Cnidaria	Paragorgia sp.	Kraken 2 - 25	512

29-IX-11-2-007	Cnidaria	Lophelia pertusa	Kraken 2 - 25	513
29-IX-11-2-008	Echinodermata	Ophiuroidea	Kraken 2 - 25	533
29-IX-11-2-009	Echinodermata	Ophiuroidea	Kraken 2 - 25	513
29-IX-11-2-010	Arthropoda	Cirripedia	Kraken 2 - 25	513
29-IX-11-2-201	Sediment	Sediment	Kraken 2 - 25	548
30-IX-11-1-001	Mollusca	Gastropoda	Kraken 2 - 26	
30-IX-11-1-002	Cnidaria	Stylasteridae	Kraken 2 - 26	224
30-IX-11-1-003	Cnidaria	Leiopathes sp.	Kraken 2 - 26	254
30-IX-11-1-004	Echinodermata	Neocomatella pulchella	Kraken 2 - 26	253
30-IX-11-1-005	Cnidaria	Zoanthidae	Kraken 2 - 26	253
30-IX-11-1-201	Sediment	Dugong Rib	Kraken 2 - 26	254

## NANCY FOSTER MULTIBEAM SURVEYS

During Leg 2 of the CIOERT FLoSEE II cruise, ten sites were surveyed on Pourtalès Terrace for a total of 397.1 km<sup>2</sup> with multibeam sonar by the survey team of the *Nancy Foster* (Fig. 3). Except for one site, these had never been surveyed before with high-resolution multibeam sonar. A total of eight sites were mapped within the newly designated CHAPC. We also made three sonar maps inside of the recently designated ‘East Hump’ MPA site which has never been mapped previously and which we ground-truthed with four ROV dives (*Kraken 2-14,15,16, and 17*, described above).

The only available bathymetric charts for Pourtalès Terrace consist of regional NOAA contour maps (Fig. 4) which detail some of the high-relief bathymetry in this region but at very low resolution. In fact, previously we discovered a mound nearly 121 m in relief that did not show up on the older charts. These new *Nancy Foster* sonar maps enabled us to discover and dive on many new features and reefs that had never been seen before. In particular, we discovered four deepwater sinkholes where only one had been known previously (Marathon Sinkhole, *Kraken 2-24*, described above). Also we discovered a large live deepwater *Lophelia* coral mound which is the southern-most *Lophelia* mound known in U.S. waters (*Kraken 2-25*). This was from a feature apparent on the multibeam map that did not show up on the NOAA bathy contour maps. The multibeam shows that these relatively low mounds (50 m relief or less) that parallel the foot of the Terrace may be actually quite extensive and require further dives to ground-truth. The raw and processed sonar data are archived at HBOI-FAU, with copies at NOAA Fisheries (A. David), and NOAA National Geophysical Data Center (Table 1).

## MOCNESS TRAWLS

A total of five plankton trawls were made with the multiple closing MOCNESS trawl (Fig. 3, Table 4). These provide data on the plankton distribution throughout the water column over these deepwater reefs. An important factor but relatively unknown is the benthic-pelagic coupling of the water column plankton community with the benthic coral and sponge community. These data are being analyzed and will be presented in three student project reports in the Final Cruise Report:

- Zooplankton Diversity and Abundance Within and Outside the Pourtalès Gyre
- Vertical Distribution and Development of Flatfish Larvae
- Biodiversity and Abundance of Zooplankton in Two Regions of the Gulf of Mexico.

## CTD

CTD casts were generally conducted at each multibeam sonar site (Table 4). Data included depth, salinity, dissolved oxygen, fluorometry, and turbidity. These data are saved on CD and archived at HBOI\_FAU, NOAA Fisheries (A. David), and NOAA Central Library (Table 1). These data are being analyzed and will be presented in a student project report in the Final Cruise Report:

- Characterization of the Water Column During FLoSEE II.

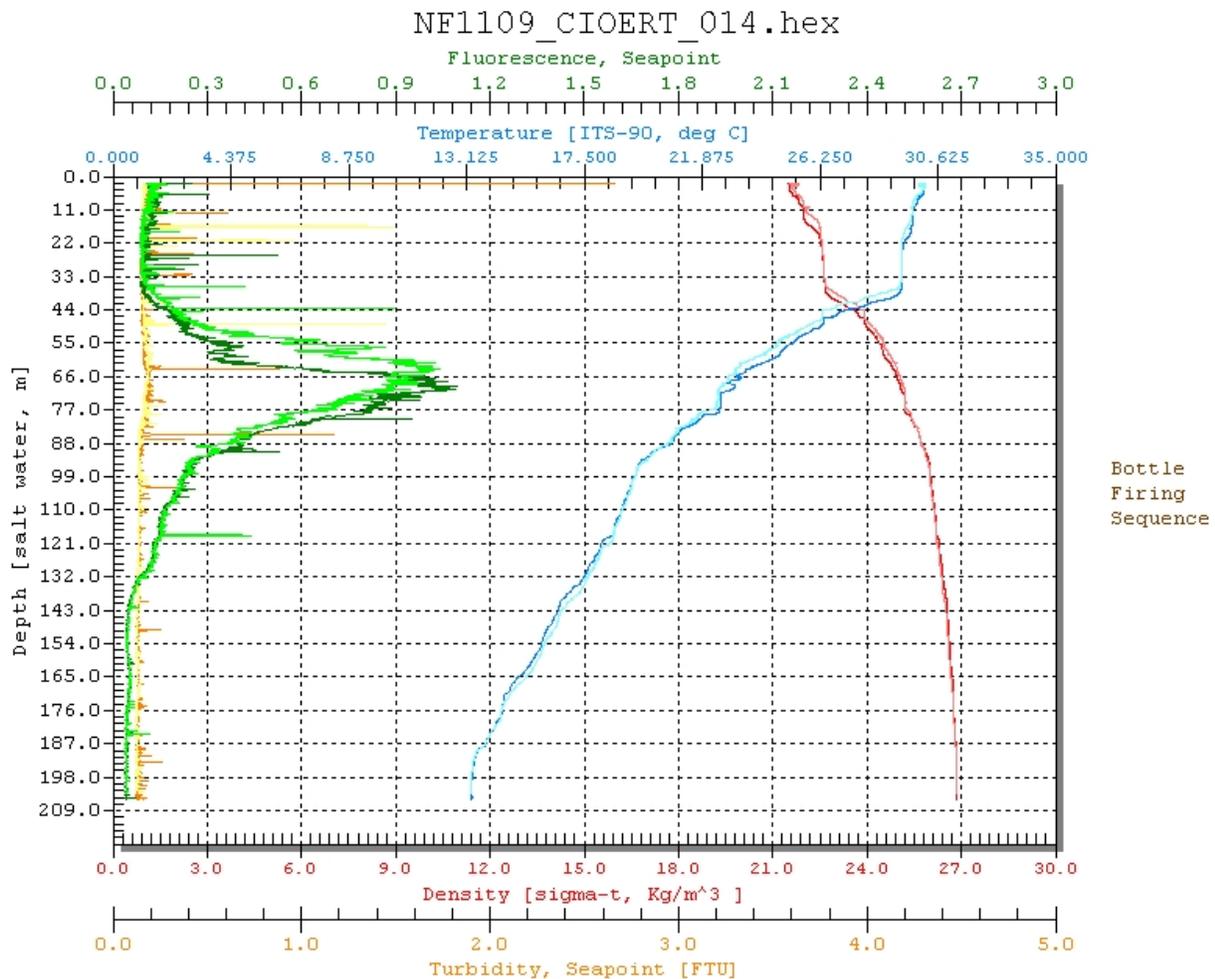


Figure 14. CTD cast at East Hump MPA site.

## FUTURE WORK AND CONCLUSIONS

This cruise which was funded in part by NOAA's Deep Sea Coral Research and Technology Program (DSCRTP) and by HBOI-FAU's Cooperative Institute for Ocean Exploration, Research, and Technology has resulted in a rich set of new data discovering and characterizing deepwater reef sites on Pourtalès Terrace. New multibeam sonar maps enabled discoveries of the southern-most known deepwater *Lophelia* coral reef in U.S. waters and deepwater sinkholes; new sonar maps and ground-truthing by ROV dives, MOCNESS trawls, and CTD casts have provided data for characterizing the newly designated 'East Hump' shelf-edge MPA site, and eight additional sites within the newly designated deepwater coral HAPC on Pourtalès Terrace. New information was collected on several high-relief features outside of the CHAPC which showed that extensive essential fish habitat and coral/sponge habitat exists outside the protected CHAPC boundaries. These areas outside the current CHAPC should be of priority for future research cruises. The new multibeam maps provided a wealth of information of potential sites for future ROV dives especially in the region where we found the *Lophelia* coral mound which was the first discovery of a *Lophelia* mound on Pourtalès Terrace. These data will be important for managers and scientists with NOAA Fisheries, the South Atlantic Fishery Management Council, The Florida Keys National Marine Sanctuary, NOAA DSCRTP, and NOAA Mesophotic Reef Ecosystem Program. New data was collected on habitat, benthic species' distributions, coral health, and commercially and recreationally important fish populations.

## ACKNOWLEDGMENTS

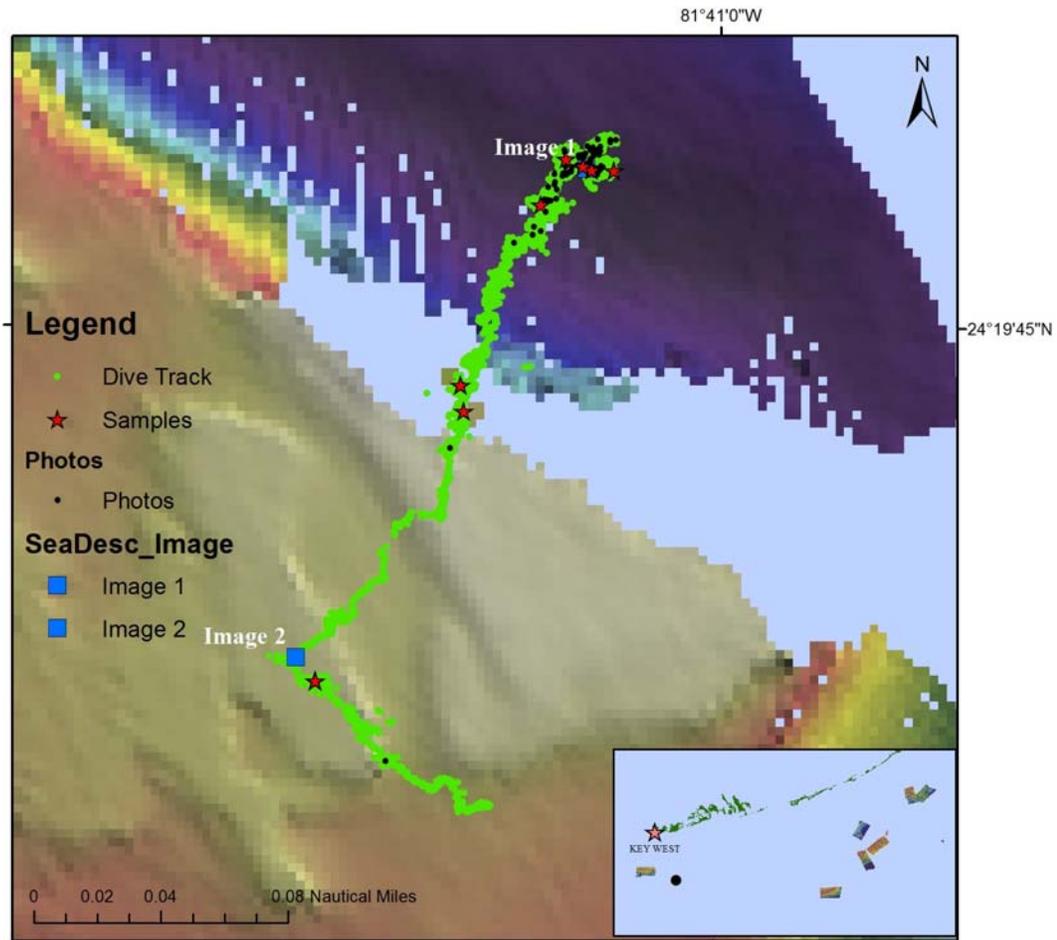
The crews of the NOAA Ship *Nancy Foster* and the University of Connecticut *Kraken 2* ROV are thanked for their support and efforts which made this cruise a success. The science team and students are thanked for their tireless efforts, working long days and nights. CIOERT is grateful for the funding and resources provided by the NOAA Office of Ocean Exploration and Research (OER), the NOAA Deep Sea Coral Research and Technology Program (DSCRTP), and the NOAA Office of Marine and Aviation Operations (OMAO) in support of the research, ship time, and ROV time:

- 7 ROV dive days during Leg 2 for research on deep-sea coral and sponge ecosystems off South Florida and within the CHAPC and 'East Hump' MPA (DSCRTP)
- Science costs to conduct and analyze ROV video/photographic transects, and create SEADESC Level I and II dive logs and site characterizations (DSCRTP)
- 21 days of NOAA Ship *Nancy Foster* vessel time (OMAO)
- 14 ROV days (additional to the above 7days) on shelf-edge and DSCE habitats off Florida (OAR/OER)
- Science support costs including data analyses and reports (OAR/OER).

# SEADESC Report - NOAA Ship Nancy Foster Cruise

**Dive Number:** Kraken 2 - 13

**Location:** Florida, Pourtalès Terrace, Jordan Site F



## Dive Overview:

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	106
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	3
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	3
<b>Dive #:</b>	Kraken 2 - 13	<b>Specimens:</b>	12
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace, Jordan Site F	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/23/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Jordan_Site-F_5m
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Stephanie Farrington
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	183	Total Transect Length (km):	0.54
Maximum Bottom Depth (m):	284	Surface Current (kn):	.5
On Bottom (Time- GMT):	17:45	On Bottom (Lat/Long):	24°19.8057'N 81°41.0539'W
Off Bottom (Time- GMT):	22:21	Off Bottom (Lat/Long):	24°19.5988'N 81°41.0817'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn): 0.25



Figure 1: bladefin basslet - *Jeboehlkia gladifer* on rock ledge habitat



Figure 2: Antipatharia and snowy groupers

#### Notes (Objectives, Site Description, Habitat, Fauna):

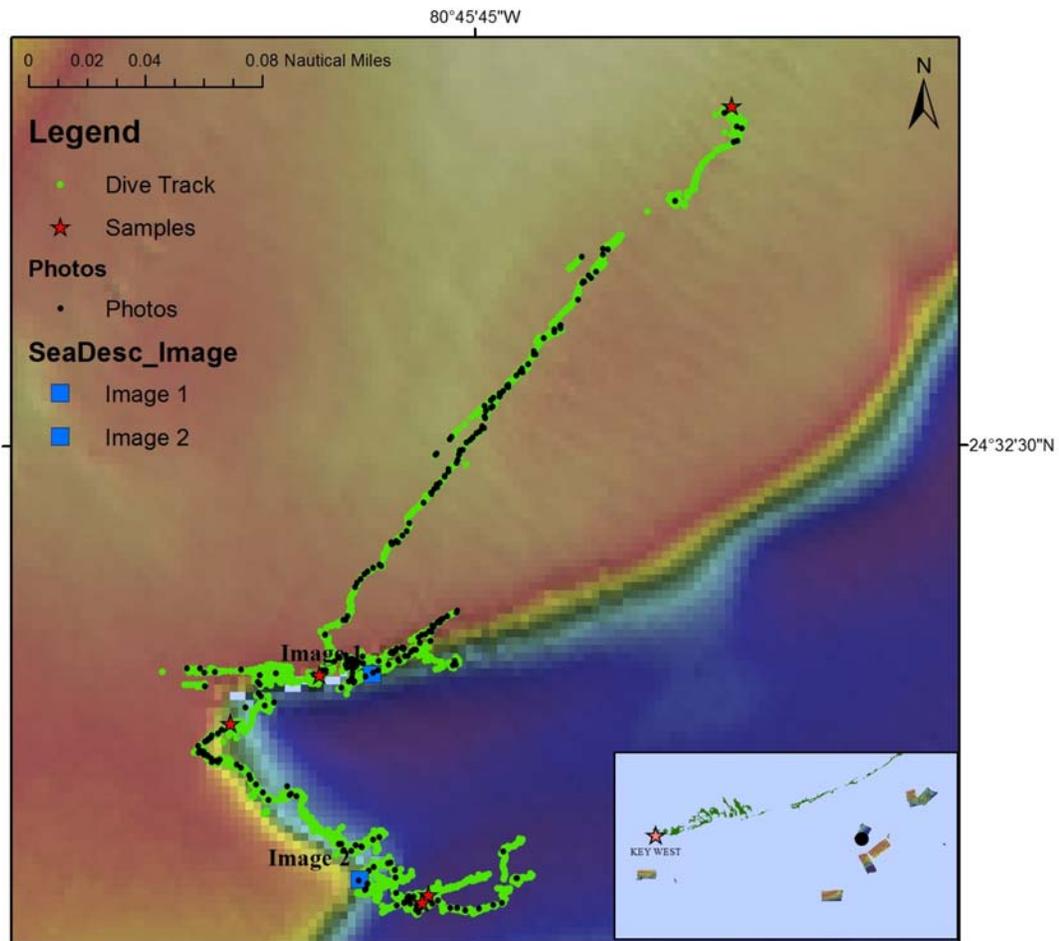
Objectives: Survey Pourtalès Terrace; Jordan Site F (Reed Peak #382); outside CHAPC. Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

Dive Events: For quantitative photos, digital still photos were taken 4/minute traveling at 0.4-0.6 kn for entire dive; stopping for species-specific, non-quantitative photos. Digital camera apparently failed half way through the dive. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

Site Description- Habitat/Dominant Fauna: *Nancy Foster* multibeam sonar shows a large peak 177 m peak with a scoured trench to the north at 277 m. Transect made from the trench up the steep north wall of the peak, then down the south face which is more gentle slope. Surface current <0.5 kn from NNW; bottom current 0 to <1/4 kn, even on the peak. On bottom in the trench at 283 m. Flat, rock and Stylaster coral rubble, *Lophelia*(?) coral rubble, rock rubble and cobble (5-15 cm). Near north base of north slope of mound. Pavement, rock and stylaster rubble cobble, scattered rock outcrops or boulders 1-2 m diam, <50 cm relief; up to 80% cover stylaster coral. Hard coral- boulders with very dense cover of stylaster, several spp., white, salmon colored, 10 cm yellow *Dendrophyllia*. Fish- 6 snowy grouper 40-60 cm, tilefish (blueline?), roughy, anthiids, *Laemonema*, scorpion fish. Porifera- *Spongosorites*, *Desmacella*, Petrosidae, vase sponges; bushy white Antipathidae, orange Antipathidae, Nephtheidae; echinoderms; mollusks. Transect up north slope. 45° rock slope and boulders. Top of wall 184 m, flat pavement top, 1-2 m ledges. 4 large snowy grouper (70 cm), fishing line; 2 m diameter Antipathidae. Transect down south slope, 190 m, pteropod sediment on pavement. Fish- 6 snowy grouper, boarfish, chain dogfish, black belly rosefish, 5 more 50 cm snowy grouper, *Chaunax*. Stylaster; small 15 cm dead Isididae, most with numerous small 1 cm gastropods (collected), no live tissue, but relatively recent death, little encrusting, some barnacles; various sponges, gorgonacea. Pavement with pink and dark purple crustose coralline algae, *Peyssonnelia*?. Stylaster still dominant. Less slope than north slope, 30 dg. Anemones common, small white unbranched gorgonian, *Eunicella*?, *Stylocidaris*.

**Dive Number:** Kraken 2 - 14

**Location:** Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak



### Dive Overview:

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	292
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 14	<b>Specimens:</b>	7
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/24/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Humps_MPA_ NW_5m
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Stephanie Farrington
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	184	Total Transect Length (km):	1.21
Maximum Bottom Depth (m):	212	Surface Current (kn):	0.75
On Bottom (Time- GMT):	12:40	On Bottom (Lat/Long):	24°32.3414'N 80°45.7354'W
Off Bottom (Time- GMT):	16:47	Off Bottom (Lat/Long):	24°32.6167'N 80°45.6535'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn): 0.5

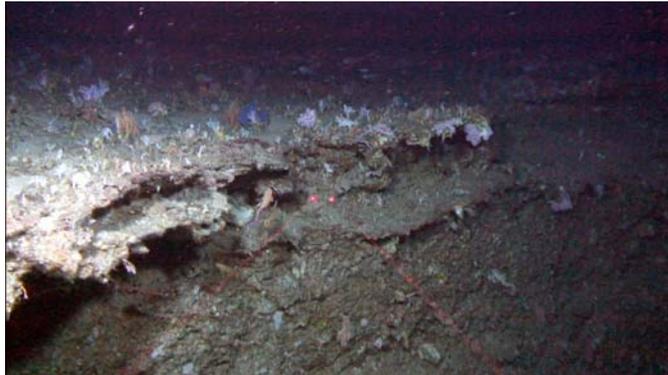
Figure 1: Rock wall habitat with dense *Stylaster* coral

Figure 2: Snowy grouper under ledge

**Notes (Objectives, Site Description, Habitat, Fauna):**

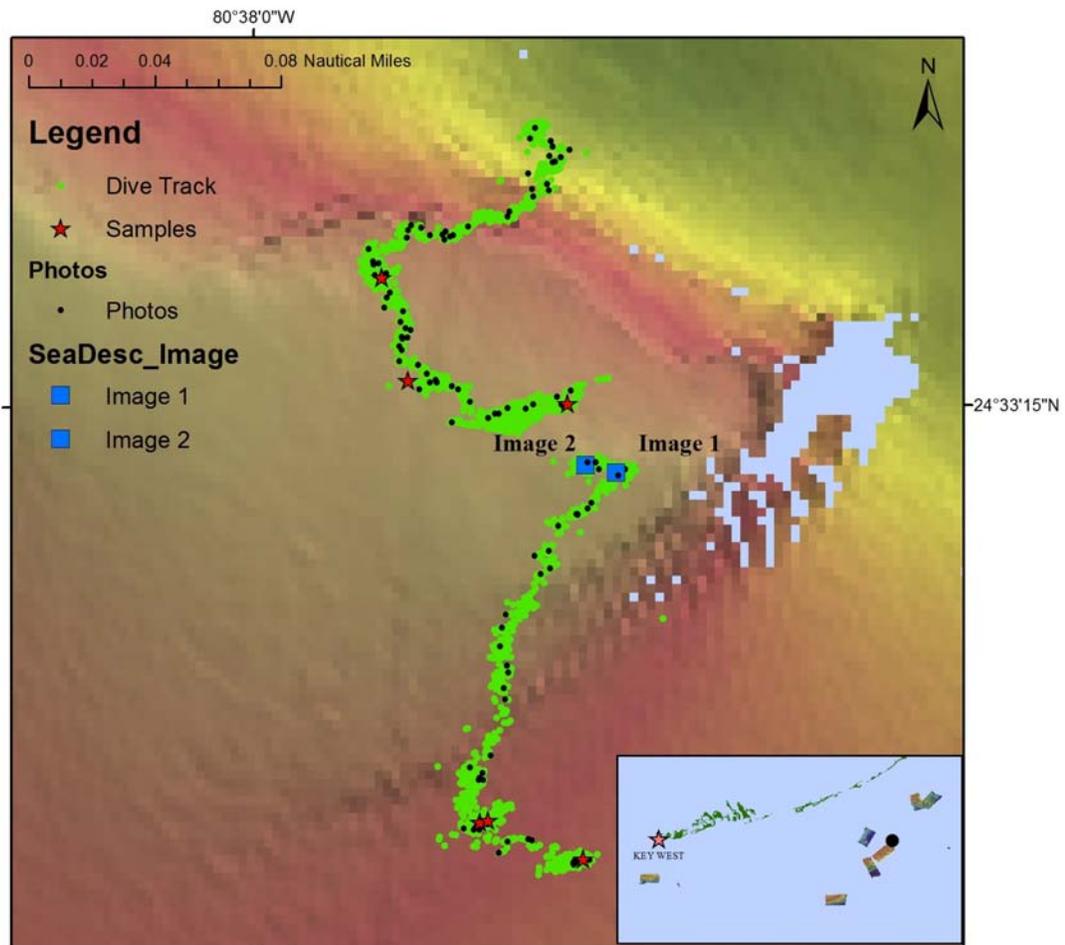
**Objectives:** Survey Pourtalès Terrace; 'The Humps' Shelf-edge MPA, NW Peak; inside MPA and CHAPC. Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

**Dive Events:** For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

**Site Description- Habitat/Dominant Fauna:** *Nancy Foster* multibeam sonar shows large flat topped mound, nearly 1 nmi N-S, base 200-205 m, minimum depth 181 m, flat topped plateau around 180 m. Transect up and along southeast slope, then north across top; covered about ½ of top plateau. ADCP shows 2.5 kn to NE, set and drift showed ¾ kn to NE; station keeping over bottom, drift algae showed 1 kn. On bottom current about ½ kn. On bottom at 212 m, approx. 100 m east of base of slope. Most stylaster and fan sponges facing W-SW. 100% hard bottom, flat pavement, 5 cm ledges, dominated by stylaster, 3-4 spp., 10% cover; *Coelopleurus floridanus* urchins common. Transect up 30° slope, alternating coarse sand sediment, pavement and low relief rock. Rock slope and vertical wall starts at 195 m, 2 m ledge, undercut 1-2 m, with 10-15 cm thick crust on top. Ledge edge and top, 192 m, very dense and diverse stylaster and demosponges. Cup corals, 100% cover on edge of wall face; Fish- 60-cm snowy grouper common, several roughy, numerous anthiids (several species). Porifera- *Leiodermatium* 10-30 cm common at edge, large fan sponges (*Phakellia* or *Raspailiidae*), 1 m wide, no stalk, attached length of sponge, very common, 6-10 spp, Demospongiae, blue and yellow thin encrusting sponges on dead stylaster, plate lithistids, thick plate and amorphous lobate Astrophorida, small knob Theonellidae. Red and white striped shrimp under ledge. Transect along face of ledge and along top edge. Unable to station keep very well, seem to be pulled by tether although current < 1 kn. Unable to collect very well. East slope base 205 m, top plateau at 190 m; vertical with horizontal ledges 190-195 m, 30-45 dg slope to 205 m. Transect to north on top of plateau at depth of 190-184 m. Cover about ½ of length of plateau. 100% pavement, little relief, dominated by stylaster, but lower diversity and density as near edge. Fish- 40 cm blueline tilefish, snowy grouper. Porifera- *Geodia*, *Zyzyza*, 1 m *Raspailiidae* fans, ~12 spp. demosponges; grey gorgonacea; *Coelopleurus* urchins.

**Dive Number:** Kraken 2 - 15

**Location:** Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak



**Dive Overview:**

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investator:</b>	John Reed	<b>Digital Photos:</b>	149
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 15	<b>Specimens:</b>	7
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/24/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Humps_MPA_ NE_5m
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Stephanie Farrington
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	207	Total Transect Length (km):	0.81
Maximum Bottom Depth (m):	281	Surface Current (kn):	1-1.5
On Bottom (Time- GMT):	19:02	On Bottom (Lat/Long):	24°33.1038'N 80°37.8961'W
Off Bottom (Time- GMT):	22:30	Off Bottom (Lat/Long):	24°33.3295'N 80°37.8995'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn):



Figure 1: Stylaster coral with fishing line



Figure 2: School of boarfish and stylaster coral

**Notes (Objectives, Site Description, Habitat, Fauna):**

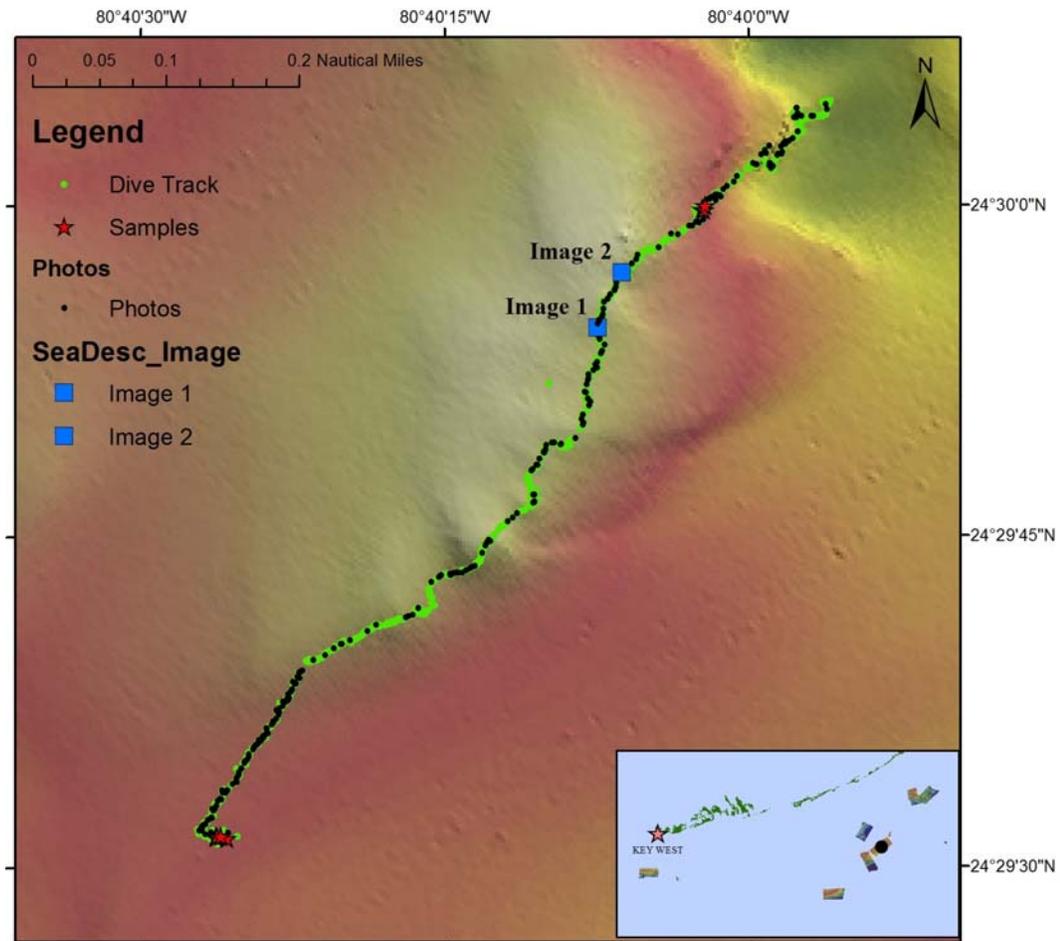
Objectives: Survey Pourtalès Terrace; 'The Humps', SE Peak; border of MPA, inside CHAPC. Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

Dive Events: For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

Site Description- Habitat/Dominant Fauna: *Nancy Foster* multibeam sonar (one pass), peak near border of MPA; mostly outside MPA. NW-SE oriented mound 941 m long, 600 m wide; peak 197 m, with trench scoured area to northeast, depth 292 m. Transect up southeast slope to top ridge, then NW along ridge, then SW back along the north face of the ridge, then down the north slope to the base. On bottom at the SE base at 246 m. Pavement, sediment veneer, no ledges, 30 cm boulders, rock cobble. Dominant species: Coral- stylaster (several spp.); Fish- shortnose greeneye; Porifera- 5-10 Demosponges, *Leiodermatium*, *Aphrocallistes* common, *Topsentia* sphere with fistules tubes; top shell. Head up slope; depth 208 m- top of SE ridge at top, transect along ridge to west; ledge oriented E-W, pavement on top of ledge, low relief. Coral- dense stylaster; Fish- >100 boarfish, snowy grouper, anthiids, fishing line; Porifera- up to 15 spp. demosponges, orange sponge, *Zyzya*?, numerous thick folded plates- *Astrophorida*?, *Auletta*? tube sponge, *Farrea*, *Aphrocallistes* common; small 10 cm slit shell- *Perotrochus* sp. Depth- 225 m- transect east along top ridge, 90° wall down north slope of mound. Rounded brow, not layered, smooth pitted rock, mostly demosponges, fewer stylaster, *Astrophorida*, *Aphrocallistes*, 100% cover sponges. Ledge with overhang, 230 m. Head downslope: 240 m, vertical smooth rock; 250 m, 60° rock slope; 255 m, 30°; 257 m ledge, 90° wall. 280 m, base of wall, rock pavement, low ledges 20-50 cm. Fairly barren, small stylaster; encrusting sponges; 50 cm black coral, *Leiopathes*?

**Dive Number:** Kraken 2 - 16

**Location:** Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1



### Dive Overview:

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	341
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 16	<b>Specimens:</b>	11
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/25/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Humps_MPA_S E_5m_interp
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Stephanie Farrington
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	182	Total Transect Length (km):	1.55
Maximum Bottom Depth (m):	269	Surface Current (kn):	.75
On Bottom (Time- GMT):	12:40	On Bottom (Lat/Long):	24°29.5248'N 80°40.4337'W
Off Bottom (Time- GMT):	16:37	Off Bottom (Lat/Long):	24°30.0718'N 80°39.9631'W
Physical (bottom); Temp (°C):		Salinity:	
		Visibility (ft):	30
		Current (kn):	1



Figure 1: Stylaster hard bottom habitat



Figure 2: Snowy grouper on hard bottom and stylaster rubble

## Notes (Objectives, Site Description, Habitat, Fauna):

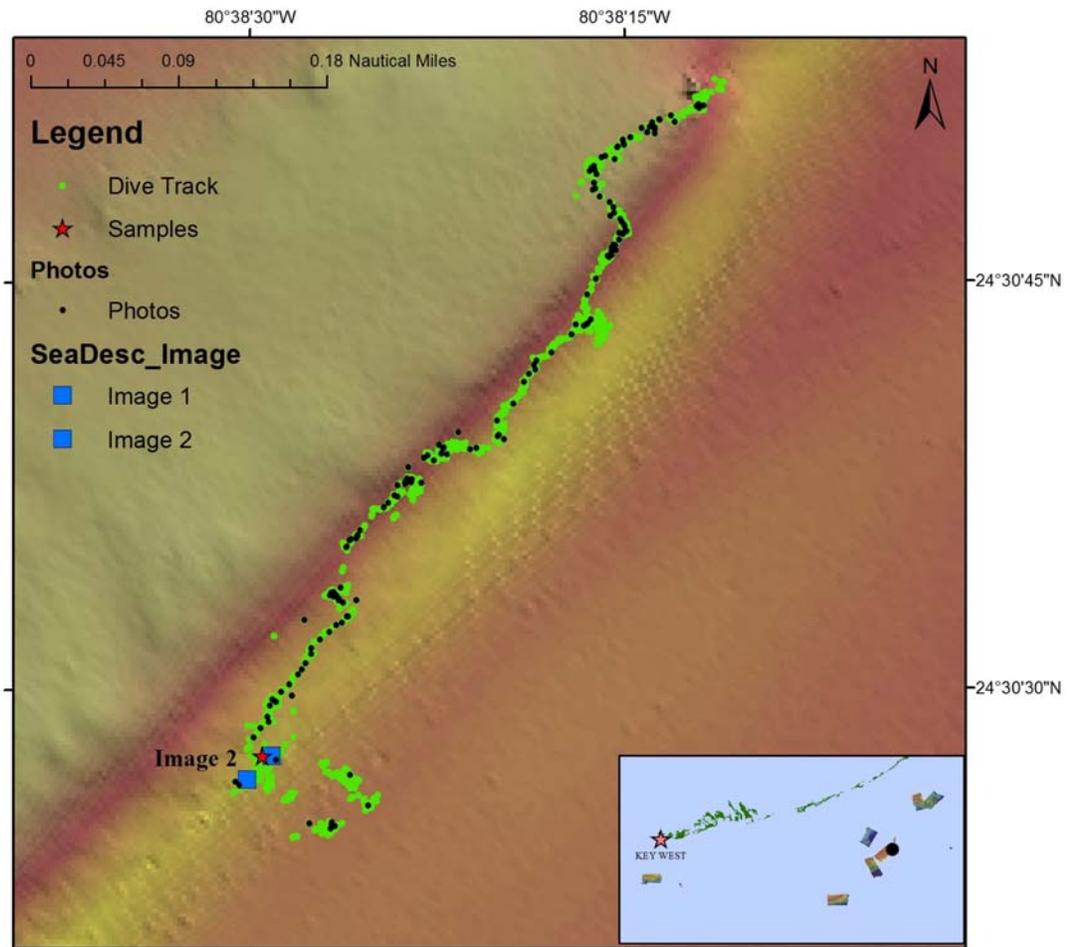
**Objectives:** Survey Pourtales Terrace; 'The Humps' Shelf-edge MPA, Tennessee Reef Bioherm #1; inside MPA and CHAPC. Ground truth new multibeam data (*Nancy Foster, 2011*) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

**Dive Events:** For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

**Site Description- Habitat/Dominant Fauna:** Foster multibeam of site, ~ 5 x 2 miles covering sites of Dives 16 and 17. Bioherm #1 is a elongate mound oriented N-S, 1450 m long; top 170 m, south base 256 m, deep scoured trench on NE base to 322 m. Transect up south slope of Bioherm #1, along eastern rim, then down NE slope to base. On bottom at SE base at 242 m; flat, rock pavement, coarse sediment with stylaster rubble. Coral- white stylaster, light pink very fine branched stylaster, thicker branched salmon stylaster; Porifera- dense and diverse sponges: folded plate Astrophorida, conical tube Petrosiidae, fan sponges, *Phakellia*, Raspailiidae attached along base, *Topsentia*, orange Demospongiae; 2-3 spp. gorgonacea Plexauridae. Depth 235 m- on south slope, 10° slope, same habitat fauna, dense cover, no ledges, rough tongue bass, *Laemonema*, black belly rosefish; *Aphrocallistes*; few gorgonians; cidaroids. Depth 210 m- on top of south rim of mound; 10-30° slope, 100% pavement, some 10 cm holes; Coral- dense stylaster rubble, black *Dendrophyllia*? cluster; anthiids, snowy grouper, boarfish; large 1 m Raspailiidae; 10 cm white plexaurids dominant. Depth 200 m- top of SE rim, 100% stylaster rubble, piles of stylaster rubble; 10-20 cm stylaster abundant on 10° slope, 50 cm ledges; Fish- ~100 boar fish, green moray, snowy grouper, dense anthiids, *Chaetodon aya*. Depth 186 m- transect along east rim. Peak 1, depth 183 m, flat rounded top, flat rolling bottom, all rubble on pavement; current from SW about 1 kn. Coral- stylaster coral, black *Dendrophyllia*; Fish- queen snapper, snowy, greater amberjack, ledge with hundreds of boarfish, anthiids, scorpion fish, dragonet fish; *Mithrax*. Transect downslope, depth 237 m; Porifera- yellow *Ircinia* common, *Corallistes* cup sponge common, lumpy brown demosponge common, *Auletta*? tube sponges. Depth 241 m- 45° rock slope, smooth, no stylaster, demosponges dominant. Base of east slope, 268 m; ledge with thin crust and overhang; 1-2 m, vertical wall below; wall smooth but pitted. Snowy grouper; few sponges, *Leiodermatium* common, Corallistidae plates and cups common. Depth 268 m- transect along face of wall and ledge. Transect down face to trench at north base; 285 m- flat pavement, greeneye fish; sparse small Demospongiae.

**Dive Number:** Kraken 2 - 17

**Location:** Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1



**Dive Overview:**

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	194
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 17	<b>Specimens:</b>	3
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/25/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Humps_MPA_S E_5m_interp
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Lisa Cohen
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	203	Total Transect Length (km):	1.34
Maximum Bottom Depth (m):	330	Surface Current (kn):	1.5
On Bottom (Time- GMT):	18:50	On Bottom (Lat/Long):	24°30.4161'N 80°38.4527'W
Off Bottom (Time- GMT):	22:23	Off Bottom (Lat/Long):	24°30.8627'N 80°38.1918'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn):

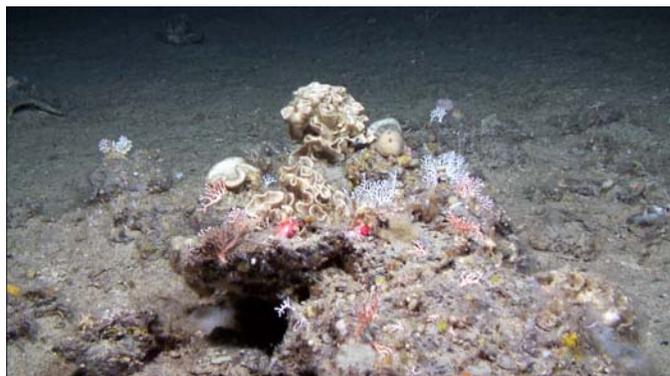


Figure 1: Lithistid sponges and stylaster on rock



Figure 2: Snowy grouper on rock ledge

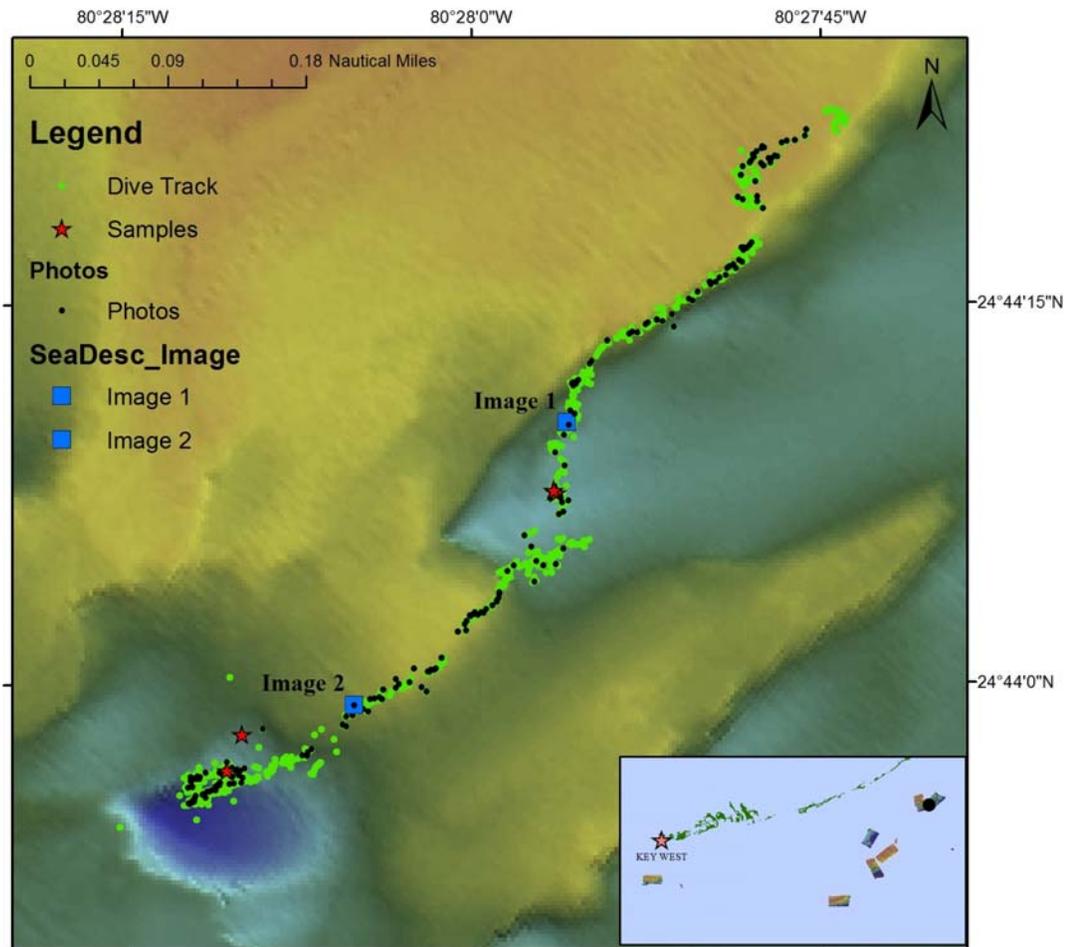
## Notes (Objectives, Site Description, Habitat, Fauna):

**Objectives:** Survey Pourtales Terrace; 'The Humps' Shelf-edge MPA, Wall SE of Tennessee Reef Bioherm #1; inside MPA and CHAPC.

Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

**Dive Events:** For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

**Site Description- Habitat/Dominant Fauna:** *Nancy Foster* multibeam sonar shows 3 km long wall oriented N-S; 270 m in trench at base of wall, 190 m at top. Transect along trench and along slope at various depths, ending at NE end of wall and north vertical wall. East face is 30-40 dg slope, mostly pavement with some rock boulders and <50 cm ledges; northeast face is vertical wall. On bottom at 255 m. Pavement, flat with dense cover of stylaster rubble; demosponges dominant with some stylaster, mesh fan Raspailiidae, folded plate Astrophorida, greeneye, snowy grouper. Depth 264 m- trench at base of east slope; same habitat and fauna; with some 50 cm boulders and ledges. Maximum depth in trench 269 m; *Leiodermatium* common, rock outcrops with dense sponges and stylaster. Transect NE along valley; series of smooth ridges oriented down slope NW-SE, 2-3 m tall, erosional grooves. Ridges with dense biota: snowy grouper, roughy; plate sponges, yellow *Ircinia*. Head upslope: 246 m- 45 dg rock pavement slope, dense demosponges, 50 cm snowy grouper. Depth 237 m- base of steeper slope, base of wall on multibeam: 60 dg rock pavement, smooth rock; 50 cm barrel fish. 233 m- rock outcrops 1 m diameter, 50 cm relief. Depth 230 m- slope less steep with numerous 1-2 m diameter boulders, 50 cm relief; 10 roughy, 20 barrellfish 50 cm, 12 roughy, 4 snowy, 12 roughy, queen snapper, several steel fishing lines with sash weights on slope. Difficulty with station keeping, pulled off wall many times. Drop to 247 m: more 1-2 m outcrops, ledges, dense fish- 12 roughy, 60 cm snowy grouper. Upslope to 210 m, near top rim; abrupt transition to dense 10-20 cm Primnoidae. Depth 203 m- transect along east rim, dense primnoids and dense stylaster rubble, some live stylaster; few sponges; primnoids nearly 100% cover; anthiids. NE end of wall, steep dropoff, with ledge and overhang, undercut, and steep below; queen snapper, snowy grouper, roughy, snowy grouper. Out of time to go down wall.



**Dive Overview:**

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	245
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 18	<b>Specimens:</b>	7
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/26/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Alligator_Bioherm_No4_5m_interp
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Lisa Cohen
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	171	Total Transect Length (km):	1.26
Maximum Bottom Depth (m):	220	Surface Current (kn):	1
On Bottom (Time- GMT):	12:28	On Bottom (Lat/Long):	24°43.9444'N 80°28.1576'W
Off Bottom (Time- GMT):	16:33	Off Bottom (Lat/Long):	24°44.3720'N 80°27.7402'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn): 0.75

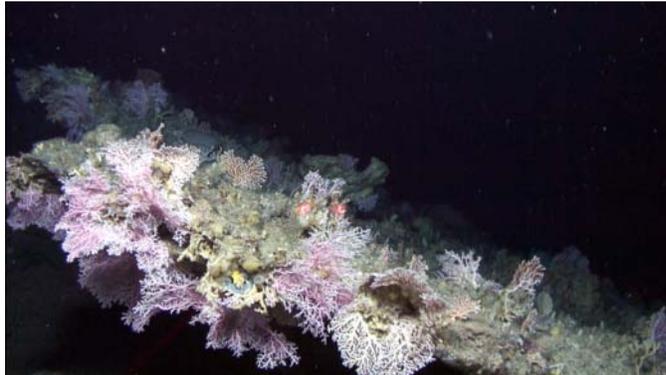


Figure 1: Stylaster ledge habitat



Figure 2: Snipe fish

**Notes (Objectives, Site Description, Habitat, Fauna):**

**Objectives:** Survey Pourtalès Terrace; Alligator Humps, Alligator Bioherm #4; inside CHAPC. Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

**Dive Events:** For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

**Site Description- Habitat/Dominant Fauna:** *Nancy Foster* multibeam of Bioherm #4 shows an elongate, flat topped mound oriented NE to SW, 3000 m long; plateau on top at 170 m, a scour or sinkhole depression at south base at 195 m, and a scour at north base to 220 m. Made 1000 m transect starting at sinkhole at south base, and along east slope of mound, and along east rim of top plateau. On bottom at 206 m at upper rim of sinkhole. Flat rock pavement with coarse sediment veneer, rock rubble and cobble with stylaster, demosponges and hexactinellids, blue tilefish. North rim of sinkhole with thin crust undercut 1 m, 1 m escarpment, then rock slope below. Very rugged topography along ledge, karst-like; hake, roughy, anthiids, *Laemonema*. Depth 207 m- vertical wall, double ledges; second ledge with 5 m escarpment below; fairly barren rock. 229 m- base of steep slope, rock pavement and sediment, outcrops with stylaster. Start transect up face of north wall of sinkhole and to southeast base of mound. 178 m- crossing lower SE slope of mound, pavement, coarse sediment, 10 cm outcrops; dense stylaster; rough tongue bass; Raspailiidae fans, dense and diverse demosponges. Series of NW-SE low ridges, 30 cm relief; Fish- blueline tilefish, apricot bass, rough tongue, snowy grouper; Porifera- hexactinellids, numerous mesh Raspailiidae, most dead or dying with filamentous growth. Depth 184 m- ledge with overhanging crust, short escarpment below. 198 m- base of SE slope of mound. Transect along face of slope and wall to NE. Sediment with ripples at base of wall. Pavement with sediment near wall. Much difficulty with station keeping although surface current is only 1 kn and bottom current ¾ kn from west. Slope with black belly rosefish, *Laemonema*, snipefish, scorpion fish; *Aphrocallistes*, folded plate Astrophorida; brown fuzzy hemichordates. Collected two sea weenies holothurians. 191 m- base of wall with rock slabs and ledges forming valley between it and the slope. Dense biota on ledges, very rugged topography; 2 snowy grouper, roughy. 180 m- on east slope, 30 dg rock pavement, 1 m ledge at top of slope forming rim of plateau on top. Crust undercut 1-2 m with 1 m escarpment and rock slope below. Roughy and anthiids. 176 m- top of plateau; short transect onto plateau, but difficult station keeping to head west, ¾ kn current on top. Top of plateau, 50% exposed rock, 5-10 cm cobble, and coarse sediment veneer. Coral-

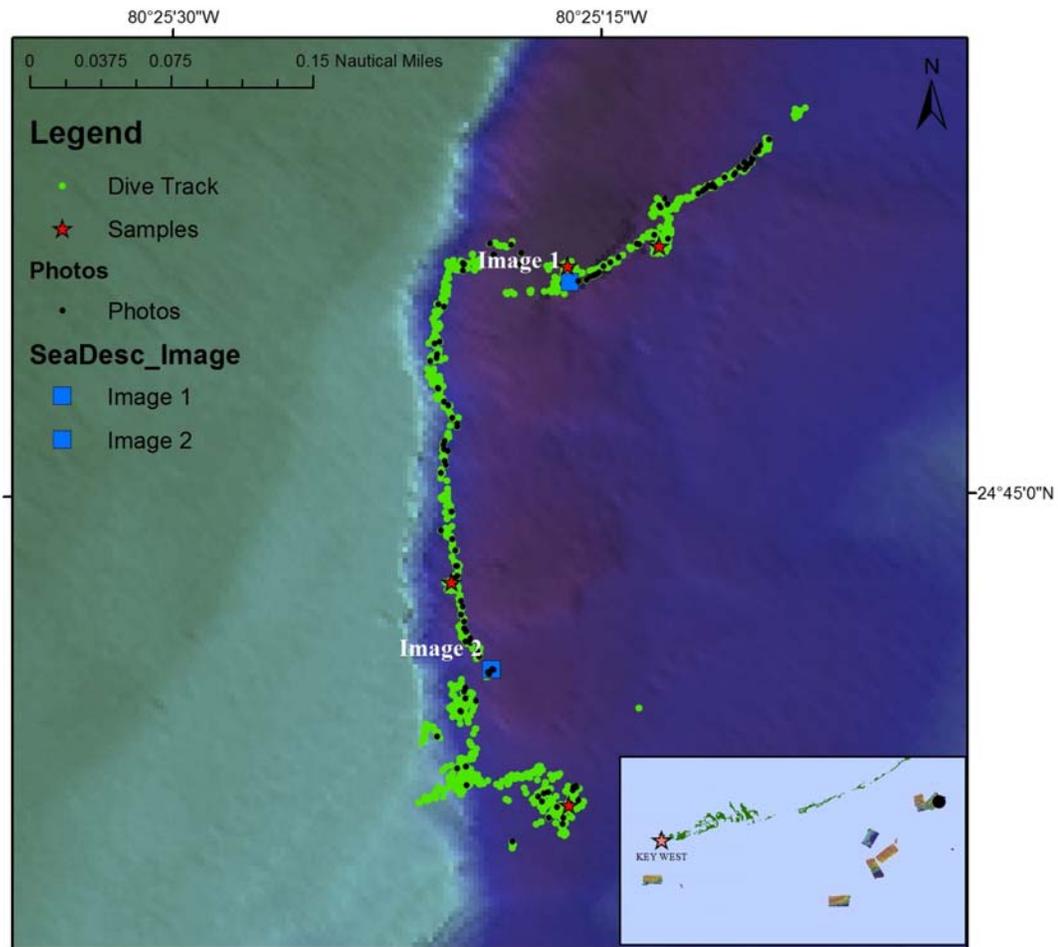
**Dive Number:** Kraken 2 - 18

**Location:** Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4

stylaster; Fish- snowy grouper, schools of boarfish, rougtongue bass, apricot bass, snipe fish, anthiids;  
Porifera- fan sponges, plate Astrophorida, Hexactinellida, Raspailiidae, *Geodia*. Finished transect along east rim, about 1/3 way along length of mound.

**Dive Number:** Kraken 2 - 19

**Location:** Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall



### Dive Overview:

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	158
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 19	<b>Specimens:</b>	5
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/26/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Alligator_Bioherm_No4_5m_interp
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Stephanie Farrington
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	203	Total Transect Length (km):	1.23
Maximum Bottom Depth (m):	249	Surface Current (kn):	1
On Bottom (Time- GMT):	18:58	On Bottom (Lat/Long):	24°44.8350'N 80°25.2704'W
Off Bottom (Time- GMT):	22:23	Off Bottom (Lat/Long):	24°45.2032'N 80°25.1402'W
Physical (bottom); Temp (°C):		Salinity:	
		Visibility (ft):	30
		Current (kn):	



Figure 1: Stylaster on pavement

Figure 2: *Benthobatis* over sediment veneered hard bottom

## Notes (Objectives, Site Description, Habitat, Fauna):

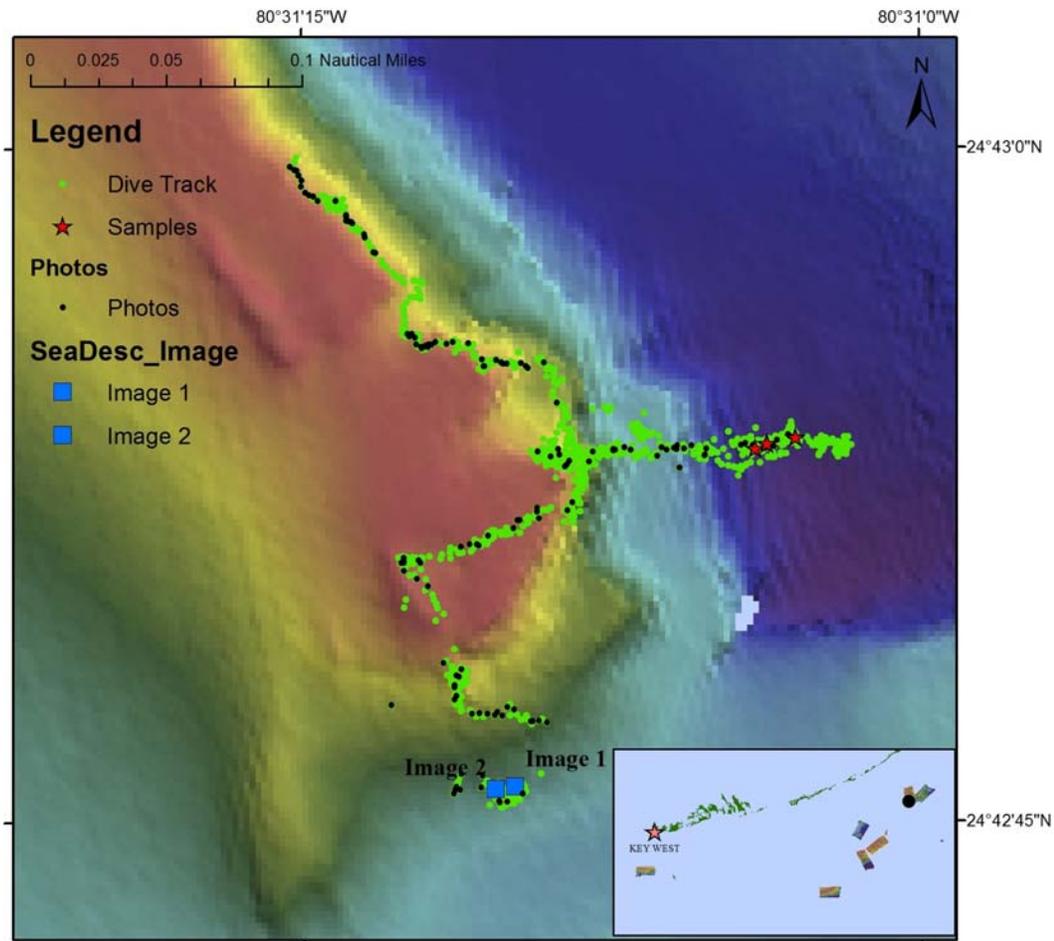
**Objectives:** Survey Pourtales Terrace; Alligator Humps, East Wall, East of Alligator Bioherm #4; inside CHAPC. Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

**Dive Events:** For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

**Site Description- Habitat/Dominant Fauna:** *Nancy Foster* multibeam shows long wall as eastern most end of humps region; base of wall is a scoured depression, 246 m deep, and top of wall 186 m. Transect along face of wall to top; but much difficulty station keeping; transect with the current to the northwest into the depression to a ledge in the middle, and continued to the east rim of the depression. On bottom at 226 m about 80 m east of base of wall. Surface current 1 kn from drift algae; bottom current variable directions but mostly ¼ kn or less. Flat sediment with scattered 50 cm boulders; Coral- stylaster; Fish- several blueline tilefish, snipe, fish boar fish, *Laemonema*. Unable to station keep; ship drags ROV toward wall. Depth 212 m- near base of wall, 2 m vertical escarpment. 203 m- top of wall which is flat plateau of rock pavement. Coral- dense stylaster; Fish- several snowy grouper 50 cm; Porifera- folded Astrophorida, fan sponges; Gorgonacea- dense primnoids *Plumarella*. Much difficulty station keeping, continual jerking of tether pulling ROV off bottom. 220 m- lower slope, wall 45 dg, 90 dg near top, horizontal layering. Coral- sparse small stylaster; Fish- *Benthobatis*, blueline tilefish, roughy; *Leiodermatium*; primnoids; *Coelopleurus* urchins. 210 m- very rugged, eroded karst-like rock ledges; roughy, snowy grouper. Head NE to ledge in middle of scour depression east of wall. 240m- rugged wall, ledges, boulders; 11 roughy, snowy grouper. 248 m- west base of ledge feature, very rugged slope and escarpments, 60 dg slope to 90 dg escarpments at top. Dense stylaster; 5' wide *Leiopathes* white black coral; *Plumarella*; plate Astrophorida. 237 m- ledge; snowy grouper, roughy. 235 m- ledge; 234 m- top of ledge, flat rock pavement; 100% cover of stylaster, sponges, and *Plumarella*. *Leiodermatium* collection took 30 minutes. Transect along face of ledge; vertical wall, very rugged, karst-like topography; large snowy grouper, roughy, pile of fishing line; squid, Finish transect along length of ledge; head NE to eastern rim of scour. Rock pavement and primnoid fields. 225 m- base of east slope of scour; 100% rock pavement, 20 dg rock pavement, outcrops; stylaster; boarfish; finger Hexactinellida, Astrophorida; dense primnoids dominant; sea weenies holothurians.

**Dive Number:** Kraken 2 - 20

**Location:** Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak



### Dive Overview:

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	173
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 20	<b>Specimens:</b>	8
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/27/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Alligator_Bioherm_NW_4m_interp.tif
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	Andy David, John Reed
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	164	Total Transect Length (km):	1.15
Maximum Bottom Depth (m):	233	Surface Current (kn):	1.5
On Bottom (Time- GMT):	12:42	On Bottom (Lat/Long):	24°42.7611'N 80°31.1647'W
Off Bottom (Time- GMT):	16:22	Off Bottom (Lat/Long):	24°42.9882'N 80°31.2514'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn): 0.25



Figure 1: Stylaster coral on rock pavement habitat



Figure 2: Blueline tilefish and stylaster coral on rock pavement

**Notes (Objectives, Site Description, Habitat, Fauna):**

Objectives: Survey Pourtales Terrace; Alligator Bioherm #3, North Mound; inside CHAPC. Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

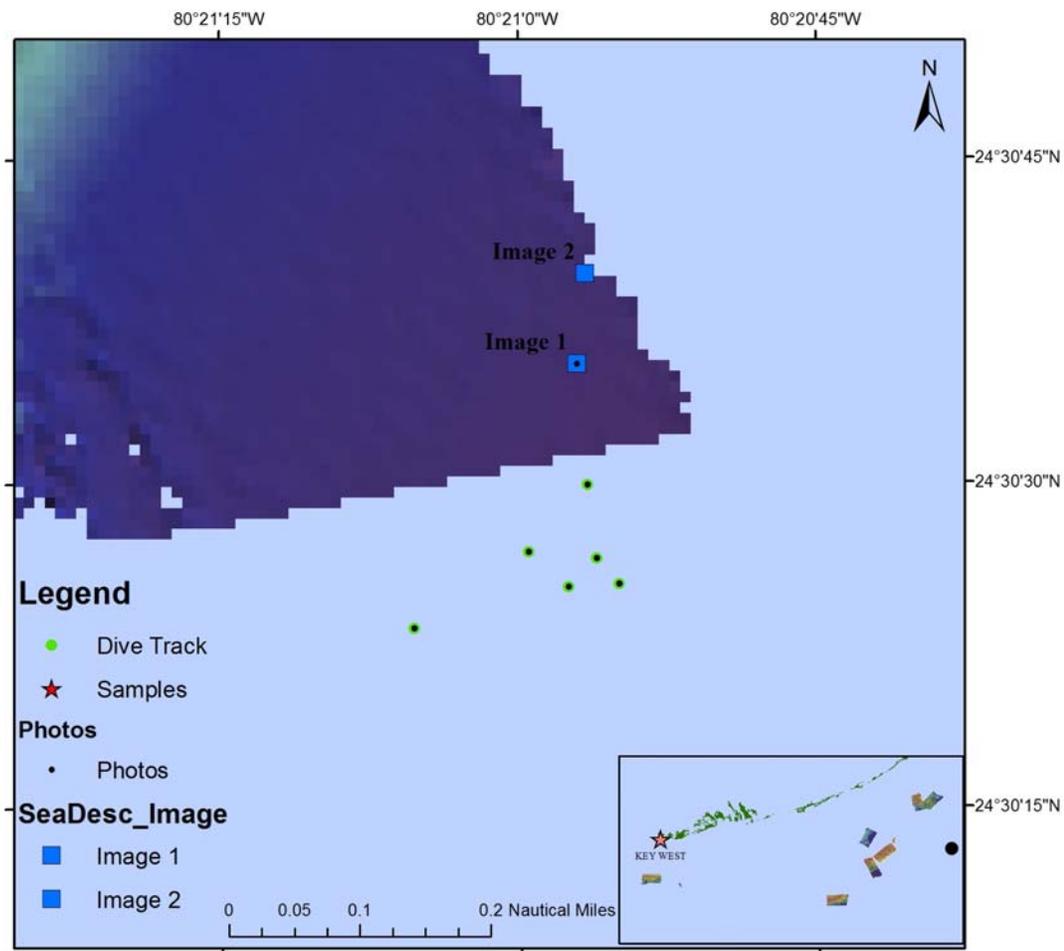
Dive Events: For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

Site Description- Habitat/Dominant Fauna: *Nancy Foster* multibeam shows double flat top mounds; the larger north mound is elongate 1150 m, oriented NW to SE with a deep scour on the east base. The flat plateau is 165 m, north base 203 m, south base 200 m, and the scour 225 m. The transect was from the southwestern base across the southern plateau to the east rim, then down into the scour, then upslope of the east slope and wall. The surface current was 1.75 kn from SE. On bottom, 195 m depth, ~ 60 m south of the SE base of the mound. Rock pavement, 10 dg slope; 4-5 spp. stylaster coral, blueline tilefish; 6-8 spp. hexactinellids, demosponges; Plumarella. Transect N up slope to peak. Depth 172 m- top of south rim of mound; flat 100% rock pavement; fields of stylaster coral, fan sponges, Plumarella. Transect to Peak 1 on south plateau; current ¾ kn from SE; blueline tilefish. 164 m- low relief ridges SW-NE covered with stylaster and sponges. 163 m- Top of Peak 1 at south end of plateau, rock pavement, low 10 cm relief; pink crustose coralline algae on pavement, dense biota. Transect to east rim: Current ¼ kn from SW; 100% pavement, low relief; stylaster, Plumarella, fan sponges, very dense biota. 168 m- edge of east rim of plateau: thin crust overhang, with 1 m vertical escarpment, and steep rock slope below. Transect along face of ledge, very rugged, karst like topography; 2 roughy, anthiids; *Leiodermatium* hanging under ledge. Rock slope fairly barren, current very variable direction; problems station keeping; pulled off bottom. 170 m- top ledge, 70 dg rock slope below; roughy, snowy grouper, blueline tilefish, 50 cm brotulid, moray. Drop down to scour, base 233 m, rock pavement, rock slabs; 1 m *Leiopathes* white black coral, stylaster. No current. Transect back up east face of bioherm slope; 140 m east of wall. Numerous goblet Hexactinellida. 221 m- 45 dg rock slope, ledges; 210 m- steep rock pavement; stylaster, demosponges, hexactinellid cups, *Leiodermatium*. 205 m- ledge, fishing line; stylaster facing E; anthiids, yellow fin bass, black belly rosefish. Series of terraces and vertical escarpments as go up slope. 195 m- terrace, very rugged karst topography, 1 m tall rock outcrops; red barbier, red-white striped fish with white dorsal spine- bladefin basslet. 188 m- 90 dg wall, barren; 184 m- ledge; 183 m- vertical

**Dive Number:** Kraken 2 - 20

**Location:** Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak

wall; 177 m- 60 dg slope, rugged, red coralline algae, stylaster common; 171 m- 80 dg wall; 166 m- top of wall, edge of plateau, fishing line, barrelfish. Continue transect along rim; more snowy grouper.



**Dive Overview:**

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	95
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 21	<b>Specimens:</b>	1
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace Escarpment	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/27/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Pourtales_Esca rpment_Spur_15m.tif
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Stephanie Farrington
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	817	Total Transect Length (km):	0.8
Maximum Bottom Depth (m):	838	Surface Current (kn):	3
On Bottom (Time- GMT):	20:22	On Bottom (Lat/Long):	24°30.4470'N 80°20.9926'W
Off Bottom (Time- GMT):	21:45	Off Bottom (Lat/Long):	24°30.3222'N 80°21.1003'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft): 30 Current (kn): 0.25



Figure 1: *Chaceon quinquedens* and shrimp on sediment



Figure 2: Armored sea robin

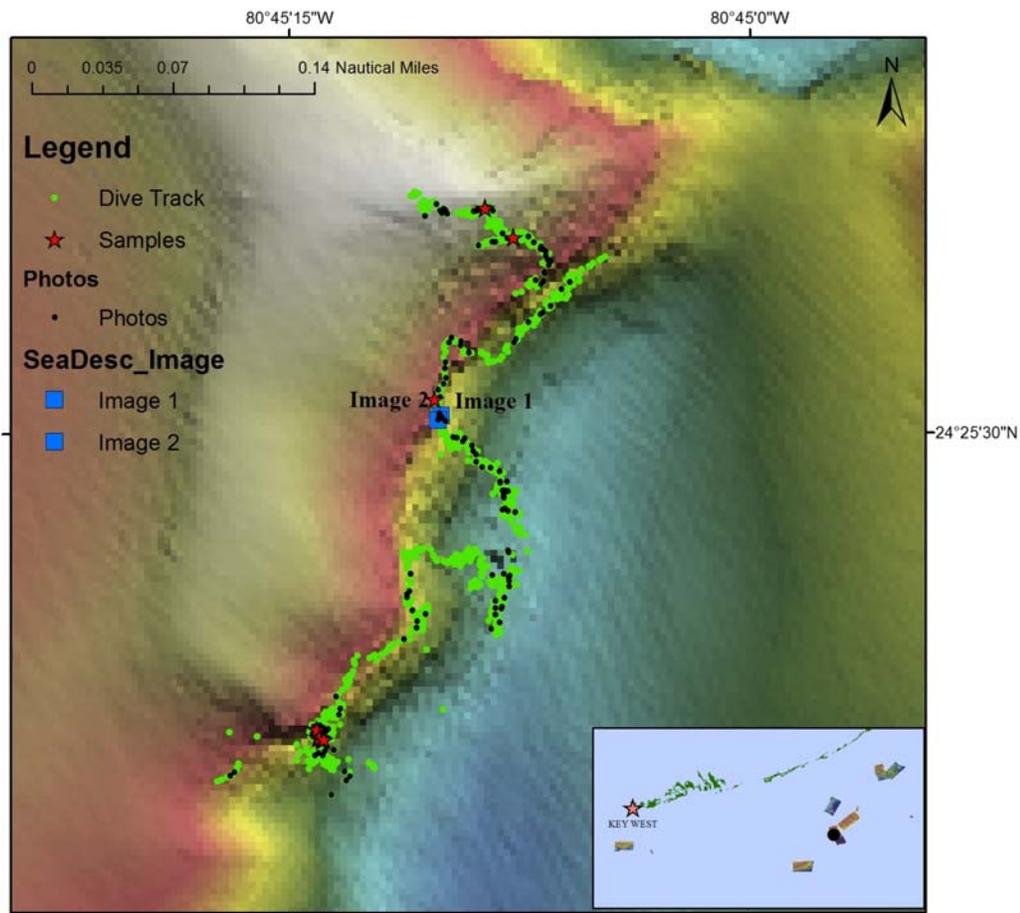
#### Notes (Objectives, Site Description, Habitat, Fauna):

**Objectives:** Survey Pourtalès Terrace; Pourtalès Escarpment Spur; outside CHAPC. Ground truth new multibeam data (*Nancy Foster*, 2011; one pass) and NOAA regional bathymetric charts; no previous multibeam sonar data available. Conduct photographic/video benthic survey and collections.

**Dive Events:** ROV tracking was intermittent. For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers. Descent to 838 m took 80 minutes; launched 1.5 nmi SW of target, but amazingly landed on the target site. Umbilical tension up to 2500 lbs at times on descent, but low once on bottom. Were able to station keep and transect to the NW, but only had 1 ¼ hour bottom time. 45 minutes to ascend.

**Site Description- Habitat/Dominant Fauna:** Site ~15 nmi east of Alligator Bioherm #3, and near EEZ.

Bathymetric contour chart shows steep slope from 700 m to 850. Surface current 3 kn from SE. Bottom current only ¼ kn but from N. Were unable to get to the steep slope of the map, but excellent video and photos of several unusual animals. On bottom at 838 m; flat sand, fine to medium grain with dense forams and pteropods; no mud. Sand ripples oriented NW-SE, alternate with flat areas that appear to have darker biofilm; every 10-20 m is a 30-50 cm sand ridge separating the ripple zone from the dark flat zone; but no change in depth overall. No evidence of bioturbation. Numerous 10 cm red shrimp with very long, delicate legs and antennae; excellent video of tripod fish, *Laemonema*, eel, red sea robin; red crab *Chaceon quinquedens*; squid; spider isopod in water column.



**Dive Overview:**

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	184
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 22	<b>Specimens:</b>	14
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/28/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Reed_Peak_31 1_6m_interp.tif
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Lisa Cohen
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	154	Total Transect Length (km):	1.14
Maximum Bottom Depth (m):	325	Surface Current (kn):	1.5-2
On Bottom (Time- GMT):	12:38	On Bottom (Lat/Long):	24°25.3198'N 80°45.2225'W
Off Bottom (Time- GMT):	16:49	Off Bottom (Lat/Long):	24°25.6258'N 80°45.1883'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn): 1



Figure 1: Stylaster and sponge hard bottom habitat

Figure 2: Slitshell with stylaster and zoanthids

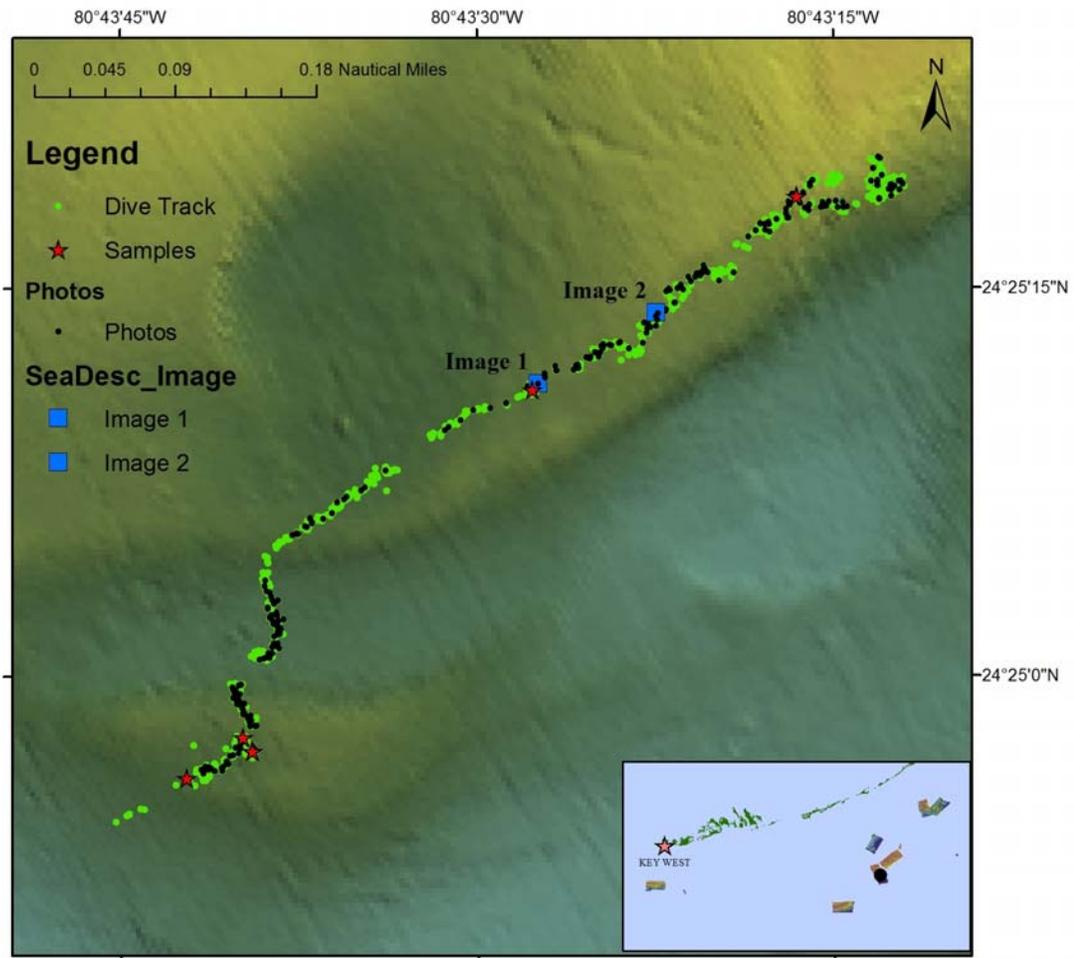
**Notes (Objectives, Site Description, Habitat, Fauna):**

Objectives: Survey Pourtalès Terrace; Reed Peak #311; inside CHAPC. Ground truth new multibeam data (Nancy Foster, 2011), 2010 Ron Brown multibeam, and NOAA regional bathymetric charts. Conduct photographic/video benthic survey and collections.

Dive Events: For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

Site Description- Habitat/Dominant Fauna: Nancy Foster multibeam shows elongate mound oriented NW-SE 920 m long; plateau at top with peak at north end at 150 m; maximum depth 374 m at SE base. Transect up SE slope, then along east rim, to large rock outcrop at east base, then up slope of east wall and parallel along upper ledge of wall. On bottom at SE base of mound, 300 m depth; 100% rock pavement, 40-60 dg slope, smooth, low relief, sparse biota. Head NW up slope; 278 m- 80 dg rock wall; 265 m- 90 dg; 255 m- ledge, then 60 dg slope; 248 m- 40 dg; dense stylaster coral, thin white and pink spp., cup coral; numerous demosponge spp., lumpy brown, plate Lithistida. Current 1 kn from S. 240 m- 45 dg rock slope; black belly rosefish. Difficulty station keeping, down weight pulling umbilical. 239 m- transect along face of upper east slope, 30 dg rock slope; dense biota, white thick stylaster; demosponges, lithistids, *Discodermia?* fingers, fluted *Leiodermatium*. Current ¼ kn from S. 244 m- 70 dg barren rock, series of smooth rock grooves parallel to slope. 253 m- 90 dg wall with ridges and grooves. Numerous fishing lines, rope, steel fishing line. Transect down slope to rock outcrop at base. 320 m- S base of wall on smooth rock outcrop, 2-3 m smooth grooves, some N-S, some E-W, smooth surface, relatively barren. Sparse 5 cm stylaster, scorpion fish, greeneye. Head NW back up east slope. Orange-white striped heavy body shrimp. 310 m- 70 dg rock slope. 289 m- 10 cm fish with red and white vertical stripes. 290 m- ledge, then 60 dg slope, smooth with 10 cm pits, stylaster some encrusting Porifera. 270 m- 80 dg, wall; 255 m- 90 dg with overhang, near top. 237 m- start Lithistida plates, and brown lump sponge, dense demosponges, and layers of stylaster. 3 spp stylaster, orange spherical Poecilosclerida, thick wall tube sponge, Dictyoceratida orange conulose, Lithistida plate; slit shell *Perotrochus midas*. 233 m- top east edge of top plateau, dense biota. Follow contour along 255-247 m ledge to north; series of ridges and grooves, smooth rock pitted; roughy, queen snapper. 240 m- head NW upslope to peak at north end of bioherm; 100 m to peak on multibeam. 80 dg slope; stylaster fields; roughtongue bass, black belly rose fish; dense demosponges, rasta sponge, *Geodia*. 214 m- near 100% cover, 10 cm thick piles of stylaster rubble and live. Collected 10 cm *Madracis* coral, rare. Lots of fishing line and lures. 181 m- more

exposed rock pavement, crisscrossed with fishing line. 177 m- collect 10 cm *Madrepora* coral, rare; dense black *Dendrophyllia* coral clusters. 170 m- *Madrepora* coral, more fishing lines and lures, 25 dg slope. 154 m- near peak (multibeam shows minimum depth of 150 m); rounded peak, low relief rock; small stylaster *Chaetodon aya*, anthiids school of greater amberjack; demosponges; orange zoanths; lots of spider crabs; cidaroids.



**Dive Overview:**

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	336
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	0
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 23	<b>Specimens:</b>	8
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/28/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Reed_Peak_31 1_6m_interp.tif
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	Andy David, John Reed, Stephanie Farrington
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	282	Total Transect Length (km):	1.4
Maximum Bottom Depth (m):	314	Surface Current (kn):	1.5
On Bottom (Time- GMT):	19:10	On Bottom (Lat/Long):	24°24.9404'N 80°43.6936'W
Off Bottom (Time- GMT):	22:27	Off Bottom (Lat/Long):	24°25.3221'N 80°43.2504'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft): 40 Current (kn): 0.75



**Figure 1:** Roughy and boulder habitat with *Actinoscyphia* anemones, crinoids and gorgonacea



**Figure 2:** 1-m tall Antipatharia black coral on

**Notes (Objectives, Site Description, Habitat, Fauna):**

Objectives: Survey Pourtalès Terrace; Wall SE of Reed Peak #311; inside CHAPC.

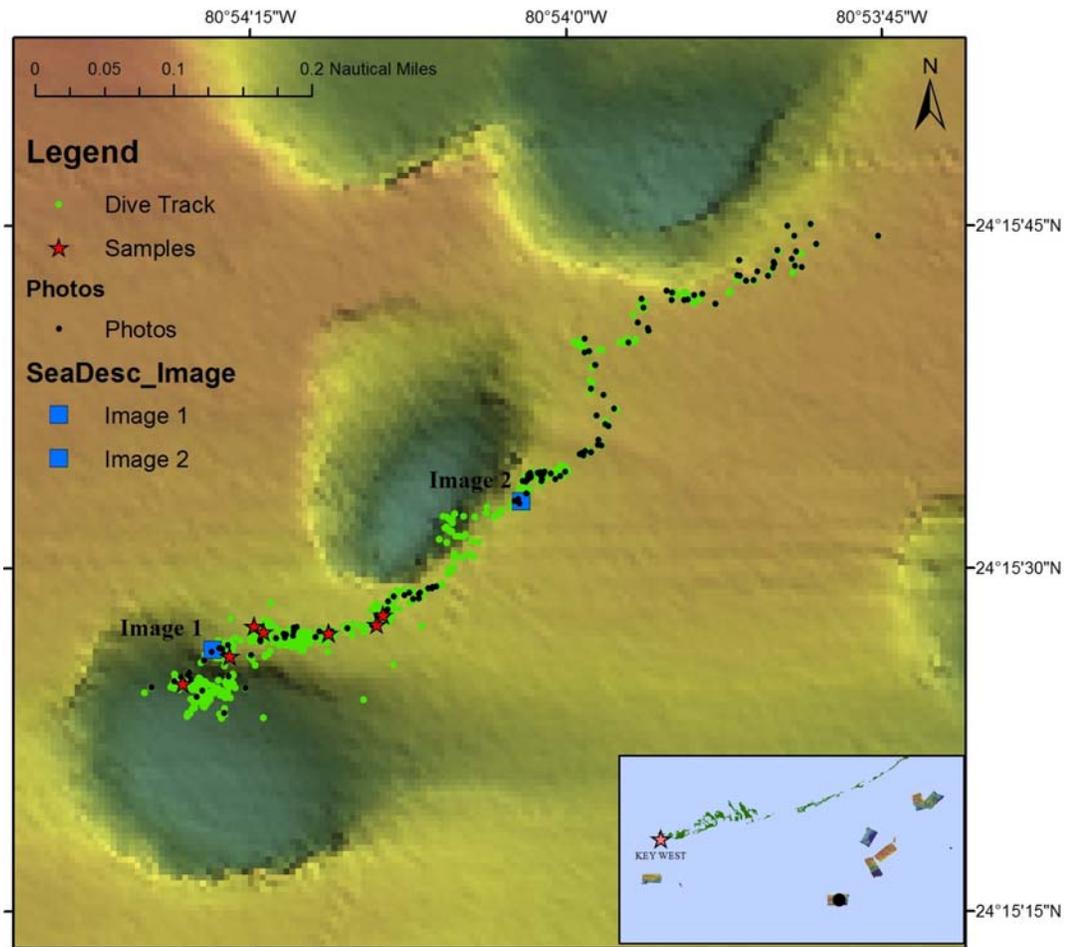
Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; no previous sonar data available. Conduct photographic/video benthic survey and collections.

Dive Events: For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

Site Description- Habitat/Dominant Fauna: *Nancy Foster* multibeam shows a long wall E-W, 305 m at base and 270 m at top; with isolated mounds at the base. Transect from small mound at SE end of wall, then up slope to the apparent wall, then E along slope. On bottom at 306 m on top of small mound. Flat smooth rock pavement with thick sediment veneer. Coral- sparse stylaster coral; Fish- red dory with huge pelvic fins, boarfish, greeneye, *Laemonema*, skate egg cases; Porifera- 10 cm mesh Raspailiidae, Farrea; Antipathidae- scattered black coral (4 spp.- *Leiopathes*, tan, bottle brush, *A. bipinnata*?), 1 m *Leiopathes* with large gooseneck barnacles; yellow zoanthid on dead antipathes; Gorgonacea- 10 cm yellow Plexauridae common, *Isidella*, purple Paramuriceidae, 1 m tall Callogorgia common, most with basketstars and *Astroschema*, white gorgonians. North slope of mound 306 to 312 m, smooth slope, no ledges. Crossed valley to base of slope to north. Flat pavement, sediment, sparse gorgonians, *Callogorgia*; black coral; *Hyalonema*; koosh anemone. 312 m- near base of apparent wall of multibeam, 100% coarse sediment. 307 m- sediment, no wall or ledges. 303 m- 100% pavement, slabs with 10 cm relief, sparse stylaster. 2 m rock outcrop, 30 cm relief- oasis of life: 3 roughy, yellow plexaurid, white nephtheidae, *Spongosorites*, hydroids, *Crinometra brevipinna*, no stylaster, *Eumunida*. Rock pavement, phosphoritic with fractures, low ledges, vertical plates; very much like Miami Terrace, 1 m ledge. Boarfish, red hogfish, roughy; Astrophorida; *Isidella*; 2 m *Leiopathes*; Bathynectes. 287 m- top of wall on multibeam; 20+ roughy, no fishing gear; 1 m *Antipathes*. Ledge at top edge with thin crust and undercut, 1 m escarpment, then rock slope below; very sparse stylaster; roughy; Pachastrellidae, *Geodia*; red starfish. 281 m- rock pavement; barrel fish, snipefish; fan sponges, fan sponges facing W with sediment on E side; dense yellow plexaurids, purple gorgonians, white gorgonians. Current ¼ kn from SE.

**Dive Number:** Kraken 2 - 24

**Location:** Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes



### Dive Overview:

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	205
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 24	<b>Specimens:</b>	10
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/29/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Marathon_Sink hole_8m_interp
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Lisa Cohen
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	439	Total Transect Length (km):	1.33
Maximum Bottom Depth (m):	492	Surface Current (kn):	1.75
On Bottom (Time- GMT):	12:32	On Bottom (Lat/Long):	24°15.4407'N 80°54.2753'W
Off Bottom (Time- GMT):	16:31	Off Bottom (Lat/Long):	24°15.7462'N 80°53.7192'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn): 0.25



Figure 1: Boulder habitat with fan sponges and crinoids



Figure 2: *Lophelia* and *Madrepora* corals

### Notes (Objectives, Site Description, Habitat, Fauna):

Objectives: Survey Pourtales Terrace; Marathon Sinkholes 1,2, and 3; inside CHAPC.

Ground truth new multibeam data (*Nancy Foster*, 2011) and NOAA regional bathymetric charts; Marathon Sinkhole surveyed by Navy NR 1 submarine (Land and Paul side scan), but only one sinkhole was known. Conduct photographic/video benthic survey and collections.

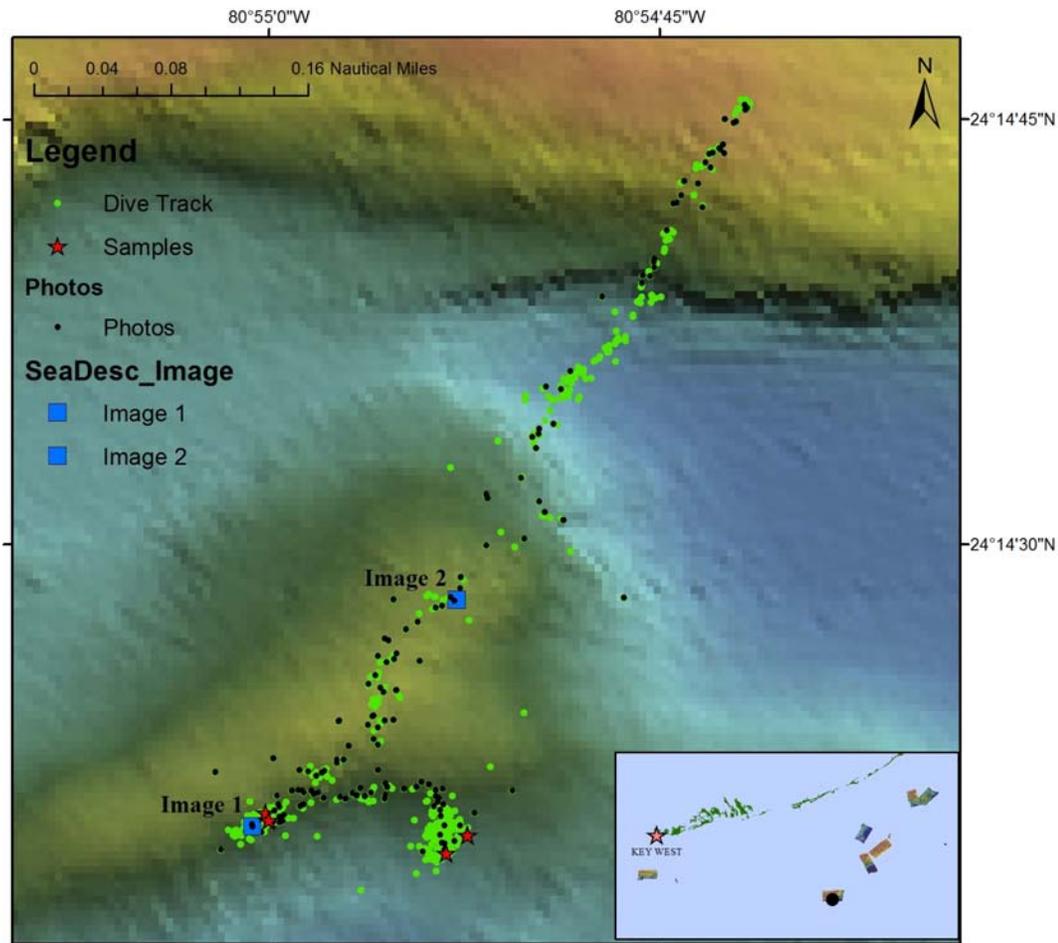
Dive Events: For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

Site Description- Habitat/Dominant Fauna: *Nancy Foster* multibeam shows 4 sinkholes in the vicinity of Marathon Sinkhole. Sinkhole 1 (Marathon)- is a double sinkhole, 900 m diameter E-W, 580 m N-S, maximum depth 527 m, top N rim 445 m; 900 m to south is Sinkhole 2- 400x320 m diameter, maximum depth 529 m; 380 m south of Sinkhole 2 is Sinkhole 3- 350x450 m, 525 m depth; Sinkhole 4 to the west is 550x650 m, 513 m depth. Started transect at north rim of Sinkhole 3, continued to SE rim of Sinkhole 2 and along E rim; then to SE rim of Sinkhole 1 (Marathon). Surface current was 1 ¾ kn and bottom was estimated at ¼ kn. On bottom, near north rim of Sinkhole 3, depth 489 m. Flat, 100% rock pavement with 10-30 cm phosphoritic limestone boulders; white stylaster; beardfish; Porifera- fan sponges, *Phakellia*, Astrophorida; dense gorgonians, Plexauridae, Primnoidae; *Comatonia cristata*; squid. Transect to north wall of sinkhole; several 1 m ridges oriented NE-SW. 15 cm dead *Dendrophyllia*(?) coral; mesh fan sponges Raspailiidae; *Eumunida*. 492 m- north rim of sinkhole 3. Current 0.1 kn. Isididae, vase hexactinellids. North slope with ½ to 1 m ridges of phosphoritic rock, and pavement terraces; 6' shark. Difficulty station keeping; current near 0. Unable to station keep. Transect to SE rim of Sinkhole 2; pavement with rock ridges, phosphoritic rubble, cobble. Depth 490 m- Coral- 10 cm dead *Dendrophyllia* coral, four clusters of 15 cm live *Lophelia* coral; Fish- *Laemonema*, *Nezumia*, beardfish; Porifera- *Phakellia*, yellow hexactinellids, fan sponges oriented NW-SE, cupped to SW; Gorgonacea- Primnoidae, *Callogorgia*, *Eunicella*; 1 m orange *Leiopathes*, dense cover; *Democrinus brevis* stalked crinoid. Surface current 1 kn; bottom ¼ kn; great difficulty station keeping and collecting. 489 m- SE rim of Sinkhole 2; 90 dg rock wall. Transect along face of wall to N. Edge sparse biota, small gorgonians, smooth rock, fan sponges, *Eumunida*, few stylaster. Station keeping problems, ROV down weight on bottom. East rim- rock pavement; Coral- 10 cm *Enallopsammia profunda*, 10 cm *Lophelia pertusa*, 15 cm orange *Madrepora* coral, orange cup coral; Fish- *Polymixia* beardfish, *Nezumia*; Porifera- demosponges, *Aphrocallistes*,

fan sponges; Gorgonacea- dense gorgonians, Primnoidae, Paramuriceidae, *Chyrsogorgia*, *Bebryce*; white *Leiopathes*; *Bathynomus gigantea* giant isopod; crinoids. Transect along rim to N; smooth rock brow, no ledge at top, 90 dg wall below; Coral- 20 cm *Lophelia*, several *Lophelia* live; numerous *Polymixia japonica* beardfish; *Geodia*. 485 m- NE rim of Sinkhole 2, transect to SE rim of Sinkhole 1 (Marathon Sinkhole). 100% flat rock pavement, some phosphoritic boulders and ridges; Six *Beryx*, cat shark; *Chaceon fenneri*, 2 mating; few stylaster; orange *Leiopathes*; grey gorgonians, biota more sparse. 479 m- south rim of Marathon Sinkhole, rock pavement on top, rounded brow, then vertical; 5 cm *Lophelia*, 5 cm stylaster; few sponges; 5-10 cm grey gorgonians, orange paramuriceids; red *Leiopathes*; *Eumunida*. Transect along SE edge, 483 m. More barren, smooth rock, pitted; 4 more 5 cm *Lophelia*; *Chacon fenneri*; dense white 5 cm gorgonians. Depth 486 m- end transect, SE rim of Marathon Sinkhole.

**Dive Number:** Kraken 2 - 25

**Location:** Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole



### Dive Overview:

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	282
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 25	<b>Specimens:</b>	11
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/29/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Marathon_Sink hole_8m_interp
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	Andy David, John Reed
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	469	Total Transect Length (km):	1.31
Maximum Bottom Depth (m):	573	Surface Current (kn):	1.5
On Bottom (Time- GMT):	18:44	On Bottom (Lat/Long):	24°14.3178'N 80°54.8882'W
Off Bottom (Time- GMT):	22:17	Off Bottom (Lat/Long):	24°14.7589'N 80°54.6950'W
Physical (bottom); Temp (°C):		Salinity:	Visibility (ft):
			Current (kn): 0.25

Figure 1: *Lophelia pertusa* habitatFigure 2: Large *Lophelia* colony with black coral and *Laemonema* codling

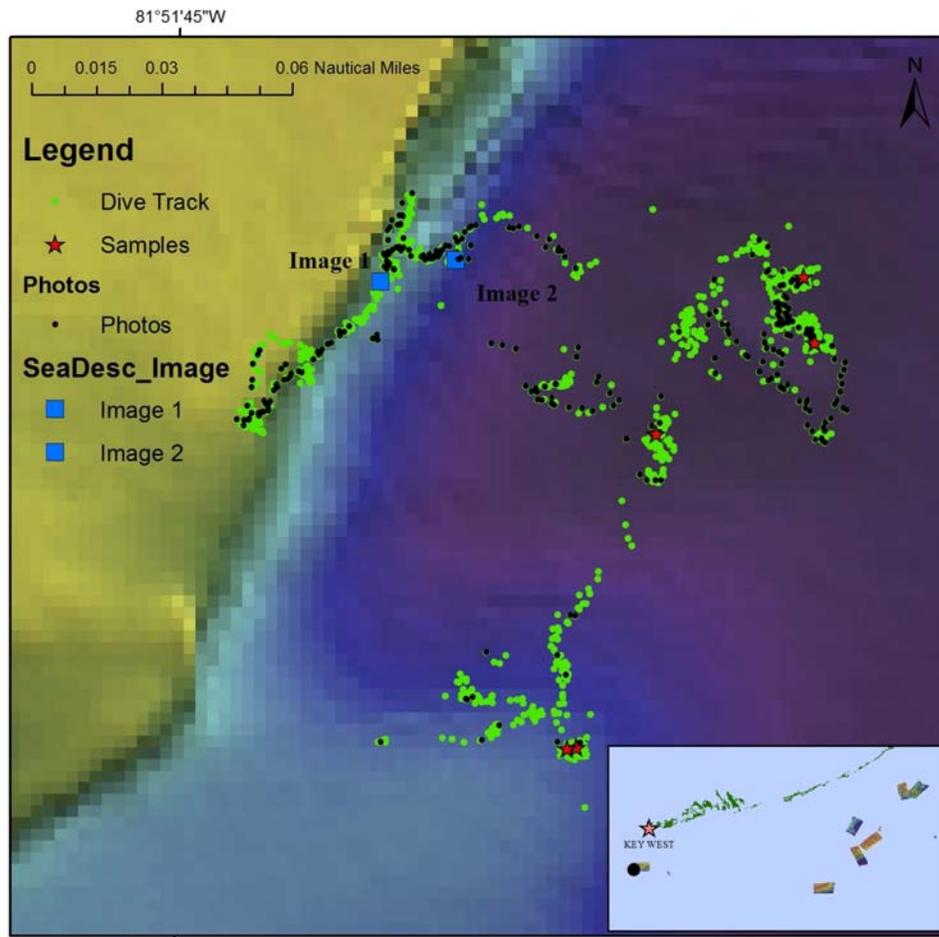
## Notes (Objectives, Site Description, Habitat, Fauna):

**Objectives:** Survey Pourtales Terrace; *Lophelia* coral mound and wall south of Marathon Sinkhole; inside CHAPC. Ground truth new multibeam data (Nancy Foster, 2011) and NOAA regional bathymetric charts. Conduct photographic/video benthic survey and collections.

**Dive Events:** For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

**Site Description- Habitat/Dominant Fauna:** Nancy Foster multibeam shows an extensive N-S oriented ledge, 2450 m long, to the east of the sinkholes, 490 to 545 m depth. This ledge curves south of the sinkholes for 1360 m where it is oriented E-W, with a 460 to 575 m drop. At the base of this ledge are several mounds; one surveyed is a 48 m tall *Lophelia* coral bioherm, 548 m at S base, and 500 m at peak. Transect started at south base of coral mound, up south slope and along peak of mound, then continued across valley to wall from 574 m 470 m. Surface current was 1.5 kn; bottom ¼ kn. On bottom, 547 m, at south base of mound. Flat, 10 dg slope, rock pavement, with piles of dead, brown coral rubble (uncertain spp.), stylaster; spotted cat shark; Porifera- ~6-8 spp. Porifera, *Aphrocallistes*, *Vazella*, 4 hexactinellids, yellow sponges. Depth 540 m- 100% coral rubble; 10-30 cm standing dead and some 10 cm live *Lophelia pertusa*. 532 m- more live *Lophelia* 40 cm, 100% coral rubble and 10-30 cm standing dead coral, 20 dg slope. 531 m- coral rubble on rock pavement; yellow sponges, 1 m sombrero sponges; while gorgonians; *Chaceon fenneri*. 519 m- transect to SW along upper south slope, 45 dg slope, series of terraces, 2-3 m phosphoritic slabs, 30 dg rock slabs; *Chaceon fenneri*, several, mating, coral cover ends; orange *Antipathes*. 516 m- no *Lophelia*. 510 m- slabs with 50 cm live *Lophelia*. 504 m- 100% cover of coral, 5-8 m long rows of 50 cm tall *Lophelia* colonies, forming hedge rows, 5 m apart. Zero current. Heading SW whereas coral hedges are facing SW into the prevailing current, so most of the pictures are of the dead back side of the coral rows. 509 m- Change transect, head NE, opposite of previous transect, so viewing the living side of the coral rows. Series of 3-4 m long, 50 cm tall live *Lophelia* hedges; 30% live, individual colonies ½ m tall scattered. 500 m- near top of mound on multibeam, conger eel, school of squid. Near center of mound, flat, 100% coral cover, 3-4 m x 50 cm live coral hedges, every 5-10 m, and areas of individual 50 cm colonies, live. 1 m tall *Lophelia* w/ red *Leiopathes* (picture); 1 m sombrero sponges, plate Astrophorida; primnoids, yellow paramuriceids; *Chaceon*. 510 m- upper north slope of mound, small 10 cm *Lophelia*, all coral rubble; Porifera- *Aphrocallistes*, *Phakellia*, *Vazella*; gorgonians, yellow paramuriceids;

Antipathidae. 517 m- flattening out, near north base; pavement and rubble. 521 m- off mound heading N to wall. 100% rock pavement, coral rubble; very sparse biota, small stylaster; *Laemonema*, skate; *Vazella*, *Phakelia*; Isididae; red *Leiopathes*; *Chaceon*. 535 m- rock slabs, ridges, ledges, field of black coral. Steep wall, smooth rock, but not visible on multibeam. 562 m- flat rock; swordfish. 574 m- maximum depth of valley- 100% sediment with ripples. 185 m distance to wall; cat shark, royal red shrimp. 537 m- base of wall, vertical rock, smooth; *Vazella*, Isididae, Hydroida. 529 m- 10 dg rock slope. 517 m- rock wall, phosphoritic rock outcrops; scorpion fish, red *Leiopathes*. 502 m- flat rock with 30 cm slabs; 484 m- smooth rock slabs, dense gorgonians and fan sponges, Isididae common; 475 m- flat rock pavement; 470 m- black phosphoritic rock outcrops on pavement, 10-30 cm phosphoritic cobble; dense sponges, plate Astrophorida, yellow gorgonians, Isididae, crinoids, *Eumunida*.



**Dive Overview:**

<b>Project:</b>	NOAA CIOERT DSCR P FLOSEE II	<b>Sensors Used:</b>	No Sensors Used
<b>Principal Investigator:</b>	John Reed	<b>Digital Photos:</b>	335
<b>PI Contact Info:</b>	5600 U.S. 1, North Fort Pierce FL 34946	<b>Hard Drive:</b>	1
<b>Purpose:</b>	CIOERT Y3 Field Research	<b>HDCam:</b>	2
<b>Expedition</b>	<a href="http://www.cioert.org/flosee2">www.cioert.org/flosee2</a>	<b>DVD:</b>	2
<b>Dive #:</b>	Kraken 2 - 26	<b>Specimens:</b>	6
<b>Vessel:</b>	NOAA Ship Nancy Foster	<b>ROV Navigation Data:</b>	Track Point 2, WinFrog
<b>Location:</b>	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	<b>Ship Position System:</b>	DGPS
<b>Date of Dive:</b>	9/30/2011	<b>Sonar Data:</b>	NF1109_CIOERT_Key_West_Bioherm_5m_interp
<b>Data Management:</b>	Access Database, WinFrog	<b>Scientific Observers:</b>	John Reed, Lisa Cohen
<b>Date Compiled:</b>	2/14/2012	<b>Report Analyst:</b>	John Reed, Stephanie Farrington

## Dive Data:

Minimum Bottom Depth (m):	185	Total Transect Length (km):	0.95
Maximum Bottom Depth (m):	255	Surface Current (kn):	0.1
On Bottom (Time- GMT):	12:27	On Bottom (Lat/Long):	24°20.8432'N 81°51.6737'W
Off Bottom (Time- GMT):	15:42	Off Bottom (Lat/Long):	24°20.1985'N 81°51.7227'W
Physical (bottom); Temp (°C):		Salinity:	
		Visibility (ft):	
		Current (kn):	1



Figure 1: Snowy grouper under ledge



Figure 2: Caribbean rough shark on sediment veneered hard bottom

**Notes (Objectives, Site Description, Habitat, Fauna):**

**Objectives:** Survey Pourtales Terrace; Key West Bioherm, outside CHAPC. Ground truth new multibeam data (Nancy Foster, 2011) and NOAA regional bathymetric charts. Conduct photographic/video benthic survey and collections.

**Dive Events:** For quantitative photos, digital still photos were taken ~2/minute traveling at 0.4-0.5 kn for entire dive; stopping for species-specific, non-quantitative photos. Kongsberg high-definition video camera- 10 cm parallel lasers; Scorpio digital still camera- 10 cm lasers.

**Site Description- Habitat/Dominant Fauna:** Nancy Foster multibeam shows an escarpment oriented N-S from 193 m to 235 m with a deeper basin to depth of 254 m to the east and a relatively flat hard bottom plateau on top. The transect started at the southern base of the wall and proceeded north over a mound at the base of the wall, then up the east face of the escarpment. Surface current was 0.1 kn from the SE. On bottom, 230 m, at the SE base of the escarpment. 100% hard bottom pavement, pitted, 5 m stylaster coral salmon pink, cidaroid urchins, sagartiid anemones common, orange pentagonal asteroids. NW-SE ledge and 228 m, smooth rounded rock; boarfish, *Geodia*. Transect 150 m N to mound. Rock pavement with some 1 m scoured rock, pits; anthiids, black belly rosefish; white *Leiopathes*. Depth 254 m- SW of mound, pavement with 10-30 cm phosphoritic cobble, 30 cm ledges and slabs. Current ¾ kn to NW. Coral- white and pink stylaster; Fish- 40 cm snowy grouper, 40 cm blueline tilefish; no macro sponges; Antipathidae- 2 m diam orange *Leiopathes*, 1 m white *Leiopathes*; few gorgonians; Sagartiid anemones. Current 1 kn to NE. 254 m- at north base of mound, 120 m east of escarpment. Transect south to peak, 225 m; series of 1-2-m relief ledges, phosphoritic ledges, rock slabs. Fish- snowy grouper, anthiids, roughtongue bass; stylaster; *Callogorgia*, *Plumarella*, white gorgonians; sagartiid anemones; white *Leiopathes*; crinoids; *Eumunida*; sea weenies holothurians. Peak of mound surrounded with 1-m ledge; 2 roughies, longline; Astrophorida, stalked sphere Hexactinellida, *Geodia*; orange *Stichopathes*; Nephtheidae; *Rochinia hystrix*; crinoids. Circumnavigated the mound. 10-20 m area of 10-20 cm petrified dugong rib bones (Miocene age, Reed et al. 2005); 50 cm goosefish. West base of mound, 254 m- rock cobble, slabs, and 1 m outcrops transitions to pavement. Transect to base of escarpment then up wall. 218 m, east base of wall- 30 dg rock slope, ledge; 50 cm rough shark, *Oxynotus*, range extension, snowy grouper; coralline pink algae on rock. 45 dg slope, rugged and pitted rock, white carbonate rock, rugged karst-like rock; sparse stylaster; 2 snowy grouper, roughy; small thin sponges, no large sponges; white gorgonians; sagartiid anemones; triton. 207 m- ledge, 30 dg rock slabs. 204 m- ledge, smooth rock above, barren, then 90

**Dive Number:** Kraken 2 - 26

**Location:** Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm

dg wall; 2 m white *Leiopathes*. 195 m- top of wall, flat pavement with thin crust undercut 1 m at edge; stylaster, sagartiid, 1 m *Leiopathes*. Transect along edge to south, very dense biota along edge; stylaster coral; snowy grouper, 50 cm, tilefish, roughy, anthiids; white *Leiopathes*; 50 cm orange paramuriceids, Primnoidae; flytrap anemones; hydroids; basketstars. Short transect south on top of edge for photos.

ROV Dive #	HBOI Site #	Location	Lat-DD	Long-DD	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33007667	-81.68423833	279.103	9/23/2011 17:45	Bottom in sight				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33009167	-81.68422667	283.68	9/23/2011 17:45	Coral- Stylasteridae; Ascidiacea; biogenic rubble' sea urchin spines and tests' hydroids; Coral- coral rubble; Actiniaria; Coral- Stylasteridae; lasers are 10 cm = 4 inches; fill out field of view is 1 m. Coral- Stylasteridae rubble; and phosphoric limes	hard bottom; rock and coral rubble 3- 5; Slope- flat; pavement;	HB		Coral- Stylasteridae; Coral- coral rubble
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33007833	-81.68421167	284.615	9/23/2011 17:51	Gorgonacea - 15 - 20 cm white planar hd to see it;	hard bottom; rubble; Coral- coral rubble; Slope- flat;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33008667	-81.68416833	284.382	9/23/2011 17:53	video of sample 001; Scorpion fish; Sonar map we are in the axis of the trench - deep blue are on the sonar; older rubble that appears to be Coral- Lophelia rubble - mostly Coral- Stylasteridae rubble and carbonate rubble; most is rock; still Photo of sco	hard bottom; rubble; Coral- coral rubble; Slope- flat;	HB	001	Coral- Lophelia rubble
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33006167	-81.68416667	284.101	9/23/2011 18:04	< .1 kt current to heading North to South.	hard bottom; rubble; Coral- coral rubble; Slope- flat;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33007167	-81.68412833	289.68	9/23/2011 18:08	head about 10 yrd from sample; start photos;	hard bottom; rubble; Coral- coral rubble; Slope- flat;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33003833	-81.68411833	282.887	9/23/2011 18:08	basket stars; Coral- Stylasteridae - 3 or 4 species; Gorgonacea - same as sample 1; sitting down for video footage; galathead; Moluska tulip shell; small red fish RECHECK Species; spider crab; Sagartiidae Actiniaria; 40 cm basket star -	hard bottom; Rock; Slope- moderate (<350); relief increases on a large out crop .5 m	HB	002	Coral- Stylaster
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33	-81.68406	284.335	9/23/2011 18:17	Human Debris - canaster with a sinker and fishing line; Scorpion fish; red and white fish - 8 cm braud white stripe from dorsal to anal fin; Snowy grouper; stobe on still camara died and maybe back up; same site +- 5 m resolution with occasional 10-20 m	hard bottom; Rock; Slope- moderate (<350);	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33000167	-81.68405333	284.008	9/23/2011 18:43	Echinodermata - starfish; collecting 003	hard bottom; rubble; Coral- coral rubble; Slope- flat; Rock;	HB	003	
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32997667	-81.68409667	284.008	9/23/2011 18:49	Starting photo transect on the base of the ledgePhoto XS (quantitative)- start; photo number 3234 Ledge is 1/2 meter outcrop ledge, 30-40 cm tall; FishPhoto XS (quantitative)- End; to look at fish				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33001167	-81.68401667	289.68	9/23/2011 18:51					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.330005	-81.68405333	284.241	9/23/2011 18:51	Zooming in on 30 cm ledge; pan; 2 yellow fin bass; panning to left; black coral 30 cm Antipathes (white polyps)				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33	-81.68401333	288.68	9/23/2011 18:59	quarter knot current while collecting sample			004	
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32998167	-81.68399667	284.849	9/23/2011 18:59	photo 3237				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33000667	-81.684005	284.755	9/23/2011 19:10	Photo XS (quantitative)- start; start transect towards slope; camera in homing mode 25deg; scorpion fish; basketstar edge of outcropping; 80% cover of Coral- Stylasteridae; 4 photos per minute; yello sponge Spongosorites sp.; desmosellid Demospongiae; Sco				Coral- Stylaster
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33005333	-81.68405333	282.513	9/23/2011 19:14	forward, 0.5 m off bottom;	thin encrusting sponges; blue; 4 species of stylaster; Coral- Stylasteridae; ; rock cobble, boulder, 10cm-20cm; Coral- coral rubble;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33013667	-81.68395333	281.392	9/23/2011 19:17	Photo XS (quantitative)- End;	rubble; cobble; rock Coral- Stylasteridae; off; 100% rock pavement	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33016833	-81.68394167	281.205	9/23/2011 19:17	turning around to start transect 2; Scorpion fish; Antipathidae; white Gorgonacea; zooming infishing weight; Human Debris; Scorpion fish; 200 m to ; starfish				

Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.33012667	-81.68405	281.719	9/23/2011 19:20	Photo XS (quantitative)- start; Hexactinellida; fly trap anemone; most of photos are not working; quarter knot; ahead 225 deg; 100% hard bottom ; rubble; cobble; 5-20cm Coral- Stylasteridae rubble; sparse biota; few Stylaster, anemone; metal lid; Human De					Coral- Stylaster
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32996333	-81.68424667	290.68	9/23/2011 19:24	laser back on (photo not taken); Photo XS (quantitative)- start; 3rd species black coral (Reddish pink);					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.329965	-81.68427667	285.176	9/23/2011 19:25	strobe still not firing; Zoanthid growing on dead Gorgonacea; dead black coral stalk with zoanthids growing on; galatheids; Scorpion fish; cigar ; low relief few cm marks; Scorpion fish; black coral 1-1.5 m tall; no photos;	same; pavement		HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32986833	-81.68429167	283.821	9/23/2011 19:27	moving at 0.25 knot; rock outcrop boulder 0.5m diameter; Laemonema barbatulum; Coral- Stylasteridae; Demospongiae (Several species); cigar; venus flytrap anemone; Laemonema barbatulum; black coral; no photos; Galtheid; Scorpion fish (20 cm); anthiid; Pho					Coral- Stylaster
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32981	-81.6843	281.112	9/23/2011 19:28	stop to collect sample 005; hold ship position; Human Debris; fishing line				005	
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.329805	-81.68433833	281.299	9/23/2011 19:29	40 yd from base of north pinnacle; rock pavement; rock outcrop 1m covered with black coral busy white; large immunidae; Laemonema barbatulum; ciugar(?); anemone; fishing line Human Debris; 15 cm vase sponge collected; large coil of fishing line steel meta					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32981	-81.68436167	281.672	9/23/2011 19:36	White ascidians				005	
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32978	-81.68436167	287.68	9/23/2011 19:41	10 min on tapes					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32980833	-81.68431833	282.186	9/23/2011 19:45	hermit crab in conical shell, yellowish with white with distinct orange blotches; rock pavement; scattered 1-2 m rock outcrops; snowy grouper - small maybe 20 cm; repositioning to come in at different angle; Scorpion fish; anthiids with purple tail; anoth					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32978333	-81.68430833	284.68	9/23/2011 19:48	line (lower right);					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.329775	-81.68429833	280.178	9/23/2011 19:49	no sample 005 collected; no photos; Photo XS (quantitative)- start; reset camera; starting to come up on north slope of peak at base; cigar anemones; solitary Laemonema barbatulum; starfish;	100% hard bottom; rock pavement; low relief; very smooth white carbonate rock; with occasional outcrops of carbonate;		HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.329665	-81.68439	276.16	9/23/2011 19:51	roughy fish; snowy grouper; start new tapes; Darwin's slimehead GephyroBeryx darwini; nondescript anthiids; big black coral; new tape DVD	100% hard bottom; rock pavement; low relief; very smooth white carbonate rock; with occasional outcrops of carbonate;		HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32969	-81.68439333	273.68	9/23/2011 19:54	Roughy fish (a couple); Photo XS (quantitative)- start; stylaster tethyester; dripping white very unusual perhaps soft Cnidarian? Fingers ~5cm; more anthiids; rock outcrops 1-2m in diameter, 0.5m relief covered in stylaster while flat pavement is barren;					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32960667	-81.68446167	278.68	9/23/2011 19:58	40 m from north base of peak; going up slope; Human Debris fishing gear; moving up slope take a fix; numerous fishing line; drop weight (sash weight, about 5 lb); boulder outcrop about 3 m across; ~1m relief; 30 deg slope; stairstep terrace slope; ~1m blac					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.329595	-81.68451333	273.404	9/23/2011 20:01	45 deg slope boulder hanging off side but attached; anthiids; keep moving up slope; little ledge ; white and orange Coral- Stylasteridae; another rock outcrop; yellowtail Anthias; yellow Dendrophyllia coral ~10cm;					Coral- Dendrophilia
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32950167	-81.68454667	274.68	9/23/2011 20:03	lower flank of north slope of peak; heading up slope; Cidaroid urchin; another species of anemone (light yellow); another sash fishing weight; transparent Cnidarian (unidentified Anthozoan)	100% smooth gray carb rock; small pock marks; dom species anemones; small white pink Stylaster; blue encrusting sponge; hermit crabs;		HB		

Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32943667	-81.68457	272.68	9/23/2011 20:07	0.2 knots; continueing up 40deg slope; another sash wight; another 1-2m tall black coral with goose barnacles (Marco scallellum); rock is eroded out with white carbonate limestone; 5 cm light pink Nephtheidae (Cnidaria); Scorpion fish; snipe fish; tall bla	100% smooth pavement;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.329315	-81.68461333	262.68	9/23/2011 20:10	45 deg slope, still at lower foot of the slope				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32919	-81.68470167	256.68	9/23/2011 20:12	steel line; going up hill; top of hill is 177m; more steel line;				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.329155	-81.68464667	251.68	9/23/2011 20:13	top of ridge; stairstep terrace valleys; steep 45deg slope; sea urchin (Coelopleurus urchin); slimehead; 2 species of anthiids; starfish (Gonistierie(?)); zoanthids; 1	rock pavement with occasional outcrops of several m diam;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32903667	-81.68470333	237.063	9/23/2011 20:15	dominant species Anemones; followed by Stylaster; some encrusting sponges; no large sponges (except 1 we tried to collect); big brittle stars about 10 cm striped; tail of Conger eel; maybe 1 m long thick body dark black mottle coloration; large 10-15 cm b	100% cover of black phosphoritic ledges; rugged topography; rugged rock; very dense cover of anemones and Stylaster; 80% cover; stairstep terraces slope;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32898167	-81.68469667	231.878	9/23/2011 20:18	sonar map still middle slope of north wall; tile fish blue line or black line; barrot's fish; another species of Gorgonian				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32893167	-81.68473	230.851	9/23/2011 20:19	60 more m to top of wall (About halfway up); tipecfish still ahead; very dense anemones and Stylaster; collect sponge 15 cm spherical apical collostean; white color rare; halway up on north slope of peak on pinnacle ; large snowy grouper;	very rugged phosphoritic limestone;	HB	006	
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32885	-81.68477667	226.787	9/23/2011 20:46	continue the transect up slope - Camera strobes are dead - no photos; SONAR - half way up slope on north wall; Sagartiids Actiniaria; Coeloplurus floridanus Echinodermata - ; blue Desmacella Demospongiae;	hard bottom; pavement; Slope- steep (>35o) 45 degree;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32877667	-81.6848	221.695	9/23/2011 20:49	Junonia and new Coral- Stylasteridae; hermit crab; Zoanthidea; encrusting Demospongiae; 2-3 species of white encrusting Demospongiae; Antipathidae with yellow Zoanthidea;	hard bottom; pavement; Slope- steep (>35o) - 60 degree	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.328715	-81.684815	213.848	9/23/2011 20:50	Slope- flat;	hard bottom; pavement; Slope- steep (>35o) 60 degree;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32866667	-81.68479	204.68	9/23/2011 20:53	purple Gorgonacea; tosia; astroschema; Antipathidae; <.25 kt current; pocked mared rock slope; no ledges' low relief 5-10 cm ledge;	hard bottom; pavement; Slope- steep (>35o);	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32863167	-81.6848	191.847	9/23/2011 20:55	burrow in the rock; 80-90 % cover of encrusting Demospongiae, Ascidiacea; paramuricid Gorgonacea; vilogorgia Gorgonacea; white Gorgonacea; Coral- Stylasteridae; Astrochema; cup coral Scleractinia, Javania?? - 1 cm white;	hard bottom; pavement; Slope- steep (>35o);	HB		Coral- Cup coral
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32865333	-81.68485667	187.923	9/23/2011 20:57	top of vertical escarpmet; Antipathidae; Gorgonacea; Laemonema barbatulum; 1-2 m ledges; galatheids; Anthiid; Scorpion fish;	hard bottom; pavement; Slope- steep (>35o) near vertical - ;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.328655	-81.68483167	190.68	9/23/2011 20:58	Top of wall; snowey grouper - acording to SONAR were still 40 m from the peak;	hard bottom; Rock- wall; Slope- flat;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32862167	-81.68482833	188.68	9/23/2011 20:58	pavement; Slope- flat; low relief; less then 10 cm ridges; Antipathidae - red, orange;	hard bottom; pavement; Slope- flat;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32857	-81.68485667	182.785	9/23/2011 20:59	HUGE BLACK CORAL - 2 m wide stalk is 10 cm diam; hermit crab; antigonina - boar fish; galathead; hydroids in the coral; small gastropods - Marginella; snowey under the tree;	hard bottom; pavement; Slope- flat;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.328525	-81.68488833	188.68	9/23/2011 21:03	at least 4 big snowy grouper (maybe more) swimming by base of gorgonian; one ~ 70 cm, one has dorsal spines displayed; smaller one is 30-40 cm; fishing line in front of Gorgonian; may be more than 4 fish (several in dark areas surrounding); panning; anoth				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32852833	-81.68489333	183.719	9/23/2011 21:11					
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32852667	-81.68486167	189.68	9/23/2011 21:12	start transect from peak down to face; 6 snowy grouper now; heading southwest then southeast;	flat pavement	HB		

Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32851667	-81.684885	183.533	9/23/2011 21:15	Photo XS (quantitative)- start; heading southwest; 30-40ft visibility; mucus/plankton/sea snot in water; heading of 212 numerous black coral; boar fish anthiid; more egg casings on 1-1.5m black coral; Geodia sponge; Coral- Stylasteridae;				
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32826667	-81.6849	182.925	9/23/2011 21:18	anthiids; several boarfish; Human Debris fishing line; several species of anthiids; 10 cm yellow striped blind eye; yellow pelvic and anal fins; snowy grouper; tilefish in distance (blue or golden);	flat pavement; pock marks of 5 cm; relief; cominant white anemone; few Stylaster; 20 cm ledge	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.327915	-81.68525	186.429	9/23/2011 21:22	heading down slope; down face; sea pen; few anemones; very barren; trash; thin layer of sediment; bamboo coral (little 10 cm sprigs) unbranched; pencil urchin; half buried cup;	100% rock pavement; apparently barren; smooth no ledges;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32764833	-81.6853833	191.053	9/23/2011 21:25	Stopping to test the depth of the soft bottom; south slope - pteropod	hard bottom; Slope- flat; pavement sediment coverd;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32762833	-81.68548833	190.913	9/23/2011 21:27		several boarfish			
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32763833	-81.6855	196.68	9/23/2011 21:28	Isididae, unid. sp. (bamboo coral); Actiniaria; HB and low relief ledges; Anthiid; Isididae, unid. Sp. (bamboo coral); boar fish - antigonia; Bathynectes; Pyrosoma; streamer basses; Anthiis nicholsonii; 30 cm ledges	hard bottom; pavement with thin vaneer sediment;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32748167	-81.68569333	186.849	9/23/2011 21:31	stylaster; neptheids; Geodiidae, unid. Sp.; boar fish; Anthiid; Black Bellied Rose Fish; Antipathidae; spider crab; small yellow plexaurids; Elasmobranchia - chain dogfish ;	hard bottom; pavement; Slope- flat;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32741	-81.68581167	194.68	9/23/2011 21:32	Photo XS (quantitative)- End; finished the SW hd downslope to the SE; encrusing Peysonnellia? Coral- Stylasteridae; segartidia; un id'd soft coral or tunicate;	hard bottom; pavement;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32740333	-81.685825	189.885	9/23/2011 21:37	Photo XS (quantitative)- start; going again; heading downslope on the SE track; large 1-2 m Antipathidae; white plexaurid Gorgonacea; venus fly trap Actiniaria; boar fish school; Isididae, unid. Sp. (bamboo coral) sickly; zoom on one - marginellid snails	hard bottom; pavement; Slope- moderate (<35o); black phosphoric rock;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32727667	-81.68563	194.68	9/23/2011 21:47	collecting 008 and 009 - bamboo corals and molluscs on them; hermit in a sconchia(?) shell;	hard bottom; pavement; Slope- flat;	HB	008 009	
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.327285	-81.685615	194.68	9/23/2011 21:53	change tapes; moving on;	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.327265	-81.68563667	194.68	9/23/2011 21:56	encrusing coral and red algae; neptheids; broken reduced Isididae, unid. Sp. (bamboo coral); segartiidae Actiniaria; Coral- Stylasteridae; small yellow Gorgonacea; erosional holes; small Antipathidae; astroporpa; yellow plexaurid Gorgonacea ; goniasteried	hard bottom; pavement; Slope- moderate (<35o); sediment vaneered	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32709	-81.68544667	193.68	9/23/2011 21:59	drop off; Anthiid; large white gorgoians; Human Debris - line; stopping to blow the bottom - and the brown spots; vermetids?;	hard bottom; pavement; Slope- moderate (<35o); smooth; sediment is pteropod shells	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32704333	-81.68537833	190.633	9/23/2011 22:04	scattered segartid Actiniaria; large snowy grouper x 5 - 50 cm each;	soft bottom - pteropod and sand with green patches - feces??; Slope- moderate (30o);	SB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32693167	-81.68528667	197.68	9/23/2011 22:06	sagartiid Actiniaria; neptheads Octocorallia; Isididae, unid. Sp. (bamboo coral); cidaroids, Echinodermata - ; Chaunax - fish; bottle brush Antipathidae; Dendrophyllia rubble; tiny pink Zoantheida; Actinaugue Actiniaria;	hard bottom; pavement; Slope- moderate (<35o);	HB		Coral-Dendrophilia rubble
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32685167	-81.68520667	200.68	9/23/2011 22:11	calcarous red algae; segartid Actiniaria; Coral- Stylasteridae; basket star Echinodermata - ; numerous Isididae, unid. Sp. (bamboo coral); small pinate Antipathidae; neptheads Octocorallia; Demospongiae; stripped Scaphella with hermit crab; many small Co	hard bottom; pavement; Slope- moderate (<35o); pock marks	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.326725	-81.684985	195.724	9/23/2011 22:13	dead Coral- Stylasteridae; Desmacella Demospongiae; neptheid Octocorallia; bottle brush Antipathidae; Laemonema barbatulum; hydroid and large Coral- Stylasteridae; white unbranched Eunicella? Actinoschypia on Coral- Stylasteridae; Human Debris pillow?;	hard bottom; pavement; Slope- moderate (<35o); sediment vaneer; and depression with sediment;	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.326765	-81.68486833	195.491	9/23/2011 22:16	on multibeam were 150 m down the face of the south slope; almaco jack?;	hard bottom; pavement; Slope- moderate (<35o);	HB		

Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32664167	-81.68481333	202.68	9/23/2011 22:17	calcaous red algae; small Octocorallia; segartid Actiniaria; small Coral-Stylasteridae; scattered small pinate Antipathidae; small Desmacella Demospongiae; nepthiid Octocorallia; Murex boaii Molusk; Stylocidaris Echinodermata - ;	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.32664167	-81.68468	203.68	9/23/2011 22:19	turning off lights to see in the distance;	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 13	23-IX-11-1	Florida, Pourtalès Terrace, Jordan Site F	24.326645	-81.68468833	202.68	9/23/2011 22:20	End Dive	hard bottom; pavement; Slope- moderate (<35o);	HB		
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53908167	-80.762815	206.608	9/24/2011 12:40	Altimeter failed	Bottom in site 207 m			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539175	-80.76224833	213.101	9/24/2011 12:42	Still camera photos; Lasers 10cm ; Dominant large stylaster ~20cm, smaller about 5 cm; facing 240deg Southwest toward wall; stylaster perpendicular to us; prevailing current southwest to northeast; spiny urchin; little current coming toward us from the west	Flat bottom 100% hard bottom ; Rock pavement; Low relief rock ledges of no more than 5 m relief;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539165	-80.76225333	212.961	9/24/2011 12:45	zoom in on blue encrusting sponge				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53902	-80.763095	212.961	9/24/2011 12:46	lost control of ROV and camera; thrusters; shutting down program to restart				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53902667	-80.76298833	212.961	9/24/2011 12:47	Stylasters; About total of six species; Repeat collections of same species from yesterday's dive				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539005	-80.76305833	208.757	9/24/2011 12:51	Regained control of ROV				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53902167	-80.76300667	210.391	9/24/2011 12:52	200 m from wall; few urchins; Photo XS (quantitative)- start; heading southwest towards wall; No control over camera; mechanical not working	100% flat sand bottom; asymmetrical ripples; no bioturbation	SB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539105	-80.76229667	212.54	9/24/2011 12:55	Back to hardbottom area; rubble; three species of Stylaster; white and salmon color; large dead stylaster covered with blue encrusting sponge Desmocerid; stylaster rubble coarse sediment; stylaster rubble veneer over rock pavement with little				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53911167	-80.76231833	213.941	9/24/2011 12:56	Photo XS (quantitative)- start; photo 3302; to southeast wall; random photos couple every minute; camera 25 deg down; Coelopleurus; "heading southwest towards wall"	100% rock bottom; thin veneer of sediment; coarse 10% cover dominated by Stylaster; blue encrusting sponge; dead Stylaster and living Stylaster 10-20 cm;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539	-80.76271667	210.999	9/24/2011 12:58	heading is 280 deg; habitat same; Laemonema fish; numerous Coelopleurus floridanus;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53909333	-80.76287	210.064	9/24/2011 13:00	about 40 m from wall; auto focus going in and out; hard bottom again; thin veneer sediment; low density of biota; heading 250; a few m off bottom; altimeter on ROV not working;	sand bottom; thin sediment; 100% sand bottom; slight ripples; east west orientation; low relief; no bioturbation	SB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53903667	-80.762955	206.421	9/24/2011 13:02	heading 255;	rock pavement; sediment veneer ; rock cobble;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53904333	-80.76288	209.597	9/24/2011 13:03	difficulty station keeping				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53905667	-80.76288333	210.064	9/24/2011 13:03	Different stylaster species; identify some samples to collect; bridge to 20 m to stop hold position			001	

Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53904833	-80.762865	210.251	9/24/2011 13:04	hollow tube sponge; 2 cm diameter; 10 cm tall; Demosponge; not sure ID; possibly Petrosidae; various stylaster - salmon and thicker branch white; Try to get white and pink Stylaster; sponge amorphous tan maybe Hexactinellid;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53904667	-80.76282833	210.205	9/24/2011 13:19	tape was not running; started tapes and DVD again; lost about 15 min DVD and HDCAM;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53907167	-80.762895	210.485	9/24/2011 13:22		under sediment veneer is rock pavement	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53905333	-80.76283167	210.158	9/24/2011 13:23	towards wall heading westerly about 40 m to wall				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53904167	-80.76282167	209.644	9/24/2011 13:25	cleaning out hose; looking southwest current coming toward us 0.5 knot;	dense cover of Stylaster;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53907	-80.76279167	209.831	9/24/2011 13:27	Photo XS (quantitative)- start; photo 3322; 0.25 knot speed until reach wall; heading 225 deg; rock pavement; low relief ledges of dominant species stylaster blue sponge; few Demosponges; no fish				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53899167	-80.76286333	209.784	9/24/2011 13:28	pan over to right to look at fuzzy sargassum; recentering camera, panning up; urchins don't seem to be as prevalent;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53910833	-80.763025	203.852	9/24/2011 13:30	heading 329deg; depth 204 m; 100% soft bottom; low ripples; coarse sement; little ridge; change in sediment structure; no bioturbation; Parthanope crab; few Coelopleurus urchins;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53926333	-80.76304333	202.17	9/24/2011 13:31	20 m from base of mound; depth 202 m; 100% sand; low sand waves about half meter ripples; maybe 30 deg slope				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53929	-80.76304667	202.637	9/24/2011 13:32	change heading to more westerly along face; come up to follow feature about 10 m; depth 200 m; 30 deg sand slope; change heading to northwest along face of feature;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53923	-80.76317833	198.76	9/24/2011 13:33	Coelopleurus urchins; Scorpion fish; more scattered boulders 20-30 cm; mostly urchins common about 1 dozen in field of view; Rock ledge up ahead; hermit crab;	few rock boulders 10-15 cm;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53919333	-80.76323333	195.677	9/24/2011 13:35	panning up; rock ledge; on point of southeast rim; 50cm snowy grouper; edge of wall; about 2 m tall ledge undercut by 1-2 m layered horizontally encrusted with Stylaster; another snowy grouper similar size to previous; thin crust at top about 10cm thick.				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53910667	-80.76317333	193.716	9/24/2011 13:39	roughy with snowy grouper; crust is about 10-15 m thick; dense cover of stylaster and; under ledge is Leidermatium; Top of wall is 192 m; bottom is 195 m; (3 m relief); Facing west; roughy; halfway up slope east face of the east wall of the mound				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53912	-80.763185	194.556	9/24/2011 13:42	try to set ROV down to collect frilly Leiodermatium sample; scorpion fish on lower ledge; grouper don't seem to be affected by lights; try to collect Leiodermatium; half a dozen species of sponge covering wall; facing west 260-270 deg; small fish swam int	thin horizontal layers of rock 10-15 cm thick	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53911	-80.763205	194.79	9/24/2011 13:46	anthiid in hole upside down 5 cm looked intimidated; Theonellidae sponges; big roughy; shrimp under roughy several red and white striped 8 cm maybe cleaner shrimp white lateral strip; eggs; dozen shrimp				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.53910833	-80.76323833	194.65	9/24/2011 13:49	particulates moving through field of view; Under ledge more sponges; Plate sponge Lithistida Corallistidae; another upside down anthiidae; another anthiidae upside down (orient to habitat); Underbut by 1 m;				

Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539115	-80.76318833	193.482	9/24/2011 13:57	base is 195 m top is 192 m; double edge ledge; snowy grouper and roughly hanging out; dominated by stylaster 10-15 cm; Leiodermatium; sponges; large fan sponges 20-30 cm; Phakellia;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539115	-80.76318833	194.93	9/24/2011 13:59	top of ledge; flat rock pavement; half way up slope of east face of mound				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53914	-80.76317	193.015	9/24/2011 14:01	fan sponges in distance; 3-4 species possible; 2 different classes; hard to tell from a distance;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539165	-80.76322333	190.493	9/24/2011 14:03	on top of ledge; asking ship to move 20 m up 320; 190-191 m; white and salmon color Stylaster;	flat pavement; thin veneer sediment;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53916	-80.76323333	190.072	9/24/2011 14:05	fan sponge				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53913833	-80.763165	189.465	9/24/2011 14:05	moving ROV; difficulty to station/maneuver in strong current				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539145	-80.76306333	197.779	9/24/2011 14:07	198 m; pulled away from wall on sediment; difficulty with tether pulling ROV cannot move ahead on transect				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53923833	-80.76314333	200.022	9/24/2011 14:09	Try to reposition because of difficulty with current; drop back down to about 210 m; possibly get in lee in current and try to transit parallel to slope northwest at the base of the mound;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53944167	-80.76309	204.973	9/24/2011 14:10	shoot photos as 3339 going along; Photo XS (quantitative)- start; heading of 320 off stern;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53940833	-80.76315333	205.393	9/24/2011 14:10	1 foot distance from mound; stylaster dominant species;	flat 100% rock pavement; hard bottom	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53934167	-80.76324667	202.497	9/24/2011 14:12	Photo XS (quantitative)- start; at the foot of the mound; readjusted to 282deg;				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53936333	-80.76321333	203.525	9/24/2011 14:14		hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53936	-80.76324333	202.731	9/24/2011 14:16	barren	soft bottom; sediment; Slope- moderate (<35o);	SB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53934167	-80.76326167	199.881	9/24/2011 14:17	NW along base of mound. 100% sediment. Random photos. Some low relief exposed rock. Fishing line, Parthenope, long spine sea urchin. Tile fish				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53947333	-80.763345	201.656	9/24/2011 14:21	no real ledges; long spine sea urchin; snowy grouper 50-60; trying to move along face of slope; Coral- Stylasteridae;	sediment; Slope- steep (>35o);	SB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53967	-80.76368167	201.423	9/24/2011 14:24	many long spine sea urchins; Coral- Stylasteridae; C. floridanus; scorpion fish	sediment covered soft bottom	SB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.539635	-80.76370167	201.563	9/24/2011 14:26	half a meter rock crop, Demospongiae; covered; C. floridanus; Coral- Stylasteridae; thin sediment veneer; Photo XS (quantitative)- continuing;	hard bottom; pavement; Slope- steep (>35o);	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53966333	-80.76390333	196.799	9/24/2011 14:28	C. floridanus; ripples; Collect; Coelopleurus sp.;	soft sediment cover	SB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53981833	-80.76396	193.762	9/24/2011 14:30	Coelopleurus sp.; some Coral- Stylasteridae rubble.	soft sediment;	SB		

Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53985167	-80.76406333	192.361	9/24/2011 14:32	Coral- Stylasteridae; 4 layered shelves; deeply eroded limestone; probably 1m; Coral- Stylasteridae; Raspalliidae; Demospongiae; encrusting algae, cidaroid urchin; desmacellid Demospongiae; thin amphitheater(?) sp. Pachastrellid-like; could be small bryozoa;	hard bottom;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.53985	-80.76416333	188.811	9/24/2011 14:36	Coral- Stylasteridae; Demospongiae; Photo XS (quantitative)- start at the beginning of hard bottom; Raspalliidae; Phakellidae; prevailing current from west. Surface current 1 knot. Western edge of cove; sponges .5-1 m; likely Raspalliidae; 20-40cm tall	hard bottom; pavement; rubble; Slope-flat;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54002167	-80.76411	190.306	9/24/2011 14:39	series of shelves; snowy grouper; Coelopleurus sp.; top ledge 190m; Leiodermatium sp.; steep drop off; undercut ledge by 1-2 m deep; thin crust 15-20m crust on top of wall; under ledge Leiodermatium sp. Abt 30 cm across; along with astrophorida Demospongi	hard bottom; ledge	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.540145	-80.7639	191.146	9/24/2011 14:49	Collect; 003; Photo XS (quantitative)- End;			003	
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.540185	-80.76378	204.553	9/24/2011 14:50	below the ledge. Coelopleurus sp.; Photo XS (quantitative)- start; pavement;	sediment veneer hard bottom; stylaster rubble;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54023167	-80.76384833	200.208	9/24/2011 14:53	on the wall again; east west oriented; snowy grouper; Coral- Stylasteridae salmon and pink; relief of about 1/3 m. Low relief pavement; coral and red algae encrusting; shelf sponges; Demospongiae; Spongosorites; top of wall 191 base 205m; face of wall 19	hard bottom;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54036	-80.76387833	192.781	9/24/2011 14:56	Coral- Stylasteridae white; Spongosorites; encrusting sponges; small anthiid; roughys; crab; parthenope; lower ledges; only one undercut; isolated slabs on top of that	hard bottom; Rock- wall; Slope- steep (>35o);	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54028667	-80.76421333	189.792	9/24/2011 15:00	2 snowy grouper; video transect vertical face of wall; Photo XS (quantitative)- start; Raspalliidae; Coral- Stylasteridae; image 3389 looking down at a rocky steep below the ledge; 3390 below the ledge; Coral- Stylasteridae; small anthiids; big spider crab	hard bottom; Rock; Rock- wall;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54036833	-80.76422	189.605	9/24/2011 15:05	wp 02 to 03; heading east; along edge of thick ledge near top of mound; 1m thick; 2-3 sp of Coral- Stylasteridae; Raspalliidae thin wall sponges; hints of layering; Desmacella sp. Demospongiae; series of photos; sea star	hard bottom; Rock; Rock- wall;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54037333	-80.76422	190.539	9/24/2011 15:08	ledge; crab; sediment veneer on top of ; sea star; panning around to set up for transect; thin edge disappears and appears; Coral- Stylasteridae; black phosphoric rubble; salmon and white; Desmacella sponges; cnidareans; no overhanging ledge; numerous s	hard bottom; Rock; Rock- wall; Slope- steep (>35o);	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54038667	-80.76368833	190.633	9/24/2011 15:12	yellow fin fish; Coral- Stylasteridae; boar fish; numerous anthiids below ledge; small leiodermatium; abundant pink Coral- Stylasteridae; cluster pop corals; about 1 m drop on ledge; 3 boar fish; snowy grouper	hard bottom; pavement;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54034333	-80.763665	188.718	9/24/2011 15:14	numerous fish; 2 or 3 species anthiid; boar fish; new little fish; Astrophorid sponge; cauliflower Leiodermatium abt 15 cm;	hard bottom; Rock;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54045333	-80.76280667	187.737	9/24/2011 15:16	some issues with rov				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54042833	-80.76263667	200.162	9/24/2011 15:17	still trying to figure tether on rov; Topsentin sponge; lots of anthiids (several species); Photo XS (quantitative)- End; vertical transect; roughy; yellow fin bass; Coral- Stylasteridae; Leiodermatium sp.	hard bottom; Rock;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54035833	-80.763135	188.998	9/24/2011 15:20					

Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54041167	-80.76302333	188.624	9/24/2011 15:21	Photo XS (quantitative)- start; Coral- Stylasteridae; anthiid; roughy; 35cm Geodia sp; lots of blue encrusting sponges Desmacella Demospongiae growing on top of dead stylaster; Coelopleurus sp.; possible small phakellia; really eroded; yellow encrusting s	hard bottom; pavement; soft sediment cover; Slope- flat;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54067167	-80.76271167	187.69	9/24/2011 15:25	anthiids; Coelopleurus sp.; Coral- Stylasteridae; Desmacella sponge; eroded bottom; tile fish (blue-line)	hard bottom; Rock; sediment; Slope- flat;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54058667	-80.76283833	188.11	9/24/2011 15:27	snowy grouper; 30-40cm blue line tile fish; 3 snowy; lot of eroded flat slabs sitting above pavement. Headed west; current predominant from west;	hard bottom; Rock; pavement;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54051833	-80.76287333	188.577	9/24/2011 15:29	unknown brown hair; boar fish; Photo of brown fuzz; Photo XS (quantitative)- End;	hard bottom; rubble;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54040167	-80.76325667	188.998	9/24/2011 15:35	dive track - pinger outlyers up to 200 m away	hard bottom; rubble; pavement; Slope- flat;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54043833	-80.76329167	188.204	9/24/2011 15:36	Photo XS (quantitative)- continue; Coral- Stylasteridae; Demospongiae; raspiliid Demospongiae; tile fish				
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54043333	-80.76331	188.437	9/24/2011 15:38	Blue line tile; Anthiinae; Coral- Stylasteridae; raspiliid Demospongiae; dark brown coral? Encrusing over coral;	hard bottom; rubble; pavement; Slope- flat;	HB		Coral- Stylaster
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.540395	-80.763405	184.794	9/24/2011 15:40	messing with the camera;	Off bottom; On bottom;			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54034333	-80.76347333	189.605	9/24/2011 15:42	image 3476 and 3477 are sample 004 images; Coral- Stylasteridae;	hard bottom; pavement; Slope- moderate (<350); Coral- coral rubble - stylaster;	HB	sample 004	
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54033333	-80.7635	189.932	9/24/2011 16:00	new heading; Photo XS (quantitative)- start; 40o NE along length of mound liiking down	hard bottom; pavement; Coral- coral rubble;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54035167	-80.76347333	190.119	9/24/2011 16:03	Photo XS (quantitative)- start; top of slightly sloping bottom; Coral- Stylasteridae; Coelopleurus sp.; Hexactinellid; ECHINODERMATA - star; Demospongiae;	hard bottom; Coral- coral rubble; Slope- moderate (<350); pavement;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.540575	-80.76345333	187.97	9/24/2011 16:06	Coral- Stylasteridae - sparce to abundant; Coelopleurus sp.; enchrusiting Demospongiae; Desmacella Demospongiae; boar fish; hermit crab; brown encrusting polyp unkonow; 14 C wpt 0 to 1; Desmacella Demospongiae;	hard bottom; pavement sed vaneer; Coral- coral rubble stylaster; Slope- moderate (<350);	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54090333	-80.76322667	186.289	9/24/2011 16:08	Coral- Stylasteridae; Desmacella blue encrusting sponge; Coelopleurus sp.; yellow encrusting sponge; sparse coverage; irregular lumpy sponge similar to sample 4;	hard bottom; pavement; Coral- coral rubble; Slope- moderate (<350);	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54112167	-80.763005	185.214	9/24/2011 16:11	Coelopleurus sp.; lots of dead stylaster rubble; Anthiinae; Scorpaenidae; small white sponges; Coral- Stylasteridae salmon but also pink and white 30-35 cm; no more thin large sponge; dead stylaster covered with blue desmocellid sponge; thicker branch sty	hard bottom; Rock; pavement; rubble; scattered rubble mostly dead stylaster	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54156667	-80.762625	182.225	9/24/2011 16:14	fewer stylaster; more exposed pieces of rubble; lots of Anthiinae; more exposed irregular hard bottom; small gorgonians; Coral- Stylasteridae; Coelopleurus sp.; wall sponge; lots yellow encrusting sponge on dead stylaster; small Scorpaenidae;	hard bottom; Rock; pavement; rubble; Slope- flat;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54189167	-80.76240333	184.467	9/24/2011 16:17	3481 first photo of transect; small lumpy sponge; small spherical sponge; most abundant organism appears to be Coral- Stylasteridae; no gorgonians; blue encrusting sponge; Scorpaenidae; yellow encrusting sponge; human debris beer can;	hard bottom; Rock; pavement; rubble;	HB		
Kraken 2 - 14	24-IX-11-1	Florida, Pourtales Terrace CHAPC, The Humps MPA, Northwest Peak	24.54172167	-80.76264667	184.56	9/24/2011 16:19	lots of yellow encrusting sponge; some blue desmocellid; more scarce Coral- Stylasteridae; mainly coral but also white with longer branches;	hard bottom; Rock; pavement; rubble;	HB		

Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54198667	-80.76233167	185.167	9/24/2011 16:20	another gorgonian; pale greyish white; more stylaster rubble; area with lots of blue desmacellid sponge encrusted in dead stylaster; not as much alive; more scattered; blue & yellow encrusting sponges; couple of species Coral- Stylasteridae; boar fish	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54229167	-80.76207	185.214	9/24/2011 16:22	irregular sponges cluster of tubes; yellow and blue encrusted sponges; white and salmon Coral- Stylasteridae; coelopleurus sp.; small white sponge lump; pale gray gorgonian fan; another cnidarian;	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54236833	-80.762025	184.934	9/24/2011 16:25	blue and yellow encrusting sponge not as much as on the edge of platform; small gorgonia; Coral- Stylasteridae; Anthiinae; sediment veneer hard bottom with rubble on top; pale off-white spherical sponges; long branch white Coral- Stylasteridae; lots more	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.542685	-80.76176167	185.027	9/24/2011 16:27	about half of the wall covered; more bare; sparse coverage; stylaster; blue and yellow encrusting sponge; Coelopleurus sp.;	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54306333	-80.761255	184.887	9/24/2011 16:35	collecting gorgonia	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54314167	-80.76113	181.804	9/24/2011 16:37	vertical banded fish; rubble;	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54342167	-80.76085833	183.159	9/24/2011 16:38	Photo XS (quantitative)- End;	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54350167	-80.76084	183.159	9/24/2011 16:39	trying to put gorgonia in bucket; sparse coverage; stylaster; blue and yellow encrusting sponge;	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54360667	-80.760915	183.346	9/24/2011 16:42	Photo XS (quantitative)- End when gorgonia was picked up; putting sample in quiver; sparse coverage; Coral- Stylasteridae; encrusting yellow and blue sponge	hard bottom; Rock; pavement; rubble;	HB			
Kraken 2 - 14	24-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Northwest Peak	24.54362	-80.76089333	182.739	9/24/2011 16:44	leaving the bottom	hard bottom; Rock; pavement; rubble;	HB			
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes	
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55182167	-80.63205833	237.998	9/24/2011 19:02		Bottom in site				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55178667	-80.63193	245.565	9/24/2011 19:03	Coral- Stylasteridae; Hexactinellid; current comes out of SSE' Stylasteridae coral rubble; ECHINODERMATA spines; desmacellid Demospongiae; Coral- Stylasteridae 1-2 mm zig zaggy branches; 8 cm hollow tube Demospongiae; Leiodermatium Demospongiae; salmon Co	On bottom; hard bottom; pavement;	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.551755	-80.63156333	245.565	9/24/2011 19:11	Hexactinellid - possible Aphrocallistes; Collect 001	hard bottom; pavement; Slope- flat; Collect;	HB	001		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55172667	-80.63150833	246.172	9/24/2011 19:27	40 m due south of the WP;	hard bottom; pavement; Slope- flat;	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55168833	-80.6316	245.471	9/24/2011 19:28	Photo XS (quantitative)- start -3584.jpg	hard bottom; pavement; Slope- flat;	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55186833	-80.63184167	241.594	9/24/2011 19:29	course sediment; scattered pink Coral- Stylasteridae; 30 cm rock boulders but mostly pavement; patches of rock cobble or dead Coral- coral rubble;	hard bottom; pavement; Slope- flat;	HB		Coral- Stylaster	
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.551945	-80.63200833	238.091	9/24/2011 19:31	Photo XS (quantitative)- stopping to look at finger sponge; a few Demospongiae; and odd Gorgonacea; Coral- Stylasteridae; amorphous Demospongiae; 10 cm diam Demospongiae with top snail - 12 hollow tube fistules sticking up and imbedded in the sediment some	hard bottom; pavement; Slope- flat	HB	002		

Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55198333	-80.63198	239.072	9/24/2011 19:54	ROV loss of control, reset	hard bottom; pavement; Off bottom	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55201667	-80.63191667	230.01	9/24/2011 19:55	Off bottom; 10 m up;	water column				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55202667	-80.631855	238.885	9/24/2011 19:56		hard bottom; pavement; reset camera time;	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55192667	-80.63213333	235.101	9/24/2011 19:59	heading upslope; Demospongiae; Coral- Stylasteridae; Photo XS (quantitative)- start 3593.jpg;	hard bottom; pavement; Slope- moderate (<35o);	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55215333	-80.63212	233.14	9/24/2011 20:02	running into increased relief; Aphrocallistes; Photo XS (quantitative)- End;	hard bottom; Rock- wall; Slope- steep (>35o);	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55217667	-80.63202	233.934	9/24/2011 20:03	going up slope; Photo XS (quantitative)- start;	hard bottom; Rock- wall; Slope- moderate (<35o)	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55218667	-80.63204333	231.972	9/24/2011 20:04	Coral- Stylasteridae; Scorpaenidae; ECHINODERMATA pencil urchin; Demospongiae; astrophorid plate sponge Demospongiae; Coelopleurus sp.; Bathinecties? Dominate is Coral- Stylasteridae and Demospongiae;	hard bottom; pavement; sediment; low relief 2-4 cm edges	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55230667	-80.63197667	223.284	9/24/2011 20:07		Off bottom;				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55236667	-80.63199167	223.751	9/24/2011 20:07	current out of NE; astrophored Demospongiae; Laemonema sp.; Coelopleurus sp.; Aphrocallistes;	On bottom; hard bottom; pavement; Slope- steep (>35o);	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55269833	-80.63190667	218.893	9/24/2011 20:09	low pits and pock marks in the rock 5 cm;	hard bottom; pavement; Slope- moderate (<35o);	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55276167	-80.63190833	216.697	9/24/2011 20:11	few small fan sponges; Phakellia? Demospongiae; Coral- Stylasteridae; Phakellia; choristidia Demospongiae;	hard bottom; pavement; Slope- moderate (<35o);	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55285333	-80.63192833	215.249	9/24/2011 20:12	on multibeam - on lower 3rd of the slope; boar fish; 30-40 cm hemispherical Demospongiae; Geodiidae; school of boar fish; more sponge diveristy; thin tan sponge;	hard bottom; pavement; Slope- moderate (<35o);	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55298667	-80.6319	211.839	9/24/2011 20:15	1/2 way up slope pavement; no ledges 10-20 o slope;	hard bottom; pavement; Slope- flat;	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55305833	-80.63185	211.045	9/24/2011 20:16	1 m vertical relief; crab; Coral- Stylasteridae; Anthiinae; isolated ridge out crop; Photo XS (quantitative)- End;	hard bottom; Rock- wall; Slope- steep (>35o)	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55310667	-80.63175833	210.485	9/24/2011 20:19	5 cm rock ledges; Demospongiae; Anthiinae; ECHINODERMATA sea star; 10 cm holes with Anthiinae in them; topsentia Demospongiae; Photo XS cont.	hard bottom; pavement; Slope- moderate (<35o)	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55333167	-80.63164167	208.243	9/24/2011 20:20	getting steeper; Scorpaenidae; Laemonema sp.; Coral- Stylasteridae; rubble; Coelopleurus sp.; Demospongiae; on multibeam 1/2 way up slope; Coral- coral rubble;	hard bottom; pavement; Slope- steep (>35o);	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55359	-80.63147667	207.776	9/24/2011 20:22	choristid Demospongiae; Coral- Stylasteridae; Anthiinae; Coelopleurus sp.;	hard bottom; pavement; Slope- moderate (<35o);	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55369333	-80.63135833	206.888	9/24/2011 20:24	boar fish; Anthiinae; roughy; asteroid; Coelopleurus sp.; Coral- Stylasteridae; Demospongiae;	hard bottom; pavement; Slope- moderate (<35o); 10-15 cm ledges	HB			
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55374333	-80.63118833	207.449	9/24/2011 20:25		hard bottom; pavement; Slope- moderate (<35o); low relief ledges	HB			

Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55377167	-80.63119167	207.402	9/24/2011 20:25	top of ledge sharp ridge; stopping to look; Coelopleurus sp.; Coral-Stylasteridae; slight current; fishing line Human Debris; unID Demospongiae thin delicate lavender sponge; Zoanthid; Hexactinellid; Coral - Scleractinia cup coral; fishing line around c	hard bottom; pavement; Slope- flat;	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55382333	-80.63119333	207.916	9/24/2011 20:31	looking west, transit along top ridge 110; starting transect; 3617 photo1; starting low relief ledge; very dense biota; Coral-Stylasteridae; top ledge; low relief overhanging ledges; numerous boar fishes; Coelopleurus sp.; lumpy Demospongiae; salmon &	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55385333	-80.63147667	206.841	9/24/2011 20:36	snowy grouper; lot stylaster rubble; Coelopleurus sp.; abundant boar fish at least 100; blue encrusting sponge; lots of Anthiinae;	hard bottom; Rock; pavement; rubble; ledge	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55386	-80.63140167	207.309	9/24/2011 20:39	coelopleurus sp.; sea star; facing southwest; want to face northwest; currents easterly abt 0.5 knot;	hard bottom; Rock; pavement; rubble;	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55385	-80.63141833	205.206	9/24/2011 20:41	fair current from west; trying to move west but having difficulties moving ROV; roughy; sponges; Coelopleurus sp.; Anthiinae; ROV may be wrapped around something;	hard bottom; Rock; pavement; rubble;	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55415	-80.63168	208.103	9/24/2011 20:45	Trying to figure out why we are not making headway; ROV about 10 m from bottom; fish	hard bottom; Rock; pavement; rubble;	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55409833	-80.63215	214.268	9/24/2011 20:48	coming closer to bottom; 6m altitude; couple of large fish; cannot see much; still having trouble with ROV;				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55417667	-80.63185167	204.599	9/24/2011 20:50	bottom visible; sea bottom; Photo XS (quantitative)- start; Coral-Stylasteridae; 2 hexactinellidae; phakellia possibly Batzella; Aphrocallistes; smooth sand sediment veneer; hermit crab; Coelopleurus sp.; numerous lumpy Demospongiae; orange Demospongiae	hard bottom; pavement;	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55416667	-80.631535	214.549	9/24/2011 20:54	fine sediment veneer; close-up look of orange sponge	hard bottom; pavement; rubble;	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55418167	-80.63155167	214.595	9/24/2011 20:56	Collecting orange demosponge; Nepharia(?) in lower left of video	Low relief sediment veneer d pavement with small lumpy demosponges and Stylasteriids	HB	004	
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55416333	-80.63157333	214.268	9/24/2011 21:05	Heading back on transect; Photo XS (quantitative)- start; Callisiderous micans echinoderm; Coelopleurus floridanus; Lots of small demosponges; broken dead Stylaster; gray lump first photo 3632; no fish; further away from edge; anthiid apricot bass; tube s				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.5541	-80.63194167	210.438	9/24/2011 21:11	moving at quarter knot; hermit crab; pale leafy Ophidiastriid; small gorgonian; another paddle-shaped fan; Dead (or paling) Farrea; Hexactinellid; large 30 cm folded plate Astrophoridae; 60-100 m away from north ledge of ridge; small Gorgonian; Raspailid				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55410833	-80.63198333	209.644	9/24/2011 21:14	numerous irregular lumpy sponges; at least 2 species of Stylasteriids; small gorgonians; thin amphitheater sponges; blue desmoseliid growing on half-dead Stylaster; disheveled looking community; sponges irregular; Anthein in background; and boarfish; rou	low relief sediment veneered pavement with sediment pieces of rubble slab about 10-20cm across;	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55426833	-80.63221333	211.512	9/24/2011 21:16	ledge coming up; anthiid and yellowfin?; irreular white sponge another pale lavender leaf-like sponges; sea star; Astrophorid(?); Grab sample to verify; Coelopleurus fl.; tube sponge;				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55430333	-80.63230833	211.746	9/24/2011 21:25	long nosed snipefish				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55429167	-80.632305	211.279	9/24/2011 21:31	collected sample 005; heading north-northwest to the steepest part of the north-facing ledge then move south under the ledge; lost sample 6 (Gorgonian on 005)			005 006	

Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55428333	-80.6323	211.606	9/24/2011 21:32	Photo XS (quantitative)- start; photo Stylaster; Coelopleurus; folded sponges; Gorgonians; holes in crevices in pavement; low ledges 10cm vertical relief (if that); boarfish; lots of broken Stylaster; tube cluster sponge; numerous lobe demosponges like we	same pavement with irregular small low-relief slabby pieces	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.5547	-80.63251167	215.763	9/24/2011 21:37	zoom in; Aphrocallistes; Farrea; leaf sponge; Aulletta hollow tube Hexactinellid; boarfish under ledge; same sponge we collected - orange lump cup; Hydroid passed over; Trochus amabalus; dark brown red thing;	pavement beginning to slope 15deg off to right (Starboard) east; low ledges	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55486667	-80.632575	219.827	9/24/2011 21:48	upper southern slope about 40 m south of ridge; collecting Trochus			007	
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55485167	-80.63260167	219.593	9/24/2011 21:56	going east on edge of ledge; drop down and follow lip				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55485833	-80.632635	218.893	9/24/2011 21:57	lavendar leaf sponge; big white Astrophoridae; little bryozoan fan; egg case? Or bryozoan? Tilted bryozoan; stylaster has long branches same species? Different growth form? Orange sponges salmon colored Stylaster; yellow sponges; ; numerous sponges; scatt	sediment veneered low relief pavement	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55494	-80.63265333	222.77	9/24/2011 22:03					
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55502833	-80.63265167	224.451	9/24/2011 22:04	[date/time added post cruise - estimated]				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.555055	-80.632455	225.526	9/24/2011 22:05	Pale salmon stylaster with long branches; slope 45 deg; turning and going parallel to slope; 2 tilefish; turning to head east along slope; numerous irregular demosponges on sediment veneered relief; Photo XS (quantitative)- start; photo 3668				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55510667	-80.63247167	226.74	9/24/2011 22:06	vertical wall; almost completely barren of sediment; boarfish; roughy; few demosponges; layer sticking out; north face in shadow of most of current; top of wall 225 m ; 10 m depth of wall; demosponges on top irregular; few scattered Stylaster; down camera				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55506833	-80.63221667	227.815	9/24/2011 22:08	continuing photo transect following ridge wall; irregular pavement small fragments and small growth; multitube branches; white sponge?; white ledges on escarpment; scorpionfish; lots of small irregular growth; going to settle down, backing down over edge				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55506833	-80.63216	232.766	9/24/2011 22:11	zoom in; more than 10 m height of ledge; growth on wall has lots of small stuff; roughy tryign to get in tiny crevice;				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55513167	-80.63207667	237.671	9/24/2011 22:12	Callisiderus(?); white demosponges; going down to 240 m;				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55516833	-80.63205667	241.127	9/24/2011 22:12	dropping down a vertical chewed up wall with a lot of shallow bioerosion; keep going down to 250 m; numerous folded lobe sponges Astrophorids; small stalks; undercut ledges; zoom in; gentle slope; small ledges	sediment veneer with irregular steep slope;	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.555205	-80.63185833	256.355	9/24/2011 22:15	Laemonema; stirred up sediment; 5 min until coming up; another ledge coming over ledge; 257 m another vertical table ledge; another slitshell on wall; embayments irregular shallow reentrances;				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55525167	-80.63175667	265.043	9/24/2011 22:16	sloping away and coming up onto another vertical 280 deg;	sediment drape but mostly exposed	HB		
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55531333	-80.63164167	271.396	9/24/2011 22:17	scattered demosponges; slope 70deg; angling down slope;				

Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.55531833	-80.63164167	275.46	9/24/2011 22:17	slope 60deg; sediment drapped thin over irregular hardbottom with crevices nooks and crannies slope is continuing to become shallow; not much here; irregular raised platforms				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.555445	-80.63160167	281.579	9/24/2011 22:18	bottom; 60 m low eroded hardbottom ground with sediment depressions; lot of small irregular sponges; scorpionfish upper left; bottle; lot of snow; black coral;				
Kraken 2 - 15	24-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Southeast Peak	24.555435	-80.63163	281.859	9/24/2011 22:19	white black coral; eroded pavement with undercuts overhangs with vertical relief of 0.5m; not much growing; no fish; panning back; lots of encrusting sponges; black coral; small Stylaster; burrowing anemone in still cam?; small fish under ledge (tail); st	quite barren			
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49206833	-80.67387667	242.575	9/25/2011 12:41	Coral- Stylasteridae; Demospongiae; sediment is carbonate shell, Coral-Stylasteridae coral rubble, echinoid spines; white hollow Petrosida Demospongiae; Gorgonacea; Raspailiidae and white Gorgonacea; Phakellia Demospongiae; hollow tube thick wall sponge;	hard bottom; pavement; Slope- flat; coarse tan brown sediment;	HB		Coral- Stylaster
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49207833	-80.67395833	242.202	9/25/2011 12:45	ahead is lots ob biota;	hard bottom; pavement; Slope- flat;	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49207667	-80.6739	242.108	9/25/2011 12:46	fan Demospongiae; desmacellid Demospongiae; Coral- Stylasteridae;	hard bottom; pavement; Slope- flat;	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49207667	-80.67397167	241.734	9/25/2011 12:49	Collect; 001 n 002; Phakellia	hard bottom; pavement; Slope- flat;	HB	001 002	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49205667	-80.67397667	241.781	9/25/2011 13:02	Switching annotator: Stephanie Farrington; Database entry: Lisa Cohen				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49206333	-80.67395167	242.015	9/25/2011 13:06	Photo 3711			003 and 004	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49203333	-80.67384833	241.875	9/25/2011 13:10	facing southeast and current coming from left; sampling 003 and 004			003 004	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49209667	-80.67388167	241.968	9/25/2011 13:24	2 photos of 005			005 [006]	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49207833	-80.67390833	241.688	9/25/2011 13:30	Photo XS (quantitative)- start; first photo 3716; up southern slope of mound; southeast corner; numerous Demosponges; 3 species of Stylaster; Phycallia(?); taking pictures 2 per minute;	sediment veneered pavement with	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49209167	-80.67415333	240.52	9/25/2011 13:33	slit shell; Perotrochus adensoni;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.4921	-80.67415833	240.987	9/25/2011 13:34	couple of Hexactinellid; Tosia sponge; Farrea; Aphrocallistes; Meshy sponges; Hexactinellid yellow; lots of Stylaster; Gorgonians - three different kinds; Phakellia Demosponge; Petrosid; Desmacellid chimney; Beehive; more biota consolidated; sea urchin Ci				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49226833	-80.67411667	240.193	9/25/2011 13:37	fish; crab; crazy sponges folded plate Astrophorid; coming up on big sponge; Cidaroid urchin; Stylaster; petrosiid finger sponge;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49244333	-80.67401	239.866	9/25/2011 13:40	less biota				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49246667	-80.67399333	239.539	9/25/2011 13:41	Photo XS (quantitative)- start; small yellow demosponge; same bottom type; less than 35 deg slope; Hexactinellids; Demosponges; Coral-Stylasteridae; Desmacellids; dead pieces of Thalassia; black bellied rose fish; dwarf fish; hydroids growing on sponge;	sediment veneered	HB		

Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49261167	-80.673865	239.025	9/25/2011 13:43	goping up slope; smalle Laemonema sp.; pencil urchin; Aphrocallistes; big wrinkly sponge; chimney tube sponges; dominated by sponges and Stylaster;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49273667	-80.67376833	239.165	9/25/2011 13:44	hollow chimney tube sponges Auletta; Aphrocallistes; boarfish; pencil urchin; current coming from northwest; more Desmacella; lots of white Gorgonians; lots of Aphrocallistes; white sea urchin				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49299167	-80.67363	236.783	9/25/2011 13:47	ball two white chimney sponge Topsisentia?; halfway up yellow lower slope of south face of mound (from multibeam); beautiful pink Coral-Stylasteridae;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49305	-80.67358333	235.802	9/25/2011 13:48	getting more rugged; less than 35 deg slope; Aphrocallistes;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49316333	-80.673495	234.728	9/25/2011 13:49	dominated by Demosponges; Hexactinellids mainly Aphrocallistes; Pachastrellids; Spongosorites; fish - small apricot bass?; couple of white Gorgonians; pencil urchin;	hard bottom sediment veneered pavement Stylaster rubble; no ledges; flat; 10 deg slope;		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.493305	-80.673345	232.532	9/25/2011 13:52	star fish Narcissia?; Desmacellids; lots of stylaster rubble; anthiid under rock; Serranid; rough-tongue bass; more Farea;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49345	-80.67327667	230.711	9/25/2011 13:54	dominated by many Sponges; Gorgonians; Stylaster; slit shell; pencil urchin;	sediment veneered pavement - same as before		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49367333	-80.67312833	228.095	9/25/2011 13:55	increased rugosity; 10 cm ledges				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49362667	-80.673135	226.787	9/25/2011 13:55	ledges gone; Aphrocallistes;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49365333	-80.67317333	226.694	9/25/2011 13:55	stylaster rubble increasing; increased ledges 10-20 cm high; slope changing; dozen boarfish; new habigat; increased rugosity; more ridges 10 cm ledges ridges; but still flat pavement; stylaster rubble; veneered hard bottom; Demosponges; Aphrocallistes; S				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.493875	-80.672965	220.481	9/25/2011 13:58	increase in white gorgonian; fish; 15deg slope; almost at top of transect; almost 60-70% cover of biota; sediment veneered hardbottom; sediment has lots of stylaster rubble; hermit crab; increaese in white Gorgonians; still white and pink Stylaster; urchin				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49414667	-80.67281333	213.848	9/25/2011 14:01	coming up on waypoint - from the sonar multibeam - will be at the southern edge of the top of the mound; end of transect 1				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.494295	-80.67271833	210.438	9/25/2011 14:02	Photo XS (quantitative)- start; top of mound to south edge toward peak #1; last photo of transect 1 = 3825; first photo of transect 2 = 3826				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49429167	-80.67269833	210.111	9/25/2011 14:02	change heading; Photo XS (quantitative)- start; end Stephanie Farrington annotation; start annotation Charles Messing; start Esther database entry;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49431333	-80.67253833	209.457	9/25/2011 14:03	sloping bottom. Fewer stylaster, salmon and pale magenta pink; small Anthiinae mostly rtb; Phakellia; boarfish; maybe Raspailiidae flat fan sponge, cluster, maybe a dozen or so; smaller gorgoneas; relief extremely low; thin fan sponge with broad base; se				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49453	-80.67212833	207.495	9/25/2011 14:07	snowy grouper; cnidarian urchin; mostly octocorals; abt 150 meters from peak 1; lots more stylaster hash; slow mound ledges; scattered large sponge; maybe pachastrallidae; most colonies 10 cm across; slit shell; fewer gorgonians; substrate darker; complet	hard bottom; Rock; pavement; rubble; Slope- moderate (<35o);		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49473	-80.67179833	202.544	9/25/2011 14:09	black Dendrophyllia small colony; little hexactinallidea to its left; pink & salmon stylaster surround it; lots of stylaster; slit shell; cidarian urchin;	solid stylaster rubble; Slope- moderate (<35o);		HB	Dendrophyllia

Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49476833	-80.67155833	200.068	9/25/2011 14:12	few scattered tannish white Demospongiae; some ground on them; maybe raspaliidae; possibly lithistid; crab; coming up towards edge of the ledge; shortnosed green-eyed fish; school of boarfish; Anthiinae; a good 100m from the peak; 3 snowy grouper; hundere	rubble;	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49490667	-80.67122667	201.89	9/25/2011 14:15	tons of fish around ledge; 100-150 boarfish abt 10 cm; spider crab; 3-4 snowy grouper 60 cm; another ledge beyond this; fish congregate around; few stylaster; amaco or amber jack; up and down oriented ledge, eroded, 2 of them in succession				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49487167	-80.67119	202.357	9/25/2011 14:18	still on ledge, trying to get video of eel; sea urchin;	rubble;	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.494965	-80.67101	198.807	9/25/2011 14:19	pulled off bottom briefly, going back to continue transit; ledges visible; numerous Anthiinae; scattered Coral- Stylasteridae; maybe pachistrellidae sponge; irregular cup sponge; coming up to another set of ledges; large group of rough tongue bass Anthiin	rubble; low relief;	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49535667	-80.67078167	203.198	9/25/2011 14:22	on ledge; maybe pachastrallid; lots of Coral- Stylasteridae; rtb fish; boarfish; bank butterfly fish; on the sonar right at the foot of the peak; another slit snail; geodiid sponge; another slit snail; brown lumpy sponges; allo over her; big spider crab;	abundant stylaster rubble; low relief crust; Slope- moderate (<350);	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49545667	-80.67046	196.472	9/25/2011 14:25	turning up slope; scattered stylaster; moira eel; many big geodiid; cedarian sea urchin; lots of boarfish and Anthiinae; similar to previous ledge; sponge with mounded oscules; similar to Ircinia; on multibeam we are on peak 1	stylaster rubble;	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49568667	-80.67032833	182.131	9/25/2011 14:28	top of peak one by multibeam; abundant stylaster pink white and salmon; black Dendrophyllia sponge; small encrusting yellow sponge; irregular Demospongiae;	rubble;	HB		Dendrophyllia
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49579	-80.67025333	182.785	9/25/2011 14:29	zooming into bottom; some Demospongiae; rough tongue bass; current between 3/4 of a knot and 1 knot				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49585667	-80.67016667	186.756	9/25/2011 14:32	lots of fish; large fish on distance maybe queen snapper; roughy; lots of stylaster; gentle slope 10 deg at most; facing 31 NE; snowy grouper;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49606833	-80.66992333	191.754	9/25/2011 14:34	moving to other ledge; lost navigation; image				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49611167	-80.669875	193.529	9/25/2011 14:35	lost navigation; image [date/time added post cruise - estimated]				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49611167	-80.669875	193.622	9/25/2011 14:35	image 3860 last before losing navigation [date/time added post cruise - estimated]				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49615167	-80.66980667	193.856	9/25/2011 14:35	going over ridges covered with stylaster rubble; Coral- Stylasteridae 10 cm; lumpy Demospongia; slightly more to the northeast; heading 18degrees;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.496255	-80.66961167	194.977	9/25/2011 14:37	small stylaster; Demospongiae; cidarean sea urchin; round smooth sponge; drifting NW but facing N; depression between ridges; geodias in them; spider crab; sandfilled depression; ridges run NW-SE; not abrupt unless undercut ledges; snowy grouper	rubble;	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49635833	-80.66961833	193.482	9/25/2011 14:40	lithistid sponge; Coral- Stylasteridae; finely branched stylaster here; another slit shell;	rubble;	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.496375	-80.66961	193.202	9/25/2011 14:42	changing tapes;	sediment; exposed hard bottom; Slope- moderate (<350);	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49641167	-80.66964667	190.446	9/25/2011 14:43	another slit shell; Coral- Stylasteridae; Coral- coral rubble; Demospongiae; back on rubble bottom; Petrosiidae sp maybe; thick large fish in the background; another ledge coming over; boarfish school	hard bottom; rubble;	HB		

Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49686667	-80.66949333	188.204	9/25/2011 14:46	school of boarfish; amberjack; snowy grouper; crab; shallow depression between ridges; abundant Coral- Stylasteridae over 20cm across; on; band butterfly fish; Geodia flat bottom barrel and nipple Geodia; medium brown stylaster rubble;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49698667	-80.66927	188.764	9/25/2011 14:49	Photo XS (quantitative)- End;	rubble;		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.496985	-80.66925667	188.904	9/25/2011 14:50	Photo XS (quantitative)- start; d16a; on top of mound plateau heading north-northeast; heading wp 002-003; hermit crab; 3883 first photo of transect; different white stylaster; perfect half moon; white Geodia with stylaster growing on it; half capped Geod	rubble;		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.496995	-80.669145	186.849	9/25/2011 14:54	gentle slope; abundant Coral- Stylasteridae; half grapefruit Geodia; cidarian urchins; yellow encrusting sponge; another depression and ledge; spider crab; big-eye fish; boarfish; brown crab with white tips; scattered Demospongiae;	rubble; Slope- moderate (<35o);		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49739833	-80.66891833	190.726	9/25/2011 14:57	Coral- Stylasteridae less than 10 cm; possibly lithistid; Pachistrallidae; small Anthiinae; mostly rt bass; dense abundance of Coral- Stylasteridae; small; purplish brown leaf sponge; lots of encrusting lobe like brown sponges; yellow encrusting sponges; n	rubble; sediment; lobe- moderate (<35o);		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49773833	-80.66890333	191.52	9/25/2011 15:00	heading across slope diagonally; irregular tube sponge; maybe lithistid;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49774167	-80.66890167	190.446	9/25/2011 15:01	photo 3896; apricot bass; abundant Coral- Stylasteridae; thick irregular stylaster hash rubble; Geodia cluster under ledge; snowy grouper; spider crab; boarfish; red crab; hermit crab on sponge; Anthiinae; cedarean urchin; yellow encrusting sponge on base	rubble; Slope- moderate (<35o);		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49795667	-80.66875833	191.847	9/25/2011 15:04	grouper; Coral- Stylasteridae; Demospongiae; another depression filled with sediment and stylaster rubble;	rubble;		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49803833	-80.66873667	191.987	9/25/2011 15:05	rough tongue bass; boar fish; sediment filled depression; more Geodia; brown slope sponges; Pachistrallid maybe; slender orange astroid; pale brown nipple sponge; white tube sponge; coming to bottom of another ledge; fewer attached organisms; big Geodia;	rubble; Slope- moderate (<35o);		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49840833	-80.66875833	187.737	9/25/2011 15:09	depression with another Geodia; pink stylaster 20 cm across; orange sea star; scorpion fish; pale lumpy Demospongiae; small tubes; some Geodia; couple of amberjack in the distance; black Dendrophyllia; first desmacellid; both greater and almaco jacks; sty	rubble;		HB	Dendrophyllia
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.498665	-80.66868	182.412	9/25/2011 15:12	photo taken for transect number 3915				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49871833	-80.66867167	182.318	9/25/2011 15:12	strange bottom; orange sea star; Geodia; slight swell where Geodia is; vertical relief maybe 1 m; shrimp; irregular cauliflower tan sponge; urchin; big slit snail; perched on sponge; half-grapefruit Geodia;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49884167	-80.66857667	183.206	9/25/2011 15:14	more jacks; several broad half fan sponges; wall sponges; Raspailiidae; steep off on distance; less stylater; more irregular sponges; topsentia; big Geodia; much less rubble; depression between mounds; cedarean urchin; rt bass; heading ENE	hard bottom; Slope- moderate (<35o);		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49917667	-80.66837833	185.588	9/25/2011 15:18	wp 3-4; heading ENE; current coming into us; current from west; few Coral- Stylasteridae; pale half fan; half wall sponge; dragonette fish; current tugging ro; went over edge	Slope- moderate (<35o); pavement; rubble;		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49922	-80.668285	183.953	9/25/2011 15:22	mostly barren; Coral- Stylasteridae; Demospongiae; brown lobe encrusting Demospongiae; irregular gracilechinus(?); stylaster sediment; boarfish; irregular	Slope- steep (>35o); rubble; hard bottom; pavement;		HB	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.499435	-80.66804333	194.37	9/25/2011 15:24	switch annotator Stephanie Farrington; database entry Lisa Cohen				

Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49945667	-80.66793	202.264	9/25/2011 15:25	lots of anthiids; roughtongue bass; in the middle of transect;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49948333	-80.66790667	202.357	9/25/2011 15:26	small sponges; rough tongue bass; stylaster have disappeared; dominant species sponge; Lithistid cup; debris; 2-3 cm relief; Lithistid cups; wall will drop off to northeast; amberjacks following ROV; small fish forked tail; small urchin; 5 cm relief rock	flat pavement sediment veneer	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49995167	-80.66732167	233.934	9/25/2011 15:30	collect sponge samples- 3 photos; 3937, 3938, 3939; upper east side of mound			007	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49999833	-80.66726	233.42	9/25/2011 15:35	max depth of hole 322 m				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49993667	-80.66728167	236.082	9/25/2011 15:44	numerous finger tube sponges; orange sponges; 8 species of sponges in one field of view; dominated by sponges; high density; 10 cm cup sponge; wall is 2 cm thick; fine fringe with spicules along edge; white; photo 3942; to side there is lumpy green sponge			008	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49995833	-80.66741	235.849	9/25/2011 15:53	other species in area of samples 008 and 009; Auletta tube sponge; Petrosia conical tubes; Photos: 3949 is last one;			009	
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.49998167	-80.66730167	235.382	9/25/2011 16:03	Photo XS (quantitative)- start;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50005833	-80.667125	239.165	9/25/2011 16:03	halfway between last waypoint and next waypoint starting photo transect in the green spot on the multibeam; Geodia; round Demosponges; mostly folded plate Astrophorid sponges; Pachistrellid; Corallistes; more brown lumpy Lithistid sponges; 30 cm tall ledg	pavement with rock rubble; 30 deg slope	HB		
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50029167	-80.66687333	252.898	9/25/2011 16:07	little bit of Stylaster;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.500345	-80.66683167	256.729	9/25/2011 16:08	40 deg slope heading down hill 10 cm rock outcrops sometimes fish underneath; mostly Demosponges; still 70 m drop to go into hole; Aphrocallistes (2); Stylaster;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50051333	-80.66655333	265.464	9/25/2011 16:09	Photo XS (quantitative)- End; last photo 3971				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.500555	-80.666445	267.706	9/25/2011 16:10	start heading east; ledge; grouper; at least 5 m drop underneath; ledge runs from north-northeast to south-southwest; purposeful photos taken of ledge; ROV will follow edge of ledge; east wall; Stichopathes; one black coral; vertical wall; rock smooth sma				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.500645	-80.666215	267.659	9/25/2011 16:13	scorpionfish; still following edge of wall; dominant species on top of wall are Demosponges; few Stylaster; Leiodermatium; Cidaroid pencil (Echinus?) urchin; numerous Leiodermatium;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50080667	-80.66611333	266.631	9/25/2011 16:15	big overhang; 6 m different to bottom; random photos along the length of the ledge; crab leg;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50069	-80.66644333	266.912	9/25/2011 16:17	hopping over ledge to get a broad view of it; great amberjack; undercut a few m;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50084167	-80.66602333	268.22	9/25/2011 16:19	looking at side of vertical face; 0.5 m undercut; Leiodermatium hanging from top; similar to wall yesterday (Dive 15); pitted; Stylaster; Lithistid cups underneath; Coral of somekind under ledge covering wall underneath; 3 greater amberjack; 90 deg slope;				
Kraken 2 - 16	25-IX-11-1	Florida, Pourtalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50110833	-80.66600167	268.687	9/25/2011 16:25	top of the wall; random photos; lots of Leiodermatium; corals; Galatheid crab; running along terrace; quick;				

Kraken 2 - 16	25-IX-11-1	Florida, Poutalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.501175	-80.66600667	268.36	9/25/2011 16:28	coming around corner; descend down base to see how deep;				
Kraken 2 - 16	25-IX-11-1	Florida, Poutalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50113167	-80.66567667	281.018	9/25/2011 16:31	another ledge (lump?) in site at bottom of descent;				
Kraken 2 - 16	25-IX-11-1	Florida, Poutalès Terrace CHAPC, The Humps MPA, Tennessee Bioherm #1	24.50127167	-80.66559167	288.679	9/25/2011 16:34	good video of short nose green eye; zoom in on hole; profile of another of the same species; series of 3 or more green eye fish;				
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50693167	-80.64079	254.346	9/25/2011 18:51	Bottom: short nose green eye; dozens of little 3-4cm to arm length brittle stars; right at foot of blue wall; various sponges; stalked fan sponge; small Galatheid with small banded arms; sediment coarse sand; stylaster rubble; green encrusting algae? On ro				
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50693167	-80.64081333	254.393	9/25/2011 18:58	starfish with 10 cm arms, tan gray mottled orange;	rock w/ sediment veneer	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50683833	-80.64117	254.673	9/25/2011 19:02	urchin spine; head up towards rock outcrops				
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50682833	-80.64121167	254.627	9/25/2011 19:02	Photo XS (quantitative)- start; photo 4037; hermit crab with red bands on arms using long cone shell; Galatheid species near hermi crab; fine filamentous green floating				
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50714833	-80.64037833	253.973	9/25/2011 19:05	Photo XS (quantitative)- start; up slope 0.2knot; two photos per minute; demosponges; astrophoriids; echinus; yellow sponges; dominated by Demosponge here; 100% hard bottom; Astrophoridae; Axinellid; Phaeccellia; Raspallidae; light current;	100% hard bottom	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50746667	-80.64056667	255.514	9/25/2011 19:07	0.25 knot current; demosponge; pavement; starfish; white urchin Echinus (Gracilechinus new Genus name);				
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50748333	-80.640725	253.833	9/25/2011 19:10	100% hard bottom; no ledges; sparse biota; getting pulled off bottom by boat; fighting current; bottom current coming from west;	100% hard bottom; no ledges	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50749333	-80.64084833	259.344	9/25/2011 19:13	back on bottom; 100% hard bottom; rock cobble 15-20cm; Corallistes; cup sponge; Stylaster; fish swam by; snowy grouper; maybe tilefish; black 10cm purple anemone koosh-ball;	100% hard bottom; rock cobble 15-20cm;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50744833	-80.64147333	264.296	9/25/2011 19:15	in trench at food of wall; 100% rock pavement; sparse Stylaster; Demosponges;	same as before	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.507695	-80.64144333	267.986	9/25/2011 19:17	low rock rubble outcrops; 5-10 cm; on slope 20 deg;	low rock rubble outcrops; 5-10 cm; on slope 20 deg;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50768333	-80.64135	268.079	9/25/2011 19:18	ledges; stop to look around ledges; rock outcrops; 30-50 cm covered with Stylaster, Leiodermatium; Hexactinellid sponges (three species); Geodia; Astrophorida; cup sponge Lithistida; Cup coral; every square cm covered with something;	rock outcrops; 30-50 cm	HB		Coral- Cup coral
Kraken 2 - 17	25-IX-11-2	Florida, Poutalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50765167	-80.64138667	269.06	9/25/2011 19:20	scattered rock outcrops 30-50 cm; Spongosorites; Ircinia; Zyzia; in trench starting to go up slope; Demosponges; Stylaster; another long tusk shell with hermit crab;	scattered rock outcrops 30-50 cm	HB		

Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50827333	-80.64122833	267.285	9/25/2011 19:25	Taking sample 001; stylaster both salmon colored and white			001		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50888667	-80.64142167	269.06	9/25/2011 19:33	hermit crab crawling across bottom; deepest part of trench according to multibeam;					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50761167	-80.64151667	268.967	9/25/2011 19:35	continue along slope and photo transect; travelling parallel to trench along base; different star fish - inflated; rock pavement; low ridges going through rock - erosional; sparse biota; stylaster and few sponges; rock outcrops; 10-15 cm snowy grouper and	rock pavement; low ridges going through rock		HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50738167	-80.64170167	269.527	9/25/2011 19:40	erosional features from sediment blowing in current; bioerosion; roughly hiding under ledge; tail of roughy					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50773333	-80.64172667	261.68	9/25/2011 19:44	2-3 m relief; on top;					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50777833	-80.64153167	260.606	9/25/2011 19:45	Photo XS (quantitative)- start; photo 4049; 0.5 m ledges 3 m relief; scorpion fish; late sponges; Astrophoriids; 3-4 different species of Stylaster; smooth surface; Aphrocallistes; ridges every 10 m;	0.5 m ledges 3 m relief;		HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50816833	-80.64147167	262.1	9/25/2011 19:49	large rock outcrop with sponge; ledge and dropout sharp; edge has large Lithistid; 0.5m ledge rock outcrop covered with spognes and Stylaster; Leiodermatium; brown sponge from dive 1 this morning; one 8cm scorpionfish; rock outcrop 100% covered in little th	rock outcrop 100%		HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50826167	-80.64140667	261.867	9/25/2011 19:53	continuing transect heading northeast; heading perpendicular to wall; yellow Dichtyoceratid sponges; rock pavement; starfish Gonioaster;					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50864167	-80.64107333	261.68	9/25/2011 19:55	fishing line made of metal/stainless steel; rust next to weight where it had rolled; more stainless steel fishing line;					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50874167	-80.64103167	261.073	9/25/2011 19:57	dominant species white Stylasterlaster; Leiodermatium; yellow Dichtyoceratid sponges; lower ridges with 1 m relief; spur and groove; more biota on top of ridges than in grooves; Topsentia; large yellow Ircinia;	lower ridges with 1 m relief; spur and groove;		HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50912667	-80.64056167	259.158	9/25/2011 20:00	change direction; Photo XS (quantitative)- start; photo 4069; 100% rock pavement; Petrocid; Leiodermatium; sponges; Corallistes; lots of big yellow orange sponges;	100% rock pavement;		HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50924333	-80.6407	252.852	9/25/2011 20:03	came up 10 m in last 10 m; large folded plate sponge; pink sponge we got yesterday;					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50929667	-80.64072833	250.936	9/25/2011 20:05	100% hardbottom; smooth bottom; small erosional holes; dominated by Demosponge and Stylaster; 30 deg slope;	100% hardbottom; smooth bottom; small erosional holes		HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50932167	-80.640785	246.172	9/25/2011 20:08	45 deg slope; base of vertical wall (from multibeam); snowy grouper; being pulled by tether; more rugged here; low-relief ridges 10 cm outcrops; 60 deg slope;	low-relief ridges 10 cm outcrops; 60 deg slope; base of vertical wall (multibeam)		HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50940167	-80.640595	242.855	9/25/2011 20:12	change heading - cannot go into current; going northeast at the base of near vertical wall; seeing smooth steep slope 45-60deg; smooth rock dominated by Demosponges dozen species; few Stylaster;	smooth steep slope 45-60deg; smooth rock		HB		

Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.509785	-80.64062	235.989	9/25/2011 20:13	rock outcrops boulders; little white red fish with high dorsal fin darted under rock; scorpionfish; Leiodermatium; Lithistida; Corallistes; Roughy under ledge; Topsentia; 50cm-1m tall rock outcrop; completely covered in sponges; big starfish;	rock outcrops boulders;	HB			
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50983833	-80.64059	232.626	9/25/2011 20:16	barrelfish (first seen on this trip) - 50cm; big boulders ahead - a few meters; 45 deg rock slope; eroded rock outcrops; snowy grouper in hole; crab;	big boulders ahead - a few meters; 45 deg rock slope; eroded rock outcrops	HB			
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.50992	-80.64049167	232.906	9/25/2011 20:17	continue northeast; snowy grouper; 2 m rock boulder; series of photos of fish; roughy; another roughy; more boulders; flattened out; large urchin; Leiodermatium; Lithistid; 3 more roughy; plateau with boulders piled up; 3 more roughy; 10 roughy in 2 min; s					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51019333	-80.64017333	233.934	9/25/2011 20:21	facing north; traveling to east; large boulders undercut by 1m overhang; metal stainless steel fishing line; roughy; roughy on top of rock; another roughy; big boulders tumbled off wall covered with yellow sponge (Ircinia?); boulder 2-3 m across, 0.51 m t	boulder 2-3 m across, 0.51 m tall;	HB			
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51035333	-80.63997833	228.749	9/25/2011 20:24	20-some barrelfish 20 cm length; 5 more roughy; dozen roughy under boulder;					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51044833	-80.63996	226.04	9/25/2011 20:25	rock outcrop with another dozen roughy; 4 snowy grouper; another dozen roughy; little 1" fish; 3 roughy; boulder; boulders off in distance; snapper (possible Queen);					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51075833	-80.63968667	228.328	9/25/2011 20:28	several steel fishing line; ledges and rigosity; getting pulled;					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.510855	-80.63938667	231.785	9/25/2011 20:30	7 m off bottom; current picking up; Andy David annotating;					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51069333	-80.63961333	232.159	9/25/2011 20:31	long piece of fishing line may not be metal - not coiled up - could be monofilament; another long piece of line; few anthiids; brown lobate sponges; one roughy; sponge; 30 cm roughy by boulder; still fairly steep slope; 6.5 m off bottom (although altimeter					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51077	-80.63954667	232.859	9/25/2011 20:39	back down on bottom; rugose hard bottom; short urchins white short spine; snowy grouper; small stylaster - white; on slope of wall trying to work northeast waiting for ship to catch up;	rugose hard bottom;	HB			
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51085333	-80.63928333	244.117	9/25/2011 20:43	Laemonema sp.; anthiid; small white Stylaster; Astrophorida; yellow sponge; Leiodermatium sponge on top of boulder; tight flutes; doing phototransfer heading NW	100% hardbottom; coral rubble;	HB			
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51098167	-80.63887	255.187	9/25/2011 20:49	stopping tape 1, starting tape 2. number of Coral- Stylasteridae increasing; some salmon and coral; roughy and grouper associated with boulder; another fishing weigh, 12 rroughy under 3-4 m across boulders; 15 in view; number larger; white snowy grouper					
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51115167	-80.63885	248.227	9/25/2011 20:51	back in overfield; large number of roughys; bottom plain; lots of encrusted sponges; big snowy grouper abt 60 cm; started tape and dvd 41; white orange starfish	hard bottom; rubble; Rock; Slope-moderate (<35o);	HB			
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51139833	-80.63865833	248.694	9/25/2011 20:53	heading northeast, rov heading 340 but actually moving at 335; Ircinia sponge; astrophorids; Leiodermatium very common; Corallistes; anthiids; Laemonema sp.;	rock boulders; 50cm ledges; bottom more ruggose than before	HB			

Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51171333	-80.63852167	234.634	9/25/2011 20:56	moving NW; plateau boulders; trying to get ROV down; approaching end of transect; will continue in this heading; starfish; lots of different sponges; Topsentia; stylaster	abt 45 degree slope; rubble; Rock; pavement;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51192	-80.63821833	242.855	9/25/2011 20:59	40 degree slope; rock pavement; habitat same; 2m boulder; barrel roughly; positioning ROV for next direction; roughly NE; Photo XS (quantitative)- End;	Rock; pavement;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51200167	-80.63779833	254.346	9/25/2011 21:12	moving up-slope on the wall; 5m off bottom; direction NW; steel fishing line in the bottom;				
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51202833	-80.637815	252.291	9/25/2011 21:14	heading NW up slope; last photo of transect 4138; Photo XS (quantitative)- start; almost down the trench; Demospongia; yellow Ircinia; astrophorids; plate and tube sponges; sparse stylaster; once we get to depth 230 m we will follow boulder layer;	Rock slope;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51255833	-80.637855	230.197	9/25/2011 21:17	20-30 cm rock ledge; bottom more ruggose; change in direction; going NE direction parallel to 35-30 m contour; no boulders yet; topsentia is common; big wall tube sponges; few stylaster; stylaster rubble; Topsentia is dominant; thick walled tube sponge li	pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51275333	-80.63770167	227.021	9/25/2011 21:20	zooming into interesting sponge; frilly thin; JR not sure of taxonomy				
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51271667	-80.63768833	227.161	9/25/2011 21:21	numerous tube sponges; current is maybe .5 to .75 knots from west; moving along the 225-230 zone; then creep up to top of wall; big Geodia; no boulder zone like we hit further down the slope; Anthiinae;	hard bottom; rubble; pavement;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51298333	-80.63753167	223.284	9/25/2011 21:25	Photo XS (quantitative)- End; new heading up slope and heading to the west; trying to get to top of the wall; 1 hr to go; big boulders 0.5m; several abt 10 big roughys; nice big ledge	Slope- steep (>35o); ledge, boulders	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51300667	-80.63752833	221.182	9/25/2011 21:27	ledge with roughys; two more				
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.513045	-80.63748667	221.929	9/25/2011 21:29	a couple more ledges; roughys; ledge is covered with sponges; Lithistida, unid. Sp.; Corallistidae; red rasta sponge;				
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51308	-80.637515	216.651	9/25/2011 21:30	trying to get rasta sponge; 10 cm; branching; reddish purple; fishing line; little crinoid gorgonian near the bottom;	hard bottom; pavement; rubble; soft bottom;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.5132	-80.63760333	209.177	9/25/2011 21:33	stylaster rubble in rock pavement; 10-15 cm Plumarella gorgonian; top should be around 200 m; Plumarella appears to be most dominant; we are about 20m below top; few stylaster; sponges have been overtaken; larger crinoids abt 20 cm;	Rock; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.513365	-80.63775167	205.206	9/25/2011 21:35	going up slope; Plumarella and stylaster;	hard bottom; Rock; pavement; rubble;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51344667	-80.63783	204.132	9/25/2011 21:37	we are about at the top; stylaster rubble; plumarella and stylaster dominant species; no ledge at top; more of a mound; boarfish; rasta sponge; Anthiinae rough tongue bass;	hard bottom; Rock; pavement;	HB	rasta sponge; plumarella 002 003	

Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.513665	-80.63784	202.824	9/25/2011 21:41	collecting rasta sponge; 3 photos of it; about 1 knot current from SW;	Rock; pavement; 100% stylaster rubble;	HB	002 003	
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51362667	-80.63781	203.899	9/25/2011 21:55	current SW; not too strong; end of this wall; dense stylaster rubble; collecting Plumarella;	hard bottom;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51368	-80.637845	203.945	9/25/2011 22:02	Photo XS (quantitative)- start; heading to NE along top rim; 60 m to the northeast corner of the wall; then drop again; crinoids abundant and 3 species of stylaster, thin, pink salmon and white; rough tongue bass; boar fish; barrel sponge knocked over;	hard bottom; Rock; pavement; stylaster rubble;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51385833	-80.63754333	204.739	9/25/2011 22:08	snowy grouper; big fan sponge maybe raspailiidae; bass;	Rock; pavement; rubble;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51396667	-80.63734833	205.954	9/25/2011 22:09	more large 40cm Demospongiae; abt 60m from NE corner of the wall; big sponges; gorgonians are more patchy; 5m across base Raspailiidae; denser population of the salmon colored stylaster;				
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51419333	-80.63698333	209.878	9/25/2011 22:12	30m to the drop off; raspailiidae; stylaster; 30-40cm Demospongiae; possibly Pachastrellid; crinoids are almost gone;	hard bottom; Slope- flat;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51424	-80.63679	215.763	9/25/2011 22:13	NE end of the wall; large rugged overcut ledges about 2 m; queen snapper; 2 roughy; we can see the edge; 20cm thick crust that overhangs; rock slabs; Corallistes; Demospongiae; abt 30cm roughy sponges encrusting the rock wall	hard bottom; Rock; rubble;	HB		
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51429333	-80.63662	218.519	9/25/2011 22:16	moving along the bottom of the ledge; top edge 1-2m ledge; the flattens out; snowy grouper; crab; slit shell possibly midas; more Leiodermatium;				
Kraken 2 - 17	25-IX-11-2	Florida, Pourtalès Terrace CHAPC, The Humps MPA, wall east of Tennessee Bioherm #1	24.51440333	-80.63659667	220.668	9/25/2011 22:19	Photo XS (quantitative)- End;				
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73209333	-80.47001667	206.935	9/26/2011 12:30					
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73201833	-80.47014667	206.888	9/26/2011 12:32	Pteropod shells; brown carbonate sediments; stylaster particles; not sure how deep sediment is; rock cobble 3-4 cm over 10% bottom; 10cm rocks; dominant species salmon with white tip Stylaster; Hexactinellid sponge; rock pavement; sediment veneer over roc	flat bottom; top rim of scoured hole; south base of mound; course grain brown sediment; rock cobble 3-4 cm, 10% cover	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73203667	-80.47007833	206.561	9/26/2011 12:39	photos of samples 001 and 002			001 and 002	
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73204167	-80.470085	206.841	9/26/2011 12:40	locked up; lost control/communications with ROV				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73225	-80.469525	199.601	9/26/2011 12:45	resumed communications; 200 m diameter scour in site; tilefish (blue-line?); lost HD video; on shelf just by scour zone trying to get video of tilefish; maybe 50 cm (maybe less - no lasers turned on); back on sediment veneer rock cobble flat rock slabs; 10				

Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73201833	-80.47011	206.141	9/26/2011 12:48	Photo XS (quantitative)- start; on top of flat ledge north side of scour depression; hermit crabs numerous; cobble rubble; 30 cm rock outcrop; white stylaster salmon stylaster frilly stylaster; 0.5 outcrop with ledge; roughy; 3-4 species stylaster on top	scattered sediment over thin veneer rock; rock rubble 2-3 cm scattered; 1-2% cover; scattered rock boulders 30cm to 1-2m;	HB		stylaster
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73239833	-80.469525	205.253	9/26/2011 12:52	hermit crab; gastropod shell; sane ripples in sediment about 20cm pattern; looking to northwest; ripples oriented southeast to northeast; mostly sediment; sparse biota; reorient to heading 200; edge facing south;	mostly sediment;	SB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73237167	-80.46964333	205.907	9/26/2011 12:56	edge of terrace				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73239667	-80.46966833	206.374	9/26/2011 13:07	4226				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.732405	-80.4697	205.954	9/26/2011 13:12	rock rubble not phosphoritic;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73240333	-80.46969167	205.767	9/26/2011 13:22	start moving to go over ridge/scour hole; transect west along face of wall;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.7324	-80.46968167	205.066	9/26/2011 13:24	dropping over ledge; thin crust top of ledge less than 10cm thick; undercut by 0.5 m then short vertical wall about 1 m; transecting along face of wall starting with photo 4227; Photo XS (quantitative)- start; anthiid; 0.5 m vertical escarpment; Laemonema	dropping over ledge; thin crust top of ledge less than 10cm thick; undercut by 0.5 m then short vertical wall about 1 m;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73233333	-80.46996333	206.888	9/26/2011 13:30	vertical wall 1-2m; another ledge below first ledge (double ledge); deepest in hole is supposed to be 215; steep vertical wall at least several m tall; horizontal layering; smooth somewhat barren; showing altimeter 5 m off bottom;	vertical wall 1-2m; another ledge below first ledge (double ledge)	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.732265	-80.470105	202.591	9/26/2011 13:32	ledge; rock pavement on top of ledge; first ledge; vertical escarpment;	ledge; rock pavement on top of ledge; first ledge; vertical escarpment;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73226	-80.47007333	203.198	9/26/2011 13:34	looking at edge of wall; smooth carbonate rock below ledge; pitted; sparse biota; trouble station keeping tether with ship; steep dropoff; almost sinkhole-like; possible shortnose greeneye; having ship maneuver to south to get tether and weight over hole;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73230667	-80.46998667	202.077	9/26/2011 13:36	good view of wall/dropoff; looking down at top edge of wall; fine sediment dusting all rock features (possibly not getting much current); second ledge looking down; outcrop;	top edge of wall;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.732305	-80.46997	204.599	9/26/2011 13:37	maneuvering down wall to base; another ledge; horizontal layering; small encrusting sponges; anthiid in hole;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.732325	-80.470005	206.982	9/26/2011 13:38	dropping down; salmon Stylaster; white Stylaster; white tube sponges; Demosponges; Hexactinellids; highly eroded; anthiid; another ledge platform;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73223	-80.47009333	210.812	9/26/2011 13:40	70 deg slope; continuing descent into depression; anthiids and Stylaster;	70 deg slope; continuing descent into depression	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73212833	-80.47020167	214.782	9/26/2011 13:41	starting to flatten out; 45 deg; low relief rock outcrop; another drop; 0.5 m ledge; Coral- Stylasteridae; egg cases;	45 deg; low relief rock outcrop; another drop; 0.5 m ledge	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73218	-80.47005833	218.706	9/26/2011 13:42	near center at bottom of depression; flat bottom with rock slabs; outcrops of 0.5m; rock pavement with sediment veneer; 3 species of stylaster dominate; base is rock pavement; rock slabs; rock outcrops;	flat bottom with rock slabs; outcrops of 0.5m; rock pavement with sediment veneer;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73207333	-80.46999667	220.574	9/26/2011 13:45	deepest part; 40-50 m from north edge of wall according to multibeam;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73212	-80.47001333	220.434	9/26/2011 13:45	sparse Stylaster; 2 Cidaroid urchins; sponges; finger sponges; transect up				

Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73207167	-80.470005	220.528	9/26/2011 13:46				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73202333	-80.46985333	219.967	9/26/2011 13:48				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73209833	-80.469895	219.173	9/26/2011 13:51	Photo XS (quantitative)- start; head north up and out of sinkhole along southeast base of mound; photo 4242			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73214167	-80.46991833	218.893	9/26/2011 13:51	tilefish blue line; heading north wall; starfish; pencil urchin Cidaroid; bottle; more pavement; sargassum stuck on Stylaster; fan demosponge; tube sponges; Auletta; stylaster dominates; Phakellia fan sponges;	pavement;		HB
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73226167	-80.46971667	213.614	9/26/2011 13:54	steel fishign line; live and dead Stylaster; dead Coral- Stylasteridae have encrusting blue demosponge; Cidaroid; rock outcrop covered with stylaster and sponges; coming to first ridge/ledge; rough on ledge?; scorpionfish; 2 m ledge undercut 0.5m; rough			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.732345	-80.46946833	208.056	9/26/2011 13:56	on bottom; jack; scorpion fish; Coral- Stylasteridae; Coral- coral rubble; a bit off bottom; looking at ledge; salmon colored and white Coral-Stylasteridae; difficulty station keeping; 1460 last photo; 631 images left			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73229	-80.469485	207.916	9/26/2011 14:00				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73256167	-80.46873333	190.82	9/26/2011 14:06	flat bottom with numerous salmon, pink small, white stylaster; numerous Demospongiae; large white smooth sponge; Geodiidae; star fish; Phakellia ventilabrum; stylaster abt 10 cm; thin branched; blue encrusting sponge; going to more sandy more barren area	sediment;		SB
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73263167	-80.46869667	188.297	9/26/2011 14:12	same bottom; large fish is a blue line tile fish; head down in depression; crinoids gorgonian; more crust moving away from ledge; boar fish; few stylaster; Raspailiidae fan mesh sponge; Demospongiae; encrusting yellow sponge;	flat sediment veneer bottom with little on it; pavement; Slope- flat; fingers or ridges running NW to SE;		HB
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.732875	-80.46821	187.27	9/26/2011 14:15	abundant stylaster; Raspailiidae; Desmacella; fan Raspailiidae or Axinellidae; boar fish; going across another sandy area; low relief area; Raspailiidae; all three colors of stylaster; big spider crab; Raspailiidae mesh sponge looks dead; hermit crab; sponges are sparse more dense in distance; big fish on distance; 3 slender snipe fish ;very large amphitheater sponge;			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73304333	-80.46815667	184.514	9/26/2011 14:17		rippled sediment veneer hard bottom; sandy; Slope- flat; stylaster rubble ;		HB
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73308167	-80.46813833	184.046	9/26/2011 14:21	snipe fish microamphoises; hydroids; zooming in trying to get better picture of fish;			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73308833	-80.467975	183.766	9/26/2011 14:23	boar fish on distance			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73316833	-80.467785	182.925	9/26/2011 14:27	going NE; everything oriented almost EW; flow from west; pencil urchin in still camera; Geodia; Thallasia; Raspailiidae do not look in good shape; yellow brown; more open mesh work; maybe dead; Leiodermatium; blue encrusting sponge; Phakellia; another lar			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73331833	-80.46745333	180.403	9/26/2011 14:30	lots of hydroids; demospongia; dead Raspailiidae fans; wall sponge; 2 rough tongue basses; another large amphitheater sponge; more Coral-Stylasteridae; sea star	low relief hard bottom with tan sand;		HB
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.733495	-80.467175	179.749	9/26/2011 14:33	changing tapes; same location; large wall amphitheater sponges; Raspailiidae; yellow encrusting sponge; salmon and pink Coral-Stylasteridae; boar fish; few white stylaster; hydroids; 2 spider crab; orange irregular sponge; Demospongiae; possibly small Aph	low relief irregular pavement; 70% veneer of yellow-orange sand; occasional ripples;		HB

Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73390667	-80.46687	178.955	9/26/2011 14:37	rough tongue basses; Anthiinae; irregular orange sponge; blue Desmacella; salmon stylaster; big Geodia dark brown; maybe dead; sponges and stylaster quite dense; 50% irregular patchy sediment veneer; Coelopleurus sp.; stylaster are dominant; wall sponges;	sediment covers 70% bottom; orange brown	SB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73409833	-80.4666	178.955	9/26/2011 14:40	coming up on ledge; rough tongue bass; raspailiidae fans; Phakellia; big Geodia; approaching sandy shoot with mostly finely rippled sediment; all sediment image 4310; 596 images left;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.734195	-80.46647	181.01	9/26/2011 14:41	stylaster and sponge on almost every piece of exposed bottom; stylaster range from few to 25 cm; Scorpaenidae; apricot bass; small Demospongiae; bit more relief; tilted ledges 10-20cm; amnichordates(?); outcrops 10-20 cm across; snowy grouper; tile fish;	low irregular pavement; undulating; tilted ledges, outcrops	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73447167	-80.46630167	183.906	9/26/2011 14:44	panning around edge of the reef; undecut ledge and vertical wall; holes on caves with fishes in it; overhanging ledges about 1m across; big snowy grouper; photo 4317 looking at sediment slope; 188 m at base of ledge; 184 at top; Photo XS (quantitative)- En				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.734575	-80.46632	185.775	9/26/2011 14:46	Photo XS (quantitative)- start; dead sponge hanging off; ledges look tilted; big Leiodermatium;	sandy bottom with occasional rock;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73461667	-80.46624167	188.577	9/26/2011 14:48	getting into position to collect large Leiodermatium; big sea star; ship is having a little difficulty holding station; off bottom				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73471667	-80.46573667	195.584	9/26/2011 14:52	coming back to bottom; isolated big sponges; Topsentia; photo 4359 taken over sediment bottom with scattered Demospongiae; 590 images left; trying to regain position;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73486167	-80.46548833	192.968	9/26/2011 14:54	still unable to keep station; off bottom;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73463	-80.46567167	195.771	9/26/2011 14:56	numerous sponges; few stylaster; fan shaped sponges; Topsentia; small white stylaster; we are at base of mound; SE corner; we are following wall that runs NW; 20-30 cm Coral- Stylasteridae; off bottom	sediment veneer bottom; 85% coverage; Slope- flat;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.734715	-80.46587333	197.499	9/26/2011 14:59	off bottom; wp d18C is wp001 heading to wp 002; elongated mounded ridge; current about 3/4 of a knot; Scorpaenidae; pink and white and salmon Coral- Stylasteridae; hydroids; phakellia; areas of open sediment; ripples; yellow and blue encrusted sponges	hard bottom; rubble; pavement; Rock;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73519333	-80.46565833	202.357	9/26/2011 15:02	lots of teribranch hemichordate brown fuss; Coral- Stylasteridae; snipe fish; blue and yellow encrusting sponge; Laemonema sp.; more barren; Geodia; dead stylaster;	rubble; Slope- moderate (<35o); 40% hard bottom; 60% sediment	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73542167	-80.46569833	200.816	9/26/2011 15:04	pale tan Demospongiae; Coral- Stylasteridae; yellow and blue encrusting sponge; fishing line; small sea cucumber;	50-50 hard bottom and sediment;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.735445	-80.46572833	200.442	9/26/2011 15:07	collecting sea weenie. Image 4334 still of sea weenie and hemichordate as well.			003	
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73545833	-80.46566833	198.433	9/26/2011 15:14	another sea cucumber is ahead; Moving to collect it;			003	
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73541	-80.46567833	200.068	9/26/2011 15:23	Photo XS (quantitative)- start; to the NNE; Coral- Stylasteridae; Demospongiae; Hexactinellid;	hard bottom; Coral- coral rubble; pavement;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73544667	-80.465725	198.387	9/26/2011 15:25	Anthiinae; rough tongue bass; Pachastrellidae, unid. Sp.; Coral- Stylasteridae; Laemonema sp.; Demospongiae - lumpy astrophorid; snipe fish; amphitheatre sponge; hemichordate; sea weenies; Hexactinellid;	hard bottom; pavement; Slope- flat; Coral- coral rubble; irregular low relief	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73580167	-80.46563667	198.153	9/26/2011 15:27	Coral- Stylasteridae; Hexactinellid; small patch reefs; bryozoans; Ferrea Hexactinellid; Geodiidae;	hard bottom; pavement; Coral- coral rubble; Slope- flat;	HB		

Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73591667	-80.46574333	193.435	9/26/2011 15:28	Ledge; Coral- Stylasteridae; Leiodermatium; Demospongiae; Anthiinae; streamer bass; blur gray Demospongiae; Aphrocallistes?; Anthiinae;	hard bottom; pavement; Slope- moderate (400); Coral- coral rubble; lower east wall;	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73617	-80.46553333	191.146	9/26/2011 15:32	Demospongiae; Coral- Stylasteridae; rough tongue bass Scorpaenidae;	hard bottom; Rock- wall; Slope- steep (>350); Coral- coral rubble; overhang - 1 m relief	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73622833	-80.46551333	190.633	9/26/2011 15:33	Coral- Stylasteridae; Hexactinellid; spider crab; gully between ridges; down images are not very filled in but the video; Demospongiae; Leiodermatium;	hard bottom; Rock; Slope- steep (>350); 1 m rock outcrop	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.736285	-80.46547333	192.127	9/26/2011 15:36		hard bottom; Rock; Slope- moderate (<350);	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73633	-80.46551833	192.408	9/26/2011 15:36		soft bottom; Slope- moderate (<350);	SB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73640167	-80.46547167	193.108	9/26/2011 15:37	Coral- Stylasteridae;	hard bottom; rubble; Slope- moderate (<350);	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73649333	-80.46547667	189.745	9/26/2011 15:39	transect up slope on east face of the wall; Leiodermatium; Coral- Stylasteridae; Hexactinellid; Demospongiae;	hard bottom; Slope- steep (45-600); rubble; Coral- coral rubble; series of ledge - stair step; 1-1.5 m relief	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73659833	-80.46549333	184.187	9/26/2011 15:41	Laemonema sp.; Hexactinellid; Geodiidae; Coral- Stylasteridae; Leiodermatium; rough tongue; Lithistida, unid. Sp.; snowy grouper	hard bottom; Rock; Rock- wall; Slope- steep (>350);	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73665667	-80.46541167	183.953	9/26/2011 15:45	roughy;	hard bottom; Rock; Slope- steep (>350); rugged relief;	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73661833	-80.46527	183.766	9/26/2011 15:47		hard bottom; pavement; rubble; Slope- steep (>350);	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73683667	-80.46528667	182.412	9/26/2011 15:47	snowy; ledge ahead has reef fish and boarfish;	soft bottom; Slope- moderate (<350); ledge ahead; below us is 100% sediment;	SB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73709333	-80.46507	180.123	9/26/2011 15:49	Gorgonacea; Coral- Stylasteridae; Anthiinae; Demospongiae; plexaurids; Plumerella; boarfish; top is dense fauna; snowey; under outcrop it flattened into a 20 o sediment slope	hard bottom; Rock; Rock- wall; Slope- steep (>350); Ledge; top east rim of bioherm; 1 m ledge with 15 cm crust outcrop	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73730667	-80.46447667	177.227	9/26/2011 15:53	we are going along ledge; very flat on top; 177m at edge; still photos of sediment slope below ledge; large Coelopleurus sp.; Laemonema sp.; sea star; Coral- Stylasteridae; Demospongiae; more sea weenies; sponges on top are mostly large fan sponges; folde	ledge; very flat on top;	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73751667	-80.46422	177.273	9/26/2011 15:55	moving about 45 degrees of edge of ledge; snowy grouper; roughy; Anthiinae; crabs; several Leiodermatium hanging underneath the ledge; Laemonema sp.; white and pink Coral- Stylasteridae; red barbiese; yellow encrusting sponge; rough tongue bass; thin eleph	sediment rock slope;	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73779833	-80.46373833	176.76	9/26/2011 15:59	moving along eastern rim; about a third of the way on this bioherm; the whole bioherm is 3 km; covered 1km; ledge is petering out; rock slabs broken out of ledge; current very low on top of the ledge; unusual; typically 1-2 knot; boar fish; more sediment;					
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.737925	-80.46356167	176.619	9/26/2011 16:01	rough tongue bass; boar fish; multi beam looks like there is no definite wall; more rugged; more rock slabs; several shoots cutting through the slabs; more ledges; fan sponges and Coral- Stylasteridae dominate; big school of boar fish; several dozen; brok	broken up pavement and sediment slope	HB			
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73810333	-80.46340333	176.76	9/26/2011 16:04	Photo XS (quantitative)- End; fix photo. Start next photo transect with 1438 [4338]					
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.738145	-80.46325	176.76	9/26/2011 16:06	will try to start a new transect heading to the north of the plateau;					

Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73810667	-80.4633345	176.619	9/26/2011 16:07	Photo XS (quantitative)- start; 2 apricot bass; boar fish; stylaster with blue encrusting sponge; current about 3/4 of a knot; snipe fish; Demospongiae; Hexactinellid; up on plateau is solid rock pavement; almost solid plaxxorid and crinoids; Coelopleurus	hard bottom; Rock; pavement; Slope- flat; 50% coverage of sediment; rocks;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73865667	-80.46333167	175.358	9/26/2011 16:11	astrophorid plate sponges; large Geodias; more dominated by sponges than stylaster; Hexactinellid; fan orange Axinellidae; various sponges; boarfish; going back to ledge;	little relief; rock outposts; 5cm or less; Slope- flat;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73866	-80.46350667	174.144	9/26/2011 16:14	Photo XS (quantitative)- End; reposition to NE down to the wall; different kind of fish; maybe snipe fish; 5 or 6 dorsal fins; pinkish brown; horizontal stripes; tan belly and silvery top; boar fish;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73883333	-80.46345667	175.218	9/26/2011 16:19	heading to wall;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73888167	-80.46328167	174.938	9/26/2011 16:20	heading northeast with the current; we are 50-60m from the ledge; orange fan Axinellidae; Raspailiidae; lower density of stylaster primary salmon and white; 70% coverage; boar fish; blue and yellow encrusting sponge				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73911167	-80.46306167	175.171	9/26/2011 16:23	Petrosiidae tube sponge; knobby;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73912333	-80.46332833	174.891	9/26/2011 16:25	dominated by sponges; fan mesh sponge; yellow encrusting sponge; phakellia; stylaster; petrosiidae; 80 m from wall; blue line tile fish; boar fish; large Geodia; Anthiinae; more density of sponges and stylaster; large wall sponge; Desmacella; half dome sp	hard bottom; Rock; pavement; 50% coverage	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73932167	-80.462685	174.471	9/26/2011 16:28	edge of wall; Coelopleurus sp.; top edge very dense; dominated by Coral- Stylasteridae; Anthiinae;	low relief; 1m drop off;	HB		
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.7394	-80.46268667	175.218	9/26/2011 16:29	Photo XS (quantitative)- End; east rim of the bioherm; on multibeam we are 1/3 way of the east wall; total distance about 1200m;				
Kraken 2 - 18	26-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #4	24.73949833	-80.46227333	172.649	9/26/2011 16:32	field of Coelopleurus sp.; end dive				
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74723	-80.421195	226.74	9/26/2011 18:59	soft bottom; irregular low sediment mounds; 3 cm burrow; shell and pteropods; current from 290 o	On bottom; soft bottom;	SB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74722833	-80.42119667	226.6	9/26/2011 19:01	Collect sediment, 201	soft bottom	SB	201	
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74725	-80.42113833	226.507	9/26/2011 19:03	50 m from base of wall; cidaroids; start photo xs; west heading	soft bottom;	SB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74687667	-80.42173667	226.133	9/26/2011 19:04	Stylocidaris - 3-5 cm long	soft bottom; Slope- flat;	SB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74721833	-80.42107	225.899	9/26/2011 19:08	Human Debris - bottle;	soft bottom; Slope- flat; low ridges	SB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74718667	-80.42114667	225.899	9/26/2011 19:09	cidaroid urchins	soft bottom; Slope- flat; 100% sediment asymmetrical sand waves	SB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74711667	-80.42125333	225.806	9/26/2011 19:10	20m from base of wall ; 3/4 knot current from west; cidaroid urchin ECHINODERMATA;	soft bottom; Slope- flat;	SB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.747135	-80.42132667	223.33	9/26/2011 19:13	unable to make headway moving more towards the NW towards the wall; cidaroid urchin ECHINODERMATA;	soft bottom; Slope- flat;	SB		

Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74734167	-80.42139667	225.479	9/26/2011 19:15	rocks; scattered rock boulders 30-50 cm; rock 10 cm relief; primoid Gorgonacea; Coral- Stylasteridae white and salmon; sCoral - Scleractinia cup coral; facing 240 degrees; current 90 degrees to the left; Mollusca- gastropod; Scorpaenidae; Farrea-Hexactinellid	soft bottom; Slope- flat;	SB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74733333	-80.42144167	227.674	9/26/2011 19:19	snipefish; 5% ocoveer of rock boulders, 10cm relief; Coral- Stylasteridae; primoid-Gorgonacea;	hard bottom; Rock; Slope- flat;	HB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74730167	-80.421465	225.853	9/26/2011 19:20	cridaroids ECHINODERMATA; 80 m from base of wall; ECHINODERMATA-starfish; 100% SEDIMENT;	soft bottom; Slope- flat;	SB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74729	-80.42146167	225.713	9/26/2011 19:22	80 meters or more from wall; cidaroid-ECHINODERMATA; tilefish; unable to station keep try to see if boat can drag us;	soft bottom; Slope- flat;	SB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74734	-80.42161167	222.91	9/26/2011 19:24	2-3 tilefish- blueline?; several 50 cm rock boulders; 30 cm relief 2 tile fish nearby; dragging to the west; off bottom 8 m	hard bottom; Rock; Slope- flat; 50 cm boulders	HB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.7475	-80.42131833	219.08	9/26/2011 19:26	top of wall 186 m according to sonar; 80 away from wall; Photo Xs- end	Off bottom				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74743167	-80.42223167	203.618	9/26/2011 19:34		Off bottom;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74728	-80.42259833	206.328	9/26/2011 19:37	base of wall;	bottom in sight				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74757167	-80.42223333	210.999	9/26/2011 19:39	base of the wall; 100% sediment; parthenope crab; sediment over rock pavement; hydroids?, crinoids; several sponges; Coral- Stylasteridae; coarse grain sediment; Hexactinellid;	sediment over rock pavement; Slope- flat;	HB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74748	-80.42236333	206.748	9/26/2011 19:42	on wall; flat pavement on top' over hanging ledge' 2 m wall; snow grouper; primnoids ;Coral- Stylasteridae;	hard bottom; Rock;	HB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74744833	-80.422155	201.983	9/26/2011 19:43		Off bottom;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74741	-80.42219333	202.637	9/26/2011 19:43	photo looking down on bottom; Pachastrellidae, unid. Sp.; Coral- Stylasteridae 5-15 cm across; snowy grouper 80 cm in length, Scorpaenidae; top of the wall; primnoids on ledge edge; irregular layers underneath ledge; urchin; spider crab; crust pavement un	pavement; Rock- wall; hard bottom; Slope- steep (>35o);	HB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74741333	-80.42229833	205.627	9/26/2011 19:47	3 snowy grouper 60-70 cm; series of slabs and irregular pavement under ledge of cleft; pencil urchin; Hexactinellid; current from N;	Rock- wall; hard bottom; Slope- steep (>35o);	HB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.747645	-80.4222	208.803	9/26/2011 19:50		Off bottom;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74768333	-80.42211667	211.045	9/26/2011 19:51	squid;	On bottom; hard bottom; sediment veener	HB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.747915	-80.42209833	214.876	9/26/2011 19:52	5 m up; broke hard drive; scattered slab	Off bottom;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74815667	-80.42222	218.239	9/26/2011 19:54	encrusting demospongia; Hexactinellid; Coral- Stylasteridae; low relief; crecent shaped embayments facing SE; Coelopleurus sp.;	On bottom; hard bottom; Rock; Slope- moderate (<35o);	HB			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74809167	-80.422225	218.846	9/26/2011 19:55		Off bottom;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtales Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74791	-80.42257	218.145	9/26/2011 19:57	Coral- Stylasteridae; cup coral; spider crab; Plumerella; photos sediment veener with small Plumerella; Coelopleurus sp.; snowy grouper;	On bottom; Rock; hard bottom; Slope- moderate (<35o);	HB			

Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74818333	-80.42220167	217.024	9/26/2011 20:00	pretty barren, current over 1 kt, Coelopleurus sp.;	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74823667	-80.42214333	221.135	9/26/2011 20:01	linear edge of a crust can see several; tracking is poor; 20-40 m error; low shelf has slightly over hanging crust with Coral- Stylasteridae; Plumerella all over, yellow encrusting sponge; fighting current; Hexactinellid; snowy grouper;	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74802167	-80.42232167	224.031	9/26/2011 20:04	having trouble station keeping;	Off bottom;			
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74817667	-80.42214833	226.04	9/26/2011 20:05	Benthobatis - Elasmobranch; spider crab; solitary Coral - Scleractinia; Coral- Stylasteridae coral rubble; salmon Coral- Stylasteridae;	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74838167	-80.421975	229.263	9/26/2011 20:11	hermit crab; solitary Coral - Scleractinia; Plumerella Gorgonacea;	soft bottom; Slope- flat;	SB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74845667	-80.42192833	225.432	9/26/2011 20:13	tilefish - blue line; Plumerella Gorgonacea; Coral- Stylasteridae; Leiodermatium Demospongiae; Hexactinellid; fan Demospongiae; Aphrocallistes;	hard bottom; pavement; Slope- moderate (<35o); Photo XS (quantitative)- start; low relief 10-20 cm outcrops	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74868	-80.42215333	225.386	9/26/2011 20:15	scattered Demospongiae; sea star ECHINODERMATA; salmon Coral- Stylasteridae;	hard bottom; pavement; low relief	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74893333	-80.42223833	226.507	9/26/2011 20:19	black bellied rose fish; white Coral- Stylasteridae; primnoid Gorgonacea; 40 m off the base of the wall on a rock slope; on a smooth sediment veneered bottom; small clusters and occasional Demospongiae;	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74919833	-80.42233333	223.097	9/26/2011 20:22	1 kt current; collect 202			202	
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74922333	-80.42229167	223.05	9/26/2011 20:28	moving on; low irregular broken pavement and crust; barren except for fuzzies;	hard bottom; Slope- steep (>35o); pavement;	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74938667	-80.42226667	222.069	9/26/2011 20:30	fuzzy clumps; Thalassia detritus; petrosid Demospongiae; ow irregular crusts; ledge	hard bottom; pavement; Slope- steep (>35o); sed veneer	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74961833	-80.42233167	217.585	9/26/2011 20:32	tilted crust and near vertical out crop; Laemonema sp.; roughy; white encrusting Demospongiae; some Ascidiacea; Hexactinellid;	hard bottom; Rock- wall; Slope- moderate (<35o);	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.749685	-80.42243333	215.389	9/26/2011 20:33	rov pulled by tether	hard bottom; pavement; Slope- moderate (<35o);	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.749685	-80.42243333	215.203	9/26/2011 20:34	.3 m rock out crop; Demospongiae;	hard bottom; Rock; Slope- moderate (<35o);	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74985167	-80.42233	214.595	9/26/2011 20:34	Human Debris line' thalassia; Hexactinellid; Demospongiae; Scorpaenidae; small sea bass	hard bottom; Rock; pavement; low relief	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.74995667	-80.42238	210.532	9/26/2011 20:36		hard bottom; pavement; sediment veneered;	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75006	-80.422365	211.933	9/26/2011 20:37	Scorpaenidae; astrophorid Demospongiae; solitary Coral - Scleractinia; encrusting Demospongiae; Leiodermatium Demospongiae; Laemonema sp.; roughy; Demospongiae; Anthiinae;	hard bottom; pavement; Slope- moderate (<35o); irregular slabs	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75034667	-80.42240667	210.391	9/26/2011 20:39	rock out crops	hard bottom; Rock; holy walls	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75045	-80.422405	208.056	9/26/2011 20:40	roughy;Coral- Stylasteridae; Demospongiae; Hexactinellid; spider crab;Laemonema sp.; 1meter outcrop;roughy;lithistid;spidercrab;small sponge;tufsts and clumps;holey and irregular erosion under crust;	hard bottom; Rock; Slope- moderate (<35o);	HB		

Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75070833	-80.42232667	208.803	9/26/2011 20:43	40 meters at base; Leiodermatium; irregular crust; Parthenopid crab under ledge; Roughy; snowy grouper; 2 more roughy; irregular series of ledges; undercut; Leiodermatium underneath; snowy grouper; Astrophoriids;	hard bottom; Rock; Slope- moderate (<35o);	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.751015	-80.42251167	207.449	9/26/2011 20:46	Top of slope; tube sponges; yellow and orange encrusting sponges; on wall; roughy; labyrinth erosional features; flat crust on top, re-entrances, holes and cavities; over steep slope; another roughy; pale graish blue encrusting sponges; white sponge or tu	labyrinth erosional features; flat crust on top, re-entrances, holes and cavities; over steep slope;	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75122833	-80.422525	212.073	9/26/2011 20:50	rippled sediment around low outcrops;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75135833	-80.42246167	213.428	9/26/2011 20:51	On sediment veneered slope about 30deg; scattered moderate relief outcrops; brown clumps on sediment veneer hard bottom with ripple marks; depression in distance;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75136833	-80.42243167	214.502	9/26/2011 20:52	outcrops; blue tilefish;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75150667	-80.42246833	215.67	9/26/2011 20:53	lost most of irregular relief; distance from wall 40 m; low relief sloping veneered pavement with clumps; past outcrop;	low relief sloping veneered pavement	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75168	-80.42239	216.137	9/26/2011 20:55	isolated slab table rock, eroded around it; smooth low-relief slope with occasional eroded undercut outcrops;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75182833	-80.42236333	216.137	9/26/2011 20:56	less sediment;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75201667	-80.42233333	215.389	9/26/2011 20:58	change direction heading toward middle of scour zone to start new photo transect; about 3 ship lengths due east; undercut ledges; snowy grouper; roughy;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75209667	-80.4223	215.109	9/26/2011 20:59	irregular overhanging tilted outcrops; roughy underneath; plate sponge Lithistid?; small encrusting sponges on outcrops; snowy grouper; pale yellow branching sponges; tilefish in distance; Photo XS (quantitative)-End;	irregular overhanging tilted outcrops;	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75201	-80.42209	228.328	9/26/2011 21:01	change tapes; 9 roughy;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75208833	-80.42208667	228.328	9/26/2011 21:02	changing tapes; benthic fauna dense fuzz on bottom; roughy; small finger sponges;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75222667	-80.42184	233.28	9/26/2011 21:04	ledges with more relief 3-4m of relief; sloping up ledges; more Stylaster; small sponges; still sediment veneered; still ~5m off bottom; irregular eroded hard group underneath; image 4524 phosphoritic limestone;	ledges with more relief 3-4m of relief;	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75205	-80.42134667	245.845	9/26/2011 21:06	sediment veneer; coming into dominant Primnoids; Stylasterids; Crescent shaped embayment; straight linear feature in multibeam;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75195	-80.421195	248.367	9/26/2011 21:08	collecting black coral; low relief rubble sediment veneered bottom;			001	
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75203167	-80.421115	249.395	9/26/2011 21:13	current from southwest				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75201333	-80.421165	249.535	9/26/2011 21:16	another black coral tree in distance; Plumarella on slope; fishing line; plate Astrophoriids; few small sponges; south end of linear north east southwest oriented wall 150m long; tilted crusts undercut ledges; Distichophora(?); Plumarella; small brown tuf	north east southwest oriented wall 150m long; tilted crusts undercut ledges;	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75179667	-80.42171	246.592	9/26/2011 21:19	moving up; Parthenopid; ledges with Stylaster; vertical ledge; moving up ledge; demosponges; scattered Stylasteriids; scattered sponges; 241 m ledge; still going up; about 45-50 deg slope up to another ledge; multifingered yellow sponges; 240 m ledge; sno	series of ledges on vertical wall	HB		

Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75187	-80.42120333	239.072	9/26/2011 21:22	Primnoids and stylaster on top; looking down on lower ledges; Cidaroid urchin; another escarpment; 235 m ascending; abundant Stylaster; on top min depth 234 m; long branched white Stylaster; lots of salmon Coral- Stylasteridae; flat pavement on top; dense				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.752095	-80.420745	232.205	9/26/2011 21:24	scorpionfish; stylaster hash; photo 4544 of sample 002; tiny orange organisms (sponges or tunicates?);			002 003	
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75222167	-80.42026833	232.019	9/26/2011 21:52	finished collecting Leiodermatium; continuing along; Photo XS (quantitative)- start; looking at labyrinth overhanging shelf deeply and irregularly eroded; on the edge; Karst-like topography; anthiid; Laemonema sp.; top of overhang Leiodermatium; Coral- St	overhanging shelf deeply and irregularly eroded; on the edge; Karst-like topography	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75238833	-80.42028	231.551	9/26/2011 21:59	fishing line coiled on bottom; scorpionfish on bottom;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75245333	-80.42020333	231.411	9/26/2011 22:00	2 m off bottom; roughy; low relief hard bottom; abundant primnoids; scattered sponges and Coral- Stylasteridae; fan sponges; roughy; salmon Coral- Stylasteridae; overhanging ledge; over a field of sediment veneered sloped abundant primnoids scattered Cora				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75256	-80.42028333	233.934	9/26/2011 22:03	going to start a new photo transect; meadow of Plumarella; patchy Coral- Stylasteridae; moving to eastern edge wall of scoured basin; Primnoid;				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75262167	-80.42027	234.261	9/26/2011 22:05	come up to another ledge; vertical 2 m escarpment overhanging crust; 0.5-1 m deep; on top abundant Plumarella; Leiodermatium; bottle in depression; more crusts up ahead; abundant meadow of Plumarella; small finger sponges pale - tannish - yellow; salmon c	vertical 2 m escarpment overhanging crust;	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.752655	-80.41997833	231.551	9/26/2011 22:09	field of Primnoids; basket star; sediment veneered bottom; long branched Coral- Stylasteridae; two basket stars and Primnoids; scattered demosponges Hexactinellids Coral- Stylasteridae; cidaroid urchin; two Gracilochinus (formerly Echinus) urchin; long f	sediment veneered bottom;	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75281333	-80.41966167	227.161	9/26/2011 22:13	basket star; going up slope; on slope of east face; black coral; going over mound covered with Coral- Stylasteridae; amphitheater sponge; Primnoids on gentle sloping sediment veneered hard bottom with occasional crusts; Cidaroid urchin; finger sponges; sa				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75298833	-80.41938	224.592	9/26/2011 22:17	lots of Primnoids; sediment veneer has brown clumps; 3 species of Coral- Stylasteridae; gentle slope with ledges outcrops sediment veneer abundant primnoids; patches of 3 species Coral- Stylasteridae; scattered demosponges; finger Hexactinellid; brown clu	gentle slope with ledges outcrops sediment veneer	HB		
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75307	-80.41927833	225.012	9/26/2011 22:20	pan of Coral- Stylasteridae species; at least 4 species; last down photo (sea star) 4580				
Kraken 2 - 19	26-IX-11-2	Florida, Pourtalès Terrace CHAPC, east of Alligator Bioherm #4, east wall	24.75344667	-80.418865	224.965	9/26/2011 22:22	leaving bottom; end of dive				
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71280167	-80.51924667	192.034	9/27/2011 12:42	on bottom; 11 min to descend; landed 50m east of WP; southeast face of bioherm; off on distance; current SW very slight 1/4 knot; dense cover of light pink finely branched Coral- Stylasteridae; salmon colored and thicker white Coral- Stylasteridae; about	hard bottom; Rock; pavement; sediment veneer; rock outgroup 25cm;	HB		Coral- Stylaster; maybe Oculina varicosa;
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71264667	-80.51942333	194.743	9/27/2011 12:48	very finely branched pink stylaster; Hexactinellid sponge base and tubular; different species; virtually no gorgonians; mesh fan raspallidae sponge; barrel sponge or Geodia; hemisphere flat top; tile fish to left far off field	Rock; pavement; very little relief;	HB		

Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71265833	-80.51945667	195.024	9/27/2011 12:51	dominant stylaster and hexactinellidae; 60 m from base of feature;	Rock; pavement;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71264167	-80.51947667	195.07	9/27/2011 12:52	Photo XS (quantitative)- start; starting with photo 4592; about 60m from feature;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71265167	-80.519395	193.622	9/27/2011 12:55	transecting; stylaster parallel with our heading which is 330; slightly curved; predominant current SW; mesh fan bryozoan; attempting to maneuver ship to N; having some difficult	coarse orange brown sediment;	SB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71263	-80.51953167	194.416	9/27/2011 12:57	transecting now; Coral- Stylasteridae; tallasia detritus; fuzzy brown hemichordate; 30cm blue line tile fish; appears we are going up slope 195m;	hard bottom; pavement; low relief 10 cm or less; 25% sediment; 10 degree slope; no ledges;	HB		Coral- Stylaster
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.7127	-80.519795	192.081	9/27/2011 12:59	multibeam 20 m from base of slope; snipe fish; apricot bass; yellow encrusting Desmacella sponge; not a lot of macro sponges; Coral- Stylasteridae is dominant; very eroded fan sponge; on south slope of the bioherm	10 degree slope	HB		Coral- Stylaster
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.713105	-80.51930667	188.25	9/27/2011 13:00	Geodia; astrophorid sponges; partway up slope; min depth 165; few of true Phakellia fan sponge	more rocky; more relief 20cm;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71322833	-80.519455	183.299	9/27/2011 13:02	Coral- Stylasteridae; fan sponges; raspailiidae; Desmacella yellow sponges; common 4 stylaster species; halfway up slope ; apricot bass; no ledges; very dense coverage;	hard bottom; Rock; pavement; low relief;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71317167	-80.51966167	181.524	9/27/2011 13:03	current is very calm on bottom; 20 degree slope; Laemonema sp.;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71318667	-80.519785	179.189	9/27/2011 13:04	larger outcrop; Plumarella dominant here; same biota; school of fish; Anthiidae;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71324667	-80.51981333	177.32	9/27/2011 13:05	working up slope; 10 m to the top; no real ledges;	Rock; pavement; Slope- steep (>350);	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71334833	-80.51981	176.292	9/27/2011 13:06	Coral- Stylasteridae; Hexactinellid; Aphrocalistes; Plumarella; fan sponges; yellow and blue encrusting sponges; very dense coverage; coming on top of ridge; no real ledge; apricot bass;	Rock; pavement; 30 degree slope	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71341333	-80.51981667	172.602	9/27/2011 13:07	on top of south rim of bioherm; Photo XS (quantitative)- End; dense coverage of stylaster; Demospongiae; Plumarella;	Rock; pavement;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71340833	-80.5198	172.369	9/27/2011 13:09	80% coverage biota; plate sponge Astrophorid; finely branched pink and white stylaster; hexactinellidae sponge; yellow and blue Desmacella sponges; crinoids; lots of large sponges except for the fan sponges which may be astrophorids;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71339	-80.51983167	172.369	9/27/2011 13:10	frame grab of habitat on top of the ledge; low relief elongate mound at southern end of bioherm				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71341667	-80.51982167	172.322	9/27/2011 13:11	Photo XS (quantitative)- start; peak 1 on the plateau; photo number 4621; heading NNW; facing due west; tile fish off in the distance; current appears to be swirling coming out of SW;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.713445	-80.51978167	172.088	9/27/2011 13:14	fields of Coral- Stylasteridae; Photo XS (quantitative)- start; a bit of current from SE maybe 3/4 of a knot; lower density of stylaster; dominated by stylaster; hemichordate; Plumarella; Raspailiidae	Rock; pavement;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71357	-80.51982833	168.398	9/27/2011 13:15	different kind of demospongia; we are in a bit of slope; still on south rim; Laemonema sp.; little ridge and flattening out; sandy area with ripples				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71403	-80.52009667	163.073	9/27/2011 13:18	multibeam; on top of feature; holding position; top of peak 1; 4-5 sp Coral- Stylasteridae; Plumarella; appears to be thin crust white pink coralline algae; few macrosponges; sediment is coarse grain; orange brown; stylaster detritus and copepods; mesh f	Rock; pavement; low relief; 20cm outcrop;	HB		

Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.714095	-80.520135	165.689	9/27/2011 13:22	zooming in on an apricot bass				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71412333	-80.52016167	164.755	9/27/2011 13:23	zooming in on the blue sponge encrusting on stylaster; about 1mm thick;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71413	-80.52017833	164.755	9/27/2011 13:24	large fan sponges; very nill current from SW; tile fish; Coral-Stylasteridae; blue encrusting sponge;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71411667	-80.52016	164.568	9/27/2011 13:26	Photo XS (quantitative)- End; changing direction; heading E from peak 1 to east rim of plateau; start photo transect with photo 4628; Photo XS (quantitative)- start; on multibeam east ridge of SE end of the bioherm; looks like a possible ledge; about 100 m				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71411833	-80.52010833	166.063	9/27/2011 13:28	blue line tile fish; flat wall sponges; Coral- Stylasteridae; Plumarella; 50% coverage;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71406333	-80.52005333	167.09	9/27/2011 13:29	N base of peak 1 heading to E base of peak 1; halfway across plateau; southern end of bioherm; dominated by stylaster, Plumarella and fan sponges; big school of Anthiinae;	Rock; pavement; hard bottom;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71420167	-80.519785	166.39	9/27/2011 13:31	100% coverage of stylaster, Plumarella and fan sponges; maybe yellow fin Anthiinae; 5m Geodia; 4-5 species stylaster; no big ledges; big Geodia sponge about 50cm; crinoids; dominant species astrophoras plate sponges; Raspailiidae fans; fuzzy brown crimm				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71428333	-80.51955667	165.222	9/27/2011 13:35	Coral- Stylasteridae; abt 60m from edge; very diff from yesterday's plateau which was covered with sediment with sparse stylaster; apricot bass; virtually no current; Anthiinae in the distance; possibly rough tongue bass; Geodia;	Rock; pavement; Slope- flat;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71437667	-80.519255	166.95	9/27/2011 13:38	dense coverage of stylaster, crinoids and large sponges like Geodia and fan; about 20cm off from the drop-off; approaching edge;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.714488	-80.51903667	168.165	9/27/2011 13:39	Photo XS (quantitative)- End; 4644 photo; at edge; tile fish; snowy grouper; flat wall 1m long curtain sponge; 15cm tall; Anthiinae; 2 roughy; Leiodermatium under ledge; streamer bass; smaller Anthiinae abt 10cm hanging upside down under the ledge; 30cm ro	flat top pavement; meter overhang; eroded rugged near vertical; rugged crust broken in slabs;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.714415	-80.519035	169.846	9/27/2011 13:43	we will creep along face of eastern rim plateau; heading N; boar fish; vertical scarpment about 1m long; rock slope pavement; barren except for encrusters; right at ridge stylaster; leiodermatium hanging underneath the ridge; several Anthiinae; current fr	large 2m or more crust overhang; rock ledge under that;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71469167	-80.51895333	169.613	9/27/2011 13:47	narrow ledge at base of escarpment maybe 1m wide; more ledges and escarpments; steep escarpment; shows up on multibeam; rock slabs broken off;	hard bottom; Rock; pavement;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71479	-80.51901833	171.154	9/27/2011 13:50	ship is repositioning; off bottom; roughy on distance; large rock slab several meters; large pieces of rock broken forming 3m long angular slabs under the ledge; habitat for fish; not a lot on rock; few stylaster; fan sponge; current variable coming from				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71472167	-80.51893833	169.333	9/27/2011 13:53	better view of bottom; school of Anthiinae; good view of wall; undercut top ledge; roughy;	escarpment and rock pavement slope;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71472667	-80.519045	169.146	9/27/2011 13:54	at bottom again; snowy grouper; another roughy; within deep coral area no fishing restriction; abt 20 miles from fishing zone called the humps; 20 mi off isla morada; tile fish; working our way along undulating east rim; heading NW to NE; Anthiinae;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.714765	-80.519155	167.978	9/27/2011 13:57	zooming to look at the brown fuzzy; slope below wall; stylaster and fuzzy brown and few Hexactinellid; getting random photos close to the bottom; rock is very smooth; very steep rock slope about 70 degree; half meter ledge with spider crab; big cat fish;	hard bottom; Rock; pavement;	HB		

Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71474833	-80.519235	169.473	9/27/2011 14:00	eel fish; Anthiinae;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71476167	-80.51925333	169.052	9/27/2011 14:02	Porgy 30 cm; southeastern rim at the top of the bioherm; following upper ridge;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71475833	-80.51921833	170.033	9/27/2011 14:04	nice view of bearded Brotula barbata fish swam under ledge with roughy;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.714805	-80.51923667	170.08	9/27/2011 14:07	drifting off east midwater 160m from the previous area to drop down into the hole to bottom then come up slope;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71484167	-80.51729333	164.615	9/27/2011 14:22	30 m off target				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71476833	-80.51736167	233.093	9/27/2011 14:29	bottom; sediment veneered hard-bottom; exposed; about 70-80% cover; numerous scattered Stylaster; white slender branched; rose salmon colored; large black coral tree; first photo at bottom 4651; 624 photos remained; low-relief gently-sloping hard bottom	hard-bottom; exposed; about 70-80% cover	HB	001	
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71484667	-80.51759333	230.944	9/27/2011 14:37	Bryozoan; heading up slope				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71487833	-80.5176	231.505	9/27/2011 14:38	1 knot surface current; no current on bottom; direction will be due west				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71489833	-80.51755833	231.271	9/27/2011 14:42	changed tapes;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71482667	-80.51760667	231.084	9/27/2011 14:44	Photo XS (quantitative)- start; 140 m from crest of eastern face of bioherm; heading due west up slope; gently sloping 25% veneer sediment; scattered to common white and salmon Coral- Stylasteridae; small Demosponges; small Aphrocalistes; fish with white	gently sloping 25% veneer sediment;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71487	-80.51770333	228.842	9/27/2011 14:46	still photo 4653 and 4654 of sample 002				002
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71485167	-80.517705	228.982	9/27/2011 14:50	resume heading up slope; shallow slope; small tufts on bottom maybe worm tubes; low crusts; Coral- Stylasteridae salmon; candelabra white branch Coral- Stylasteridae; bearing 280; large Coral- Stylasteridae base of colony looks dead and encrusted by sponge				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71483667	-80.51786	227.347	9/27/2011 14:53	photos 4655, 4656, 4657				003
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71484833	-80.51780333	227.207	9/27/2011 15:07	finished collecting inverted cone Hexactinellid with small fistules on outside low irregular sediment veneered hard bottom with crusts and Coral- Stylasteridae; saw three of these sponges;				003
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71481333	-80.51784667	226.927	9/27/2011 15:09	zoom in on other sponge; looks like part of it is dead; some biofilm on bottom; yellowish discoloration where tissue is dying; looking upslope				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.714835	-80.517835	227.207	9/27/2011 15:11	35-40deg slope; bearing 282; another Hexactinellid just samples (common here); slabby tilted outcrops; low relief irregular 20% cover; fish with vertical thick orange bars anthiid tried to get photo of fish but it swam under ledge; Leiodermatium; Hydroids	35-40deg slope; tilted outcrops, 20% cover	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71484833	-80.51786333	225.479	9/27/2011 15:13	Hexactinellid sponge big; salked tube sponge; continue photo transect upslope; pterobranchs; Coral- Stylasteridae; small yellow encrusting sponges; bryozoan lace fan; cone sponge; steeper slope; Cidaroid urchin; numerous stylaster along edge; inverted spo				

Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71491167	-80.51797167	215.296	9/27/2011 15:15	on multibeam we are on the terrace moving from the dark purple across to the blue; small ledges of about 1m each; pink and white stylaster; salmon as well; fan bryozoan; champagne flute sponge; small finger sponges; fans oriented NS; Hexactinellid; styla	steeping slope with 20% sediment veneer; very irregular; chewed up edges	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71486333	-80.51806833	204.833	9/27/2011 15:18	abundant stylaster along edge; moving to light blue on multibeam; we are facing W; stylaster at right angle to us; mean current prevailing flow coming directly up slope; very little current right now; switched pilots;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71468667	-80.518305	202.637	9/27/2011 15:19	Anthiinae; all three colors of stylaster; inverted cone sponges; yellow fin bass; light belly rose fish; stylaster growing on dense clusters on elevated topography; swells have less organisms; pterobranch hemichordate; coming up another steep slope;	irregular ledges; series of ledges like a pagoda;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71480167	-80.51840333	202.637	9/27/2011 15:22	scorpion fish; smaller stylaster; lot of white; larger stylaster where the ledge projects; Demospongiae; apricot bass; yellow encrusting sponges; hemichordates; Leiodermatium; red barbiere;	30% orange tan sediment; elevated tilted outcrops; irregular outcrops; vertical ledges;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71477833	-80.51878167	193.902	9/27/2011 15:25	zooming into holes in ledges; trying to look at red white unusual fish; cup coral; feather duster worms; theonella knobs; cup sponge; possible algae on top of yellow encrusting sponge; encrusting white tunicate; blue encrusting sponge;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71478833	-80.51874333	194.043	9/27/2011 15:30	still looking at fish; fish is about 6 cm long;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71478333	-80.51877167	194.136	9/27/2011 15:33	observing unknown red banded fish; resume transect;	irregular ledges with deep cavities; irregular hard bottom; Slope- steep (>35o);	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.714795	-80.518765	191.987	9/27/2011 15:34	scattered stylaster white and salmon colored one; vertical escarpment deeply eroded labyrinth cavities well over 1 m high;	vertical escarpment deeply eroded labyrinth cavities well over 1 m high;	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71481333	-80.51883	187.316	9/27/2011 15:35	vertical with numerous crescent shaped embayment ledge over top; continuing along top; steep cake frosting texture; steep slope; abundant brown fuzzy Pterobranch; extremely steep vertical escarpment; photo 4679 looks down slope at steep escarpment with Pt				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71477833	-80.51894	174.891	9/27/2011 15:37	Coral- Stylasteridae; cavities under ledges; all hard bottom with 10%; scattered salmon Coral- Stylasteridae Distichophora(?); white long branch Coral- Stylasteridae; finger sponges; abundant Pterobranch; eroded crust underneath; coralline red algae accomp				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71476667	-80.51911	169.566	9/27/2011 15:39	coming over hump in slope with numerous Coral- Stylasteridae; roughy; continue on northerly heading; finished Photo XS (quantitative) End; continue transect along top ring towards northwest; Pterobranchs; yellowfin bass 40cm; thin crust overhang over wal	thin crust overhang over wall undercut 1 m; short vertical escarpment below crust; rock pavement slope below	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.714705	-80.51913	166.81	9/27/2011 15:41	running along edge of overhanging crust; snowy grouper; roughy; Coral- Stylasteridae mostly on crust edge; numerous strata little eroded crust edges; sediment pooling below; oriented facing down slope; crescentic shape; Pterobranchs on slope; 10-20cm high				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71477167	-80.51896333	171.808	9/27/2011 15:44	another big slab; sedimentary layers that have eroded away; crescentic embayments do not seem to be very regular;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71495833	-80.51910667	174.144	9/27/2011 15:46	changing course heading northwset heading 315deg; 3 m off bottom; abundant Pterobranchs; scattered Coral- Stylasteridae; just taken photo 4684 row of white Coral- Stylasteridae; on a field of small Coral- Stylasteridae mostly 10 cm; low relief irregular	steep slope with abundant low relief prominances 1-2m rounded outcrops;	HB		

Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71533667	-80.51923167	178.488	9/27/2011 15:49	same bottom; steep low relief slope; about 25% sediment veneer; depressions; crescentic embayments not well defined; scattered Coral-Stylasteridae; heading due west but ship is taking us to the right of that; white salmon and pink Coral- Stylasteridae; s				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.715335	-80.51944667	173.21	9/27/2011 15:51	back on same steep slope few scattered small Coral- Stylasteridae 10 cm or less; partially sedimented veneer low relief with crescent shaped concave down slope; Calliostoma top shell; slope is 50 degrees;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.715335	-80.51958667	169.519	9/27/2011 15:56	Parthenope pourtallesi crab covered with bumps and knobs get frame grab; Scorpion fish; another Parthenope pourtallesi; large eel two black spots and dark spot on dorsal backing up into hole.				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71534	-80.5196	169.613	9/27/2011 15:59	moray eel; photos; hermit crab on ledge under cave; off bottom;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71535833	-80.51963167	169.052	9/27/2011 16:00	Big curved shelf; overhanging shelf above slope; dark Pterobranchs; few Coral- Stylasteridae; steep slope; low ledge; abrupt change of orientation of substrate; more abundant Coral- Stylasteridae at top of field of view; change in slope with field of Cora	overhanging shelf above slope	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.715475	-80.51983667	167.978	9/27/2011 16:03	photo 4299 [4699?] purposeful shot of projecting ledge with abundant Coral- Stylasteridae				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71547167	-80.51992833	167.978	9/27/2011 16:04	roughly moving over ledge; calcareous red algae; first of raspeleid sponge; 45 deg slope with abundant Coral- Stylasteridae; low relief 25% orange and tan sediment veneer; salmon pink and slender white Coral- Stylasteridae; grouper swam by; tilefish; Ptero				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71544333	-80.52004333	168.305	9/27/2011 16:05	coming over edge of another ledge; numerous Plumarella; Geodia; more wall sponges; tilefish; boarfish; edge abundant Desmosella; small encrusting yellow sponges;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71543167	-80.52004167	168.305	9/27/2011 16:06	slope does not seem as steep here in bit of swale; 40% sediment veneer; off bottom; facing due west; tilefish; fans are all oriented north-south suggesting current coming from west or east; another wall sponge; 60% sediment cover orangy-tan; rugged hard b				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71559167	-80.520155	168.865	9/27/2011 16:09	roughly; another ledge bg overhang; fishing line with weight hanging off overhang; projecting elongated ledges over 1-2m undercut one after the other like fingers or mittens hanging off; rough; Leiodermatium; small anthiids underneath; ripple down slope lo	projecting elongated ledges over 1-2m undercut	HB		
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71609333	-80.520405	167.651	9/27/2011 16:13	calcareous red algae on overhangs; irregular eroded cavities underneath ledges; broken slab; like a big tale of the slab fell off; hermit crab; spider crab; small Coral- Stylasteridae all less than 10 cm not many along edge; boarfish; little hermit crab;				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71634167	-80.52060833	167.698	9/27/2011 16:15					
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71632833	-80.52064	168.025	9/27/2011 16:18	fishing line; moray eel sun bathing two blue spots behind operculum; honeycomb; Leiodermatium; fishing line; snowy grouper in distance (midwater)				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.716355	-80.52066667	168.258	9/27/2011 16:19	backed off ledge because of fishing line; tilefish; snowy grouper underneath (same individual); interesting edge; calcareous red algae; Coral- Stylasteridae; tilefish; scorpionfish; hermit crab; going on top of ledge for down photo; dense with Coral- Styla				
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71639167	-80.52082833	166.904	9/27/2011 16:20	leaving bottom; barrel fish and roughy				

ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 20	27-IX-11-1	Florida, Pourtalès Terrace CHAPC, Alligator Bioherm #3, North double peak	24.71653167	-80.52088833	166.156	9/27/2011 16:21	taking series of photos to get an idea of density last shot dozen 4736 ledge edge over top of ledge with abundant Coral- Stylasteridae and sponges	ledge edge over top of ledge	HB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 18:51					
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 19:05	START DIVE	Launch (start dive);			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 19:55	atmpting to dive on th outer escarpment of the pourtales terrace;	water column			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 19:58	plankton - 60 m off bottom - dennis, mike, John and Andy; .	water column			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 20:00	50 m off bottom - right on target site;	water column			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 20:02	ship is station keeping with the bottom - tracking is poor; 3 kt surface current still;	water column			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 20:10	30 m up	water column			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 20:12	lots of plankton	water column			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 20:13	20 m up	water column			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 20:20		bottom in site			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 20:21	On bottom; [the original On Bottom coordinates were 24 30.447 N and 80 20.9926 and are from the ROV]	On bottom;			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.35	9/27/2011 20:23	unknown thin legged shrimp; Collect; 201; ripples in sediment are perpendicular. Current is ~.25 kt from the NE to SW	soft bottom; Slope- flat;	SB	201	
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50745	-80.34987667	-837.67	9/27/2011 20:29	1 in silvery fish; ship is about 100 m from target wp; Both the ship and the ROV wpt are out;	soft bottom; Slope- flat; fine sand and carbonate sand;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50736833	-80.34893167	-836.55	9/27/2011 20:43	starting photo transect; Photo XS (quantitative)- start - 4763; low ridges - 10 cm;	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50736833	-80.34893167	-837.63	9/27/2011 20:45	tripod fish;	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.507	-80.349325	-806.66	9/27/2011 20:48	control loss; rest camera digital;	soft bottom; Slope- flat; Off bottom;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.507	-80.349325	-806.66	9/27/2011 20:50	regain control and	On bottom;			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.507	-80.349325	-806.66	9/27/2011 20:51	4765; continuing photos; dhrimps; cerianthid? Medusae floated by	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.507	-80.349325	-806.66	9/27/2011 20:53	Antipathidae - with fishing line wrapped around; Human Debris; thalassia; .5 m sharp sand ridge;	soft bottom; Slope- moderate (<350);	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.507	-80.349325	-806.66	9/27/2011 20:55	shrimp; ridge ahead -	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50703333	-80.34861667	-836.46	9/27/2011 20:57	Laemonema sp. But clear tail and no black on tip	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50703333	-80.34861667	-836.46	9/27/2011 20:58	moving; no tracking of the ship; shrimp - Numata carcinus?;	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50703333	-80.34861667	-836.46	9/27/2011 21:01	some slight depressions; sand wave ridge; boat tracking back on;	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50703333	-80.34861667	-836.46	9/27/2011 21:04	another sand ridge .5m tall;	soft bottom; Slope- flat; 0.5 m tall sand ridges	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50703333	-80.34861667	-836.46	9/27/2011 21:06	another .5 m sand ridge; sargassum?;	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50647167	-80.35148667	-835.85	9/27/2011 21:07	squid; eel;	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50647167	-80.35148667	-837.02	9/27/2011 21:11	moving on; rat tail;	soft bottom; Slope- flat;	SB		
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50647167	-80.35148667	-837.02	9/27/2011 21:14	patches of flat areas where the ripples disappear	soft bottom; Slope- flat;	SB		

Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50647167	-80.35148667	-837.02	9/27/2011 21:16	10 cm anemone - thick and sparse arms:	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50647167	-80.35148667	-837.02	9/27/2011 21:17	anemone; according to the multibeam were right on the base of the wall; red/black ctenophore; ship movin north at .75 kts.	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50830833	-80.34905667	-836.97	9/27/2011 21:20	sand wave;	soft bottom; Slope- flat; sand waves	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50830833	-80.34905667	-836.97	9/27/2011 21:23	Elasmobranch - skate	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50830833	-80.34905667	-836.97	9/27/2011 21:26	ridge;	soft bottom; Slope- flat; sand ridge	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50830833	-80.34905667	-836.97	9/27/2011 21:26	eel; shrimp;	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50986167	-80.34919333	-835.2	9/27/2011 21:29	sargassum debris; crab;	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50986167	-80.34919333	-835.2	9/27/2011 21:31	red CRAB! 10 cm crab; Chaceon quinquedens;	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50986167	-80.34919333	-835.2	9/27/2011 21:34		soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50986167	-80.34919333	-835.2	9/27/2011 21:35	crab Chaceon quinquedens; anemone; ;	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.50986167	-80.34919333	-835.2	9/27/2011 21:37	.5 m ridges/ dunes; ctenophore; shrimp;	soft bottom; Slope- flat; sand ridges 0.5 m	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.511102	-80.34907833	-833.51	9/27/2011 21:38	rat tail;	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.511102	-80.34907833	-833.51	9/27/2011 21:41	ridge; rat tail; shrimp	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.511102	-80.34907833	-833.51	9/27/2011 21:43	Bathynomus;	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.511102	-80.34907833	-833.51	9/27/2011 21:45	foot of ridge; sea robin Off bottom; Out of time, must end dive for transit to new site.	soft bottom; Slope- flat;	SB			
Kraken 2 - 21	27-IX-11-2	Florida, Pourtalès Terrace Escarpment	24.511102	-80.34907833	-833.51	9/27/2011 21:47		soft bottom; Slope- flat; Recover (on deck);	SB			
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42221833	-80.75340833	302.459	9/28/2011 12:38	on bottom; database issues; missed some narration - see video; on bottom 12:38:00 PM					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42231167	-80.75382333	275.974	9/28/2011 12:43	80 degree solid rock wall; pitted; sparse Stylasteridae; too steep to get photos; Leiodermatium; heading westerly toward	80 degree solid rock wall	HB			
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.422305	-80.753955	268.079	9/28/2011 12:44	Cidaroid urchin; 3-4 species Coral- Stylasteridae white, salmon; rosefish; salmon Coral- Stylasteridae; steep almost vertical wall;	steep almost vertical wall;	HB		Coral- Stylasteridae	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42226333	-80.75396333	264.343	9/28/2011 12:45	vertical wall with overhanging slope; sheer wall; overhang above; plate Leiodermatium; black belly rosefish; larger fluted Leiodermatium; big overhang;	vertical wall with overhanging slope; sheer wall	HB			
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42234833	-80.753915	254.487	9/28/2011 12:47	large overhang; barren rock; on a slope above ledge 60 deg slope;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42236333	-80.75390167	246.125	9/28/2011 12:47	more rock slope; transecting up east slope at southern end of mound; roughtongue bass					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42242	-80.753935	241.921	9/28/2011 12:48	more biota; 40deg slope; 100% rock pavement; lumpy sponge; larger Stylaster; 10-15 cm; Photo XS (quantitative)- start; frilly white and sparsely branched Demosponges; lumpy brown Demosponge; fishing ling; Corallistes; Petrosid; dozen species of Demosponge	40deg slope; 100% rock pavement	HB		Coral- Stylasteridae cup corals	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42251167	-80.75391333	239.305	9/28/2011 12:53	lumpy brown sponge; thin encrusting fan; numerous cup corals; starfish; lumpy brown sponge;				Coral- Cup coral	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42236833	-80.75401833	239.539	9/28/2011 12:57	difficulty station keeping with depressor weight; collecting sample 001; Astrophorida and lumpy demosponge near sample 001; another different-looking red Coral- Stylasteridae; rough tongue bass in hole; thin encrusting Demospongiae; brown sponge growing a			001		

Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42255667	-80.75390333	240.1	9/28/2011 13:00	cross current having trouble getting ROV on station; strong current from south south-west; may or may not be able to collect sample 001; 2 knot surface current moving depressor weight away from ROV up slope; big pieces of long fishing line moving up slope			001	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42225667	-80.75464167	239.399	9/28/2011 13:04	starting for now; Photo XS (quantitative)- start; dominant Coral-Stylasteridae frilly white and frilly pink; attempt to take sample 001 again				Coral- Stylaster
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42249667	-80.75389833	239.446	9/28/2011 13:17	continue photo transect; starting with photo 4845; sea bass in hole might be rough tongue? But hard to tell; continue at 0.2 knot; continue heading north-northeast; peak at south end of plateau; long fishing line strung along bottom; diverse Demospongiae;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42247833	-80.75389167	238.652	9/28/2011 13:19	pausing transect to look at possible plate Leiodermatium; 20 deg rock slope;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42251833	-80.75384667	239.819	9/28/2011 13:21	photo of plate sponge;			004	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42247333	-80.75381667	241.734	9/28/2011 13:26	being pulled by depressor; attempting to sample 004				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42253333	-80.75388	240.613	9/28/2011 13:29	rock slope; smooth rock; no ledges; dense cover Coral- Stylasteridae; Demospongiae; primarily Lithistida; thick plate Lithistid; folded plate Astrophorida; 15-20 species Demospongiae; trying to station keep	rock slope; smooth rock; no ledges		HB	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42249833	-80.75394667	239.305	9/28/2011 13:31	trying to station keep; cup corals common; lobate brown sponge; plate corallistid; red white striped shrimp by 004;			004	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.422475	-80.75391667	239.679	9/28/2011 13:53	sponges surrounding;			007	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42248167	-80.75391667	239.726	9/28/2011 13:55	starting with photo number 4855 resuming photo transect;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42251833	-80.75388	239.726	9/28/2011 13:57	run transect on heading northeast along southwest wall of bioherm; try to get to upper ledge; try to move along at 0.2-0.25 knot; current seems to be lower here; facing southwest; current seems to be coming from south, but dropped off; maybe 0.5knot from				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42246167	-80.75391333	239.399	9/28/2011 13:58	heading 45-50deg;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42253667	-80.75392667	238.511	9/28/2011 14:00	starting random photos; 45 deg slope; solid rock low relief; pock marks of 10 cm; some ridges 10-15 cm; facing to northwest and crabbing to northeast;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.422575	-80.75391833	240.567	9/28/2011 14:01	60 deg slope; sparse, fewer Coral- Stylasteridae; plate Lithistids; more barren steeper; seems the more steep, the more barren the biota; 60-70deg slope, maybe 70-80; 244 m depth;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42271333	-80.75379833	246.732	9/28/2011 14:02	postdoc killer sponge; slit shell; petrosiidae; tube sponges; another slit shell; rocky slope fairly barren; series of rock ridges maybe 1m relief; forming grooves; 1 every 10m; dense stylaster and sponges; heading NE; 70 degree slope;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42296333	-80.75365167	239.212	9/28/2011 14:05	multibeam at intersect of pink and yellow; working along east ridge;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.423185	-80.75331167	240.66	9/28/2011 14:07	low relief; 70 degree slope; lots of salmon and white sponges; lithistid sponges; heading 26degree NE; current parallel to slope; downslope ridge where it drops to the edge; several meters; same bottom; looking at vertical wall; low half-meter ridge with	half-meter ridge with grooves;		HB	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42342833	-80.75302167	251.497	9/28/2011 14:10	off bottom; changing direction; fishing line; going down slope;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.4235	-80.75294333	249.302	9/28/2011 14:13	off bottom; about 6m above bottom				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42352167	-80.75299167	245.284	9/28/2011 14:13	bottom visible; resuming photo transect; lithistid; stylaster; stylaster run up and down slope; 65 degree slope; down slope low ridges and grooves; 1m or two apart; stylaster more dense at crest of ridges; stylaster are 15 or 10 cm; astrophorad sponges;				

Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42400167	-80.75310833	247.293	9/28/2011 14:18	we are changing direction; off bottom slightly; trying to transect to an apparent ridge at the base of the wall;	apparent ridge at the base of the wall;	HB			
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42403833	-80.75289667	245.284	9/28/2011 14:19	trying to head SW; 50 m off bottom; trying to drop onto feature; repositioning ROV; 70m off bottom					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.423955	-80.75263	230.944	9/28/2011 14:22	trying to position ROV;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42384333	-80.75243833	253.973	9/28/2011 14:25	60m off bottom; trying to reposition ROV;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42379667	-80.752285	314.837	9/28/2011 14:29	feature is 40m ledge; vertical relief of at least 2 m; scorpion fish; lower relief surface texture; holes and cavities; very small stylaster; pterobranch in distance; 4871 photo; desmacellid blue encrusting sponge;	40m ledge; vertical relief of at least 2 m;	HB			
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42353833	-80.752275	321.283	9/28/2011 14:32	heading along rounded humpy ridge; grooves run across ridge; low ridge and irregular rounded grooves; very small stylaster on the ridges; not much on grooves; grooves interrupted by depressions; base of NS wall; turning N;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42339167	-80.75230833	322.077	9/28/2011 14:35	sitting on groove with rounded ledge on either side; very small <10cm tall stylaster and sediment; moving along face of ridge; almaco jack; sea star; big jack;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42373333	-80.75216333	324.506	9/28/2011 14:37	bottom has paler white lumps; very little life; potholes on substrate; shortnosed green eyed fish; galathead crab; feather duster worm;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42381833	-80.75218167	326.048	9/28/2011 14:40	beginning of tape/dvd 50					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42378667	-80.752275	325.908	9/28/2011 14:42	dead stylaster hash in depressions; 10 cm or less across; heading up to the mound; in depression between ridges; slope to left and right; sediment only on grooves; slopes heading EW; very small stylaster; no sponges; downslope groove with potholes; base pr					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42416333	-80.752095	333.148	9/28/2011 14:45	almost completely barren; heading due N; shortnosed green eyed; galatheads; tiny yellow encrusting sponges; more potmarks; detached stylaster skeletons; 70 degree slope; scorpion fish; 1 live stylaster; forward 70degree slope; vertical relief 30cm; anothe	70 degree slope;	HB			
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42434	-80.75217	323.338	9/28/2011 14:47	photo 4887 white sea star					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42438333	-80.752215	322.217	9/28/2011 14:49	scattered coarse branched small stylaster; down camera shows shallow cross slope ledges; white stylaster; sedarid urchin; steep slope 60 degree; slit snail; shortnosed green eyed fish;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42451167	-80.752205	317.266	9/28/2011 14:52						
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42448667	-80.75223667	317.219	9/28/2011 14:53	Photo XS (quantitative)- End; Photo XS (quantitative)- start; heading NW to the base of the E wall of the bioherm up slope to the top ledge; first photo 4890 has slit snail; we are 40m east of the wall;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42453833	-80.752265	312.735	9/28/2011 14:54	scorpion fish; numerous stylaster; encrusting sponges; heavy-bodied shrimp;					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42454833	-80.75229333	309.278	9/28/2011 14:56	steep slope with scorpion fish; small encrusting sponge; irregular eroded pot marks; up and down arranged stylaster; sea star; cidaroid urchin; sponge; another sea star; stylaster less than 10 cm; grey encrusting sponge; encrusting white tunicates; broken					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42468833	-80.75233167	297.367	9/28/2011 14:58	coming up another ridge; urchins; scorpion; according to multibeam we are at base of the yellow zone; crest appears to be 60m up; barren; very few scattered stylaster; cavities; pterobranch; skeletal degree; pale purple encrusting sponge; white encrusting					
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42476	-80.752395	291.622	9/28/2011 15:00	10 cm red with white vertical stripe fish;					

Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42472	-80.75242833	286.297	9/28/2011 15:02	same bottom; few more stylaster; some salmon as well as white; couple pterobranch; encrusting sponges; sedaris urchin; leiodermatium; multibeam we are halfway up the E wall; hermit crab; slit snail; 2 fat bodied shrimp;	Slope- steep (>35o);			
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42487833	-80.752535	278.916	9/28/2011 15:04	anemone; sedaris urchin; scattered stylaster and sponges; orange knob sponges; white encrusting tunicate; more stylaster; desmacelliid; fishing line; about 20m from top of the ledge;	Rock; Slope- steep (>35o);	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42498833	-80.75262833	269.06	9/28/2011 15:07	more eroded; hermit crab; steeper slope; crab; urchin spines on bottom; chewed up eroded area; steeper slope; deep cavities; encrusting olive colored sponge; more stylaster; vertical relief overhanging; leiodermatium; galatheid claw span 9cm; another one	eroded area; steeper slope; deep cavities	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.424975	-80.752705	259.391	9/28/2011 15:09	larger 10cm across white stylaster; couple of tube sponges; no more than 6 cm long and 3 cm wide; lots of white encrusting tunicate; cup coral; near top ledge; overhang at 250m deep; large amber jacks 3; down camera in blue water; moving off to make sure	near top ledge; overhang at 250m	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.424885	-80.75264	250.796	9/28/2011 15:12	another ledge above us; off bottom;	another ledge	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42499667	-80.75276167	242.295	9/28/2011 15:13	on bottom; stylaster oriented up and down slope; lithistid sponges with wavy plates; lumpy brown sponge; at 237 lithistid plates	steep eroded slope	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42508167	-80.752835	235.522	9/28/2011 15:14	larger stylaster; lumpy tube sponge; lithistid; about 20 species Demospongiae; Geodia; petrosiidae; pachastrellidea; orange lumpy sponge;	slope 45 degrees;			
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.425145	-80.7528	234.121	9/28/2011 15:16	many species of Demospongiae; hermit crab; slit snail maybe P. midas very pale not as ribbed;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42510667	-80.752825	234.401	9/28/2011 15:17	5 cm across slit snail; brown cup coral;			008	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.4251	-80.75276333	234.307	9/28/2011 15:18	collecting slit snail; several species of sponges; several species of stylaster; up and down slope several ridges; no much current; stylaster and sponges more abundant; top east rim of the plateau in the multibeam; petrosiidae; tiny cup coral; shrimp; urc	Slope- moderate (<35o);		008	
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42512667	-80.75284167	232.906	9/28/2011 15:27	heading to the wall or ledge				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.425125	-80.75283167	231.598	9/28/2011 15:28	big white stylaster; rosette Leiodermatium; brown lumpy sponges; plate lithistid; different species from other sites; small petrosid; rough tongue bass;				
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42525667	-80.75287	228.515	9/28/2011 15:29	crossing diagonally up slope on ridges and grooves; Photo XS (quantitative)- End; Photo XS (quantitative)- start; heading NNE along edge of the wall; Coral- Stylasteridae; Corallistes; Leiodermatium; ophiasteriid; plate lithistid; rough tongue bass; bi	crossing diagonally up slope on ridges and grooves	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42571	-80.75277	215.249	9/28/2011 15:32	a lot more stylaster;				stylaster
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42573167	-80.752625	220.528	9/28/2011 15:34	Coral- Stylasteridae; Lithistida, unid. Sp. Bottom is groved running perpendicular to slope;	Slope- steep (~45o); pavement; .5 m relief	HB		Coral- Stylasteridae
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.425595	-80.75237	244.304	9/28/2011 15:36	Human Debris rope line; on main ledge ~255 m; video transect to the NE following the depth contour; Coral- Stylasteridae; Leiodermatium; spur and groove; roughy; rough bottom with 10-20 cm cavities; small <10 cm Coral- Stylasteridae oriented up and down s	hard bottom; Rock- wall; Slope- steep (>35o); almost vertical slope; rock overhang	HB		Coral- Stylasteridae
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.425885	-80.75202333	246.125	9/28/2011 15:40	lithistid Demospongiae; spider crab; Human Debris - line; galatheads on the ledge; Coral- Stylasteridae; queen snapper; echinoderm;	hard bottom; Rock- wall; Slope- steep (>35o); steep irreguar slope -50-70o; similar to "iron shore"	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42617333	-80.75171167	248.087	9/28/2011 15:46	Human Debris - line; Anthiinae; Coral- Stylasteridae; lithistid; cup Coral - Scleractinia; Photo XS- end	hard bottom; Rock- wall; Slope- steep (>35o);	HB		

Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42639167	-80.75144833	242.855	9/28/2011 15:49	starting a new Photo XS from the East wall NW up slope to the main north peak; Coral- Stylasteridae; Demospongiae; Anthiinae; Human Debris line; slit shell Mollusca; brown lumpy Demospongiae; Scorpaenidae; asteroid ECHINODERMATA; spider crab; Anthiinae;	hard bottom; Rock- wall; Slope- steep (>35o); overhang;	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.4264	-80.75182167	224.171	9/28/2011 15:53	larger Coral- Stylasteridae oriented up-down slope; black bellied rose fish; rough tongue bass; rasta sponge Demospongiae; Human Debris - line; stylaster 20 cm across; asteroid ECHINODERMATA; Anthiinae;	hard bottom; Rock- wall; Slope- steep (>35o);	HB		Coral- Stylasteridae
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.426555	-80.751925	209.878	9/28/2011 15:55	spider crab; Coral- Stylasteridae; Anthiinae; lithstid Demospongiae;	hard bottom; Rock- wall; Slope- steep (>35o);	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42664833	-80.75204167	202.03	9/28/2011 15:59	Madricis or Oculina; Photo XS (quantitative)- End;	hard bottom; Rock- wall; Slope- steep (>35o);	HB	009	Madricis or Oculina
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42662	-80.752205	202.077	9/28/2011 16:17	HD NW up slope; Human Debris- fishing lure; spider crab; Anthiinae; Geodiidae; rough tongue; Human Debris line; Coral- Stylasteridae; encrusting brown Demospongiae; plate lithistids; Polymastia; eel; black cup corals; hermit crab; red sponges? S[oder c	hard bottom; Rock- wall; Slope- steep (>35o);	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42676167	-80.752315	182.318	9/28/2011 16:23	Coral- Stylasteridae; line Human Debris; spider crab; lure Human Debris; 5 cm bushy white coral - numerous Demospongiae; south slope of the peak; lots of Dendrophyllia - black; Photo XS (quantitative)- End;	hard bottom; Rock- wall; Slope- steep (>35o);	HB	010	Dendrophyllia
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42687167	-80.75237333	176.106	9/28/2011 16:36	heading to the peak of the bioherm; line Human Debris; black Dendrophyllia; large Demospongiae; ridge and groove bottom; Scorpaenidae; Coral- Stylasteridae; Madrepora? Spider crab; hermit crab; Photo XS (quantitative)- continue;	hard bottom; Rock- wall; Slope- steep (>35o);	HB		Dendrophyllia; Madrepora?
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42681833	-80.752515	169.006	9/28/2011 16:39	encrusting yellow sponge; portunid; slit shell; Coral - Scleractinia; Anthomastus; Coral- Stylasteridae; spider crabs; skate egg case Elasmobranch; Anthiinae; apricot bass; Parthanope; Dendrophyllia; Slope- flat;	hard bottom; Rock- wall; Slope- steep (>35o);	HB		Scleractinia; Dendrophyllia
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42683833	-80.75276333	159.477	9/28/2011 16:42	Coral- Stylasteridae; Demospongiae; Dendrophyllia; greater amber jack; Human Debris; Geodiidae; bank butterfly- Chaetodon aya; apricot bassl spider crab; Parthenope; cidaroids; Zoanthid;	hard bottom; Rock- wall; Slope- moderate (~25o); low relief	HB		Dendrophyllia
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42690167	-80.75294	155.132	9/28/2011 16:45	Hexactinellid? Urchin loads of spider crabs; large fish RECHECK species;	hard bottom; Rock- wall; Slope- moderate (<35o);	HB		
Kraken 2 - 22	28-IX-11-1	Florida, Pourtalès Terrace CHAPC, Reed Peak 311	24.42697833	-80.75307167	151.536	9/28/2011 16:49	DVD ran out; end dive				
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41568167	-80.72819667	306.429	9/28/2011 19:11	hydroid; hermit crabs; black coral; Hexactinellid; Antipathes bipinnata; zooanthid growing on black coral; possible tunicate; 10cm stalk fan mesh; Raspailiidae; Farrea; green eyed fish; small Marginella snails;	pavement with thin veneer sediment;	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41565167	-80.728205	306.289	9/28/2011 19:14	looking around the bottom; cidaroids;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.415645	-80.728205	306.522	9/28/2011 19:19	sample 1; black coral; couple of pictures;			001	
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.415645	-80.7282	306.102	9/28/2011 19:29	head N to top of mound; Photo XS (quantitative)- start; boar fish; we are on top of feature; Plexaurid; Photo XS (quantitative)- End;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41565333	-80.7281	306.009	9/28/2011 19:32	still pictures of Plexaurid; 3 pictures; last photo 4990;	rock pavement with coarse sediment veneer	HB	002	
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.415755	-80.72793667	305.588	9/28/2011 19:38	Photo XS (quantitative)- start; Plexaurid; Raspailiidae; black hydroids; white gorgonian; 10 cm pink sea cucumber with long tendrils; 8cm oval flat with huge tendrils; fish Cyttopsis rosea (red dorry; another big coral; huge basket star; 1 or 1.5m tall bla				

Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41585333	-80.727805	303.58	9/28/2011 19:44	boar fish video				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41586167	-80.72782333	303.299	9/28/2011 19:44	continue transect; Laemonema sp.; echino; fan sponges; huge pink stylaster; flat starfish; bamboo coral; 20cm PARAMURICEIDAE purple with long arm spaghetti sea star Astroschema on top; bamboo coral is Isidella; 5002 photo of sample 003;			003 007	
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41600833	-80.727735	303.299	9/28/2011 19:56	collecting sample 3; Laemonema sp. On background; scattered phosphoridic cobble; 3/4 knot current from the south;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41614167	-80.72759167	304.701	9/28/2011 19:59	Photo XS (quantitative)- start; head north to get to wall above us; Raspailiidae; bottlebrush; Coral- Stylasteridae; whip; Eunicella; boar fish; 4 species of black coral; anemones; cidaroid urchin; scorpion fish; Calligorgia; basket stars; Astroschema; wai	flat pavement sediment veneer	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41625	-80.72765333	306.196	9/28/2011 20:04	Photo XS (quantitative)- start; big crab; short nosed green eyed fish; gorgonians; anemones; bottle brush black coral; Coral- Stylasteridae; Laemonema sp.; Calligorgia; brittle star; basket star;	sediment veneered hard bottom	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41643667	-80.72786167	309.932	9/28/2011 20:06	going to top of the wall; no change in habitat; N base of mound at the SW of wall; Photo XS (quantitative)- End;	hard pavement; sediment veneer	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41647167	-80.727805	312.408	9/28/2011 20:08	valley between first lump and wall; gorgonians; hydroids; Coral- Stylasteridae; Calligorgia; basketstars; short nose green eyed fish; small Farrea Hexactinellid; N slope of mound 312 m, smooth rock slope no edges; Calligorgia, valley; dead bamboo; gorgoni	sediment veneer hard bottom; Slope- flat;	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41685167	-80.72755	314.417	9/28/2011 20:15	Photo XS (quantitative)- start; trying to head N to wall in front of us; same biota; Astroschema and actinoscapia(?); pink and purple cush ball anemone; venus fly trap;	flat sediment veneered rock pavement; Slope- flat;	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.416995	-80.72740667	314.183	9/28/2011 20:17	short nosed green eyed fish; Hexactinellid; cush ball anemone; hydroid; calligorgia; huge basket star; small anemone; sponge maybe Topsentia; solitary corals; 2 hermit crabs;	sediment veneered hard bottom	HB		solitary corals;
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41735667	-80.72735333	313.576	9/28/2011 20:21	Aphrocallistes; Calligorgia; snipe fish; a pothole; Echinus;	hard bottom pavement covered with sediment veneer; Slope- flat;	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41746167	-80.727445	312.782	9/28/2011 20:23	continuing photo transect; almost no animals; small fish; 10-20m away from the wall; sediment could be echinoderm spines; some rippling; at or above base of the wall; going into steeper slope; low grooves and mounds;	100% soft bottom; Slope steeper	SB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41795833	-80.72748	307.41	9/28/2011 20:27	hydroid; snipe fish; Coral- Stylasteridae; according to multibeam top of wall should be 250 m; cush ball anemone;	sediment veneered hard bottom	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41816167	-80.72721833	305.261	9/28/2011 20:29	gorgonian with basket stars; Photo XS (quantitative)- End; new photo transect head easterly towards the edge of the contour;	patch of sediment; back to hard bottom;	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.418245	-80.727005	306.896	9/28/2011 20:30	Photo XS (quantitative)- start; traveling towards the wall; 5102 is this photo; taken at least 10; Gracillaechanus(spell?); green eyed fish; series sandy dunes oriented SW; ripples; scorpion fish;	sediment;	SB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41892	-80.72606833	308.905	9/28/2011 20:42	low rounded ridge and swail 100% sediment; edge of topography due north slightly west of north low flat topped mounds and swail between; all smooth; Gracillanicus(?); hard bottom; one gorgonian (yellow octocoral fan); Calligorgia; Gorgonians hydroids; Cid	low rounded ridge and swail ; 100% sediment; hard bottom	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41938833	-80.72531167	306.102	9/28/2011 20:45	sparse; up 1 m; yellow fan Gorgonian; small hydroids; small cup corals; green eye; sea pen Ptillocarcus; small urchins; Calligorgia;				small cup corals

Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41953167	-80.72499167	305.635	9/28/2011 20:47	hard bottom; black coral; hydroids; branched gorgonian white; farea; Liponema; Actinocypha; sea pen; small hydroids; isolated low relief pieces of crust sitting on substrate; small gorgonians; more hard bottom; eroded crusts; pinnatulid sea pen; sea star	hard bottom; eroded crusts	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41966667	-80.724525	302.459	9/28/2011 20:49	come up gentle slope; bits of rubble; irregular small cobble less than 10 cm ; mostly on sediment veneered hard bottom; some cavities; plexaurid gorgonian; Hyalonema; fish; slab of phosphoritic limestone; Laemonema sp.;	slab of phosphoritic limestone;	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41976333	-80.724335	302.272	9/28/2011 20:52	3 roughly; 30 cm rock outcropping; soft coral; crab; basket star; hermit crab, sea star; rock oasis; crinoid; yellow and white gorgonian; yellow whip gorgonian; venus fly trap; asteroid; anthiids; Crinometra brevipinna; yellow encrusting Spongosorites; 3			004	
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41974667	-80.72436	302.272	9/28/2011 21:02	resuming photo transect; rock pavement with sediment veneer; rock slab pavement; Stylaster; sea star Junonia; Astrophorid; sea star; rock slab with phosphoritic limestone; 45 deg slope; fractures; black; bamboo coral; Coral- Stylasteridae; slow down to 0.	HB	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.41997167	-80.72381333	299.142	9/28/2011 21:05	resume transect following ledge; Cidaroid urchin; 30 cm ledges; vertical plates; bamboo corals; overlapping phosphoritic ledges; black coral; scorpion fish; tall about 2 m; Leiopathes 1-2 m tall;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42008667	-80.72363	297.601	9/28/2011 21:07	northeast southwest oriented ridge; boarfish; terrace stair step ledge; bamboo coral; red hogfish; sediment; red crab underneath ledge; rock is dark brown black phosphorite makes surface layer on rock; Bathynecthes crab under ledge; skinny curly arms; fol	terrace stair step ledge	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42023333	-80.72345	298.768	9/28/2011 21:10	underneath is rubbly larger outcrops; ledge in front of us; giant black coral tree; Spongosorites? Yellow encrusting sponge; roughy;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42023833	-80.72306667	296.246	9/28/2011 21:16	back on bottom;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.4206	-80.72277333	295.265	9/28/2011 21:20	bamboo coral; trying to go back to ledge; starfish; black phosphoritic rock; 1-2m relief overhangs; Eumunida squat lobster arms; huge black coral behind about 3 m tall; Raaspaillidae sponges at base; spider crab; elasmobranch egg case; Galatheid; amphithe	; black phosphoritic rock; 1-2m relief overhangs	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42056167	-80.722865	292.556	9/28/2011 21:25	snowy grouper; roughy; another big black coral; another big black coral; another next to it;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42079833	-80.72253	291.014	9/28/2011 21:27	small fish; roughy; roughy under ledge; 1-2m ledge overhang; hard rock dark color Cidaroid urchin; Asteroids; large black corals on top; small Gorgonian; roughy; Sponge green encrusting; black coral on top; roughy underneath; continuing photo transect; sc				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42099667	-80.72236	288.866	9/28/2011 21:30	2 huge black corals; facing north "crabbing" northeast; along ledge; 1-2m relief from top of ledge to sediment beneath; top looks like sediment veneered pavement; large Demospongiae; squat lobster; roughy; big wall sponge; Stylaster; school of fish; rough	1-2m relief from top of ledge; top looks like sediment veneered pavement;	HB		
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42099667	-80.722	290.22	9/28/2011 21:35	silver fish on bottom; Hexactinellid;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42128	-80.721875	290.501	9/28/2011 21:36	on top of ledge; silver fish; long tail fish (could be yellow tongue bass?); black coral on top; on ledge; black belly; black coral; Laemonema sp.; Raspaillid wall sponges;				
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42147333	-80.72159667	287.651	9/28/2011 21:42	good closeups of black coral; both white and pink polyps; ~2m				

Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.421465	-80.72164333	287.698	9/28/2011 21:42	Laemonema sp.; Farrea; mollusc; ledge; roughy; Laemonema sp.; Cidaroid; lots of little fish darting in and out of the undercut ledge; urchin; closeups of fish with big eyes;					
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42156833	-80.72163333	289.006	9/28/2011 21:46	spider crab; back up on wall; scour hole; roughy; another Coelopleurus; edge of outcrop about 1 m relief; carves in; top is hard bottom flat; bottom is mostly sediment; sparse biota; eel or fish going under ledge; big Geodia and Pachystrella; roughy; brow	outcrop about 1 m relief; ; sediment covered hardbottom;	HB			
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42185	-80.721185	284.382	9/28/2011 21:52	wall ended; abruptly; 8-10 cm relief low rocks outcrops crusts; Gorgonians; trash (possible inner tube); yellow Gorgonian; Laemonema sp.; more trash; field of yellow Gorgonians; boarfish; Antipatharia in back; Geogia sponge; Spongosorites; Ircinia; barrel	wall ended; abruptly; 8-10 cm relief low rocks outcrops crusts;	HB			
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.4217	-80.72081667	281.532	9/28/2011 21:56	100% flat rock pavement; sediment veneer; wall sponges; Coral- Stylasteridae; Cidaroid urchins; continue random photos; Hydroids; Farrea; bamboo coral; yellow Gorgonians; purple Gorgonian; basket star; tumbling Farrea; current picked up to maybe 0.75knot	100% flat rock pavement; sediment veneer;	HB			
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42202	-80.72034667	287.464	9/28/2011 21:59	lost communication with ROV; reset camera					
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42193833	-80.72016	293.443	9/28/2011 22:04	good video of star on purple Gorgonian; black coral; snails; hermit crab; moving along southern ridge of plateau area; hydroids; starting					
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.421975	-80.72006667	291.949	9/28/2011 22:07	heading west going a little north; flat sediment veneered pavement sparse outcrops;	flat sediment veneered pavement sparse outcrops;	HB			
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42181	-80.72032167	293.163	9/28/2011 22:09	heading west to northern bearing; trying to get to area on multibeam that changes and flattens out; yellow orange zone about 50 m away; bottom is pavement sediment veneer small outcrops maybe 2 cm; some purple Plexaurids; Eunicella; very few sponges; very					
Kraken 2 - 23	28-IX-11-2	Florida, Pourtalès Terrace CHAPC, wall southeast of Reed Peak 311	24.42193	-80.72031667	289.847	9/28/2011 22:13	lots of hydroids; sediment veneered hardbottom; outcrops 1-2cm relief; mostly hydroids; bamboo coral; small black coral; boarfish; purple Plexaurids; pink Stylaster; Cidaroid urchins; headed upslope about 30 degree; Pachastrellid sponge brown about 20 cm	sediment veneered hardbottom;	HB			
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25746667	-80.90458833	489.302	9/29/2011 12:32	on bottom at north edge of sinkhole #3; dense cover of Gorgonians; fan sponges; thick plate Astrophorids; crinoid - light brown and white striped on top of fan sponge; another crinoid; another plate sponge Raspailiidae; Coral- Stylasteridae; white Gorgoni	flat rock pavement; thin veneer of sediment; rock cobble and boulder about half meter; 10-20cm relief;	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25733	-80.90458333	489.91	9/29/2011 12:36	slightly jerky because of umbilical tightening					
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25739667	-80.90456833	489.489	9/29/2011 12:36	dominated by Demospongiae; and small Gorgonacea; small cup corals; try to sample crinoid;			001	small cup corals	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25734	-80.90448167	490.096	9/29/2011 12:41	beardfish swam up while collecting sample 001; when start moving again start photo transect with photo 5272; 10 cm sparsely branched Gorgoneacea; some Gorgonacea; possibly Eunicella; brown Prinnoid Gorgonacea; dense Gorgonacea; shrimp in water column; roc			001		
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25741167	-80.90462333	490.19	9/29/2011 12:45	zoom in on fish by fan sponge; spider crab; Galtheid Eumunida (white tips); two species of white Coral- Stylasteridae frilly finely branched and thicker one; Raspailiidae common; mesh sponge; can't find Crinoid just sucked into bucket...;	mostly rock pavement;	HB			

Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25689333	-80.90547333	490.143	9/29/2011 12:50	start transect to south to dropoff; <i>Nezumia rattail</i> fish; bottom same flat rock pavement cobble and boulder; Galatheid; facing 56 deg; black belly rosefish; rugged topography at edge of rim; shrimp; looks like Miami Terrace; moved a few ft near rim;	rugged topography at edge of rim of sinkhole	HB		
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.257345	-80.90466833	488.555	9/29/2011 12:52	1 m rock outcrop coated with crinoids; Gorgonacea; plate sponges; Astrophorida; dead coral about 15cm thick branch large polyps about 1 cm looks like possible <i>Dendrophyllia</i> ; not <i>Lophelia</i> ; Hydroids; peach starfish; two species of Galatheids 1-2cm carapace;				<i>Dendrophyllia</i>
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25732333	-80.90467833	488.882	9/29/2011 12:56	continuing transect southerly toward wall dropoff; rock ridge half meter dropoff to flat; outcrops of rock half meter to 1 m; heading southeast; series of low rock ridges on rock pavement; another half m to 1 m dropoff; fish; Galatheids; black coral; Crino	series of low rock ridges on rock pavement; another half m to 1 m dropoff;	HB		
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25691667	-80.905105	491.965	9/29/2011 12:59	edge of north rim of sinkhole 3; covered with big fan sponges 30-40cm; numerous Crinoids same as collected; Coral- <i>Stylasteridae</i> ; unbranched Gorgonacea <i>Eunicella</i> ; encrusting sponges; looking due south virtually no current; hydroids; cup corals; <i>Raspailiid</i>	flat rock pavement up to rim; uplifted black phosphoric rock forming half meter tall ridge; heavily eroded;	HB		
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25692167	-80.90506167	491.731	9/29/2011 13:07	photo of 002 <i>Isididae</i> (5284 and 5285)				002
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25693167	-80.90513667	491.825	9/29/2011 13:16	Photo XS (quantitative)- start; along edge top of rim; pause for sponge closeup <i>Hexactinellid</i> cluster of tubes growing within a bigger <i>Hexactinellid</i> ; collect both <i>Hexactinellids</i>				003 and 004
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25682	-80.90480833	490.19	9/29/2011 13:24	appears from multibeam we are halfway down north slope; field of gray Gorgonacea; Galatheid; still attempting to collect 003 and 004 but getting pulled by tether; repositioning ship;				003 004
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25680667	-80.90485167	491.358	9/29/2011 13:26	still attempting to collect 003 and 004 but getting pulled by tether; repositioning ship;				003 004
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25675167	-80.90495333	490.89	9/29/2011 13:27	beardfish; crab fish interaction; beardfish;				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25744	-80.90397667	492.105	9/29/2011 13:30	shark;				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.256765	-80.904745	490.75	9/29/2011 13:36	without moving position, now multibeam is showing us on top of ridge; ROV having difficulty positioning close enough to sponge to collect;				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25684167	-80.90458667	490.844	9/29/2011 13:39	still repositioning ship; still being pulled off bottom by tether; still trying to collect 003 and 004 but unable; can get close but cannot maintain position; beardfish <i>Polymixia</i> either <i>nobilis</i> or <i>japonica</i> species; cancel samples 003 and 004				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25703833	-80.90438833	488.508	9/29/2011 13:44	repositioning; 3 m off bottom;				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25677	-80.90443667	491.778	9/29/2011 13:46	try to collect 003 and 004;				003 and 004

Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25728833	-80.90476333	492.105	9/29/2011 13:49	possible issue with suction; samples 003 and 004 not collecting in bucket as they should; possible blockage in hose; suction slow when attempting to suck up sediment; oil droplets observed in water column;				003 004	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25656	-80.90452	492.292	9/29/2011 13:53						
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25652333	-80.90399833	492.339	9/29/2011 13:53	continue heading; Photo XS (quantitative)- start; to northeast to southeast rim of sinkhole 3; sediment veneer only a few cm thick; exposed rock; photo 5290;					
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25658	-80.90451667	492.292	9/29/2011 13:54	starting photos; large lumpy petrosid sponge; Laemonema sp.; Galtheid; urchin; large yellow 50-60cm Paramuriceid; Calligorgia; fan sponge; several yellow Paramuriceid; crinoids; Geodia; white bushy coral zoom in; Madrepora?; bushy white coral 15cm; branch	rock pavement; phosphoritic boulders;	HB		Madrepora?; bushy white coral 15cm; branching looks like Lophelia?;	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25763333	-80.904065	490.47	9/29/2011 14:00	squid; flat rock pavement; 50cm vertical rock ridges; dom species Primnoids; possible Calligorgia; at least 2 to 3 colonies of Lophelia?; Phakellia; Hexactinellid; Astrophiid plates; also yellow tube sponges; white crab; medusa; another wall in distance;			005	2 to 3 colonies of Lophelia?;	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25749167	-80.90393667	491.171	9/29/2011 14:09	we lost communications with ROV; trying to regain them;					
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.257435	-80.90381167	480.567	9/29/2011 14:10	same location; bottom on sight;					
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25753167	-80.903625	489.302	9/29/2011 14:11	communications back on; we are trying to find the Lophelia again; facing ridge; big crab	hard bottom; Rock; pavement;	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25745667	-80.9036	489.583	9/29/2011 14:18	trying to find Lophelia; Batzella sp.?; numerous small primnoids; branch Eunicella; large sponges; squid; crab;	hard bottom; Rock; pavement;	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25753333	-80.90369	489.816	9/29/2011 14:23	we are not going to find the Lophelia; we are going to continue on the original track;					
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25753	-80.90370833	490.937	9/29/2011 14:23	Phakellia; octocorals; smaller sponges; large wall sponges either Raspailiidae or astrophorids; large slabs of phosphoritic limestone 10-20cm across; going over a ridge with gorgonians; hydroids; Eununinda; large ridged outcrop with larger Eunicella; fan	flat pavement;	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.257515	-80.90322667	490.003	9/29/2011 14:28	trying to collect primnoid for Messing; halfway from sinkhole 2 and 3			006		
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25755333	-80.90308667	490.05	9/29/2011 14:36	Leiopathes white and orange form; fish hiding in it; brotulid?; deep red black coral; primnoids on sponge; white stylaster; Raspailiidae; lumpy white sponge; scorpion fish; black belly rose fish; phosphoritic gravel; 100m away from sinkhole 3; large whi	hard bottom; pavement; Slope- moderate (<35o);	HB		possible Lophelia within red coral	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25772833	-80.90236833	489.349	9/29/2011 14:45	collecting Lophelia; maybe juvenile slit; Nezumia; photo 5312 Lophelia; crab; stylaster; red coral left side covered with hydroid; facing ESE; sponges oriented NESW; current from SW	hard bottom pavement with sediment veneer;	HB	007 008	Lophelia	

Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25785	-80.90237	488.695	9/29/2011 15:11	just finished collecting Lophelia; heading to sinkhole 3; huge Phakellia candelabra with primnoids; lot of black coral;					
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25765833	-80.90248833	489.442	9/29/2011 15:13	approaching a down slope; SE rim of sinkhole 2; phakellia; pale gray octocorals; small Demospongiae; looks like 90 degree wall below; sponges oriented NWSE; current likely from SW; Eucella; small Coral-Stylasteridae;	hard bottom; pavement; Slope- flat; rounded brow			HB	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25795	-80.902335	489.396	9/29/2011 15:16	Photo XS (quantitative)- End; Photo XS (quantitative)- start; coming over a steep slope; possibly a ledge; abundant light grey octocorals; lost Phakellia; steep slope 90deg; rugged; few pieces of phosphoric rubble 30cm across; grooves; some small sponge					
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25811833	-80.90171333	487.527	9/29/2011 15:21	continuing transect; surface current no more than 1 knot; Photo XS (quantitative)- End; off bottom over the sinkhole; about 27 m off bottom; medusa drifting by;	Off bottom;				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25916167	-80.90069667	487.06	9/29/2011 15:33		bottom in site				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25905167	-80.90056	493.6	9/29/2011 15:34	Phakellia, Raspailiidae, Coral - Madrepora - 15 cm orange; Enallopsamia profunda(check video?) - 10 cm; Bathynecties; beard fish - "japonicus"; paramuriced; crinoids; Coral- Stylasteridae; small Octocoral; small Demospongiae; cup Coral - Scleractinia; b	On bottom; hard bottom; pavement; top eastern rim of sink hole 2; Slope- moderate (<35o); fine rugosity			HB	Madrepora - 15 cm orange; Enallopsamia profunda(check video?); cup Coral - Scleractinia
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25905	-80.900855	492.525	9/29/2011 15:45	Lophelia; Coral- Stylasteridae; Laemonema sp.; galatheids; Coral - Scleractinia; Antipathidae; gray Gorgonacea;	hard bottom; pavement; Slope- moderate (<35o);			HB	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.2593	-80.90057667	494.581	9/29/2011 15:47	dead Lophelia; Coral- Stylasteridae; Octocoral; Antipathidae; Coral - Madrepora; amphitheater Demospongiae; solitary Coral - Scleractinia; crinoids; beard fish; Eucella; Phakellia; Pachastrellidae, unid. Sp.; Raspailiid wall Demospongiae; Lophelia; aste	hard bottom; Rock- wall; Slope- steep (>35o); edge of sink hole			HB	Madrepora; Lophelia
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25946833	-80.9005	490.33	9/29/2011 15:50	astrophorid; Lophelia; Coral - Madrepora;	hard bottom; Rock- wall; Slope- steep (>35o);			HB	Lophelia; Coral - Madrepora
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25952333	-80.90033333	488.415	9/29/2011 15:51	no releif = Octocoral; Gorgonacea; Antipathidae; Polymixia; crinoids; Eumunida; Geodiidae; beard fish; Polymixia; Coral- Stylasteridae; cidaroids; Antipathidae;	hard bottom; Rock- wall; Slope- flat;			HB	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25939667	-80.90032333	486.92	9/29/2011 15:56	picking up speed - NW rim of SH 2 - flying to SE corner of Marathon SH new Photo XS (quantitative)- start; Coral- Stylasteridae; Raspailiid Demospongiae; astrophorid; Lophelia; Eucella; Hexactinellid; bamboo coral; beard fish; 3 m off bottom; crinoid;	hard bottom; pavement; Slope- flat;			HB	Lophelia
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.25982833	-80.89953333	477.064	9/29/2011 16:00	5x Beryx sp. - not roughys; Chaceon fenneri; mating; Antipathidae; europticus(?); octopus; asteroid ECHINODERMATA; Octocoral; Coral- Stylasteridae; Eumunida; yellow Hexactinellid; Human Debris;	hard bottom; Rock; Slope- flat;			HB	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26047667	-80.89968	481.922	9/29/2011 16:03	large yellow plexaurid; raspailiid fan; Phakellia; Coral- Stylasteridae; Demospongiae; Eumunida; Laemonema sp.; rat tail;	hard bottom; pavement; Slope- moderate (<35o); scattered pieces of rubble			HB	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26080167	-80.89961667	479.82	9/29/2011 16:04	Coral- Stylasteridae; Antipathidae; asteroid; Coral - Scleractinia; rat tail; green eye; red Antipathidae; yellow Hexactinellid; beardfish; crinoids; white lobed Demospongiae; Elasmobranch - 25 cm long Off bottom;	hard bottom; Rock; pavement; Slope- moderate (<35o);			HB	

Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.260995	-80.899555	475.663	9/29/2011 16:08	Off bottom; Photo XS (quantitative)- End;					
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.260995	-80.899555	475.663	9/29/2011 16:08	Chaceon fenneri; more then 1/2 way to the sink hole;	On bottom; for a few seconds;				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.261125	-80.89906833	474.822	9/29/2011 16:11	Lophelia?; Antipathidae; Demospongiae; Octocoral; gray Octocoral; raspailiid Demospongiae; rat tail; green eye; Laemonema sp.; E. picta; yellow Hexactinellid;	On bottom; hard bottom;	HB		Lophelia?;	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26156	-80.89894833	478.185	9/29/2011 16:13	fan and wall Demospongiae; small shark Elasmobranch;	hard bottom; pavement; Slope- flat;	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26156167	-80.89899333	478.886	9/29/2011 16:13	gray Octocoral; large red Antipathidae; Demospongiae; beard fish; yellow Hexactinellid; Eunicella;	hard bottom; pavement; Slope- flat; south rim of South rim	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26170667	-80.89867	478.559	9/29/2011 16:15	Octocoral; small gray Octocoral; E. picta; Lophelia; octopus; cup Laemonema sp.; Phakellia; Coral- Stylasteridae;	hard bottom; Rock- wall; Slope- steep (>35o); edge of the sink hol	HB		Lophelia	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26160167	-80.89838833	479.306	9/29/2011 16:17	rim of sinkhole; rat tail; yellow Octocoral; Antipathidae; Phakellia; E. picta;	hard bottom; pavement; Slope- moderate (<35o);	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26154333	-80.89802167	480.894	9/29/2011 16:19	Chaceon fenneri; E. picta; Antipathidae; lawn of gray Octocoral; rat tail; Coral- Stylasteridae; asteroids ECHINODERMATA; Lophelia; plate Demospongiae; white wall Demospongiae; Antipathidae; rat tail;	hard bottom; Rock- wall; Slope- steep (>35o); ledge of sink hole	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26182167	-80.897505	476.457	9/29/2011 16:22		Off bottom;				
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.261935	-80.89747333	477.017	9/29/2011 16:22	rat tail; Octocoral; e. Picta; Laemonema sp.; wall Demospongiae; Coral- Stylasteridae; 10-20 cm flattend cobble; white Coral- Stylasteridae; Antipathidae; cusk eel?; yellow Hexactinellid; Laemonema sp.;	On bottom; hard bottom; Rock- wall; Slope- steep (>35o);	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26208833	-80.89701833	475.102	9/29/2011 16:26	squid; Lophelia; Coral- Stylasteridae; crinoid; Phakellia; field of Octocoral; E. picta;	hard bottom; Rock- wall; Slope- steep (>35o);	HB		Lophelia	
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26198833	-80.89688667	475.896	9/29/2011 16:27	Eumunida; small Gorgonacea;	hard bottom; Rock- wall; Slope- steep (>35o); SE rim of Marathon sink hole	HB			
Kraken 2 - 24	29-IX-11-1	Florida, Pourtalès Terrace CHAPC, Marathon Sinkhole and two adjacent sinkholes	24.26248833	-80.89707667	486.593	9/29/2011 16:29	SE rim of marathon sinkhole; E. picta; Rock; Slope- moderate (<35o); hard bottom; Chaceon fenneri; red Antipathidae;	hard bottom; Rock- wall; Slope- moderate (<35o);	HB			
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes	
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23873167	-80.91476333	547.317	9/29/2011 18:44	on bottom; small white 5cm stylaster; we are looking away from wall; sponges abt 35cm; current coming across from right to left; 1/4knot from NE; yellow sponges; bamboo; Hexactinellid; lot of coral rubble; finely branched white stylaster about 10cm tall;	flat bottom; flat sediment or hard with sediment veneer; rock pavement with very little sediment actually	HB		dead coral Dendrophillia or Lophelia;	
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23874	-80.91482333	547.364	9/29/2011 18:51	shrimp closeup; very long antennae; bright red; round sponge with spicule is either Hexactinellid or Batzella; Demospongiae; 8 or 10 species of sponges; maybe another Batzella; hollow tube;					

Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23873333	-80.91479833	547.924	9/29/2011 18:55	collecting Aphrocallistes; taking 3 pictures of it; brittle star on rock pavement; very smooth; hardly any sediment except for coral rubble; 120m NE of WP; according to multibeam right at then South base foot of the mound; small spotted shark;	rock pavement; hard; coral rubble; Slope-flat;	HB	001	
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23858333	-80.91494333	548.485	9/29/2011 19:03	transect N through the base of the mound; going fairly slow; more clumps of coral rubble; 80-100% coverage of coral rubble; 10-20cm standing live; big thick 10 cm mounds of coral; possible dead Lophelia mound; 1st one seen on Pourtales terrace; definitely	hard rock pavement; coral rubble; live Lophelia	HB		Lophelia pertusa;
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23894167	-80.914825	539.096	9/29/2011 19:07	collecting Lophelia; foot of S base of small mound;			002	Lophelia
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23885667	-80.914835	539.236	9/29/2011 19:13	Photo XS (quantitative)- start; photo number 5428; up slope 40 degrees; Aphrocallistes; Hexactinellid; 10-20cm 80% coverage dead coral; big yellow sponge Hertwigia; fan sponges; 1/2 meter standing dead Lophelia coral; Lophelia coral pile; with Aphrocallist	sediment coral rubble	HB		Lophelia
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23906333	-80.91484833	531.856	9/29/2011 19:16	partway up slope of this mound; zooming on dead Lophelia colony; 12m tall half a meter across; coral encrusted which means not recently dead; Phakellia; stylaster; 30 cm ear sponge; maybe Hexactinellida; dead Aphrocallistes on the face of colony; white go				Lophelia
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23905833	-80.91486667	529.38	9/29/2011 19:19	standing white Lophelia pertusa coral; 40cm in diameter; 30 cm tall; facing NE; living part of this coral facing S; hydroids; brittle star; single colony may have 100 species living in it; crinoid on right; white gorgonian; white Batzella; yellow cup co	possibly whole mound made of Lophelia or maybe veneer of coral on rock; no exposed rock	HB	002	standing white Lophelia pertusa coral; yellow cup coral;
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23904167	-80.91477667	528.726	9/29/2011 19:24	little patches of live coral; white crab; Chaceon fenneri; Aphrocallistes; gorgonians; fish; difficulty stationing;	20 degree slope; 100% coral rubble; looks like coral rubble is on top of flat pavement; Slope- moderate (<35o); south face of mound;	HB		
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23894167	-80.91462833	532.93	9/29/2011 19:28					
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23874833	-80.91462667	533.771	9/29/2011 19:30	taking 3 pictures of yellow sponges; some Aphrocallistia has yellow zoanthids; we have come up abt 13m; golden Chaceon fenneri;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23865333	-80.91482	533.958	9/29/2011 19:44	halfway up slope of the mound; which is several hundred meters in diameter; Photo XS (quantitative)- start; photo 5443; live coral;	1/2 m thick coral rubble on top of pavement; live coral	HB		
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23885167	-80.91490833	527.559	9/29/2011 19:47	transecting near peak; 100% coral rubble coverage; larger thickets; 1/2 or 3/4 m tall; 1m hexactinellida sombrero sponge;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23909833	-80.91491	521.58	9/29/2011 19:48	top of mound; standing coral; want to get an overall shot; huge hexactinellida 1m diameter sombrero sponge; Aphrocallistes with zoanthids; little fish; standing coral thick 1m tall; fringe; near southern rim of mound; ten to 40 cm living Lophelia pertusa;				ten to 40 cm living Lophelia pertusa;
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23914833	-80.914995	519.758	9/29/2011 19:54	Photo XS (quantitative)- start; 5449 photo; heading SW along south rim; coral facing on the current seems alive; looks like the coral mounds through straits of FL Cape Canaveral; rows and rows; looking N up slope all live coral; stair step terraces going	45 degree slope; Rock; pavement; Lophelia;	HB		Lophelia thickets

Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23917	-80.91544	517.282	9/29/2011 20:02	Paramuriceidae different colors; plate sponges; orange black coral; Antipathes alternating with coral; a few branches of Lophelia; we are moving up slope; we came down about 100 m; red black coral; bamboo coral; standing dead Lophelia coral; some live Lop	rock slabs several meters in diameter; 30- 40 cm relief; Slope- steep (>35o);	HB		Lophelia
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23917833	-80.91608667	509.808	9/29/2011 20:07		100% coral coral (rubble and standing dead and live corals - 50 cm);	HB		Live Lophelia
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23925167	-80.91622	508.314	9/29/2011 20:09		1 m tall live coral 100% cover; linear thickets about 5 m long; large thickets; sombrero Hexactinellid sponges; 0.5 m tall; solid coral with Primnoids; Calligorgia;	HB		live coral 100% cover
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23925833	-80.91635833	504.156	9/29/2011 20:11		middle of mound southern rim; shark to right; solid hedge row after row of live coral; moving into current so most of live coral is facing away (we're looking at back side of coral); flat series of hedge rows maybe 5 m apart;	HB		Dense Coral
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23924833	-80.91643	510.416	9/29/2011 20:15		going down in slope a big; seeing phosphatic rock slabs 0.5 m tall; yellow Paramuriceids; Isidella bamboo coral; Hexactinellid fan sponges; Leiodermatium; Gorgonian; hedge rows of coral;	HB		Dense Coral
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.239075	-80.91653167	510.929	9/29/2011 20:20		Chaceon; rock slab at 511 m; Chaceon; large thicket of coral several m in diameter; large ridge of coral up ahead; pulling into an area behind ridge of coral on brown part of coral;	HB		Dense Coral
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.238845	-80.91675167	511.583	9/29/2011 20:22		zooming into see if there encrusting fuzzy forams; do not have fuzzy as seen before; ophiroids settled;			
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23894	-80.91664667	511.023	9/29/2011 20:24		now looking at current face of coral; hydroids growing on coral; good closeup on video of polyps extended from Lophelia;			
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23900833	-80.91663167	511.724	9/29/2011 20:28		taking closeup photos of Lophelia polyps extended; possible mushroom sponges; Paragorgia bubble gum coral;	HB		Dense Coral
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23889667	-80.91679667	-0.765	9/29/2011 20:44		lost communication with ROV; have to reset; no sample 006;			
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23885833	-80.91700833	510.976	9/29/2011 20:52		Photo XS (quantitative)- start; PHOTO 5536			
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.238895	-80.91689167	508.921	9/29/2011 20:52		Photo XS (quantitative)- start; transecting to northeast; tether on bottom;			
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23935167	-80.91599833	508.314	9/29/2011 20:54		camera needs to be reset; photos from last 5 minutes may all indicate they were taken at the same time;			
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23941667	-80.91609833	506.025	9/29/2011 20:56		restarting camera; no photos last 2-3 minutes;			
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23945667	-80.91608167	505.978	9/29/2011 20:57		restarting Photo XS (quantitative)- start; with photo 5537; working along south rim (according to multibeam); along course due north; about where we started about 100 m transect back along southrim; 100% coral cover; coral rubble hedge rows of 50cm tall l	HB		100% coral cover;

Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.239945	-80.91534667	501.961	9/29/2011 21:01	heading to northeast; still on same transect 40deg;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23973833	-80.91547833	500.7	9/29/2011 21:01	away from ridge; into middle part of the mound; colonies are lower; scattered individual colonies; half m to 1 m in diameter; height lost hedge rows, these are more individual colonies; scattered; coral rubble in between;	more individual colonies;	HB		half m to 1 m in diameter;
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.239985	-80.91555333	499.392	9/29/2011 21:04	start new transect to northeast; Photo XS (quantitative)- start; across thickest point of mound; flat top; 100% coral rubble; standing dead coral individual live colonies half m diameter; Chaceon;	100% coral rubble; standing dead coral individual live colonies	HB		100% coral rubble; standing dead coral individual live colonies half m diameter
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24011333	-80.91553167	501.12	9/29/2011 21:06	conger eel in hole; half m long eel; continue dorsal anal fin dark gray maybe longer than 50cm; red polyp knobs Anthomastus;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.23994	-80.91592167	501.354	9/29/2011 21:11	now moving; school of squid; another conger eel; 100% coral thickets; thick coral rubble; individual coral about half m to 1 m; big school of squid; Laemonema sp.; spherical sponges; hedge rows of coral; Paramuriceids; Aphrocallistes; Hexactinellid fan sp	100% coral thickets	HB		; 100% coral thickets
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24054	-80.91533667	506.539	9/29/2011 21:14	big live large colony; another ridge 8 m behind; back in hedge rows; 3- 4m long; half m tall; facing southwest;	hedge rows; 3-4m long; half m tall;	HB		hedge rows; 3- 4m long; half m tall;
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24074	-80.91543333	508.687	9/29/2011 21:15	middle of mound; no exposed rocks on peak so far; Chaceon golden crab; peak is coral rubble at base and live coral thickets scattered; 2/3 way across;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.241655	-80.91435333	508.36	9/29/2011 21:17	passing upright amphitheater thickets of living coral facing us; heading northeast facing southwest; gorgonians and octocorals on corals; petrosid sponge lumpy white volcano sponges; small yellow Hexactinellid; small Demospongiae; coming up to outcrop; so	coral colonies are 20cm-1m	HB		Lophelia growing on it at least 1 m across; close to 1 m diameter;
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24114667	-80.91476	509.295	9/29/2011 21:22	big Laemonema sp.; (common name) black tail mora; Aphrocallistes in middle; Calligorgia primnoid gorgonians in background; purposeful photo 5581 red black coral with large Lophelia fan;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24115667	-80.91490167	507.987	9/29/2011 21:25	giant sombrero sponge; alternating between erect fans of coral thickets and coral rubble; some exposed hard bottom; Aphrocallistes; scattered Sombrero sponges; smaller sponges; Photo XS (quantitative)- start; every 30 seconds; or several per minutes; yell	coral thickets and coral rubble; some exposed hard bottom;	HB		
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24134833	-80.91462833	509.762	9/29/2011 21:26	north rim upper slope; heading down slope; rubble - all; lost live coral cover; huge sombrero sponges; no more Lophelia; a few Coral- Stylasteridae; dead lumps of Lophelia; small half m of Lophelia; live; scattered 10 cm colonies Lophelia; with ~40cm dea	rubble - all; lost live coral cover; half m of Lophelia; live; scattered 10 cm colonies Lophelia	HB		Lophelia; Madrep ora
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24179167	-80.91419333	523.261	9/29/2011 21:30	Chaceon fenneri (Golden crab); gently sloping relatively smooth hard bottom with small dark scattered coral skeletal structures; Photo XS (quantitative)- start; from north base of wall moving along 0.75 knot; rubble doesn't look like Lophelia, could be Co	sloping relatively smooth hard bottom	HB		
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24209	-80.913785	526.624	9/29/2011 21:32	panning up; bamboo corals; picking up speed to transit to south wall running across to the north of us; Nezumia rattail Grenadere fish; big black red coral; skate; purposeful photos of skate 5594 and 5595 and 5596; Laemonema sp.; Galatheid in burrow; coup				

Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.241985	-80.91372833	535.826	9/29/2011 21:35	half meter relief going down; red coral tree; Vasella; yellow finger Hexactinellid; lost most of phosphoritic slab; now flat; big red orange black coral; big slabs of phosphoritic stong; Laemonema sp.; low ridge swail scross; several big red and pale blac				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24272	-80.91382333	546.056	9/29/2011 21:38	heading due north; 7 m off bottom; 555 is bottom depth; too high to see anything on bottom; school of squid; Chaceon; bottom more sediment; fairly smooth low relief; sponges; big black coral; valley between ridges;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24284167	-80.91363167	562.592	9/29/2011 21:40	swordfish; mostly sediment sand ripples				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24297667	-80.91366667	571.233	9/29/2011 21:41	mostly sand ripples; little dark grains on troughs; 185 m off wall; coming into more sediment veneered hardbottom; shark; squid; shark (cat); sediment rubble; hydroids; royal red shrimp; 104 m to next heading;	mostly sand ripples; sediment veneered hardbottom		HB	
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24322167	-80.91355667	571.327	9/29/2011 21:44	several small spotted cat sharks; dark hard bottom peaking through sediment veneer;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24308667	-80.91360833	566.702	9/29/2011 21:46	off bottom in hole; school of squid; hard bottom peeking through sediment; says we're 1 m off bottom but it looks more in screen;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24334	-80.91331667	560.77	9/29/2011 21:49	ROV locked up; full shut down; camera also needs to be shut down;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.243945	-80.91297667	549.513	9/29/2011 21:55	black ridge; camera reset;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24407667	-80.91256833	549.653	9/29/2011 21:56	Stichopathes; still setting camera; crab;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24409333	-80.913115	547.784	9/29/2011 21:58	restarting photo transect at base of wall; zoom out; shelf; wall; on the wall				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.244205	-80.91269	535.312	9/29/2011 21:59	gently sloped sediment veneer hard bottom with Plumarella; bamboo corals; Phakellia; Vasella; Eumunida; crab; Yellow octocoral fan; small Coral- Stylasteridae; low tilted phosphoritic limestone crusts; holes in crusts; Laemonema sp.; red bamboo coral; top	gently sloped sediment veneer hard bottom; phosphoritic limestone crusts		HB	
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.244725	-80.91235	515.834	9/29/2011 22:02	steep slope; scorpionfish; up red coral; bamboo coral; black coral; black coral with zooanthids; small pale octocorals; small limestone crust; more outcropping limestone; half meter vertical relief; crinoid; black rocal; bamboo coral; small Octocoral; Spo	rock wall		HB	
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.245085	-80.91227	491.171	9/29/2011 22:04	field of small gray Octocoral; scattered Isiidae - bamboo coral; crab;				
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.2452	-80.912095	486.967	9/29/2011 22:05	gently sloping almost flat pavement with depressions and irregular shallow depressions 10-40 cm deep; field of small Octocoral; scattered Isiidae - bamboo coral; yellow Octocoral; Vasella; Eunicella; Nezumea, Emunida; fan and amphitheater sponges; fan s	gently sloping almost flat pavement		HB	

Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24535667	-80.91196	476.737	9/29/2011 22:08	lots of sponges; Phakellia; small lobe sponges; low phosphoritic outcrops; Chaceon fenneri; lots of sponges; 30 cm vertical relief very irregular ironshore phosphoritic limestone; ledge 40cm high with sponges; Isidiidae - bamboo coral;	low phosphoritic outcrops	HB			
Kraken 2 - 25	29-IX-11-2	Florida, Pourtalès Terrace CHAPC, Lophelia Reef and wall south of Marathon Sinkhole	24.24554333	-80.91186833	469.917	9/29/2011 22:10	gently sloping flat pavement with abundant cobbles and flat slabs and outcrops of phosphoritic limestone; abundant Isidiidae - bamboo coral; abundant fan sponges; crinoids in the fan sponges; broken flat chunks of phosphoritic limestone; sombrero sponge; ab	gently sloping flat pavement with abundant cobbles and flat slabs and outcrops of phosphoritic limestone	HB			
ROV Dive #	HBOI Site #	Location	lat_dd_r	lon_dd_r	Depth (m)	Date/Time	Habitat and Biota Notes	Bottom Description	Bottom Type	Sample Notes	Coral Notes	
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34752167	-81.861135	221.415	9/30/2011 12:27	10m off bottom; cannot see bottom					
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.347525	-81.86116	225.526	9/30/2011 12:27	see bottom; 6 m off bototm					
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34742167	-81.86125333	231.458	9/30/2011 12:30	On bottom; north edge of deep water shelf that comes off southeastern tip of hardbottom; flat bottom; 100% hard bottom; flat rock pavement; scoured clean of any sediment; current coming from southwest 0.25-0.5kn; smooth rock; small pits; few small white C	On bottom; 100% hard bottom; flat rock pavement;	HB			
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34738333	-81.86128333	230.617	9/30/2011 12:32	go due south; bearing of 180 (south from 265); start photo transect going south looking for ridge;					
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34739	-81.86125	230.244	9/30/2011 12:33	Photo XS (quantitative)- start; cone shell Junonia; hermit crab; urchin Cidaroid; vertical fissures in rock 1-2cm (that look like fishing line, but is not); starfish; barren; few scattered 5 cm Coral- Stylasteridae; few Cidaroid; maybe 2 species of Coral- S					
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34734	-81.86096167	230.244	9/30/2011 12:35	ROV being tugged; several orange starfish;					
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34726	-81.86117167	228.328	9/30/2011 12:36	ledge- top; runs northwest to southeast; 0.75 knot current; Junonia; Geodia 20cm; boarfish; 15cm white Gorgonian; Stylaster are all oriented different planes - some southwest some westerly facing northeast northwest - at least 3 different angle; two diffe	smooth rounded rock - pitted	HB			
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34722333	-81.86121833	226.367	9/30/2011 12:40	go to back of ledge; now facing northwest; snipefish; continue photo transect northwest along ridge; low smooth rock pavement; scorpionfish; Tethyaster starfish; concrete half cylinder encrusted with hydroids and sponge; long line fishing line - looks li					
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34722167	-81.86162333	225.012	9/30/2011 12:44						
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34722167	-81.86162333	224.124	9/30/2011 12:44	Photo XS (quantitative)- start; 2-3cm diameter; topshell fine beaded striations purple snail; attempt to suck up and sample snail; rock pavement 100% smooth, barren, few Coral- Stylasteridae;	rock pavement 100% smooth, barren,	HB			
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34719667	-81.86081167	224.218	9/30/2011 12:50	no snail sample collected; could not get arm close; looking for salmon Stylaster;			001 - not collected		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34719833	-81.86081833	224.078	9/30/2011 12:57	switched video to view of bucket to record sample collection for ROV staff back at NURC;			002		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34719833	-81.86081833	223.797	9/30/2011 12:58	resume photo transect to mound in scour zone; proceed at 0.7knots;					

Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34720833	-81.86081333	223.891	9/30/2011 12:58	starting with photo 5652; Cidaroid urchin; long line fishing line wrapped around a pole (almost looks like quadrat); Sigartid anemones;				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.347405	-81.86087	226.88	9/30/2011 13:00	shallow depression in pavement; scoured out rock; 15cm; scorpionfish; Laemonema sp.; numerous segartid anemones; black bellied rosefish; thin crust about 5 cm coarse sand and rubble; m diameter scour; few more rock slabs with Anthiids; pit, could be burro				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34762833	-81.8609	234.868	9/30/2011 13:03	being jerked by tether;				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34765	-81.86088833	235.382	9/30/2011 13:04	same habitat and biota; starfish; scorpionfish; several species of starfish; small ridge; little ridge ahead, not ledge; 240 m on top, 10-20deg slope; half m tall;				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34785	-81.860725	242.669	9/30/2011 13:05	smooth ridge; more fishing line; black coral white Antipathidae Leiopathes; scorpionfish; Anthiid; low relief				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34815333	-81.86062667	251.731	9/30/2011 13:06	different habitat; rock cobble 10-15cm phosphoritic pavement; dozens of segartid anemones; scorpionfish; big black coral; 2 m tall; orange Leiopathes; south end; near southwest base of rounded mound in scour zone according to multibeam; southwest base of	rock cobble 10-15cm phosphoritic pavement	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34846333	-81.86046333	253.412	9/30/2011 13:08	phosphoritic rock slab and boulders; mostly Sigartid anemones; pink Coral- Stylasteridae; Paramuriceids; black belly rose fish; not too many sponges; fields of segartids; few small encrusting sponges; white Coral- Stylasteridae both on rock outcrops and o	phosphoritic rock slab and boulders	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34823	-81.86047167	253.319	9/30/2011 13:13	end of cobble field; now rock pavement with Segartids growing on pavement; purposeful photo of abrupt change in rock cobble to pavement; orange black coral - collected	end of cobble field; now rock pavement	HB	003	
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34834833	-81.86040833	253.786	9/30/2011 13:20	hermit crab next to rock with segartids growing on it; lasers on rock pavement with few small 2-5cm Coral- Stylasteridae; few Coral- Stylasteridae growing sparsely on rock pavement;				Coral- Stylasteridae
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34844167	-81.86050333	251.777	9/30/2011 13:21	rock slabs pavement very rugged boulders 30-50cm outcrops; numerous segartid; roughtongue basses; fishing line; white Gorgonians; 50cm ledge;	rock slabs pavement very rugged boulders 30-50cm outcrops;	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34855667	-81.860465	249.909	9/30/2011 13:22	pavement				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34855667	-81.860465	250.516	9/30/2011 13:22	rock outcrops; starfish; juvenile roughtongue; very common segartid; scattered and loose crops 10->2m rocks; less than 50cm relief; all rock phosphoritic; dominated by segartid, Coral- Stylasteridae; no macrosponges just thin encrusting; few Gorgonians; st				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.348755	-81.86031833	252.758	9/30/2011 13:23	carbonate scoured into a spire with mushroom table top; not phosphoritic limestone; white carbonate very smooth; about 2 m across and 1-2 (on backside) m height; backup to get good photo; crinoid; 1 knot current now coming from southwest to northeast; maj	mushroom table top; not phosphoritic limestone; white carbonate very smooth; about 2 m across	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34879833	-81.86035667	252.712	9/30/2011 13:25	still taking photos of the flat top rock spire; backign up to get good photos; 1.5m tall x 1.5 across; some sort of strap? wrapped around rock (looks celluloid) - does not really look biogenic; No Demospongiae;				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34884167	-81.860365	250.189	9/30/2011 13:27	30-40cm snowy grouper; backside of table top; covered with salmon Coral- Stylasteridae; white Coral- Stylasteridae; white Leiopathes Antipathidae; facing due east; current coming from south to north about 1 knot;				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34894333	-81.86028833	252.104	9/30/2011 13:29	moving along; 40cm blue line tilefish; black coral; barely discernable bump in scour zone; jumble of boulders and slabs of phosphoritic rock 30cm; 1 m relief; few Gorgonacea; few Antipathidae; rock pavement; now on north base of mound;				

Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34914	-81.860035	253.692	9/30/2011 13:33					
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.349125	-81.86005333	253.786	9/30/2011 13:34	transect southerly toward peak of mound; Photo XS (quantitative)-start; start with photo 5671				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34911167	-81.86002333	252.478	9/30/2011 13:36	scorpionfish; snowy grouper 30cm; segartid anemones; proceed heading south;				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34891667	-81.859965	255.374	9/30/2011 13:38	on peak; large orange; 1 m relief rock pavement with boulders outcropping; covered in segartid anemones; 2 m relief; covered in Gorgonians; Crinoid at top; numerous Coral- Stylasteridae; depth at top is 251 heading 188; 25 m total relief from pavement to				Coral-Stylasteridae
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34884667	-81.85996667	250.049	9/30/2011 13:42	reset camera; hermit crab; top snail; fish tail; Galatheid; still 1 m relief; black coral; lots of Coral- Stylasteridae; Galatheids; Plumarella; Anthiids; small Desmosellid sponges; rough tongue basses; Galatheid; Gorognians; Galatheids; transect photos a				Coral-Stylasteridae
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34883333	-81.85983833	250.703	9/30/2011 13:48	huge Antipathidae - white; another large Antipathidae (smaller than one just previously described);				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34886833	-81.85983	251.263	9/30/2011 13:49	moving off rock outcropping a bit to correct course of ROV and coordinate with ship;				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34885333	-81.85984667	250.936	9/30/2011 13:50	stalled; haven't taken pictures in a few minutes; Laemonema sp.; snowy grouper; roughy; scorpionfish; blue encrusting sponges; Desmasellid; 2 m relief ledges; Crinoid - darker in color possibly several individuals - I; heavy fishing line on far left off b				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34874	-81.85982333	251.777	9/30/2011 14:01	changing headings; going over the edge; fishing line; off bottom; photo transect heading due W on the wall; Wall is 20 m away; once we are over the ledge, we are going 3/4 knot to get to wall; huge black coral bush; basket stars; stylaster; lots of sea a	rock cobble sparse; large sediment with rock; boulders are .5m in diameter; fairly barren; Slope- flat;		HB	
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34851333	-81.85985667	251.59	9/30/2011 14:06	1406 fix; jump 1m high; over the ledge; fish on the distance; large antipatherian; Coral- Stylasteridae; Sagartia anemones; more fishing line; dominant cigartea anemones; going over 2m ledge	cobble; sediment; 90% rock cobble with sediment;		HB	Coral-Stylasteridae
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34877667	-81.86000333	248.554	9/30/2011 14:08	we are off bottom; we are on the SE edge of the mound; bottom visible; scorpion or black bellied rose fish;				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.348915	-81.85996167	254.346	9/30/2011 14:10	dugong field; black coral bush; sea anemones;	rubble; 100% coverage; dugong field of petrified rib bones		HB	
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34899667	-81.85987667	254.627	9/30/2011 14:11	collecting sediment dugong ribs; 5750 photo range;				201
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34898	-81.85990667	255	9/30/2011 14:14	positioning ROV for collecting; scorpion fish;	patches of sand around the dugong bones; fine silt in between bones;		HB	
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.349	-81.85981333	254.813	9/30/2011 14:28	heading to the wall; Photo XS (quantitative)- start; across the dugong field; looks like it extends about 40m; not very thick; Coral- Stylasteridae; anemones;				Coral-Stylasteridae;
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34897167	-81.85990167	254.44	9/30/2011 14:30	boulders 1m; roughy; scorpion fish; near edge; huge bush black coral; smaller near; bottom covered with Coral- Stylasteridae; phosphoritic limestone; Laemonema sp.; Gorgonacea;	soft sediment; ledge of rock; cobble; 0.5 m relief;		SB	
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34871667	-81.86011	251.17	9/30/2011 14:32	much more barren; scorpion fish; Laemonema sp.; Coral- Stylasteridae; NW bound of the mound; 50-60 cm goosfish lopheades fish with whiskers around his body and green eyed; 5796 fish photo; continuing	sediment; occasional 0.5 m relief boulders; could be hard bottom veneered with		HB	

Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34859167	-81.86093833	251.684	9/30/2011 14:39	Coral- Stylasteridae; Sagartia; anthiids; Laemonema sp.; 80m east of the wall; 2 black coral bushes; scattered boulders; becoming 100% sediment veneered hard bottom or sediment; more cobble; venus fly trap anemone; back to sediment; west base of the moun	sediment veneered pavement with rock; rock cobble to 100% pavement;	HB		Coral-Stylasteridae
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34876833	-81.86165833	250.002	9/30/2011 14:45	anemones; hermit crab; top of the ledge can get to 193m; want to head to top of the ledge; we are getting a bit of slope; still rock bottom; barren; field of Sagartia anemones; large Geodia; Bathynectes; black coral; scorpion fish; bunch of pits about .5m	hard bottom;	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34921	-81.86127	221.275	9/30/2011 14:49	fish line; Laemonema sp.; Petrosidae; cush ball anemone; cigartea; on the base of the wall 280m; Photo XS (quantitative)- End;	Slope- moderate (<350); Rock; pavement;	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.349175	-81.86132833	218.052	9/30/2011 14:50	Photo XS (quantitative)- start; image5848; heading into wall; rough shark 50cm white mottling with black horizontal stripes; tall dorsal fin and a second dorsal; Oxynotus; 5850 5851 photos of shark	30 degree sponge; hard bottom; Rock;	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34908333	-81.86127833	220.481	9/30/2011 14:53	continue moving towards top of the wall; multibeam lower ledge of the wall; resetting camera continuing photo transect; hermit and Scaphella; Coral- Stylasteridae; snowy grouper				Coral-Stylasteridae
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34915	-81.86132667	219.5	9/30/2011 14:55	snowy grouper; black coral; hermit; small encrusting sponges; gorgonians; sea cucumber; sea anemones cigartea; phosphoric rock with white carbonate; according to multibeam we should be approaching a vertical escarpment; scorpion fish; about 15m relief t	30 degree slope; rock boulder bottom; 10-1.5m relief; less relief;	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34908333	-81.86143167	213.521	9/30/2011 14:59	moving forward; big outcrop; roughy; 2 snowy grouper; .5m relief; rough bottom; Sagartia; anthiids; coralline algae; white encrusting sponge; 10-20% coverage; 100% coverage in biota of some kind; lots of encrusting sponges and coralline algae; egg case; S	pavement; Slope- moderate (<350);	HB		Coral-Stylasteridae
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34912667	-81.86155333	202.544	9/30/2011 15:03	climbing up still; another overhang; black coral 2m across; white encrusting sponge; 4 large fish under ledge; vertical wall; scorpion fish; gorgonians; looking up ; we seem to reach top of wall;	vertical wall	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.349095	-81.86162667	196.098	9/30/2011 15:06	top of the wall; crinoids; black corals; Coral- Stylasteridae; cigartea; anthheads; Laemonema sp.; cannot see anything on down camera; white gorgonian; dense coverage of white stylaster; Photo XS (quantitative)- End; 5893 last photo;	flat pavement; thin crust;	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34907	-81.86158	193.856	9/30/2011 15:08	moving to coast along the top of the wall looking mainly for large fish; this wall goes for about 2mi; snowy grouper				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34925667	-81.86151667	194.883	9/30/2011 15:10	Photo XS (quantitative)- start; snowy grouper; moving along wall; roughy; basket star on black coral; stylaster; white nephtheid; starfish; Sagartia; hermit crabs; hydroids; sea star; paramuracea; picture on still camera; narcissia; lophidiaster; heading s				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34901667	-81.86161667	194.51	9/30/2011 15:17	continue on same ledge; Coral- Stylasteridae; basket star; snowy grouper; anthiid underneath; Photo XS (quantitative)- End; gorgonians; basket star; crust 5-10cm thick; 50cm snowy grouper; surface current still about 1/10 of a knot; tile fish; changed hea				
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34882667	-81.86178	194.79	9/30/2011 15:21	moving along south on top of the wall; looking west; coverage with Coral- Stylasteridae; with 5cm ledges; lots of Anthiids; venus fly trap; down pictures are not best; hydroids; scorpion fish; basket star; bushy stylaster; possible basslet; sponge; going	top of escarpment Slope- flat; pavement;	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtalès Terrace, outside of CHAPC; Key West Bioherm	24.34869167	-81.86193	194.743	9/30/2011 15:25	Photo XS (quantitative)- start; same basic bottom; coralline algae covers most of the rock; 3-5cm crust; white and pink stylaster; Anthiids; Scorpaenidae; Laemonema sp.; hydroids; Sagartia anemones; Desmacellad sponges; gorgonians; finishing up				

Kraken 2 - 26	30-IX-11-1	Florida, Pourtales Terrace, outside of CHAPC; Key West Bioherm	24.34845667	-81.8622	195.864	9/30/2011 15:29	Photo XS (quantitative)- End; 5952 last image; snowy grouper; cigarteas; Coral- Stylasteridae; Laemonema sp.; ball sponge Demospongiae; crinoid on stylaster; rough tongue sea bass; boar fish; blue encrusting sponge; Anthiinae; Coelopleurus sp.; Hexactinel	rock bottom; ledge 2m relief; bottom 3-4cm crust	HB		
Kraken 2 - 26	30-IX-11-1	Florida, Pourtales Terrace, outside of CHAPC; Key West Bioherm	24.34864167	-81.86197833	194.883	9/30/2011 15:41	end of dive; last photo 5962				