

Preliminary Biological Findings from 2008 ROV Dives on Reefs and Wrecks

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Saab Seaeye Falcon ROV

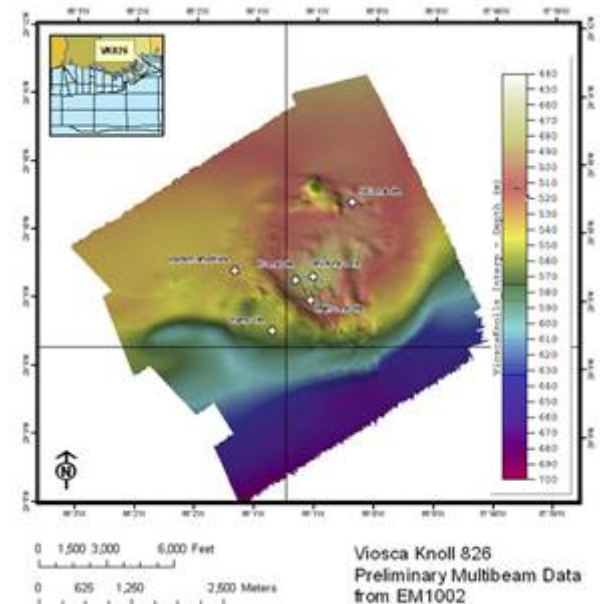
Presentation Outline

- Numbers and statistics
- Map
- Representative Images
- Cruise highlights by taxa
 - Corals
 - Fishes
 - Crabs
- Knowledge gained

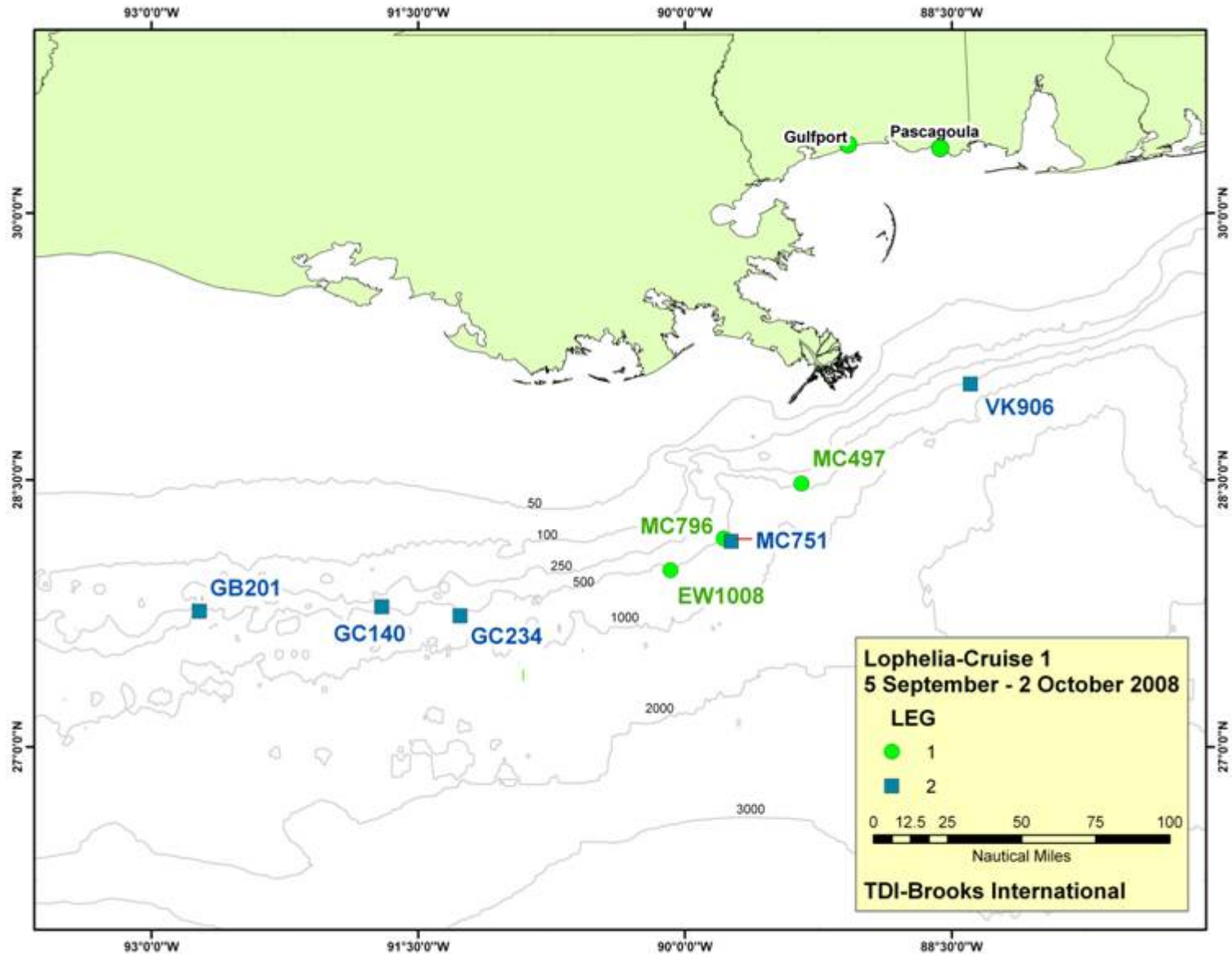


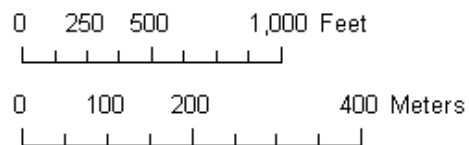
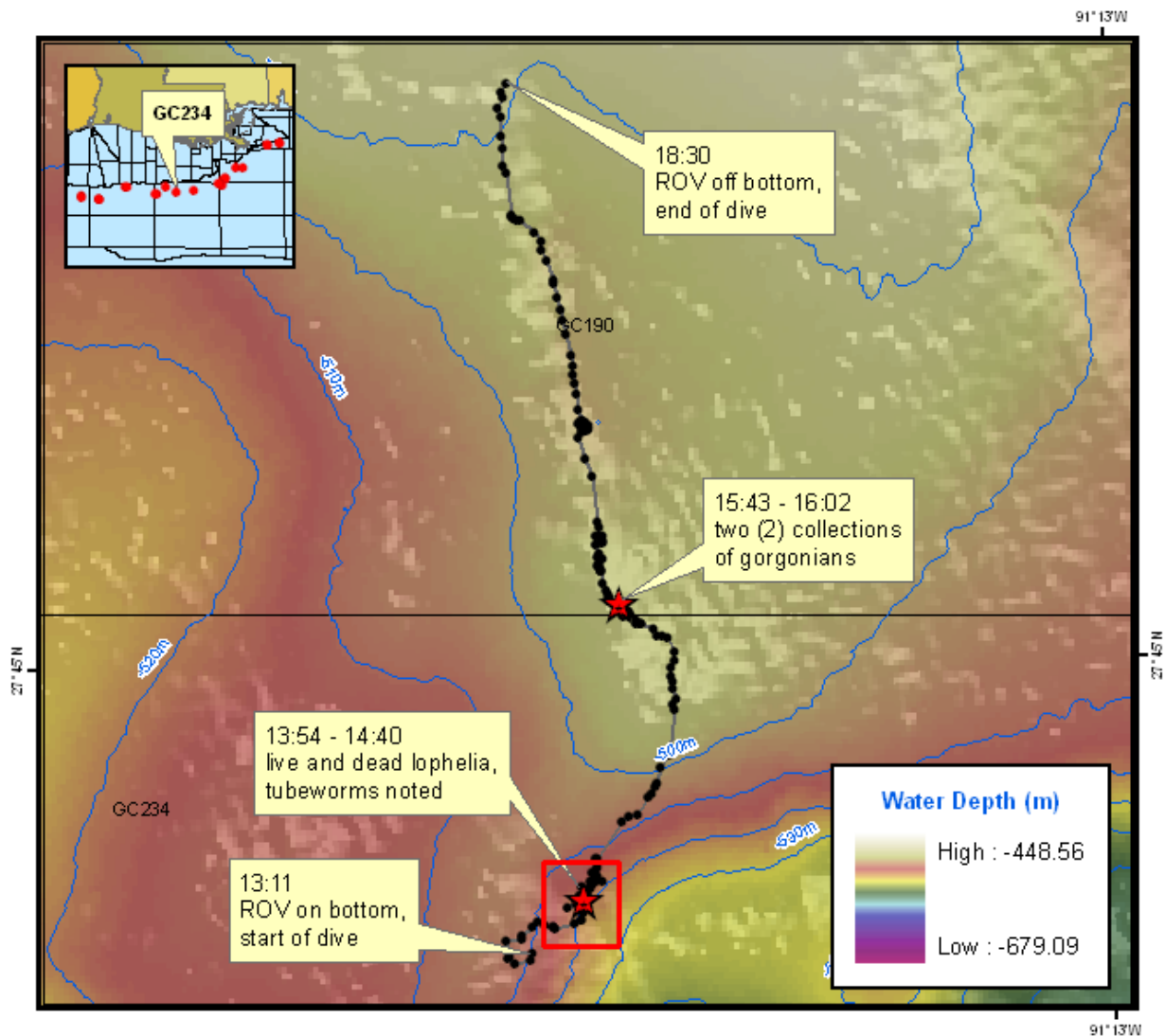
Numbers and Statistics

- 9 good dives for biology at 8 different sites
 - *Gulfoil*, Ewing Banks wreck, GC140, GC234, GB201, VK906, MC751, VK826
- 12 multibeam sites
- 25 days at sea, 8 lost to weather
- 12 km of ROV surveys
- Depth range 300-500 m
- > 50 biological samples
- 4 navigation markers
- >1,200 images
- 52 hours of video



Sites with Results for Biology





Green Canyon 234
Preliminary Multibeam Data,
ROV dive track, observations

Leg One Images



The bow of the Ewing Banks Wreck, covered with *Lophelia* coral, sea anemones, barnacles, and rusticles (microbial concretions).



Lophelia pertusa thickets colonizing the starboard side of Gulfoil.

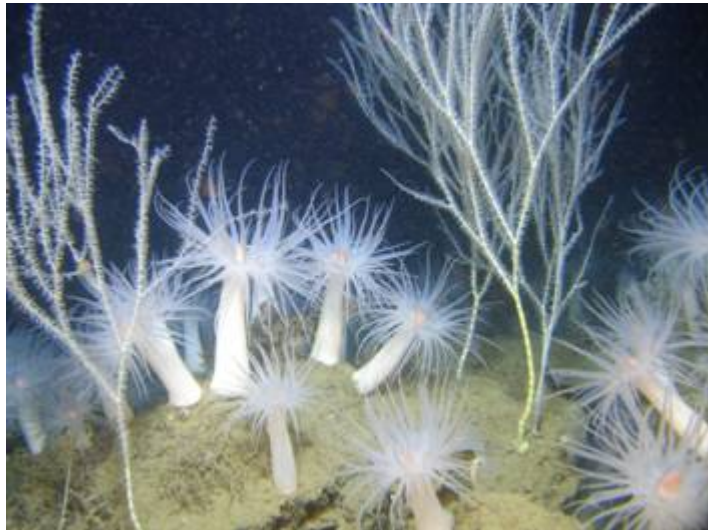
Leg 2 Images



Lophelia pertusa at VK906



Callogorgia sea fan and cup corals at GC234



Acanella sea fan and *Actinia* anemones at XX



Large antipatharian at GC140

Leg 2 – Biota by Site

Site	Lophelia	Gorgonacea	Antipatharia	Anemones	Fish	Crabs	Class	Depth (m)	Comments
GC140_b	0	++	+	0	++	0	Shallow	230-280	egg case, grouper, longline
GC140_a	0	+	+	++	++	+	Shallow	270-300	sea pens, grouper
GB201	0	+	+	+	+	+	Mid	300-520	soft seds, catshark
VK906	+	+	++	++	++	+	Mid	380-410	cup corals, longline
GC234	++	++	0	0	+++	+++	Deep	450-500	cup corals, bubblegum
MC751	++	++	0	+	+	++	Deep	450-500	tubeworms, bubblegum

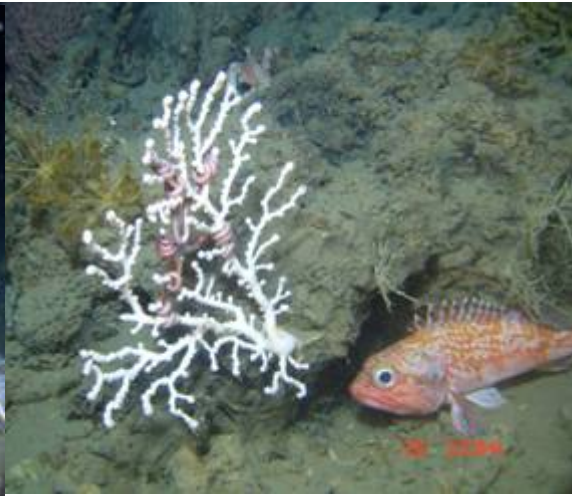
The codes for the chart are: 0 = absent, + = present, ++ = abundant, +++ = very abundant.

Coral Highlights

- *Lophelia pertusa* in “mounds” at MC75
- Solitary cup corals in Green Canyon
- Large black corals are habitat for fishes and crabs
- First occurrences of *Paragorgia* sp in the Gulf
- Diverse assemblage of habitat forming gorgonians



Callogorgia sp.



Paragorgia sp.



Leiopathes sp.

Fish Highlights

- Roughy, yellowfin bass, and boarfish associated with antipatharian and gorgonian corals
- Snowy grouper, Blackbelly rosefish, Chain catsharks, and conger eels associated with carbonate outcrops
- Large schools of barrelfish and lanternfish in water column
- Hakes and *Laemonema* sp. most common on soft substrate
- Commercial fishing gear at two sites. Golden Tilefish spotted.



Golden tilefish *Lopholatilus* sp.



Atlantic roughy *Hoplostethus occidentalis*



Red eyed gaper *Chaunax* sp.

Fish List: Of ~20 species, 5 are coral associated

Species	Site	GC140b	GC140a	GB201	VK906	GC234	MC751
* = coral associated	Class	Shallow	Shallow	Mid	Mid	Deep	Deep
	Depth (m)	230-280	270-300	300-520	380-410	450-500	450-500
<i>Anthias nicholsi</i> *	yellowfin bass	+++	0	0	0	0	0
<i>Antigonia capros</i> *	deepbody boarfish	+++	+	0	0	0	0
<i>Bemprops sp.</i>	flathead	0	+	0	0	0	0
<i>Beryx sp.</i>	alfonsino	0	0	0	+	0	0
<i>Bythitidae</i> *	brotula	0	+	0	+++	0	0
<i>Chaunax pictus</i>	red gaper	0	+	0	0	0	0
<i>Conger oceanicus</i>	conger eel	0	0	0	+	+	+
<i>Epinephelus niveatus</i>	snowy grouper	+++	++	0	0	0	0
<i>Gephyroberyx darwini</i> *	big roughy	+++	++	+++	+	0	0
<i>Grammicolepis brachiusculus</i>	thorny tinselfish	0	0	0	0	+++	0
<i>Gymnothorax sp.</i>	blackedge moray	0	+	0	0	0	0
<i>Helicolenus dactyloperus</i>	blackbelly rosefish	0	+	++	+++	++	++
<i>Hoplostethus occidentalis</i> *	Atlantic roughy	0	+	0	+++	+++	0
<i>Hyperoglyphe perciformis</i>	barrelfish	+	0	0	+++	0	0
<i>Laemonema sp.</i>	hake	0	0	0	+	+	+
<i>Lopholatilus chamaeleonticeps</i>	golden tilefish	+	0	0	0	0	0
<i>Nezumia sp.</i>	rattail	0	0	0	0	+	0
<i>Scyliorhynchus retifer</i>	chain dogfish	0	+	+	0	0	0
<i>Symphurus sp.</i>	tonguefish	0	+	0	0	0	0
<i>Urophycis sp.</i>	hake	0	0	+	+++	+++	+++

Crab Highlights

- Galatheoid crab *Euminida picta* most common
- Two collected. One ovigerous, one not
- Crabs used black corals more than gorgonians
- Crabs common on carbonate blocks and substrate
- Crabs attack and prey upon squid



We Learned:

- gorgonians and black corals are important habitat formers for fish and invertebrates 200–500 m
- galatheoid crabs are active demersal predators
- Catsharks lay eggs on black corals
- *Lophelia pertusa* corals occur in mounds occur in the Gulf
- *Lophelia* co-occurs with cold seep tubeworms
- Bubblegum corals occur in the Gulf

Wish list for biology:

- Work-class ROV with twin 3-function manipulators
 - to reach deeper water
 - to collect more samples
 - to deploy traps
 - to collect mobile fauna
- Multi-chambered rotary suction sampler
 - to increase productivity
 - to enhance collection capabilities
 - to isolate specimens from warm surface water
- High definition deep-sea video ... !