

The BEAMS Program

College of Charleston & University of Washington

Development of the Marine Survey Workforce



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Benthic Acoustic Mapping and Survey Program

Since 2007

- Founded at the College of Charleston
Dept. of Geology and Environmental Geosciences
- Expanded to Univ. of Washington (2011)
School of Oceanography



BEAMS Program Elements

1. Coursework
2. Research
3. At-Sea Field Experience
4. Internship or Volunteer Opportunity



The Stats...

College of Charleston alone...

...since 2007:

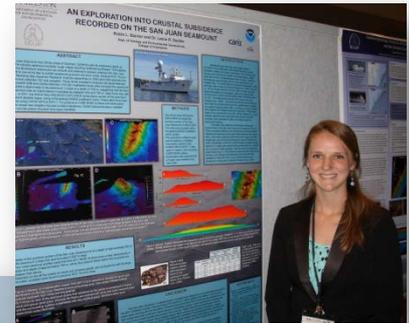
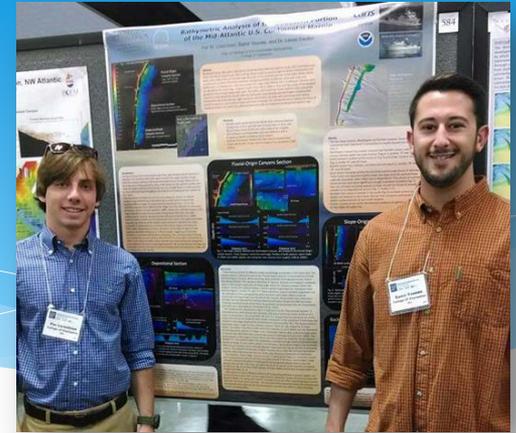
- **98 students** have completed the CofC BEAMS Program as of Spring 2014.
 - 29 at UW
- **46 of the 84 students who have graduated (55%) are currently in the marine geospatial workforce**
 - in private, government or academic positions
 - 17 of these students (37%) are women



The Stats...

College of Charleston alone...

- **64 posters have been presented by 71 students at regional, national and international professional meetings**
 - Top 3 research poster awards at the U.S. Hydro 2013
- **53 temp. survey tech positions have been filled by volunteer BEAMS students**
 - Primarily aboard NOAA vessels.



Program Elements

Coursework

BEAMS Foundation Coursework (required)

- Marine Geology or Oceanography
- Intro to Seafloor Mapping (“SeaMap”)
- BEAMS Research

Other Coursework

- GIS
- Calculus
- Physics and Biology
- Geophysics
- Special Topics (field-oriented courses)
- Independent Research

Training Workshops

- Software
- Technology
- Hands-On



Program Elements

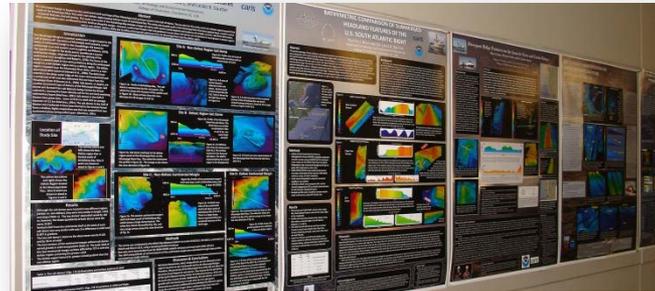
Research

BEAMS Research Course

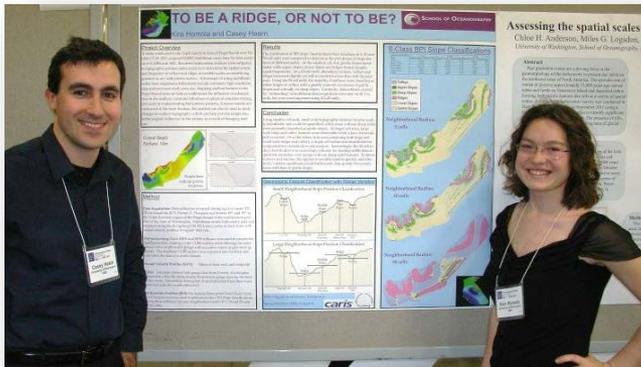
- Existing or collected data
- Design scientific question(s)
- Document results
 - Poster
 - Paper
 - Presentation
 - Professional Meeting



US Hydro 2013 (New Orleans)



CARIS Conference 2014
(Brest, France)



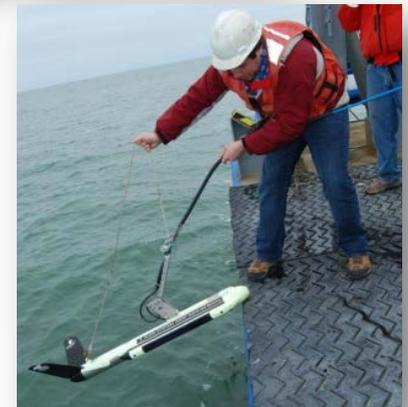
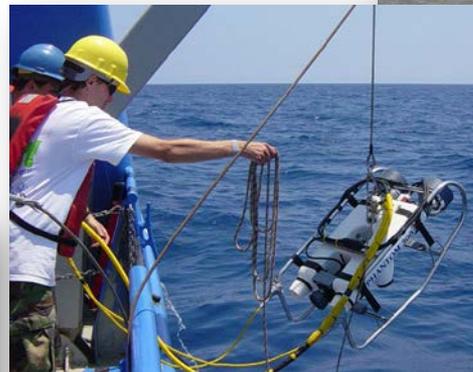
Ocean Sciences 2012 (Salt Lake City)

Program Elements

At-Sea Field Experience

BEAMS Research Cruise

- Dedicated Ship Time
- 3-6 days at sea
- Data acquisition
 - Multibeam
 - Backscatter
 - Sound Velocity
 - Sidescan
 - Sub-bottom profiling
 - ROV Video
 - Sediments
- Training
- Research



Program Elements

At-Sea Field Experience

BEAMS Cruises – Ships

- NOAA Ship *Nancy Foster*
 - EM1002; Reson 7125
- R/V *Savannah*
 - EM2040c*
- R/V *Thomas G. Thompson* (UW)
 - EM302
- R/V *Barnes* (UW)
 - EM2040c*
- “R/V *Beamer*” (CofC)
 - R2Sonic *
 - Teledyne Odom MB1*



* Loaned to BEAMS

CofC BEAMS 2014 Cruise R/V Savannah



Program Elements

Internship

Internships

- NOAA
- With BEAMS Partners
- BEAMS Program Intern
- Paid or unpaid
- Volunteer survey tech

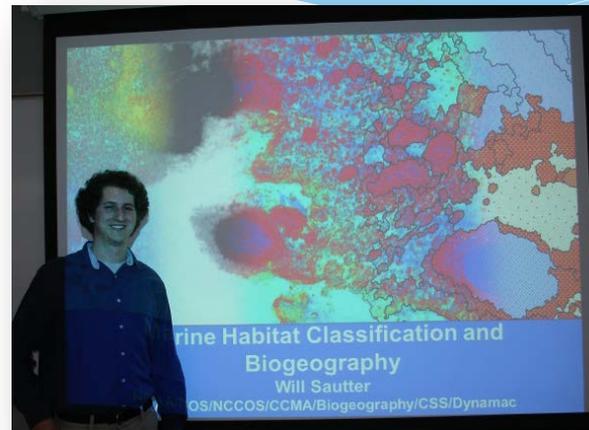


Program Elements

Visiting Speakers

Visiting Speakers

- NOAA personnel
- Recruiters
 - Private contractors
 - Government
- BEAMS Alums
- Prospective Advisors
- Researchers
- From ships!



BEAMS Contributing Partners



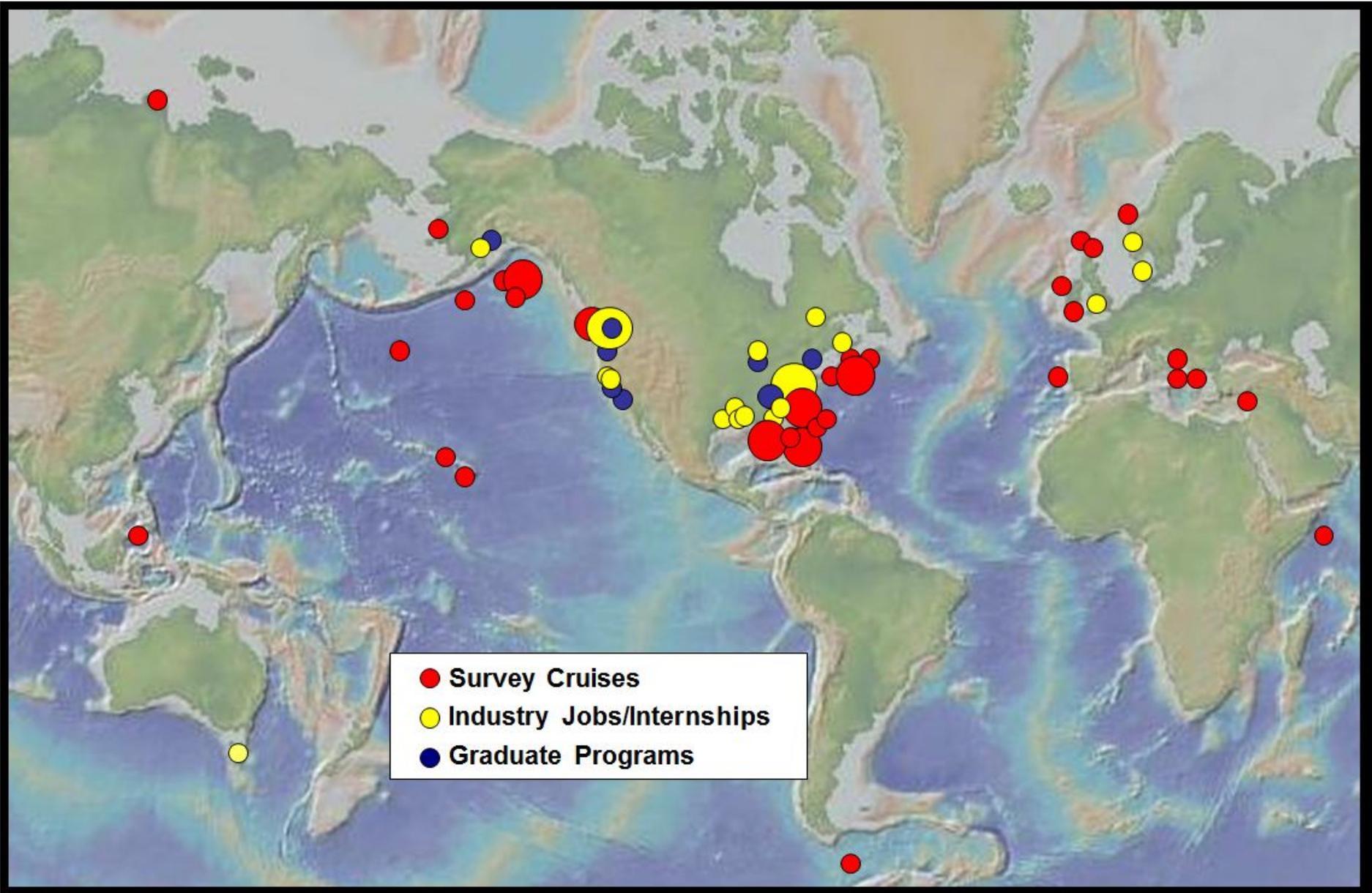
GLOBAL COAST
SURVEY



Where are they?

Since 2007 (CofC)

- **11 full-time NOAA employees** (13% of BEAMS graduates)
- 30 paid **internships** (**11 with NOAA**)
- >25 **contractor** jobs with private firms
- 9 full-time positions with oil & gas or other **private firms**
- 4 full-time positions with **software companies** (CARIS and EIVA)
- 3 have **started their own business**
- 12 have entered **graduate programs** -- marine geospatial oriented

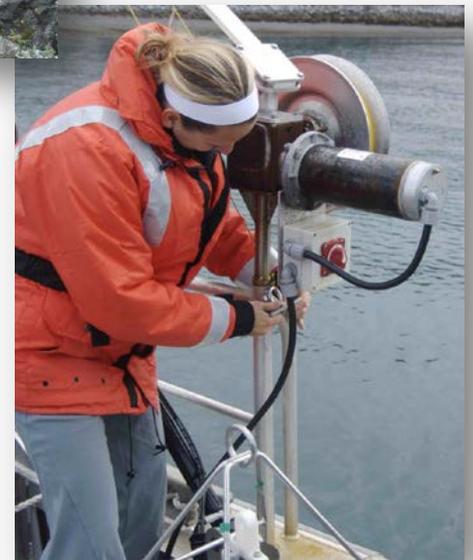


BEAMS Program Students and Alums

Where are they?

Federal Government

- NOAA
 - Hydro
 - NOS
 - NOAA Corps
 - OER
 - Other
- USGS
- US Army Corps



Where are they?

Private Consulting

- TetraTech
- C&C
- TerraSond
- Williamson
- RPM
- NCS Subsea
- Fugro Chance
- eTrac

(Subcontractors)

- Highland Geo
- OARS
- Global Coastal Survey



5 BEAMers from 4 different classes – all contracted separately!

Where are they?

Software Companies

- CARIS
- EIVA
- OneOcean/ClipCard



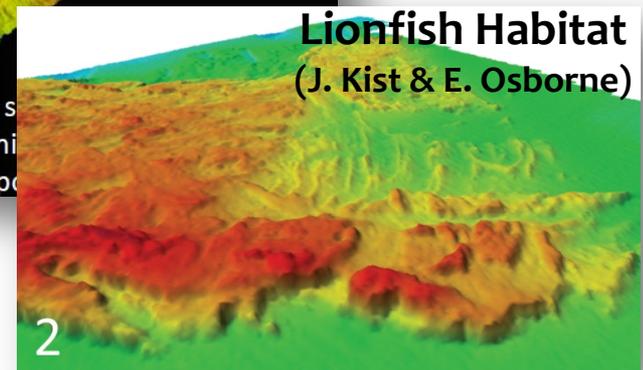
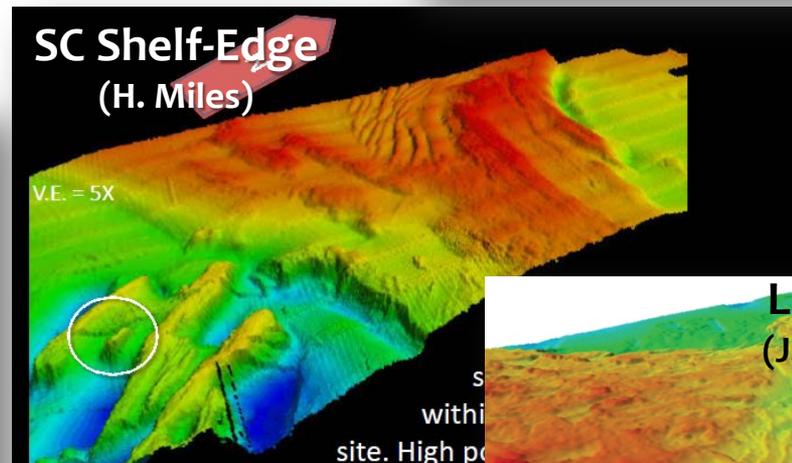
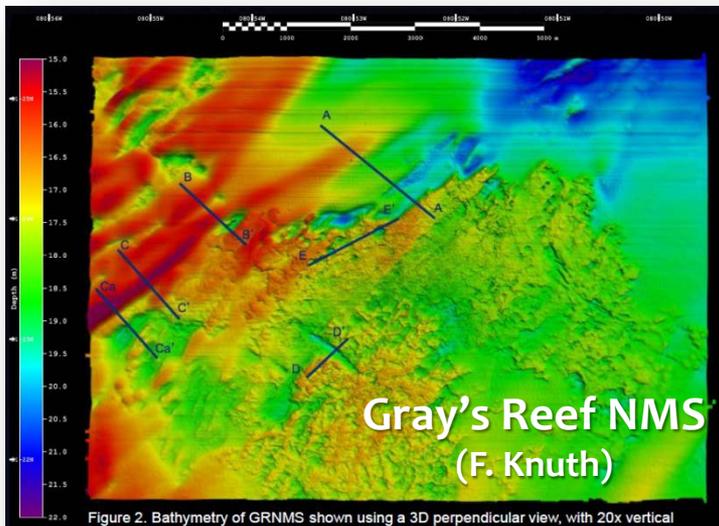
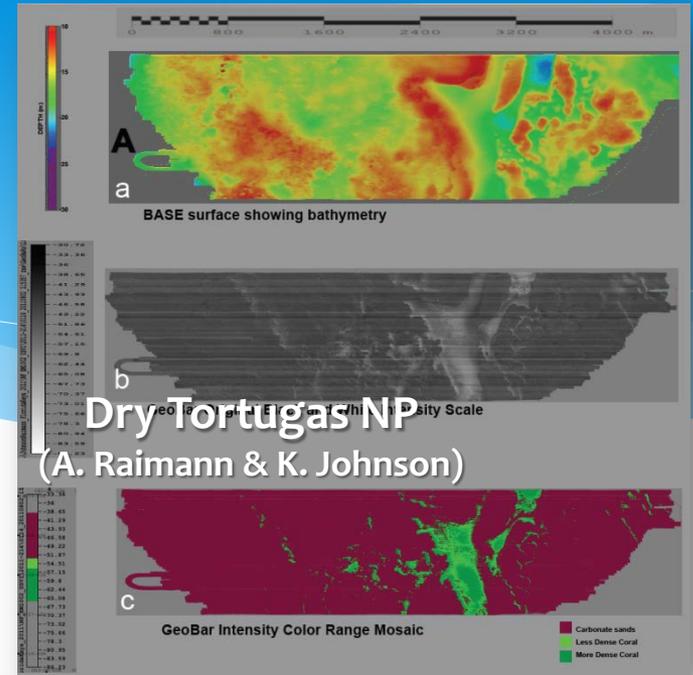
Academia

- CofC
- UNH
- OSU
- UCSB
- USC-east
- U Illinois
- UW



Research

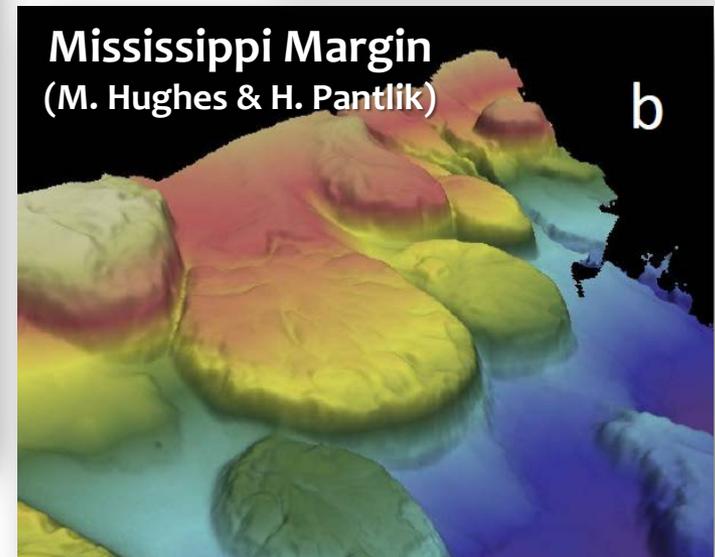
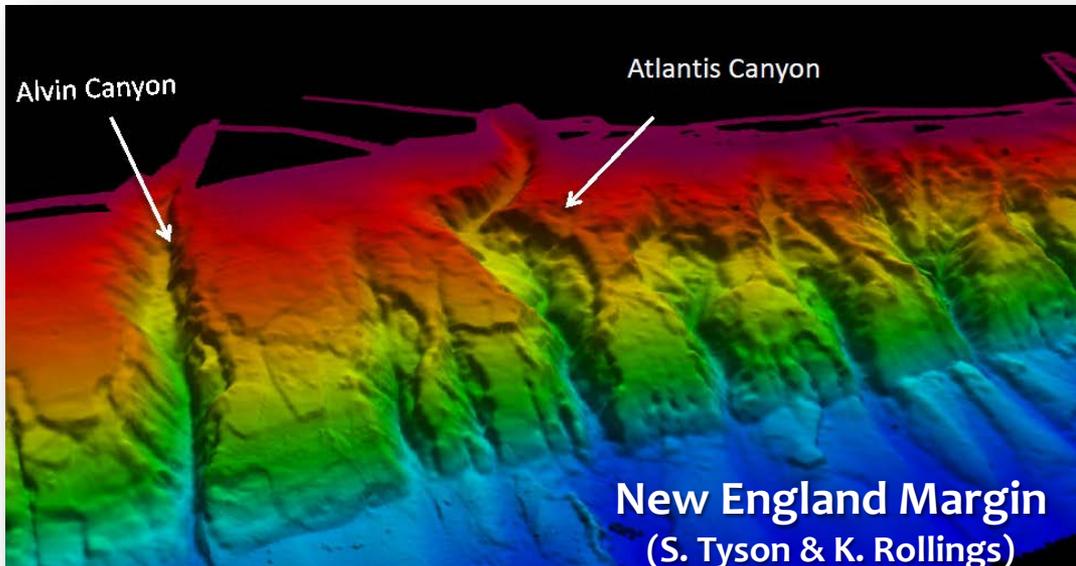
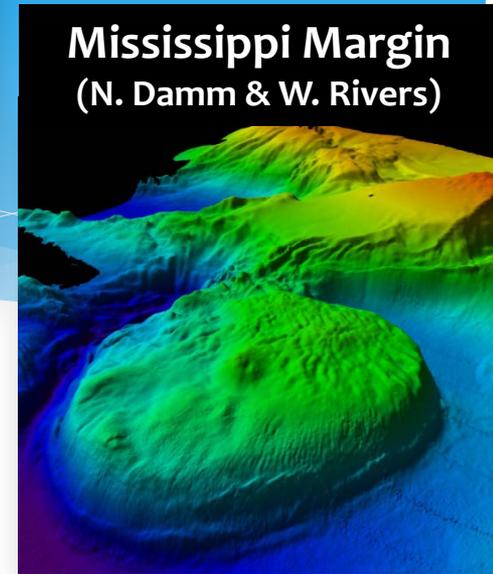
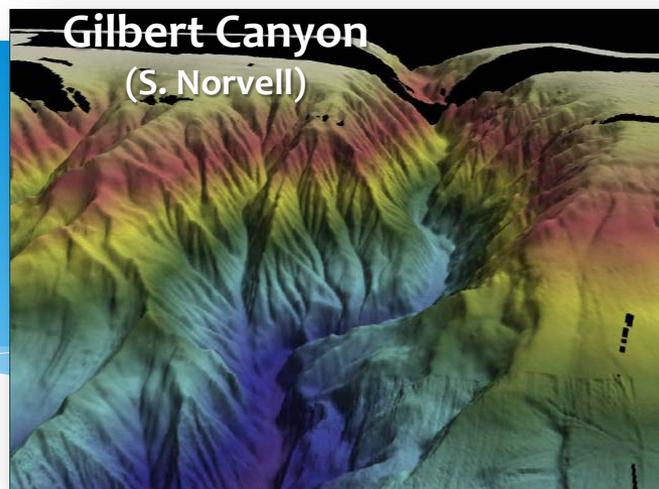
- **Southeast Fisheries**
 - NOAA and SC-DNR
 - Sanctuaries, MPAs and Essential Fish Habitats
 - Deep Coral – Predictive Models



Research

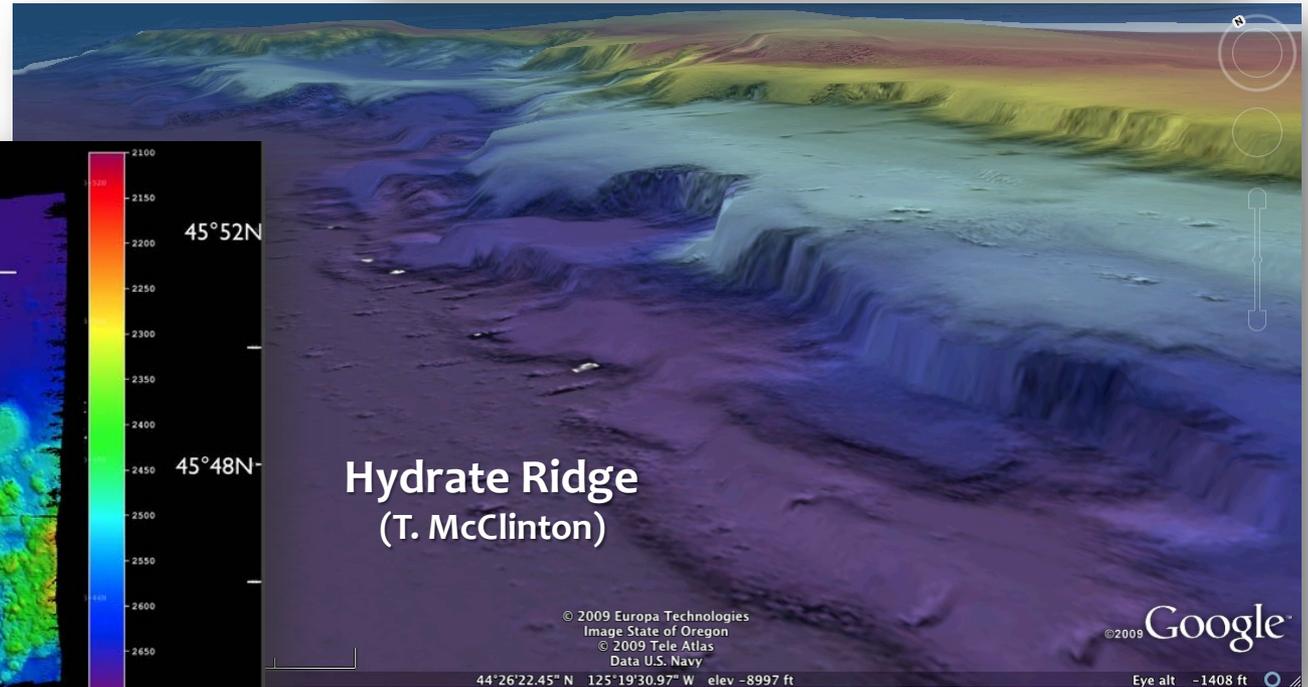
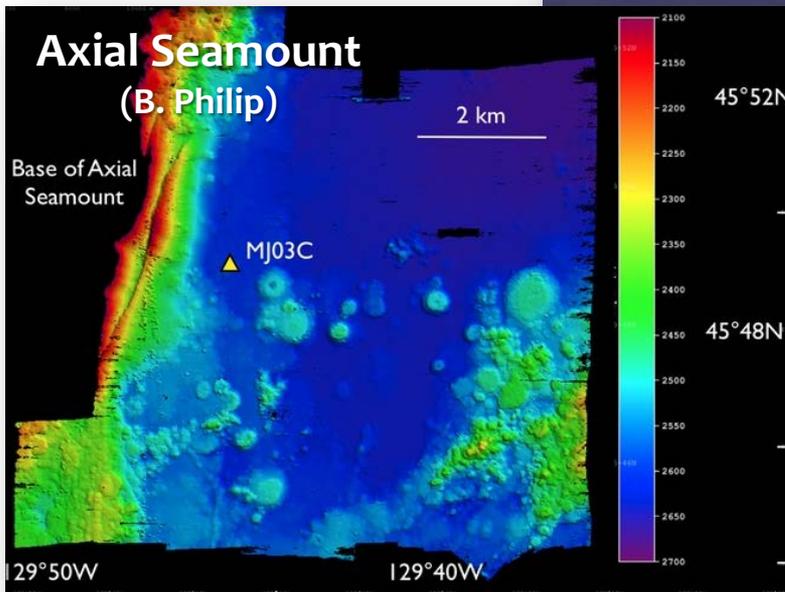
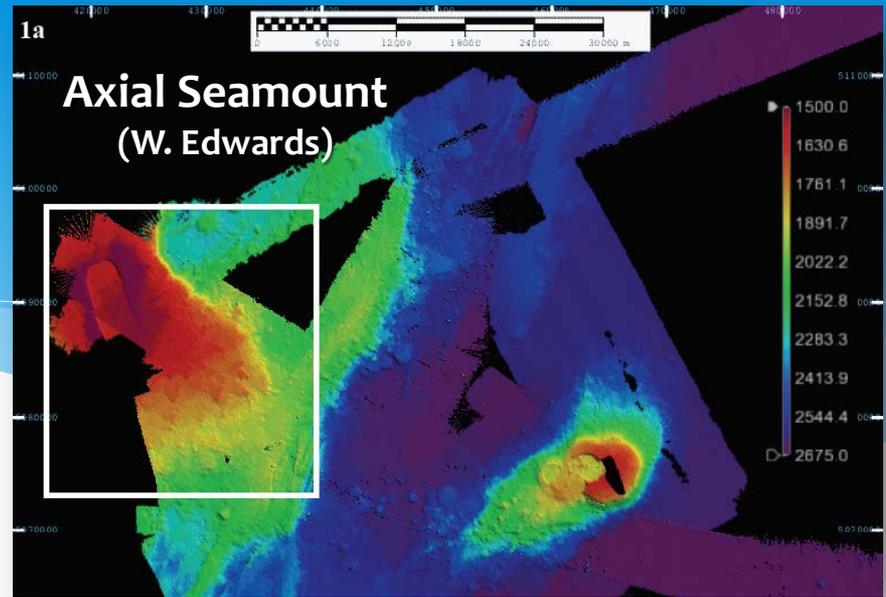
- **Continental Margin Geomorphology**

- Submarine canyons, east and west coasts
- Salt diapirs (domes), Gulf of Mexico



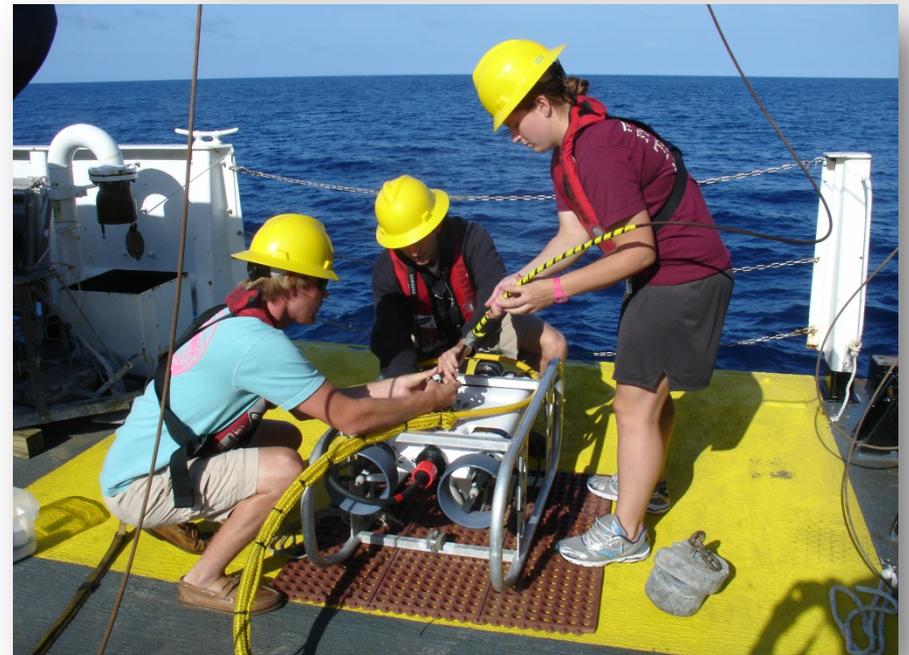
Research

- Ocean Observatories Initiative (NSF-OOI)
 - Regional Scale Nodes Program (UW)



Program Growth

- Courses every semester
 - 25+ students/year (CofC)
 - 10 students/year (UW)
- Development of BEAMS Program Certificate
 - Course development
 - Additional Faculty & Staff
- MBES acquisition!
- Established budgets
 - Annual Ship-time
- Expansion of Partners
- AUVs
- Telepresence
 - Training & Outreach



BEAMS Program

- **Facebook Group** *(please join!)*
 - “BEAMS: Academic Excellence in Ocean Surveying”
- **Web**
 - <http://oceanica.cofc.edu/beams>
(Upgrade is under construction)
- **Contacts**
 - Leslie Sautter (SautterL@cofc.edu)
 - Scott Harris (HarrisS@cofc.edu)
 - Miles Logsdon (mlog@uw.edu)
 - Paul Cooper (paul.cooper@caris.us)