Coastal Ocean Research and Monitoring Program at the University of North Carolina Wilmington

A Collaborative Coastal Ocean Research And Monitoring Program

Funded by the National Oceanic and Atmospheric Administration

UNCW NC STATE UNIVERSITY UNIVERSITY OF SOUTH CAROLINA

CORMP

COASTAL OCEAN RESEARCH AND MONITORING PROGRAM

UNCW

- Since 1999, UNCW has conducted a sustained, long-term program of coastal ocean observations and research off North Carolina.

- Interdisciplinary research program includes physical oceanography, marine biology, chemical oceanography and marine geology.

UNCW NC STATE UNIVERSITY UNIVERSITY OF SOUTH CAROLINA

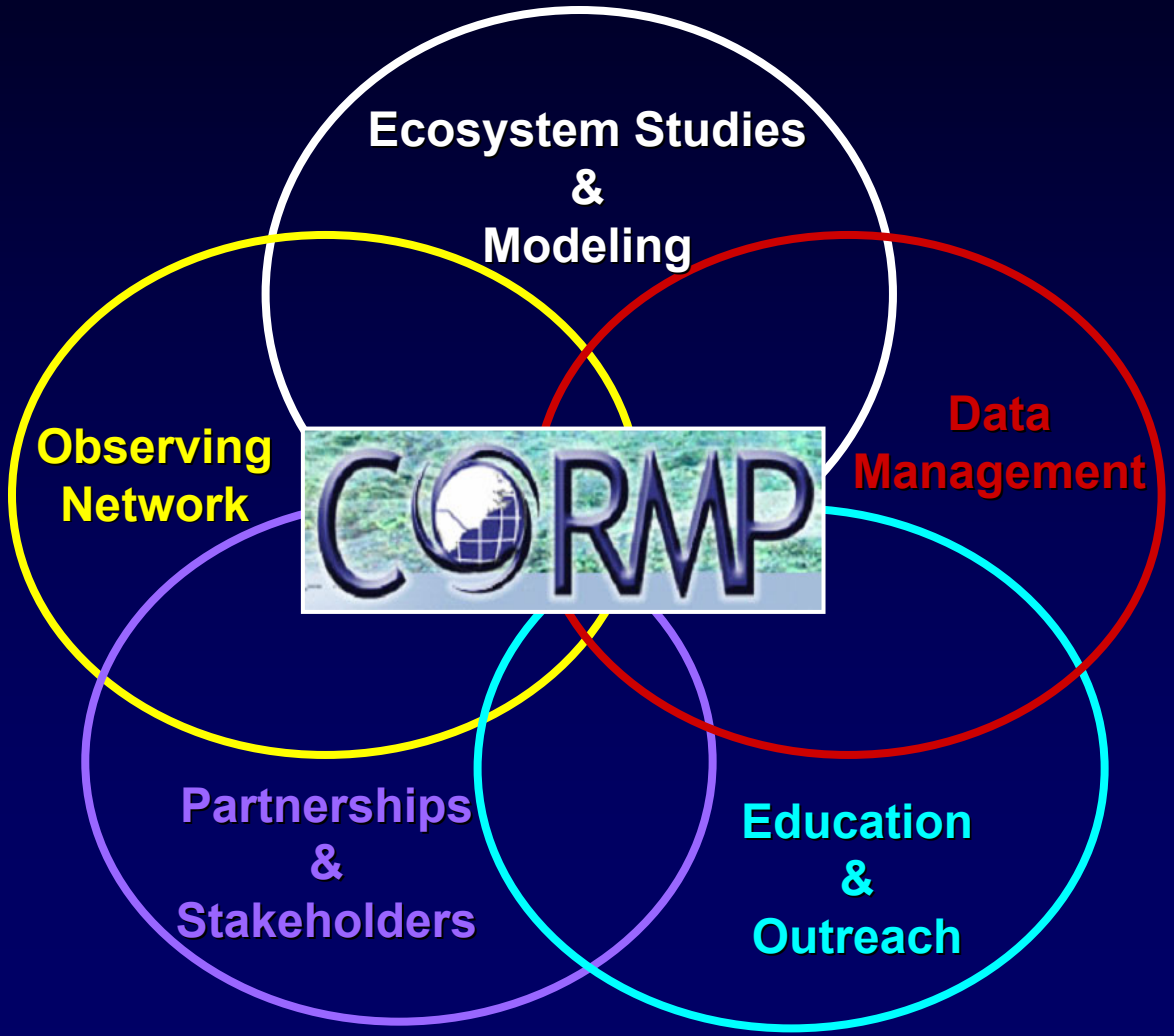
Cooperation & Communication

- CORMP is multi-institutional program based at UNCW in conjunction with partners at NC State & USC
- Additional partners and collaborators include:
  - National Data Buoy Center
  - National Weather Service
  - USMC Camp Lejeune
  - U.S. Army Corps of Engineers

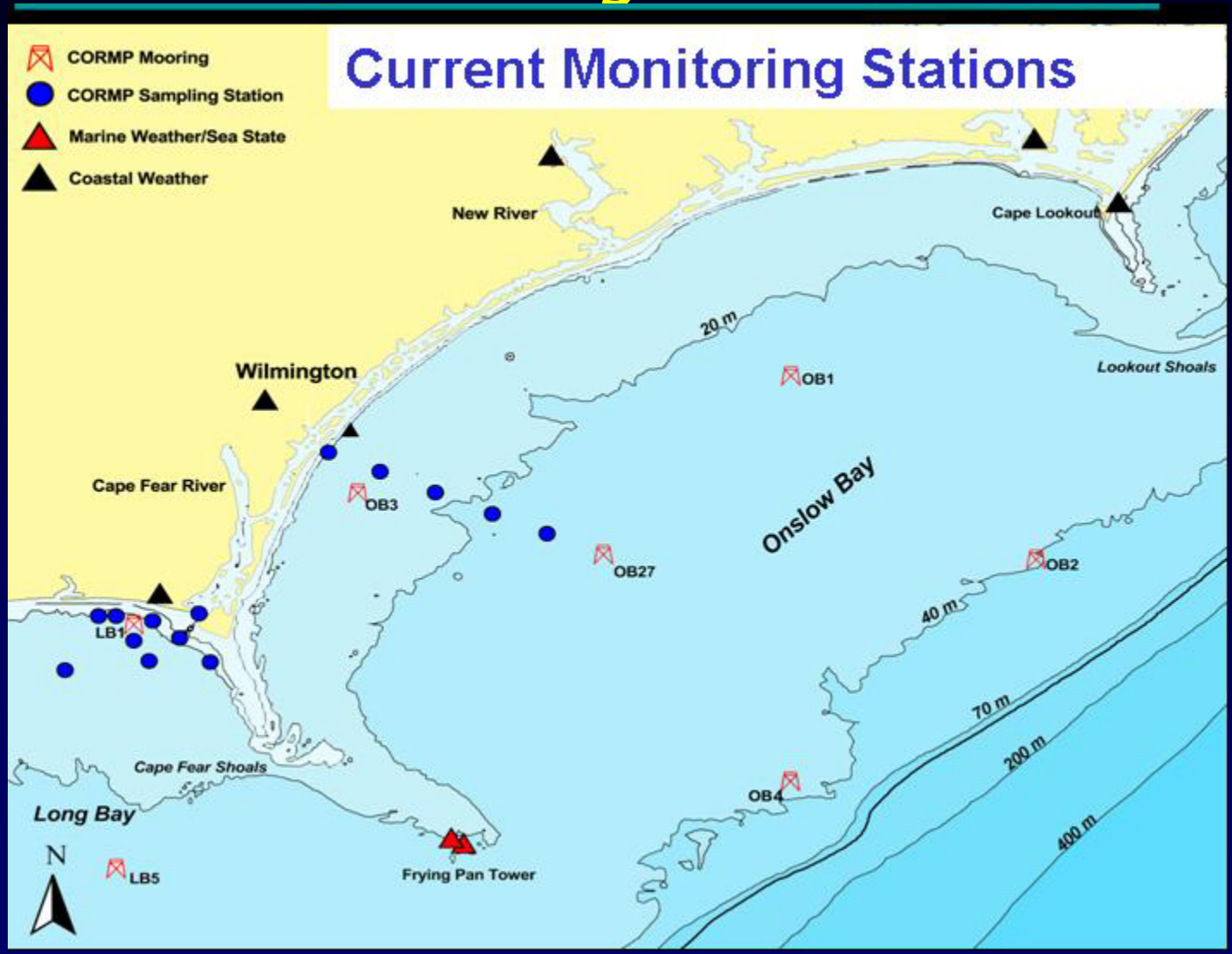
Mission

To provide an interdisciplinary science based framework that supports sound public policy leading to wise coastal use, sustainable fisheries and improved coastal ocean ecosystem health.

Program Components



Observing Network



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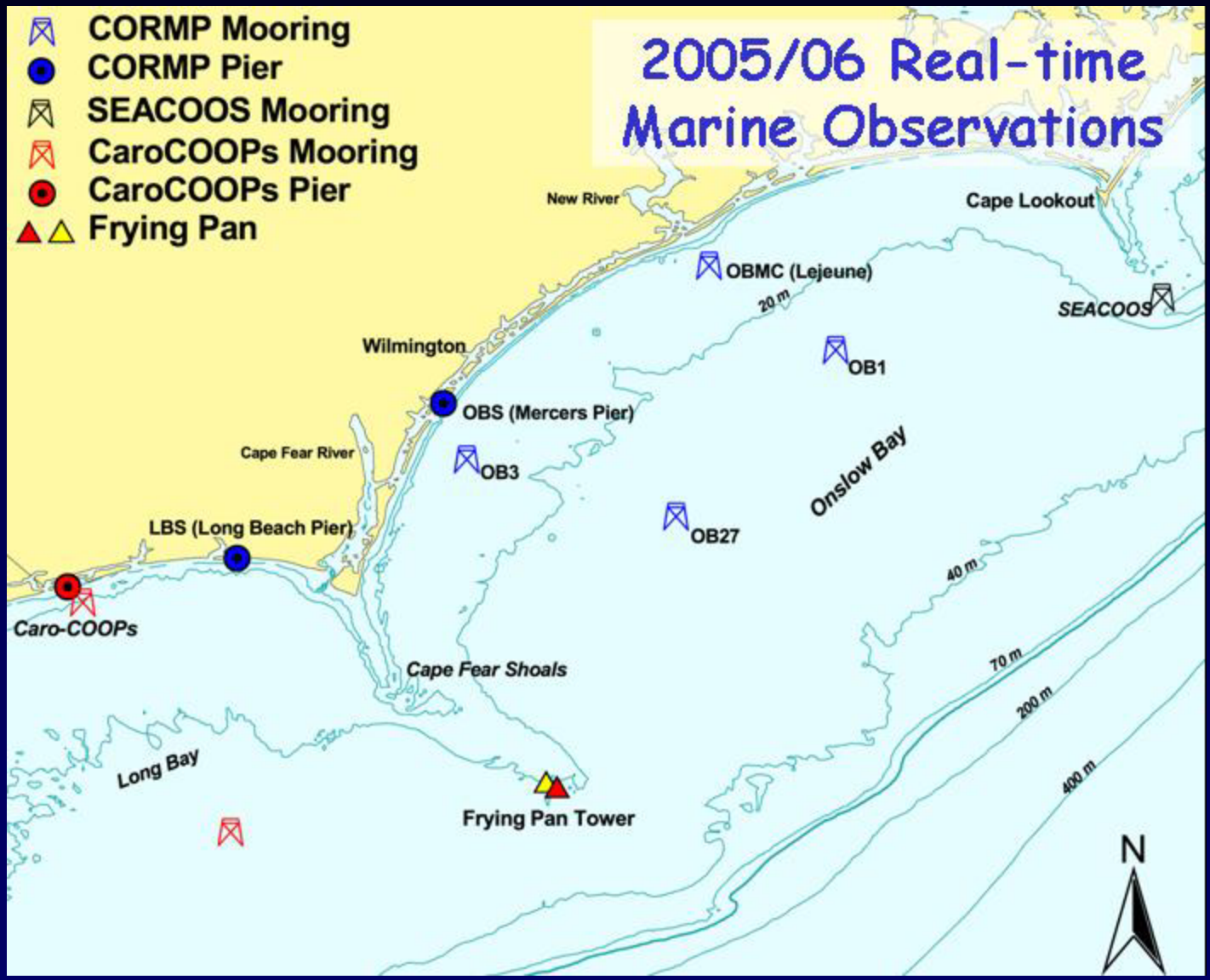

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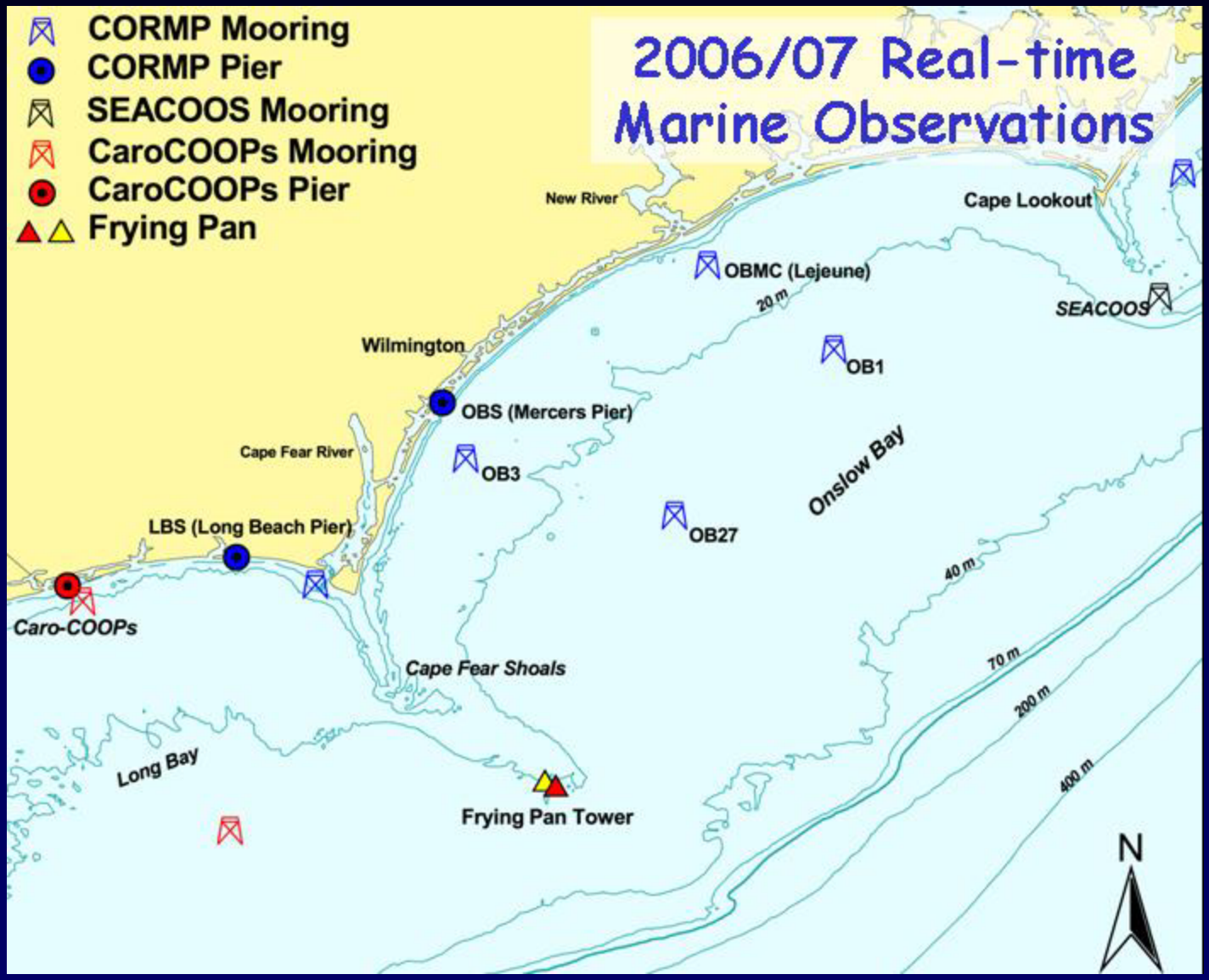


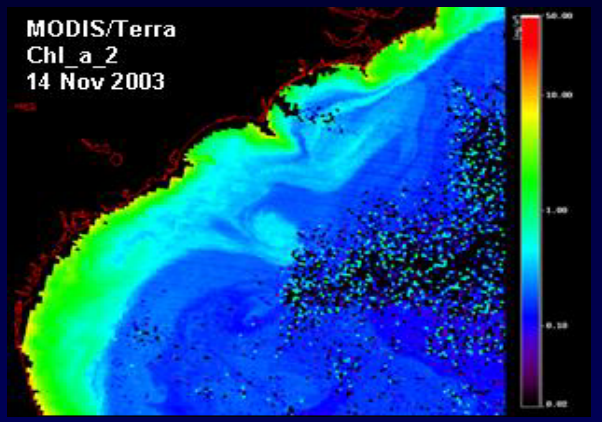
Research Interests Include…

- Collection on physical oceanographic data to improve understanding of storm impacts on the continental shelf and adjacent coastline

Hurricane Isabel 2003

Research Interests Include…

- Improvement of satellite derived ocean color and sea surface temperature imagery



Ocean Color Satellite Image

Research Interests Include…

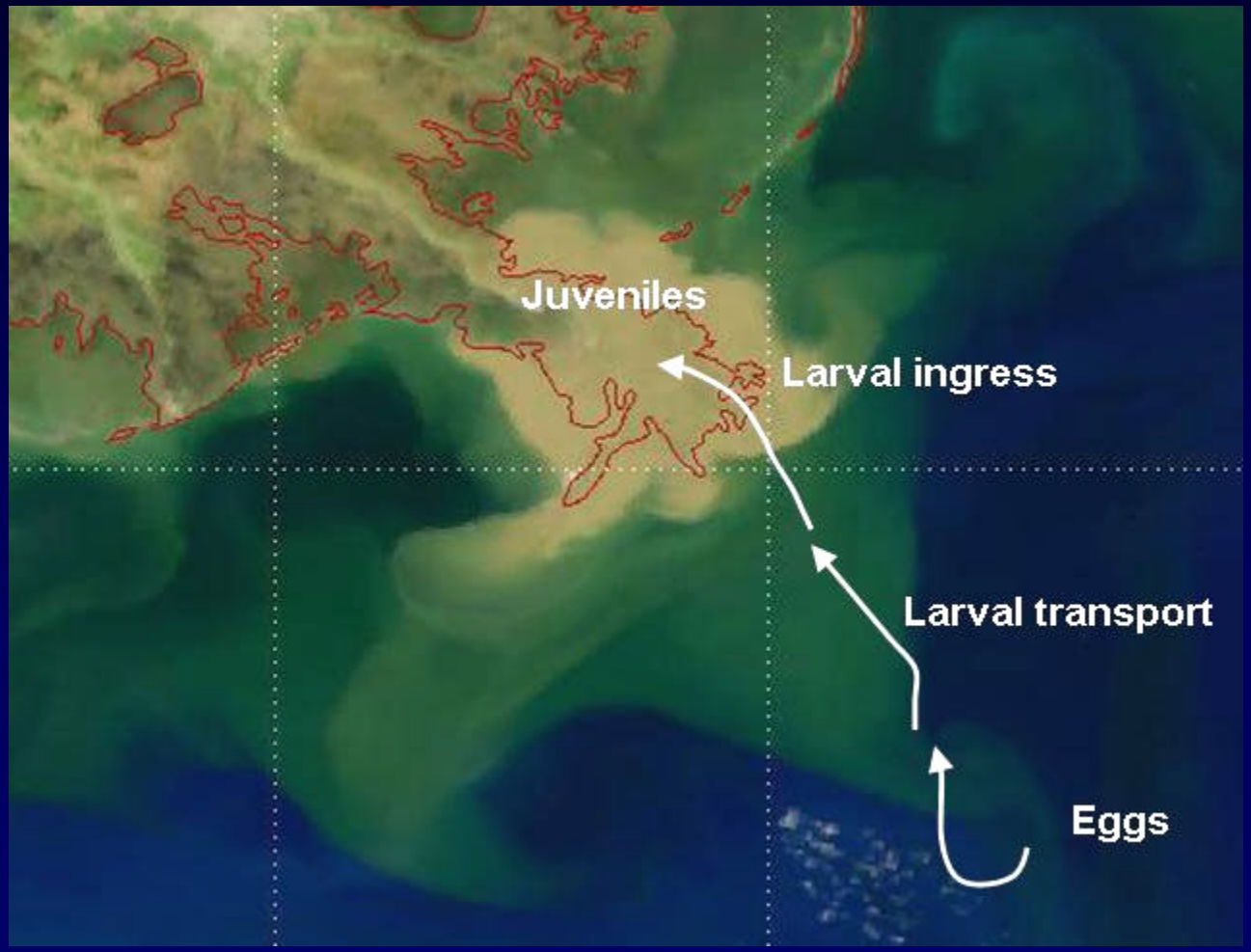
- Water quality studies of the Cape Fear River plume and it's impacts on fisheries ecosystem management

Cape Fear River Plume

Top N.C. Commercial Fisheries

		2001 Landings (million dollars)	Plume-impacted ?
($72,000,000)	1. Blue crab	32.0	****
	2. Shrimps	11.9	****
	3. Southern flounder	5.6	****
	4. Atlantic menhaden	4.6	****
	5. Summer flounder	4.4	****
	6. Atlantic croaker	3.1	****
	7. King mackerel	1.3	
	8. Swordfish	1.3	
	9. Spot	1.3	****
	10. Mullets	1.2	****
	11. Vermillion snapper	1.2	
	12. Bluefish	1.1	****
	13. Oysters	1.1	
	14. Seabasses	1.1	
	15. Weakfish	1.0	****

Effects of the CFR Plume on Fisheries Recruitment



Monitor the CFR plume & its effects on fisheries habitat quality

Also supported by:

Sea Grant
North Carolina

Educational Outreach

Graduate and Undergraduate Research Experiences

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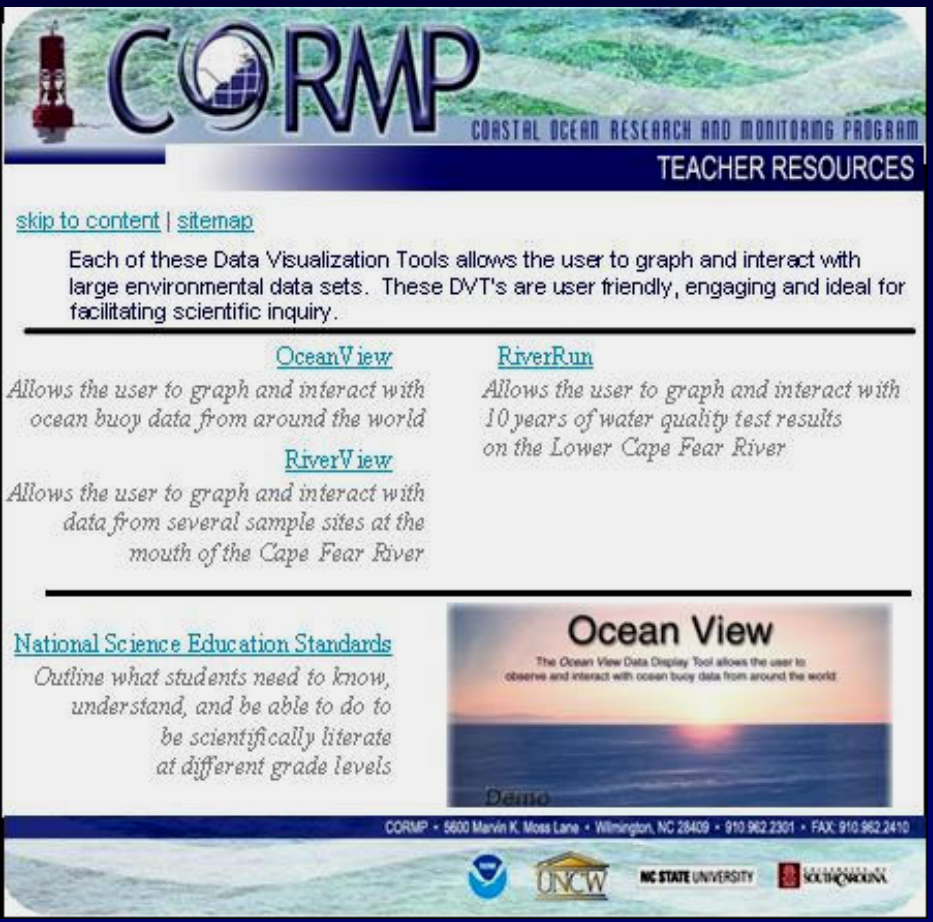
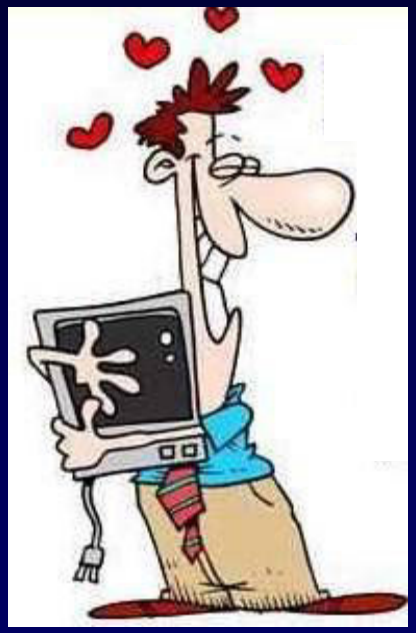
GK-12 Education, Web-based Learning, Teacher Workshops & Professional Development Opportunities



CORMP and Computing Technology



Challenges and Successes

Oceanographic Instruments

- Rapidly evolving technologies
- Sensitive electronics and harsh ocean environment – always a risk of equipment failure
- Non real-time data: 3-4 month collection of measurements via an internal data logger
- Real-time data: same as above, but added challenge of telemetry
- Together = LARGE amount of data to be cataloged and archived for use by wide variety of user groups

NDBC Style Marine Weather Buoy

NCSU Style Marine Weather Buoy

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Autonomous Underwater Glider Vehicle

PC-ADP in quad mooring

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Acoustic Doppler Current Profilers

Subsurface cage housing ADCP

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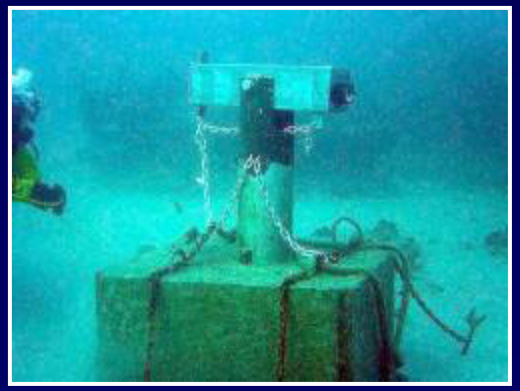
Underwater "Fish-Cam"

Fish-Cam view of hardbottom reef



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Conductivity & Temperature Logger

Divers installing a moored CT logger

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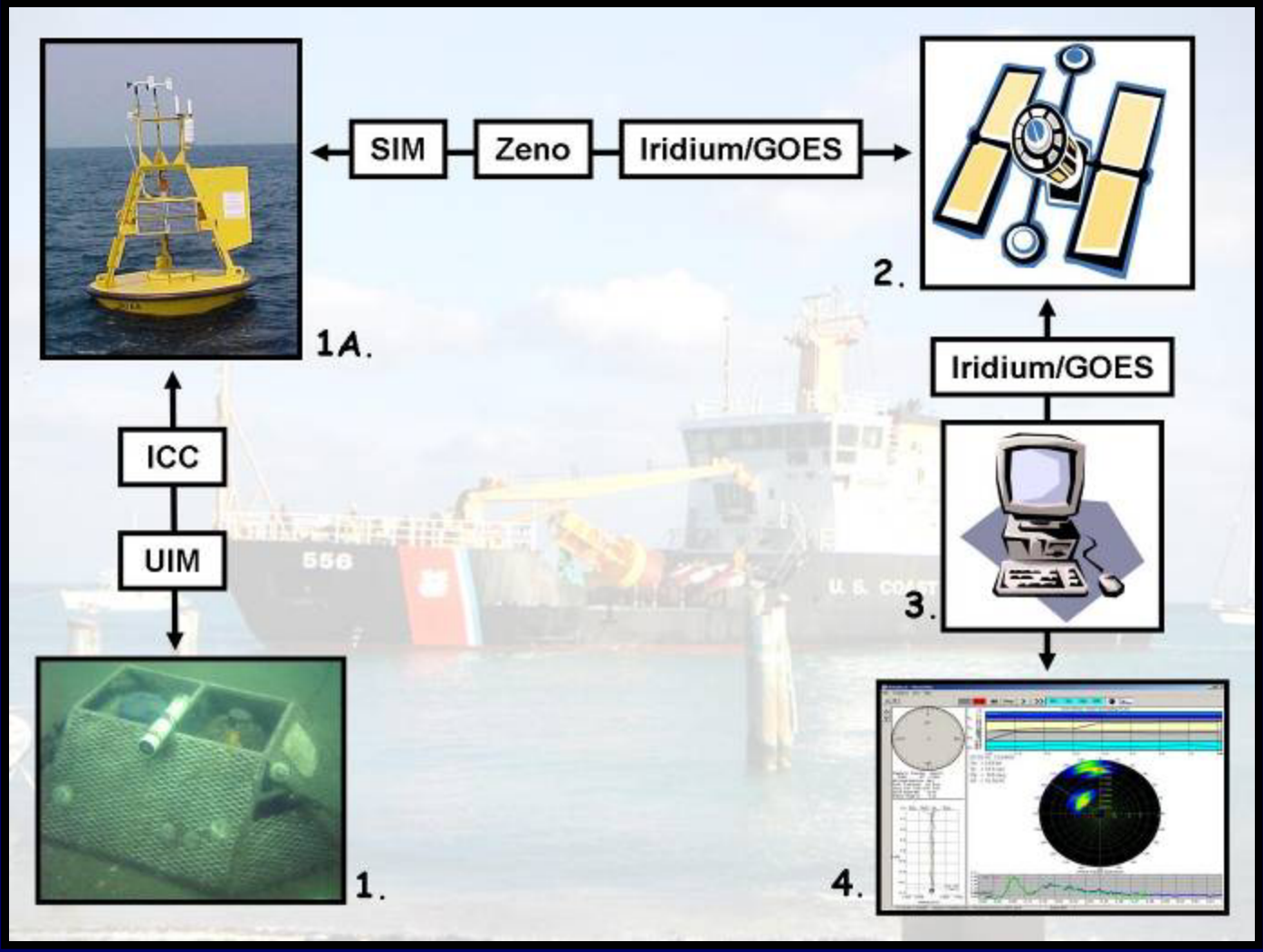
Self Contained Underwater Fluorescence Apparatus

SCUFA mounted on a cage mooring

Real-time Offshore Data Telemetry



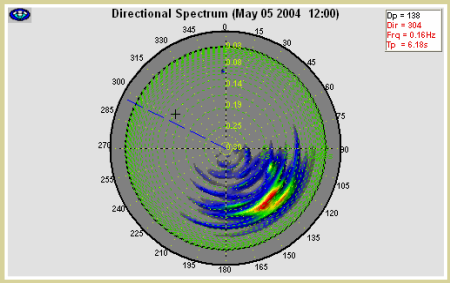
Real-time Pier Data Telemetry

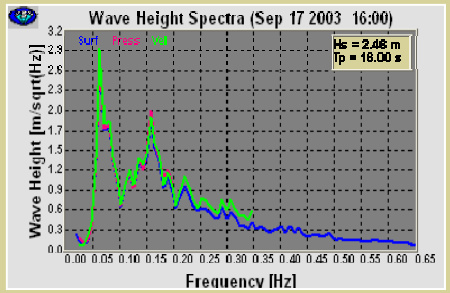
RF Antenna

RF Antenna

LCD Pierhouse Display

Computer
FTP to University

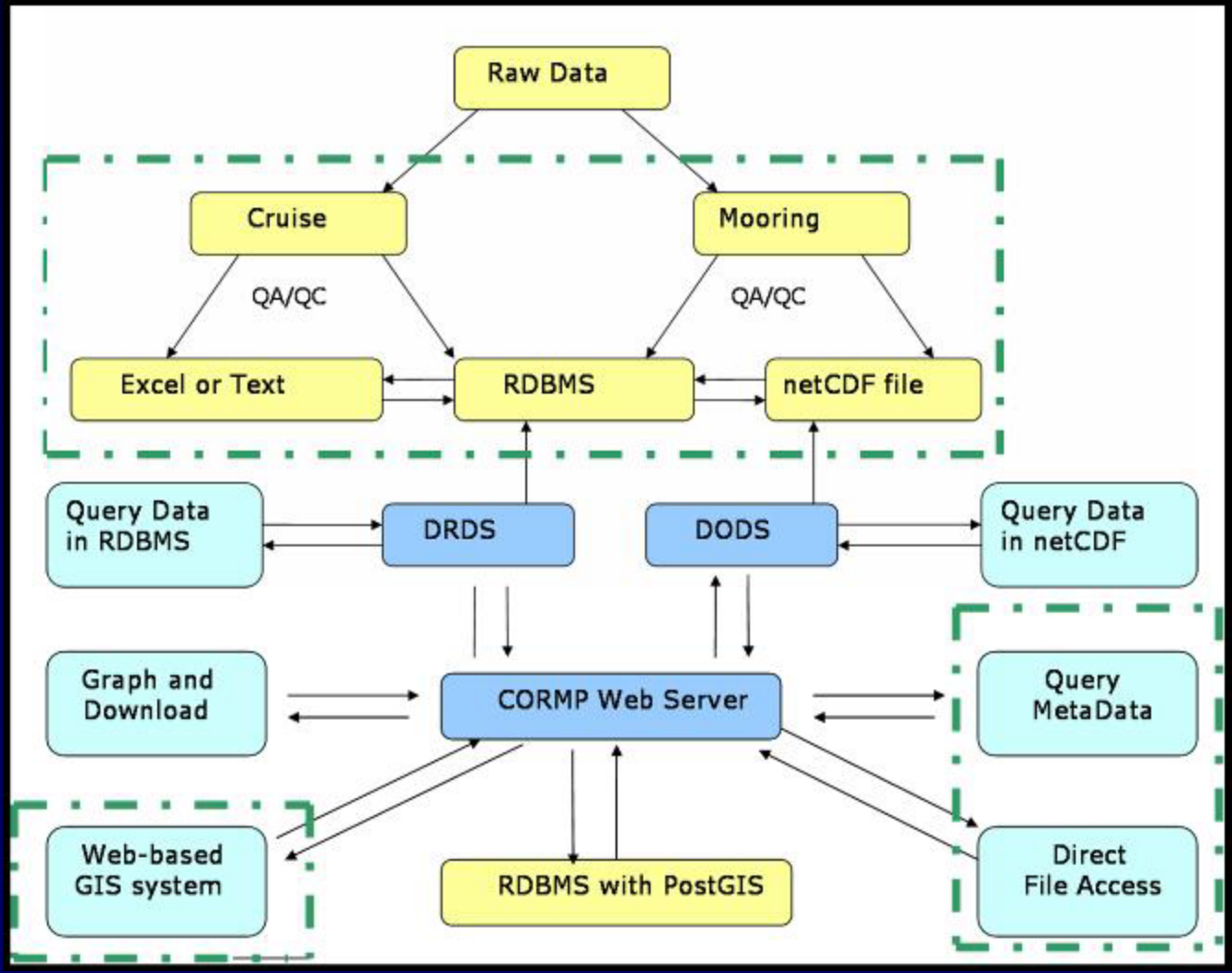




Sample Hourly Wave Data

ADCP to measure waves, currents, salinity and bottom temperature

Data Management Structure



Ongoing Challenges

- Timely QA/QC of all data
- Data backup and archival (ensuring redundancy)
- Dissemination of data to appropriate user groups
- Development of a user focused web interface
- Linux Support
- P/T Programming Assistance

Many thanks to ITSD…

- Michel Fougeres
- Steve Perry
- Kevin Violette
- Kim Kelly
- Information Technology Innovations Awards Committee
- All ITSD Staff!!

Questions…