LOOP CURRENT SYSTEM

Mariano Global Surface Velocity Analysis (MGSVA)
This series of Fisheries Oceanography surveys was conducted jointly with Dr. John Lamkin and his colleagues from the Southeast Fisheries Science Center.
AUGUST 2002 STATION LOCATIONS

DRIFTER 29572
8/9 - 8/31/2002

Drifter Speeds

- 124 cm/s
- 73 cm/s
- 39 cm/s

Longitude

Latitude
CONNECTIVITY WITH OTHER REGIONS OF THE WESTERN CARIBBEAN AND GULF OF MEXICO
CARIBBEAN CURRENT SYSTEM

Mariano Global Surface Velocity Analysis (MGSVA)
THE NEXT STEP – a statistical treatment of the GOOS drifter data
This drifter was deployed near Jamaica in October 1999. It took over three months to travel from 22 N to 83 W, the longitude of the Dry Tortugas.
This drifter was deployed in January 1999 in the Western Caribbean Sea. It took 20 days to go from 22 N to 83 W.
This drifter was deployed near 28 N, 55 W in September 1999. It went from 22 N to 83 W in 6 days.
This drifter took the 22 N to 83 W speed record, getting to the Tortugas in exactly 3 days, at a rate of 3.2 kts or 185 cm/s.
Connectivity of the region with VERY far upstream waters...
This drifter, deployed east of Morocco just south of the mouth of the Mediterranean Sea on October 7, 2004, took a year and a half to cross the Atlantic and grounded off Cozumel on March 24, 2006 during our cruise.
CONCLUSIONS

1. Coral reefs of the Florida Keys National Marine Sanctuary are physically connected by means of strong ocean currents to upstream waters of the Gulf of Mexico and Caribbean Sea.

2. Eddies and gyres appear to play an important role in establishing the time and length scales of the connectivity.

3. Regional interdisciplinary oceanographic surveys are an important tool for describing and understanding this variability.

4. Satellite-tracked surface drifters, as well as remote sensing and numerical model products, are necessary for detecting linkages between widely separated oceanic regions.

5. The physical connectivity between geographically separated spawning grounds may have an important influence on the degree of biological connectivity between larval populations.
Link between western bluefin tuna and ocean environmental conditions in the Gulf of Mexico

The objective of this work is to monitor the motion of the Loop Current and its associated rings using satellite observations (sea height, color, SST) to identify how the surface and subsurface ocean conditions relate to stock assessment.

*Catches in:*
- **Blue circles** = Loop Current
- **Grey triangles** = frontal
- **Red squares** = Cyclonic
- **White diamonds** = common waters

*Lead PIs:* Gustavo Goni (NOAA/AOML) and Guillermo Diaz (NOOA/NMFS)
NANCY FOSTER CRUISE     March 11-24, 2008
QUESTIONS?