**NOAA Ship Gordon Gunter**
**May 27-June 4**
**Mission Summary**

The NOAA Ship Gordon Gunter returned from an eight day cruise investigating the Deepwater Horizon spill event. The purpose of this cruise was to investigate subsurface dispersal of oil, with a focus on the possible use of acoustic methods (scientific echo sounders) to detect subsurface oil. In addition to acoustic measurements, this cruise employed water column profiling and direct sampling of water samples throughout the water column. The science team represented a collaboration between NOAA, the University of New Hampshire, the University of South Florida, the Monterey Bay Aquarium Research Institute, the U.S. Coast Guard (Environmental Strike Team) and EPA.

**Sampling and Initial Observations:**

- Over the course of the 8 day cruise, the data collected include
  - Over 900 nautical miles of acoustic survey data
  - 29 CTD profiles including measurements of colored dissolved organic matter (CDOM) and dissolved oxygen (DO)
  - Over 200 discrete water samples from CTD casts and AUV missions.
  - Six AUV missions (each 4-12 hours in duration)
  - Six plankton stations (multiple net tows at four stations).
  - Fourteen hours of plankton imaging tows by SIPPER (Shadowed Image Particle Profiling Evaluation Recorder)
- Increased colored dissolved organic matter (CDOM) and low dissolved oxygen (DO) were observed in some discrete sections of water column profiles. These results are consistent with those reported by other researchers. Water samples taken at these locations will be tested at independent laboratories.
- This is a complicated environment, and will take the best efforts of NOAA and its academic partners to unravel. Acoustic signatures consistent with natural seeps were detected within 5 nmi of the site. Acoustic, SIPPER, and direct sampling methods demonstrate that there is still a vibrant, diverse assemblage of zooplankton and fish larvae in the vicinity of the spill. The degree to which the ecosystem has been impacted by the spill is not yet known.

**Notes:**

The data from this cruise neither proves nor disproves the existence of subsurface plumes of oil. One area of increased CDOM and low DO observed during this cruise was at a location where apparent natural seeps were also observed. This may be misinterpreted as meaning that all reports of oil in the water column should be attributed to natural seeps. This conclusion is not supported by the data. The hypothesis that observed hydrocarbons in the water column originate from the spill needs to be verified through careful collection and analysis of water samples collected by all investigators.