

## **NOAA Ship *Thomas Jefferson***

**June 15-27**

### **Mission Summary**

NOAA Ship *Thomas Jefferson* departed Galveston, Texas on June 15 for its third research mission to study the Deepwater Horizon/BP oil spill's impact on the Gulf of Mexico.

The 13- day mission, which concluded on June 27, included three segments. The ship took baseline water samples in and around Flower Garden Banks National Marine Sanctuary. Baseline samples show conditions that existed in an area before any impacts from the spill have occurred. The ship then headed closer to shore, taking samples off the Louisiana, Alabama and Mississippi coastlines and concluded its mission with sampling in the area close to the wellhead.

The ship conducted acoustic and water sampling in the coastal zone, and then collected water and air samples in the vicinity of the Deepwater Horizon wellhead site. The ship also collected midwater acoustic data as close as 1000m from the wellhead to study the structure of the main plume of oil rising from the seafloor to the surface. Water samples collected from near the wellhead will be analyzed and that data will be combined with the data from other missions to add to our understanding of the presence and concentrations of oil below the water near the leaking wellhead.

Throughout the mission, the ship used a combination of measurement techniques. These included mid-water sonar scanning and in situ measurements of salinity, temperature, turbidity, fluorescence and dissolved oxygen. Discrete water samples were also collected. These water samples will be sent to the lab for further chemical analysis to determine levels of oil and dispersant in the water.

#### **Thomas Jefferson sampling to date:**

51 CDT casts (5-10 water samples per cast) – water samples will be tested for oil and dispersants

1,116 MVP casts (MVP- moving vessel profiler)

1,270 linear nautical miles of acoustic data collection

48 air samples

#### **Initial Observations:**

##### **Coastal Area Observations:**

There was no clear evidence of submerged oil entering or in the coastal zone during the ship's reconnaissance work there. However, because the coastal zone is a very complex area, the presence or absence of submerged oil cannot be determined for certain based on the information analyzed to date. Water samples from the coastal zone are being sent to the lab for further chemical analysis to test for the presence of both oil and dispersants. Information collected on this mission will help refine plans for future missions in this area, including the addition of other instruments to help distinguish between normal areas of high fluorescence and potential oil.

**Wellhead observations:**

The acoustic data from the rising plume at the wellhead suggests that the large volume of oil rising from the wellhead may be creating a local disruption of the normal distribution of marine life in the water column, as the normal water currents move past the rising oil. This disturbance is like one you would see in water passing a piling of a pier or stick in the water, creating a discernible "wake" downstream of the wellhead. This disturbance is visible up to 3 miles from the wellhead. Seeing this wake helps give a more clear indication of where water currents moving by the plume are going, in a way that may be able to help guide researchers to the water masses most likely affected by the oil. This could help streamline future monitoring efforts and allow more detailed study of any oil or other residue left in the water by the rising oil plume.