

MEETING: SETAC Gulf Oil Spill Focused Topic Meeting, Pensacola, FL, 26-28 April 2011

TITLE: Environmental Conditions in northern Gulf of Mexico Estuaries: before and after the BP Oil Spill.

PRESENTING AUTHOR: Virginia Engle, engle.virginia@epa.gov, 850-934-9354

AUTHORS: Virginia Engle, Linda Harwell, Lisa Smith
U.S. Environmental Protection Agency, ORD/NHEERL/GED, Gulf Breeze, FL

When conducting an environmental assessment to determine the ecological impact of the BP Oil Spill, baseline environmental data is essential to establish ecosystem condition prior to the incident. EPA's National Coastal Assessment (NCA) monitored the ecological condition of estuaries in the Gulf of Mexico (GOM) annually from 2000 to 2006. The environmental data collected through this program provided an historical baseline for water quality, sediment quality and biological condition in northern GOM estuaries, prior to the BP Oil Spill in 2010. This assessment is based on indicators of nutrients, chlorophyll, dissolved oxygen, water clarity, sediment chemistry and toxicity, total organic carbon, benthic macroinvertebrate communities, and fish tissue contaminants. Immediately following the Deepwater Horizon explosion, EPA mobilized teams in Regions 4 and 6 to collect samples in estuaries before oil or oil-related contaminants were transported into nearshore environments. This oil spill response monitoring effort provided a recent baseline for water and sediment chemistry in northern GOM estuaries prior to exposure to contaminants from the BP Oil Spill. EPA continued monitoring efforts through fall 2010 to determine exposure and potential ecosystem effects from the BP Oil Spill. We present a summary of baseline ecological conditions in northern GOM estuaries and comparisons of sediment chemistry data from historical and recent baseline surveys and post-impact monitoring. We also demonstrate the applicability of the data to compare conditions at multiple spatial scales (e.g., region, state, site).

RELEVANCY: This presentation provides a summary of ecological condition and sediment chemistry data for northern Gulf of Mexico estuaries that were exposed to oil and oil-related contaminants from the BP Oil Spill. This presentation is directly applicable to the Ecosystem Effects track, Ecological Effects of Oil Spills, Risk and Damage Assessment.