From the BOEM Lophelia II Project to NRDA: Corals as Sentinels of Anthropogenic Impact to the Deep Ocean

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During the spring and summer of 2010 approximately 800 million liters of oil was released at a depth of 1,500m from the Deepwater Horizon oil spill. About 2.9 million liters of dispersant was applied at depth and another 3.8 million liters was applied at the sea surface. Hydrocarbons and/or dispersants reached the deep-sea floor via a plume originating from the source and in the form of oil-containing marine snow raining down from the surface. At the time, our group was conducting a study of deep living corals in the GoM for BOEM and interfaced that project with the Natural Resource Damage Assessment (NRDA) program to assess damage to deep sea ecosystems from the spill. After the discovery of the first deep coral community impacted by the spill during a BOEM/NOAA OER cruise, we led 5 additional cruises over the next 18 months to conduct the initial work. This presentation will review the development of the techniques used to discover new deep-water coral communities in the area of the spill, how we identified and then quantified damage to individual corals and communities using ROVS and image-based analyses, and why planar octocorals have proven to be the best indicator taxa for impact to deep sea communities.   Results from ongoing studies that are leading to an improved understanding of the biology of deep sea octocorals and their commensal ophiuroids, and our most recent data on the current state of the deep-sea coral ecosystems impacted by the spill will be presented as well.