The first leg of the 2013 Northeast U.S. Canyons Expedition explored diverse habitats and geological settings of the deep canyons region off the Northeast United States. The remotely operated vehicle *Deep Discoverer* (ROV D2) completed 16 dives to depths ranging from 500 to 2,200 meters. D2 surveyed four major submarine canyons, including Block, Alvin, Atlantis, and Hydrographer; one unnamed minor canyon; three priority sites considered to be geohazard areas; and three potential (and confirmed) hydrocarbon seep areas.

Exploration of the canyons revealed that they are likely more dynamic, both geologically and biologically, than previously thought and that each canyon may have its own signature geological and biological character over the depths examined. Rock morphology and size differed widely among many dives. Initial impressions of this exploration also reveal these canyons to be hotspots for biodiversity, hosting more than 25 species of corals; more than seven species of sponges; more than 30 species of fishes; and dozens of crustacean, cephalopod, and echinoderm species. Notable were the numerous faunal range extensions, including several species of crabs and corals.

While exploration of this deep-water canyon system revealed that the community structure of benthic fauna was related to both depth and substrate type, wall failures and breaches were recognized as having a high potential for yielding unstable habitat for the establishment of hard-bottom communities.

The ROV D2 visited three sites prioritized by the U.S. Geological Survey to examine the geological formation, character, and potential instability of the seafloor to estimate relative timing of landslide events and determine whether these areas pose a hazard to tsunami generation. Information gathered during ROV dives will be used to test hypotheses about the evolution of the features in the region and the potential for marine geological hazards.

D2 also surveyed three water column anomalies (bubble streams rising from the seafloor) to determine if methane and associated chemosynthetic communities were present. These exploratory dives confirmed On two of the dives, D2 imaged [methane bubbling directly through sediments on the seafloor](http://oceanexplorer.noaa.gov/okeanos/explorations/ex1304/logs/july12/media/hydrate2.html) and also methane hydrates, confirming that the processes that lock methane into ice occur in canyon areas in this region of the Atlantic.