*Please use this as a template for documenting your recommendations for high-priority dive targets. Be sure to include a rationale for the dive as well as specific protocols (if applicable), and any known previous work or potential hazards at the site. Please include only generalized location information for any marine archaeology sites.*

*The form also includes fields for mapping targets and CTD cast locations.*

*Please send the completed form to* [*Kelley.Elliott@noaa.gov*](mailto:Kelley.Elliott@noaa.gov) *and Jamie Austin (*[*Jamie@utig.ig.utexas.edu*](mailto:Jamie@utig.ig.utexas.edu)*)*

**Site Name:** Keathley Canyon

**Approximate Location:** 26.54227800 -93.49738200 2202.0m

**Dive Date (local):** DATE (YYYY/MM/DD)

**Brief Explanation of Exploration Objectives and Rationale for the Desired Dive Track:**

Shelf slope canyons in the Gulf of Mexico may have formed not only from erosion processes during previous lowstands in sea level, but may also be forming now by the ongoing dissolution of salt diapirs below the seabed. In shallower areas of the Gulf, and at smaller spatial scales, we know this to be true. The East Flower Garden Brine Seep is the best known example, but its effect is only over a scale of 100s of meters. In the deeper Gulf, principally the Gulf’s NW continental slope, salt diapirism has dominated the formation of the complex topography of the seafloor. Where the salt is exposed to overlying seawater, dissolution is common, as are brine flows. The scale of these flows may be enhanced at the margins of large diaper formations, such as those surrounding Keathley Canyon. Discovering dissolution and brine flows operating at a scale that results in the formation of canyons between salt deposits would be unprecedented.

Keathley Canyon is a narrow, steep-walled canyon south of the Flower Garden Banks on the continental slope. The canyon is suspected to harbor biological assemblages similar to those found in canyons explored during the 2012 and 2013 cruises by the *Okeanos Explorer* in the Gulf of Mexico and Northeast U.S respectively. However, differences in local productivity and habitat could lead to very different levels of biological development. In addition, the proximity of salt, brine, and hydrocarbon seeps in Keathley Canyon could produce exciting discoveries of productive oases of chemosynthetic communities, which could supplement carbon budgets for hard bottom assemblages in the vicinity.

In order to explore these physical and biological processes in Keathley Canyon, sites have been proposed for ROV exploration at steep, narrow locations in the canyon that transect canyon walls and floor to explore for brine flows and benthic hardbottom habitats.

**Has previous work been conducted here? Are there potential hazards in the area?**

No known visual explorations have occurred within Keathley Canyon. In 2012 *Okeanos Explorer* visited a single site at the entrance to Keathley Canyon and observed deepwater soft bottom habitats. In the past, part of the area was used for the ship-based burning of chemical waists. No physical dumping of waist or debris occurred. Documentation of this was provided during the 2012 mission to the area.

**ROV Track Waypoints Table:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *DESIRED WAYPOINTS TO EXPLORE -*  *(COMPLETED BY SHORE-SIDE SCIENTIST)*  *(not including launch)* | | | | *ACTUAL WAYPOINTS TO EXPLORE-*  *(COMPLETED BY SHIPBOARD EXPEDITION LEADER)* | | | |
| **WAYPOINT**  **KEATHLEY CANYON** | **LATITUDE** | **LONGITUDE** | **APPROX DEPTH** | **WAYPOINT NAME/SEQUENCE** | **LATITUDE** | **LONGITUDE** | **APPROX**  **DEPTH** |
| **KC 1** |  |  |  |  |  |  |  |
| Launch |  |  |  | Launch |  |  |  |
| WP1 | 26.73120600 | -93.52261200 | 1540.0 | WP1 |  |  |  |
| WP2 | 26.73126400 | -93.51232200 | 1654.0 | WP2 |  |  |  |
| Recovery |  |  |  | Recovery |  |  |  |
| **KC 2** |  |  |  |  |  |  |  |
| Launch |  |  |  | Launch |  |  |  |
| WP1 | 26.58798900 | -93.51002600 | 1552.0 | WP1 |  |  |  |
| WP2 | 26.58661900 | -93.48488200 | 1799.0 | WP2 |  |  |  |
| Recovery |  |  |  | Recovery |  |  |  |
| **KC 3** |  |  |  |  |  |  |  |
| Launch |  |  |  | Launch |  |  |  |
| WP1 | 26.54713500 | -93.50434800 | 2094.0 | WP1 |  |  |  |
| WP2 | 26.54227800 | -93.49738200 | 2202.0 | WP2 |  |  |  |
| Recovery |  |  |  | Recovery |  |  |  |
| **KC 4** |  |  |  |  |  |  |  |
| Launch |  |  |  | Launch |  |  |  |
| WP1 | 26.51460100 | -93.49780300 | 1900.0 | WP1 |  |  |  |
| WP2 | 26.51589300 | -93.48832800 | 2000.0 | WP2 |  |  |  |
| Recovery |  |  |  | Recovery |  |  |  |

**ANCILLARY INFORMATION:**

**mapping and CTD operations REQUEST / Recommended operations in the target area prior to or after ROV dive**

*Please include requests for in situ sensors (LSS, DO, ORP) to be added to the CTD cast here, and specifics on the type of mapping operation requested (multibeam, subbottom, single beam).*

Multibeam mapping request for area between Flower Garden Banks and Keathley Canyon:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **LATITUDE** | **LONGITUDE** | **APPROX DEPTH** |
| **CTD CASTS** | | | |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| **MULTIBEAM BOUNDING COORDINATES** | | | |
| North | 27.75823027 | -93.91836405 | 316.6 |
| East | 27.75629394 | -93.23042716 | 238.6 |
| South | 26.99867373 | -93.24565573 | 1248.7 |
| West | 26.99486660 | -93.73487278 | 1230.7 |