**The Sub-Seabottom Biosphere**

*Instructor Guide*

**Introduction:**

**Course:** This activity is designed for introduction to marine science.

**Time:** ~1 hour in-class, ~3 hour take-home assignment (flexible)

**Materials:** Activity documents provided, online video

**Student preparation:** general understanding of marine science

**Summary:** This activity introduces students to understanding life and how it is studied in the deep ocean. It also familiarizes the students with scientific papers and reading abstracts.

**Purpose:**

1. Investigate life in the deep ocean and how it is studied.
2. Know how to read abstracts from scientific papers.

**Resources:**

The Sub-Seabottom Biosphere (with 3 abstracts)

Website links: C-DEBI introduction video:

  https://www.youtube.com/watch?v=6Hv_JF7_ECQ#t=168

The Sub-Seabottom Biosphere PPT presentation

**Activity Outline**

1. Assign students the “Sub-Seabottom Biosphere” handout as a take-home assignment.
   a. Students will watch the online video on C-DEBI. Then students will read three abstracts and answer questions that guide them through the abstracts.
   b. Instructor selects one student for each abstract to lead a discussion in-class. Selection can be based on quality of answer to questions.
2. In class, instructor gives background information to life in the sub-seabottom biosphere, using provided PPT as needed (~30 min)
3. Instructor has designated student leader for abstract #1 lead discussion (10 min)
   a. Student summarizes his/her understanding of the abstract
   b. Student leader asks questions to peers from the assignment.
   c. Class discusses the abstract.
4. Repeat with abstract #2 and #3 (2 x 10 min = ~20 mins)

Note: Depending on time and preference, instructor may assign students only 1 or 2 of the 3 abstracts. Alternatively, abstracts can be assigned accordingly to be read in pairs in class.

**TOOLKIT CREDITS:**

Developed by Esat Atikkan, (Montgomery College, MD) with support by the rest of the C-DEBI Collaborative Toolkit Team.

**WEBSITE:**

http://www.coexploration.org/C-DEBI/toolkits_biology.html