THE College OF EXPLORATION

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Annual Newsletter **November 1999**

Partners with Bermuda Biological Station for Research

The College of Exploration (TCOE) continues to focus on the use of Web technology to foster exploration of our inner and outer worlds, our relationships and organizations, and our relationships and responsibilities to the environment. Over the last couple years, TCOE has increased its involvement in programs related to marine science and the health of the ocean. A major partner in this area is the Bermuda Biological Station for Research (BBSR). TCOE has worked on two main projects during the past year with BBSR: the Coral camera project and Classroom BATS. TCOE has also provided proposal writing support, web development, and other multimedia project development.

Calendar of Upcoming Events

NOAA Sea Grant Harmful Algal Blooms Online Workshop

NIEHS and IOC Conference on Ocean and Human Health Workshop

Ocean Data Teachers Workshop

Ocean and Human Health Learning programming

TCOE Develops Workshops with USC's Sea Grant Program

TCOE has partnered with NOAA University of Southern California's Sea Grant Program to produce online workshops for the science and education communities. These seminars focus on timely environmental issues. TCOE members co-presented the El Niño workshop in March1998 to 75 educators and scientists.

Harmful Algal Blooms Online Workshop Set for November

This year TCOE is working with USC Sea Grant to develop a three-phased online learning program related to West Coast harmful algal blooms (HABs).

USC Sea Grant, in cooperation with TCOE, will host an online public workshop that will focus on HABs in the pacific region. The workshop will take place entirely on the web at TCOE's virtual campus.

This unique public workshop will include presentations by prominent HAB experts, discussion sessions, chat rooms, and education and professional resource materials.

http://www.coexploration.org

http://www.coexploration.org/habs

Teachers Participate in Advisory Workshop at BBSR to Create Internet Curriculum about Coral Reefs

TCOE coordinated a teacher advisory group for the coral cam project and arranged for the group to participate in a weeklong workshop at the station from June 17-23, 1999.

Seven teachers from a variety of schools in the United States, Bermuda, and England gathered at BBSR to develop online curriculum. The workshop participants met during their weeklong stay at BBSR to review and modify the current site. They also created lesson plans to compliment the web site for use in science classrooms around the world. The educators will also form the core advisory group and help design a web-based online workshop about coral reefs that will be offered to teachers within the next year.

The group participants were Tina Bishop and Peter Tuddenham from the College of Exploration, Amy Pearson from Bancroft School in Massachusetts, Pat Pierce of Myrtle Beach Intermediate School in South Carolina, Hilda Taylor of Leckie Elementary School in Washington, DC, Gail Swenson of Shrewsbury High School in Massachusetts, Cheryl Schroeder of the University of Rhode Island, Cesare Filice of Mt. St. Agnes Academy in Bermuda, and Lyndsay Chell of Stoke Damerel Community College in Plymouth, UK..

Coral Camera Advisory Group on the steps of Hanson Hall, Bermuda Biological Station for Research, June 1999.

"The first step to conservation is education," commented one workshop participant. "We've really been inspired by the natural beauty of the island and look forward to sharing it with our students and students around the world."

The group will continue to elaborate their discussions by meeting virtually online. The teachers are also working on establishing links with aquariums that would feature the Coral Cam site as an exhibition.

Web Broadcast for Ocean and Human Health Symposium

On May 1, 1999, TCOE conducted a live Web broadcast of the ocean and human health symposium, which was held at BBSR. People who were unable to attend the conference in Bermuda could log on and watch live video on their computers around the world. BBSR hopes to webcast all of our lectures in the future.

The symposium publicized BBSR's recently formed International Center for Ocean and Human Health, an organization that examines the effects the ocean has on human health. The seven international science experts gave presentations about resources found in the ocean that are valuable for human health as well as highlighting the detrimental health effects of ocean pollution.

Ocean Day 98 Videoconferences

TCOE worked with BBSR to install and implement a videoconferencing unit at the Station. As a first videoconferencing effort, TCOE connected Bermuda school children with children in the UK. Children from an island elementary school came to the station and interacted with students who were at the Southampton Oceanographic Centre in England. In addition, the Bermuda children were linked with students at Twynham School in Dorset England. They enjoyed meeting each other and found it interesting to learn about their common interests.

Classroom BATS and Florida International University Expand Science Curriculum Available for Students Worldwide

TCOE is working with BBSR and the Florida International University on the Classroom BATS distance learning program for prospective and current science teachers in grades 6-12.

Classroom BATS is a NSF-funded project designed to help educators effectively use the web-based ocean resources of the Bermuda Atlantic Time-series Study (BATS) in their curriculum development and teaching.

The goal of Classroom BATS is to create an online learning environment that allows science teachers to use real ocean data to conduct inquiry-based learning in their grade 6-12 classrooms. The lesson plans created by Classroom BATS participants will be shared with teachers everywhere.

Classroom BATS provides an on-line learning environment in which teachers and students can practice science in authentic and engaging ways. It provides ready electronic access to the stream of oceanographic data collected and analyzed by BATS scientists, thus allowing learners to become participants in the scientific community that uses the BATS data in their research.

Dr. David Malmquist and Dr. Debbie Steinberg are the BBSR scientists who created and are implementing the oceanography curriculum related to the BATS data set. These scientists are available online to respond to FIU students' questions. Dr. Luis Martinez-Perez is the Florida International University faculty member who coordinates the program for FIU. The College of Exploration runs the virtual campus.

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www.coexploration.org/bbsr/classroombats

Presidential Technology Initiative for Department of Defense Dependents Schools

From 1997 through 1998 The College of Exploration worked closely with Presidential Technology Initiative (PTI) staff at Department of Defense Dependents Schools to provide an online learning space for teachers and administrators in PTI. TCOE created an online environment in which PTI participants, DoDEA staff, and software providers could exchange ideas, demonstrate project models, and clarify software and curriculum issues.

The Presidential Technology Initiative was funded by the Department of Defense Education Activity (DoDEA) to develop effective courseware in critical need areas in the K-12 environment. It was established in response to the President's challenge, (January 1996) to the nation to develop effective courseware in all subject areas and to provide every teacher with the professional development they need to help students use and learn through technology. The goal of the PTI project was to develop and implement effective strategies for curriculum and technology integration.

NASA-JPL Online Teacher Workshop

http://www.coexploration.org/howsthewater

Water and the Solar System Theme

TCOE will work with NASA-JPL to produce an online workshop for teachers and informal educators about Water and the Solar System. This workshop will be offered to approximately 200 science educators nationwide in November 1999. The workshop will highlight comparative planetology. Scientific experts will give presentations online about water in relationship to Moon, Mars, Earth, and Europa. They will be available online to answer questions and engage in dialogue with the educators.

Coral Cam Captures Underwater Data for BBSR

TCOE is working with BBSR through a grant from the Richard and Rhoda Goldman Fund to develop Web site and curriculum materials about Bermuda's coral reefs. The Web site is located at *www.coexploration.org/bbsr/coral.* The site will soon feature a "Coral Cam" which will continuously capture underwater video at Bermuda's North Rock, a stunning coral reef environment, and broadcast live on the internet.

The educational Web resources include a colorful photo database of fish, coral, and plants of Bermuda's reefs, information about environmental issues, lesson plans for teachers, and opportunities to interact with oceanographers and marine biologists.

The purpose of this Web site is to increase understanding and appreciation of the complex and fragile coral reef ecosystem. Implementation of science education programs in grades 6-12 that include study of coral reefs is an important step in achieving widespread knowledge about coral reefs needed for their protection.

Frederick Community College

TCOE is helping Frederick Community College develop a virtual campus for its recently awarded grant from FIPSI of the US Department of Education. This online environment will be the main location of a degree completion center. The center will serve residents of the region who wish to complete a degree, but do not have a nearby institution of higher education.

Online Theology Course

During the summer of 1999, TCOE developed an online course for the Theology 109 course at Allentown College, PA. The online course encouraged dialogue about issues of spirituality and faith.

Global Heartbeat Program

A new venture proposed with BBSR and the Plymouth Environmental Research Centre in the UK is the Global Heartbeat Program. This program is a hands-on environmental education program, involving schools, aquariums, and research scientists working together to assess the health of the ocean through monitoring the heartbeat of crabs.

Students will monitor the crabs and share heartbeat data on the Web. A pilot program is planned for 2000 linking schools, aquariums and scientists in the UK, USA and Bermuda

This project is an educational outreach program building on the Rapid Assessment of Marine Pollution (RAMP) techniques developed by University of Plymouth (UK) scientists. Students will have the opportunity to learn about biomarkers of pollution, to participate in an important research project, and to collaborate online with scientists and other students. Global Heartbeat will serve as an early warning system for ecological degradation

RAMP Workshop in Costa Rica

TCOE principals attended the RAMP workshop at the University of Costa Rica in late September 1999. This was a training workshop for scientists from Central America, South America and the Caribbean. Presentations and materials are being readied for a web site that supports distance learning about these procedures, techniques and related issues.

Members of the TCOE Team:

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