



The Curriculum Research & Development Group

1776 University Avenue Honolulu, HI 96822
Phone: (800) 799-8111 (toll-free); (808) 956-4969
FAX: (808) 956-6730
E-mail: crdg@hawaii.edu
Website: <http://www.hawaii.edu/crdg/>

The Fluid Earth (FE) and The Living Ocean (LO) exploratory texts constitute an award-winning, multi-disciplinary inquiry science program for grades 9-12 that teaches basic concepts of science through laboratory units and field investigations into the marine environment. Instructional strategies and materials have been thoroughly tested by teachers in most of the coastal regions of the country. Program content is drawn from biology, physics, chemistry, geology, ecology, and ocean technology. Standard laboratory equipment and recycled materials are used for science investigations.

The Fluid Earth and The Living Ocean (FELO) program is an inquiry science program for grades 9–12 that teaches basic concepts of science through laboratory units and field investigations into the marine environment.

FELO Organization

The Fluid Earth and *The Living Ocean (FELO)* program uses a carefully planned sequence of tasks and inquiries to engage students and teachers in defining concepts, generating and testing hypotheses, correcting misconceptions, and coming to a consensus on the adequacy of explanations. Some 80% of class time is spent in laboratory or field studies. The remaining time is devoted to data analysis, discussion, literature research, and report writing.

The Fluid Earth

The Fluid Earth explores the physics, chemistry and geology of the oceans and their applications in ocean engineering and related technologies. Topics covered include topography of the oceans, waves and beaches, hydrostatics, chemistry of seawater, seabed mining, satellite oceanography, and submersible explorations of the ocean floor.

The Living Ocean

The Living Ocean treats traditional marine biology of plants and animals with special emphasis on anatomy, physiology, and behavior of vertebrates and invertebrates, and the ecology of the oceans and other aquatic environments. Also studied are plankton, bioenergetics, satellite remote sensing, and global environmental change.

The Roles of the FELO teacher and students

The *FELO* teacher is a research director, stimulating inquiry into problems and explanations. Students become researchers, doing investigations, organizing and analyzing data, and developing generalizations and applications. Through these sequences they develop both basic and higher order thinking skills.

FELO Teacher Support Programs

FELO teachers are offered a 10-day institute in which they work through the sequence of experiments in the program, with attention to teacher behaviors, instructional strategies, and on their effects on learning.

FELO Teacher Institute Costs

Cost per teacher for a *FELO* institute in Hawai'i is \$450; outside Hawai'i it is \$800. The cost includes both the *FELO* student laboratory/textbooks, blackline masters, workbooks, and a *FELO* teacher's guide.

FELO Effectiveness

The Fluid Earth and *The Living Ocean* program has been found effective with students of all ability levels as well as with ESL students.

SWIM Database

The SWIM Database, keyed to the FE and LO laboratory/textbook, is available without charge at <http://www.hawaii.edu/swim/>.