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MARINE BIOLOGICAL LABORATORY

WOODS HOLE · MASSACHUSETTS · 02543 · (508) 548-3705

THE ECOSYSTEMS CENTER

LTER Stable Isotope Workshop Report

Brian Fry led a stable isotope workshop in Woods Hole, MA, September 28-30, 1989. Twenty-two Ph.D. level scientists attended from 15 of the 17 LTER sites. Two of four invited speakers were experts from outside the LTER network.

The workshop gave attending ecologists first hand experience in using stable isotope methods. Participants collected 10-20 samples from their LTER sites in the summer of 1989. The samples were analyzed prior to the workshop, and each participant gave a short talk about the results. This type of audience participation stimulated a true workshop atmosphere. After individual presentations, working groups summarized findings for each topic. Brian Fry is preparing an overview paper for submission to a major journal.

Detecting nitrogen fixation and determining the structure of aquatic food webs were the two themes of the workshop. Approximately 400 samples were analyzed from 16 of the 17 LTER sites. Results showed that $\delta^{15}\text{N}$ measurements can be a powerful way to detect the importance of nitrogen fixation in undisturbed ecosystems, and that a combined use of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ measurements can resolve the structure of planktonic, detrital and epilithon-based food webs.

Attendees were encouraged to incorporate stable isotope techniques into ongoing and planned research, collaborating with any of several laboratories in the LTER network that presently perform or are starting stable isotope programs. Sites of these programs include Woods Hole (Contact: Brian Fry), Virginia (Jay Zieman), Georgia (Lindsay Boring), South Carolina (Doug Williams), Michigan (Eldor Paul), San Diego (Ross Virginia), and Alaska (Don Schell). Analyses are also available through Oak Ridge (Chuck Garten), South Dakota (Larry Tieszen), and from commercial laboratories. As part of an intercalibration exercise, three readily available standard reference materials (bovine liver, citrus leaves and river sediment) from the National Bureau of Standards were analyzed in detail by Fry and Tieszen.

Brian Fry
Oct. 26, 1989