**Summary Report for Network Analysis Workshops supported by the LTER Network Office**

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8 September 2003

A series of three workshops has been held, two of which were supported by funds from the US LTER Network Office. Two more are planned with current resources. The previous workshops were organized to introduce the modeling system, collectively called "network analysis" (NA) to LTER scientists. The long-term purpose of these workshops has been to build a community of scientists who have expertise in NA across the LTER program. Once this is achieved, we intend to use the power of cross-site comparisons by NA to assess common properties of ecosystems. In the interim NA has been used by scientists at individual LTER sites to advance understanding of their sites.

The previous workshops focused on providing information to potential users. The first workshop occurred during the Snowbird, NV, All Scientists Meeting in August 2000, and a report was submitted shortly thereafter. The second workshop was conducted in conjunction with an NSF supported, larger workshop under the auspice of the Biocomplexity Initiative. They were held in March 2001 and included scientists from PAL, GCE, VCR, PIE and the Gulf of Trieste. Participants constructed networks models of their systems and analyzed them during the initial stage of the workshop in Greenville, NC. During the second stage, in Beaufort, NC, participants joined other ecologists and social scientists to discuss how NA is used in the two disciplines and how cross-fertilization could occur. The third workshop, held in February/March 2002 at Sevilleta, NM, included scientists from LUQ, MDV, PIE, VCR, and the University of Georgia (S. Borrett, a student of Bernie Patten). Again participants constructed and analyzed network models, but they were also given information on different approaches to NA. We now have trained scientists from several LTER sites and know of scientists at other LTER sites who use NA. Thus, we are ready to begin preliminary cross-site synthesis.

We have two workshops planned to implement this synthesis: one at the All Scientists Meeting in Seattle and another in Athens, at the University of Georgia to follow up on the ASM workshop. This latter workshop is being planned for the fall 2003 at a time amenable to participants.

The following are products that have come from or are related to the workshops and related activities:

**Proposals:**
Three proposals were submitted to NCEAS by Christian and Covich on network analysis building on workshop activities, but none was funded (2001-2003).

One proposal was submitted by Vernet to JGOFS to use network analysis for the Southern Ocean food web, but it was not funded (2001).

Oct. 2000-Sep. 2002. National Science Foundation. Biocomplexity-Incubation Activity Networking the "Invisible Colleges": Application of Network Theory to Biocompexity. (R. R. Christian with Jeffery Johnson, Joseph Luczkovich and Steve Borgatti)($49,125)

June 2003-May 2004. National Science Foundation. Evaluation of Ecological Network Analysis Using Stable Isotopes. (R.R. Christian. Dissertation Improvement Grant for James Dame with Dame as Co-PI)($9,000)

Sep. 2003- NRC Post-doctoral fellowship. Network Analysis and Management Practices of Impounded Marshes at Merritt Island National Wildlife Refuge. (C. R. Thomas. Funded)

**Presentations:**
Morris, J. T., R. Christian, R. Ulanowicz. 2001. Complexity and the ecological properties of randomly constructed stable food webs. Abstract of presentation made at the 16th International Biennial Estuarine Research Federation Conference, St.Petersburg, FL, Nov. 6.

Morris, J. T., R. Christian, R. Ulanowicz. 2002. Size, complexity and function of theoretical and real food webs. Abstract of presentation made at the 86th annual meeting of the Ecological Society of America. Aug. 4-9, Tuscon.

Morris, J.T., R. Christian, R. Ulanowicz. 2002. Food web size, complexity and function. Abstract of invited presentation made at the Southeastern Estuarine Research Federation meeting. Conway, SC. Oct 17-19.

B.C. Patten, S. R. Borrett, S.J. Whipple, R.R. Christian, and C. R.Thomas. 2003. Discrete-Time Dynamic Environ Analysis of Indirect Effects in Ecological Networks: Basic Considerations Ecological Society of America, Savannah, GA

**Theses and Dissertations:**

Robert Daniels. Inverse Model Analysis of Plankton Food Webs in the North Atlantic and Western Antarctic Peninsula. MS thesis. College of William and Mary, August 20, 2003

James K. Dame. Evaluation of network analysis as an approach for studying food webs and managing coastal systems. Ph.D. dissertation. East Carolina University. To be completed May 2004.