

One of the issues that we would like to discuss with NSF is “changing expectations/criteria in the LTER review process.” Part of that discussion will address changes that have been made in the request for proposals (RFP) for LTER renewals. We should discuss what these changes have been, how have they come about, and if there should be more discussion between NSF and the network before these changes are made. Below are some highlights of changes that have been made:

The RFP from 2012 that the SEV and others wrote proposals for had the following review criteria:

The scientific goals of the proposed research will be evaluated based on the following principles:

1. focus on important and general ecological questions that a) derive from key theories, b) are motivated by long-term data in hand and c) require additional, long-term data collection to be answered
2. encouragement of or demand for new conceptual frameworks or theory that will significantly advance understanding of site specific dynamics and relate site-specific results to other ecosystems at different spatial scales
3. use of existing, or development of new, conceptual, analytical and numerical models to guide the research
4. advancement of fundamental understanding of long-term ecological dynamics through cross-site collaborations or collaborations outside of the LTER network
5. if social science is proposed, the extent to which the research draws from and contributes to social science theory and understanding.. If you compare on p4 "The scientific goals will be evaluated based on the following principles" in both documents, there are important differences in nos. 3 and 4.

The RFP from 2014 lists the following “additional solicitation specific review criteria:”

The following additional merit review criteria will be used to evaluate the scientific goals of the proposed research. To what extent does the research:

- propose a cohesive research plan that focuses on major ecological questions.
- rely on analyses of existing long-term data to generate new research questions.
- require additional, long-term (6 years or more) data to answer the questions posed.
- advance understanding of key concepts, questions, or theories in ecology.
- encourage new conceptual frameworks and develop new models that incorporate sources of uncertainty and allow for model-data assimilation.
- expand the research at a particular site by including other LTER or non-LTER collaborators and by attracting other researchers, approaches, and questions.

There are some significant differences here. In 2012, we were asked to use or develop existing models to guide the research. In 2014, sites were asked to refine models to incorporate sources of uncertainty and model-data assimilation. Does this assume that all sites are using quantitative models that can be analyzed? Was the development and use of these models a previous criterion? Are any of our sites actually doing a good job of model uncertainty analysis and model-data assimilation? One of the major criticisms of the SEV was the lack of a quantitative model.

In the 2012 RFP, sites were evaluated if they advanced a fundamental understanding of long-term ecological dynamics through cross-site collaborations or collaborations outside of the LTER network. In

the 2014 RFP, sites were evaluated for their collaborations with other LTER or non-LTER researchers to understand ecosystems dynamics across broad spatial and temporal scales.

In the 2010 RFP, there is text that refers to a “conceptual framework” (not a conceptual model), and sections that specifically ask for information about contributions towards “regionalization, cross-site, or other collaborative efforts involving the LTER network that are planned, if they are not part of your core program as already described (network activities)” and closing section that includes “a synthesis that shows how your major activities will lead to a deeper understanding of the ecosystem and its relationship to other biomes represented within the LTER network.” If you compare those guidelines with more recent ones, there has been a shift from “conceptual frameworks” to “conceptual models” and that the emphasis on modeling has become narrower and more prescriptive. There is also less emphasis on regional, cross-site and other kinds of “network-level” contributions that used to be a part of the proposal evaluation process.

Below is some text from the 2014 RFP that highlights (in blue) reference to network- or cross-site work and (in yellow) new or significantly rephrased text from the 2012 RFP:

II. PROGRAM DESCRIPTION

Successful renewal proposals must test major ecological theories or concepts. Proposed research should be organized around a suite of integrated questions that arise from the analysis of long-term data. It should have the goals of achieving a mechanistic understanding of biological responses to past and present environmental change at multiple scales and of using this understanding to predict ecological, evolutionary, and - if appropriate - social responses to future environmental change. Renewal projects must clearly define questions that demand study on decadal time scales.

Core data collection at LTER sites will continue to center on the five areas of 1) primary production, 2) population dynamics and trophic structure, 3) organic matter accumulation, 4) inorganic inputs and movements of nutrients through the ecosystem, and 5) patterns and frequency of disturbances. Analyses of these data provide the foundation for testing major theories, for challenging existing paradigms in ecology, and for developing new paradigms.

In renewal proposals, LTER investigators are encouraged to broaden the spatial scales of their long-term analyses through comparative research with other LTER or non-LTER projects. These broader scale activities should extend the conceptual framework proposed for innovative site-based research. They also should contribute to a broader understanding of the mechanisms underlying ecological responses to climate change, nutrient loading, loss of biodiversity, or changes in trophic structure, for example. The research must thoroughly justify the need for long-term support to understand ecological systems and processes.

The scientific goals of the proposed research will be evaluated based on the following principles:

1. focus on important and general ecological questions that a) derive from key theories, b) are motivated by the analysis of long-term data, and c) require additional, long-term data collection to be answered

2. encouragement of or demand for new conceptual frameworks or theory that will significantly advance understanding of site-specific dynamics and relate site-specific results to other ecosystems at different spatial scales
3. refinement of models to incorporate sources of uncertainty and model-data assimilation
4. collaborations with other LTER or non-LTER researchers to understand ecosystem dynamics across broad spatial and temporal scales