Integrated Science Projects

Introduction

External Panel Recommendations

AAAS Panel 2010

- Need better project integration to address the interdisciplinary research questions and attain overarching project goals
- Now that most infrastructure is in place, need to transition to addressing the interdisciplinary science
- Engineer focused, end-to-end, cross-disciplinary project(s) to drive integration and attain desired outcomes

ERTAB 2009 and 2010

- Risk of focusing too strongly on the notion of infrastructure building and diminishing the need for advancing the scientific body of knowledge (2009).
- Strive for truly interdisciplinary research, rather than multi-disciplinary (2010)
- Work on focusing, integrating and prioritizing scientific hypotheses (2010)
- A designated interdisciplinary project lead may be necessary to develop and implement an integration strategy (2010).

Interdisciplinary Science Projects (ISPs)

- Initiate new Integrative Science Projects beginning July 1, 2011
- Replaces existing Interdisciplinary Science Team and Seed Grant programs
- Fund 2 ISP’s total in years 4 & 5 of the award ($300k per year total)

ISP Concept

Interdisciplinary "end to end" projects that will:

Address interdisciplinary science questions

- *How will climate change affect water resources and linked ecosystem resources and human systems?*
- *How will climate change affect disturbance regimes (e.g., wildland fires, invasive species, insect outbreaks, droughts) and linked natural and human systems?*

Leverage existing resources

Link and integrate multiple components

Lead to attainment of component and overall project science goals

Result in desired science outputs and outcomes

Produce identifiable products of value to scientific community, educators, and stakeholders

ISP Outputs may include (but are not limited to)

New products for use by scientists, decision makers, educators…

- Linked integrated water resources (surface/groundwater) and ecosystem models.
- Water demand data and models for evaluating changes in water associated with shifts in land uses (e.g., rural to urban) and climate change scenarios.
- Data on historical range of ecological variability for evaluating fire and restoration management alternatives and future changes in ecological patterns and processes.
- Integrated models of climate change impacts on vegetation and disturbance dynamics for generating a range of land use options available to managers and policy makers.
- Regional climate model output data for use by researchers and decision makers

Highly visible peer reviewed publications

ISP Outcomes

- New, transformative capability for interdisciplinary research on climate change.
- Capability to perform assessments of climate change impacts
- New cohort of graduate students trained in interdisciplinary CC research.
- Increased collaboration between faculty and students in different fields and institutions (in State and elsewhere)
- Sustainable funded programs for climate change research, outreach and education
- Nevada recognized by science community as leaders of climate change science
- Meaningful Partnerships with stakeholders

Process and Timeline

- Projects developed by co-Pis in collaboration with components and others (e.g. stakeholders)
- Several topics suggested by PI's and discussed at October 2010 Science Planning Meeting
- Considerations: interest, feasibility, goals & objectives, outcomes & outputs, needed resources
- Follow up with definition of projects, work plans, budgets etc – white papers/proposals
- ERTAB reviews white papers (Jan 2011)
- Projects finalized after ERTAB meeting (Feb 2011)

Proposed ISP Projects

Vulnerability and Resilience of Urban Water Systems under Uncertain Changing Climate Scenarios

- Lead: Tom Piechota

Great Basin Ecohydrology - demonstration of the utility of the Nevada Climate Transect System as a novel research platform

- Leads: Nick Lancaster and Scott Mensing