CILER Overview

Presented at
NOAA-GLERL Laboratory Review
November 17, 2010

CILER History
- Founded in 1989 with signing of an MOU between UM and Undersecretary of Oceans and Atmosphere, DOC.
- Had five multi-year Cooperative Agreement Proposals
- Moved from College of Engineering to SNRE in 2002

The Current CILER
- 2007 – 2012 Competitive Award
CILER’s Mission

- Improve effectiveness of NOAA-sponsored research by serving as a focal point for interactions between NOAA and the Great Lakes researchers
  - Improve understanding of fundamental processes and their interactions (physical, chemical, biological, ecological, social, economic)
  - Improve observations and data availability to support forecasting
  - Improve physical and ecological forecasts for: 1) restoration/protection of natural resources, 2) management decisions, and 3) sustainable economic development

- Improve graduate education and research opportunities

- Provide training for current and future NOAA and University workforce.

- Disseminate information and research products to the public and stakeholders

NOAA and CILER Working Together

CILER’s operational structure enhances ability to implement common missions, goals, and priorities:

I. University of Michigan based
   - CILER PI’s and research staff co-located within GLERL
   - Planning and execution of internal and extramurally-funded research projects and proposals are done jointly.
   - Common use of facilities is cost-effective and enhances productivity of University scientists and graduate students
   - CILER’s research and outreach are a direct extension of GLERL’s

II. Regional Partners
   - Filling gaps in expertise with regional scientists and students
   - Flexibility, Responsiveness
   - Broader regional perspectives or relevance
Current CILER (UM) Staff

- Administration – most located at UM
  - Director (50%), Assoc. Director (10%), Business Administrator (100%), Administrative Asst. (50%), and Administrative Support for Ed/Outreach and Regional Collaboration

- Research Staff - most located at GLERL
  - 3 Research Scientists
  - 3 Research Investigators
  - 8 Post-doctoral Research Fellow
  - 5 Research Assistants / Associates
  - 2 Programmers / Analysts
  - 42 Temporary staff
  - 14 Summer Fellows
  - 2 High School Student Interns

Theme I: Great Lakes Forecasting

- Promote ability to forecast physical and ecological dynamics in the Great Lakes
  (physical hazards, water levels, water quality, HABS, human health risks, fish recruitment, invasive species impacts)

Theme II: Invasive Species

- Help reduce the prevalence and impacts of invasive species in the Great Lakes
Theme III: Observing Systems
- Improve access to real-time and historical data on climate, meteorology, chemistry, geology, biology affecting GL ecosystem to researchers and stakeholders

Theme IV: Protection and Restoration of Resources
- Promote ecological integrity and preservation of biological diversity (protect, restore, enhance coastal areas to promote healthy ecosystems)

Theme V: Integrated Assessment
- Promote interdisciplinary research to address management concerns; linking to socioeconomic issues as a guide for policy and resource use.

Theme VI: Education and Outreach
- Promote education and training opportunities to students from K-12 through graduate level
Research and Training Opportunities

- Postdoctoral Research Fellows
- Graduate Student Research Assistants
- Great Lakes Summer and Long-Term Student Fellowships
- Undergraduate Research Opportunity Program
- Partners-for-Excellence HS Intern Program

Education and Outreach Activities

Programmatic
- National Ocean Sciences Bowl
- CILER-GLERL Seminar Series
- Lab Open Houses and Group Tours

Project-based
- Outreach and Education Coordination for the OHH Center
- Assisting Great Lakes Coastal Communities with Climate Change

Individual-based
- Thunder Bay National Marine Sanctuary and Underwater Preserve
- Guest Lectures at Regional Universities and K-12 Classrooms
CILER Sponsored Workshops and Symposia

- Development and Application of Biosensors for Monitoring Human and Ecosystem Health, June 22-23, 2010 (CEGLHH)
- Lake Michigan Ecological Modeling/Forecasting Workshop and Community Modeling Framework, ~ Dec 2010 (NCCOS and GLERL)
- Adaptive Region-Scale Great Lakes Ecosystem Management Model – a test case of the Community Modeling Framework, ~ Feb 2011 (NCCOS and GLERL)
- Expert Review of research-based science activities supported through the Great Lakes Restoration Initiative, ~ Mar 2011 (NOAA-GLERL)
- Workshop in support of FY11 GLRI project: Regional Climate Research for Application to Decision Making, 2011 (NOAA-GLREL)
- Project-specific PI meetings: GLOS, OHHI, ACT, EPA-Surveillance, Saginaw-Bay AIF, EcoFore

Funding within Current CA (2007 – present)

- 86 CA projects totaling over $13.5 million
- Non-CA project funding of $3.7 million
- Just submitted two 5-yr proposals (GLOS, ACT) totaling $14 million
Funding Distribution

- NOAA
  - OAR
  - NESDIS
  - NMFS
  - NWS
  - Sea Grant
  - NOS
- US EPA
- US Coast Guard
- US Fish & Wildlife
- US Geological Survey
- Office of Naval Research
- CORE
- Academy of Natural Sciences
- Great Lakes Fishery Trust
- Great Lakes Protection Fund
- Great Lakes Fishery Commission
- State of Michigan DEQ
- University of Michigan

CILER Projects supported with GLRI

Via NOAA and the Cooperative Agreement (~$4.0 million)
1. GLERL GLRI Administrative Support (Burton, Johengen, Robinson)
2. Great Lakes Invasive Species Information System (Rutherford, JIN/LL SeaGrant, students)
3. Oceans & Human Health Initiative (OHH) (Beach Forecasting Coordinator, MSU Outreach Coordinator, Modeling, Water Quality Observations - Schwab, Rockwell, Johengen, Andersen)
4. Great Lakes Observation System (GLOS) (Schwab, Ruberg, Johengen and 5 academic partners)
5. Regional Climate Research for Application to Decision Making (Lofgren)
6. Land Use Tipping Points (Mason, MSU, Purdue, U Illinois)
7. Status and Trends of Lake Michigan Benthos (Nalepa, students)
8. Assisting GL Coastal Communities with Climate Change Adaptation (Day, Intern)

Via Competitive EPA-GLRI funding (~$1.2 million)
1. 60-hour beach Forecasting Models (Burton, Rockwell)
2. Great Lakes Observing Systems - Tributary AOC monitoring (Johengen and 5 academic partners)
3. Permanent Multi-buoy Monitoring and Modeling of Eastern Lake Erie (Boletsky, Anderson w/ SUNY-Buffalo)
Scholarly Output

For the current CA: 186 peer-reviewed, 210 total

Future Directions: Management

Guidance Provided by 2010 CILER Formal Review

- Business Plan: encourage collaboration, nurture innovation, reward individual entrepreneurship in pursuit of shared goals
- Refine Institutes vision and improve its “branding”
- Improve strategies for developing new intellectual ideas that complement rather than supplement work at GLERL

Unique/Leadership Roles

- Synthesis of data focused around management questions
- Translating data into information that is useful to stakeholders
- Focal point for communication of NOAA’s work in GL to external parties including managers and general public
- Push-person on each project to deliver results broadly and timely to add value
Future Direction: Science

Support and expand focus in Ecosystem Forecasting and Resource Sustainability

- Sensor technology, observation networks, multi-trophic level assessments
  - Integrate physical, chemical, biological, and toxicological systems
  - Field validation of forecasting systems to document uncertainty
  - Link forecasts to ecosystem services
  - Spill response and ecological risk assessments

- Management directed, multi-stressor, ‘integrated’ assessments
  - Link watershed and near-shore uses to stressors and resulting impairments
  - Link resource/quality assessment outcomes to socio-economic/mgmt outcomes