2016 Great Lakes Summer Student Fellows Program

Visit the [CILER website](#) to apply

The Cooperative Institute for Limnology and Ecosystems Research (CILER), located at the University of Michigan, announces the 2016 Great Lakes Summer Student Fellows Program. This program is sponsored by the National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Lab (GLERL). The Great Lakes Summer Students Fellows Program exposes students to a broad range of fields and provides an exciting opportunity for students to conduct research in the Great Lakes region under the mentorship of a researcher or working professional.

Description:

- We are offering eight (8) full-time twelve-week positions. All of these positions are located at the GLERL lab in Ann Arbor, MI.

- Positions will last for twelve weeks from the start date. Start dates for each position will be flexible based on the mentor's and selected candidate's schedule, although the start date is usually either in early May or early June.

- We are seeking a diverse group of students; thus, we encourage applications from students currently underrepresented in the aquatic sciences discipline and workforce.

[Click here for Summer Fellows Position Descriptions (or see below)](#)

Stipend

- There is a stipend of $6,500 for the twelve-week period, paid in two installments of $3,250 each: For May start dates, the first installment will be in the 2nd week of May and the second installment will be in the 2nd week of June. For June start dates the first installment will be in the 2nd week of June and the second installment will occur in the 2nd week of July.

Deadline:

- Applications must be submitted by **26 February 2016 at 11:59 pm** (Eastern Time).

Eligibility:

- The Fellows Program is limited to currently enrolled undergraduate (juniors and seniors preferred) and graduate students. We will also consider post-baccalaureate or post-masters students who have graduated within the past 12 months (of your fellow position start date) if the position fits directly within a student's career goals.

- You must be either a U.S. Citizen or a foreign national who is residing in the U.S. on a current Student Visa.

- Immediate relatives of any CILER or NOAA-GLERL employees are not eligible to participate in this program, consistent with NOAA guidelines.

Other Requirements

- Fellows are required to give a 15-minute oral presentation at the end of their fellowship period.
- Fellows are responsible for covering the cost of their housing for the duration of the fellowship, as well as their transportation costs to and from the position location. Any travel or accommodations required while performing the duties of the position, i.e. fieldwork, etc., will be covered by the program.
- The GLERL lab is located at 4840 South State Road, Ann Arbor, MI 48108, about 4 miles south of the UM Central Campus. **There is no public transportation available between GLERL and UM Central Campus, so having your own transportation is recommended.** Many students and staff do regularly bike to work at this location.

APPLICATION PROCESS:

- We have an online electronic application submission process. Transcripts (official or unofficial), a cover letter, and a résumé are required elements of the electronic submission. Applicants will be asked to identify and rank three (3) projects to which they would like to apply.
- Along with the electronic application, we require one letter of recommendation that must be sent directly from the writer, via email, fax, or regular mail. The recommendation letter should be sent to the attention of Mary Ogdahl (see contact information below). **All letters must be received by 26 February 2016.**
- Scientists will review the applications once they are submitted. After an initial review, the project mentor will set-up phone interviews with the top candidates to discuss the project in more detail and ensure appropriateness match in interest and skills.
- For specific questions about each opportunity, contact the individual mentors. Email addresses are provided with the position descriptions.

- Applicants will be notified of their status by 31 March 2016.

Click here to apply

Contact Information:
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2016 Great Lakes Summer Fellow Positions

1. **Spatial analysis of dreissenid mussel populations**
    Mentors: [Ashley Baldridge](#) (NOAA-GLERL; ashley.baldridge@noaa.gov), [Mark Rowe](#) (UM- CILER; mark.rowe@noaa.gov)

    Project Description: This project will advance our understanding of dreissenid mussel spatial distribution, population growth, and ecosystem impacts. The fellow will work with mentors to update NOAA dreissenid density and biomass maps for Lake Michigan (and other Great Lakes, if time permits). It is clear that quagga mussel densities in the Great Lakes have undergone dynamic changes in the past decade, but less is known about how depth, substrate, and lake-specific factors are influencing the observed trajectories. The student will investigate a research question of interest that addresses these changes. Activities will include, but are not limited to: (1) organizing and summarizing long-term data sets; (2) analyzing ecological data using advanced spatial analysis techniques; and (3) assisting with other field and lab projects in the Benthic Ecology Lab as desired to broaden exposure. Over the course of this project, the fellow will also have the opportunity to
    interact with other NOAA ecologists and modelers at GLERL in Ann Arbor and the NOAA-GLERL Lake Michigan Field Station. Strong candidates will have prior scientific programming, data analysis (R preferred, also Matlab, Python, IDL), and/or experience with geographic information systems (GIS); be organized and conscientious; and have an interest in Great Lakes ecology.

2. **Great Lakes ice data ArcGIS scripting**
    Mentors: [Jia Wang](#) (NOAA-GLERL; jia.wang@noaa.gov), [Anne Clites](#) (NOAA- GLERL anne.clites@noaa.gov)

    Project Description: NOAA-GLERL archives data on Great Lakes ice cover from the National Ice Center each year. This project provides the basic data used to provide information to a broad audience of users and decision makers for search and rescue operations, navigation (commercial shipping), and recreational ice fishing during the winter season. This important data set is also used for research on improving the prediction of ice cover in response to a changing climate on seasonal, interannual, and decadal time scales. In addition to storing the original asci grid files, GLERL also imports the data into ArcGIS, saving shapefiles and jpegs associated with each asci grid file. These are archived on our website and made available to the public
    here: http://www.glerl.noaa.gov/data/pgs/glice/glice.html. Our current method for importing data into ArcGIS is in need of automating. We are seeking a good Python scripter who has at least some familiarity with ArcGIS to automate our current processing procedures. In addition, we intend to conduct in-depth research linking to Arctic climate teleconnection patterns to Great Lakes climate and ice cover. The project is part of the prediction of ice cover in response to a changing climate on seasonal, interannual, and decadal time scales, which enables us to provide information to a broader user base in search and rescue operations, navigation (commercial shipping), and recreational ice fishing during the winter season. These forecasts provide decision makers with
    tools to aid in protecting the Great Lakes and the public. Qualifications include programming in Fortran, and/or other programming skills are plus such as C, GIS, Matlab, R, and scripts. Data analyses and statistics background is desired.

3. **Using an ecosystem-based model to study the impacts of remediation on the food webs** Mentors: Doran Mason (NOAA-GLERL; doran.mason@noaa.gov), Ed Rutherford (NOAA-GLERL;ed.rutherford@noaa.gov), and Hongyan Zhang (UM-CILER; zhanghy@umich.edu)

   Project Description: Our research team is using ecosystem-based models to study how the Great Lakes ecosystems respond to the natural and anthropogenic stressors, and provide scientific support for lake and fisheries management. This fellow will work closely with the team to calibrate and apply an ecosystem-based model (the Atlantis ecosystem model) to study the temporal and spatial impacts of remediation actions (e.g., invasive species, habitat restoration, or nutrient reduction) on food web dynamics in Lake Erie. Activities may include, but are not limited to: 1) calibrating the model with observational data; 2) scenario simulations, result analyses and discussion. Candidates should have a strong interest or background in one or more of the following areas: programming, Great Lakes ecosystems, ecosystem modeling, and fish ecology and fisheries.

4. **Safety and environmental management system**
   Mentor: Kim Kulpanowski (NOAA-GLERL; kim.a.kulpanowski@noaa.gov)

   Project Description: This fellow will bring a fresh set of eyes to GLERL's safety and environmental compliance program and work to develop and implement any number of program management enhancements based on their interests and abilities. This fellow will be oriented to the current program management approach, then hone in on opportunities for improvement and develop them to advance the overall successful management of the program. Project ideas include but are not limited to:
   - incorporation of the latest technology tools and concepts in training programs
   - chemical inventory management system improvement/redesign
   - safety inspection reporting system redesign
   - universal and/or hazardous waste management/minimization
   - safety and environmental program planning/management system design

   Candidates should have a strong interest or background in one or more of the following areas: information technology, industrial hygiene, safety, hazardous waste and/or universal waste management, continual improvement quality concepts, project planning. Regulatory familiarity with OSHA safety and health standards and EPA and MDEQ environmental regulations would be helpful for some of the projects.

5. **Meteorological data analysis**
   Mentors: Ayumi Manome (UM-CILER; ayumif@umich.edu), Eric Anderson (NOAA- GLERL; eric.j.anderson@noaa.gov)

   Project Description: The fellow will support the GLERL ice and hydrodynamic modeling team by improving the historical meteorological dataset over the Great Lakes. Specifically, the fellow will work on incorporating meteorological reports from ships operating across the Great Lakes into the existing gridded datasets based on data from the National Data Buoy Center and the Coastal Marine Automated Network. Special focus will be given to winter, when buoy data are usually not available. Tasks will include 1) excluding erroneous data based on systematic criteria, 2) tabulating the quality statistics for each ship ID, 3) create a new gridded dataset that includes quality- controlled ship reports, 4) inter-comparison with atmospheric re-analysis (e.g., North American
   Regional Reanalysis, Climate Forecast System Reanalysis). The candidate should have knowledge of basic meteorology, including that of the surface layer (the constant flux layer). Preference will be given to candidates that have experience with atmospheric data analysis, Fortran, a Linux/Unix computing environment.

6. **Hydroclimatological modeling**
   Mentors: Chuliang Xiao (UM-CILER; cxiao@umich.edu), Brent Lofgren (NOAA- GLERL; brent.lofgren@noaa.gov).

   Project Description: This project will involve using the Weather Research and Forecasting (WRF) model to study the hydroclimate in the Great Lakes region. Coupled Model Intercomparison Project Phase 5 (CMIP5) provides projections of future climate change in different future emission scenarios in a global perspective. Based on CMIP5 outputs, a state-of-the-art regional climate model, WRF coupled with a sophisticated lake model, is implemented to conduct dynamic downscaling projections in the Great Lakes region. Activities may include, but are not limited to: 1) gaining an understanding of the concept of dynamic downscaling; 2) comparing the future climate projections (e.g., temperature, precipitation, evaporation) between two scenarios (high and moderate emissions); 3) calibrating a routing model to project the water level change in the future. Candidates should have knowledge of basic meteorology, and experience with data analysis (e.g., Fotran, GrADS, NCL, R).

7. **GLANSIS (Great Lakes Aquatic Nonindigenous Species Information System)** Mentors: Rochelle Sturtevant (NOAA-GLERL; rochelle.sturtevant@noaa.gov), Ed Rutherford (NOAA-GLERL;ed.rutherford@noaa.gov)

   Project Description: The summer fellow will work with an online database serving information relating to nonindigenous species in the Great Lakes region (http://www.glerl.noaa.gov/res/Programs/ncrais/glansis.html). The fellow will be expected to take leadership for a specific, defined research project component of GLANSIS, such as updating the range expansion list and developing fact sheets for the added species. Tasks will include reviewing scientific literature to develop or update species fact sheets, reviewing the system for consistency and improving content, data entry, working with external scientists to identify and evaluate new species for possible addition to the database, and updating of outreach materials. There is also a possibility of making presentations at public events. Candidates must have excellent written communication skills (technical and non-technical writing). Familiarity with database programs and/or invasion biology a plus, but not essential.

8. **Invasive species, fisheries and foodweb dynamics**
   Mentor: Ed Rutherford (NOAA-GLERL; ed.rutherford@noaa.gov)

   Project Description: This fellow will participate in an ongoing study of invasive species impacts on Great Lakes fisheries and food webs. In particular, the fellow will assist with intensive diel surveys in Lake Michigan and use new sampling technology (MOCNESS sampling system) to describe the physical structure of the water column in nearshore and offshore waters, and its effect on fine spatial distributions and densities of chlorophyll, native zooplankton species, the predatory cladoceran *Bythotrephes*, and fish larvae densities, growth and survival. The fellow will be expected to conduct a gear efficiency study comparing traditional plankton sampling gears with the more modern MOCNESS sampling system. Candidates should have a strong background in Great Lakes or marine science and be experienced working on boats in variable weather conditions.