MICHIGAN SEA GRANT UNIVERSITY OF MICHIGAN + MICHIGAN STATE UNIVERSITY

2024 Michigan Sea Grant Undergraduate Environmental Internship Program

Application Deadline: Wednesday, January 31, 2024

Michigan Sea Grant hosts a summer internship program that coordinates and funds undergraduate students from any accredited community college, college, or university in Michigan to work with private businesses, state and federal agencies, environmental non-profit organizations, or university faculty to plan or implement environmental stewardship, research, outreach, and education projects in the Great Lakes.

Applications will be submitted via Google Form that can be found on our website.

Students may develop their own project proposals in partnership with an organization of their choosing, or they may work with one of our pre-identified sponsoring organizations (see Sponsoring Organizations Projects starting on Page 5). All types of projects will receive equal consideration in the review process.

Sponsoring Organizations:

- NOAA Thunder Bay National Marine Sanctuary
- Michigan Department of Natural Resources, Fisheries Division
- For Love of Water
- Leslie Science & Nature Center and Ann Arbor Hands-On Museum
- Friends of the St. Clair River
- Clinton River Watershed Council
- Trailer Equipment

Some examples of potential partner organizations include:

- State agencies, such Michigan Department of Environment, Great Lakes, and Energy (EGLE)
- Campus sustainability offices
- Parks and recreation departments
- Watershed or river protection groups
- Tribal natural resources departments
- Museums, libraries, or nature centers
- Environmental news outlets
- Academic departments focusing on urban planning, communications, education, biology, chemistry, geography, social science, economics, etc.

Michigan Sea Grant encourages applicants from underrepresented racial and ethnic groups, individuals with disabilities, and individuals from economically disadvantaged backgrounds. Michigan Sea Grant is committed to diversity, equity, and inclusion through staff training and organizational development for fellows, interns, and employees to help them provide effective and inclusive programs for the diverse residents of Michigan's communities.

Michigan Sea Grant also participates in the National Sea Grant's Community Engaged Internship (CEI) program, which aims to broaden participation in coastal, ocean, and marine sciences to college students from under-resourced, underrepresented, and/or indigenous and tribal populations. These communities include groups that are historically marginalized in the sciences, including Black or African-American, American Indian or Alaska Native, Hispanic or Latino, female, first-generation college students, veterans, LGBTQ+, students with disabilities, and others who have overcome educational or economic disadvantages or other hardships.

Eligible Michigan Sea Grant interns who identify as being from an underrepresented group or are working on a project that helps an underserved community can participate in the CEI program alongside their internship project. The CEI program includes online professional development workshops in which students can develop skills such as presenting and academic writing, learn about other programs from Sea Grant and NOAA, and meet interns from other state Sea Grant programs.

Eligible students may indicate their interest in the CEI program in the career goals statement of their internship application, by providing details about how the Michigan Sea Grant internship would help them achieve their goals and increase diversity in the environmental world.

Compensation
Students will be compensated $9,000 over three months during the Summer of 2024 for full-time work of up to 40 hours per week; up to two days per month of excused time is allowed. Compensation will be provided to the student as a stipend paid out once a month during the summer. A non-Federal match of $4,500 per intern is required from the partner organization. “Match” is a way for an organization to contribute their own resources alongside the funding coming from Michigan Sea Grant. This match may be in the form of selected in-kind services, such as office space, mentorship, travel, or additional funds from a specified institution, agency, industry, or non-federal program. Students and/or their partner organization are encouraged to work with their institution’s business office and Michigan Sea Grant (msgfellowships@umich.edu) to identify sources of matching funds and to ensure that they follow the federal cost policy for eligible match prior to submitting an application.

In addition, interns may apply for up to $1,000 in additional funding for supplies or travel needed to execute their project. These additional funds would also require the 50% match. A justification for requested supplies/travel funds should be included within the application project narrative (see below). Requests will be reviewed and approved by Michigan Sea Grant and will be distributed as a reimbursement for itemized, approved expenses with receipt documentation.

Eligible Applicants
Applicants should be enrolled undergraduate students at any level of study or recent graduates (May 2024) from any accredited university or college in Michigan. Preference will be given to students who plan to pursue a career in an environmental field.

Application Guidelines

A complete set of application materials compiled into one PDF must include the following:

1) Project narrative written by the student: 1-2 pages describing the background, goals, activities, and expected outcomes of the project; and, for sponsored projects, how this project would help the partner organization.

2) Statement about student's career goals: 1 page maximum describing the student's career goals and how the proposed project would help reach them.

3) One endorsement letter from either a professor or mentor of the student who is familiar with the student's qualifications. For students applying to work with one of the pre-identified sponsoring organizations, the student may submit a letter from a professor or mentor (optional) in addition to the letter of support from the sponsoring organization (required).
The letter of endorsement should include the following:

- Name of professor or mentor
- Description of how the professor/mentor knows the student
- A statement about the student's skills and leadership that would be relevant to the project
- A statement about how the student would benefit from the internship
  How the 50% match requirement will be met (if written by the sponsoring organization)

4) Undergraduate transcripts – unofficial are acceptable

5) A current resume or CV

The following forms may be needed for internships that are selected for funding. The forms do not need to be submitted with the application, but will need to be completed and approved before the start of the internship:

6) Data Management Plan: Some interns do research projects that generate new data, such as measurements, surveys, or model outputs. MISG's host organization, the National Oceanic and Atmospheric Administration (NOAA), requires new data to be made available to the public and other researchers. If a student's proposed project will generate new data, the applicant will need to submit a data management plan as part of the application package. For help preparing this plan, please contact Michigan Sea Grant (msgfellowships@umich.edu). The MISG data management plan can be found on our website.

7) NEPA Questionnaire: Some projects might involve activities that affect the outside world, such as sampling a stream or planting a rain garden. The National Environmental Protection Act (NEPA) requires all projects connected to NOAA to submit an Environmental Compliance Questionnaire. This form is meant to make sure that any changes to the environment are done carefully and without causing unnecessary harm to habitats or nearby communities. The form can be found on our website and MISG research staff (msgfellowships@umich.edu) are available to assist with filling out the form.

Submission Dates and Times
Applicants must submit materials by 5:00 p.m. (EST) January 31, 2024, to the MISG Undergraduate Internship Submission Form. Applications received after the deadline will be rejected without further consideration.

Questions
Questions about the application and submission requirements may be sent to msgfellowships@umich.edu. Please also check the Internship FAQ for answers to some common questions at the bottom of the internship page on our website.

Application Review Information
After applications are submitted, Michigan Sea Grant will review all materials using the evaluation criteria below. The Michigan Sea Grant Management Team will then choose the 2024 interns based on this review, with consideration for availability of funding, balance across institutions, focus areas, and applicant diversity, as well as programmatic needs, objectives, and priorities.

Evaluation Criteria - The evaluation criteria and weighting of the criteria are as follows:

- Project narrative is clear and shows that student understands and is helping to lead the project; project is feasible and addresses relevant environmental issue (40% total)
- Career goal statement clearly describes student's interest in internship and how experience will be meaningful (40% total)
- Letter of support or endorsement clearly describes how student will benefit from internship (10% total)
- Undergraduate transcript, resume/CV, and letter of support show that student has taken relevant courses and has other relevant experience (10% total)

Anticipated Timeline
The Michigan Sea Grant Environmental Internship Program selection process will be completed and decisions announced in March 2024. The funding will cover three months during the Summer of 2024 and cannot be extended or renewed. The internship will likely begin during mid-May and end by mid-August, although the exact start and end dates can be chosen by the student and their partner organization.

Reporting
1) After the internship is complete, interns will need to submit final reports to MISG by August 31, 2024. A link will be sent out to each intern upon accepting the internship. This report must include project location, project goal and objectives, and information regarding project outcomes, contributions to the partners, and overall internship experience. Advisors will also be sent a final report to complete.

2) Interns will be expected to attend and deliver a short presentation about their summer work at the MISG Internship Symposium in early- to mid-August 2024 on the University of Michigan's Ann Arbor campus. Depending on the circumstances, virtual attendance may also be acceptable.

Sponsoring organizations

Students interested in working with one of our sponsoring organizations should email the organization's contact below to discuss possible project areas. Please make this contact as soon as possible because opportunities with the sponsoring organizations may be limited. Students will then need to submit the application materials described above (project narrative, etc.). Note that students should work with a sponsoring organization to identify possible project areas and learn about available facilities, equipment, etc., but it is important that the student writes the project narrative. The sponsoring organization will need to provide a letter of endorsement including how they plan to provide the needed 50% non-federal match.

- **NOAA Thunder Bay National Marine Sanctuary**

  Sanctuary Visitor Center, 500 West Fletcher St., Alpena, Michigan

  Stephanie Gandulla, Resource Protection Coordinator, steph.gandulla@noaa.gov

  Organization Description:

  TBNMS encompasses 4,300 square miles of northwestern Lake Huron and was designated in 2000 to protect a collection of historically-significant, well-preserved, accessible shipwrecks. TBNMS headquarters, located in Alpena, Michigan, encompass 20,000 square feet of interactive public exhibits, office and lab space, and marine research and technology accommodations. This facility is a central part of the community and offers a multitude of opportunities to become involved in protecting the Great Lakes and its rich history. In addition to discovering, monitoring, and documenting cultural resources, TBNMS is charged with developing partnerships with multi-disciplinary researchers and organizations to study Great Lakes ecology, including the effects of climate change. While also providing much-needed and timely physical data, this project aligns well with such management efforts and contributes to the continued development of a comprehensive sanctuary research program.

  Project Description:

  Freshwater Acidification Monitoring and Environmental Stewardship in NOAA's Thunder Bay National Marine Sanctuary

  An intern working on this project would collaborate with TBNMS and NOAA Great Lakes Environmental Research Lab (GLERL) researchers to support a dedicated study of freshwater acidification within TBNMS. The selected intern will facilitate water sample collections from research vessels and the outreach vessel, *Lady Michigan*. They will also be responsible for the development, production, and dissemination of resulting outreach products, including live, public interpretation aboard the *Lady Michigan* and in the sanctuary visitor center.

  This project will establish a baseline data set in Lake Huron related to acidification, providing key high frequency data to improve the scientific understanding of the system. In addition, we will be able to provide essential data and interpretation to stakeholders and inform the public of on-going threats to the Great Lakes ecosystem. Building upon a monitoring network launched in 2022, researchers will sample at dedicated cultural heritage (shipwreck) sites to record information relevant to tracking freshwater acidification and climate impacts. *Continued below*

The monitoring network will include sensor deployment with the capability of detecting fine scale changes in freshwater pCO2 and pH, as well as targeted water sampling and analysis (measurements for pH, dissolved inorganic carbon, and total alkalinity) from select locations coinciding with TBNMS resource sites to validate sensor accuracy and establish spatial variability within the region.

This project will establish the basis of a long-term, intra-agency monitoring program to measure pH, dissolved inorganic carbon (DIC), and total alkalinity levels within the TBNMS marine protected area (MPA). The project will address the critical lack of data concerning acidification in the Great Lakes, and the results gained will inform follow-up studies into climate-related impacts to sanctuary resources. It will improve our understanding of lake acidification and its potential impacts to natural and maritime heritage resources within the sanctuary and could be a model for management-focused monitoring of acidification throughout the Great Lakes. Procedures developed during project implementation will provide a framework for expanding climate monitoring to additional MPAs in the Great Lakes Region.

- **Leslie Science & Nature Center and Ann Arbor Hands-On Museum**
  Ann Arbor, MI. In person.
  Susan Westhoff , Executive Director, swesthoff@lesliesnc.org

  Organization Description:
  Leslie Science and Nature Center was once the home and laboratory of Eugene and Emily Leslie. The center is a special place where people of all ages can explore 50 acres of land and Black Pond Woods. It's also a home to many plants and animals.

  Project Description:
  Helping children relate to and understand the world around them is critical to a healthy planet. We have a water quality and exploration curriculum used in the past for middle school ages, and anticipate this intern helping us rewrite the curriculum for multiple programs geared towards younger ages, piloting these programs for summer camp and weekend family programs.
  Intern will evaluate and modify existing curriculum to create hands-on water quality and water exploration programming for preschool through 5th grade campers and families with younger children. The intern will also evaluate the status of our water quality program equipment, and pilot the programming with our existing summer camp, Critter House open hours, and family programming on the weekdays and weekends.

- **Michigan Department of Natural Resources Fisheries Division**
  Charlevoix Fisheries Research Station in Charlevoix, Michigan
  Patrick Hanchin, Charlevoix Fisheries Research Station Manager, hanchinp@michigan.gov

  Organization Description:
  The Charlevoix Fisheries Research Station conducts research and stock assessments on fish populations in Lake Michigan and its tributaries.

  Project Description:
  The Michigan DNR Fisheries Division has unprocessed Chinook Salmon scales obtained from gill netting efforts in Lake Michigan associated with the Ludington Pumped Storage Facility. We are seeking an intern to process and age these scales so they can be incorporated into the statistical catch-at-age (SCAA) model for Chinook Salmon in Lake Michigan. The current SCAA model does not have any fishery-independent survey data so the addition of these data could potentially improve the model. This project would require the right fit as it would necessitate considerable time inside processing samples using a microscope and camera. Interested candidates would learn scale sample processing, data recording and organization, and could potentially learn about how data are incorporated into SCAA models. Intern would also have the opportunity to participate in other activities at the Charlevoix Fisheries Research Station such as electrofishing, gill netting, trawling, trap netting, and laboratory processing of samples. Other tasks may be available to the intern, such as summarizing and analyzing Lake Trout telemetry data, or classifying images taken on reefs and pairing classifications with other mapping data. Housing may be provided to intern based on availability. Housing is shared with other seasonal workers, with each person having their own bedroom.

- **For Love of Water (FLOW)**
  Traverse City, MI - Some remote work and travel possible.
  Carrie La Seur, Legal Director, carrie@flowforwater.org

  Organization Description:
  FLOW is dedicated to protecting and preserving the extraordinary and essential natural resource endowment and applying public trust principles to educate, advance policy, and provide solutions to the pressing water, energy and climate issues facing our region, nation and planet.

  Project Description:
  We seek an intern's support in developing a database of permitting, reporting, and enforcement information around livestock operations that are contributing to impaired water and cyanobacterial blooms in the Western Lake Erie Basin (WLEB) for use in developing litigation. The intern will interact with and work with the professional staff from the Michigan Department of Environment, Great Lakes, and Energy (EGLE), university faculty, water experts and soil scientists to review existing data and information, develop additional data, evaluate the efficacy of GAAMPs, TMDLs, and the Conservation Reserve Program, and assist in developing expert witness testimony under the guidance of experienced environmental lawyers. Particular areas of focus may include the University of Michigan's Graham Sustainability Institute's records of manure and fertilizer of CAFOs operating in the WLEB watersheds and the status of efforts to reduce nutrient loadings therein. Potential additional activities include sampling, GIS mapping, review of agency records, database building, drafting language for reports and testimony, and briefing coalition members and citizen scientists on the work.

- **Clinton River Watershed Council**
  CRWC Office, 1115 West Avon Rd, Rochester Hills, MI. In person.
  Kaleigh Snoddy, Director of Education and Stewardship, kaleigh@crwc.org
  Organization Description:
  The CRWC works closely with many partners across the watershed to protect, enhance and celebrate the Clinton River, its watershed and Lake St. Clair.
  Project Description:
  The Clinton River Watershed Council is seeking an intern to assist in expanding our K-12 water quality monitoring program, Stream Leaders. Stream Leaders is a place-based outdoor education program that brings schools streamside and puts students in waders to collect water quality data using real-world techniques. The curriculum aims to raise young people's awareness of the importance of water quality in their local watershed and cultivate a connection to the Great Lakes Basin. Students learn about aquatic macroinvertebrates as water quality indicators, water chemistry parameters and how they impact stream health, as well as how physical characteristics both in-stream and in the riparian zone change available habitat. The intern will play an important part in updating Stream Leaders and assisting in the expansion of the program for the future. The role will conduct an analysis of current K-12 science curriculum standards and how they align with the Stream Leaders program. This information will help inform the creation of a recruitment package for teachers and mentors, which the intern will assist in creating. The intern will also be asked to conduct research that will allow CRWC to recruit local STEM professionals as volunteer mentors. Alongside the research and writing components, the intern will participate in the streamside program delivery as a mentor in the spring season of Stream Leaders, as well as assist with updating the data management system for the program to better manage student collected data. Throughout the summer, the intern will have the opportunity to research and interact with additional local environmental organizations and businesses, providing a great opportunity for networking within SE Michigan. This role will also give the intern experience in outdoor education, the basics of aquatic ecology, and an opportunity to leave their mark on environmental education in the Clinton River watershed. Due to this role's interaction with K-12 students, applicants will be subject to a background check.
  This internship will take place in person at the CRWC office in Rochester Hills, with some field experiences at local parks and schools. With the oversight and direction from of the Director of Education and Stewardship, the intern will be asked to:

  -Assist in development of recruitment toolkit for teachers and mentors interested in entering the program. This will include a breakdown of the time commitment for the program for both of these parties, as well as the process for joining the program.
  -Conduct research and potentially outreach to local businesses and organizations for recruitment of employees as program mentors. The target audience for mentorship have experience in environmental sciences, water resources, ecosystems, education, and other related topics.
  -Participate as a mentor during the spring monitoring season, guiding students through data collection of aquatic insects, water chemistry parameters, and physical characteristics of the waterbody being monitored.
  -Evaluate Stream Leaders program connections to current Michigan K-12 curriculum standards.
  -Implement student database updates and map current monitoring to prioritize districts to be targeted for recruitment.

- **Friends of the St. Clair River**
  St. Clair County, In person.
  Sheri Faust, Executive Director, sheri@scriver.org

  Organization Description:
  Friends of the St. Clair River is Michigan's Thumb Coast's largest environmental non-profit showing 40 miles of love to the St. Clair River Watershed since 2007.
  Our mission is to protect and restore the St. Clair River watershed through community education, environmental monitoring, hands-on stewardship and advocacy. Together with our partners we implement a variety of initiatives including water and land stewardship, water quality monitoring, river cleanups, advocate for healthy water, lead research-based ecosystem management, and promote responsible water-based recreation.

  Project Description:
  This project, "Understanding Potential Environmental Impacts of Utility-Scale Renewable Energy Projects on Agriculture Land" takes a research-based dive into the intersection of land conservation, private property rights, and clean energy sources in St. Clair County. This proposed project is in response to two recent issues at the state and local level: (1) Governor Whitmer's November 2023 bill signing that expedites Michigan's clean energy economy allowing state oversight and approval of local renewable energy projects, and (2) Companies increasing demand for privately-owned agriculture land for utility-scale renewable energy installations.
  Friends of the St. Clair River works to uphold the environmental integrity of the natural resources in Michigan's Thumb, so this project will gather data to lay the groundwork for understanding the complex and potential environmental risks of utility-scale renewable energy projects. This project will collect baseline water quality and biomass distribution data on agriculture-zoned land in the St. Clair River watershed to track and understand potential impacts of future large-scale renewable energy projects. ArcGIS map layers, land use zoning maps, and socioeconomic data will be used to identify the parcels that will be studied. In addition to assessing baseline environmental data at the creekshed and subwatershed levels, this project will have a component to inventory rural communities' renewable energy ordinance language to assess gaps and identify needs. A final report and presentation will consist of an ArcGIS map with data points, sampling data results, and ordinance inventory checklist.
  As Michigan pursues its renewable energy goals, companies will continue to approach communities for agriculture land. Wind and solar projects are usually 30-year landowner lease agreements, but these projects do not yet have 30-year lifespan histories documenting the short and long-term environmental, social, cultural, and economic impacts and benefits. This project's outcomes will provide three benefits: (1) Establish baseline environmental data at future sites for renewable energy installations, (2) Prepare local leaders with increased awareness and knowledge as waves of renewable energy projects land at St. Clair County's doorstep, and (3) Lay the groundwork for Friends of the St. Clair River's Advocacy Framework.

- **Trailer Equipment**
  Grand Rapids, MI. Hybrid,
  Mackenzie Wellman, Vice President, Mwellman@trailerequipment.com

Organization Description:
Trailer Equipment, Inc. is West Michigan's leading supplier of major brand trailers for sale or lease. In addition to sales and rentals, we specialize in routine maintenance and rebuilding highly damaged equipment to meet the original manufacturer's specifications. We offer a complete inventory of parts and 24-hour emergency service. We have everything you need to put your trailer on the road and keep it there: Iiftgates, side doors, roll-ups and more. Trailer Equipment, Inc. been here for all your trailer needs for more than 35 years. We've seen the industry change and products improve. As technology and construction processes have advanced, we have changed as well, investing in technology to keep your operation efficient.

Project Description:
Trailer Equipment is an equipment dealer serving the transportation industry for over 40 years. Our internship program entails gathering information on the companies who haul products in the state of Michigan and validating information in our CRM. The information includes products they ship, equipment they use, and contact information. Information will be gathered by online searches along with spending multiple days in the field with the territory rep seeing the shippers and manufacturing companies. There will be a special focus on coastal communities in the Great Lakes and the companies and products that operate in the surrounding water ways. There will also be a focus on fuel-saving products in the equipment industry to gain understanding of options available and the current adoption in the state of Michigan shipping community. This intern will also link up with the Sea Grant-coordinated Hazardous Material Transport Outreach Network (HazMaTON), a collaborative of specialists from the Great Lakes, Lake Champlain, Hudson River, and St. Lawrence River regions focused on reducing risks associated with multiple modes of oil and other hazardous materials transportation. Learn more at hazmaton.org.