2019-2020 Institute Personnel, Programs, and Shared Facilities

Personnel

Director, Great Lakes Research Center – Dr. Andrew Barnard, Associate Professor, Mechanical Engineering – Engineering Mechanics, Faculty Advisor, SENSE Enterprise
Director, Business & Program Development – Ms. Elizabeth Hoy, MNA
Director, Marine Engineering Laboratory – Dr. Guy Meadows
Director, University-Indigenous Community Partnerships – Dr. Valoree Gagnon
Associate Research Scientist – Dr. John Lenters
Assistant Research Scientist – Dr. Jill Olin
Assistant Research Scientist – Dr. Amanda Gonczi
Postdoctoral Research Fellow – Dr. Qi Shi
Institute Coordinator – Ms. Jacqueline Gebhardt, PMP, CSM
Assistant Director, Geospatial Research Facility – Mr. Ryan Williams, GISP
Assistant Director, Marine Operations – Mr. Jamey Anderson
Electronics/Computer Engineer – Mr. Christopher Pinnow
Research Engineer and Relief Captain – Mr. Travis White
Geospatial Research Scientist – Mr. Daniel Lizzadro-Mcpherson
Captain R/V Agassiz – Professor Emeritus, Stephen Roblee

Affiliated Programs and Shared Facilities

Marine Research Asset Facility – Dr. Andrew Barnard, Director
Geospatial Research Facility – Dr. Donald Lafreniere, Director
Microanalytic Shared Facility – Dr. Andrew Burton, Director
University-Indigenous Community Partnerships – Dr. Valoree Gagnon, Director
Smart Ships Coalition / Marine Autonomy Research Site – Mr. Travis White, Coordinator
Center for Science & Environmental Outreach – Ms. Joan Chadde-Schumaker, Director

2019-2020 Financial Overview

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Budgeted</th>
<th>Actual</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY19 Budget Carryforward</td>
<td>$125,257</td>
<td>$125,257</td>
<td>100%</td>
</tr>
<tr>
<td>VPR Strategic Initiative Fund</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY20 IRAD Returns</td>
<td>$328,399</td>
<td>$309,395</td>
<td>94%</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Expenditures</th>
<th>Budgeted</th>
<th>Actual</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$339,755</td>
<td>$299,278</td>
<td>88%</td>
</tr>
<tr>
<td>Other</td>
<td>$139,014</td>
<td>$131,028</td>
<td>94%</td>
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</table>
2019-2020 Strategic Growth

The following highlights FY20 (period of July 1, 2019 – June 30, 2020) initiatives and activities to support the Institute’s continued growth by strategically leveraging Institute resources to increase awareness, promote research capabilities and support research:

- On July 1, 2020, Dr. Andrew Barnard, Associate Professor of Mechanical Engineering – Engineering Mechanics, was appointed GLRC Director. Former Director, Dr. Guy Meadows continued his research leadership in FY20 securing seven awards during FY20 from industry and state and federal sponsors.

- Dr. John Lenters was hired in April 2020 as an Associate Research Scientist/Engineer with expertise in Great Lakes weather and climate, lake evaporation, air-sea interaction and watershed hydrology. To support continued research growth, the GLRC budget includes funding for at least 1 additional research staff hire annually. Research staff hires are identified based on expertise needs or opportunistically to launch new programs or initiatives where future research growth is anticipated.

- The GLRC committed position support to hire Dr. Xinyu Ye as an Assistant Research Professor in the Department of Civil & Environmental Engineering. Other campus partners in this hiring initiative included the departments of Civil & Environmental Engineering and Chemical Engineering, the College of Engineering and the Provost’s Office. GLRC support includes office space and research administration staff support to assist Dr. Ye in the development of her own research program.

- Ms. Jacqueline Gebhardt became the GLRC’s second full-time member of the Institute’s administration team in September 2019. As the number of research staff grow and more faculty from across campus engage in Institute research, the research administration team was increased to continue providing pre-award proposal development, submission support and post award project administration. Pre-and post-award support includes:
  - Scouting for requests for proposal that fit researcher interests and expertise
  - Teaming by identifying expertise from across campus
  - Communicating with sponsored programs on intentions to submit, RFP requirements that may require unique or additional attention, and addressing content and component needs for internal and sponsor submission
  - Budget and budget justification development including internal and third-party cost share commitments
  - Formatting to sponsor requirements curriculum vitae, collaborators and affiliates forms and current and pending
  - Uploading to various agency portals including FastLane and Research.gov (NSF), Grants.gov, NSPIRE (NASA) and eRA Commons (NIH), as well as other submission portals
  - Scheduling a timeline for proposal package development and submission that complies with internal deadlines
  - Supporting the timely submission of subcontractor, service provider and independent contractor documentation
  - Personnel processing support for temporary and full-time research associates. This includes hiring paperwork, payroll processing, performance review compliance, and researcher on-boarding support through one-on-one training.
Research purchasing via procurement card, purchase requisitions, and check requests.
Watch for opportunities for training and networking, and encourage participation.

- Mr. Daniel Lizzadro-Mcphearson joined the Geospatial Research Facility (GRF) team as a Geospatial Research Scientist in January 2020. With GLRC financial support, GRF staff are available to support data management plan and map development for proposals and technical DMP and GIS services for awarded research that includes staff position budget support.

- The Institute continued to provide leadership in piloting collaborations with other Centers and Institutes through various mechanisms (MOUs and index tagging). GLRC leadership served as a resource to other Centers/Institutes and their staff towards greater campus-wide research efficiency, reporting and productivity, by sharing best practices, tools and processes.

- The Institute was awarded its first $1M or greater research award. The team, led by Dr. Stephen Techtmann (Biological Sciences) with Dr. Rebecca Ong (Biological Sciences), Dr. David Shonnard (Chemical Engineering) and Dr. Joshua Pearce (Materials Science and Engineering), were awarded a Phase 1 project by the Defense Advanced Research Projects Agency’s Resource Program within the Biological Technologies Office. The project “BioPROTEIN – Biological Plastic Reuse by Olefin and Ester Transforming Engineered Isolates and Natural Consortia,” is funded at $2.53M with the potential total award (including Phase 2 and 3) of more than $7.5M.

- The GLRC’s Student Research Grant application was revised to include a statement by the student’s advisor(s) on how the student’s proposed research will contribute to the development of a future proposal. In addition to student research grants, the GLRC also provides support for guest speakers and student travel to attend conferences, workshops and other professional development events to present their research.

- In October 2019, Michigan Sea Grant Extension hired Dr. Lauren Jezcovitch. Through a formal partnership with Michigan State University, the Great Lakes Research Center designated an office space for local Sea Grant Extension activities. The goal of the partnership is to provide new opportunities for collaborative research and enhance public outreach and education through the Extension network.

- GLRC hosted a Fall clean-up, providing coordination with IT, facilities, EHS and the property office to remove unused equipment, supplies and chemicals. Items were disposed of, re-homed on campus, or donated following University property disposal procedures. GLRC provided staff assistance for documenting and student intern support for collecting and moving items to a sorting area.

- During FY20, the GLRC initiated a number of space reassignments to support multidisciplinary collaboration and shared facility use towards greater research performance. The GLRC ended FY20 with zero vacancy.

- GLRC contributed financial support as internal cost share on a number of shared equipment acquisitions including a new ground penetrating radar for near-surface geophysical surveying and a DMA8232 Mercury Analyzer, both acquired through the internal C2E2 and REF IE competitions.

- GLRC contributed financial support to the University-Indigenous Community Partnership Program and the Center for Science and Environmental Outreach to support efforts for engaging K-12 students and teachers in formal and informal science education and to strengthen the GLRC’s partnership with Tribal communities towards greater understanding and solutions to co-management and stewardship of environmental resources.
In FY20 the GLRC became a formal member of the Undersea Technology Innovation Consortium (UTIC). This membership provides opportunities for researchers to propose on limited Navy other transactional authority (OTA) projects through the Naval Undersea Warfare Center at Newport.

GLRC maintained memberships with the Marine Technology Society (MTS), the University-National Oceanographic Laboratory System (UNOLS) and the National Association of Marine Laboratories (NAML). These memberships promote Michigan Tech’s capabilities and are a source for networking and information on efforts to increase federal funding for Great Lakes and coastal ocean research.

Identify opportunities to promote researchers and their work, including soliciting support from University Marketing and Communications. An example includes establishing an internal workflow to alert UMC when a researcher requests a publication contribution number. This provides an opportunity for UMC to assist the researcher in promoting their science.

GLRC coordinated the annual campus-wide World Water Day celebration. Impacts of COVID required retooling from in-person events to virtual tours and presentations.

2019-2020 Performance Data

This report provides an overview of the research activity conducted between July 1, 2019 and June 30, 2020 by Great Lakes Research Center at Michigan Technological University and historical comparison to the previous 5 reporting periods. Reporting metrics include the number of proposals submitted and the cumulative dollar total of those requests; the number of awards generated and the cumulative dollar total awarded during the fiscal period; the number of active projects generating research expenditures and the cumulative dollar value of the expenditures; and, the Institutional Research and Development (IRAD) generated for organizational operation and strategic growth.

The following charts provide an historical overview of the current and previous five-year reporting period for each performance metric. This data is provided by the Vice President for Research Operations team and Sponsored Programs Accounting division.
Summary of Proposal Activity

The number of proposals submitted in FY20, although lower than the previous year was equal to the number submitted in FY18. The fourth quarter of FY20 was impacted by the global pandemic, COVID-19. Proposal development and submission was impacted by delays in RFPs being released and submission due dates being extended beyond this reporting period while funding agency personnel transitioned to remote work environments and in some cases mandatory furloughs. Researchers were challenged by navigating remote work, managing and minimizing the negative impacts on active projects, and for those teaching, the need to transition courses quickly to on-line platforms. These distractions and the inefficiencies caused by the disruption of COVID-19 are a significant factor in modest FY20 proposal metrics performance. See Proposal Appendix for a full listing and detail of proposals submitted.
Summary of Award Activity

The cumulative value of awards in FY20 grew by 20% over the previous reporting period and continues a steady five-year growth trend. This was accomplished with fewer awards reported in FY20. This performance area was also impacted by COVID-19 by known delays in award announcements (these will contribute to FY21 performance) and contract negotiations with research sponsors. See Award Appendix for a full listing and detail of awards received.
Summary of Active Projects & Expenditures

The number of active projects generating research expenditures were both slightly lower than the previous fiscal year. COVID-19 resulted in delays in contracting awards, reducing the number of active projects and resulting in lower expenditures. For projects already under contract, federal and state executive orders across the Great Lakes region prohibited fieldwork, some graduate student research, and in-person collection of data, resulting in lower expenditures.
Summary of IRAD Returns

IRAD returns slightly increased over the previous period and continued a steady growth trend.
2019-2020 Performance Summary by Unit

The following table provides a summary of space allocated, IRAD returns generated and proposal and award activity (by sponsor request/award) as a percentage of the Institute’s total performance by unit. Proposal and award detail by department/organization and affiliated PI and Co-PIs is provided in the attached appendices.

<table>
<thead>
<tr>
<th>Department/Organization</th>
<th>COLLEGE OF SCIENCES &amp; ARTS</th>
<th>COLLEGE OF ENGINEERING</th>
<th>CENTERS &amp; INSTITUTES</th>
<th>OTHER UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% SPACE</td>
<td>% IRAD</td>
<td>% PROPOSALS</td>
<td>% AWARDS</td>
</tr>
<tr>
<td>Biological Sciences</td>
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<td>3.9%</td>
<td>55.6%</td>
<td>23.1%</td>
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<tr>
<td>Chemistry</td>
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<td>0.0%</td>
<td>2.9%</td>
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<tr>
<td>Social Sciences</td>
<td>3.6%</td>
<td>0.9%</td>
<td>7.7%</td>
<td>12.8%</td>
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<tr>
<td>Civil &amp; Environmental Eng</td>
<td>35.9%</td>
<td>34.4%</td>
<td>19.0%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
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<td>13.8%</td>
<td>1.4%</td>
<td>5.1%</td>
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<tr>
<td>Chemical Engineering</td>
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<td>6.1%</td>
<td>1.6%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Electrical &amp; Computer Eng</td>
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<td>3.4%</td>
<td>0.6%</td>
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<tr>
<td>Great Lakes Research Center</td>
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<td>34.6%</td>
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<td>17.7%</td>
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<tr>
<td>Michigan Tech Research Institute</td>
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<td>-</td>
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</tr>
<tr>
<td>VPR (flex lab) Vacant Space</td>
<td>2.4%</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Provost and Sr VP for Acad Affairs</td>
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<td>2.4%</td>
<td>0.5%</td>
<td>2.8%</td>
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<tr>
<td>Pavlis Honors College</td>
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<td>-</td>
</tr>
<tr>
<td>College of Computing</td>
<td>-</td>
<td>-</td>
<td>0.1%</td>
<td>-</td>
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