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RELATIONALITY

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from multiple perspectives within and beyond the academy.

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FEATURE

NAVIGATING INDIGENOUS FUTURES GALLERY

By Vicente M. Diaz, Michael J. Dockry, G.-H. Crystal Ng, Virajita Singh, Daniel F. Keefe, Katie Johnston-Goodstar, Roxanne Biidabinokwe Gould, Jim Rock, and Christine Taitano DeLisle

This photo gallery is a companion visual to the article “Navigating Indigenous Futures with the Mississippi River,” this issue.

The River Runs Through Us

For Dakota and Ojibwe respectively, Ĥaḥáwakpa / Misi-Ziibi is at once place and sentient being, a site, but also a relative—and a set of relations,

of kinship and of relations of reciprocal and mutual custodianship. The River has been “here” for millennia, and yet, as the proverb goes, has



*Detail from original. Between the east and west banks of the University of Minnesota Twin Cities campus, as taken from the Washington Avenue Bridge.
Image courtesy of Vicente M. Diaz.*

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also never remained at any one place in any one moment on account of its ceaseless flow. Yet, paradoxically, it “remains” steadfast and constant,

filled or fed as it is, continuously, through cycles of regeneration, from sources originating from all directions, including from above and below.



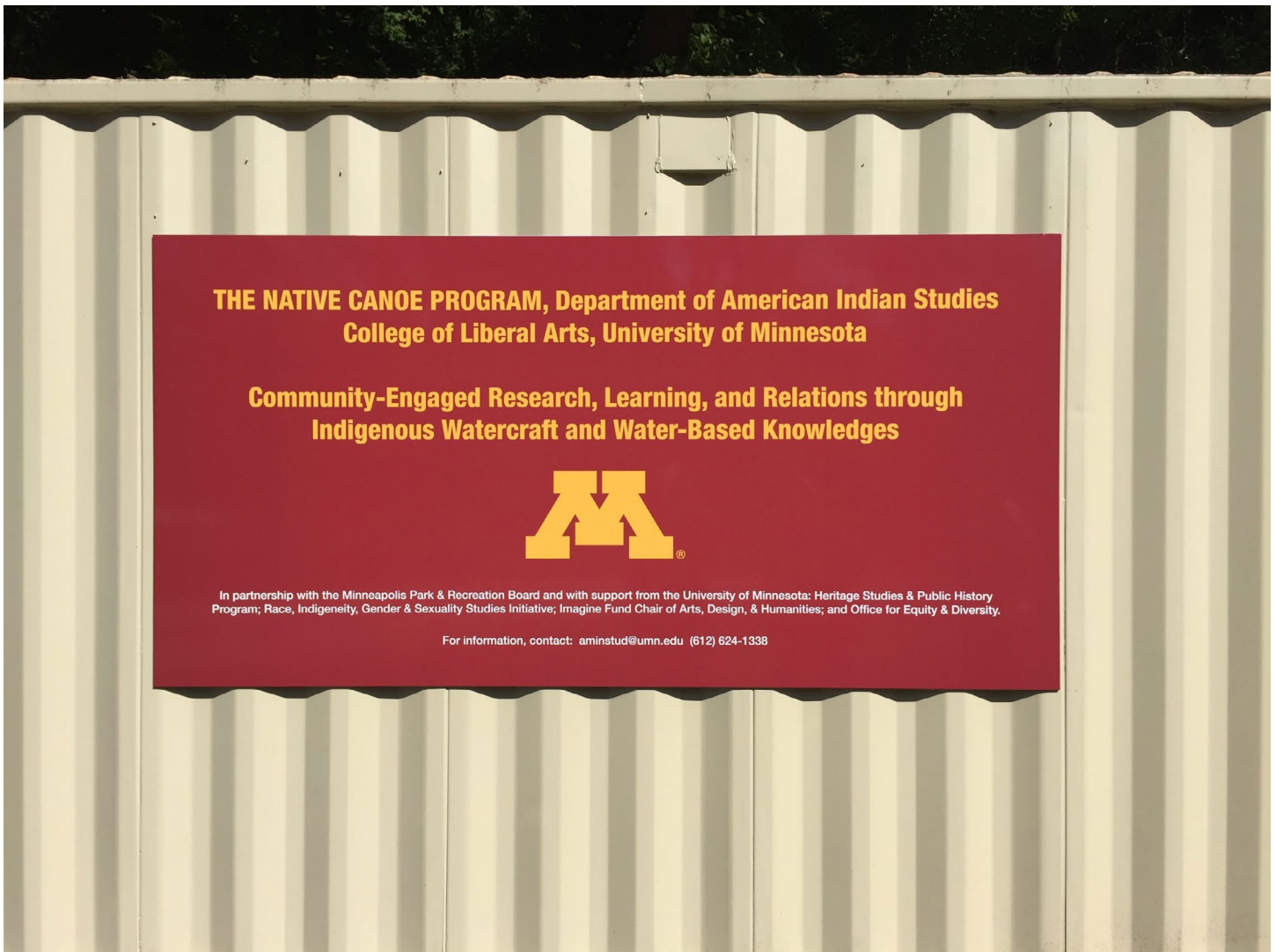
Between the east and west banks of the University of Minnesota Twin Cities campus, as taken from the Washington Avenue Bridge. Image courtesy of Vicente M. Diaz.



This is the small boat launch where the U of M crew team, and canoe/kayak recreators, enter and exit the River. Image courtesy of Jim Rock.

Historically and structurally, the River has also been changed—damaged—by, and to suit, settler colonial logics and relations. Yet, for us who as researchers bank on its many dimensions and possibilities, the River is also a place upon and a relationship with whom we might also build

relations of kinship and reciprocity with Dakota and Ojibwe communities in the shared hopes of together building new / old ways of knowing and being for a more just future, one that flows from renewing proper relations in decidedly Indigenous terms.



Founded in 2017, the Native Canoe Program is housed in the Department of American Indian Studies at the Twin Cities campus, and operates out of a refurbished shipping container, facing the boat launch, to and from which we seek to build proper relations for engaged community research, teaching, and learning on and off campus. Photo courtesy of the Native Canoe Program.



*Graduate students in the U of M's Heritage Studies and Public History program, Jacob Bernier and Chrissy Pettit also helped found the student organization, Canoe Rising, for connecting students to canoe revitalization projects in the Indigenous communities, and, of course, to find more legitimate reasons to just get out on the water.
Photo courtesy of Jacob Barrier/Canoe Rising.*

Under Canopies

The Manoomin and Back to Indigenous Futures teams showcased posters, cultural artifacts and implements, and cultural skills demonstration, including traditional watercraft and virtual reality canoe and celestial navigation simulations. After an early morning set up, which included a water ceremony down the river, at Wakháŋ Thípi, in St. Paul, our community partners from Dakota, Pacific Islander (Chuukese, from Micronesia), and Ojibwe communities from Minnesota and

Wisconsin opened the event with prayer, drumming, and music to begin the all-day activities and celebration. Under a canopy of trees that framed a small field between the cliff and the River bank, we set up a dozen canopies to hold people, exhibits, and displays associated with our work. Here mixed students, staff, administrators, and project partners from the community with the tangible and intangible values of our shared labor.



Exhibit and demonstration canopy booths went up quickly on a beautiful, clear sunny Fall morning. In no time at all we were ready to roll! Image courtesy of Yifan Liu.



Project faculty assigned pertinent materials to acquaint their students with academic research and scheduled their classes to meet together so that their students could also engage with each other and with project community partners. We also wanted students to appreciate the visceral, multisensoried “feel” of research with Indigenous communities. Images courtesy of Yifan Liu.



Juxtaposition of scale model watercraft and other water-related implements, art, weavings, mats, and carvings. The large canoe is of an Ojibwe wiigwaasi jiimaan or birchbark canoe. The brown canoe at the far end is of a Dakota wata or dugout. At the center, with the sail, is a Micronesian waa herak or outrigger sailing canoe. Objects courtesy of the Native Canoe Program. Image courtesy of Yifan Liu.

Canoe Beings

The Indigenous Futures Project, aided by a U of M Extension Southwest Region Sustainable Development Partnership (RSDP) grant, partnered with the Chuukese (Micronesian Pacific Islanders) Community of Milan, Minnesota and the Upper and Lower Sioux Communities to build a waa herak/sailing outrigger canoe and a wata/traditional Dakota dugout as part of a shared effort in community resilience and decolonization through the revitalization of traditional canoe and

water knowledge systems. The canoe building projects were supervised by traditional navigator Mario Benito and canoe carver Laureano Dilipwy from Polowat Atoll in the Central Carolines region of Chuuk State, the Federated States of Micronesia. Both canoes were blessed through Dakota and Polowat prayer and ritual, and launched on the Mississippi River during the event.



Men from the Micronesian community secure the Dakota wata/dugout onto a dolly. Behind, looking off to the side, is Mat Pendleton, Director of the Lower Sioux Recreation Center, which hosted the Micronesian carvers in their community. Looking on is the canoe building project coordinator Bob Ryan. Image courtesy of Jim Rock.



Polowat navigator Mario Benito unlashes the mast of the waa herak/outrigger sailing canoe, built with assistance from Upper and Lower Sioux community members. His assistant, Laureano Dilipwy (gray hoodie), looks on in the foreground, while project researchers Katie Johnston-Goodstar, Roxanne Gould, and Lakota elder Charlene O'Rourke take photographs. Image courtesy of Jim Rock.



The American folk singer and activist Woody Guthrie often painted the phrase, “This machine kills fascists,” on his guitar. These “machines” battle settler colonialism with the kinetics and vibrations of Indigenous cultural revitalization and performance. Image courtesy of Jim Rock.



*The Dakota wata readies for its own inaugural launch, but not before ceremonial blessing.
Image courtesy of Yifan Liu.*



*Benito blesses the waa herak. From choice of tree, to felling, to first cut, to initial launching, the life of a canoe—whether Dakota, Ojibwe, or Pacific Islander—is marked by ceremony and prayer. It, too, is an object, a sentient being, and a powerful site of relations.
Image courtesy of Yifan Liu.*

At the River

We chose to celebrate President Joan Gabel's inauguration by welcoming her to the River and to give her the means to feel what research means to us and our community partners. Ojibwe song

and drumming alternated with Micronesian chanting as she made her way to and from the boat launch to meet with us. For a full list of our participants in attendance, see Appendix One.



*Dakota Language Instructor Čhaŋtémaza Neil McKay (center, light blue shirt and black hat) welcomes President Gabel at the bank of the River, as Indigenous Futures researcher and Director of the Native Canoe Program, Vicente M. Diaz (red wrap-around) and Micronesian leader Gabriel Elias (next to McKay) look on.
Image courtesy of Lisa Miller/University of Minnesota.*



Manoomin researcher G.-H. Crystal Ng describes the Manoomin Project to President Gabel. Front Row L-R: Ng; Dean John Coleman, College of Liberal Arts; Dan Keefe, Indigenous Futures; President Gabel. Back Row L-R: Manoomin researchers Michael Dockry, Cara Santelli (in shorts and sunglasses), and Diana Dalbotten (in skirt, black t-shirt, and glasses). Image courtesy of Lisa Miller/University of Minnesota.



Manoomin and Indigenous Futures Projects' Community Leaders greet President Gabel. Left to right: John Johnson, Sr. and Joe Graveen, Lac du Flambeau Band of Lake Superior Chippewa; President Gabel; Diaz; and Gabriel Elias, Micronesian Community of Milan. Image courtesy of Lisa Miller/University of Minnesota.



Micronesian harmonies reverberated throughout the day. Though not indigenous to Minnesota, members of this community are no strangers to the River and to campus, having themselves been first welcomed in 2016 at the launching of the Native Canoe Program, and having visited the campus numerous times for various activities and events. Image courtesy of Lisa Miller/University of Minnesota.



*Jim Rock and other Indigenous Futures team members with President Gabel.
Back L-R: Christine DeLisle, Roxanne Gould, Charlene O'Rourke, and Bob Ryan.
Image courtesy of Lisa Miller/University of Minnesota.*



President Gabel and project members and community representatives take “a spin” aboard the waa herak NOAA’s Arc. From front to back: Mat Pendleton, Lower Sioux Community, Indigenous Futures Project; Eric Chapman, Lac du Flambeau Tribal Council member, Manoomin Project; President Gabel; Dockry, Manoomin Project; and Diaz, Indigenous Futures Project.



Below Franklin Avenue Bridge, looking south. The canoe, NOAA's Arc, was built in the Micronesian island of Guam in 2012 as part of an Indigenous Sustainability grant funded by the U.S. National Oceanic and Atmospheric Agency (NOAA). The name plays on the famous biblical story of saving humanity and other creatures with an ordained vessel, but the use of the "c" in Arc (as opposed to the letter "k"), signifies the historic and geographic "trajectory"—the long 'arc'—of indigenous Pacific Island mobility. It should not surprise us to find such vessels in, among other places, the Mississippi River.

Image courtesy of Lisa Miller/University of Minnesota.

Manoomin People

The drum beat and the drummers' voices of the Wigwam Juniors drumming group from Lac du Flambeau set the tone and kept the pulse beating throughout the day for the Manoomin Project's introduction to the Indigenous Futures Project, University of Minnesota students, and to President Gabel. The group was led by John Johnson, Sr., Tribal Council Member, Lac du Flambeau Band of Lake Superior Chippewa, and

joined by Kelly Applegate, Director of Resource Management, Mille Lacs Band of Ojibwe. The drummers were Ganebik Johnson, Lac du Flambeau Band of Lake Superior Chippewa; Tristan Mustache, Lac Courte Oreilles Band of Lake Superior Chippewa; and Elliot Johnson, Lac du Flambeau Band of Lake Superior Chippewa.



*Ojibwe Wigwam Juniors Drumming Group (clockwise): John Johnson Sr. (brown t-shirt), Kelly Applegate, Ganebik Johnson, Tristan Mustache, and Elliot Johnson.
Image courtesy of Yifan Liu.*



Manoomin Project members William “Joe” Graveen, a wild rice technician from Lac du Flambeau Band of Lake Superior Chippewa, and Lac du Flambeau Tribal Council Member Eric Chapman take a break with Laura Matson, U of M postdoctoral fellow, to enjoy the day together and carve some knocking sticks. Left to right: Matson, Graveen, and Chapman. Image courtesy of Yifan Liu.



Joe Graveen shows President Gabel how to carve manoomin ricing sticks near the Wigwam Jrs. drummers. Clockwise, from left: Bree Duever, Manoomin Project coordinator; President Gabel; Graveen; Tristan Mustache, drummer; John Johnson, Sr., Lac du Flambeau project partner; Edward Poupart, Lac du Flambeau, Wigwam Jrs. drummer; Elliot Johnson, drummer, and Ganebik Johnson, drummer. Image courtesy of Laura Matson.



Today, manoomin harvesting is carried out using the traditional method of knocking with these sticks. Image courtesy of Cara Santelli.



Lac du Flambeau's Wildrice Cultural Enhancement Program. Alex Waheed (blue t-shirt), a U of M graduate student on the Manoomin Project, shows an attendee photos of collaborative environmental fieldwork conducted at manoomin sites with partners from Lac du Flambeau. Image courtesy of Yifan Liu.



At the culture cultivation booth, shown L-R, Bree Duever, Diana Dalbotten, graduate student Maddy Nyblade (back to camera), and Laura Matson present a poster describing the close partnerships that serve as the backbone of their collaborative project. Image courtesy of Yifan Liu.

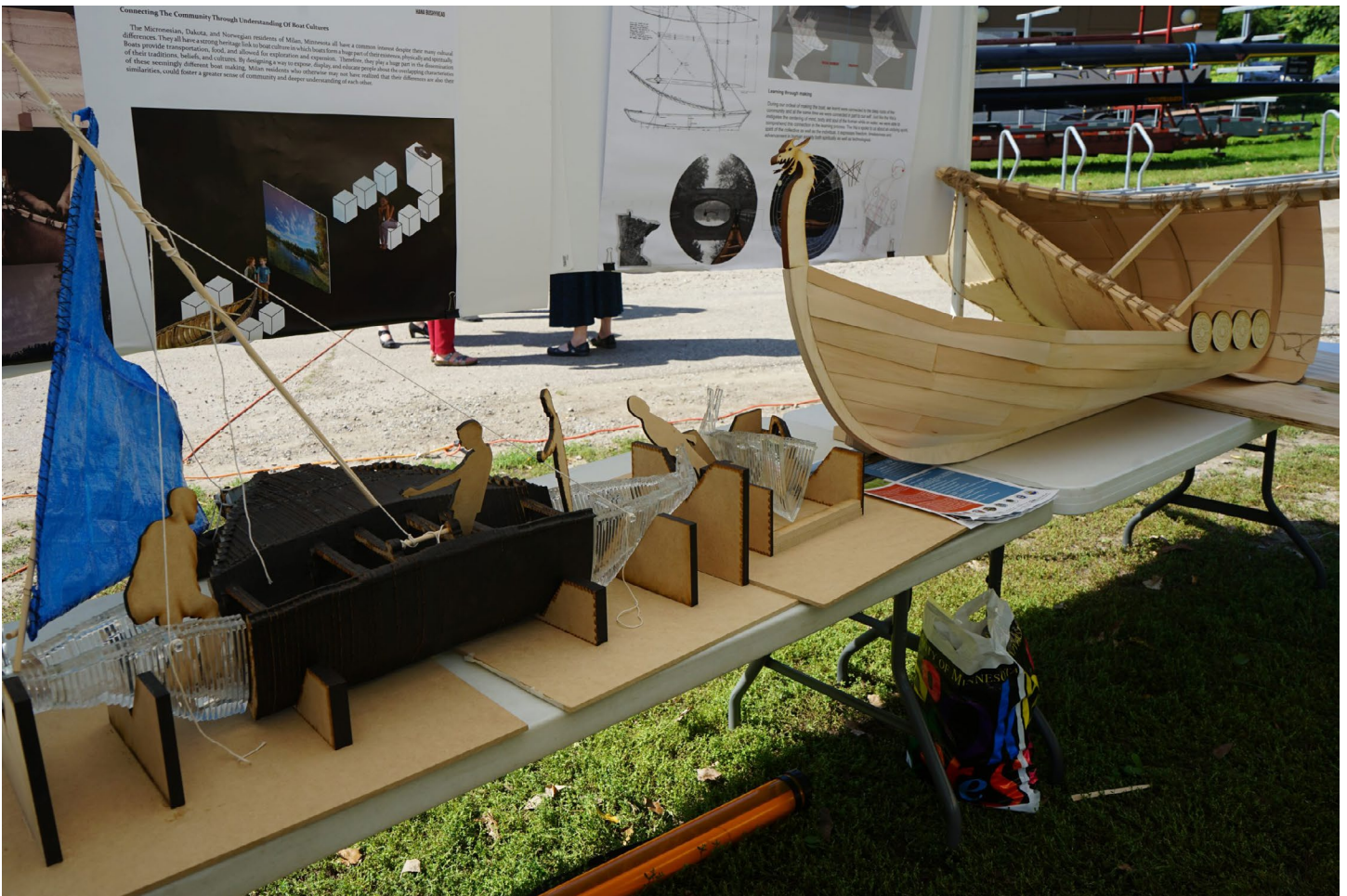
Catalyst Workshops

The Catalyst 2019 Architecture Studio Workshop Exhibit was titled “On Boat Culture and Making across Dakota, Micronesian, and Norwegian traditions.” In spring semester 2019, graduate students in the School of Architecture, College of Design, under Professor Virajita Singh, Indigenous Futures Co-PI, considered what anthropologist Tim Ingold calls “the joining of forces of matter in improvisation through discovery” by exploring the synergy among the methods, the materials, and the making of Indigenous watercraft from Micronesian, Dakota,

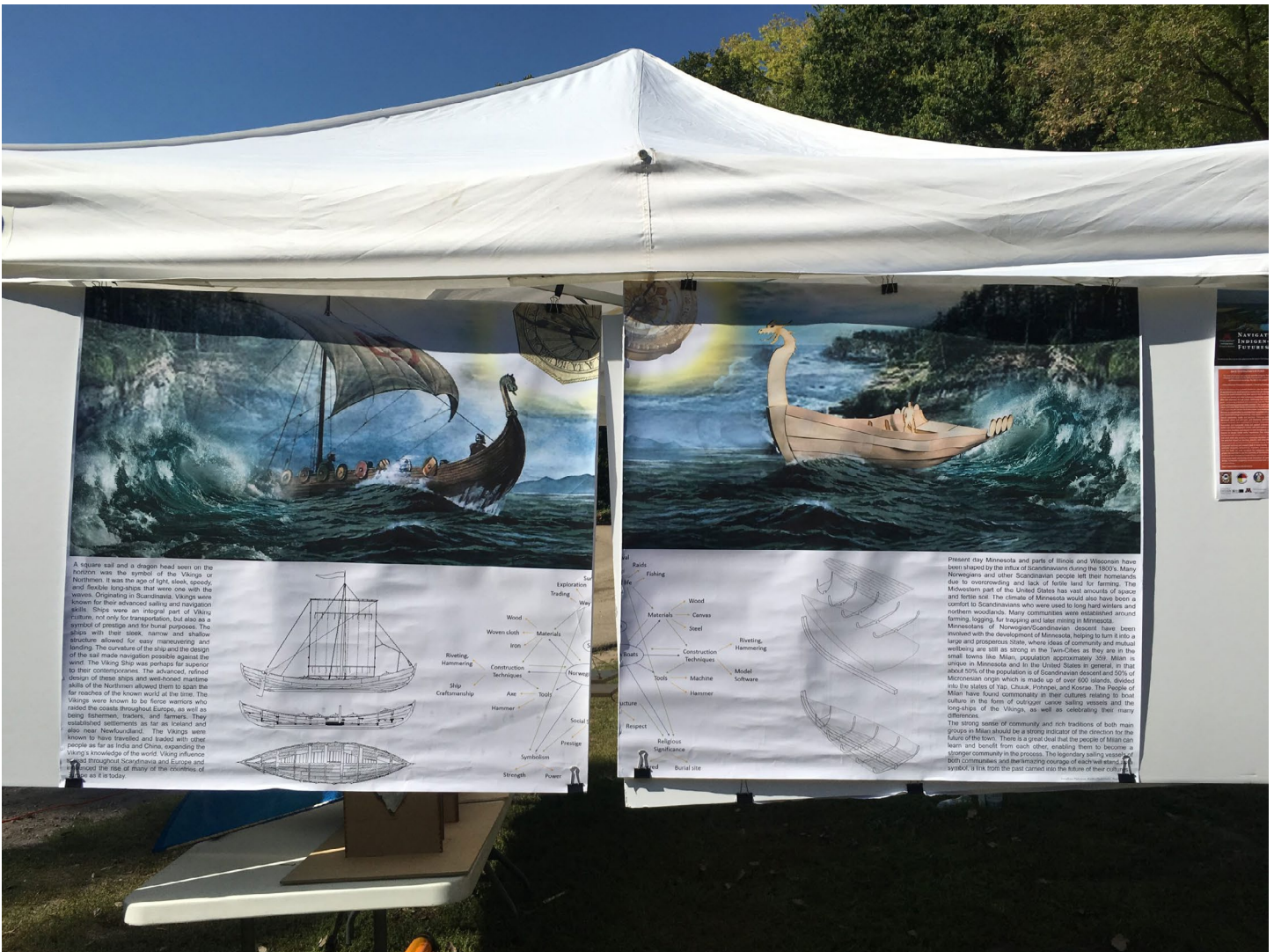
and Norwegian boat culture in rural Minnesota. The products—model watercraft and poster presentations on what was learned in studio “joining” of method/material/and making—were also joined to questions of place and community as raised in analogous work, by students in Professor Dan Keefe’s Immersive Lab, which involved the rendering of method/material/making of Indigenous watercraft in virtual reality “photography and choreography.”



Virajita Singh, Indigenous Futures Co-PI, explains a poster presentation of the 2019 Catalyst workshop to a group of students. Image courtesy of Yifan Liu.



Display of the 2019 Catalyst workshop on “Boat Culture and Making”: models of traditional Micronesian, Dakota, Ojibwe, and Norwegian (Viking) boats, made with balsa and acrylic. Image courtesy of Yifan Liu.



Poster presentation and model of medieval Viking ship technology.
Image courtesy of Yifan Liu.

Navigating Oceanic Stars in Dakota Lands where Water Reflects the Sky...in Virtual Space

Revitalizing traditional outrigger sailing technologies by fusing them with immersive computing technologies highlights the potential for individual (and group) first-person, multisensory storytelling and interactive teaching platforms. Such collaboration also leads to a symbiotic research relationship, where each technology informs new advances to the other. The 3D VR experience is

also kinetic and tactile: pull the mwel (Polowatese word for the “sheet” or line that controls the sail in boat lingo) to catch wind in the amara/sail and the waa herak/outrigger sailing canoe moves forward. Work the fatabwul/steering paddle to turn the mah or eyes/bow or front of the outrigger toward the star toward which lies one’s destination.



*Nelisa Elias, Micronesian Community of Milan, and Daniel Keefe, Indigenous Futures.
Image courtesy of Jim Rock.*



Composite screen capture and photo of VR experience by Milanesian community leader Gabriel Elias, at Dan Keefe's Interactive Visualization Lab at the University of Minnesota Twin Cities campus. Photo Courtesy of Dan Keefe, U of M I/V Lab.



This was what VR engineers call “experiencing a moment” or momentarily forgetting that one is in virtual space and feeling immersed and impacted by the experience. This unidentified student peers into the Micronesian night sky aboard a virtual voyaging canoe in virtual Micronesian waters...on the banks of the Mississippi. Image courtesy of Aaron Connor.



Edson Herman of the Micronesia Community of Milan pulls the sheet and works the steering paddle. VR is no longer only a visual technology. Image courtesy of Aaron Connor.



*An unidentified Ojibwe community member experiences another VR “moment.”
Image courtesy of Aaron Connor.*

Appendix One: Project Teams and Community Partners

Manoomin Project

Our interdisciplinary research team spans five University of Minnesota colleges and includes partnerships with four Minnesota and Wisconsin Bands and three inter-tribal organizations. U of M colleges: College of Science and Engineering; College of Food, Agricultural and Natural Resource Sciences; College of Liberal Arts; College of Biological Sciences. Tribal Partners: Fond du Lac Band of Lake Superior Chippewa, Mille Lacs Band of Ojibwe, Lac du Flambeau Band of Lake Superior Chippewa Indians, St. Croix Chippewa Indians of Wisconsin, 1854 Treaty Authority, Great Lakes Indian Fish & Wildlife Commission, and Great Lakes Inter-Tribal Council, Inc.

- Edward Poupart, Wigwam Jrs. Drummer
- Gage Poupart, Wigwam Jrs. Drummer
- Elliot Johnson, Wigwam Jrs. Drummer
- Ganebik Johnson, Wigwam Jrs. Drummer
- Tristan Mustache, Lac Courte Oreilles Band of Lake Superior Chippewa: Wigwam Jrs. Drummer

Tribal Partners

Lac du Flambeau Band of Lake Superior Chippewa:

- John Johnson, Sr., Former Vice-President of the LDF Tribal Council; Chairman of the Voigt Inter-Tribal Task Force
- Eric Chapman, Tribal Council Member; Wild Rice Cultural Enhancement Program Manager; Climate Resilience Initiative Project Lead
- William “Joe” Graveen, Wild Rice Cultural Enhancement Technician
- Erica Johnson

Mille Lacs Band of Ojibwe:

- Kelly Applegate, Director of Resource Management

Great Lakes Indian Fish and Wildlife Commission:

- Melonee Montano, Traditional Ecological Knowledge Outreach Specialist

Leech Lake Band of Ojibwe:

- TBD project partner, Division of Resource Management

(Fond du Lac Band of Lake Superior Chippewa is a close project partner, but all representatives were occupied with their wild rice population survey and could not attend.)

University of Minnesota Team

Co-Principal Investigators (Co-PIs):

- G.-H. Crystal Ng, Assistant Professor, Department of Earth and Environmental Sciences, College of Science & Engineering (CSE), U of M Twin Cities (UMTC)
- Mike Dockry, Assistant Professor, Department of Forest Resources, College of Food, Agricultural and Natural Resource Sciences (CFANS); Department of American Indian Studies, College of Liberal Arts (CLA), UMTC
- Laura Matson, Postdoctoral Fellow, Center for Changing Landscapes, CFANS, UMTC
- Cara Santelli, Associate Professor, Earth and Environmental Sciences, CSE, UMTC
- Dan Larkin, Assistant Professor, Department of Fisheries, Wildlife and Conservation Biology, CFANS, UMTC

Indigenous Futures Project

Our interdisciplinary research team spans eight University of Minnesota colleges and units in the Twin Cities and Duluth campuses, and includes partnerships with four Indigenous communities and organizations in Minnesota. U of M Twin Cities and Duluth colleges and units: College of Liberal Arts; College of Science and Engineering; College of Design; College of Education and Human Development; College of Education and Human Service Professionals; Swenson College of Science & Engineering; Marshall W. Alworth Planetarium, and the Center for Sustainable Building Research. Tribal and Indigenous Partners: Lower Sioux Indian Community, Community Council; Upper Sioux Indian

Students:

- Hannah Jo King, PhD, Forest Resources, CFANS, UMTC
- Maddy Nyblade, PhD, Earth and Environmental Sciences, CSE, UMTC
- Alex Waheed, MS, Earth and Environmental Sciences, CSE, UMTC

Researchers:

- Bree Duever, Center for Changing Landscapes, CFANS, UMTC
- Diana Dalbotten, St. Anthony Falls Laboratory, CSE, UMTC

Full Tribal and U of M project team list may be found at: <https://manoominsin-gc.dash.umn.edu/people/>.

Community, Board of Trustees; Makoce Ikikcupi; and the Micronesian Community of Milan, MN.

University of Minnesota Team

Co-PIs:

- Vicente M. Diaz, Associate Professor, American Indian Studies, CLA, UMTC
- Katie Johnston-Goodstar, Assistant Professor, School of Social Work, College of Education and Human Development (CEHD), UMTC

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- Dan Keefe, Associate Professor, Department of Computer Science and Engineering, CSE, UMTC
- Roxanne Gould, Associate Professor, Indigenous and Environmental Education, College of Education and Human Service Professionals, U of M Duluth (UMD)
- Virajita Singh, Senior Research Fellow, Center for Sustainable Building Research, College of Design, UMTC

Extended Academic Team:

- Christine DeLisle, Associate Professor, American Indian Studies, CLA, UMTC
- Stephen Guy, Associate Professor, Computer Science and Engineering, CSE, UMTC
- Jim Rock, Director of Indigenous Programming, Marshall W. Alworth Planetarium, Swenson College of Science and Engineering, UMD
- Hyun Soo Park, Assistant Professor, Computer Science and Engineering, CSE, UMTC
- Meixi Ng, Presidential Postdoctoral Fellow, American Indian Studies, CLA, UMTC

Graduate Research Assistants:

- Cary Waubanasum, Social Work, CEHD, UMTC
- Clarissa Seidle, Social Work, CEHD, UMTC

Community Partners

- Lower Sioux Indian Community, Community Council; Upper Sioux Indian Community, Board of Trustees
- Mat Pendleton, Director, Lower Sioux Indian Community Youth Center
- Adam Savariego, Upper Sioux Indian Community
- Charlene O'Rourke, Lakota Elder
- Waziyatawin, Makoce Ikikcupi
- Gabriel Elias, Micronesian Community of Milan, MN
- Michael Elias, Micronesian Community of Milan, MN
- Robert Ryan, Project Angechu Community Development Plan, Micronesian Community of Milan

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About the Authors

Vicente M. Diaz is Pohnpeian and Filipino from Guam. An interdisciplinary scholar, Diaz founded and heads The Native Canoe Program in the Department of American Indian Studies, University of Minnesota Twin Cities campus. The program uses Indigenous water craft for community-engaged teaching and research on Indigenous water traditions. Diaz's research is on comparative Indigenous cultural and political resurgence in Oceania and the Native Great Lakes and Upper Mississippi River region, particularly through the lens of Trans-Indigenous theory and practice, which foregrounds Indigenous histories and technologies of travel and mobility and pan-Indigenous solidarity.

Michael J. Dockry is a member of the Citizen Potawatomi Nation with traditional territories around southern Lake Michigan and contemporary tribal lands in Central Oklahoma. Dockry is an assistant professor of tribal natural resource management at the University of Minnesota Twin Cities in the Department of Forest Resources and an affiliate faculty member of the American Indian Studies Department. His research and teaching focus on incorporating Indigenous knowledge into forestry and natural resource management. His work supports tribal sovereignty and addresses Indigenous environmental issues across the United States with a focus on the Great Lakes and in South America with a focus on Lowland Bolivia.

G.-H. Crystal Ng is an associate professor in the Earth & Environmental Sciences Department at the University of Minnesota Twin Cities. She is interested in how different aspects affecting the hydrologic cycle—including the atmosphere, plants, soil, microbial activity, and geochemistry—interact with each other. She studies how links among these elements help to determine how the environment will respond to perturbations, including climate change, land use and land cover change, and contamination. She works in collaboration with social scientists and Tribal partners in Minnesota and Wisconsin to gain a more integrative and holistic understanding of how natural and human dimensions are intertwined.

Virajita Singh is Senior Research Fellow at the University of Minnesota's Center for Sustainable Building Research (CSBR) and adjunct faculty in the School of Architecture, College of Design. She leads Design for Community Resilience, a participatory design program she founded in CSBR that serves communities, particularly across rural Minnesota, in envisioning their futures through buildings and landscapes. She is Co-PI with her interdisciplinary university colleagues in collaboration with Dakota and Micronesian community members in western Minnesota on the Grand Challenges Research project 'Back to Indigenous Futures,' that explores what it means to find applied synergies between community, land, and indigenous culture-based knowledges and practices, virtual reality and embodied computing, and participatory design.

Daniel F. Keefe is a Distinguished University Teaching Professor and associate professor in the Department of Computer Science and Engineering at the University of Minnesota. His computing research centers on interactive data visualization and immersive computer graphics. Keefe is also a visual artist, and much of his work involves art+science collaboration, recently with a focus of highlighting/revealing the human behind the data.

Katie Johnston-Goodstar is an associate professor in the University of Minnesota School of Social Work where she teaches in the Youth Studies and Social Justice programs. Katie conducts Participatory Action Research with communities, most often with Indigenous youth, to explore and interrogate institutions such as schools and youth development organizations, and improve community well-being through the revitalization of Indigenous knowledges.

Dr. Roxanne Biidabinokwe Gould (Grand Traverse Band Odawa/ Ojibwe) currently serves as associate professor of Indigenous education in the College of Education at the UMN Duluth. Roxanne's research and work is global with a focus on Indigenous peoples, education, land justice, critical pedagogy of place, ecofeminism, traditional ecological knowledge and environmental sustainability. Her research includes Indigenous sacred site restoration, Indigenous food sovereignty, examination of Bolivia's agreement with Mother Earth and Living Well model, and Indigenous women's water teachings, traditions, and the work they do to protect it.

Jim Rock (Dakota) M.A.Ed. is University of Minnesota Duluth's Director of Indigenous Programming at the Marshall W. Alworth Planetarium and an instructor in the Physics and Astronomy Department at Swenson College of Science & Engineering. Rock teaches in the Honors Department as well and offers an ethno- and archaeoastronomy course called Native Skywatchers which includes Turtle Island (N., C. & S. America) and Oceania. He has worked or designed experiments with NASA and NOAA and is co-author of the 2014 *D(L)akota Star Map Constellation Guidebook* and other publications on Dakota and regional Sky-Earth connections.

Christine Taitano DeLisle is associate professor of American Indian Studies, University of Minnesota Twin Cities where she teaches courses on Indigenous resurgence, Indigenous women's history, and public history. DeLisle is CHamoru born and raised in Guåhan (Guam) and her research interests span Indigenous oceans, lands, and waters across Oceania and Turtle Island. She is a member of the Guam-based CHamoru women's advocacy organization, I Hagan Famalåo'an Guåhan, and is currently involved in revitalization projects between Dakota peoples and Native Pacific Islanders of Mni Sota Makoce.