

Wisconsin Sea Grant Science Signaling Service



















CANCEL

ERROR

### From the Director

While writing this, I am reflecting on the momentous upheaval we have all undergone in just a matter of months. A pandemic and a fervent national discussion along with, hopefully, a series of systematic actions addressing social justice in America — forever mark this as a time of before and a time of after.

2020 is the year that straddled that before and that after. Wisconsin Sea Grant certainly experienced the bifurcation. Our years of 2018, 2019 and the first two months of 2020 had radically different contours than the balance of 2020. With this biennial report, we reflect on our service and accomplishments on behalf of the Great Lakes. We simultaneously look forward. In each instance, it is through the lens of a profoundly altered world.

Before the unprecedented change brought about by COVID-19, our extension staff crisscrossed the state, offering one-on-one consultations, delivering presentations and attending planning meetings with partners. Our research project-supported students lined up at laboratory benches to analyze samples collected through field work. Our funded researchers taught courses and submitted peer-reviewed papers based on Sea Grant-supported work. Our graduate fellows, the next generation of Great Lakes scientists and managers, gathered for group learning at poster sessions and conferences.

Then came the after. In accordance with public health guidelines and protocols put in place by the university campuses on which we work, like so many others, we forged new ways to complete our tasks and serve stakeholders from a distance.

Before the death of George Floyd in Minneapolis and its repercussions, Sea Grant sought to embody and employ diversity, equity and inclusion in meetings, strategic planning, hiring practices, research and community engagement.

Then came the after. We reexamined it all. We advanced dialogue and action within our own program, and outward, to do what we could to shape a more just society.

In the face of both the new coronavirus and sociological reexamination and realignment, constants remain. We remain constant in our efforts to promote the sustainable use of the Great Lakes through research, outreach and education. We are privileged to own this mission and pleased to share this report, the embodiment of our version of the before and the after.

Sincerely,

Jen Hurley

Director



- 1 From the Director
- 4 Navigating Great Lakes Needs
  - 6 Healthy Coastal Ecosystems
  - 8 Sustainable Fisheries and Aquaculture
  - **10** Resilient Communities and Economies
  - 12 Environmental Literacy and Workforce Development
- **15** The Numbers
- 16 Leadership
- 17 Wisconsin Sea Grant Mission and Vision Statements
- **18** Sea Grant Advisory Council
- **19** Sea Grant Committee on Outreach and Education
- 20 Fellows and Interns
- 21 Partners and Collaborators
- 27 Publications and Other Information Transfer Products
- **31** Awards and Resources
- 32 Support Wisconsin Sea Grant

### Navigating Great Lakes Needs

hrough millennia, humans have categorized < and identified what is a part of our lives. We have named natural features and processes. We have blazed paths, displayed flags and posted wayfinding symbols. We have quantified and counted, built knowledge, and deepened connections to each other and what is around us — such as lakes, streams, rivers and ponds — which have always drawn humankind to their shores. We have devised methods of communication. That communication — semaphore and water-based signage helps us navigate. That deepened connection — forged by the data of buoys, secchi discs, Niskin bottles, trawl nets and lab analysis — helps us identify, name, understand, discuss and feel. It makes stewards of us. We are stewards of the sweetwater inland seas.

The Ojibwe names for lakes Superior and Michigan are Gichi-gami and Mishigami, respectively. Again, through millennia,

we name and connect with the Great Lakes that fouch Wisconsin. We know, and do not know, these bodies of water because there is always more to learn and do with partners and collaborators, and always, on behalf of stakeholders.

At Wisconsin Sea Grant, we sort our work into focus areas — Healthy Coastal Ecosystems, Sustainable Fisheries and Aquaculture, Resilient Communities and Economies, and Environmental Literacy and Workforce Development. These are the basis for grouping and communicating.

Under the flag of 2018 through 2020, we name the facts that follow, which are representative of some of our efforts. We then claim our accomplishments, applying the power of evidence-based thinking and the practicality of policies leading to the integration of science to action.

# Healthy Coastal Ecosystems

12 funded research projects. staff members. 5 nesting pairs 2019 on the Cat Island chain of



**8** formal outreach initiatives undertaken by of highly endangered piping plovers found in restored lands in the bay of Green Bay. Sea Grant

contributed to both restoration planning and ongoing management of the island chain that is being rebuilt using dredged material from the shipping lanes of Green Bay. **T** years of aquatic species management



by the state of Wisconsin before the 2019 adoption of a new plan, which was developed and adopted thanks to Sea Grant leadership. 500 water-collection and storage bottles used in a research project conducted by Prof. Christine Remucal at the University of Wisconsin-Madison and her team to assess the role of dissolved organic

matter and photoreactivity in breaking cholesterol-inhibiting atorvastatin, medicine carbamazepine. The work and Technology. **31** precipi-

eaking ntin, ork cipidown pollutants, specifically, insect repellant DEET, antidepressant venlafaxine and anti-epileptic was published in 2019 in Environmental Science tation samples from the National Atmospheric

Deposition Program National Trends Network analyzed by Martin Shafer in work funded by Sea Grant and at the Wisconsin State Lab of Hygiene. He detected, for the first time ever, per- and polyfluoroalkyl substances (PFAS) in rainfall. This data will now be used by the U.S. Environmental Protection Agency in deposition models. **\$120,000** is the amount of a two-year (2019-2021) grant awarded to a student to build on already-established Sea Grant work that developed a wild rice toolkit for Native American communities. The new funds will enable the study of how mercury, sulfide mining and climate change affect wild rice beds. Up to **1000** analyses for mercury isotopes in archived U.S. Geological Survey samples of



Great Lakes fish and lakebed sediment that led to a 2019 paper in the Proceedings of the National Academy of Sciences authored by Sea Grantsupported student Ryan Lepak and a team includ-

ing Sea Grant's Director Jim Hurley. The work showed that although there have been four decades of reduced mercury use and loading in the region, there has not been a decline in the amount of mercury accumulating in large game fish. This is due to the nonnative Dreissenid mussels in Lake Michigan that force fish to seek atypical food sources that contain more mercury. Healthy coastal ecosystems? Like this flag, we signal an enthusiastic **YES**. Sea Grant researchers and outreach staff pour considerable energy into understanding, maintaining, remediating and restoring the treasured spots throughout the Great Lakes basin that support habitats and resources.

Science Signaling Service

# Sustainable Fisheries and Aquaculture

funded research projects. fish staff members.



formal outreach initiatives undertaken by

species in the Great Lakes. 🖌 fish diseases

studied by Sea Grant-funded researchers in this reporting period that impact both wild

fish and those raised in aquaculture: viral hemorrhagic septicemia, which causes

fish to bleed out; columnaris, caused by Flavobacterium columnare and often fatal;

and saprolegniasis, a fungus that affects fish in early



days spent on the Lake Michigan life.

commercial fishing vessel Peter Paul by Sea Grant's fisheries

specialist to collect trawl catch data, which led to a state rule

change allowing fishers to extend their fishing season to the winter and harvest lake whitefish using trawl nets.

Economic value of lake whitefish: \$1.25 to \$1.60 per

Harvesting fish using trawl nets in December through



pound harvested using trap nets.

March, when fewer fresh fish



When it comes to Sea Grant investment in research and outreach to support and expand the region's land-based aquaculture efforts, it's ALL ABOARD, just as this flag represents, and then set forth. Aquaculture puts protein on dinner plates and makes for a healthy and tasty meal to boot. The industry creates jobs and production can be done in environmentally appropriate ways that conserve and protect water.

are available, means a higher value — \$2.10 to \$2.40per pound. 250 supper clubs in Wisconsin, which serve local staples such as brandy old fashioneds and a Friday-night fish fry, with walleye being a popular choice. 1000,000square feet: The size of the Hixton, Wis., Superior Fresh aquaculture operation, which has received research funding in collaboration with



the Wisconsin Sea Grant-supported University of Wisconsin-Stevens Point Northern Aquaculture Demonstration Facility to refine rearing

techniques of Atlantic salmon. Average number

of eggs a large female walleye can produce: 50,000. The record is more

<sup>than</sup> **600,000**.



# **Resilient Communities and Economies**

funded research projects. formal outreach initiatives undertaken by staff members. feet: Lake Michigan's April 2019 water level, which toppled the monthly record notched in 1986 — by three inches. It was yet another record for the entire Great Lakes Basin that is in a five-year-and-counting run of high-water levels that are causing erosion, lake sediment displacement and flooding. 8 to feet: the height of Ozaukee County bluffs that are eroding and collapsing into the high waters of Lake Michigan. feet is the root depth of common ninebark. The shrub can stabilize a coastal bluff and is included on a recommended vegetation list for lakeside bluff care prepared and distributed by Sea Grant's coastal engineer.  $T_{1}T32$  feet of steel valued at \$11.5 million in the Duluth-Superior Harbor protected from accelerated freshwater corrosion in 2018-20 because of mitigation studies conducted by Sea Grant and

25 feet a year is the rate of erosion of the popular Kenosha Dunes natural area in coastal Kenosha County and the site of a Sea Grant and partners project — the design and installation of wave-breaking underwater sills to blunt water's effects on the receding land.

partners, leading to innovative protective jackets. **I** colors on the rip current warning light in Port Washington, Wis., installed by Sea Grant

and partners, protecting Michigan beach that

death. The light means

no longer requires a



person to raise and lower warning flags. 12 visualization tools included in the online

Wisconsin Coastal Atlas — built and maintained by Sea Grant — to



help understand, among other things, Green Bay flooding, Milwaukee County bluff failure or up-to-date beach conditions.

swimmers at a Lake

has seen a tragic

a warning system



In the face of flooding, erosion and storms, Sea Grant does not wave the white flag but instead conceptualizes and works to implement an ALTERED COURSE, which this flag means. Along with partners, Sea Grant proposes practices that lessen or prevent unwanted consequences affecting shorelines, beaches and bluffs, as well as infrastructure in Wisconsin cities, towns and villages.



# Environmental Literacy and Workforce Development







funded research projects. formal outreach initiatives undertaken by staff sails on the Denis Sullivan, members. a 19th century three-masted Great Lakes schooner that was the venue for two Sea Grant summer teacher-training shipboard science sails. **4** Native American nations participated in the Sea Grant-funded Earth Partnership: Indigenous Arts and Sciences project, which designed, implemented and tested learning sequences affirming the ecological knowledge Native American children bring to the classroom, and increasing Native American participation in environteachers who went mental studies and careers. 1,40 to school themselves benefitting from Sea Grant training about how to teach Great Lakes 19 curricula. lake sturgeon objects, including artifacts, articles and photographs, in a 2019 partnership installation at the Thelma Sadoff Center for the Arts in Fond du Lac that celebrated the art and science behind the largest of the Great Lakes fish.

> 2 googly eyes, as needed to complete the paper plate turtle craft in the Come Out of Your Shell updated story time lesson plan —

one of 10 Sea Grant-created teaching tools for educators, librarians and families. Gamma Wisconsin graduate fellows who worked with mentors in state agencies and who, among other things, updated a Wisconsin coastal processes manual, advanced knowledge about hybrid splake in

Wisconsin waters and furthered understanding

about the effects of PFAS on human health.

**41,164** K-12 students reached with Sea Grant Great Lakes learning.





### Sea Grant is proud to fly this flag — the **DESIRE TO COMMUNICATE**

flag — because it contributes to building environmentally literate individuals who understand the natural world and the interplay of the living and non-living environment. Those individuals harvest knowledge to make science-based decisions about the Great Lakes and coastal areas.





#### **Funding Allocation 2018-20**







When hoisted above a vessel, this flag means **PILOT ON BOARD**. Sea Grant shows its leadership colors through the strength and diversity of those individuals who tirelessly contribute to the mission of Great Lakes stewardship. Staff expertise is highly valued and the voice of external advisory bodies is welcomed and respected.

### Leadership

Four people make up the Sea Grant leadership team. Two external bodies composed of diverse members provide guidance. The chancellor of the University of Wisconsin-Madison appoints the Sea Grant Advisory Council. The second body, the Sea Grant Committee on Outreach and Education, includes members who provide advice and assistance based on broad professional experience.

#### Sea Grant Management Team

Director James Hurley (608) 262-0905 hurley@aqua.wisc.edu

Assistant Director for Communications Moira Harrington (608) 263-5371 moira@aqua.wisc.edu Assistant Director for Extension David Hart (608) 262-6515 dhart@aqua.wisc.edu

Associate Director Jennifer Hauxwell (608) 263-4756 jennifer.hauxwell@aqua.wisc.edu

# Wisconsin Sea Grant Mission and Vision Statements

#### Mission

Wisconsin Sea Grant promotes the sustainable use of Great Lakes

resources through research, education and outreach.

#### Vision

Thriving coastal ecosystems and communities.

#### **Office Locations**

Main Office 1975 Willow Drive Madison, WI 53706-1177 (608) 262-0905

**UW-Green Bay** 2420 Nicolet Drive MAC 212 Green Bay, WI 54311-7001 (920) 465-2795 **UW-Green Bay, Manitowoc campus** 705 Viebahn St. Founders Hall F215 Manitowoc, WI 54220-6699 (902) 683-4697

School of Freshwater Sciences UW-Milwaukee 600 E. Greenfield Ave. Milwaukee, WI 53204 (414) 382-1723 Lake Superior National Estuarine Research Reserve Building 14 Marina Drive Superior, WI 54880 (715) 919-2154

# Sea Grant Advisory Council

**James Hurley** (ex officio), director, Sea Grant, UW-Madison

**Todd Ambs,** deputy secretary, Wisconsin Department of Natural Resources, Madison

Thomas J. Blewett, retired, program director, Community Natural Resource and Economic Development, University of Wisconsin Cooperative Extension, Madison

Sharon Cook, owner, Sharon Cook, LLC, Milwaukee

**Deb DeLuca**, executive director, Duluth Seaway Port Authority, Duluth, Minn. **Michael Friis,** program manager, Wisconsin Coastal Management Program, Verona

**H.J. (Bud) Harris,** professor emeritus, Natural and Applied Sciences, UW-Green Bay, De Pere

**Al House,** president, Apostle Islands Sport Fisherman's Association, Washburn

J. Val Klump, senior director and associate dean of research, School of Freshwater Sciences, UW-Milwaukee

Madelyn Leopold, private property owner and retired attorney, Madison

Larry J. MacDonald, former mayor, Bayfield

**Becky Sapper**, director, Wisconsin Master Naturalist Program, Division of Extension, UW-Madison, Ashland

**Lori Tate**, section chief, Fisheries Management Bureau, Wisconsin Department of Natural Resources, Madison

Dreux Watermolen, section chief, Science Information Services, Bureau of Science Services, Department of Natural Resources, Madison

Larry Wawronowicz (chair), natural resources director, Lac du Flambeau Band of Lake Superior Chippewa Indians, Woodruff

# Sea Grant Committee on Outreach and Education

**Kate Angel,** federal consistency and coastal hazards coordinator, Wisconsin Coastal Management Program, Madison

**June Breneman**, communications, University of Minnesota Duluth

**Gene Clark,** retired, coastal engineer, lola

**Brenda Coley,** co-executive director, Milwaukee Water Commons

**Bart De Stasio**, professor, Lawrence University, Appleton

**Meg Domroese,** director of programs and impact, Gathering Waters Inc., Madison

**Steve Galarneau,** director, Office of Great Waters, Wisconsin Department of Natural Resources, Madison

Steve Galetka, land records administrator, Bayfield County, Washburn **Jim Giglierano**, geographic information officer, Wisconsin Department of Administration, Madison

**Tricia Gorby,** director, Natural Resources Institute, Division of Extension, UW-Madison

**Lee Haasch,** owner, Haasch Guide Service, Algoma

**Vicky Harris,** coordinator, Wisconsin Clean Marina Program, De Pere

**Charlie Henriksen,** owner, Henriksen Fisheries, Sister Bay

**Jody Henseler**, middle school educator, Manitowoc

Hannah Stonehouse Hudson, HSH Communications, Milwaukee

**Tina Kakuske,** director, Door County Library, Sturgeon Bay **Edith Leoso,** tribal historical preservation officer, Bad River Band of Lake Superior Chippewa Tribe, Odanah

**Paula Maday,** public information officer, Great Lakes Indian Fish and Wildlife Commission, Odanah

Victoria Ryberg, environmental education consultant, Wisconsin Department of Public Instruction, Madison

Anne Sayers, deputy secretary, Wisconsin Department of Tourism, Madison

Jason Serck, planning and port director, city of Superior

**Bill West,** president, Blue Iris Fish Farm, Black Creek

**Pat Wilborn,** PortFish Ltd., Port Washington



# Fellows and Interns



Sea Grant recognizes the important responsibility it holds to foster the scholarship and careers of young professionals. From 2018-20, these inspiring fellows and interns have contributed to the sustainable use of freshwater and ocean resources through their efforts.

Dean John A. Knauss Marine Policy Fellow Joe Naughton, 2020

**Coastal Management and Water Policy Fellow** Bridget Faust, 2018

**Great Lakes Commission Fellow** Jack Cotrone, 2018 J. Philip Keillor Fellows Yi Liu, 2018 Elizabeth Tristano, 2018 Adam Arend, 2019 Lydia Salus, 2020 Gavin Dehnert, 2020 Patrick Blaufuss, 2020

Summer Undergraduate Interns Brenna DeNamur, 2020 Elise Ertl, 2020 Claire Finucane, 2020 Celeste Gunderson, 2020 Emma Holton, 2020 Sarah Schiltz, 2020 Isabel St. Arnold, 2020 Eliza Suchan, 2020

# Partners and Collaborators

#### State, regional, national and bi-national government

21st Century Community Learning Centers

Aquatic Nuisance Species Task Force

Argonne National Laboratory

Bad River Band of Lake Superior Chippewa

Bay-Lake Regional Planning Commission

Center for Great Lakes Literacy

**Coastal Zone Canada Association** 

East Central Wisconsin Regional Planning Commission

Fond du Lac Band of Lake Superior Chippewa Indians

Fox River Navigational System Authority

**Great Lakes Fishery Commission** 

Great Lakes Indian Fish and Wildlife Commission

Great Lakes Panel on Aquatic Nuisance Species

**Ho-Chunk Nation** 

Illinois Coastal Management Program

Illinois Natural History Survey

International Joint Commission

International Oceanographic Data and Information Exchange, Intergovernmental Oceanographic Commission, UNESCO Lac Courte Oreilles Band of Lake Superior Chippewa Indians

Lac du Flambeau Band of Lake Superior Chippewa Indians

Menominee Indian Tribe of Wisconsin

Michigan's 1836 Treaty Waters Technical Fisheries Committee

Michigan Coastal Zone Management Program

Michigan Department of Natural Resources

Minnesota Board of Water and Soil Resources

Minnesota Coastal Management Program

Minnesota Department of Health

Minnesota Department of Natural Resources

Minnesota Pollution Control Agency

The Mississippi River Basin Panel on Aquatic Nuisance Species

National Oceanic and Atmospheric Administration

- Coastal Storms Program
- Great Lakes Environmental Research Laboratory
- Great Lakes Observing System
- Lake Superior National Estuarine Research Reserve
- Marine Debris Program

- National Marine Sanctuaries
- National Sea Grant Office
- National Weather Service
- Office for Coastal Management
- Office of Ocean Exploration and Research

National Park Service

North Central Region Water Network

Northeast Ohio Regional Sewer District

Northwest Regional Planning Commission

Office of the State Archaeologist, Minnesota

Oneida Nation

Parks Canada

Red Cliff Tribe of Lake Superior Chippewa

Sokaogon Chippewa Community Mole Lake Band of Lake Superior Chippewa

Southeastern Wisconsin Regional Planning Commission

U.S. Army Corps of Engineers

U.S. Coast Guard

U.S. Department of Agriculture

U.S. Department of Transportation

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service



**U.S. Forest Service** 

U.S. Geological Survey

Virginia, state

Wisconsin Coastal Management Program

Wisconsin Department of Agriculture, Trade and Consumer Protection Wisconsin Department of Emergency Management

Wisconsin Department of Health Services

Wisconsin Department of Natural Resources

Wisconsin Department of Public Instruction

Wisconsin Department of Tourism

Wisconsin Department of Transportation

Wisconsin Historical Society

Wisconsin Veterinary Diagnostic Laboratory

#### Local, municipal and county government

Ashland, city	Evanston, city	Milwaukee Metropolitan
Baileys Harbor, town	Fox Point, village	Sewerage District
Bayfield, city	Grafton, town	Milwaukee Public Schools
Bayfield, county	Herbster, town	Mishicot, village
Bayside, village	Kenosha, city	Mount Pleasant, village
Belgium, town	Kenosha, county	NEW Water
-		North Bay, village
Brown, county	Lake, county	Oak Creek, city
Caledonia, city	Liberty Grove, town	Outagamie, county
Calumet, county	Long Beach, town	
Canton, town	Madeline Island	Ozaukee, county
Cedar Grove, village	Madison, city	Pleasant Prairie, village
Chicago, city	Manitowoc, city	Port Washington, city
Clinton, town	Manitowoc, county	Port Washington, town
	· · ·	Port Wing, town
Clover, town	Mequon, city	Racine, city
Cudahy, city	Metropolitan Water Reclamation District of Greater Chicago	Racine, county
Door, county		
Douglas, county	Milwaukee, city	St. Francis, city
Duluth, city	Milwaukee, county	Saxon, town

- Sheboygan, city Sheboygan, county Shorewood, village Sister Bay, village Somers, village South Milwaukee, city Southfield, city Superior, city Two Rivers, town Washington, county
- Washington-Ozaukee Public Health Department Waukesha, county Western Lake Superior Sanitary District Whitefish Bay, village Wilmette, city Wind Point, village Winnebago, county





#### Academic

Algoma School District	Loyola Unive
Bayfield School District	Manitowoc
Carleton University	Marquette l
Central Michigan University	Michigan St
College of Menominee Nation	Michigan Te
Cornell University	Milwaukee
East Carolina University	National Se
Gustavus Adolphus College	North Caroli
Hokkaido University	Northern M
International Association of Aquatic	Northland C
and Marine Science Libraries and Information Centers	Ohio State L
Japan Agency for Marine-Earth	Penn State
Science and Technology	Purdue Univ
Kewaunee School District	Reedsville S
Lake Superior State University	St. Norbert (

Loyola University Chicago Manitowoc Public School District Marquette University Michigan State University Michigan Technological University Milwaukee Public Schools National Sea Grant Law Center North Carolina State University Northern Michigan University Northland College Ohio State University Penn State University Purdue University Reedsville School District St. Norbert College

#### Partners and Collaborators, continued



Shorewood Hills Elementary School Stony Brook University Tandem Press Texas A & M University University of British Columbia University of California, San Diego

University of California, Santa Barbara	University of Wisconsin-Green Bay, Manitowoc Campus	
University of Florida	University of Wisconsin-La Crosse	
University of Illinois at	University of Wisconsin-Madison	
Urbana- Champaign	University of Wisconsin-Milwaukee University of Wisconsin-Oshkosh University of Wisconsin- Stevens Point	
University of Michigan		
University of Minnesota-Duluth		
University of Minnesota-Twin Cities		
University of St. Thomas	University of Wisconsin-Superior	
University of Vermont	University of Wisconsin-Whitewater	
University of Wisconsin-Green Bay	Valders Area School District	

#### **Businesses and non-governmental organizations**

1000 Friends of Wisconsin 1000 Islands Nature Center Abbey Marina, Lake Geneva Alaska Marine Safety Education Association All-Natural Greens Alliance for the Great Lakes American Planning Association American Society of Civil Engineers Apostle Islands Marina Apostle Islands Sport Fisherman's Association Association of State Floodplain Managers Bad River Watershed Association

Baileys Harbor Fish Co.

Bayfield City DockCD3Bayfield Regional ConservancyCapuchinBirds CanadaCardinal EBirchline Planning LLCCat IslandBlue Iris Fish FarmCenter for

CD3 Capuchin Community Services Cardinal Environmental Cat Island Advisory Committee Center for Great Lakes Literacy



**Christopher Farms** City of Port Washington Marina **Clean Bay Backers Clean Drain Dry Dispose LLC** Clean Wisconsin **Coolwater Farms LLC Crossmon Consulting LLC** Crow River Organization of Water **Discovery World Ducks Unlimited** Egg Harbor Marina Esri Ex Fabula The Farmory Fox Valley Humane Society Fox-Wolf Watershed Alliance

Friends of the Apostle Islands National Lakeshore

Friends of Lincoln Park

Friends of the Manitowoc River Watershed

Friends of the North Pikes Creek Wetlands

Fund for Lake Michigan

**Gaslight Pointe Marina** 

**Great Lakes Aquarium** 

Great Lakes Beach Association

**Great Lakes Commission** 

Great Lakes Community Conservation Corps Great Lakes Fisheries Heritage Consortium Great Lakes Shipwreck

Preservation Society

Great Lakes Surf Rescue Project

Great Lakes Observing System

Green Bay Aquarium Society

Green Bay Conservation Partners

Harbor Centre Marina

Harbor Club Marina

Harbor District Inc.

Henriksen Fisheries

IMPACT

International Coastal Atlas Network

Kingdom Animalia Exotic Animal Rescue

Lake Michigan Stakeholders

Lakeshore Natural Resource Partnership

Lakeshore Towers Marina

LimnoTech

Lower Fox Demonstration Farms Network

Madison Area Chefs Network

Manitowoc Marina

McKinley Marina

Milwaukee Community Sailing Center

Milwaukee Riverkeeper

Milwaukee Water Commons

Milwaukee Yacht Club Museum of Science and Industry MWH/Stantec Industries National Museum of the Great Lakes The Nature Conservancy Nestegg Marina Northwest Passage Ohio History Center Open Door Café Park Point Volunteer Surf Rescue Pentair Pepperboy Farms Pikes Bay Marina Port of Dubuque Marina Port of Duluth-Superior, Twin Ports

Port Exploreum

PortFish Ltd.



Racine Yacht Club Reefpoint Marina Reflo Riveredge Nature Center River Revitalization Foundation

#### Partners and Collaborators, continued

**River Road Research** 

Riverence LLC

**Rushing Waters** 

St. Croix Marina

Salmon Specialists Sportfishing Charters

Schlitz Audubon Nature Center

Seagull Marina

Shedd Aquarium

Sierra Club

Skipper-Bud's marinas

South Bay Marina

South Shore Yacht Club

Southeast Michigan Council of Governments

Southeastern Wisconsin Watersheds Trust (Sweet Water)



Southport Marina

of Commerce

Superior Chamber

Superior Fresh

Superior Public Museums

Superior Rivers Watershed Association

Susie-Q Fish Co.

ThedaCare

Thelma Sadoff Center for the Arts

Upham Woods Outdoor Learning Center

**Urban Ecology Center** 

**Urban Organics** 

Washburn Marina

The Water Council

We Energies

Wehr Nature Center

West Shore Marine

Wildlife Forever

Wisconsin Alumni Association

Wisconsin Aquaculture Association

Wisconsin Association for Floodplain, Stormwater, and Coastal Management

Wisconsin Coastal Beaches Workgroup

Wisconsin Commercial Ports Association

Wisconsin Environmental Education Board

Wisconsin Harbor Towns Association

Wisconsin Land Information Association

Wisconsin Marine Association

Wisconsin Maritime Museum

Wisconsin Underwater Archaeology Association

Wisconsin Water Thinkers Network

Wisconsin Waterfowl Association

Wisconsin Wastewater Operators' Association

Woodland Dunes Nature Center and Preserve

## Publications and Other Information Transfer Products

Anderson JD, C Wu. Development and Application of a Real-Time Water Cyberinfrastructure for Kayaker Safety in the Apostle Islands Lake Superior. *Journal* of Great Lakes Research 44(5):990-1001 10.1016/j. glr.2018.07.006 (2018).

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Moser A. Great Lakes Basin map kit, teaching tool (2018).

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# Awards and Resources

#### Awards

**2019 Platinum Award** from AVA Digital for College Course Uses Lake Superior Watershed podcast

**2019 Honorable Mention** from AVA Digital for Milwaukee River Race Proceeds Swimmingly podcast

2019 WAVE Judge's Choice Award for Voices of the Coast: George Schmidt video

2019 WAVE Editing Award for Voices of the Coast: George Schmidt video

**2019 Merit Award** for Videography for Great Lakes Fisheries and Family Businesses: Titus Seilheimer video

**2020 Council for Advancement and Support of Education** Silver Award for Voices of the Coast: Mary Lou Schneider video

2020 Digital Gold Award for Rivers2Lake podcast

2020 AVA Honorable Mention Award for Dangerous Current Workshop podcast

#### Resources

The 2018-23 Sea Grant strategic plan is available for review, go.wisc.edu/z756uw

Program resources, fact sheets, posters and more can be found at aqua.wisc.edu/publications

More than 3,000 water-related resources can be reviewed and checked out from the Wisconsin Water Library, waterlibrary.aqua.wisc.edu

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