

SG WISCONSIN SEA GRANT COLLEGE PROGRAM

Site Review Briefing Book



April 21 and 22, 2015
seagrant.wisc.edu

PROGRAM MANAGEMENT AND ORGANIZATION

Leadership

The Wisconsin Sea Grant College Program was the first in the Great Lakes region. It exemplifies the best science for the sustainable use of the inland seas' resources. For more than 47 years, this fully integrated program has translated its significant research findings into outreach and education across Wisconsin, the Great Lakes region and the nation to ensure healthy coastal ecosystems, sustainable fisheries and aquaculture, resilient communities and economies, and environmental literacy and workforce development through collaborative relationships responsive to stakeholders. The results from an average of 50 annual research and extension projects are measurable impacts on society, the economy and the environment of the state, region and nation.

Management Team

All Sea Grant activities take place within the structure of the University of Wisconsin Aquatic Sciences Center (ASC) at the University of Wisconsin-Madison. ASC is the administrative home of the Sea Grant Institute and Water Resources Institute, which is a complementary multidisciplinary statewide program focusing on solutions to Wisconsin's present and emerging water resources issues.

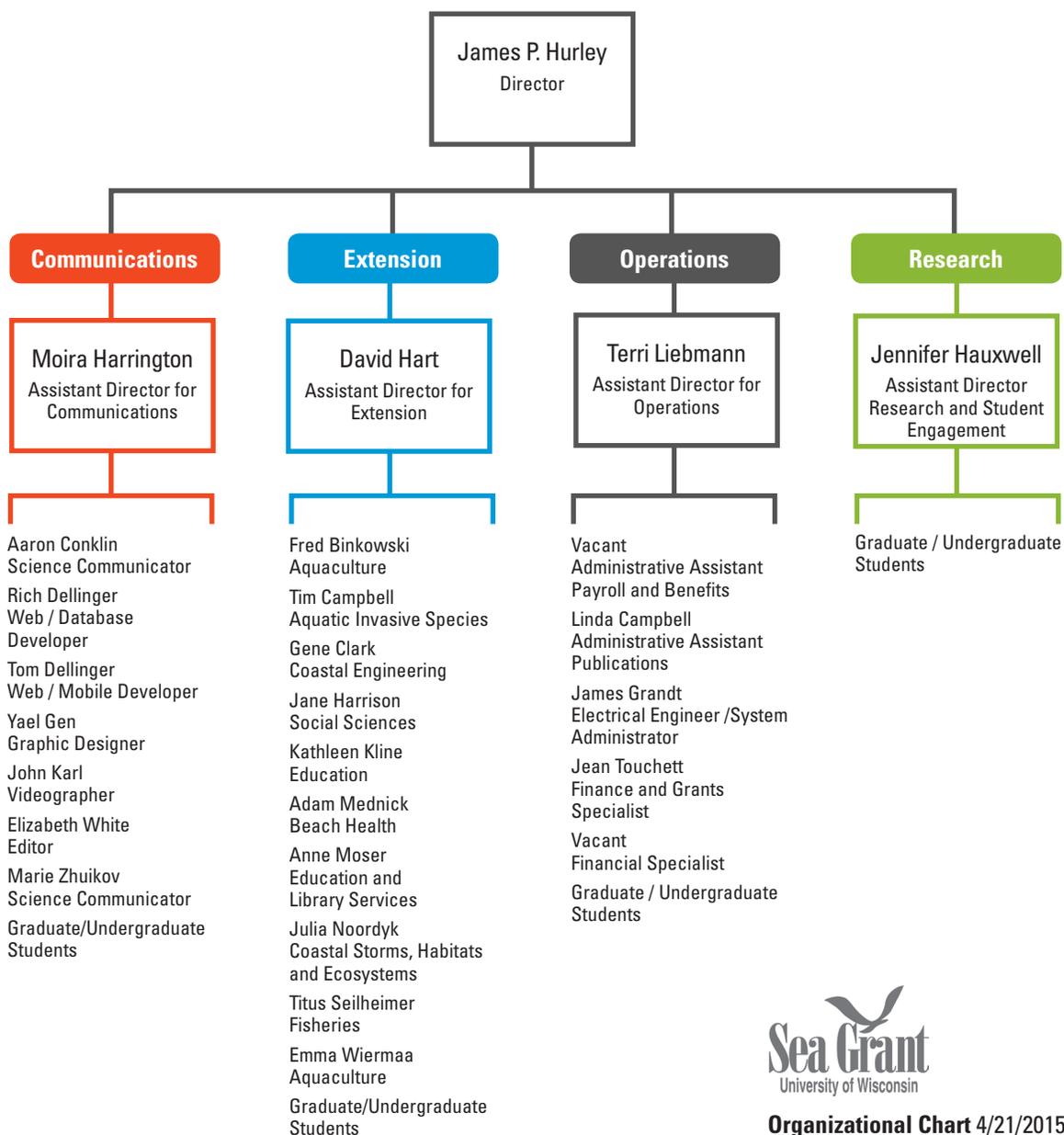
The ASC director is 75 percent with ASC and 25 percent with the Department of Civil and Environmental Engineering. The other members of the management team are all 100 percent with ASC. The annual budget for UW Sea Grant is approximately five times that of the Water Resources Institute.

James P. Hurley, director, leads two programs that support multidisciplinary research, education and extension for the protection and sustainable use of Wisconsin's water resources. As chair of the University of Wisconsin-Madison's Environmental Chemistry and Technology Graduate Program, Hurley also teaches and conducts research. His research on contaminant cycling in the environment is focused on mercury in aquatic environments. Hurley has published

more than 65 peer-reviewed research articles in his field. He received his Ph.D. in water chemistry from the University of Wisconsin-Madison. He was named UW Sea Grant director in 2012.

Moira Harrington, assistant director for communications, formulates communications strategy and directs the activities of seven professionals. Drawing on her previous career working on communications and public policy for a Wisconsin lawmaker, she also assists with legislative engagement. Harrington holds a B.A. in journalism and a B.A. in political science from the University of Wisconsin-Madison. She has been with the program for five years.

David Hart, assistant director for extension, supervises all extension activities, which encompass the work of nine specialists and one post-doc. His own specialty bridges geographic information science and urban and regional planning. He holds a Ph.D. in land resources from the University of Wisconsin-Madison. He had been with the program as an outreach specialist for 20 years before being named to his current position in fall 2014.



Jennifer Hauxwell, assistant director for research and student engagement, oversees the research enterprise — from pre-proposal stage through final reporting. Her specialty is limnological research. She has mentored numerous students, so her efforts in student engagement are a good match between her skill set and our emerging focus on student engagement. She holds a Ph.D. in aquatic ecology from Boston University's Marine Program at the Woods Hole Marine Biological Laboratory. She has been with the program for less than a year.

Terri Liebmann, assistant director for operations, has more than 30 years of experience in administration and 16 years with Sea Grant. She assists in policy development and management, including overseeing administrative, financial and human resources. She supervises five administrative support staff members. Liebmann received her B.S. in management from the University of Wisconsin-Stout.

To foster a collaborative approach throughout the organization, regular meetings are a hallmark. The management team meets on a weekly basis and augments those regularly scheduled conversations with daily and more informal discussions. Whether scheduled or ad hoc, the purpose of the meetings is always to conceive program priorities and goals, determine program policies and procedures, and identify and convert opportunities.

On a bi-weekly basis, the communications, operations and extension program areas each conduct their own meetings. In all three settings, the agendas include application of policies and procedures, clarification and updating, as well as strategic and tactical planning. In the case of communications and extension meetings, some participants teleconference in from their coastal field offices. In addition, all-staff retreats are held biannually.

The director has stated that the four principles of the program are transparency, innovation, integration and trust. The tenets are carried through each of these formal meetings as well as all program interactions among staff and beyond, as they are applied to interactions with stakeholders and collaborators.

Advisory Board

The Wisconsin Sea Grant Advisory Council is appointed by the University of Wisconsin-Madison chancellor. Consisting of state leaders from academia, state and local government, industry and the public, the council brings a wide variety of viewpoints to the program and helps ensure the program's accountability to Sea Grant constituencies. It provides policy guidance within established institutional goals and input on the overall program plan. The council meets two to three times a year. Council members are also invited to attend and actively participate in pre-proposal and proposal review panel meetings. The council operates under terms of reference, which include six core roles:

- **Advice:** The board advises Sea Grant on general program direction.
- **Visibility:** The board works with Sea Grant to promote visibility for the program.
- **Advocacy:** The board, as appropriate, advocates on behalf of Sea Grant to increase funding and recognition.
- **Evaluation:** The board helps in the evaluation of Sea Grant programs in view of its strategic and implementation plans. Members are invited to be present at research pre-proposal and full proposal reviews to provide expert panels with additional information about priorities.
- **Relevance:** The board assures that Sea Grant research, outreach and education activities are relevant to real-world problems and priorities on a local, regional, national and/or international scale.
- **Integration:** The board critically reviews the different programs and activities of Sea Grant to assure they are well integrated thematically and functionally.

Council members include:

James P. Hurley (ex-officio), director, Sea Grant

Kristine Andrews, assistant vice president, federal relations, University of Wisconsin System, Madison, Wis.

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

Carrie Bristol-Groll, owner, Stormwater Solutions Engineering, Milwaukee, Wis.

Steve Brueske, meteorologist in charge, Milwaukee/Sullivan NOAA National Weather Service Forecast Office, Sullivan, Wis.

Sharon Cook, owner, Sharon D. Cook LLC, Milwaukee, Wis.

Sheila Coyle, member, Wisconsin Women Forward for Environmental Education Foundation, Bayfield and Madison, Wis.

Michael Friis, program manager, NOAA, Wisconsin Coastal Management Program, Madison, Wis.

David Garman, dean, School of Freshwater Sciences, UW-Milwaukee

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

Al House, vice-president, Apostle Islands Sport Fisherman's Association, Washburn, Wis.

Larry J. MacDonald, owner, Cooper Hill House Bed & Breakfast and mayor, Bayfield, Wis.

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

Larry Wawronowicz (chair), natural resource director, Lac du Flambeau Band of Lake Superior Chippewa Indians, Lac du Flambeau, Wis.

The ad hoc UW Sea Grant Committee on Outreach and Education was formed to provide additional guidance on the direction of the program's extension and communications efforts. The committee meets annually or more frequently if the need arises. Outreach (extension and communications) staff choose members that align with their specialty and can aid in workplan development and mentoring.

Members include:

Carmen Aguilar (Education), associate scientist, School of Freshwater Sciences, UW-Milwaukee

Bill Brose (Coastal Engineering), principal, Smith Group JJR, Madison, Wis.

Bart De Stasio (Fisheries) professor, Lawrence University, Appleton, Wis.

Matt Eitrem (Geographic Information Systems) GIS coordinator, city of Ashland, Wis.

Mary Erpenbach (Communications), president, Cherry St. Agency, Beloit, Wis.

Denny Fox (Aquatic Invasive Species), national tournament director, AIM Pro Walleye Series, Little Chute, Wis.

Iris Gonzales (Sustainable Communities) community engagement specialist, 16th Street Community Health Centers, Milwaukee, Wis.

Lee Haasch (Charter Fishing), owner, Haasch Guide Service, Algoma, Wis.

Vicky Harris (Ecosystems and Habitat), coordinator, Wisconsin Clean Marina Program, De Pere, Wis.

Lynn Kurth (Education), teacher, Prairie River Middle School, Merrill, Wis.

Edith Leoso (Social Science), tribal historical preservation officer of the Bad River Band of Lake Superior Chippewa Tribe, Odanah, Wis.

Marge Loch-Wouters (Education), youth services manager, La Crosse Public Library, La Crosse, Wis.

Travis Olson (Healthy Coastal Ecosystems), wetland protection and land use planning coordinator, NOAA, Wisconsin Coastal Management Program, Madison, Wis.

Patrick Robinson (Freshwater Estuaries), freshwater management estuary specialist, UW-Green Bay Extension

Jason Serck (Ports and Harbors), planning and port director, city of Superior, Wis.

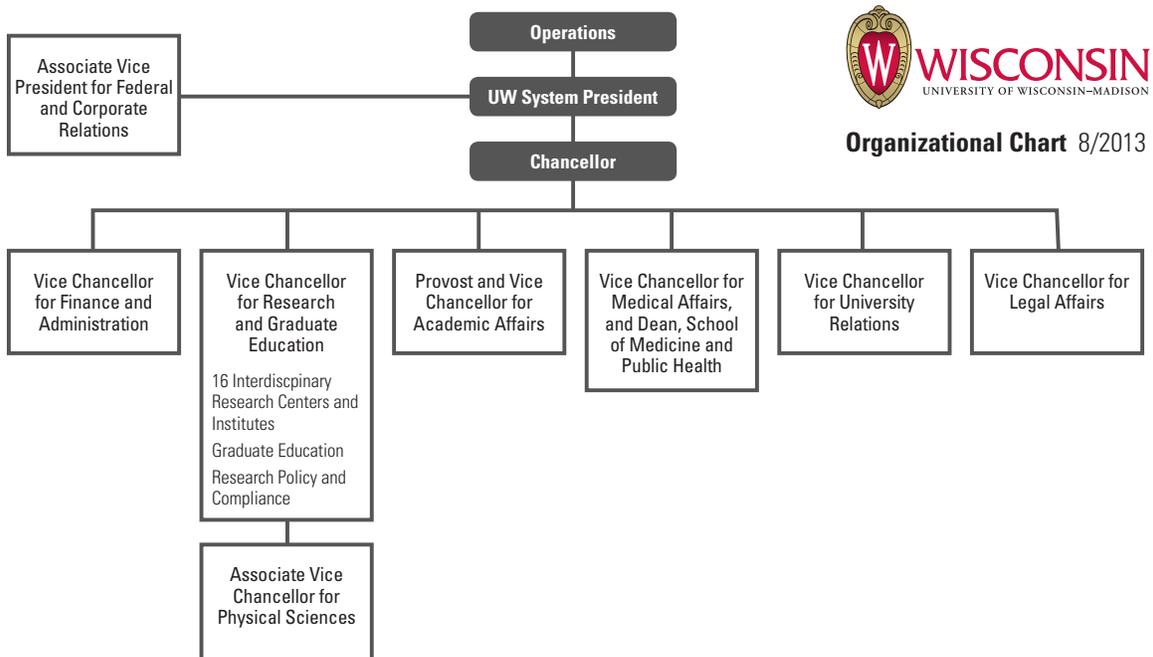
Angie Tornes (Outdoor Recreation), senior planner for rivers, trails and conservation, National Park Service, Milwaukee, Wis.

Pat Wilborn (Aquaculture), PortFish Ltd., Port Washington, Wis.

Program Setting

The program is a part of the University of Wisconsin System, which transferred responsibility for its management to the flagship campus — the University of Wisconsin-Madison — in 1978. The program also has field offices on campuses in Green Bay, Manitowoc, Milwaukee and Superior; each is a coastal city. It further supports robust aquaculture research and extension activities of the University of Wisconsin-Stevens Point Northern Aquaculture Demonstration Facility in Red Cliff, a community along the Lake Superior shore, and at the School of Freshwater Sciences at the University of Wisconsin-Milwaukee.

The Sea Grant director serves at the pleasure of and reports directly to the vice chancellor for research and graduate education (VCRGE) on the Madison campus. ASC is one of 16 centers within this structure. The ASC portfolio has been assigned to Dr. Steven Ackerman, associate vice chancellor for physical sciences. The office of the VCRGE oversees a \$1-billion academic research enterprise (the fourth largest in the nation) and serves more than 9,000 graduate students in 150-plus programs. The Madison chancellor regards the VCRGE as one of three individuals who make up her inner cabinet along with the provost and vice chancellor for finance and administration. Sea Grant’s high placement within this important structure indicates the overall institution’s regard for its priorities and accomplishments.





Recruiting Talent

The Wisconsin Sea Grant 2014-17 Strategic Plan is modeled on the NOAA-National Sea Grant Office vision to realize fully the value of the nation's oceans and coasts, and act to halt continuing degradation of those resources. Sea Grant is confident its plan meets the charge to harness energy, diversity and creativity to achieve national goals, while also responding to the unique challenges and needs of Wisconsin and the Great Lakes. The full plan has been distributed as a separate document along with this briefing book. It is the means by which the request for proposal priorities are established.

The four focus areas that make up the core of Wisconsin's plan are: Healthy Great Lakes Coastal Ecosystems, Resilient Great Lakes Communities and Economies, Sustainable Fisheries and Aquaculture in the Great Lakes Region and Environmental Literacy and Workforce Development in the Great Lakes Region. An extensive UW Sea Grant implementation plan, with detailed performance measures and metrics, fleshes out these focus areas.

Sea Grant's research activities begin with a biennial request for pre-proposals that are driven by its strategic and implementation plans and include input from the Advisory Council and the Committee on Outreach and Education. In fact, the advisory bodies were instrumental in reviewing and adjusting the call for research proposals in the second omnibus of the 2014-17 strategic plan. They offered valuable input on how to tailor the call to best meet elements of the plan and in response to Wisconsin coastal needs.

The program also leverages research dollars to address regional research topics over the last four years. Sea Grant issues a call for proposals along with the Illinois-Indiana Sea Grant Program, and one with the Minnesota Sea Grant Program. In 2016-18 and in alignment with the program's strategic plan, the call also included two integrated assessment topics, as well as a special call for education proposals.

During the biennial research cycle, email and direct-mail messages requesting pre-proposals are distributed to more than 800 addresses. Pre-proposal information is accessible through seagrant.wisc.edu and social media outlets as well. In 2014, an informational webinar on the process was conducted. All these efforts are directed toward faculty members (or persons having principal investigator status) at Wisconsin colleges or universities. Hard copies of the requests are also mailed to campus research offices. Wisconsin has 33 public and private four-year institutions of higher learning and 29 two-year colleges.

External reviewers representing expertise in the focus areas and special calls are selected to serve on a technical panel and are each assigned several pre-proposals for which they are lead

reviewers. Technical panel members present and discuss each proposal at a face-to-face session. The director, assistant director for research, assistant director for extension and members of the Advisory Council also attend the session and act as resources. It should be stressed that attending council members do not play a role in ranking the pre-proposals but are welcome to discuss the relevancy of pre-proposals to Sea Grant's strategic plan.

At the panel-review session, pre-proposals are categorized into three groups based on the discussion and final recommendation of the technical panel: 1) an invitation to submit a full proposal, 2) an invitation to contact the Sea Grant director for further exploration and 3) not encouraged. Even if not encouraged, however, investigators are still free to submit a full proposal.

A proposal workshop is then conducted for those who want to explore submitting full proposals for one or two years. The intent is to help potential investigators write better proposals, get to know Sea Grant, know what other researchers are submitting, and discuss extension and education intersections. Beginning with the 2016-18 cycle, there will also be renewed focus on and activities directed toward engaging Sea Grant-supported students in professional development and program activities. That information was also shared at the March 2015 PI workshop. The workshop provided prospective investigators with options on how to incorporate extension elements into their proposals. Other formal presentations touched on expectations about proposal submission and details on the program's strategic plan and focus areas.



Another external peer review process commences when the full proposals are submitted. At this stage, there are a minimum of three external reviewers per proposal, followed by an external technical review panel that both assesses the external reviews and rates proposals based on relevancy to the strategic plan. Once again, the director, assistant director for research, assistant director for extension and members of the Advisory Council attend the session and act as resources for panelists.

Because education submissions differ from traditional research proposals, a separate panel of education specialists from around the Great Lakes region review those packages, resulting in funding for up to two in each research cycle. Education projects are typically capped at \$25,000. Additionally, in the 2014-16 cycle a separate panel of social scientists was convened to look at proposals. In fact, the Minnesota and Illinois-Indiana Sea Grant programs used this same Wisconsin Sea Grant-convened panel to review their social science proposals. Sea Grant plans to use this approach again for 2016-18 projects.

Details on current and previously funded projects can be found in the "Program Information" section of aqua.wisc.edu/publications in a series of directories of projects and people. The iPropose and Reports online systems (aqua.wisc.edu/ipropose and aqua.wisc.edu/reports) are important elements of the entire research funding process. The systems were designed and built by Wisconsin staff. iPropose allows prospective researchers to submit pre-proposals and full proposals, as well as allowing external peer reviewers to conduct

their assessments online. Reports provides principal investigators with an easy means to submit, track and update their research reports — in the current reporting cycle as well as past ones, where publications or other results from “closed-out” projects may merit further reporting.

Sea Grant’s director has limited program development funds available for initial formation of promising research, education and extension projects. This funding is designed to turn proof-of-concept, emerging ideas into major efforts in support of the program’s mission.

Within the University of Wisconsin System, research and graduate-education programs are inseparable. Sea Grant philosophy has always been that graduate students are an investment in the future. They are the source of manpower needed to continue the economic advancement of the nation. As such, their support stands as one of the program’s highest priorities, and one of its greatest accomplishments.

Sea Grant has also had success in placing students through the John A. Knauss Marine Policy Fellowship program. Since 1982, the program has sent 25 students to Washington, D.C., to enrich their skills and contribute to the overall accomplishments of NOAA, other federal agencies and Congress. Of note is the class of 2015, when Wisconsin sent more students — three — than it had in any prior year.

This is a 2011-15 summary of research proposals.

Please note the 2016-18 process is ongoing.

Pre-proposals were due on Jan. 20, 2015, and full proposals will be due on May 1, 2015.

Projects and academic institutions involved in the request for proposal process

	2015 (2016-18 projects)	2013 (2014-16 projects)	2011 (2012-14 projects)
Pre-Proposals	83	70	73
Institutions (as represented by the lead PI)	12	13	16
Full Proposals	*	40	38
Institutions (as represented by the lead PI)	*	11	10

*To be determined after May 1, 2015, which is the deadline for full proposals.

New and continuing projects

	2015*	2014-16	2012-14
New projects funded	*	17	16
Continuing projects	*	4	5
Number of PIs funded	*	43	31
Number of new PIs funded	*	12	5
Institutions (as represented by the lead PI)	*	7	9

*To be determined in fall 2015 after full proposal technical review panels.

STAKEHOLDER ENGAGEMENT

As previously noted, Sea Grant is part of the University of Wisconsin System. A long-honored feature of the system is the “Wisconsin Idea,” a public-service concept that the boundaries of the university should extend to the boundaries of the state. This principle provides the perfect springboard for the work of a Sea Grant college program. It is the model by which staff members dispense science-based, unbiased translational research to appropriate user groups — partners and stakeholders — among Wisconsin’s more than 5.7 million residents, as well as spreading skills and knowledge throughout the Great Lakes region, and beyond.

Additionally, Sea Grant’s model is a continuous feedback loop between extension specialists, researchers and stakeholders. Stakeholders help identify research needs. Outreach specialists work to ensure that the relevant applied research occurs. Research findings are then immediately transferred back to the appropriate stakeholders through various methods such as trainings, workshops, one-on-one meetings, conferences and communications products.

Leadership by Staff on Boards and Committees

Over the last four years, most Sea Grant staff have undertaken leadership roles and/or assumed membership on boards and committees tied to their work and to further program reach.

Leadership

Sea Grant Association, president-elect	State of Lake Michigan and Great Lakes Beach Managers Conference Planning Committee, chair
American Fisheries Society-North Central Division, interim chair	National Institutes for Water Resources, National Cooperative Grants Program, peer review coordinator
Research Coordination Committee for the Great Lakes Aquatic Nuisance Species Panel, chair	Chicago Sanitary and Ship Canal Safety Workgroup, co-chair
American Fisheries Society Wisconsin Chapter Resolutions Committee, chair	Wisconsin Initiative on Climate Change Impacts Science Advisory Board, co-chair
Association of Wisconsin Special Librarians, president	Wisconsin Initiative on Climate Change Impacts Water Resources Working Group, co-chair
UW–Madison Environmental Chemistry and Technology Graduate Program, chair	Wisconsin Initiative on Climate Change Impacts Coastal Communities Working Group, co-chair
Center for Great Lakes Literacy, lead representative	Great Lakes Commission Great Lakes Dredging Team, co-chair
Chicago Sanitary and Ship Canal Technical and Policy Workgroup of the U.S. Army Corps of Engineers, chair	Lake Michigan Stakeholders, co-chair
Lower Fox River Total Maximum Daily Load Outreach Team, chair	University-National Oceanographic Laboratory System, UW-Madison lead representative
Planning Committee for the 2011 Great Lakes Sea Grant Network meeting, chair	Research Team on Lake Superior Accelerated Freshwater Corrosion, co-director
Great Lakes Sea Grant Network Communicators, chair	Association of Wisconsin Special Librarians, vice president
Public Relations Society of America, Madison, Wis. Chapter Scholarship Committee, chair	

Membership

Bay Renaissance Committee
 Cat Island Chain Restoration Project Steering Committee
 Clean Rivers, Clean Lake Conference Steering Committee
 Coastal Management Journal Editorial Advisory Board
 CoastGIS Executive Committee
 Committee on State Cartography
 Fox River Monitoring Program
 Fox-Wolf Basin Alliance
 Great Lakes Aquatic Nuisance Species Panel Information and Education Committee
 Great Lakes Beach Association Board of Directors
 Great Lakes Commission Great Lakes Dredging Team's Beneficial Use of Dredged Material and Confined Disposal Facility Management Committee
 Great Lakes Information Network Labs Advisory Group
 Great Lakes Sea Grant Network 2014 and 2015 Meetings Planning Committees
 Great Lakes Sea Grant Network Clean Marina Network
 Great Lakes Sea Grant Network Crude Oil Transport Working Group
 Great Lakes Sea Grant Network Social Science Network
 Green Bay Marsh Monitoring Program
 International Association of Aquatic and Marine Science Libraries and Information Centers
 International Coastal Atlas Network
 International Joint Commission Subcommittee on Science (Annex 10), Great Lakes Water Quality Agreement
 Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment Grant Review Committee
 Lake Michigan Lakewide Action and Management Plan Forum
 Lake Michigan Near-Shore Yellow Perch Task Group
 Lake Michigan Stakeholders
 Lake Superior Lakewide Action and Management Plan Work Group
 Lower Green Bay and Fox River Area of Concern Biota and Habitat Committee
 Lower Green Bay Remedial Action Plan Committee
 Milwaukee Area of Concern Stakeholder Delegation
 National Council of University Research Administrators
 National Marine Educators Association
 National Sea Grant Office Hazard Resilience in Coastal Communities Focus Team
 National Sea Grant Office Healthy Coastal Ecosystems Focus Team
 National Sea Grant Office Performance Measurement Optimization Committee
 National Sea Grant Office Safe and Sustainable Seafood Focus Team
 National Sea Grant Office Social Science Working Group
 National Sea Grant Office Sustainable Coastal Development Focus Area Team
 NOAA Coastal Storms Program Shoreline Change Workshop Steering Committee
 NOAA Lake Superior National Estuarine Research Reserve Advisory Committee
 NOAA Wisconsin Coastal Management Program Natural Hazards Advisory Committee
 Salmonid Technical Committees
 Sea Grant Association Awards and Event Committee
 Sheboygan County Aquatic Invasive Species Advisory Committee
 Society for Human Resource Management
 South Shore Park Watch
 Southeastern Wisconsin Invasive Species Consortium Education Committee

U.S. Environmental Protection Agency Board of Scientific Counselors

UW-Madison Academic Staff Assembly

UW-Madison Arboretum Board

UW-Madison Committee on Academic Staff Issues

UW-Madison Equity and Diversity Committee

UW-Madison Science Alliance

UW-Madison Search and Screen Committee for the Vice Chancellor for Research and Graduate Education

The Water Council

Wisconsin Academy of Sciences, Arts and Letters Waters of Wisconsin Steering Committee

Wisconsin Aquaculture Industry Advisory Council

Wisconsin Association for Environmental Education

Wisconsin Clean Marina Technical Advisory Committee

Wisconsin Coastal Management Council

Wisconsin Fisheries Advisory Council

Wisconsin Groundwater Coordinating Council

Wisconsin Idea STEM Fellows Program

Wisconsin Initiative on Climate Change Impacts Green Bay Working Group

Wisconsin Initiative on Climate Change Impacts Water Resources Working Group

Wisconsin Invasive Species Council

Wisconsin Marine Educators Association

Wisconsin Society of Science Teachers

Women of Water

Woodland Dunes Nature Center and Preserve Property Committee

Key Partnerships and Important Stakeholders

The thrust of Sea Grant extension specialists' service is amplified when these individuals team up with each other and communications staff to create a force greater than the sum of its parts. Staff members also engage with partners and reach out to stakeholders, forging initiatives to meet the broad needs of a Great Lakes state through its varied audiences.

Expanded narratives on recent Sea Grant collaborative work with partners and stakeholders are below. In each instance, Sea Grant expertise and access to knowledge combine with federal and state agencies, local resource managers, businesses and industries to affect positive outcomes.



Supporting the Shipping Industry and Saving \$125 Million — Partnerships

Annually, a Sea Grant staff member has helped save, by a conservative estimate, \$125 million in storage costs for harbor-dredged material from Wisconsin and Minnesota ports. The shipping industry relies on clear channels for navigation and for moving cargo. Often, the channel-dredged material is clean but still goes to a confined disposal facility (CDF). Such large facilities cost anywhere from \$25 to \$50 million to construct. Most are rapidly reaching capacity.

This staff member has worked with several coastal communities that now use the dredged material for projects such as beach nourishment or construction rather than placing it in the nearly full CDFs. Sea Grant partners with the U.S. Army Corps of Engineers, the Great Lakes Commission and departments of transportation in Minnesota and Wisconsin.

Shipwrecks and Tourism — Partnership

Wisconsin's tourism industry is valued at nearly \$11 million annually. Shipwrecks drive tourism to coastal counties. 2015 marks the 40th anniversary of the sinking of the *Edmund Fitzgerald* in Canadian waters. Information on that famous ship, and more than 760 Wisconsin wrecks, is part of a newly relaunched Sea Grant/Wisconsin Historical Society website.

Wisconsinshipwrecks.org combines a wealth of wreck data with details about on-land coastal attractions, such as museums and lighthouses.

The website is just the latest step in a very long partnership Sea Grant has forged with the society. The pair has collaborated on exploration, mapping and successful National Register of Historic Places nominations on 55 shipwrecks. That is far more than any other state lists on the register. The partnership also includes land-based signage, public speaking engagements and geocaches, which are an innovative way to get tourists to coastal communities. On the horizon is a possible brand-new NOAA National Marine Sanctuary for Wisconsin centered, largely, on the well-documented and curated shipwrecks. Sea Grant was integral to a partner-rich nomination packet submitted in late 2014 by the state of Wisconsin and which was recently advanced to the next step toward a designation.



Battling Aquatic Invasive Species — Partnerships

The Great Lakes are home to more than 180 non-native species. A 2012 report indicated that Wisconsin spent more than \$12 million in state funds on battling aquatic invasive species (AIS) in 2009-10, the largest among all Great Lakes states. Sea Grant has stepped up to assist in this effort, partnering with the Wisconsin Department of Natural Resources (DNR) along with private entities, which also suffer consequences. Sea Grant administers a DNR Great Lakes boat-landing AIS education-inspection program that reaches an average of 12,000 boaters each season. In the case of private entities, Sea Grant has teamed up with Fort Fremont Marine to assess the role popular wakeboard boats may play in the spread of AIS. Charter boat captains on Lake Michigan have joined with the program to act as opinion leaders on educating their clients on AIS. Finally, working with Kingdom Animalia Exotic Animal Rescue, the program hosted four pet amnesty days, during which pet owners were invited to surrender non-native species instead of releasing them into the wild.



Building Freshwater Literacy, Engendering Stewardship — Partnerships

In 2012, Wisconsin Lake Sturgeon Bowl winner Marshfield High School went on to win the National Ocean Sciences Bowl. It was the fourth time in a row Wisconsin students, bolstered by the strength of the Lake Sturgeon Bowl supported by Sea Grant, won the national title. The success of the Wisconsin regional competition is in its individual components, including the teacher/coach training, which is unique to the Lake Sturgeon Bowl and sets it apart from the

other regional competitions around the country. Additionally, a cadre of students is provided with hands-on learning experiences that they carry back to classrooms to inspire peers who did not

participate in the competition. Sea Grant partners with UW-Milwaukee on the bowl. In another initiative, Sea Grant partners with UW-Madison and the Wisconsin Alumni Association to reach dozens of grandparents and their grandchildren through Grandparents University for two weeks each summer, providing an intense but rich freshwater experience to inspire families to carry on sustainability messages beyond their “university” classrooms.



Protecting Property and Restoring Wildlife Habitat — Partnerships

Program staff members contributed advice and assistance in partnership with the U.S. Army Corps of Engineers, Port of Green Bay, Brown County, city of Green Bay, U.S. Fish and Wildlife Service, University of Wisconsin-Green Bay, and the Wisconsin departments of Tourism and of Natural Resources leading to the successful reconstruction of 1,200 acres of emergent and submergent wetlands habitat and 210 acres of barrier islands in Green Bay, Lake Michigan. More than 40 years ago, the islands had washed

away and took with them valuable wildlife habitat and protection for the mainland from the bay’s pounding waves. The project saw substantial progress in 2013 and ‘14 when the spine of the island chain was completed. One measure of success is that there has been an explosion in the bird population, including five nesting pairs of endangered piping plovers. Sea Grant continues to advise on the operation and maintenance of the newly rejuvenated ecosystem.

Providing Visualization of Coastal Properties and Open Waters — Partnership

The NOAA Coastal Services Center is building a Lake Level Viewer as a part of its Digital Coast website. It would provide data sets for coastal managers, planners, decision-makers and technical users. Sea Grant and a collaborating new faculty member at UW-Madison assisted in user focus groups to ensure an efficacious new tool.

Serving the Shores of Lake Superior — Partnership

Sea Grant is fully collaborating with its NOAA partner, the Lake Superior National Estuarine Research Reserve, co-locating staff in the reserve’s building and funding two research projects in the area, along with Minnesota Sea Grant, to better map, understand and conserve the resources in one of the world’s largest freshwater estuaries. The Sea Grant communication staff member at the site also provides strategic and tactical assistance in staging the annual St. Louis River Summit. Additionally, she coordinates, along with reserve staff, a popular science café series that stages talks for nine months of the year to area residents.



Encouraging the Purchase of Wild-Caught and Farm-Raised Wisconsin Fish — Stakeholder Service

Sea Grant has partnered with the Wisconsin Aquaculture Association and select restaurants, breweries and grocery stores to raise the profile of Wisconsin wild-caught fish and its farm-raised species. Through public events, print material and a website, the effort seeks to support



the state's commercial fishing industry, worth \$5 million annually, and its aquaculture industry, worth \$21 million annually, both important stakeholders. Sea Grant has also deepened its relationship with the UW-Stevens Point Northern Aquaculture Demonstration Facility. The facility is conducting exciting work with viable, popular and lucrative species such as a walleye-saug-eye hybrid, Artic char and lake trout. All that knowledge is transferred to Wisconsin entrepreneurs. Additionally, Sea Grant is meeting

the needs of stakeholders that include the city of Racine and food pioneer and MacArthur Genius Award winner Will Allen. In both instances, Sea Grant is fostering an urban aquaculture industry to create jobs and eradicate central-city food deserts. Allen's Growing Power operation raises fish in an aquaponics setting. The urban farmer is also starting a for-profit enterprise to grow yellow perch fingerlings in a renovated building located in the state's most impoverished ZIP code. The city of Racine is rehabilitating a brownfield property to begin an aquaculture operation to grow those same fingerlings to market size.

Building Cost-Savings for Marinas — Stakeholder Service

Wisconsin has about 240 marinas and more than 625,000 registered boats — the stakeholders. It's big business that has an impact on aquatic ecosystems. Sea Grant helped start a statewide clean marina program and has partnered with other states wishing to emulate the initiative, following Wisconsin's lead. Sea Grant has provided intensive training and technical assistance resulting in 19 certified marinas and pledges from dozens of other marinas to work toward more environmentally sensitive practices. The efforts also save on marinas' business expenses. The clean marina program reduces insurance rates, and the costs associated with disposal of wastewater and petroleum spill cleanup.

Providing Coastal Engineering Advice and Assistance — Stakeholder Service

Stakeholders such as homeowners and businesses rely on the coastal engineering expertise provided by Sea Grant. Through professionalism and science-based analysis, Sea Grant's coastal engineer addressed a serious erosion and water disruption problem on Lake Superior caused by an ill-designed pier. This work catalyzed an overhaul of the entire state of Wisconsin dock and pier permitting process. In another example, a marina on Lake Michigan had plans to expand, and Sea Grant's review of the proposed project prevented a costly mistake. Adding the infrastructure would have eroded a nearby public beach. Finally, he contributed a chapter on solid timber cribs to the 2013 American Society of Civil Engineers Coastal Construction of Timber Structures Manual. Across the nation, this educated policymakers and property owners alike about the detrimental effects of these piers on the aquatic ecosystem as well as the cost to local governments.





Ensuring Water-Sport Safety — Stakeholder Service

Lake Superior attracts recreational enthusiasts — the stakeholders. Weather and water conditions are prone to rapid change between the mainland and the lake's chain of Apostle Islands. There have been drownings in the area due to hypothermia. A Sea Grant staff member worked with a UW-Madison scientist and the pair designed, tested and deployed instrumentation that collects real-time wave and temperature data. Two websites display that information and National Park Service officials and rescue personnel say this instrumen-

tation is now, literally, a lifesaver for those who enjoy kayaking and sailing in Wisconsin waters of the big lake. The website also contributed to a massive influx of tourists in the winter of 2013-14. The site's real-time camera captured images of a stunning display of ice at the caves that attracted 130,000 people to venture out on a frozen Lake Superior for viewing. Again, the camera promoted public safety as potential visitors could gauge the ice conditions by watching the webcam images.

Building Coastal Resilience — Stakeholder Service

The Wisconsin Coastal Atlas (wicoastalatlans.net) helps people better understand coastal issues, share coastal data and inform decision-making about the Great Lakes. The atlas leverages accurate local government data to represent the coasts of Wisconsin and seeks to be a sharable resource for analyzing coastal issues that extend beyond the boundaries of the state. The atlas was created under the leadership of Sea Grant.

Preserving a \$12.6 Billion Economic Driver — Stakeholder Service

The Port of Duluth-Superior generates \$12.6 billion in annual economic activity — jobs, cargo moved and businesses created and retained. The port — the stakeholder — has suffered from a mysterious accelerated corrosion of its important piers, pilings and walls. Replacing that damaged infrastructure would have cost \$120 million, with more necessary and costly repairs on the way had not a Sea Grant staff member facilitated work by researchers, port authorities and private engineers to come up with answers about why the corrosion was happening and how to stop it thanks to the outreach-research-outreach loop.

Preventing the Spread of Aquatic Invasive Species — Stakeholder Service

Nonnative species in the Great Lakes have gained a pathway to inland water bodies. Sea Grant played a lead role in an innovative and collaborative approach to the challenge of aquatic invasive species (AIS) proliferating in Great Lakes waters. Working with the other Great Lakes Sea Grant programs, the National Professional Anglers Association, the Masters Walleye Circuit, the Bass Federation and Wildlife Forever, the program targeted fishing tournaments and professional anglers as a vector in the spread of aquatic invasive species, and capitalized on their status as role models for other anglers when they spread AIS-fighting messages. It's a means to ensure the resource is available to thousands of recreational anglers who enjoy Wisconsin waters.





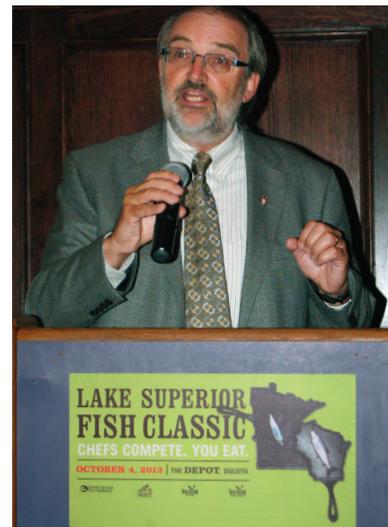
COLLABORATIVE NETWORK/NOAA ACTIVITIES

Short Description of the Collaborative Activities/Projects

Sea Grant recognizes the vital nature of its engagement within collaborative NOAA, NOAA National Sea Grant Office and Great Lakes Network activities. Such efforts not only share innovative Wisconsin ideas in broader ways but also allow Wisconsin staff to contribute to a stronger focus when addressing national and regional marine challenges to ensure sustainable use of coastal resources. Examples are:

- Through the NOAA Coastal Storms Program, co-led efforts of the program in the region as the coastal storms co-coordinator, including holding workshops, disseminating materials and administering a grants program. Sea Grant was instrumental in conducting the research competition in the Great Lakes basin.
- Participated in the siting and scoping process to bring a National Estuarine Research Reserve (NERR) to Wisconsin. In 2010, the Lake Superior NERR was dedicated and now shares office space with Sea Grant staff. That means Sea Grant is involved in day-to-day NERR activities as well as strategic ones because the Sea Grant director sits on the reserve's advisory board. Sea Grant further shares an administrative staff position with the NERR. Finally, the program issues a joint research call with Minnesota Sea Grant to support investigations at the NERR.
- Collaborated with the NOAA Great Lakes Observing System on design and delivery of a series of workshops that teaches constituents in Great Lakes communities how to develop their own Web-mapping applications.
- Partnered on the Great Lakes Sea Grant Network of Clean Marina Programs, which shares and standardizes best-management practices, guidance, training and certification criteria.
- Collaborated with Minnesota, Illinois-Indiana, Michigan and Pennsylvania Sea Grant programs and the NOAA Great Lakes Environmental Research Laboratory on a NOAA Coastal Storms-funded project: Using Social Science to Assist Local Governments in Coastal Hazard Preparedness and Resiliency Planning.

- Worked with the Great Lakes Sea Grant Network on climate adaptation initiatives for port/harbor facilities and stormwater management as part of a project funded by the NOAA Climate Program Office.
- Worked with the Great Lakes Sea Grant Network and the Bay-Lake Regional Planning Commission on extension efforts surrounding the Tipping Points Planner, a tool developed by Illinois-Indiana Sea Grant. This project identifies land-use indicators and tipping points in Great Lakes nearshore areas that can be used to develop policies, ordinances and land-protection programs, and identifies restoration priorities needed to sustain diverse Great Lakes ecosystems.
- Participated in a Great Lakes Sea Grant Network project funded through the U.S. EPA encouraging fishing tournament organizers to adopt practices that would prevent the spread of aquatic invasive species and foster an opinion leader structure in which fishing tournament champions inspire other anglers to adopt clean boating/fishing practices.
- Collaborated with the NOAA Marine Debris Program, as well as the Apostle Islands Sportfishermen's Association and Great Lakes Indian Fish and Wildlife Commission, to raise awareness about the problem of ghost nets in Lake Superior, to inform commercial fisherman how to report and collect lost nets, and to encourage angler safety during an encounter with a net.
- Along with Minnesota Sea Grant, staged the successful Lake Superior Fish Classic, a competitive fish cook-off to highlight the availability and nutritional value of Lake Superior fish.
- In partnership with Minnesota Sea Grant, planned and hosted the Great Lakes Briefs on Invasive Organisms Trade in Commerce Symposium in 2014 through a project funded by the U.S. EPA.
- Contributed to an Illinois-Indiana Sea Grant Program project to provide outreach materials, which includes a video, for water gardeners and aquarium hobbyists.
- Collaborated with the Michigan and Illinois-Indiana Sea Grant programs to provide new beach safety kits and consistent dangerous current messaging to Lake Michigan beaches through a NOAA Coastal Storms Program grant.
- Collaborated with Minnesota Sea Grant on real-time rip current observation studies and outreach for three Great Lakes beaches through a NOAA Coastal Storms Program grant.
- Collaborated with the NOAA Coastal Services Center on the design for the NOAA Lake Level Viewer (coast.noaa.gov/llv/).



- For the first time ever, hosted a NOAA Coastal Management Fellow from 2010-12. She was under the supervision of Sea Grant and the NOAA Wisconsin Coastal Management Program.
- Contributed to an application for Wisconsin to be the site of a new NOAA National Marine Sanctuary with numerous state partners. A decision is expected within the coming year. If the sanctuary is in fact located in Lake Michigan, it would be a reflection of the strong Sea Grant-Wisconsin Historical Society track record of preserving maritime heritage.
- Worked with Sea Grant educators from every Great Lakes program to coordinate activities for the Center for Great Lakes Literacy, a successor to the Great Lakes Center for Ocean Sciences Education Excellence initiative.
- Reviewed grant proposals in multiple categories for the Wisconsin Coastal Management Program funded by NOAA.
- Reviewed grant proposals for the NOAA Office of Education on Great Lakes in three different grant cycles.
- Worked with NOAA National Weather Service to evaluate a new severe weather communication tool.
- Prepared an extensive white paper on the invasive Asian carp on behalf of the Great Lakes Sea Grant Network.
- Prepared and distributed educational “attack packs” on aquatic invasive species for the Great Lakes Sea Grant Network. These are used for learners of all ages.
- Developed a Great Lakes Marine Debris Action Plan with other Great Lakes Sea Grant programs to reduce land-based debris.
- Developed a Fisheries Heritage Trail with Michigan Sea Grant.
- Worked with Michigan Sea Grant on a salmon ambassadors’ project, which tracks the prized game fish in Lake Michigan.



Number of and Types of Regional/Multi-Program Projects

Success in Sea Grant National Competitions

The extended descriptions outlined in the section above highlight extension activities. In addition, as part of its core management principles, Sea Grant recognizes the value of collaborating with other programs on research undertakings. As part of that understanding, Sea Grant includes a call for proposals, and funding and oversight of funded work, with the Minnesota Sea Grant Program. Also, as part of its two-year research cycle, Sea Grant research staff collaboratively issue a call for proposals, and then funding and oversight of funded work, with Illinois-Indiana Sea Grant. Often, the U.S. EPA Great Lakes National Program Office, NOAA and the NOAA-Great Lakes Environmental Research Laboratory are involved as members of the Great Lakes Regional Research Information Network.

Augmenting its core funding, Sea Grant has attracted \$2.3 million in federal (and some state) resources through national competitions in the past five years. These funds have come from special NOAA National Sea Grant Office competitions in aquaculture and climate adaptation, as well as the U.S. Department of Agriculture, the National Science Foundation, U.S. EPA, U.S. Department of Transportation and the Wisconsin Department of Natural Resources.

The total number of regional and multi-Sea Grant program projects in which UW Sea Grant has been involved for the five-year period is 26. The types focus on matters of social science; fisheries; aquatic invasive species; water safety; clean marinas; visualization to aid in resources management and policy decisionmaking; coastal storms/hazards resilience; communications; education; port, harbor marina infrastructure and channel maintenance; and beach health.

PROGRAM CHANGES RESULTING FROM THE PREVIOUS SITE REVIEW

Sea Grant received a final copy of the last site review team's report on Sept. 8, 2011, based on a visit that took place April 6 and 7, 2011. The review team did not have any recommendations. The team offered three suggestions:



Provide expertise and capabilities in support of NOAA's National Climate Program, particularly at a regional level. The team suggested that Sea Grant become a pilot climate resource and research center. The program has continued its long history of involvement in climate-related research and outreach. Some examples include establishing a wiki to facilitate communication; playing instrumental leadership roles in a statewide initiative on climate change, called the Wisconsin Initiative on Climate Change Impacts, and which has resulted in a report and action plans; developing a matrix for ports, harbors and marinas to assess the effects of climate change on infrastructure; alignment with GLISA when feasible; formulating and sharing climate change curriculum; and numerous instances of resilience planning in coastal communities. In addition to Sea Grant's base focus areas, the 2016-18 RFP included a special call for integrated assessments for climate adaptation in a Great Lakes community and a joint call with Illinois-Indiana Sea Grant to improve resilience of Lake Michigan coastal communities to severe weather events. Finally, Sea Grant applied for a NOAA Regional Integrated Sciences and Assessments program but was unsuccessful in that bid.

The site review team suggested creating opportunities to reach beyond current stakeholders to gain input on Sea Grant's strategic plan. In response, staff members fanned out across the state, in coastal communities in particular, to request input on the plan. This included emails, in-person conversations with groups not formerly in the orbit, notices in the program newsletter and on the website, through social media and formal meetings.

The site review team suggested revising the advisory council terms of reference to include term limits. In response, the director reiterated his appreciation for the input from longtime members of the council. These members continue to contribute valuable original ideas, insights and feedback, which are balanced with the insights offered by newer members. Natural attrition of members occurs on the council. In fact, since the last site review, five members have departed and four have joined the advisory council.

