

# Science in Service of our Communities

By Mona Behl

IN THE GOLDEN ISLES of Georgia, the Gullah art of braiding sweetgrass into baskets can be traced back over 400 years to its West African roots. This skill is passed on from generation to generation, preserving the oral history, sovereignty, and culture of the Gullah people. Local and indigenous coastal communities, like the Gullah-Geechee, have a deep connection with their natural environment as they depend on forests, fisheries, and wildlife resources for their livelihood and culture. These frontline communities are also facing a complex web of challenges that include rising sea levels, coastal erosion, saltwater intrusion, encroaching development and increasing property taxes, and loss of fisheries and other coastal livelihoods. As communities develop strategies to address these complex challenges, they need access to place-based research and education that is unique to their people, culture, and ecology.

Scientists have a responsibility (Hooke, 2015) to support their local and indigenous communities by providing data and scientific information that make sense to them, and to do so with humility and respect. While climate change is a global phenomenon, it is at the local scale that the impacts are most felt. Because the impacts are local, people who are most invested in finding solutions are also from local communities. This includes students, community leaders, tribal and local governments, educational institutions, nonprofits, businesses, and faith-based institutions, among others. Scientists must invest time in building trust and relationships with our community members. By listening to insights that local knowledge holders share about

their local ecology and their relationship with the environment, we can understand what matters to the community and how we might help. We can approach our research as an opportunity for knowledge exchange and capacity building within local communities. By collaborating with communities, we can co-produce solutions. Co-production not only builds trust in data, processes, and partners but also diversifies and democratizes science.


Relationship building with communities does not always have to begin from scratch. Our university-based agricultural extension and Sea Grant programs already have long-standing and trusted relationships with local and indigenous communities. We can collaborate closely with these programs to identify important issues and needs within communities and formulate research questions in appropriate social contexts. We can refine our research questions and hypotheses by incorporating traditional and ecological knowledge to provide novel insights. Programs like the American Geophysical Union's Thriving Earth Exchange match scientists with community leaders and funders to solve local environmental problems. Scientists can also collaborate with programs like the National Oceanic and Atmospheric Administration's Regional Integrated Sciences and Assessments program to help build community resilience to weather and climate events. We can work closely with K–12 schools, aquariums, zoos, and museums to immerse people in informal learning environments. We should seek collaborations with scientists and practitioners outside of our own disciplines and learn to do so effectively (Bennett and Gadlin,

2012). And our collaborations should not be limited to colleagues at R1 universities but must be extended to researchers at minority-serving institutions as well (NASEM, 2019b). Lastly, we must serve as a resource to our political leaders and learn how to responsibly engage in the policy process.

In addition to doing socially relevant research, we must assist our students in forming habits of heart and mind that prepare them to contribute to the betterment of the world. This can be done by providing culturally relevant education (Ladson-Billings, 1995) and mentorship (NASEM, 2019a), and engaging them in intriguing local problems. When we create learning and working environments where people from diverse backgrounds get seats at the table, and are heard, seen, and are recognized for their contributions, we instill a sense of belonging. This sense of belonging is directly linked to improved educational outcomes, performance, and retention (e.g., Johnson, 2012). By creating more supportive and inclusive environments, we can both increase the diversity of our scientific workforce and prepare students for a variety of career pathways in STEM professions (Batchelor et al., 2021). We must also increase our own awareness and understanding of systemic racism and injustices in science and beyond, and take immediate measures to address these issues.

In her book *Braiding Sweetgrass*, Potawatomi botanist Robin Wall Kimmerer writes, "Being naturalized to place means to live as if this is the land that feeds you, as if these are the streams from which you drink, that build your body and fill your spirit. To become naturalized is to know

that your ancestors lie in this ground. Here you will give your gifts and meet your responsibilities. To become naturalized is to live as if your children's future matters, to take care of the land as if our lives and the lives of all our relatives depend on it. Because they do.”

Let's become naturalized to the places where we live and work by listening to, learning from, and supporting the people in our communities. And let's make sure that we do so in a sustained, respectful, and consequential manner. 

## REFERENCES

- Batchelor, R.L., H. Ali, K.G. Gardner-Vandy, A.U. Gold, J.A. MacKinnon, and P.M. Asher. 2021. Reimagining STEM workforce development as a braided river. *Eos* 102, <https://doi.org/10.1029/2021EO157277>.
- Bennett, L.M., and H. Gadlin. 2012. Collaboration and team science: From theory to practice. *Journal of Investigative Medicine* 60(5):768–775.
- Hooke, W. 2015. Reaffirming the social contract between science and society. *Eos* 96, <https://doi.org/10.1029/2015EO026333>.
- Johnson, D.R. 2012. Campus racial climate perceptions and overall sense of belonging among racially diverse women in STEM majors. *Journal of College Student Development* 53(2):336–346, <https://doi.org/10.1353/csd.2012.0028>.
- Ladson-Billings, G. 1995. But that's just good teaching! The case for culturally relevant pedagogy. *Theory into Practice* 34(3):159–165, <https://doi.org/10.1080/00405849509543675>.
- NASEM (National Academies of Sciences, Engineering, and Medicine). 2019a. *The Science of Effective Mentorship in STEMM*. The National Academies Press, Washington, DC, 306 pp., <https://doi.org/10.17226/25568>.
- NASEM. 2019b. *Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce*. The National Academies Press, Washington, DC, 254 pp., <https://doi.org/10.17226/25257>.

## AUTHOR

**Mona Behl** ([mbehl@uga.edu](mailto:mbehl@uga.edu)) is Associate Director, Marine Extension and Georgia Sea Grant, University of Georgia, Athens, GA, USA, and a member of the TOS JEDI Committee.

## ARTICLE DOI

<https://doi.org/10.5670/oceanog.2021.403>