

IT TAKES A VILLAGE

THE SEA OF TECHNICAL, ADMINISTRATIVE, AND OTHER SUPPORT COLLEAGUES WHO ENABLE OCEAN SCIENCE

By Sheri Neelam White, Frank E. Muller-Karger, and Erin L. Meyer-Gutbrod

Scientific discoveries and progress are often attributed to a single scientist or to a small team of scientists. Increasingly, we also recognize the important contributions of students, postdocs, and early career researchers. But there is a “village” of people behind the scenes in each institution, in each agency, in each ship and shipyard that allows ocean science to function. This large part of our community makes oceanographic research dynamic and achievable. Yet, many of these people are often not well recognized. How can we best acknowledge the tireless and often invisible workers who make scientists look good?

In the office, administrative and financial staff cultivate an institutional identity. They process and manage the awards and contracts that enable scientific research. As projects become larger and more collaborative, experienced personnel are active behind the scenes generating and managing budgets and schedules; handling sub-awards; processing payroll, purchases, and invoices; and fulfilling reporting requirements.

Skilled technicians, engineers, and tradespeople are often the ones who manage the lab or the shop. They drive ships and vehicles, craft amazing visualizations, and run science and education programs. They train graduate students, interns, and upcoming technicians, engineers, and tradespeople. They document and curate samples, data, and knowledge. They conduct key parts of the sample processing, synthesis, and research. Many contribute

by counting organisms, performing chemical analyses, reading out sensors, writing code, and running models. Technicians, engineers, and skilled tradespeople also develop and build tools and devices to collect samples and/or measure properties in situ, on land, at sea, in the air, or from space. In some cases, large research groups and programs are run and staffed by engineers and technicians who focus on the development of sensors, platforms, and vehicles to enable ocean science.

This village does not *work for* scientists. Rather, they *collaborate with* scientists to achieve advances in both science and engineering and to contribute to oceanography and society.

Members of the village go out in the field. While some oceanographic research can be performed in an office or in a lab, a large and complex component of the oceanography enterprise requires work in the ocean or in remote field camps on land or ice, and is also carried out from the air or from space. Out on and below the water, expertise is needed in sailing and navigating ships and submersibles, operating vehicles, surveying, drilling, fixing or making equipment and parts, and cooking and logistics. Members of research vessel crews are critical for achieving scientific objectives and building knowledge in the field of oceanography. They are skilled collaborators in helping science and engineering teams to deploy and recover platforms and to collect data, sometimes in very challenging and dangerous environments.

Comprehensive recognition of achievements in the field of oceanography requires an appreciation of the people who support this work and enable the success so often attributed to the lead scientist or principal investigator.

One method of acknowledgment is including appropriate personnel as coauthors on publications. Authorship conventions can vary across disciplines, institutions, journals, and cultures. McNutt et al. (2018) provided recommendations for journals and institutions to ensure more transparency and consistency in author contributions in publications. Significant contributions of others, such as vessel captains and crew, technicians, and engineers, can be called out in publication acknowledgments. Talks and presentations are other forums in which the contributions of support personnel can be formally acknowledged. The Oceanography Society (TOS) website (<https://tos.org/>) and the monthly TOS News email (<https://tos.org/news-and-announcements>) can be used by TOS members to recognize outstanding support persons, and thus highlight some of these village roles that often go un-acknowledged.

Another way to acknowledge the contributions of people in the village is to provide new and challenging opportunities that open paths for career growth and professional development. This may include workshops and training, travel support, and facilitating their contributions at professional conferences with science

themes (such as American Geophysical Union meetings and the Ocean Sciences Meeting) or technical themes (such as IEEE Oceans and the Marine Technology Society Buoy Workshop). Most often, support for conference attendance goes to graduate students and postdocs, but technical staff can also contribute and benefit from networking and information sharing at these events. We recognize that costs of in-person professional society meetings are already high, but in-person contact with others in the community is very useful. It helps everyone to learn and apply skills and to better understand the context of our work within the broader fields of oceanography and engineering, and stimulates creativity, new ideas, and enthusiasm.

The ocean science community can also acknowledge the role of the village with formal awards to groups and specific personnel. This includes internal awards at institutions, establishing community recognition awards through professional societies, and engagement in appreciation through other boundary spanning organizations. Universities and institutions often have endowed chairs for scientists. Providing similar funding opportunities for technical staff and engineers could enable the freedom that may lead to further advancements in new techniques or skills to answer new questions.

Sponsoring nominations for such opportunities takes time, but nominating individuals tells them that they are visible and that their contributions are significant.

Professional societies like TOS can provide platforms for recognizing members of the village and opportunities for people to integrate deeper into the oceanographic community. A previous Justice, Equity, Diversity, and Inclusion (JEDI) Committee column published in *Oceanography* outlined suggestions for improving diversity and inclusion in the nomination and selection of TOS honors and awards recipients (Muller-Karger et al., 2022). Many of those recommendations have now been implemented. TOS could further expand recognition of members of our community through the creation of TOS Village Awards. These would recognize and honor personnel making significant contributions to enable oceanography in areas such as administration and management, field operations, and technical skills. By honoring several village members each year, TOS could help to acknowledge and highlight the important work done by members of our community who are not as easily seen or celebrated. A model may be the TOS Ocean Observing Team Award created to recognize inter- and multi-disciplinary groups engaged in ocean observations.

Oceanography is dependent on a village of workers spanning a variety of disciplines, skill sets, roles, and interests. By recognizing and acknowledging these members of our community, we also help to recruit and retain diverse contributors, strengthening the vitality and future of the field.

We see you! If you have suggestions on how to better recognize the wider community that supports ocean science, please email the TOS JEDI Committee at JEDICOchair@tos.org.

REFERENCES

- Muller-Karger, F., E. Bhatt, and E. Meyer-Gutbrod. 2022. Broadening participation in TOS through honors nominations and awards. *Oceanography* 35(2):4–5, <https://doi.org/10.5670/oceanog.2022.216>.
- McNutt, M.K., M. Bradford, J.M. Drazen, B. Hanson, B. Howard, K.H. Jamieson, V. Kiermer, E. Marcus, B.K. Pope, R. Schekman, and S. Swaminathan. 2018. Transparency in authors' contributions and responsibilities to promote integrity in scientific publication. *Proceedings of the National Academy of Sciences of the United States of America* 115(11):2,557–2,560, <https://doi.org/10.1073/pnas.1715374115>.

AUTHORS

Sheri Neelam White (swhite@whoi.edu), Woods Hole Oceanographic Institution, Woods Hole, MA, USA.
Frank E. Muller-Karger, College of Marine Science, University of South Florida, St. Petersburg, FL, USA.
Erin L. Meyer-Gutbrod, School of the Earth, Ocean and Environment, University of South Carolina, Columbia, SC, USA.

DOI: <https://doi.org/10.5670/oceanog.2024.509>

SEEKING CONTRIBUTIONS FOR THE TOS JEDI COLUMN

The TOS Justice, Equity, Diversity, and Inclusion (JEDI) Committee shares important topics with the community through publishing columns in *Oceanography* and also posting them on the JEDI Committee webpage (tos.org/jedi). The Committee invites contributions from community members, so, if you have an idea for a column you would like to pursue, please contact the “From the TOS JEDI Committee” column coordinator, Erin Meyer-Gutbrod (eringutbrod@gmail.com).