

SPOTLIGHT

The ASLO Multicultural Program Pioneers Diversity Efforts in the Aquatic Sciences

By Benjamin E. Cuker and Jeanette Davis

INTRODUCTION

The Association for the Sciences of Limnology and Oceanography Multicultural Program (ASLOMP) began in 1990 as an effort to diversify participation in the aquatic sciences, with particular emphasis on increasing the number of BIPOC (Black, Indigenous, and people of color) in the field (Cuker, 2001, 2005, 2007). It was evident to anyone attending an ASLO meeting, or that of any other aquatic scientific society in the 1980s, that BIPOC were essentially absent. The ranks of related academicians, agency workers, and students mirrored that absence of diversity. This was consistent with data gathered by the National Science Foundation (NSF) indicating that only 3% of doctorates earned in 1990 in the Earth, atmospheric, and ocean sciences were garnered by underrepresented minorities (NSF, 1994). Acting on this information, the ASLO leadership agreed to constructing a program that would bring diverse students interested in the aquatic sciences to its annual meetings for special programming aimed at recruiting and retaining BIPOC in the aquatic and allied sciences and applied to NSF for funding.

To achieve the goal of diversifying the aquatic sciences, ASLOMP had the following objectives:

1. To recruit a significant number (45–100) of diverse, underrepresented undergraduates and graduate students (primarily BIPOC) to attend annual ASLO meetings and related special programming.
2. To provide full financial support for the selected students and a few of their mentors from Historically Black Colleges and Universities and other minority-serving institutions.
3. To provide special programming to include a keynote speaker, a student symposium, various professional development workshops, and a system of meeting-mentors to support the participants.
4. To help the students grow through the process of becoming aquatic scientists by providing multiple participation opportunities as they advanced in their studies.
5. To build a network that included the participants, mentors, and other interested scientists.
6. To help participants move to leadership roles in ASLO.

HOW ASLOMP WORKS

ASLOMP focuses on recruiting diverse undergraduates and beginning graduate students to compete for participation in the program. They must submit transcripts, abstracts of their proposed presentations, and personal statements that include career goals and their interest in diversity. Selected students receive full financial support to attend the program, including airfare, registration, housing, food, abstract fee, and a one-year membership in ASLO. In addition to fully engaging in all regular ASLO activities, the students participate in special programmatic events. This begins with an opening dinner and keynote address from prominent scientists or rising stars in the field. The next day is devoted to a field trip that features a local aquatic environment and exploration of local cultures, followed by an afternoon session where students first meet with their meeting-mentors

in person. At that time, the mentors help the students plan which sessions and activities to attend and select times for subsequent mentor-mentee meetings. About half of the participants choose to give their first scientific presentation in the oral and poster Student Symposium organized by ASLOMP, while returning students present in regular ASLO themed sessions.

The students are all housed in the same hotel and share meals together. The dinners often feature guest speakers who generally focus on recruiting for graduate schools, internships, and other relevant programs. During the early years, ASLOMP provided lunchtime workshops. These have been supplanted with student-oriented lunchtime programming that is open to all attendees. In recent years, ASLOMP implemented virtual workshops to prepare the students and mentors for more effective participation in the program. Within a few weeks after the meetings, a final virtual interactive workshop closes out that year's programming. However, we send the participants a monthly newsletter that posts opportunities for graduate and postgraduate studies, employment, grants, and other scientific activities.

DEMOGRAPHY AND PARTICIPANT NUMBERS

Between its inception in 1990 and 2023, ASLOMP has served 1,443 different students representing 360 institutions. There were 2,100 total participations, as 391 students attended multiple times. Undergraduates comprised 73% of the participants, the balance being graduate students. Note that many of those who first participated as undergraduates returned to do so during their advanced studies. Gender composition was 68% female and 32% male (a small number indicated nonbinary, a category that was added in 2022).

Those identifying as African American (43.9%), Hispanic (33.4%), Native American (6.5%), Pacific Islander (5.2%), and Asian (2.9%) accounted for most of the participants (Figure 1). Prior to 2014, very few White students participated in ASLOMP. Subsequently, the program embraced a broader understanding of diversity, and those identifying as White have comprised 7.6% of participants.

SUMMARY OF OUTCOMES

Cuker et al. (2016) provide a detailed treatment of ASLOMP outcomes, which we summarize here.

ASLOMP participants have a high rate of retention in the aquatic sciences and related fields. Survey results involving 602 participants indicate that 59% of respondents earned a graduate degree (Cuker et al., 2016). Note that at the time of the study, 26% of respondents were still enrolled in school; 1% in bachelor's, 8% in master's, 13% in PhD, and 3% in professional degree programs. The highest degree earned at the time of the survey (circa 2013) was 36% bachelor's, 40% master's, and 17% PhD. Most of the students earned their highest degree in the aquatic sciences (bachelor's 46%, master's 34%, PhD 67%). The survey also revealed that 49% of those employed worked either in the aquatic sciences or a job that included some

aspect of that field. Another 31% of respondents noted leaving the aquatic sciences due to insufficient pay and promotion opportunities. Many former participants have come back to present the keynote address and to serve as meeting-mentors in the program.

ASLOMP also reshaped ASLO's institutional culture in two important ways. First, it motivated the inclusion of diversity as the first element in its mission statement (circa 1996). Second, ASLOMP facilitated the development of extensive student-centered programming at the annual meetings. Prior to ASLOMP, the society offered few specific activities for students, and undergraduates rarely attended. In addition, ASLOMP motivated restructuring the Board of Directors to include two elected student representatives, along with adopting ASLOMP's system of meeting-mentors for the general membership, a way of welcoming and orienting new student and non-student members. ASLOMP also helped inspire efforts to expand international diversity (Ghosh, 2022).

The first people of color to serve on the ASLO Board of Directors were past ASLOMP participants, including two members-at-large and five student representatives. (The members-at-large were Deidre Gibson 2009 and Amina Pollard 2018, and the student representatives were Cristina Takacas 1997, Letise Houser 2003, Amy Burgess 2012, Tiara Moore 2015, and Camille Gaynus, 2018). Please see author Jeanette Davis's biographical sketch in the online supplement to this issue, where she describes the impact of ASLOMP on her career.

The program has served as a model for other scientific societies, including efforts by the Ecological Society of America (SEEDS), the Society of Wetland Scientists, the Coastal and Estuarine and Research Federation (Harris et al., 2021), the American Geophysical Union, Sigma Xi, and The Oceanography Society. While the specific programmatic approaches employed by these other societies both mirror and differ from ASLOMP, one common feature is the use of meeting-mentors as pioneered by ASLOMP.

LESSONS LEARNED

- **Mentors are essential.** The first ASLOMP diversity effort took place in 1990. It featured extensive pre-program activities to prepare students to participate in the ensuing meetings. While that first try included common meals and a special presentation, the program lacked mentors dedicated to helping the students navigate the meetings. Thus, in 1991 ASLOMP introduced the concept of meeting-mentors, professionals assigned to help the students maximize their meeting experiences. They focused on helping students organize their time at the meetings and introducing them to other scientists in the field. We have found that some mentors lose focus during the meetings and provide less than adequate guidance. To that end, we introduced virtual mentor training sessions in 2022 to mitigate this problem.
- **The name matters.** Originally, we called it the ASLO "Minorities Program." This served the purpose of signaling that the effort was about ethnic diversity rather than addressing the gender issue. We retained "Minorities" in the program title for its first decade. Further thought led to replacing that with "Multicultural." First, the term minority defines people by who they aren't instead of honoring who they are. Second, shifting demographics rendered this term obsolete, as the United States is fast approaching a time when White people will no longer constitute the majority. Finally, "multicultural" engenders an inclusive approach that embraces a broader concept of diversity. This proved timely, as attention to intersectionality, the rural-urban divide, the LGBTQ community, and other forms of diversity began to blossom in the early twenty-first century.

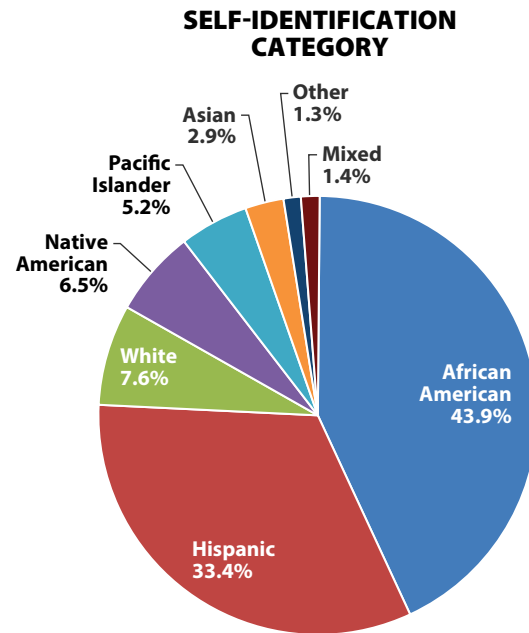


FIGURE 1. Diversity of ASLOMP participants by identification category, 1990–2023, n = 1,443.

- **Embrace the full spectrum of diversity.** Since 2015, our NSF funding required accepting at least one student from each Ocean Sciences Research Experiences for Undergraduates (REU) site. Many, if not most, of these REU students identified as White. However, we ask the REU directors to consider the full spectrum of diversity when nominating their students. Thus, many of the White nominees bring other types of diversity to ASLOMP, including being first-generation or from under-resourced communities, identifying as LGBTQ, and more.
- **Student development.** The program is designed to provide students with multiple possibilities for participation and to facilitate the professional development required for an advanced degree in the aquatic sciences. This proved to be important, as students who participated in multiple activities during the program pursued advanced studies and important positions in the field.
- **Allyship.** The vast majority of the ASLO leadership and general community enthusiastically embraced ASLOMP and its goals. Having the current ASLO president address the participants at a dinner is a program tradition. Many of the sitting members of the ASLO Board of Directors also volunteer as meeting-mentors. The ASLO presidents have all funded ASLOMP T-shirts and celebrated the program's successes in open forums.
- **Embrace change.** When ASLOMP began in 1990, the internet and email didn't exist beyond a few remote outposts. Everything was done with traditional mail and phone calls. The COVID pandemic of 2020 made virtual meetings a new universal standard of communication. ASLOMP improved its functioning by embracing digital advances and expanded its reach through conducting virtual workshops and trainings to better prepare both students and mentors for effective mentee-mentor relationships.
- **Missing males.** In the beginning of ASLOMP, males slightly outnumbered females. Within the first decade, this shifted to an increasing underrepresentation of males that persists to this day. The missing male phenomenon reflects the general trend in the African-American and Hispanic communities, where men are underrepresented in academia and other endeavors (Robins et al.,

2022). Obstacles include inadequate financial resources to support attending college, a lack of male role models, low expectations, and often hostile college campus environments. Additionally, BIPOC males that overcome the odds and excel in the sciences often face intense pressure to use their talents to earn degrees in medicine. And for those who do persist in earning degrees in the aquatic sciences, some find the pay too low to remain in the field while paying for college loans and growing families. Although the obstacles differ, the White community is also showing a decline in the participation of males. As such, we make every effort to encourage men to apply and then to select them for inclusion in ASLOMP.

- **Say yes to diversity.** Forget about trying to rank-order a pool of applicants based upon simple metrics, such as grade point average. Instead, search for those who show promise by looking at the totality of the individual. Celebrate the off-beat, lived experiences, different ways of knowing, diverse backgrounds, and more. The point is to promote the capable, imaginative, differently abled, obstacle-overcoming, and persistent, not to simply continue the status quo painted in different hues. Diversity will propel the science forward.
- **Details make the difference.** ASLOMP's success derives from attention to detail. It's important to imagine what it's like to be an applicant and participant. Many of the students targeted for ASLOMP may lack access to resources. Don't expect them to put expenditures on a credit card for later reimbursement, as that may not be their reality. The program needs to pay for everything upfront, including airline flights, room, board, registration, and abstract fees. The program provides detailed schedules, in advance, so that students can share this opportunity with their professors and families.
- **Provide a safe harbor.** Crowded ASLO meetings can be an overwhelming experience, even for the most experienced among us. Students benefit from group dinners at the end of the day where they can decompress, find comfort in each other's company, share honest feedback, and most importantly, discuss lessons learned in navigating a space where they are often underrepresented. This helps create a sense of belonging and a safe space (Rosa-Marín, 2020).
- **Empower with affirmation.** Tell the participants at the beginning, and throughout the process, that they are excellent and that is why they earned acceptance into the program. They need to be reminded of this constantly in order to cope with microaggressions and intentional and unintentional slights they may encounter.

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