

# NETWORKS, CENTERS, OBSERVATORIES, AND FIELD STATIONS

## Crafting Field Station and Marine Lab Communities for Undergraduate Diversity, Equity, and Inclusion

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### Abstract

Field stations and marine labs (FSMLs) in the United States are predominantly white and often heteronormative and cis-gendered spaces. As such, it can be difficult for people of color and other minoritized groups to gain access, persist, and succeed as field scientists-in-training. While making large-scale changes in how our FSMLs look and operate can seem daunting, many FSMLs are working on DEAI (diversity, equity, accessibility, and inclusion) initiatives through their undergraduate student programs. We give examples from some of these efforts, and we suggest some concrete, achievable steps that we hope the FSML community will find helpful to enhance the human diversity of FSMLs and craft more inclusive and equitable communities. We call on the FSML community at large to collaborate and support each other in this work.

*Key words:* allies; diversity; equity; field station; inclusion; marine lab; undergraduate.

It is likely accurate to say that field stations and marine labs (FSMLs) in the United States are predominantly white and often heteronormative and cis-gendered spaces. As such, it can range from uncomfortable to impossible for people of color and other minoritized (Smith 2016) groups to gain access, persist, and succeed as field scientists-in-training (Morales et al. 2020). If we are truly committed

to broadening the participation of underrepresented identities, then we need to act as allies and commit our institutional power to radical change in operations and community culture (Black Lives Matter in ecology and evolution 2020). The experiential learning available at FSMLs can be transformational for young people (Beltran et al. 2020) and it is time for us to work together to ensure those opportunities are accessible, comfortable, and supportive for all.

Making large-scale changes in how our FSMLs look and operate can seem daunting. Funds are limited, and we are fallible humans, some of whom are just now learning how to embrace the current and long-overdue culture shift. In full disclosure, the authors are white cis women who aspire to lifelong learning. We all need to tackle both the personal self-reflective implicit bias (e.g., Project Implicit) and anti-racism work (Kendi 2019), as well as the institutional administrative work. Colleagues need to be convinced, budgets need to be restructured, and initially awkward but completely necessary conversations need to be had about how white supremacist and patriarchal power structures are embedded within scientific research and academia. This work seems overwhelming, but even starting with small steps will lead to progress. Many FSMLs are working on DEAI (diversity, equity, accessibility, and inclusion) initiatives through their undergraduate programs, and we can look to their examples as a way forward. We suggest some concrete, achievable steps to enhance the human diversity of our FSMLs and craft more inclusive and equitable communities.

#### **Recruit where minoritized students are**

We need to radically change the way we think about recruitment, shifting our perspective from weeding applicants out to bringing diverse participants in. To capture the attention of minoritized students, we need to adjust recruitment strategies to include direct and welcoming communications with MSIs (minority-serving institutions), HBCUs (historically Black colleges and universities), TCUs (tribal colleges and universities), community colleges, and BIPOC (Black, Indigenous, and people of color), LGBTQIA+ (lesbian, gay, bisexual, transgender, queer and/or questioning, intersex, asexual and/or ally, plus other non-cisgender and non-straight identities), international, and other diverse identity-based student groups. Audit websites to ensure that wording and photos do not discourage applications from minoritized students. Furthermore, rethink and remove any potential barriers within application forms. Ask for assistance from DEAI consultants, campus diversity and/or admissions offices, or from organizations with this expertise (see Appendix S1 for examples).

Not everyone knows what a field station is. Website-embedded videos can show FSML life and research sites, decreasing anxiety about the unknown and aligning expectations with reality. (A guide to making field videos is available online at The Virtual Field). Uncensored perspectives of previous students can provide transparency and show that success is achievable. Students may not apply unless they have a complete understanding of what a program has to offer them. Clear information about stipend amounts and other available supports need to be included in recruitment communications (housing, food, transportation, gear, scholarships, fee waivers, resident and/or program advisors, etc.).

University of Michigan Biological Station (UMBS) has developed new offerings specifically to attract a wider range of UM students. New grant-supported field courses include shorter course extensions (10 d to 2 weeks) and sections of introductory chemistry and biology labs. Course extensions follow a winter term course or precede a fall course on the main Ann Arbor (Michigan, USA) campus. The timing of the short course extensions allows students to have spring and summer terms free for jobs and

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shifts tuition costs to fall term block tuition. Scholarships cover food, housing, and transportation to/from Ann Arbor. The result is 13% underrepresented minority enrollment in the new courses compared to 6% in traditional UMBS field courses.

Establishing outreach relationships with high school programs (e.g., the SIFT and TERA programs) and local community colleges may serve as pathways to undergraduate-level FSML experiences. University of Virginia's Coastal Research Center and Virginia Coast Reserve LTER secured NSF supplemental funding to support community college faculty and student involvement in research and initiate an enduring partnership in place-based curriculum co-design and student placement. Anyone is welcome to join a small group that formed after the 2021 Undergraduate Field Experiences Research Network (UFERN) meeting to share plans for outreach to community colleges.

### Intentionally attain increased diversity and put money into equity

If we are serious about increasing the diversity of our communities, we need to set and regularly revisit goals for increased diversity and achieve those goals by prioritizing the selection of underrepresented students and staff for programs and research teams. This requires thinking deeply about selection criteria and whether they are truly in alignment with our values. The most polished application packages often come from applicants who have had the most support and previous field experiences. We need to reconsider what we prioritize in applicant selection to validate diverse experiences and knowledge. Transitioning to this new “both/and” way of thinking is challenging, but the shift is critical for the actualization of our commitment to broadening participation.

Attaining increased diversity also requires that we put money into equity. Many students need to make money over the summer and do not have the luxury of breaking even by August. Unpaid internships only serve students who have the privilege of existing resources and familial support. Think about whether a low stipend amount immediately disqualifies minoritized students (Jensen et al. 2021) and how to acquire resources to address that barrier. Understand how both stipend amount and timing of disbursement relate to the realities of student living expenses and cash flow. We must assume students have no financial safety net and cannot afford to be reimbursed for expenses at a later date. Consider allocating scholarship funds and implementing course fee waivers for Federal Pell Grant eligible students, whose income status can be easily confirmed by financial aid transcript.

Washington University's Tyson Research Center now provides Pell-eligible scholarships but encountered barriers to equity simply due to engrained accounting practices. Undergraduates struggled with living expenses (and sometimes found themselves in insecure housing) when stipends were disbursed as if they were regular university payroll. Better understanding of the distinction between wages and stipend awards resulted in a single payment at the start of summer. Tyson has also used departmental status to reserve summer campus housing, saving undergraduates from having to put down deposits before receiving stipends.

Shoals Marine Lab (SML) worked with the University of New Hampshire's chief diversity officer to develop a dedicated scholarship supporting the enrollment of underrepresented minorities in field courses. Donations from SML community members provide funds, and faculty and alumni broadcast the scholarship through their various networks. Because the scholarship has been advertised through

networks trusted by students, SML has received applications from colleges with which they would not have otherwise connected.

### **Maintain an inclusive culture by living out our values**

An inclusive community does not instantly result from the presence of diverse people. Continuously crafting and maintaining an inclusive environment is the big lift. This work requires commitment from our entire staffs and both big-picture and attention-to-detail work. We can start by listening to our colleagues of color and other minoritized folx who have recently given us very clear instructions on how to improve safety (Anadu et al. 2020, Olcott and Downen 2020, Demery and Pipkin 2021) and provide support (Bailey et al. 2020, Cooper et al. 2020, Halsey et al. 2020, Miriti et al. 2020, Schell et al. 2020, Tseng et al. 2020, Zavaleta et al. 2020, Jensen et al. 2021, Peterson 2021). We need to use these publications as training documents for our communities, show them to administrators when negotiating budgets, and take action on their specific recommendations.

We can determine what anti-racism practice looks like at FSMLs by engaging our community members in discussions of how white supremacy culture (Okun 2021) manifests in our work and how intersectionality (Crenshaw 2017) affects individuals as they work together. We can explicitly embed bystander intervention training (e.g., Hollaback!), DEAI topics, and environmental racism in our mentor professional development and undergraduate curricula. We can provide space and time for individual reflection on these tough topics and establish multiple avenues of communication about these topics, including confidential ones.

We need to learn how to put others at ease in FSML spaces and offer it, not just what we as people embedded in FSML culture find comfortable. We can learn something from the faith community and practice radical hospitality in our FSML communities. We can raise awareness of diverse identities and heritage by visibly recognizing important dates/holidays (TMCC 2021) and learning how to appropriately celebrate within our spaces. We can include an Indigenous land acknowledgment (Native Governance Center 2019, Native Land Digital 2021) in our welcome statements. We can take time to develop site-specific social justice commitments within our FSML communities and revisit them with the change of seasons or semesters. We suggest drafting a public living document articulating your FSML's commitment, including concrete action and budget items and accountability for progress (for example, see Tyson Research Center's commitment).

All of us need to establish (or revise) site-specific codes of conduct to include offender consequences for any form of harassment, sections for specific audiences (students, staff, visitors, etc.), and a flow chart of how reporting works. FSMLs are unique spaces and university codes of conduct may not fit, so we need to come up with our own codes, and enforce them. We need to proactively go over our codes with our communities and revise them every 6–12 months. ADVANCEGeo Partnership has some great resources and examples from which to build.

### **Let's work together**

We call on FSML people, in every role, to create and participate in a DEAI community of practice. There is room for everyone in this work, and although we are going to make mistakes, we should learn from them and embrace discomfort. Thus, we need a dedicated space to identify ongoing challenges,

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share successful strategies, and collaborate to tackle the systematic and systemic structures negatively impacting how others experience our sites. We applaud the Organization for Biological Field Stations (OBFS) and Long-Term Ecological Research Network (LTER) for the recent prioritization of diversity, equity, and inclusion, and we hope this article will provide support for those efforts. We look forward to making new connections to different organizations and disciplines, designing and attending new workshops, writing and reading new articles on best practices, and forming new partnerships to make FSMLs more humane for all.

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### Open research

No data were collected for this study.

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### Supporting Information

Additional supporting information may be found in the online version of this article at <http://onlinelibrary.wiley.com/doi/10.1002/bes2.1908/supinfo>