Equity Through Access: Mitigating Barriers to STEM for Marginalized & Minoritized Scholars

NAML
Public Policy Meeting

Panel Discussion: Best Practices to Increase Diversity in the Marine Sciences

March 24, 2022

Catalina Martinez (she/her)
Regional Program Manager
NOAA Ocean Exploration
“The language that we use to describe these groups and the results of racism matters.

In this vein, I do not use the terms underrepresented groups or underrepresented minorities and, in its place, I use the terms racialized, marginalized, minoritized, and/or excluded groups.

Marginalized or minoritized groups can generally apply to any of the identities that suffer from discrimination due to the multiple identities of race, ethnicity, sexual orientation, gender, religion, or ability, among others.

This choice of terminology offers a more accurate description. It removes the yoke of the problem from those individuals for whom damage is being done. Simply put, deficit language problematizes the victim.”
Face of America is Changing

Face of STEM in America is not

Source: nsf.gov/statistics

Source: Pewresearch.org/fact-tank
Earth Science Has a Whiteness Problem

 barely 10 percent of doctoral degrees in the geosciences go to recipients of color. The lack of diversity limits the quality of research, many scientists say.

Race and racism in the geosciences

Geoscientists in the United States are predominantly White. Progress towards diversification can only come with a concerted shift in mindsets and a deeper understanding of the complexities of race.
Diversity
• Is increasing
• Is essential
• Is a choice
What can we do?

Effective Practices
Benefits of Experiential Opportunities

- Mentors & Champions
- Uncover Super Powers
- Professional Networks
- Technical Skills
- Build Science Identity
- Strengthen Resume
- Sense of Social Belonging
- Assess Interest
- Build Relationships
- Future Job Opportunities
Strategic Recruitment Practices

- Honest Marketing
- Be Intentional
- Be Relational
- Allocate Resources
- Work doesn’t end here!

“I don’t see myself in their program.”
Bridge the Preparation Gap

- Guidance & assistance
- Mentoring & encouragement

If yes, what were the barriers to completion?

16 responses

- Timing/deadline: 8 (50%)
- Lack of guidance/assistance: 8 (50%)
- The need for letters of recommendation: 5 (31.3%)
- Writing the personal statement: 1 (6.3%)
- GPA too low: 6 (37.5%)
- Lack of confidence in my application process: 11 (68.8%)

Have you ever started, but not completed an application for an internship, scholarship, and/or fellowship?

21 responses

- Yes: 78.2%
- No: 23.8%
Selection Criteria Embed Privilege & Bias

Example of Traditional Application Requirements

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>0%</td>
<td>GPA, citizenship, school reputation, major</td>
</tr>
<tr>
<td>Education</td>
<td>30%</td>
<td>Relevant coursework</td>
</tr>
<tr>
<td>Activities</td>
<td>20%</td>
<td>Experiences, activities, awards, volunteering</td>
</tr>
<tr>
<td>References</td>
<td>20%</td>
<td>Letters from Academic Advisor or Professor</td>
</tr>
<tr>
<td>Essay</td>
<td>30%</td>
<td>Education/career plans</td>
</tr>
</tbody>
</table>

Privilege & Bias
GPA = Equal Opportunity Experience?

True reflection of ability, effort, potential?

What’s the story behind the GPA?
- Economic advantages
- Cultural/political capital
- First generation
- Added responsibilities
- Commuting daily
- Transfer from 2-yr program
- Language/cultural barriers
- Difficult semester (illness, loss)
Selection Criteria Embed Privilege & Bias

- Lets of Recommendation
- Personal Statements/Essays

Avoiding gender bias in reference writing

Got a great student? Planning to write a super letter of reference? Don’t fall into these common traps based on unconscious gender bias.

**Mention research & publications**
Letters of reference for men are 4x more likely to mention personal info - something that is almost always irrelevant for the application. Also make sure you use formal titles and surnames for both men and women.

**Keep it professional**
Letters of reference for women are 7x more likely to mention personal info - something that is almost always irrelevant for the application. Also make sure you use formal titles and surnames for both men and women.

**Stay away from stereotypes**
Although they describe positive traits, adjectives like ‘caring’, ‘compassionate’, and ‘helpful’ are used more frequently in letters for women and can evoke gender stereotypes which can hurt a candidate. And be careful not to invoke these stereotypes directly (“she is not emotional”).

**Be careful raising doubt**
We all want to write honest letters, but negative or irrelevant comments, such as ‘challenging personality’ or ‘I have confidence that she will become better than average’ are twice as common in letters for female applicants. Don’t add doubt unless it is strictly necessary!

**Adjectives to avoid:**
caring, compassionate, conscientious, dependable, diligent, hardworking, poised, resourceful

**Adjectives to include:**
successful, excellent, accomplished, outstanding, talented, skilled, knowledgeable, insightful, resourceful, confident, ambitious, independent, intellectual

**Emphasize accomplishments, not effort**
Letters for reference for men are more likely to emphasize accomplishments (his research, his skills, or his career) while letters for women are 60% more likely to include ‘grindstone’ adjectives that describe effort. ‘Hard-working’ associates with effort, but not ability.

**We all share bias**
It is important to remember that unconscious gender bias isn’t a male problem. Research shows that women are just as susceptible to these common pitfalls as men. This is a problem for all of us - let’s solve it together!

**Unconscious Racial Bias Can Creep Into Recommendation Letters—Here’s How to Avoid It**

by Asmeret Asfaw Bekele and Sora Kim
Human Potential, thought not always apparent, is there waiting to be discovered and invited forth. William W. Purkey
Diversify Reviewer Pools & Selection Committees

“We want the best and the brightest!”
“He’ll fit into the group more easily.”
“I went to grad school with his advisor: I trust them.”
“Can’t go wrong with a Stanford student.”

SHIFT THE MINDSET: Select for culture ADD not culture FIT
The Environment Matters

Safety & Support
- Environment/Culture
- Mentor & mentee

Women scientists sexually harassed while doing fieldwork

Racism and harassment are common in field research – scientists are speaking up

Researchers call on universities to offer inclusive policies that make fieldwork safer.

Discrimination drives LGBT+ scientists to think about quitting

Despite progress, many physical scientists from sexual and gender minorities experience exclusion or harassment at work, finds UK survey.

Women in Oceanography Still Navigate Rough Seas

Female scientists have weathered keen, lack of support, and unfair work environments since the dawn of oceanography. Could recent initiatives, technology, and awareness chart the way to safer waters?
Imposter Syndrome vs. Environment

Source: B. Jones

The concept, whose development in the ‘70s excluded the effects of systemic racism, classism, xenophobia, and other biases.
Belonging

IN STEM:

• Sense of belonging significantly impacts persistence and success, particularly for students of color and women
• Women experience a lower sense of belonging in comparison to men
• When race and gender intersected, both men and women of color reported a lower sense of belonging
• White men were most likely to report a sense of belonging whereas women of color were least likely

https://doi.org/10.1186/s40594-018-0115-6
“This idea that we all have the same life is false. Race, class, gender come together to shape the life chances of people in very different ways.” Kimberle' Crenshaw
Colonicialism still influences the earth sciences today — and that’s a big problem for research

Western biases still pervade research
By Jeanine Caims | Illustration | Jan 4, 2022, 9:19am EST

Interrogating Structural Racism in STEM Higher Education
Ebony Omotola McGee
First Published November 13, 2020 | Research Article | https://doi.org/10.3102/0013189X20972718

Decolonising Science Reading List
It’s The End of Science As You Know It
Chanda Prescod-Weinstein, April 25, 2015

URGE
Unlearning Racism in Geoscience
TEAM PODS CURRICULUM RESOURCES RECORDINGS ZOOM LINKS DELIVERABLES FAQS
ENOUGH
STRONGER

URGE

OCEAN EXPLORATION
Women scientists sexually harassed while doing fieldwork

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The Smithsonian's #MeToo Moment

Many researchers dream of one day working at the Smithsonian's facility in Panama. But 18 women scientists told BuzzFeed News that their experiences there were nightmares ruled by prominent men who exploited their powers.

Published: 19 July 2014

Anna Simmonds

NEWS | 24 August 2020

NEWS | 27 June 2019

Giuliana Viglione

Elizabeth Gibney

BuzzFeed News

Welcome to the Jungle

TR|BECA FILM FESTIVAL 2020

OCEAN EXPLORATION

The Smithsonian's #MeToo Moment

Inequality

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By Nishita Jha

Posted on December 9, 2021, at 8:00 a.m. ET
RESOURCES

GREEN DOT ETC.
The Green Dot etc. strategy aims to shift campus culture and increase proactive preventative behavior by targeting influential members from across a community with basic education, skill practice, and reactive interventions to high-risk situations. Every choice to be proactive as a bystander is categorized as a "new behavior" and thus a "Green Dot." Individual decisions (green dots) group together to create larger change.

AUTHORS
Dorothy Edwards, President of Alteristic

WEBSITE
https://alteristic.org/services/green-dot/

Report of the Workshop to Promote Safety in Field Sciences

oceanleadership.org/field-science-safety-workshop/

Use science to stop sexual harassment in higher education
Kathryn B. H. Clancy, Lilla M. Cortina, and Anna R. Kirkland

Sexual Harassment in Academic Science, Engineering, and Medicine

Leading Practices for Improving Accessibility and Inclusion in Field, Laboratory, and Computational Science – A Conversation Series

The Fieldwork Initiative
www.fieldworkinitiative.org
Prevention: FISST Training
Intervention Emergency
Solidarity: "Women* in the Field" Support Network

FISST training poster. Photo by Jedikia Lowen-Mecrow.

Visual notes created for Houston Coalition Against Hate on May 3rd, 2021
Be Intentional & Relational

Opportunity

Experience

Source: B. Jones