Through Our Eyes: An Indigenous view of Mashapaug Pond
Publisher: Tomaquag Indian Memorial Museum, RI

“We are here! This is our land. Today and yesterday. We live in balance.”

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

COBRA
Master Class
Respectful Concept Development Session
March 14, 2023

Catalina Martinez (she/her)
Equity Advisor
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.”

V. Morris
Community Guidelines

- Confidentiality: Share experiences, but no identifiers
- Acknowledge, support, & affirm one another
- Practice acceptance & commit to learning
- Convert resistance into “wonder”
- Be present & listen actively

- Speak from your own experiences
- What is learned leaves; what is shared stays
- Give space & grace to others
The Chance of Birth

... dictates access to opportunities and resources on all levels

- Family
- Community
- Identity
- Health/wealth

- Economic, social, political and cultural capital

Source: federalreserve.gov/econres/notes/feds-notes/disparities-in-wealth
Face of America is Changing

Face of STEM in America is not

Scientists and engineers working in science and engineering occupations: 2015

- White women 18%
- Asian men 14%
- Asian women 7%
- White men 49%
- Black men 3%
- Black women 2%
- Hispanic men 4%
- Hispanic women 2%
- Other men 1%
- Other women 1%

NOTES: Hispanic may be any race. Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple race. Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017

Source: nsf.gov/statistics

Racial/ethnic composition US 1980-2040

Source: Pewresearch.org/fact-tank
NOAA TOTAL WORKFORCE BY DEMOGRAPHIC

(Data collected from HR Connect Data Insight Reporting System - Table A1 (All) – Data as of 09/14/2021)

Source: MD-715 FY21 NOAA State of the Agency Report-Out by R. Grant, Acting Director, NOAA OICR
Progress?

**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
How did I get here??

NOAA TOTAL WORKFORCE
BY DEMOGRAPHIC

Source: nsf.gov/staAsAcs

Photo credit: Dave Wright

(Data collected from HR Connect Data Insight Reporting System - Table A1 (A9) - Data as of 09/14/2021)
Class of 2002

John A. Knauss
Marine Policy Fellowship
Seagrant.noaa.gov

noaa.gov/education
What can we do?

Effective Practices
Benefits of Experiential Opportunities

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

“I don’t see myself in their program.”

- Honest Marketing
- Be Intentional
- Be Relational
- Allocate Resources
- Work doesn’t end here!
Bridge the Preparation Gap

- Guidance & assistance
- Mentoring & encouragement

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

- Yes: 23.8%
- No: 76.2%

If yes, what were the barriers to completion?

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing/deadline</td>
<td>8</td>
<td>50%</td>
</tr>
<tr>
<td>Lack of guidance/assistance</td>
<td>8</td>
<td>50%</td>
</tr>
<tr>
<td>The need for letters of recommendation</td>
<td>5</td>
<td>31.3%</td>
</tr>
<tr>
<td>Writing the personal statement</td>
<td>1</td>
<td>6.3%</td>
</tr>
<tr>
<td>GPA too low</td>
<td>6</td>
<td>37.5%</td>
</tr>
<tr>
<td>Lack of confidence in my application content</td>
<td>11</td>
<td>68.8%</td>
</tr>
</tbody>
</table>

ODI & UCLA CDLS 2019
Selection Criteria Embed Privilege & Bias

Example of Traditional Application Requirements

<table>
<thead>
<tr>
<th>Weight (%)</th>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td>Education</td>
<td>Relevant coursework</td>
</tr>
<tr>
<td>20%</td>
<td>Activities</td>
<td>Experiences, activities, awards, volunteering</td>
</tr>
<tr>
<td>20%</td>
<td>References</td>
<td>Letters from Academic Advisor or Professor</td>
</tr>
<tr>
<td>30%</td>
<td>Essay</td>
<td>Education/career plans</td>
</tr>
<tr>
<td></td>
<td>General</td>
<td>GPA, citizenship, school reputation, major</td>
</tr>
</tbody>
</table>
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)
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 publications and twice as likely to have multiple references to research. Make sure you put these critical accomplishments in every letter!

Don’t stop now!
On average, letters for men are 16% longer than letters for women and letters for women are 6% more likely to make a minimal assurance (“she can do the job”) rather than a ringing endorsement (“she is the best for the job”).

Emphasize accomplishments, not effort
Letters for reference for women are more likely to emphasize accomplishments (“his research, his skills, or his career”) while letters for women are 50% more likely to include “grandstone” adjectives that describe effort. “Hardworking” 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!

Keep it professional
Letters of reference for women are 7x more likely to mention personal life - 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
- hard-working
- conscientious
- dependable
- diligent
- dedicated
- tactful
- interpersonal
- warm
- helpful

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

Follow us on www.facebook.com/ucsw
Holistic Review Process

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
Critical Mass Matters
Cohort Models | Diverse Faculty/staff/mentors

Othering

Muslims are not all terrorists
I can actually SEE you
MY HAIR IS REAL

I'll marry whoever I WANT
I AM NOT A COLOR
I WILL NOT CUT YOUR GRASS

We're NOT ALL MEXICAN
Not all Asains are studious, have squinty eyes, and speak the same language
I AM NOT WHITE TRASH

The ‘lonely only’

Biases = slow violence

Bummer of a blind spot eh Mr. Hammerhead?
Safety & Support
• Environment/Culture
• Mentor & mentee

"Stop asking how we can get more women interested [in science] and protect the women, and people of color, and people with disabilities, and LGBTQ persons who are in science already,"
Geologist Jane Willenbring
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
The concept, whose development in the '70s excluded the effects of systemic racism, classism, xenophobia, and other biases.
“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
Colonialism still influences the earth sciences today — and that’s a big problem for research

Interrogating Structural Racism in STEM Higher Education
Ebony Omotola McGee
First Published November 13, 2020 | Research Article | Check for updates
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

Systemic Racism & STEM
Sexual Harassment in Marine Science

Women in Ocean Science C.I.C.

08 MARCH 2021

Marine Policy
Volume 137, March 2022, 104947

Short communication
Safe working environments are key to improving inclusion in open-ocean, deep-ocean, and high-seas science

Diva J. Amon, Zoleka Filander, Lindsey Harris, Harriet Harden-Davies

BuzzFeed News
The Smithsonian’s #MeToo Moment

Many researchers dream of one day working at the Smithsonian’s facility in Panama. But 16 women scientists told BuzzFeed News that their experiences there were nightmares ruled by prominent men who exploited their powers.

By Nishita Jha
Posted on December 1, 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/

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**Report of the Workshop to Promote Safety in Field Sciences**

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

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**Use science to stop sexual harassment in higher education**

Kathryn B. H. Clancy, Lilia M. Cortina, and Anna R. Kirkland

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**Sexual Harassment in Academic Science, Engineering, and Medicine**

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

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**The Fieldwork Initiative**

www.fieldworkinitiative.org

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**Prevention:**

FiSSST Training

---

**Intervention:**

Emergency

---

**Solidarity:**

"Women in the Field" Support Network

---

**BYSTANDER INTERVENTION**

THE 5Ds

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Visual notes created for Houston Coalition Against Hate on May 3rd, 2021
Leaky Pipeline

- Flawed analogy
- Passive approach
- Fails to acknowledge exclusionary experiences

Source: Articles & Commentary, Workforce Development/STEM, Mar 11, 2015
Scientists from historically excluded groups face a hostile obstacle course

Asmeret Asefaw Berhe, Rebecca T. Barnes, Meredith G. Hastings, Allison Mattheis, Blair Schneider, Billy M. Williams & Erika Marín-Spiotta

Nature Geoscience 15, 2–4 (2022) | Cite this article

‘Reframing the challenges of BIPOC scholars, especially women of color, as a hostile obstacle course provides a more accurate visual representation of the inequitable experiences within academia and the systemic barriers that exist.’
Be Intentional & Relational

Opportunity

Experience

Source: B. Jones