



Webinar

National Association of Marine Laboratories (NAML)

“Building Strong and Resilient Ocean Science Research and Education Workforce Teams in the U.S.”

- Sponsored by the NAML Education Committee
- November 20, 2020
- Speaker: Matt Gilligan
- See Speaker’s Notes appended to presentation.
- Link to recording:
<https://www.youtube.com/watch?v=XVoM9t3ftOU&feature=youtu.be>

NAML Education Committee

Theme: Diversity, Equity and Inclusion in Marine Sciences

“Building Strong and Resilient Ocean Science Research and Education Workforce Teams in the U.S.”

Dr. Matt Gilligan

November 20, 2020



- **Leadership** having the vision of a culture of inclusive excellence and generating institution-wide buy-in of that vision
- **Reimagine – Plan – Budget – Propose - Repeat**
There are no models - just good examples, principles, practices
- **Recruitment** that is personal and direct - not delegated or outsourced
- **Retention** achieved by intervention + mentoring
- **Leadership** by example.

Vocabulary

Underrepresented minorities

Minority-serving institution

Historically-Black colleges and universities

Hispanic-serving institutions

Tribal colleges

Community colleges

Black, indigenous, and persons of color

Lesbian, gay, bisexual, transgender, queer and other

Persons with disabilities

Pathways not pipelines, fieldwork?, cruises?

Future workforce development not education

Antiracism

Unconscious bias

Microaggression

Intercultural competency

Consult current geoscience literature (e.g. American Geophysical Union magazine EOS, Journal of Geoscience Education special issues), Understanding Intervention Conferences proceedings, Institute for Broadening Participation references and online toolkits for students, faculty and staff, National Academies Resources on Diversity, Equity, and Inclusion and its 2019 Consensus Study Report The Science of Effective Mentorship.

Recruitment

Pilot Project to Increase Applications to Ocean Science REU Programs from Underrepresented Minority Students through Representation and Participation at LSAMP Meetings



Institute for Broadening Participation
Building Partnerships to Support Diversity in Science

PI: Dr. Matthew Gilligan, Savannah State University
Co-PI: David Siegfried, CEO Institute for Broadening Participation

www.pathwaystoscience.org

Abstract

Underrepresented minorities (African Americans, Hispanic Americans, and American Indians/Alaska Natives) do not participate in higher education in the same proportion as non-Hispanic whites. The number of degrees earned in the marine sciences by underrepresented minorities remains alarmingly low (Lettrich, 2014). While rates of participation by underrepresented minorities have increased, few programs attract 'critical mass' numbers at early undergraduate level and have achieved significant results. The goal of the project is to increase the number of applications from underrepresented minorities (URMs) to Ocean Science REU programs by 100% from the REU summer of 2014 to the REU program summer of 2016 (e.g. increase estimated rate of UM application from 1-3% to 2-6% of total applications).

Implementation

A combined strategy of increasing the number of such 'critical mass' and critical period Ocean Sciences REU programs with increasing the number of applications from UMs to all Ocean Science REU programs provides a key to increasing the number admitted to graduate programs and earning advanced degrees. The Louis Stokes Alliance for Minority Participation (LSAMP) program is designed to increase the numbers of URM students successfully completing higher education degrees in STEM. Therefore, the project has partnered with several of these alliances to recruit students to OS REUs.

Objectives

The project objectives include:

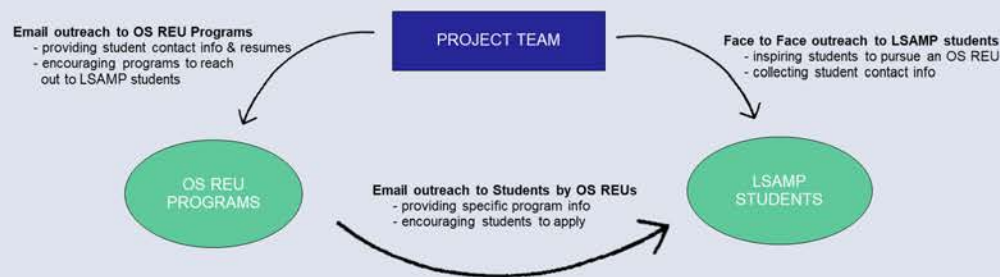
- Direct Engagement: Attend six LSAMP meetings and optimize exposure and engagement with target students.
- Recruitment Support: Collect and share contact information gathered from students attending LSAMP meetings who express interest in an Ocean Science REU programs with appropriate REU programs directors.
- Virtual Outreach: Add students to IBP's National Student Directory, thereby including them in IBP's ongoing outreach to student, including regular targeted email notifications about programs and funding opportunities.
- Community Networking Support: Provide an opportunity for LSAMP program affiliated staff and faculty to meet REU host institution staff/faculty by inviting REU staff to attend LSAMP meetings.

Evaluation Design

Evaluation will focus on the primary goals of the initiative and answering questions such as: Did OS REU programs experience changes in application rates by URM students? How many OS REU applications originated from students engaged through project activities? The primary methods used to evaluate final outcomes include surveys of students engaged during recruitment activities in order to ascertain whether they applied to OS REUs, and surveys of OS REU program directors designed to gauge changes in applicant pool demographics and possible influences. Preliminary data includes engagement and outreach numbers, and final data collection and analysis will be completed in 2016.

Figure 1: Outreach and Engagement data

Date	Outreach Venue	Host	Activity Types	Stakeholders Reached					
				UG	PB	MS	PhD	Students General	Faculty
10-Sep-15	UT System LSAMP Student Reserch Conference	UT El Paso	Informal Outreach, Poster Session: presented, Workshop: presented	55		3	2	32	20
26-Sep-15	OKLSAMP 21st Annual Reserch Symposium	Oklahoma State University	Workshop: presented, Exhibit/Table, Informal Outreach	109		13		27	42
08-Oct-15	Peach State LSAMP 10th Annual Fall Symposium and Research Conference	University of Georgia	Conference Session: oral presentation, Exhibit/Table, Workshop: presented	528					16
22-Oct-15	LSMCE Annual Conference	Louis Stokes Midwest Center for Excellence	Booth / Exhibit/Table	105	6	15	4	3	
30-Oct-15	NC-LSAMP Annual Reserch Conference	UNC Pembroke	Conference Session: oral presentation	21		3			
totals:				818	6	34	6	62	78



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American Geophysical Union, National Association of Black Geologists and Geophysicists, Consortium for Ocean Leadership, National Association of Geoscience Teachers, American Society of Limnology and Oceanography, American Meteorological Society, California Academy of Sciences, Aquarium of the Bay, National Academy of Sciences, Ford Foundation Fellowship Programs Office, Woods Hole Oceanographic Institution, EPA, NOAA

Intervention

Mentoring

Proposal

I would like to offer the entire \$10k budget of my 2018 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring to the committee and board to plan/conduct a four-hour virtual workshop/conference spread over 1-2 days to examine existing and upcoming funding opportunities for collaboration to integrate research, mentoring and future workforce development. Products should include: a report complete with transcript of all presentations /discussion, links to all referenced materials and web materials illustrating the commitment of marine laboratories and their associated/collaborating institutions to social diversity, equity and inclusion.

The goal of the effort should be to significantly increase the number and quality of proposals that include plans and budgets that will expand social diversity in the ocean, coastal and great lakes sciences.

If you want a strong and resilient teams, invest in them.

FIN

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He received a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM) on June 26, 2018 in Washington, D.C. from Dr. France Cordova, Director of National Science Foundation, and Mr. Michael Kratsios, Deputy Assistant to the President, White House Office of Science and Technology Policy. He received the SSU Research/Grantsmanship Award at the 120th Founders Day Observance in Tiger Arena on Monday November 22, 2010 presented by President Earl G. Yarbrough Sr. and former Acting President Dr. Clyde W. Hall (who hired Dr. Gilligan in 1979). He was the SSU Distinguished Professor during AY 2001-2002. He received a NOAA Environmental Hero Award by Under Secretary of Commerce for Oceans and Atmosphere Mr. James Baker and presented by Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy Director of NOAA, Mr. Douglas Hall aboard the NOAA vessel R/V Ferrel docked on River Street in Savannah, Georgia , April 23, 1996 (Earth Day). He received the SSC National Alumni Association President's Award, conferred by Dr. Jimmie Jackson, President, on April 21, 1989 at the dedication of the Marine Biology Building at Savannah State College. He offered 'Some Reflections on the Origin, Challenges and Contributions of Marine Science Degree Programs at Savannah State University' in conjunction with the dedication of a new Marine Sciences Research Center at SSU in October 2017 <https://www.savannahstate.edu/cost/mar-env-science/documents/Reflections2017.pdf> and co-authored with Dr. Sue Ebanks 'The Ocean Science Social Diversity Challenge' in 2016. *Oceanography* 29(1):55–57, <https://doi.org/10.5670/oceanog.2016.12>

Speaker's Notes

Thank you so much Aly and the Committee and for inviting me to join you today. In 1989 after the dedication of the Marine biology and dock on the Savannah State College campus three members of the southern Association of Marine Laboratories ambushed and strong-armed me into applying for membership. The hit-squad style of recruitment was very professionally done. Membership has been very important to me personally and to the university in developing education research and outreach programs and facilities. Marine Laboratories are a national treasure. I salute and thank you.

My thesis today is that science, at least the competition for resources to do science, is a team sport.

Jack Robinson did not become the first Black, Indigenous or Person of Color to play major league baseball because of affirmative action. Individuals in an organization had a vision of winning more games, selling more tickets and making more money by recruiting talent from wherever it existed. Branch Rickey personally recruited Robinson. Brooklyn Dodgers general manager Leo Derosher famously said in very colorful language to the players if they didn't want to play on the team with Robinson and get rich, they would be traded. The league president and commissioner told all the teams that if any players went on strike against Robinson, they would be suspended. When the physical and verbal abuse of Robinson by opposing players began, it had the effect of galvanizing the team making stronger and more resilient than it would have been if Robinson were not on the team. The Dodgers won more games, sold more tickets, made more money and Robinson's batting average went up.

What does a strong and resilient team in the marine sciences look like?

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These are high achieving science majors from around the country selected to participate in 2015 Bridge to Research in Marine Sciences Summer Program at Savannah State University. In 1994 Harbor Branch Oceanographic Institution and Savannah State University submitted parallel, unsolicited proposals to the National Science Foundation to completely reinvent the rules, structure and process of a summer research experience for undergraduates. The critical mass of applications from UMs was achieved by requiring applicants to have a minimum of one year of college work, to have not had any prior research experience and, initially, by in-person recruiting.

We know social diversity when we see it but does it bother us when we don't see it in university departments and professional societies? It bothers me a lot because I'm hypersensitive. Traditional methods get traditional results.

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The process of achieving strong and resilient teams at any level and in any organization is simple in my view and as you can see it begins and ends with leadership.

- Leadership having the vision of a culture of inclusive excellence and generating institution-wide buy-in of that vision

- Reimagine – Plan – Budget – Propose – Repeat
There are no models - just good examples, guiding principles, and best practices. Programs cannot be transplanted or airlifted in. Building strong teams takes time and effort. There are real costs associated with time and effort.
- Recruitment that is personal and direct, not delegated or outsourced. Putting 'UMs strongly encouraged to apply' on an application will probably have the opposite effect.
- Retention is achieved by intervention + mentoring
- Leadership by example. Example: A leader could use their superpowers to recruit and assistant leader with the right qualifications. By right qualifications I mean someone like oh Kamala Harris. Just an example because, as we know, she has already accepted an assistant leader position in an organization.

Slide

Vocabulary

Nomenclature is a dynamic seascape.

Elon Musk prohibits the use of acronyms and abbreviations at SpaceX and Tesla because they hurt rather help communication. I agree with him. It helps everyone to just say and write the words, in my view.

Underrepresented minority

Minority-serving institution

Historically Black colleges and universities

Hispanic-serving institutions

Tribal colleges

Community colleges

Black, indigenous, and persons of color

Lesbian, gay, bisexual, transgender, queer and other

Persons with disabilities (differential abilities)

Pathways not pipelines, fieldwork?, research outside laboratories, cruises? research on research ships.

If we are selling honorable science professions, we need not obfuscate that message by using jargon that can be misunderstood in the broader community.

Future workforce development not education because besides becoming acronym and abbreviation aversive during my service on Ocean Research Advisory Panel I learned that only a few agencies that award grants and contracts are legislatively authorized for education. Agencies could get their hands slapped by the Office of Management and Budget for putting education in any budget.

Antiracism

Unconscious bias

Microaggression

Intercultural competency

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Consult current geoscience literature (e.g. American Geophysical Union magazine EOS, Journal of Geoscience Education special issues), Understanding Intervention Conferences proceedings, Institute for Broadening Participation references and online toolkits for students faculty and staff, National Academies Resources on Diversity, Equity, and Inclusion and its 2019 Consensus Study Report The Science of Effective Mentorship.

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Recruitment

My first assignment as an assistant professor at Savannah State College in 1980 was to recruit minority white students to a historically Black college because the new Marine Biology degree was part of the college and University System of Georgia plan for desegregation. There was a good chance it would be defunded and inactivated if no white students enrolled.

When the bridge to research summer program grants were awarded in 1994 I was afraid we would get a tsunami of applications from traditional white students so I traveled to minority serving institutions around Georgia and adjacent states.

In 1998 Savannah State University and the Skidaway Institute of Oceanography won the competition for one of five national Collaboration to Integrate Research and Education awards from the National Science Foundation resulting in the approval of a new Master of Science in Marine Sciences degree at Savannah State University in 2002, I went on the road again making several trips to Atlanta's Spellman College, Morris Brown College and Clark Atlanta University.

After I retired in 2011, I wanted to follow up on an offer by Art Hicks, program Manager of the National Science Foundation Louis Stokes Alliances for Minority Participation Program at the 2007 NAML meeting Wrigley Lab on Catalina Island. I partnered with the Institute for Broadening Participation to submit another unsolicited proposal for a Pilot Project to Increase Applications to Ocean Science Research for Undergraduates Programs from Underrepresented Minority

Students through Representation and Participation at Louis Stokes Alliance for Minority Participation Meetings.

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The most important things I learned: There are many freshman Louis Stokes scholars who have not become established in a research lab. Directors are happy to increase the variety of research opportunities available to their scholars.

Intervention

There are a lot of reasons why people underperform or leave. Minority serving institutions, community colleges and small colleges have a culture of intervention. Could you imagine using the sink or swim model to teach swimming? I think everyone should attend at least one Understanding Intervention conference for two reasons: lots of great examples and people who are great at explaining things like unconscious bias and microaggression. The 2020 conference is next month and is virtual.

Mentoring

It takes many forms and is a two way street. I am so thankful for all the undergraduate students who mentored me. Respect, trust and having each other's back. It doesn't get any more personal than that.

Proposal

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Engineering Mentoring to the committee and board to plan/conduct a four-hour virtual workshop/conference spread over one to two days to examine existing and upcoming funding opportunities for collaborations to integrate research, mentoring and future workforce development. Products should include: a report complete with transcript of all presentations/discussion, links to all referenced materials and web materials illustrating the commitment of marine laboratories and their associated/collaborating institutions to social diversity, equity and inclusion.

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