NOAA SCIENCE ADVISORY BOARD REPORT ON DIVERSITY, EQUITY, INCLUSION, AND ACCESSIBILITY (DEIA) AT NOAA: PROMISING DEVELOPMENTS AND CRITICAL NEEDS

PRESENTED TO THE NOAA SCIENCE ADVISORY BOARD
BY THE SAB DEI @ NOAA SUBCOMMITTEE

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Diversity, Equity, Inclusion and Accessibility (DEIA) at NOAA: Promising Developments and Critical Needs

Authors: Subcommittee of the NOAA Science Advisory Board

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Executive Summary

After nine meetings and discussions with key NOAA leadership and ten meetings with the extant Employee Resource Groups (ERGs), the Subcommittee found that the pace of change at NOAA remains slow related to fostering a DEIA mindset improving diversity of NOAA staff though hiring and retention, fostering a sense of belonging amongst staff who are from historically (and currently) marginalized group, and equitable opportunities to career advancement. Continuing to work towards improving representativeness, equity, and inclusiveness at NOAA is core to fulfilling NOAA's mission (scientific and applied) and has taken on new urgency in the wake of wider trends that increasingly call into question the ways things have been done in the past and emphasize the need to make changes now and for the future. The discussions we had with NOAA individuals and groups underscored the depth of the challenges. We were also left with the hopeful impression that entities such as the ERGs, while relatively new, if adequately resourced and listened to could provide ideas, wisdom, and energy to nurture real and lasting institutional change. However, responsibility for change of this type does not rest with them. We found that current NOAA leadership was eager to support change, and has initiated a variety of mechanisms designed to accelerate change processes, but many of those are still in their infancy and have not had time to be effective. Given the decades-long underrepresentation of, for instance, women at NOAA, the Subcommittee also realizes and acknowledges historic and ongoing harm from institutional inertia. We strongly recommend that current efforts to foster diversity and belonging at NOAA be accelerated, amended with additional measures, and embedded into NOAA organizational structures and NOAA's lived culture.

The Context

The October 2020 meeting of the Science Advisory Board featured a panel discussion on the topic of diversity, equity, inclusion and accessibility (DEIA)[1] which was facilitated by the SAB Chair John Kreider and featured perspectives from Louisa Koch, NOAA Director of Education, Ken Bailey, Director of NOAA Office of Inclusion and Civil Rights and Sean Clayton, Acting Director of NOAA's Office of Human Capital Resources. Following the discussion, and through multiple iterations by the SAB around scoping of the task, the SAB established a subcommittee to address DEIA issues at NOAA with two guiding questions: Who is working at NOAA and how does the staff composition potentially influence how NOAA is engaging with critical stakeholders to fulfill its mission? The subcommittee and its charge were motivated by concerns about underrepresentation of minority communities and women particularly within the ranks of NOAA's scientific staff and leadership. Notably over the past two years, and as a result of societal events in 2020, it was apparent that feelings of underrepresentation extended well beyond traditional minority communities and women. NOAA employees were experiencing heightened levels of concern with equity and inclusion, as much of society was also experiencing. At its entirety, these views were driving internal efforts on what this underrepresentation might indicate about NOAA's own policies, practices and culture and its ability to serve the nation equitably.

Fiscal Year 2021 data from NOAA's Office of Inclusion and Civil Rights, for instance, indicates that compared to the Civilian Labor Force[2] while male employees are vastly overrepresented in the 11,850 NOAA staff. Similarly, male and female Asian and Native Hawaiian/Pacific Islander are employed by NOAA at a higher proportion than across the government; though overall the employee numbers in particular the last category is extremely small. The FY2021 figures provide a view of race and gender across the entire NOAA workforce: 54% white males, 25% white females, 4% Black males, 5% Black females, 4% Asian males and 3% Asian females, 3% Hispanic males and 2% Hispanic females. All other categories round down to zero percent. And while men compromise about 52% of the civilian workforce across all racial and ethnic groups, they make up about two-thirds of NOAA's workforce.

Change is coming slowly to NOAA, despite some recent efforts to address the situation. The female employment at NOAA has been slowly rising: from a low in 2014 of 32.4% to a 2021 high of 35.4%. And data across all categories suggest that the demographic breakdown of those joining NOAA as staff is hardly different from the current proportion of NOAA staff. Furthermore, and as is common in other scientific institutions (whether government, academia or nonprofits), the scientific, technical, and engineering staff at NOAA is less diverse than all staff, by more than 11%. This lack of diversity is even more pronounced in the rank of SES

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[1] DEIA and DEIAJB+ are used somewhat interchangeably in this report. The Subcommittee extended the common acronym of DEIA to include the terms "justice" and "belonging" to indicate that the conversation around these phenomena is evolving. We added the + to indicate that this conversation is best approached with a growth mindset around what, precisely is meant and how it might be operationalized.

[2] Defined as U.S. citizens, persons 16 years of age and over who are employed or are unemployed and seeking work - except those in the armed forces or imprisoned.

leaders at NOAA which is dominated by white males (68% as compared to the total NOAA workforce white male percentage of 54%). Asian males are also overrepresented in SES leadership positions as compared to the percentage of Asian males in the total NOAA workforce.[3]

As a result of the discussions on DEIA at its 2020 meeting, the SAB felt strongly that the staffing situation at NOAA and its likely impact on NOAA's ability to fulfill its mission merits a focus on staff recruitment and retention, including the internal culture of NOAA and its potential impact on the diversity of its staff. Consequently, this report focuses on DEIA efforts within NOAA, including employing and retaining diverse talent, foundational support for staff, creating an inclusive culture, and current plans for change and aspects of transparency and accountability, including efforts to monitor and understand key trends related to DEIA at NOAA.

1.1 Diversity, equity, inclusion and accessibility (DEIA): why does it matter in science?

Recent reports from 2023 by the NSF's National Center for Science and Engineering Statistics of the National Science Board on *Diversity and STEM: Women, Minorities, and Persons with Disabilities* and the National Academies of Sciences, Engineering and Medicine (NASEM) on *Advancing Antiracism, Diversity, Equity, and Inclusion in STEM Organizations* (see Appendix 3 for links to both) highlight the degree to which the STEMM enterprise (including medicine) has been and is still struggling with diversity and how historic trends of exclusion continue to slow progress towards equitable participation of all groups in STEMM professions. Like many similar reports before, the new NASEM report not only makes a series of suggestions for how scientific institutions can become more diverse, it also argues convincingly that the STEMM enterprise in general is more innovative and responsive to societal needs when those who are part of the STEMM enterprise represent more closely the societies within which it operates and is an essential part of. This subcommittee is motivated by a similar conviction, and agrees with the following three main arguments for fostering a diverse, inclusive and welcoming culture of STEMM:

The Moral Argument

Historically, science and scientific institutions are part of and influenced by society at large. Some have argued that key values within the scientific community (principally, that science is following evidence, is self-reflective and self-corrective, values objectivity over subjectivity) are also reflective of and mirror larger trends in society. As such, Science as a societal enterprise and as an institution is not immune to systematic bias, exclusion, and discrimination. A recent focus on the degree to which societal institutions act and function in ways that are fair and inclusive has placed in focus what has long been a marginalized criticism of scientific and educational institutions. There is strong evidence to suggest that science itself, as well as the institutions, organizations, and individuals who represent and form science, can do better by ensuring that all qualified people have equal access to the knowledge of science, to the creation of new scientific knowledge, and to participate in its enterprise. NOAA is a science-based, mission-oriented federal agency that in many ways represents science and is accountable to the

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[3] Source: MANAGEMENT DIRECTIVE (MD) 715 STATE OF THE AGENCY FISCAL YEAR 2021 presentation, 7 April 2022.

nation and its communities for the science it produces. It is beholden to the basic moral imperative of being impartial and fair to all.

<u>The Utilitarian Argument</u>

NOAA is competing for talent with the industry, colleges and universities, and private for-profit and nonprofit research organizations. Ensuring that NOAA recruits from, hires, retains, develops and advances staff who represent the full diverse spectrum of society will also broaden the pool of dedicated individuals who opt to serve and lead the next generations of NOAA in meeting the mission of science, service and stewardship for the Nation and the communities it serves.

<u>The Strategic Argument</u>

NOAA is a mission agency: it is informed by science, it creates new knowledge, and it transforms scientific and technical knowledge into action that protects people and communities, and that conserves and manages coastal and marine ecosystems and resources. What NOAA is focusing on and how well it reaches and serves communities depends on how well its staff understand and connect with communities, and the extent to which communities see themselves reflected in NOAA. Who it is who works at NOAA matters tremendously for whom NOAA has capacity to serve and support.

The charge of the subcommittee

The NOAA SAB finalized the creation of this subcommittee in late 2021 and charged it to write a short report that focuses on critical issues related to diversity, inclusion, equity and accessibility within NOAA staff, particularly as it relates to NOAA's ability to fulfill its mission. The subcommittee delimited its focus on NOAA's efforts to diversify its workforce rather than its connections with communities for three strategic reasons. First, a complete critical analysis of DEIA aspects throughout all of NOAA's internal and external operations would be beyond the capacity of the subcommittee. Secondly, the subcommittee felt that a representative focus on the scientific workforce within NOAA will address critical underlying mechanisms and culture. This links to an important argument for DEIA efforts at NOAA, namely its mission to serve all communities equitably, an imperative that rests on NOAA's ability to represent all communities in its workforce. Third, the working group sought to avoid duplication of NOAA's prior efforts in this area.

Methods

The subcommittee principally relied on two sources of information:
- Analysis of key documents that represent DEIA issues at NOAA (e.g., the NOAA DEI Strategic Plan) and in science (e.g., recent NASEM reports). A list of documents that were considered by the committee can be found in Appendix 3.
- Interactive listening and discussion sessions with representatives from more than a dozen Employee Resource Groups (ERGs) and representatives from NOAA leadership

offices, whose major tasks potentially influence DEIA at NOAA, or are majorly influenced by DEI at NOAA. A full list of individuals and groups who met with the subcommittee can be found in Appendices 1 and 2.

The subcommittee conducted its work with the following mindset:
Conversations with NOAA individuals and groups were conducted in a confidential, safe and generative environment that encouraged candid conversations. The subcommittee will report findings only in the aggregate and does not identify individuals in order to honor confidentiality. Almost all of the committee findings have been confirmed by multiple sources.

The subcommittee considered these sessions as an important means to build trust, hear diverse perspectives, and identify the most important issues requiring close attention and consideration of NOAA leadership. All individuals and groups were not only encouraged to share current and past actions to address DEIA at NOAA, but also to reflect on current challenges and ways to improve DEIAJB+ within NOAA. As this effort evolved, the subcommittee viewed itself as a mechanism for providing and channeling the voice of the many who shared their perspective. We are grateful for and honor this trust.

What we heard and what we critically read

"How bad is it? It is bad!" This quote from a longtime NOAA employee describes much of what the committee heard and saw. As various presentations by members of NOAA's leadership made clear, and were confirmed by the lived experience of members of most ERGs, NOAA lacks diversity throughout its hierarchy and within its scientific and technical workforce, a situation many we talked to saw as limiting NOAA's ability to fulfill its mission. NOAA seems to be less diverse than other federal agencies.[4] For instance, despite improvements in female representation in scientific disciplines relevant to NOAA's mission, women are still highly underrepresented in NOAA leadership and advanced positions. Data suggest that diversity is particularly lacking throughout NOAA's scientific workforce. Available data suggest that the issue has been systemic for decades and that NOAA has not increased its diversity to the same degree as the many communities that NOAA serves.

Moreover, the pace of change is slow, despite a variety of promising efforts by NOAA around hiring and retention, promotion and recruitment, including internal and external efforts to establish and resource ERGs and to address diversity at the source by supporting participation of underrepresented minority groups in K-16 STEM education (with a focus on NOAA-related science). While NOAA has long been aware of issues around representation and diversity, efforts within the agency ranks to bring about real change have not been as impactful as desired by employees. While leadership might have championed various forms of inclusion, equity and diversity and can point to some successes, the systemic issue within NOAA remains:

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[4] For a snapshot of diversity across the Federal workforce, see OPM 2022 report on Federal workforce DEIA. https://www.opm.gov/policy-data-oversight/diversity-equity-inclusion-and-accessibility/reports/DEIA-Annual-Report-2022.pdf

its culture and its practices might still not be conducive for scaling a large and fast enough change for an operation in which all can strive equally and equitably.

Because of historical issues with DEIA within the broad scientific community as well as within NOAA, current NOAA employees and applicants for mid-career or senior level positions at NOAA from groups currently underrepresented may lack the training, leadership experience or opportunities which are important for their career advancement, resulting in continued disadvantages for these individuals as they seek to continue their careers at NOAA. Past inequities persist and results in continued under-representation of women and under-represented groups in leadership positions within the ranks of NOAA. Current NOAA employees can trace their unequal treatment back many years, through evolutions of leaders and managers, and can directly cite how this has adversely impacted their current positions at NOAA as well as their opportunities for advancement in their careers. Unfortunately, this is not just a historic trend driven by past discrimination, but might be sustained, at least partially, by persistent bias and cultural norms within the agency.

NOAA is currently working on a variety of initiatives to rectify systemic issues that counter DEIA. For instance, on March 30, 2023, NOAA's Office of Inclusion and Civil Rights announced the establishment of a new volunteer Barrier Analysis Working Group (BAWG). BAWG will help identify barriers to equal employment opportunities and develop solutions to eliminate those barriers. The goal is to create a more inclusive and welcoming work environment at NOAA, and ultimately to ensure that NOAA provides equitable and inclusive services to all employees and members of the communities it serves.

NOAA is working on many parallel efforts to improve its ability to monitor DEIA issues. Current data systems provide demographic information on employees throughout the hierarchy. New data systems are being developed that would also provide information on where and potentially why diversity decreases from the point of recruitment (and entry level positions), throughout promotions, and all the way up to leadership. Like all other federal agencies, and most other scientific institutions, measures of diversity decline with advanced positions and leadership.

While new data systems are being created, and existing ones are being used, the subcommittee noted that the use of relevant data seems limited, their existence not widely promoted, and that key monitoring systems are only now being developed. While it is laudable that NOAA is working towards improving its capacity to make data-driven decisions, the fact that better data-driven management information systems are being planned or launched in 2023 seemed surprising and suggest that at least in the past, and rhetoric notwithstanding, these issues were not pursued with the efficacy required for real change.

NOAA is operating under its first Diversity and Inclusion Strategic Plan for Fiscal Years 2020 - 2024. The plan documents and reaffirms NOAA's commitment to diversity and inclusion throughout its operation and lays out a broad set of actions for a variety of NOAA units that, collectively, are intended to address DEIA issues at NOAA. The plan is an important step for

NOAA. Now is the time to strengthen it with an implementation plan that includes more clearly articulated targets and considers the input and needs of its employees. Current shortcomings are understandable. Like many other organizations, NOAA and its employees responded to the events in the spring of 2020 and in creating the plan paved the road for addressing issues in the future. With this plan in place, NOAA can now work towards an updated version for fiscal years 2025 through 2029 that is driven by an evidence-based analysis of the current state, articulates clear goals and metrics, institutes a theory of change influenced by its employees, and that includes an implementation plan that can be used to monitor annual progress.

Adequately addressing and creating a "sea change" for DEIA at NOAA requires resources - time, funds and dedication at all levels. While NOAA leadership and line offices can free some limited core funding to support DEIA initiatives, systemic and effective action will require dedicated funding from Congress. NOAA has sought such funding in the past with limited success, but should increase its efforts in the future.

Systemic issues require systemic approaches and accountability across all of NOAA. A variety of institutions and offices within NOAA support the development of the NOAA scientific workforce. All of these institutions are highly committed to addressing and advancing inclusion and diversity at NOAA. Improvement in the coordination, cooperation and partnership between the various NOAA units will improve the effectiveness of NOAA to understand and correct barriers in hiring and retaining a more diverse staff. For instance, tracking employee data and understanding where in the pathways from joining NOAA to advancing into NOAA leadership there might be problems or issues around diversity are best addressed by coordinated efforts between leadership, human resources and diversity offices. Furthermore, many promising practices for addressing DEIA are well established, allowing middle and upper management to address issues of diversity and inclusion within their areas of influence. The role of upper management lies in setting goals and providing relevant programs and resources, while middle management is where much of the actual implementation in hiring, retention, and promotion takes place. Issue-focused groups such as the Diversity Inclusion Management Advisory Council (DIMAC) and the ERGs represent and support diverse NOAA staff and can play an important role in guiding systemic initiatives towards DEIA.

The middle management level is a particularly important area for focus since the majority of hiring decisions are with middle management levels. By its structural design, NOAA middle management is actually where NOAA's culture is actively created and sustained, as higher levels of leadership are political and transition often. Middle management is influenced by a number of incentive structures to guide everyday decisions which, cumulative across the agency, add up to lived culture within NOAA. Part of this culture the subcommittee heard about were inertia and a bias towards values and beliefs that support what has been seemingly successful in the past, that sustains a comfortable status quo, and that creates narratives of scientific meritocracy which favor narrow expressions of excellence and success. Many of the staff we talked with expressed a need to change culture and perspective; we learned that a crucial role for all ERGs seems to lie in providing empathy, understanding, and connections for those who do not fall within a narrowly perceived norm of what a scientist is at NOAA. Biased dominant

cultural narratives of what a NOAA scientific staff is or should be might hold back efforts to diversify NOAA despite policies, incentives and concrete actions towards more DEIA.

Many shared the hiring process as an example of cultural bias countering official policy, and as a means address those biases. NOAA hiring managers may act rationally when they hire new scientific staff with academic pedigree from renown institutions. Almost all scientific institutions try to do so since, all else being equal, hiring from programs that are seen as excellent or elite can be seen as a low risk strategy, and may guarantee that a new employee is ready for the job with little onboarding. However rational it may be at any one incident of hiring, its accumulated effect is predictable: NOAA science does not represent the nation or even the diversity of people who study scientific disciplines relevant to NOAA work, but represents more closely the graduate students and faculty of those academic institutions and programs that are seen as excellent and successful in NOAA disciplines. This implicit bias will, on the margin and within a highly competitive buyer's market for scientific staff, favor those with academic pedigree from elite academic institutions over those from Minority Serving Institutions or Historically Black Colleges and Universities. In general, such hiring practices will then mirror historic inequities and lead to less diverse staff.

Creating more diverse hiring panels and adding "search advocates" (trained employees who ensure the hiring process is fair, inclusive and considers a wide pool of applicants on their merit rather than their pedigree or perceived cultural fit), can address this issue only partially. Other measures such as direct hiring authority or cluster hires can be effective, as can changing the expectations for new employees (mostly in terms of the time needed to onboard them) and lowering the risk functions for hiring managers by providing new staff more time to settle within the agency. Giving new staff or promoted staff more time to adjust to the job, and deliberately nurturing, mentoring or coaching staff for success are promising practices, as are clear policies that seeking and considering applicants form a more diverse set of academic institutions, including MSIs and HBCUs, is not only acceptable, but expected.

NOAA faces the same challenges as other scientific institutions in its attempt to diversify its staff. As such, it partially succeeded in the recent past to diversify entry level positions, but struggles to promote individuals who do not conform with a narrow set of expectations, an issue of implicit and subtle bias. This problem with implicit subtle bias is that it infects all, is difficult to acknowledge, and extremely hard to address. Whether we can see a person with disability, or a person of Asian or Indigenous / Native descent, a woman, or a person of color as a leader– whether we can interpret behavior or affect in ways that are unbiased, or tolerate different approaches to leadership– can, again, have subtle impact in individual decisions that add, in the aggregate, to large systemic effects. Many staff we talked to suggested that the issue of implicit bias towards what leadership might look like and who leaders might be could be a major factor in shaping staff diversity in NOAA across hierarchies.

NOAA hires from a pool of potential employees that itself is not diverse. NOAA has tried to counter this problem through a variety of educational initiatives. Its Office of Education and other units have been working towards addressing this root problem. However, promising

initiatives like diversity fellowships and cooperation with MSIs or HBCUs do not seem to have the desired effect of diversifying the incoming pool of emerging science professionals in NOAA, likely for the effect of hiring biases described above. The subcommittee suggests that these efforts be better linked in NOAA with improved hiring and onboarding strategies and that the "pipeline" of diverse hiring be extended into early career development within NOAA.

Over the course of about the last five years, NOAA established a new institution that promises to support DEIA efforts at a variety of levels: the Employee Resource Groups or ERG. The subcommittee met with and listened to 10 groups over the course of 11 months, and was impressed by the range of work done within a relatively short period of time by dedicated NOAA staff who go beyond the level of official support for their efforts. ERGs act in a variety of ways: they form a space within NOAA for underrepresented groups to meet and share experiences, they advise NOAA leadership on issues related to their specific background, they help connect to communities outside of NOAA, and they serve to advocate for and inform all of NOAA about the culture or background they represent. Representatives of the ERGs shared with the committee not only past and current accomplishments, but also challenges they and NOAA are still facing when it comes to addressing diversity and inclusion. On the positive side, all ERGs agreed that they are needed, that they provide important functions for making diverse staff feel a sense of belonging and support, and that they serve an important function in advocating for specific issues and concerns of their group.

Despite their only recent establishment, ERGs are already successful in supporting DEIA at NOAA and merit further and potentially expanded support and resources. Across ERGs the following concerns were shared with the Subcommittee:

- The current level of financial support (10% of staff time for EG leadership) is not enough to sustain ERGs as a model. The current model relies on the passion of the individuals, taxes their careers and is potentially exhausting. If ERGs are to continue their productive contributions to NOAA, they may need additional resources in terms of staff time and funding to support initiatives.
- Relatedly, some ERGs felt that while NOAA was eager to embrace and promote ERGs as one model to address DEIA, the real level of support in staff time and funding was disproportionately low, leading to frustration.
- NOAA leadership is in support of diversity and inclusion and has taken steps towards addressing these issues. However, NOAA leadership does not necessarily have the expertise to do so, and at times seems to overestimate ERG's impact on changing NOAA culture; ERGs are hoping for NOAA leadership to listen more closely and with humility to what ERGs might have to offer.
- While DEIA efforts are being addressed in pockets, there is no coherent implementation strategy across line offices, and there is no overarching initiative across NOAA in terms of changing behavior or culture around access and inclusion. ERGs could help in providing coherence and in addressing cultural change.
- There is no comprehensive implementation strategy for DEIA-related issues, nor is there a team with representatives from all internal stakeholders that could prioritize high-

impact initiatives while allowing individual units to work independently in parallel. The Diversity Inclusion Management Advisory Council (DIMAC) existed before ERGs, was recomposed with revised bylaws and is since 2020 led by two chairs of ERGs. DIMAC could play a more prominent role in coordinating DEIA efforts across NOAA.

In summary, the subcommittee heard that historic and disconcerting trends around diversity and inclusion at NOAA continue to this date, and that recent initiatives and efforts are promising and need sustained support. In fact, we heard of many promising ideas and initiatives and felt that more exchange and learning and better collaboration across NOAA by making use of current institutions and communities of practice will go a long way to addressing DEIA issues.

A summary of what we learned

1. In order to change the culture of NOAA around DEIA, the framing around the need for and the benefits of DEIA might need to change. Instead of framing DEIA as addressing a societal imperative, it should (also) be framed as an important means to address NOAA's mission. Arguably, one of NOAA's greatest assets is the quality of its employees. Investing in a diverse and highly motivated staff who represent the community they serve will be essential.

2. NOAA employees see DEIA already more broadly. Conversations with NOAA ERGs often centered on justice in mission fulfilment and internal operations, by asking who is not served and who does not succeed at NOAA; they also focused on the degree to which diverse staff feel they belong at NOAA, and how, relatedly, diverse communities might see themselves represented in NOAA. The acronym DEIAJB+ represents a growing awareness that justice and belonging are closely tied to achieving DEIA, and that other concepts might be equally important in the future.

3. Across many parts of NOAA, employees describe DEIA issues as challenging with improvement measures being introduced or implemented at a much too slow rate to be either significant or effective.

4. NOAA is impacted by legacy hiring and career advancement practices, both of which were and still are influenced by a lack in diversity within the scientific and engineering fields NOAA draws much of its staff from.

5. Many new DEIA-related activities have been started recently and more have been announced or promised. NOAA is on the cusp of major improvements if promised initiatives are realized in ways that are sustained even with leadership change and new policy priorities.

6. Leadership is in support of DEIA at NOAA, but there is a widespread sense that leadership would benefit from listening more closely to relevant staff in order to learn what is working and what is not working with proposed initiatives. NOAA leadership may benefit from a deeper understanding of DEIA issues. NOAA middle management and specifically a culture of risk avoidance and implicit bias might be key obstacles for a true culture change around DEIA at NOAA, but NOAA leadership needs to continue in its informed efforts to effect change.

7. Human resource and DEIA offices (EEO) might be addressing DEIA issues in parallel. Better coordination between units will help the agency accomplish strategic goals around DEIA more effectively and efficiently. The Diversity Inclusion Management Advisory Council (DIMAC) could play a part in cross-NOAA coordination of DEIA efforts.

8. NOAA employees reported examples of how prior inequities have affected their career trajectory within NOAA. These inequities ranged from lower starting salaries, denial of leadership opportunities, lack of training, and not being offered rotating positions in other parts of NOAA. Individuals all related how these past inequities affect their current ability to be considered for future career advancements.

9. Relatedly, some current NOAA employees expressed frustration over a high emphasis on new hiring approaches, as opposed to addressing current employee's ability to advance. These dedicated NOAA employees are looking to partner with NOAA leadership to allow the existing talent to thrive and advance.

10. Underutilized talent within NOAA offers a great opportunity for NOAA to enhance and improve its workforce and mission by allowing previously undervalued employees new opportunities for leadership and growth.

11. ERGs are new for NOAA (started around the fall of 2019) and are evolving in their role and function: they hold promise in supporting DEIA at NOAA if resourced, acknowledged, supported, and internally connected appropriately. ERGs can be one of NOAA's strongest and most promising tools for engaging with the communities it serves to meet the agency's mission.

12. NOAA can be perceived as underutilizing or not adequately deploying its greatest tool - the people - into the communities NOAA serves. ERGs are a conduit to improving this; they are in an excellent position to leverage the internal communities and networks to strengthen relationships and engagements with external communities that NOAA serves.

What NOAA might want to do

1. Put in place a system and resource tools to get better data around career trajectories, including data around motivation and employee satisfaction. NOAA is working on such a system and the Subcommittee strongly encourages swift follow through with the existing plans. The Subcommittee encourages NOAA to make the system and resource tools widely available with employees and provide mechanisms so staff can contribute information to the system.

2. We recommend the NOAA strengthen ERGs, connect them, and resource them with sufficient levels of funding. NOAA should find or create opportunities to leverage the ERGs in connecting and building relationships with outside communities NOAA is serving. Communities, even branches of the scientific community, respond positively to people that look and feel like they do.

3. Develop a mechanism to provide ERG leadership regular communication with NOAA leadership to bring forth solicited information from members to inform NOAA DEIAJB+ efforts, to offer suggestions and to develop solutions in a collaborative manner.

Alternatively, or in addition, strengthen DIMAC as a way to synthesize, filter and inform across ERGs to NOAA leadership (DIMAC was founded in 2017 and has already evolved in its role or function).

4. Adopt new hiring practices that may eliminate bias without unduly "culturally taxing" minoritized NOAA staff: consider mechanisms such as search advocates, cluster hire, direct hire, etc. Continue carefully with involving minoritized individuals in the process.

5. Institute and expand meaningful training programs and performance metrics for upper and middle management to follow and show progress against leadership DEIAJB+ initiatives. Ensure that all managerial staff understand how they influence the lived experience and internal culture of NOAA.

6. Create a new strategic plan for 2025-2029, and base it on data-based analysis of the issues, a theory of change, evidence-based practices (identify the evidence), and metrics of success; in parallel (and not afterwards) create an implementation plan and a clear attribution to responsible parties. Define a monitoring system to ensure that progress or lack thereof is transparent.

7. Continue efforts to seek designated funding from Congress. Potentially collaborate with other federal agencies to educate Congress about the mission-oriented benefits of diversity and inclusion efforts (building on the utilitarian argument for DEIA efforts).

8. Encourage employees to point out and celebrate initiatives that keep NOAA's culture moving in a positive and inclusive direction.

9. Existing employees who feel their careers have been stifled in the past due to bias and discrimination should be informed about current safe avenues for addressing those issues and encouraged to suggest ways that might rectify past injustices to their careers.

Appendices

1. Groups talked to
2. Individuals talked to
3. Documents analyzed or considered
4. Glossary of terms
5. Example of promising practice in hiring: the search advocate concept

1. List of Employee Resource Groups (ERG) that met with the subcommittee
- African American Resource Group
- Pride ERG
- Latinos@NOAA ERG
- National SeaGrant ERG
- American Indian and Alaska Native ERG
- Asian Employee Resource Group
- Accommodating Differently Abled People Team (ADAPT)
- Native Hawaiian and Pacific Islander ERG
- Diversity and Professional Advancement Working Group (DPAWG)
- Women of NOAA ERG

2. List of individual speakers who met with the subcommittee
- Benjamin Friedman, Deputy Under Secretary for Operations, NOAA
- Marshall Shepherd, Georgia Athletic Association, Distinguished Professor
- Director, Atmospheric Sciences Program
- Terence Lynch, Director of NOAA Office of Science Support
- Eli Salahuddin, Equal Employment Opportunity (EEO) and Diversity, Equity, Inclusion, and Accessibility Program Manager, National Environmental Satellite Data and Information Service (NESDIS)
- Alisa Young, JPSS Program Lead Scientist, Satellite Applications & Research (STAR), NESDIS
- Ngozi T. Butler-Guerrier, Director, NOAA Office of Inclusion and Civil Rights
- Richard Grant, Deputy Director NOAA Office of Inclusion and Civil Rights
- Hakeem Basheerud-deen, Deputy Director, NOAA Office of Human Capital Services

3. Documents analyzed or considered

A. National Oceanic and Atmospheric Administration Diversity and Inclusion Strategic Plan Fiscal Years 2020—2024, available upon request.

B. PowerPoint Presentations, publications and reports shared with committee (various). Available upon request.

C. President's Executive Order on Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. February 16, 2023. Available at https://www.whitehouse.gov/briefing-room/presidential-actions/2023/02/16/executive-order-on-further-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/

D. National Center for Science and Engineering Statistics (NCSES). 2023. *Diversity and STEM: Women, Minorities, and Persons with Disabilities 2023*. Special Report NSF 23-315. Alexandria, VA: National Science Foundation. Available at https://ncses.nsf.gov/wmpd

E. National Academies of Sciences, Engineering and Medicine report on *Advancing Antiracism, Diversity, Equity, and Inclusion in STEMM Organizations*. Available at https://nap.nationalacademies.org/catalog/26803/advancing-antiracism-diversity-equity-and-inclusion-in-stemm-organizations-beyond

4. Glossary of Terms

Based on the Racial Equity Tools Glossary, MP Associates, Center for Assessment and Policy Development, and World Trust Educational Services, July 2022. Accessed April 9 at https://drive.google.com/file/d/1xatesL9LYIZmzij91e733QLlO2bdg3B1/view

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Access refers to ways in which individuals or social groups/communities are provided an opportunity to partake, engage and be part of. [Access is often contrasted with Inclusion, a state in which conditions exist that makes individuals, social groups or communities belong.]

Ableism refers to institutional structures, cultural norms, and individual beliefs and behaviors that together function to maintain the status quo and exclude people with disabilities from many areas of society.

BIPOC refers to "Black, Indigenous and other People of Color."

Culture refers to a social system of meaning and custom that is developed by a group of people to assure its adaptation and survival. These groups are distinguished by a set of unspoken rules that shape values, beliefs, habits, patterns of thinking, behaviors and styles of communication.

Discrimination is the unequal treatment of members of various groups based on race, gender, social class, sexual orientation, physical ability, religion and other categories.

Diversity refers to all the ways in which people differ, and it encompasses all the different characteristics that make one individual or group different from another. It is all-inclusive and recognizes everyone and every group as part of the diversity that should be valued. A broad definition includes not only race, ethnicity, and gender—the groups that most often come to mind when the term "diversity" is used—but also age, national origin, religion, disability, sexual orientation, socioeconomic status, education, marital status, language, and physical appearance. It also involves different ideas, perspectives, and values.

Equality is the state in which everyone is treated the same. An equality emphasis seeks to render justice by providing individuals or social groups/communities the same resources or support, irrespective of need.

Equity is the state in which everyone is treated fairly. An equity emphasis seeks to render justice by deeply considering structural factors that benefit some social groups/communities and harm other social groups/communities. Under equity considerations, resources are distributed according to specific needs, and might therefore differ between individuals and groups.

Ethnicity is a social construct that divides people into smaller social groups based on characteristics such as shared sense of group membership, values, behavioral patterns, language, political and economic interests, history, and ancestral geographical base.

Gender is a set of socially constructed roles, behaviors, activities, and attributes that a given society considers appropriate for (historically) defined male and female expressions. [Biological sex refers to biological differences based on genetics and resulting sexual organs].

Gender identity refers to a person's deeply held core sense of self in relation to gender. Gender identity does not always correspond to biological sex.

Implicit bias, also known as unconscious or hidden bias, are negative associations that people unknowingly hold. They are expressed automatically, without conscious awareness. Many studies have indicated that implicit biases affect individuals' attitudes and actions, thus creating real-world implications, even though individuals may not even be aware that those biases exist within themselves.

Inclusion refers to bringing traditionally excluded individuals and/or groups into processes, activities, and decision/policy making in a way that shares power, creates belonging, accepts preferred forms of being and acting, and honors traditions, norms and cultures of those who have traditionally been excluded.

Individual racism refers to the beliefs, attitudes, and actions of individuals that support or perpetuate racism. Individual racism can be deliberate, or the individual may act to perpetuate or support racism without knowing that is what he or she is doing.

Institutional racism refers specifically to the ways in which institutional policies and practices create different outcomes for different racial groups. The institutional policies may never mention any racial group, but there effect is to create advantages for one or more racial groups over others.

Intersectionality refers to the multiple ways in which various identities like race/ethnicity, gender, immigration status, educational attainment, socioeconomic status, disability, and other factors may intersect to form someone's sense of self (identity) and how others might see or treat them. Exposing [one's] multiple identities can help clarify the ways in which a person can simultaneously experience privilege and oppression.

LGBTQ+ is an acronym that collectively refers to individuals who are lesbian, gay, bisexual, transgender, or queer. The addition of the Q for queer is a more recently preferred version of the acronym as cultural opinions of the term queer focus increasingly on its positive, reclaimed definition. The Q can also stand for questioning, referring to those who are still exploring their own sexuality and/or gender. The "+" represents those who are a part of the community but for whom LGBTQ does not accurately capture or reflect their identity.

Marginalization is a social process by which individuals or groups are (intentionally or unintentionally) distanced from access to power and resources and constructed as insignificant, peripheral, or less valuable/privileged to a community or "mainstream" society. This term describes a social process, so as not to imply a lack of agency. Marginalized groups or people are those excluded from mainstream social, economic, cultural, or political life.

Microaggressions are the everyday verbal, nonverbal, and environmental slights, snubs, insults, or comments, whether intentional or unintentional, which communicate otherness, or even hostile, derogatory, or negative messages to target persons based solely upon their assumed membership in a specific group. Microaggressions are often subtle in each instance but can have considerable impact on individuals in their accumulated experience.

Model minority is a term created by sociologist William Peterson to describe the Japanese community, whom he saw as being able to overcome oppression because of their cultural values. The term in now being used more broadly to encompass most other Asian ethnic and racial groups as a monolith and uses hand-picked aggregate socio-economic statistics to argue that certain cultural norms and values commonly attributed to Asian cultures are mostly responsible for educational, health and economic success; the concept ignores ongoing bias and Anti-Asian discrimination and ignores discrimination in other areas than the one chosen to buttress the model minority idea.

Nonbinary refers to people who exist between or beyond the man-woman binary. Some use the term exclusively, while others may use it interchangeably with terms like genderqueer, genderfluid, gender nonconforming, gender-diverse, or gender expansive. Nonbinary identities can combine elements of gender identity and biological sex.

Oppression refers to the systematic subjugation of one social group by a more powerful social group for the social, economic, and political benefit of the more powerful social group. Oppression exists where power combines with prejudice. Oppression may be aided by deliberate policies, but can also exists where no stated subjugative policies are in place.

People of Color is often the preferred collective term for referring to non-White racial groups. Racial justice advocates have been using the term "people of color" since the late 1970s as an inclusive and unifying frame across different racial groups that are not White, to address racial inequities. While "people of color" can be a politically useful term, and describes people with their own attributes (as opposed to what they are not, e.g., "non-White"), it is also important whenever possible to identify people through their own racial/ethnic group, as each has its own distinct experience and meaning and may be more appropriate.

Power can be understood as the ability to influence others and impose one's beliefs. All power is relational, and the different relationships either reinforce or disrupt one another. Power can be used malignantly and intentionally, but need not be, and individuals within a culture may benefit from power of which they are unaware. Power can manifest itself on personal, social, institutional, or structural levels.

Prejudice refers to a pre-judgment or unjustifiable, and usually negative, attitude of one type of individual or groups toward another group and its members. Such negative attitudes are typically based on unsupported generalizations (or stereotypes) that deny the right of individual members of certain groups to be recognized and treated as individuals with individual characteristics.

Privilege denotes unearned or nurtured social power accorded by the formal and informal institutions of society to ALL members of a dominant group (e.g., male privilege, white privilege, etc.). Privilege is usually invisible to or not reflected by those who have it, but nevertheless puts them at an advantage over those who do not have it.

Race is a vague social construct with little to no foundation in biology. Concept of "race" and racial designations have changed considerably over time. Some groups that are considered "white" in the United States today, for instance, were considered "non-white" in previous eras, in U.S. Census data and in mass media and popular culture (for example, Irish, Italian, and Jewish people). The way in which racial categorizations are enforced has also changed over time. For example, the racial designation of Asian American and Pacific Islander changed four times in the 19th century. That is, they were defined at times as white and at other times as not white.

Racial and ethnic identity refers to an individual's awareness and experience of being a member of a racial and ethnic group; the racial and ethnic categories that individuals choose to describe themselves are mostly based on such factors as biological heritage, physical appearance, cultural affiliation, early socialization, and personal experience.

Racism involves one group having the power to carry out systematic discrimination through the institutional policies and practices of the society and by shaping the cultural beliefs and values that support those racist policies and practices. In this context, ideas that suggest one racial group is inferior or superior to another racial group in any way would be considered racist, and a person would be considered racist who endorses or expresses those ideas or supports racist policies through their actions or interaction. A racist policy is any measure that produces or sustains racial inequity between or among racial groups. Policies are written and unwritten laws, rules, procedures, processes, regulations, and guidelines that govern people. Racist policies are also expressed through other terms such as "structural racism" or "systemic racism". Racism itself is institutional, structural, and systemic.

Restorative justice is a theory of justice that emphasizes repairing the harm caused by crime and conflict. It places decisions in the hands of those who have been most affected by a wrongdoing, and gives equal concern to the victim, the offender, and the surrounding community. Restorative responses are meant to repair harm, heal broken relationships, and address the underlying reasons for the offense. Restorative Justice emphasizes individual and collective accountability.

Sexual orientation refers to the sexual attraction toward other people or no people. While sexual activity involves the choices one makes regarding behavior, one's sexual activity does

not define one's sexual orientation. Sexual orientation is part of the human condition, and all people have one. Typically, it is attraction that helps determine orientation.

Tokenism is a form of insincere engagement, involvement or participation of individuals from minoritized groups, with the purpose of appearing to be inclusive. Tokenisms is seen as a form of covert racism since it may prevent effective ways to address racism.

White Privilege refers to the unquestioned and unearned set of advantages, entitlements, benefits and choices bestowed on people solely because they are considered white. Generally white people who experience such privilege do so without being conscious of it.

White Supremacy is an idea or ideology that states or conveys that white people and the ideas, thoughts, beliefs, and actions of white people are superior to People of Color and their ideas, thoughts, beliefs, and actions. While mostly associated with extremist groups like the Ku Klux Klan and the neo-Nazis, white supremacy can also be found in institutional and cultural assumptions that assign value, morality, goodness, and humanity to norms, values, practices or policies commonly associated with middle or Northern European cultures, such as efficiency, punctuality, or perfectionism. The latter is sometimes referred to as **White Supremacy Culture**.

5. Example of a promising practice in hiring: The search advocate concept

Search Advocate Programs can supplement a variety of other promising practices to diversify staff at the hiring stage

Diversifying search committees can be one strategy to address bias during the hiring process and is generally recommended as a promising practice, including at NOAA. Unfortunately, appointing staff from minoritized groups to hiring panels can lead to two fundamental issues: (1) Since there are many dimensions of diversity (race/ethnicity, gender, religious affiliation, disability, etc.) one person may rarely represent all of them, and (2) in organizations that are not already diverse, these functions could be considered "cultural taxation": because of their status as a member of a minoritized group, they are included more in tasks that are not directly related to job performance than other staff, potentially slowing career advancement.

In order to address both issues, Oregon State University established as part of a variety of measures to ensure fairness in the hiring process and to diversify staffing a search advocate program. The program recruits volunteers across the university who are trained and can then serve on search committees in the specific role of ensuring that basic fairness prevails and bias is minimized. Volunteers go through 16 hours of training that covers fundamentals about search practices and standards specific to the university, familiarizes search committee members with their responsibilities, and provides basics about bias mitigation in the context of competitive searches. The program works in conjunction with other mechanism that may help to address potential bias in hiring.

For example, in 2015-16 the College of Engineering at Oregon State University used the search advocate model along with several other measures to recruit more women into the professoriate

- Each committee had a search advocate from outside the department, and preferably from outside the college.
- Each job description included an expectation that the new faculty member would contribute to equalizing (across racial/ethnic groups) and advancing student success, and had a qualification related to that expectation. The dean mandated standard language both for the description of work and the related qualification.
- Each search chair completed search advocate training.
- A new position of associate dean was established, with responsibilities including the review of pool demographics after each stage of screening for adequacy.
- Each search committee met with the search advocate at the beginning to review and provide feedback on the job description before posting and developed a criteria matrix as a primary de-biasing tool before beginning to read applications. The criteria matrix was used to guide all stages of screening: initial application, first interview, second interview, etc.
- Each search committee was required to complete an applicant disposition worksheet identifying specific reasons for each candidate who was not advanced (a universal requirement across the university).

With all those measures in place, the College of Engineering went from a nationally typical hiring rate for women of about 18% to 50% during the year with this strong focus, indicating that a set of measures likely work in conjunction to improve diversity in hiring which includes dedicated leadership and rigorous expectations for producing results.