

April 2024



SETAC Chesapeake-Potomac Regional Chapter
SPRING NEWSLETTER

CPRC SETAC Spring Meeting 2024

Monday, April 8th, 2024

**Institute for Marine and Environmental Technology
(IMET), Baltimore, Maryland**



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Contributed by Tyler Frankel

Mission Statement

Serving the Chesapeake-Potomac Region (Maryland, DC, Virginia, and West Virginia), our chapter of SETAC North America (SNA) provides a professional forum for individuals from private industry, academia, and government agencies who are engaged in the study, analysis and solutions for environmental problems, management, and regulation of natural resources, and/or research and development. We facilitate networking and educational opportunities for scientific professionals, mentoring and career guidance for students, and environmental education and outreach for the public.

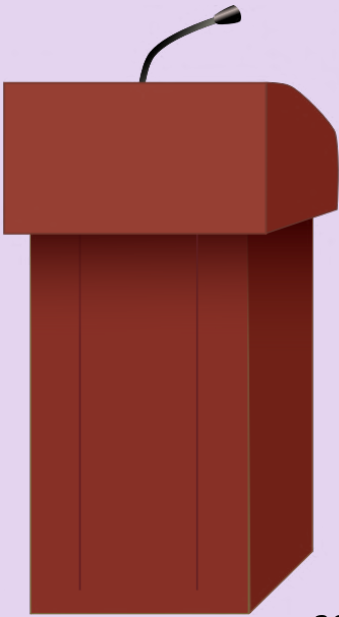


KEEP IN TOUCH WITH CPRC SETAC



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PRESIDENT'S PODIUM

Dear CPRC,

As spring returns and a new season is under way, our Chapter continues to build back from the pandemic that restricted our activities for so long.

Those activities include supporting students with the space and funding for presenting their research, building relationships with sponsors, and providing community for toxicological scientists and professionals to network, share, and learn. I am pleased to say we are recovering well!

As part of fulfilling our mission, we are excited about the upcoming 2024 Spring Meeting, this year being held at the Institute of Marine and Environmental Technology in downtown Baltimore on Monday, April 8th. This year's meeting will feature scientific talks and multiple posters given by all stakeholders, as well as an opportunity to tour the Aquatics Research Laboratory at IMET, hear a keynote address by Dr. Kevin Sowers, and enjoy an evening reception at the National Aquarium! We are pleased to

have 65 registrants for this meeting, which is a fantastic showing for our first stand-alone meeting since 2019. Eight students have applied for and received a travel award to be able to present their work. Students also have a chance to compete for 1st, 2nd, and 3rd place presentation awards for platform and poster presentations, which carries with it the opportunity of a registration waiver for the SETAC North America meeting in Fort Worth in the fall for the top two winners. I am personally very excited to have been able to plan such a special event for the CPRC membership, and I'm so grateful to all the support for making this meeting happen.

I would like to call out our sponsors for this meeting, not least of which is IMET for the use of their beautiful space for the meeting. Additionally, I thank the American Cleaning Institute for donating at the Keystone Level, SafeBridge for donating at the Primary Level, and SETAC NA for providing additional funds for this meeting.

Our Chapter also enjoyed a wonderful turnout in November at our General Meeting and happy hour at SETAC North America in Louisville! Sometimes it is great to kick back

with friends new and familiar alike and enjoy the time together.

In other chapter news, we have lost two board members in recently months to other exciting opportunities. I am sorry to say that Tom Bean stepped down as Secretary to the Chapter, and Jada Damond stepped down as Student Representative. Both of these individuals were instrumental in CPRC leadership and a big help to me personally.

Having said that, leadership will be turning over during the summer with elections for the Executive Committee and the Board of Directors. Specifically, we are seeking candidates for the Vice President (this person serves a 3-year term as VP, then President, then President Ex-Officio), Treasurer, Secretary, Director (academia), Director (industry), and Student Representative. Additionally, we are seeking students who are interested in serving as Website Coordinator (this person is often the Student Representative but it doesn't have to be) and Social Media Coordinator. If you are interested in serving in any of these positions, know someone who is, or looking for more information, please email me at president.cprc.setac@gmail.com. We look forward to welcoming new and established CPRC'ers into Chapter leadership! A candidate search will begin in late spring, stay tuned!

Please reach out to me any time with questions, comments, suggestions, or just to say hi. I love hearing from our membership! Don't forget, this is YOUR Chapter, so please don't hesitate to make your voice heard.

I hope you flourish this spring! Keep on science-ing!



Meredith Bahannon

CPRC President

SAVE THE DATE! CPRC SETAC Spring Meeting

Monday, April 8, 2024

Institute for Marine & Environmental Technology (IMET), Baltimore, MD

Reception at the National Aquarium



Want to get more involved?

CPRC is looking for nominations for:

- Vice President
- Treasurer
- Directors (academia and industry)

And volunteers to help with:

- Event planning
- Diversity/inclusivity
- Communication (newsletter and social media)



Student members are *especially* encouraged to participate. Educators and mentors—CPRC can be a great resource for a student's professional development!

If you are interested in sharing your time and talent, please contact Meredith Bohannon (president.cprc.setac@gmail.com).

Member Shoutout!

SETAC North America Professional Excellence Award Winner

MARK JOHNSON



“Mark Johnson serves as the Director of Toxicology for the Defense Health Agency’s Defense Center for Public Health – Aberdeen (formerly the U.S. Army Public Health Center). He has held several leadership roles including as a past president of the American Board of Toxicology (ABT) and board member of the International Board of Environmental Risk Assessment (IBERA). He believes that the role of SETAC as a leader

in environmental sciences is changing from one that has traditionally focused on understanding contaminants to one that has had to respond to increasingly complex emerging environmental issues that include human public health concerns. Johnson hopes to help SETAC encourage new ways to support multi-matrixed efforts to include One Health concepts in environmental risk assessment through focusing on emerging issues. He would also like to see SETAC bridge into recommending courses of action that will result in applied tools and solutions.”

Congratulations, Mark!

Sincerely,
CPRC BOD

ELEVATED LEVELS OF METALS FOUND IN CREEK NEAR VIRGINIA COAL ASH PIT

By Whitney Pipkin
November 28th, 2023

Reprinted from the Bay Journal with permission.



Carolyn Willmore (left) and Talia Tanner seine for fish in Quantico Creek near the Possum Point Power Station in Virginia. (Tyler Frankel)

The effect of coal ash on the environment has been studied and debated for more than seven years now in Virginia. Utilities have spent those years looking for long-term disposal solutions for huge volumes of the industrial waste product, much of it located near major rivers.

But Tyler Frankel, an assistant professor of environmental science at the University of Mary Washington in Fredericksburg, wanted to help fill gaps in the data. An aquatic toxicologist, Frankel wondered whether elevated levels of trace metals

associated with coal ash might be found in the sediments of the rivers or in the fish that feed there.

His research, presented in a recently published paper, indicates they are.

Frankel and his team studied surface water, sediment, species diversity and fish tissue from Quantico Creek, which runs into the Potomac River next to the Possum Point Power Station in Dumfries. They found elevated concentrations of several trace metals in the sediment and in the muscle tissues of banded killifish, which are food for striped bass, birds and other predators. The researchers also found reduced species diversity in the stretch of Quantico Creek closest to the power station, compared with samples taken at upstream and downstream locations.

“Our results demonstrate the potential impacts of coal ash landfills on aquatic ecosystems and suggest that further research is needed to fully inform risk assessment and remediation efforts,” the paper states.

Dominion officials, after considering the study, pointed out that other historical land use, such as past acid mine drainage, and current land uses, including recent development, could be contributing pollution to Quantico Creek.

“The report makes an erroneous connection between metals concentrations in sediment and coal ash storage at Possum Point,

contrary to years of data publicly available,” Dominion spokesperson Peggy Fox wrote in a statement.

Dominion Energy is currently in the process of draining and closing its final coal ash pit at the power station. Dominion burned coal at Possum Point until the early 2000s, when the plant converted to natural gas and oil. The resulting ash had been stored in onsite, open-air pits since the power station first began burning coal in 1948.

Possum Point is one of four Dominion-owned power stations with longstanding coal ash pits located next to waterways in the Chesapeake Bay region. The industry has been charged with cleaning them up — first by federal law and then by a stricter state law. Legislation passed in 2019 requires Dominion to recycle about 25% of the coal ash left at these sites and safely dispose of the rest by 2032.

An estimated 4 million pounds of coal ash is still stored at Possum Point, where several smaller pits have been consolidated into a single large one. Dominion is seeking a solid waste permit from the Virginia Department of Environmental Quality to construct a new lined landfill next to the existing pit, where the ash would be permanently stored.

Potomac Riverkeeper Dean Naujoks has advocated for moving the coal ash away from the river to an offsite landfill. He met Frankel last year after his research was nearly completed and was encouraged to

hear that someone was looking at sediment and fish tissue.

“With metals, we know that they don’t transport very far, so that’s why sediment analysis is important,” Naujoks said. “This research has been a long time coming, and it should have been done years ago.”



To determine the risk of pollutants traveling up the food chain, researchers analyzed fish tissue from banded killifish in Virginia’s Quantico Creek to look for elevated concentrations of trace metals. (Tyler Frankel)

Dominion’s own monitoring wells have detected metals from coal ash, such as arsenic, boron and cobalt, at levels that exceed groundwater quality standards set by the state. A Dominion spokesperson said last November that the company had submitted plans for potential remediation actions to DEQ and that additional studies were underway.

Dominion had previously tested the surface waters of Quantico Creek and found that elevated concentrations of metals were still meeting the state’s water quality standards for freshwater aquatic life.

But little research had been done to assess whether the trace metals in Quantico Creek are from historical contamination or more recent activities. A 2020 review of scientific literature found that more work was needed in this area and that sediments likely play a major role in the storage, release, transport and bioaccumulation of trace metals in aquatic ecosystems.

That has been the case in the Anacostia River, where plans are underway to remove, cap or otherwise treat high levels of toxic contaminants trapped in the sediment at several “hot spots” in the riverbed.

“Trace metals are interesting, because they don’t break down over time and, depending on the water movement, they can move between the groundwater and sediment,” Frankel said.

Frankel’s analysis of sediment core samples showed that concentrations of certain trace elements sharply increased during and after the time the plant was constructed in the 1940s. Cadmium, chromium, lead, zinc and boron were each found in higher levels in the sediment cores near the plant compared with sediment cores from upstream and downstream, and some have persisted into present day sections of the sediment.

“These are trace metals we know can be toxic to humans if consumed at high enough levels,” he said.

Dominion’s Fox noted that some of the concentrations found in the creek’s sediment or surface waters were higher than the levels found in Dominion’s groundwater samples at Possum Point.

To determine the risk of these elements traveling up the food chain, the researchers analyzed fish tissue from banded killifish to look for elevated concentrations of these metals. Many of the elements were not found in the fish, but a few were. Cadmium, in particular was only found in fish collected in the section of Quantico Creek near the plant. Zinc levels in the fish were also elevated.



Snakeheads collected from Quantico Creek, located near a coal ash storage site in Virginia, will be checked for elevated levels of trace metals in their tissue. (Tyler Frankel)

Frankel said he is currently collecting snakehead fish from Quantico Creek to sample their tissue for evidence of metals bioaccumulating in larger species. He is also conducting similar research near coal-fired plants along the James River, with results expected soon.

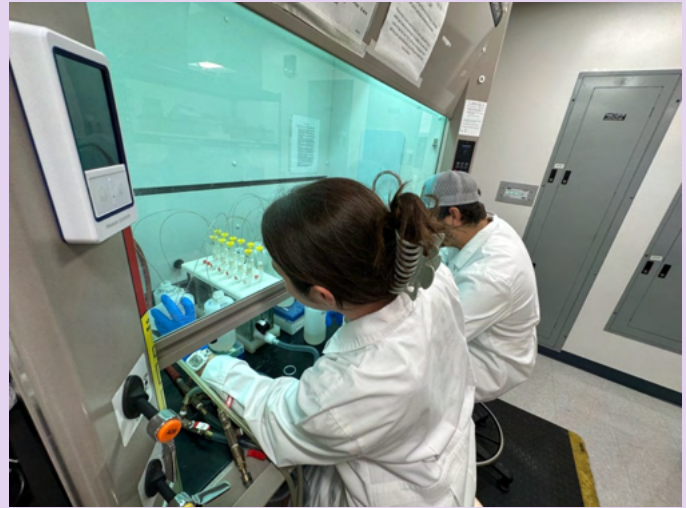
The research also looked at species diversity using eDNA technology that can identify the numbers and types of species present in a section of the water. One location near the plant had three species compared to 13 at a downstream location.

“It’s unclear whether the species are avoiding these areas or whether there’s a toxic effect, but there’s clearly a difference,” Frankel said.



STUDENT RESEARCH HIGHLIGHT

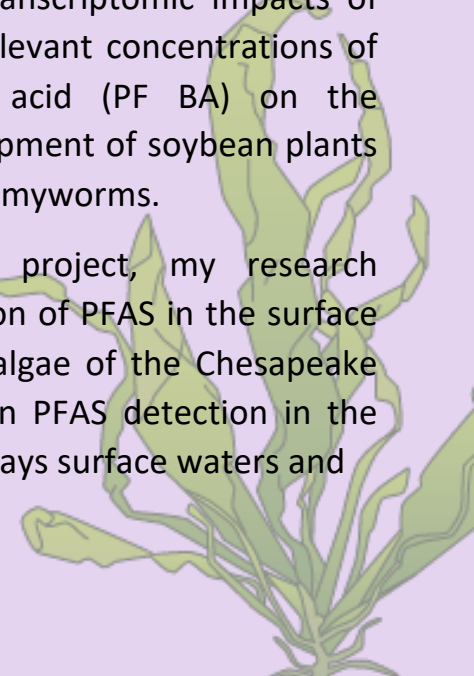
My name is **Michella Salvitti**, and I am a second year PhD student at the University of Maryland Eastern Shore in the Marine, Estuarine, and Environmental Science (MEES) graduate program. Originally from southern Pennsylvania, I received my Bachelor of Science in biology at Millersville University. After my time as an undergraduate, I stayed an additional two years there to receive my Master of Science degree in an integrated science program with a focus in environmental earth systems management.



Currently, I am working in Dr. Joseph Pitula's lab group, who also sits on the Board of Director's for CPRC. Our lab focuses on per- and polyfluoroalkyl substances (PFAS) and a variety of its environmental impacts. Dr. Pitula's lab studies a variety of terrestrial and aquatic organisms including soybean plants, the beet armyworm, Atlantic blue crabs, and macroalgae, as well as monitoring PFAS environmental transport. The lab has published papers and presented research on the growth and transcriptomic impacts of environmentally relevant concentrations of perfluorobutanoic acid (PFBA) on the growth and development of soybean plants and beet and fall armyworms.



Within this project, my research focuses on detection of PFAS in the surface waters and macroalgae of the Chesapeake Bay. I also work on PFAS detection in the Maryland Coastal Bays surface waters and



Atlantic blue crab's tissues. Based on the sampling I have done within the last year, we have detected approximately 15-20 different PFAS compounds collectively in the Chesapeake Bay and Maryland Coastal Bays. In addition, our data suggests that long chain PFAS accumulate in the claw tissue of Atlantic Blue Crabs at more significant levels

than in hepatopancreas tissue. Nevertheless, levels detected in crabs are below those that have been reported in filter feeders such as clams and oysters. While we still have macroalgae data yet to be analyzed, our lab is planning to publish our work within the next few months!

If you are/know a student who would be interested in showcasing your/their research for an upcoming student research highlight, send us an email at newsletter.cprc.setac@gmail.com!



EVENT RECAP: SETAC National Meeting



On Wednesday November 15th at the SETAC North America meeting in Louisville, KY, CPRC hosted their business meeting and social event. The business meeting was attended by approximately 25 scientists local to, or interested in, environmental science and toxicology in DC, Maryland, Virginia, and West Virginia. At the meeting we did a round of introductions, discussed open positions on the CPRC Board, and talked about the Spring Meeting. Immediately following the business meeting, the group migrated to Down One Bourbon Bar. The group shared drinks, appetizers, and good company.

DIVERSITY AND INCLUSION:

Lack of Sexual Orientation and Gender Identity Data in Military Surveys Masks Important Health Disparities

Prepared by: Diversity, Equity, Inclusion, and Accessibility Advisory Council; Defense Centers for Public Health-Aberdeen; Aberdeen Proving Ground, Maryland

This article describing the DoD Public Health arms' efforts to engage with advancing equality aligns with the efforts of many large organizations that would benefit from increased talent through increased inclusivity. For further reading specific to the impact of exclusivity in the DoD, contact the Newsletter team for a data-rich analysis of implications of health disparities in LGBT soldiers. Please contact if interested in references.

The views expressed in this presentation are those of the author(s) and do not necessarily reflect the official policy of the Department of Defense, Department of the Army, U.S. Army Medical Department or the U.S. Government.

PURPOSE

The purpose of this White Paper is to document the history and implications of continued restrictions on sexual orientation and gender identity (SOGI) data collection in the United States (U.S.) military. Department of Defense (DoD) policies restrict the collection of data on Service member (SM) sexual orientation and gender identity without prior approval from the Under Secretary of Defense (Personnel and Readiness) (USD(P&R)). DoD established these restrictions at the same time that it removed barriers preventing open military service by lesbian, gay, bisexual, and transgender (LGBT) individuals. The stated purpose of these policies is the privacy of LGBT troops. However, it is not clear that SM privacy is preserved by such restrictions.

SOGI data collection restrictions have consequences that may not have been anticipated at the time of their promulgation, such as lack of awareness of—

- The experiences of LGBT SMs that inform health and readiness;
- The recruitment and retention needs of LGBT SMs and their Families;
- Disparities resulting from military service; and
- Further stigmatization of LGBT individuals due to the disparate treatment.

Over 40 years of research in civilian populations has demonstrated persistent health

disparities for LGBT individuals. Given the health disparities documented among LGBT civilians, leading U.S. medical and public health authorities have called for routine collection of SOGI demographics in population surveillance. This paper will show that the limited number of military surveys that have collected SOGI demographic data reveal similar health disparities for LGBT SMs. These findings underscore the need for expanded SOGI data collection in military settings to elucidate and address other health disparities related to sexual orientation and gender identity.

BACKGROUND

LGBT people face many and varied health disparities in the U.S. Studies have documented that LGBT populations face disparities in food security (Brown 2016, Henderson et al. 2019, Patterson et al. 2020), health insurance coverage (Charlton et al. 2018, Tabaac et al. 2020), sexual assault (Canan et al. 2021, Chen et al. 2020), physical health (Gonzales et al. 2016), and mental health outcomes (King et al. 2008). While LGBT health disparities are well documented in the U.S. general population, there is very little known about the experience of LGBT individuals serving in the U.S. military, whether they experience similar disparities, and if such disparities affect their health, readiness, or retention.

Origin of SOGI Data Restrictions

The DoD has only recently permitted LGBT individuals to serve openly without the threat of disciplinary action or discharge. In 1994, the “*Don’t Ask, Don’t Tell*” (DADT) policy permitted lesbian, gay, and bisexual (LGB) persons to serve in the military as long as they concealed their sexual orientation (DoD 1993). The DoD rescinded this policy in favor of unrestricted service of LGB persons beginning in 2011 (USD (P&R) 2011). Prior to 2016, DoD prohibited accession and retention of transgender individuals based on medical conditions, psychiatric diagnoses, and administrative judgements regarding fitness for duty (Elders et al. 2014). In 2016, DoD lifted the ban on transgender individuals serving openly (Secretary of Defense 2016), partially re-imposed it in 2017 (Office of the Deputy Secretary of Defense 2020), and then lifted it again in 2021 (EO 14004 2021).

Although DoD has repealed discriminatory policies that bar open service by LGBT persons, it restricts collection of SOGI demographic data in policy and practice. The 2011 policy memorandum implementing the repeal of DADT created this restriction on sexual orientation data. It states:

“Sexual orientation is a personal and private matter. DoD components, including the Services are not authorized to request, collect, or maintain information about the sexual

orientation of Service members except when it is an essential part of an otherwise appropriate investigation or other official action” (USD(P&R) 2011).

The memorandum does not define what constitutes an “*otherwise appropriate investigation or official action*,” nor a mechanism to seek exception. Although the restriction originating in this memorandum was never codified into a DoD Instruction, it has been standard practice that DoD surveys attempting to collect sexual orientation data must seek approval from USD (P&R).

A similar restriction was imposed on the collection of gender identity data upon repeal of the latest policy barring open service by transgender individuals. This restriction was codified in 2021 as DoD Instruction 1300.28, which states:

“Gender identity is a personal and private matter. DoD Components, including the Military Departments and Services, require written approval from the USD (P&R) to collect transgender and transgender related data or publicly release such data” (DoD 2021a).

Unlike the policy memorandum on sexual orientation data, the DoD Instruction restricting gender identity data identifies the USD (P&R) as the controlling authority, but provides no guidance or qualifying conditions for seeking an exception. For both sexual orientation and gender identity, the DoD provides no additional information about the purpose of the restrictions beyond what is cited in the each of the policy documents.

Sexual and Gender Minority Population Estimates

Only a few DoD-led surveys have been permitted to collect SOGI data of SMs. These surveys include recent editions of the Workplace and Gender Relations Survey (WGRS) and the Health- Related Behaviors Survey (HRBS). The 2015 HRBS, 2016 WGRS of Active Duty Members, and 2021 WGRS of Military Members were permitted to collect both sexual orientation and gender identity demographics (Meadows et al. 2018, Davis et al. 2017, Breslin et al. 2022). However, the 2018 HRBS and 2018 WGRS of Active Duty Members were permitted to collect only sexual orientation data due to Administration priorities at the time the surveys were fielded (Meadows et al. 2018, Breslin et al. 2019). These surveys sought and received special permission to collect SOGI data from USD (P&R) at the time of fielding.

Population summaries from the 2016, 2018, and 2021 WGRS reveal that LGB individuals comprise increasing portions of the Active Component. In the most recent survey, 20% of

female SMs and 4.2% of male SMs identified as LGB. In contrast, the proportion of Active Component SMs identifying as ‘heterosexual or straight’ has dropped significantly over the 5 years since sexual orientation was first polled in 2016 (see Table 1).

Table 1. Sexual Orientation of Active Component Service Members Responding to the 2016, 2018, and 2021 DoD Workplace and Gender Relation Surveys (Davis et al. 2017, Breslin et al. 2019, Breslin et al. 2022)

	Women (%)			Men (%)		
	2016	2018	2021	2016	2018	2021
Heterosexual or straight	79	77.6	70.0	90	91.1	89.2
Gay or lesbian	6	7	7.7	1	2	1.7
Bisexual	5	7	12.3	1	2	2.5

A follow-up analysis of the 2016 and 2018 WGRS found that sexual minority SMs were also more likely to be a racial/ethnic minority than heterosexual SMs (Trump-Steele et al. 2021). Among women, 56% of lesbians endorsed a racial and/or ethnic minority identity compared to 49% of heterosexual women; 49% of gay men endorsed a racial/ethnic minority identity compared to 38% of heterosexual men. The comparative experience of SMs who are both racial/ethnic and sexual minorities has not been reported in DoD surveys, although there is significant evidence that intersectionality of race, ethnicity, sexual orientation, and gender identity impacts health and well-being in the civilian population (Wilson, Boulton, and Mallory 2022).

The 2016 WGRS of Active Duty Members was the first WGRS survey to query gender identity for any component of SMs. Gender identity was not polled again until the 2021 WGRS of Military Members, which reported that 1.7% of Active Component SMs identified as gender minorities, including 0.4% who identified as transgender and 1.2% whose sex at birth does not match their gender identity (Breslin, Daniel, and Neria 2021).

The presence of LGBT individuals in the military is consistent with Gallup polling of U.S. adults that shows an increasing segment of the population identifying as LGBT (see Table 2). Among the Generation Z cohort, which is the age group that serves as the reservoir for new military recruits, 20.8% of those polled in 2021 identified as LGBT (Jones 2022). This was a 31% increase in Generation Z respondents self-identifying as LGBT compared to a prior year Gallup poll in 2020 (Jones 2021).

Table 2. U.S. Adults Self-Identifying as LGBT by Generation (Jones 2022)

	Bisexual (%)	Gay (%)	Lesbian (%)	Transgender (%)	Other (%)
Generation Z (born 1997-2003)	15.0	2.5	2.0	2.1	1.2
Millennials (born 1981-1996)	6.0	2.2	1.3	1.0	0.4
Generation X (born 1965-1980)	1.7	1.1	0.8	0.6	<0.05
Baby boomers (born 1946-1964)	0.7	1.0	0.7	0.1	0.1
Traditionalists (born before 1946)	0.2	0.4	0.1	0.2	0.1

Except for recent WGRS and HRBS surveys, there has been almost no collection or reporting of SOGI demographics in the episodic or recurring DoD-wide population evaluations. Some recent surveys have begun to poll sexual orientation demographics, but do not always report the experiences of LGBT SMs in their findings. Population reports that historically have not polled SOGI data, or polled but have not reported outcomes for LGBT SMs include:

- Army Study to Assess Risk & Resilience in Service members (Army STARRS)
- Defense Organizational Climate Survey
- DoD Annual Report of Sexual Assault in the Military
- Health Care Survey of DoD Beneficiaries
- Military Spouse Survey
- Service Academy Gender Relations Survey
- Periodic Health Assessment (screens medical readiness of SMs)
- Status of Forces Survey
- Workplace and Equal Opportunity Survey

The DoD updated its military equal opportunity (MEO) program in 2015 to protect SMs against discrimination based on sexual orientation (DoD 2015); it was updated again in 2020 to include protections for gender identity (DoD 2020). Although the population reports noted above include demographic intake for other attributes of MEO protected classes (i.e., race, color, national origin, religion, sex), it is unclear how the DoD would be able to programmatically track or respond to discrimination experienced by LGBT SMs, given the current restrictions on SOGI data collection.

In the absence of SOGI demographic data, it is impossible to determine if LGBT military personnel experience disparities that may interfere with their health, readiness, or retention. Findings from the recent Secretary of Defense Independent Review Commission (IRC) on Sexual Assault in the Military acknowledged this deficiency. The Commission concluded that current policy restrictions on SOGI data collection interfere with the ability of the Services to understand and support their LGBT SMs:

“Sexual minorities in the military face higher risks of sexual harassment and sexual assault than heterosexual individuals. To date, a policy memo from 2011 restricts Service-level research on these populations, requiring all research entities to receive DoD approval for LGBTQ+ data collection. While intended to protect the privacy of Service members who faced discharge during Don’t Ask, Don’t Tell, this bureaucratic hurdle remains an obstacle for prevention experts and other researchers who wish to study the unique risks and experiences of LGBTQ+ Service members” (DoD 2021b).

DISCUSSION

Existing Data Demonstrate that LGBT Service Members Experience Disparities

Data from the 2021 WGRS of Military Members (n= 69,581 for Active Component) revealed that twice as many LGB Active Component women reported unwanted sexual contact compared to heterosexual Active Component women. Experiences of sexual harassment and gender discrimination were also disparate (see Figure 1).

Gay and bisexual Active Component men were similarly vulnerable and reported nearly six times the unwanted sexual contact experienced by their heterosexual counterparts, with similar disparity in the experience of sexual harassment and gender discrimination (see Figure 2).

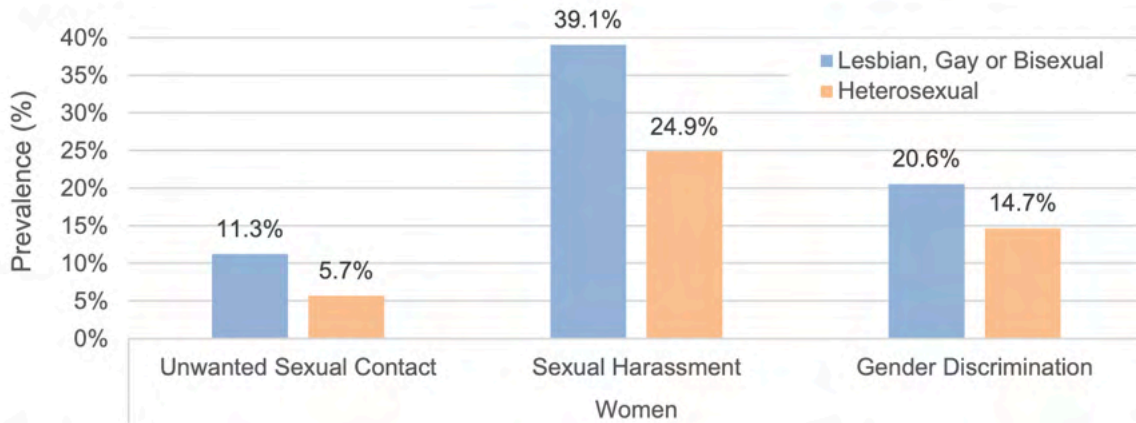


Figure 1. Estimated Prevalence of Prior Year Unwanted Sexual Contact, Sexual Harassment, and Gender Discrimination in Active Component Women in 2021 (Breslin et al. 2022)

Gender minority Active Component SMs (those identifying as transgender or whose sex at birth did not match their gender identity) also reported experiencing unwanted sexual contact, sexual harassment, and gender discrimination at nearly three times the rate of cisgender Active Component SMs, across all categories (see Figure 3).

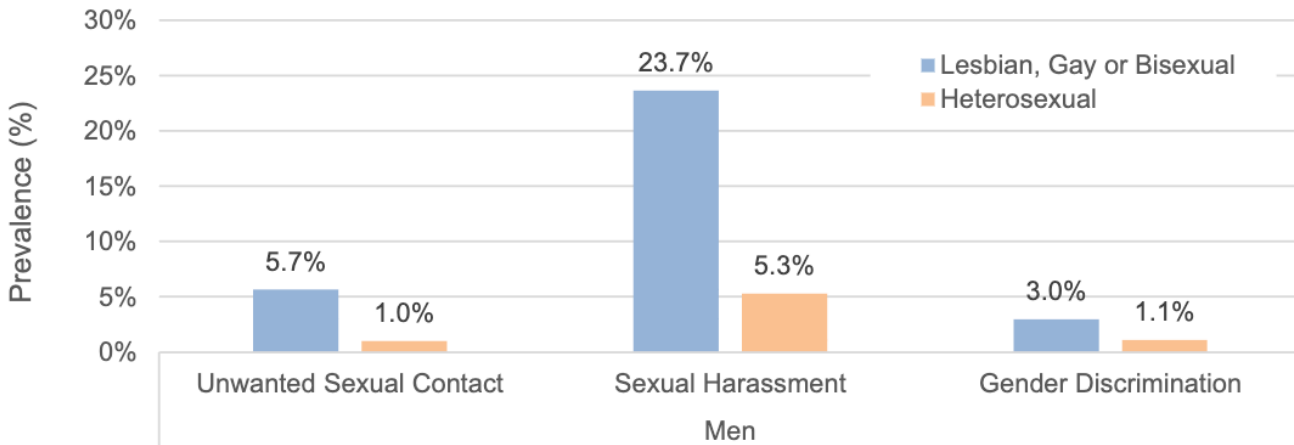


Figure 2. Estimated Prevalence of Prior Year Unwanted Sexual Contact, Sexual Harassment, and Gender Discrimination in Active Component Men in 2021 (Breslin et al. 2022)

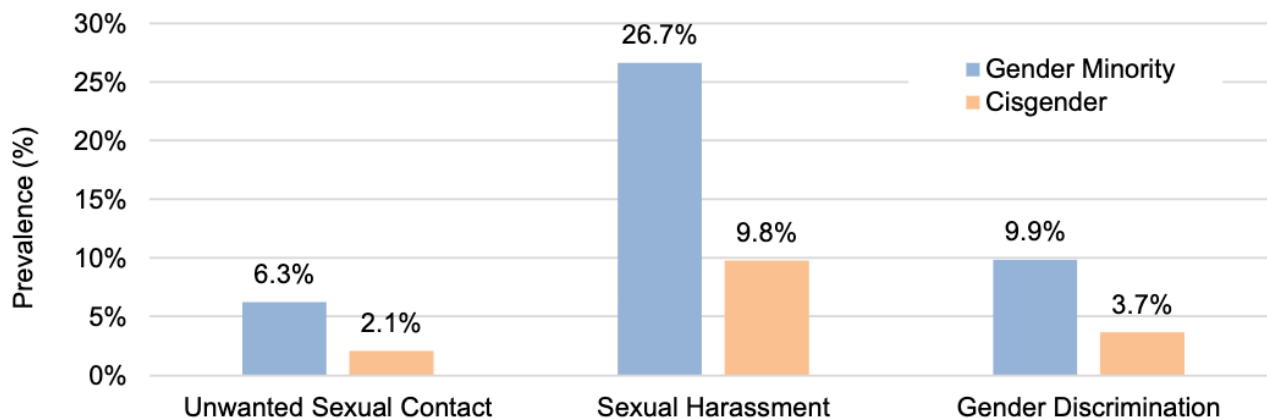


Figure 3. Estimated Prevalence of Prior Year Unwanted Sexual Contact, Sexual Harassment, and Gender Discrimination among Gender Minority and Cisgender Active Component Service Members in 2021 (Breslin et al. 2022)

Unlike other disparities, which may arise from a range of life circumstances, the sexual assault, sexual harassment, and gender discrimination reported in the 2016 and 2018 WGRS resulted largely from military service. As shown in Figure 4, a majority of Active Component SMs described the offenders responsible for prior year sexual assault and sexual harassment as military personnel. Further, sexual minority women were more likely than heterosexual women to report that the offender was a military member.

In a follow-up analysis of the 2018 WGRS results, RAND[®] summarized the experience of sexual minority personnel in the following way: SMs who identified as LGB or who did not indicate that they identify as heterosexual represented only 12% of the Active Component population in

2018, but accounted for approximately 43% of all sexually assaulted SMs in that year (Morral and Schell 2021). Examining the 2018 estimates by gender, they found that 48% of men and 40% of women who were sexually assaulted did not indicate heterosexual orientation.

The HRBS surveys provide additional visibility on disparities experienced by sexual minority SMs. The 2015 HRBS reported that LGB respondents were more likely to report unwanted sexual contact, lifetime suicide attempt, sexually transmitted infections, smoking, and marijuana use compared to non-LGB respondents (Jeffery et al. 2021). Outcomes for transgender respondents were not reported in the HRBS.

The stark disparities for LGBT SMs revealed in the few surveys where SOGI data have been collected point to the need to document SOGI characteristics in the same manner as birth sex, age, race, ethnicity, and other demographics which the military recognizes as important to the optimization and retention of their cadre. The nascent reporting of race and ethnicity demographics for health outcomes in the Army’s flagship population health report, *Health of the Force*, demonstrated that Active Component Soldiers experience many of the same health disparities experienced by their civilian counterparts (APHC 2022).

The universal healthcare access afforded to military personnel is not sufficient to compensate for physical and mental health inequities informed by identity, especially when that identity is hidden or unexamined. As an example, the DoD has struggled for years to reduce persistent rates of sexual harassment and sexual assault within the Services. Significant resources have been allocated to programs, policies, training, intervention, and awareness campaigns designed to address this problem. However, none of these efforts has ever been informed by the fact that more than 40% of the SMs reporting these experiences may be sexual minority individuals.

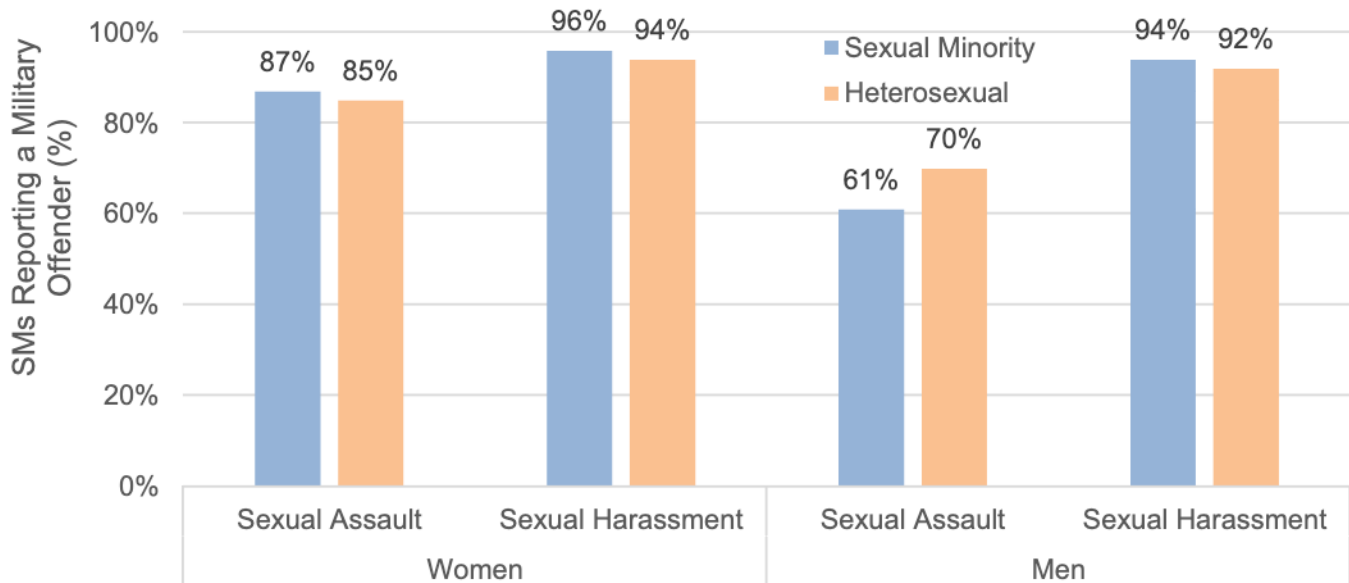


Figure 4. Active Component Service Members Reporting a Military Offender for Prior Year Sexual Assault or Sexual Harassment in 2016 and 2018 (Trump-Steele et al. 2021)

U.S. Medical and Public Health Authorities Endorse SOGI Data Collection

Routine collection of SOGI data has long been endorsed as a best practice by medical and public health authorities in the U.S. In 2011, the same year that DADT was repealed, the Institute of Medicine (IOM) issued a landmark document, reviewing the current standing of LGBT health and health research. Two of the seven recommendations resulting from the review addressed the need for SOGI data collection (IOM 2011):

- “Data on sexual orientation and gender identity should be collected in federally funded surveys administered by the Department of Health and Human Services and in other relevant federally funded surveys.”
- “Data on sexual orientation and gender identity should be collected in electronic health records.”

The U.S. Department of Health and Human Services took up the IOM charge to encourage the expansion of SOGI data collection for the first time in 2012 when the Healthy People project established objectives pertaining to the health of LGBT individuals. Several of these objectives sought to increase the number of national- and state-level population-based data systems which collect data on (or for) LGBT populations, as reflected in Healthy People 2020 (HP2020). Healthy People 2030 renewed and reiterated these objectives stating:

“Collecting population-level data is key to meeting the needs of LGBT people, but not all state and national surveys include questions about sexual orientation and gender identity. Adding these types of questions to surveys can help inform effective health promotion strategies for LGBT people” (HP2030).

A decade after the IOM review, the National Academies of Sciences, Engineering, and Medicine (NASEM) followed with an updated review on the available evidence and future research needs related to the well-being of sexual and gender diverse (SGD) populations across the life course. The number one recommendation resulting from this review addressed the need for improved SOGI data collection:

“Entities throughout the federal statistical system; other federal agencies; state, local, and tribal departments and agencies; private entities; and other relevant stakeholders should consider adding measures of sexual orientation, gender identity, and intersex status to all data collection efforts and instruments, such as population-based surveys, administrative records, clinical records, and forms used to collect demographic data” (NASEM 2020).

The NASEM further asserted that collecting data about the experiences of people who may be targeted for discrimination based on personal characteristics such as sexual orientation and gender identity is a crucial component of establishing and enforcing effective nondiscrimination protections.

Lack of SOGI Data Impairs Understanding of Recruitment and Retention Factors

Additional dimensions of military service that remain unknown without SOGI data include factors that influence the accession, retention, and attrition of LGBT individuals. The DoD-funded Military Acceptance Project is the first study of its kind to examine the career intentions of LGBT SMs (n=544). The study found that among the survey population, 33% of transgender SMs and 20% of LGB SMs planned to leave the military after their service commitment, compared to 13% of the non-LGBT SMs (McNamara et al. 2021). Further, transgender and LGB SMs reported less unit cohesion than their non-LGBT counterparts did. The authors assert that their findings align with similar studies of LGBT individuals in civilian workplaces, which found that formal LGBT policies without other workplace LGBT supports may be insufficient to create an inclusive climate or cohesion among coworkers.

Issues related to the service and separation experience of LGB SMs were examined using data from the 2016 Millennium Cohort Study follow-up survey (n = 96,930), which was the first time sexual orientation was assessed in this population (Carey et al. 2022a). The review found that LGB SMs had a very different experience of the military than their heterosexual counterparts. Gay or lesbian respondents had 36% greater odds of feeling unsupported by the military, and 23% greater odds of feeling negative about the military overall compared to their heterosexual counterparts. These experiences were even more unfavorable for bisexual SMs, who had 51% greater odds of feeling unsupported by the military and 57% greater odds of feeling negative about the military overall compared to heterosexual SMs.

Similarly, the reasons and timing of LGB SMs separation from military service differed significantly from heterosexual SMs. Lesbian veterans had 41% greater odds of medical separation and 60% greater odds of unplanned administrative separation compared to heterosexual female SMs; gay male veterans had 46% greater odds of medical separation and 90% greater odds of unplanned administrative separation compared to heterosexual male SMs.

Further, gay male respondents had 106% greater odds of separating due to perceived incompatibility with military service than their heterosexual male counterparts.

The negative impressions and early departures of these SMs are at odds with DoD efforts to acquire and retain qualified personnel, especially at a time when Services are struggling to meet recruitment goals. The availability of SOGI data in routine population and climate surveys could help to understand and address the reasons for these disparate experiences and outcomes.

Recent Study Shows LGBT SMs Experience Disparities in Physical, Mental and Behavioral Health

A second study using the 2014-2016 Millennium Cohort Study data (n = 96,930) analyzed disparities in mental, physical, and behavioral health among U.S. military SMs (Carey et al. 2022b). In regression models adjusted for numerous demographic variables, gay/lesbian respondents had between 27% and 43% greater odds of mental health disorders, between 24% and 34% higher odds of physical health problems, and between 28% and 46% higher odds of insomnia issues, when compared to heterosexual respondents. Health disparities were even starker between bisexual and heterosexual respondents. Compared to heterosexual respondents, bisexual respondents had between 66% and 118% greater odds of mental health disorders, between 62% and 113% higher odds of physical health problems, and between 45% and 78% higher odds of insomnia issues. Given the large sample size and representative proportion of sexual minorities (3.6% of the sample), this study provides the most definitive evidence to date on health disparities faced by sexual minority SMs.

Department of Veterans Affairs Validates Importance of SOGI Data Collection

The U.S. Government Accountability Office (GAO) conducted a review of the Veteran Affairs (VA) data collection and reporting procedures for information on gender, race, ethnicity, and sexual orientation of veterans (U.S. Congress House 2017). In its report to Congress, the GAO found that despite the VA's intention to provide culturally competent care to its charges, the Veterans Health Administration (VHA) is hampered due to the lack of SOGI data collection (GAO 2020). This report states:

“VHA is limited in its ability to assess health outcomes for the LGBT veteran population who use its services because it does not consistently collect sexual orientation and self-identified gender identity data. With inconsistent data and limited information on health outcomes, VHA may not be able to fully identify and address any health disparities faced by LGBT veterans, or provide them clinically appropriate, comprehensive care.”

In December 2021, the VA took an important step in this direction when it modified its national medical record systems to permit intake of gender identity descriptors. Medical records have added transgender male, transgender female, non-binary, other, or does not wish to disclose options to its new gender identity field (VA 2022). A recent study of VHA patients found that 7.2% of respondents endorsed a sexual minority identity, a higher proportion than those who identify as sexual minority in the U.S. general population (Ruben et al. 2021). These data suggest that LGBT individuals make up a significant portion of former military personnel and are comfortable reporting these demographics.

New Executive Orders Mandate Health Equity for LGBT Military Personnel and Families, and Improved SOGI Data Collection in Federal Agencies

In June 2021, the Biden Administration issued Executive Order (EO) 14035 to advance diversity, equity, inclusion, and accessibility (DEIA) in the Federal workforce. To achieve its goals, the EO mandates robust data acquisition to characterize the workforce:

“Data Collection. (a) The head of each agency shall take a data driven approach to advancing policies that promote diversity, equity, inclusion, and accessibility within the agency’s workforce, while protecting the privacy of employees and safeguarding all personally identifiable information and protected health information. (b) Using Federal standards governing the collection, use, and analysis of demographic data (such as OMB Directive No. 15 (Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity) and OMB Memorandum M–14–06 (Guidance for Providing and Using Administrative Data for Statistical Purposes)), the head of each agency shall measure demographic representation and trends related to diversity in the agency’s overall workforce composition, senior workforce composition, employment applications, hiring decisions, promotions, pay and compensation, professional development programs, and attrition rates” (EO 14035 2021).

The EO also contains a section addressing equity concerns for LGBT employees, specifically addressing the need to improve the health of military LGBT individuals and their families:

“...the Secretary of Defense shall take actions to promote equitable healthcare coverage and services for LGBTQ+ members of the uniformed services (including their beneficiaries and their eligible dependents), LGBTQ+ beneficiaries, and LGBTQ+ eligible dependents, including coverage of comprehensive gender-affirming care, through the Military Health System” (EO 14035 2021).

It is not clear how DoD can comply with this mandate to provide “*equitable healthcare*

coverage and services” to LGBT personnel, their families, and families with LGBT dependents if health records, population surveys, and research studies are constrained from documenting identity characteristics that affect health status. Equity does not mean getting equal resources and opportunities, it means getting resources and opportunities that lead to equal outcomes.

In June 2022, Federal agencies were further charged to collect and use SOGI data to advance equity for LGBT individuals in EO 14075:

“Sec. 11. Promoting Inclusive and Responsible Federal Data Collection Practices.

(a) Advancing equity and full inclusion for LGBTQI+ individuals requires that the Federal Government use evidence and data to measure and address the disparities that LGBTQI+ individuals, families, and households face, while safeguarding privacy, security, and civil rights.”(EO 14075 2022)

To achieve this goal, the Interagency Working Group on Equitable Data was directed to—

“(ii) identify, in coordination with agency Statistical Officials, Chief Science Officers, Chief Data Officers, and Evaluation Officers, Federal data collections where improved SOGI data collection may be important for advancing the Federal Government’s ability to measure disparities facing LGBTQI+ individuals;” (EO 14075 2022)

As a Federal agency responsible for a population that includes an estimated 133,000 LGB SMs and 32,000 gender minority SMs in the Active and Reserve Components in 2021 (Breslin et al. 2022), DoD should be capturing SOGI data in the same systematic and efficient manner that it tracks other aspects of SM identity. This will ensure that the goals of equity and inclusion, as well as military readiness, can be fully achieved.

At inception, the control of SOGI data may have been a well-intentioned effort to protect military personnel from the legacy of discrimination created by prior bans on service of LGBT individuals. However, these constraints have had the unintended consequence of obscuring the health needs and disparities experienced by LGBT military personnel, and potentially interfere with the optimization of military readiness. Further, the disparate treatment is itself a form of discrimination that has the potential to negatively affect the health and well-being of those who are treated differently. Medical, public health, and government authorities have studied this issue over the last decade and concluded that failure to document SOGI data delays and impairs the ability to deliver effective health care and interventions needed to manage the well- documented disparities experienced by LGBT individuals.

RECOMMENDATIONS

1. Rescind the current restrictions in DoD policies requiring USD (P&R) approval for polling and collecting SOGI data for military personnel.
2. Permit surveys that collect demographic information relevant to SM health, readiness, or retention, to also collect SOGI data, with an option for respondents to decline if they choose to do so. This approach will enable more granular population surveillance and shift control of privacy to those most able to discern its necessity (i.e., LGBT individuals).
3. Ensure that when population surveillance includes SOGI demographics, findings reflect population estimates and experiences of LGBT respondents in the same manner and priority as other demographic subgroups.
4. Establish polling and reporting of intersectionality of race, ethnicity, sexual orientation, and gender identity in the survey population as a standard reporting practice.
5. Modify medical record systems to permit intake of sexual orientation and gender identity demographic data. Availability of this data will improve clinicians' ability to recommend necessary therapeutic and preventive services for their patients, and facilitate more equitable health care for LGBT military personnel in line with EO14035.
6. When collecting SOGI data, employ measures, questions, and language that are relevant for the purpose of the inquiry (e.g., research, population surveillance, health records), and that have been vetted or endorsed by medical or public health authorities to ensure that inquiries are conducted in a culturally competent manner. The NASEM have issued new guidance on best practices for collecting SOGI data that should be consulted when formulating survey or intake questions (NASEM 2022).
7. Accompany repeal of SOGI data collection restrictions with additional strategies to increase SMs' confidence about disclosing their sexual orientation and gender identity. Update marketing materials and resources pages to show LGBT positive imagery, including partners and children, to demonstrate affirmation and visibility of LGBT personnel and their families. Consider establishing a DoD-wide resource page to inform SMs, their dependents and DoD Civilians about LGBT culturally-competent resources.



CAREER CORNER

JOB POSTINGS

The Career Hub page on our website was established for CPRC members to share job listings in environmental-related fields. Forums are created for government, non-profit/NGOs, academia, and industry. If you know of any opportunities, we encourage you to post them in the Career Hub! Click the link [here](#) to check it out!

SETAC Career center: <https://careers.setac.org/jobseeker/search/results/>

EVENTS

04/04/2024:

Novel Technologies for Ex Situ and In Situ PFAS Treatment

This SERDP and ESTCP webinar focuses on DoD-funded research efforts to develop technologies for PFAS removal and destruction. Specifically, investigators will discuss ex situ (gliding arc plasma) and in situ (granular activated carbon) technologies to destroy and retain PFAS in water and solids, respectively.

Chris Sales, Drexel University

Stephen Richardson, GSI Environmental Inc.

05/02/2024:

Advances in PFAS Destructive Technologies

This SERDP and ESTCP webinar focuses on DoD-funded research efforts to develop technologies for PFAS destruction. Specifically, investigators will discuss developing and validating novel semiconductor photocatalysts and demonstrating a commercially available smoldering technology for PFAS treatment.

David Major, Ph.D., Geosyntec

Michael Wong, Ph.D., Rice University

05/16/2024:

Advances in Sustainable Aviation Coatings

This SERDP and ESTCP webinar focuses on DoD-funded research efforts to develop protective and environmentally friendly aircraft coatings for DoD ships and aircrafts. Specifically, investigators will discuss the use of organosilane polymers in topcoats and the development of aluminum-rich primers.

Erick Iezzi, Ph.D., Naval Research Laboratory

Michael Brindza, Naval Air Warfare Center, Aircraft Division (NAWCAD)

08/08/2024:

Improving Measurement Accuracy for PFAS Passive Samplers

This SERDP and ESTCP webinar focuses on DoD-funded research efforts to advance the accuracy and promote the use of passive samplers at PFAS-impacted sites. Specifically, investigators will discuss the development of novel thin films to improve equilibrium passive sampling and the deployment of a high-resolution passive profiler at two DoD sites.

W. Andrew Jackson, Ph.D., Texas Tech University

Upal Ghosh, Ph.D., University of Maryland Baltimore County

PROFESSIONAL DEVELOPMENT

Strategic Environmental Research and Development Program/Environmental Security Technology Certification Program (SERDP/ESTCP): <https://www.serdp-estcp.org/events>

American College of Toxicology: <https://www.actox.org/education/toxchats-podcasts.asp>

The ACT podcast program, ToxChats®, reports on cutting-edge news in toxicological research from around the globe. The podcasts feature interviews with experts and a review of the current advances. Tune into the podcast using an internet connection to learn about breakthroughs and regulatory developments in toxicological research and more.

Available Podcasts:

- AI and Bog Data for Safety Testing
- Alternative and Nontraditional Species Series: Fertilized Egg Model as an Alternative Species for Safety Assessment Studies

- Scientific Communication: Distilling and Rehearsing to Reach Your Audience
- Tips for Taking the ABT Exam
- Moving from Minion to Manager
- Toxicology Salary Survey
- Shining a Light on the Science and Strategy of Phototoxicity Assessments
- In Vitro and Alternative Models for Regulatory Submission
- Biomarkers
- Microbiome

ACT Courses

- Toxicology for Pharmaceutical and Regulatory Scientists
April 8–12, 2024
- Pathology for Nonpathologists
May 6–8, 2024
- Advanced Comprehensive Toxicology
July 28–August 2, 2024

U.S. Environmental Protection Agency; Exposure Assessment Tutorials:

<https://www.epa.gov/expobox/exposure-assessment-tutorials>

Risk Assessment Training and Experience (RATE) Modules:

The Risk Assessment Training and Experience (RATE) Program modules were developed to cover scientific subject matter and methodologies considered to be essential knowledge and skills for EPA's Integrated Risk Information System (IRIS) Chemical Managers and risk assessors within and outside of the Agency.

Topics:

General Concepts of Exposure Assessment

Approaches for Quantifying Exposure

Developing Exposure Scenarios and Calculating Dose

Fate and Transport

Monitoring and Modeling Strategies

Obtaining and Using Exposure Factor Data

Assessing Uncertainty and Variability in the Context of Exposure Assessment

Interpreting Biomonitoring Data and Using Pharmacokinetic Models in Exposure Assessment

Case study - Lead Contamination and Local Exposure



CPRC SETAC MEMBERSHIP



SETAC: The Society of Environmental Toxicology and Chemistry is an independent, nonprofit professional society that provides a forum for individuals and institutions engaged in the study of environmental issues, management and conservation of natural resources, environmental education, and environmental research and development.

CPRC: The Chesapeake and Potomac Regional Chapter of SETAC is a nonprofit organization started in the year 1983. CPRC's mission is to promote the exchange of information among environmental scientists in the Mid-Atlantic States.

Note: you do not have to be a SETAC member to be a member of CPRC.

There are two ways to join/renew:

- 1) Preferred Method: SETAC North America (SNA) ([LINK](#)). SNA will send us your contact information so we can add you to our chapter mailing list. You do not have to be an SNA member to use this option.
- 2) PayPal CPRC ([LINK](#)). Credit cards accepted, no PayPal account needed. Enter appropriate fee amount (\$5 student, \$15 professional). Please note that it is easier for us to track your membership when you join via the SNA site (option 1 above).

Membership renewals occur every December. If you have any difficulty with your membership application or payment, please contact Nathan Sell (treasurer.cprc.setac@gmail.com).

CPRC SETAC SPONSORSHIP OPPORTUNITIES

To learn more about sponsorship, visit [our website!](#)

If you have any questions regarding sponsorship or payment, please contact CPRC Treasurer Nathan Sell (treasurer.cprc.setac@gmail.com) or (cprc.setac@gmail.com).

Benefit	Primary Producer (\$250 a year) ^A	Secondary Producer (\$500 a year) ^A	Keystone Sponsor (\$1,000+/year) ^A
Complimentary Spring Meeting registration ^B		1	2
Table and poster display space at a CPRC annual meeting (if requested)			✓
Logo appears in CPRC newsletter and meeting documents. Logo and link posted on CPRC website ^C	2 years ^C	3 years ^C	5 years ^C
Advertising in newsletter	Half page	Full page	Full page
Advertising in Spring Meeting program		Half Page	Full Page

^A Sponsorship Tier is determined by the total amount given on an annual basis.

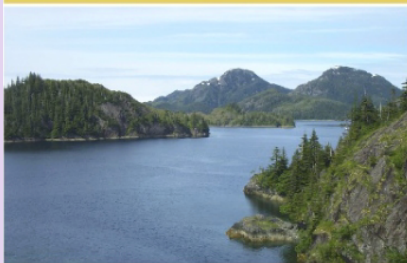
^B Complimentary Spring Meeting Registrations are granted on an annual basis according to the sponsorship tier with the recommendation that they are to be used within a year.

^C Length of time during which the logo appears in the newsletter, meeting documents, and website is a benefit only and does NOT represent a commitment to provide sponsorship money on an annual basis.

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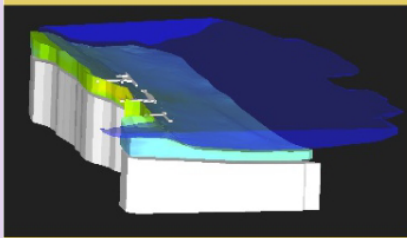
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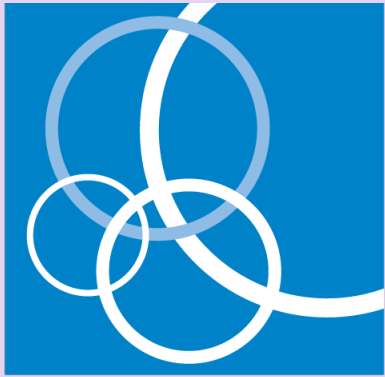


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