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FISH 480: Challenges that Women Scientists Encounter Conducting Fieldwork-Based Research

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Abstract:

Despite closing the gender gap for women scientists in some STEM careers (e.g., marine and veterinary sciences), field-based research (e.g., fisheries biology) remains heavily dominated by men. This results in women scientists conducting fieldwork to obtain fewer learning experiences, career opportunities, promotions to managerial positions, graduate degrees, and publications - *creating the self-perpetuating cycle of maintaining the status quo*.

During spring semester 2024, the Department of Fisheries Biology offered FISH 480, a one-unit seminar course directed toward investigating skills and techniques specific to being a woman field scientist and open to undergraduate and graduates with an enrollment cap of 15 students.

After a brief literature review, we identified the following research objectives: Are there barriers and/or challenges that women scientists encounter while conducting fieldwork that our male colleagues do not? If so, what are these? Can these barriers and/or challenges be mitigated to promote parity (social justice and equity) and eliminated? If so, how?

We developed eight questions through the lens of parity around the themes of recruitment, retention, and workplace dynamics to investigate the experiences of women scientists conducting fieldwork. We recruited women scientists with bachelor through doctorate degrees in biological science and selected the interviewees based on their availability to meet during one FISH 480 scheduled class period (Jan - Mar 2024; Wednesdays; 08:00 - 08:50) in-person or over Zoom. We interviewed women scientists (n = 8; 30 - 62 years old; ethnically diverse) with 10 to 42 years fieldwork experience. Interviewee responses for each question were binned by theme, grouped by synonym, analyzed using a

There was significant interest by the students in this subject based upon over enrollment (n = 16), absence of drops, and > 95% attendance. Women scientists pursued a career in field-based research due to passion for animals, outdoors, and science and credited their success to developing a community, confidence, professionalism, and having patience. Our findings reveal that women scientists conducting fieldwork encounter challenges that male scientists do not. Physiological challenges around the 4 P's (peeing, pooping, periods, and pumping) while conducting fieldwork surrounded by male co-workers, ill-fitting field equipment, ill-fit gear causing safety concerns, and differences in male colleagues overall physical fitness and upper body strength dominated the responses. Women reported having to explain basic female physiology to their male co-workers. Recruitment and retention challenges of women scientists into fieldwork highlighted the being excluded, outsiderhood, marginalization, discrimination, disrespect, and motherhood-related issues.

Workplace dynamics were challenged by marginalization by male colleagues, microaggressions, harassment, and sexism. Lack of privacy on boats, vessels, and river bars, and not having other women co-workers were frequently mentioned. When asked about the key to success as a woman field scientist, all stated maintaining clear boundaries with male co-workers, taking ownership for professionalism, leadership, confidence, and wearing unsexual attire. Solutions to recruitment, retention, and workplace dynamics challenges included education, clear boundaries, creating a community, professionalism, and experiences that gain confidence.

The unaccounted impacts from challenges faced by women scientists and not by our male colleagues inhibits field-based research workforce social justice and equity, and maintains existing barriers. Our investigation provides keys to success for current and future women field biologists, and may assist with increased recruitment and retention into field-based careers.