

# Women in marine mammal science: breaking down barriers to success

## Workshop Report

22<sup>nd</sup> Biennial Conference on the Biology of Marine Mammals  
October 28, 2017  
Halifax, Canada

### 1.0 Background and Context

Fewer than 30% of the world's scientists are women ([UNESCO Institute for Statistics, 2017](#)). Similar to other STEM fields, women in marine mammal science continue to be underrepresented in career and leadership positions, yet women comprise a majority of the membership in the Society of Marine Mammalogy (SMM) (63% in 2017; SMM Membership Committee Chair, E.C.M. Parsons, pers. comm.<sup>1</sup>) and the Sociedade Latino-americana de Especialistas em Mamíferos Aquáticos (SOLAMAC) (62% in 2017; SOLAMAC Secretary, Ana Carolina Meirelles, pers. comm.).<sup>2</sup> The reasons underpinning this disparity are complex and are not well-understood. Helping women realize their full career potential in marine mammal science requires first identifying the barriers to success faced by women and then developing strategies that individuals and institutions can implement to encourage the recruitment, training, and retention of women from diverse backgrounds in this field.

With this context in mind, a workshop entitled *“Women in marine mammal science: Breaking down barriers to success”* was organized at the 22nd Biennial Conference on the Biology of Marine Mammals on October 28, 2017, in Halifax, Canada. The overall goal was to bring together researchers from a diversity of backgrounds, career stages, and sectors to discuss barriers to and strategies for success for women in marine mammal science. The location and timing of the workshop limited participation from outside of North America. Therefore, in conjunction with the workshop, we conducted a global survey to gauge broader gender-specific experiences in marine mammal science that may not have been reflected or adequately discussed at the workshop. A total of 46 participants attended the workshop and 670

---

<sup>1</sup> The SMM does not collect gender information from its members. To evaluate gender composition of the membership, the SMM Membership Committee made an assignment of gender based on name. The reported percentage reflects the number of members determined to be female over the total number of members assigned a gender (14% of members could not be assigned a gender).

<sup>2</sup> The percentage of female members could not be obtained from the European Cetacean Society, which also does not collect gender information from its members.

individuals responded to the online survey. Additional details are provided in sections 2.0-4.0 and in the appendices.

## 2.0 Workshop and Survey Overview

The workshop was the second workshop at an SMM Biennial Conference on the Biology of Marine Mammals to include gender-specific issues (Hooker et al. 2017<sup>3</sup>). However, this workshop was designed to focus on gender-specific issues explicitly and to address a broader-range of topics *unique to women* in marine mammal science. The workshop aimed to be inclusive and to provide a confidential and comfortable forum for female professionals to share and hear about different approaches to achieving their career goals in marine mammal science while navigating intrinsic and extrinsic challenges. The workshop was intended to initiate a conversation in the marine mammal science community that could lead to targeted discussions, a community of women and men actively engaged with this topic, systemic changes in the field, and, ultimately, equal opportunities for women to realize their career potential and attain professional success.

The specific goals and planned outcomes of the workshop were to: 1) provide a set of tools that women can use to advance their careers in marine mammal science, 2) create a virtual international network for women in marine mammal science to offer support and mentorship, 3) make recommendations to the SMM about supporting and implementing programs on diversity and inclusion, and 4) prepare a paper for submission to the journal *Marine Mammal Science* summarizing the survey results and workshop outcomes. The one-day workshop consisted of a combination of presentations and panel discussions featuring women from a range of countries and career stages and sectors. Workshop participants also spanned a range of expertise, interests, and backgrounds. A total of 46 women attended the workshop. Notably, no men attended even though there were no restrictions on gender. A full participant list is available in Appendix 1.

To gain a better understanding of gender-specific experiences in marine mammal science globally, we conducted an online survey via Google Forms in collaboration with the Department of Biological Sciences at Simon Fraser University between September and November 2017. The survey was distributed through standard social media outlets, the [Women in Marine Mammal Science \(WIMMS\) website](#) created for the workshop, and the MARMAM listserv. Questions were developed by the workshop steering committee comprised of Erin Ashe, Amanda Bradford, María Marchesi, Natalie Mastick, Frances Robertson, and Mridula Srinivasan, and

---

<sup>3</sup> Hooker, S.K., S.E. Simmons, A.K. Stimpert and B.I. McDonald. 2017. Equity and career-life balance in marine mammal science? [Marine Mammal Science 33\(3\): 955-965](#)

received approval from Simon Fraser University’s Research Ethics Board. The survey was also critical in refining the thematic topics and developing the agenda for the workshop. The three-part survey contained 64 questions (Appendix 2): Section A covered personal, education, and employment information; Section B covered questions related to gender bias, internal barriers, discrimination and harassment, and barriers to success for women in marine mammal science; and Section C was specific to the workshop to help refine discussion topics.

## 2.1 Workshop Highlights

A total of 12 speakers and 6 panelists participated in the workshop. Panelists and speakers spoke generally about their experiences as women working in different sectors of marine mammal science, highlighting their successes, challenges, and strategies for navigating a male-dominated profession. During individual talks and panel discussions, a variety of topics were covered that ranged from seeking professional opportunities, grant writing, publishing, conducting fieldwork, science communication, harassment and assault, mentorship networks, family planning, and career-life balance.

For many of the speakers and panelists, the workshop was the first time they spoke about themselves in a public forum. Their presentations were generally personal and did not use a formal lexicon to talk about their experiences as female marine mammal scientists. Interestingly, a majority of the speakers and panelists chose to use the term ‘luck’ when describing their professional journey or referring to their career achievements, which was in stark contrast to the initiative and hard work they had clearly demonstrated. While this word choice may not represent a collective case of the Imposter Syndrome,<sup>4</sup> which affects both women and men in STEM fields, several presenters acknowledged experiencing the syndrome at some point in their careers.

During workshop discussions, the following barriers were among the most consistently mentioned as affecting women in marine mammal science today: *Lack of professional support and confidence issues; work-home life balance and family; and institutional bias, which maintains the “old boys club” and “silverback” hierarchy.* Some of the top solutions to address these barriers included: *A mentorship network for women and access to training on leadership and being an effective mentor; family-friendly workplace practices and paid family leave; and institutions and men in positions of power recognizing subtle forms of sexism they may be perpetuating.*

---

<sup>4</sup> “First described by psychologists Suzanne Imes, PhD, and Pauline Rose Clance, PhD, in the 1970s impostor phenomenon occurs among high achievers who are unable to internalize and accept their success. They often attribute their accomplishments to luck rather than to ability, and fear that others will eventually unmask them as a fraud.” [Source: American Psychological Association](#)

A copy of the program, including speaker bios and supplementary material, is provided in Appendix 3. Some recurring themes and advice shared by speakers, panelists, and participants are summarized below by topic.

### **I. Mentoring**

- Seek out women you admire and reach out to them for guidance.
- Look outside your immediate sphere of expertise, as some female mentorship networks may be more developed in a different specialization (e.g., primatology).
- If a parent or primary caregiver, seek mentors with children or dependents who can share tips and offer understanding and support.
- Actively support female researchers (at all career-levels) who are navigating professional and personal challenges.
- Share personal stories from your professional journey.
- Be a good listener (mentors and mentees).

### **II. Networking**

- Make an effort to meet new people and incrementally expand your network.
- Learn how to converse with people and be curious and attentive.
- Email people first before approaching them in person to ease the initial introduction.
- Ask a mutual friend or colleague to facilitate introductions to colleagues they know who you would like to meet.
- Do your homework before expressing an interest in a program or lab and be specific about how your expertise and skills will add to the group.
- Welcome people who approach you for advice or assistance.

### **III. Collaborating**

- Surround yourself with enthusiastic learners and positive people.
- Work with people who have skills that you do not have or whose skills and strengths complement your own.
- Find good collaborators (be selective) and form long-lasting relationships.
- Acknowledge the support and assistance you receive.
- Maintain a sense of humor, especially when things do not go as planned.
- When you work outside your community or country, be respectful of cultural norms and professional hierarchies.

#### **IV. Being Proactive**

- Take a seat at the table and join the conversation.
- Seize opportunities that present themselves and when they are not readily available, ask for them.
- Actively seek nominations for awards when deserving, as women are less likely to be nominated, nominate themselves, or ask to be nominated.
- Acknowledge compliments about your work and take pride in your accomplishments.
- Engage in amplification of the ideas of female colleagues.
- If your ideas are not acknowledged or amplified, share them again.
- Research salary ranges for your desired position and skill requirements to use in negotiation...and negotiate for what you want in the position, as women are less likely to.

#### **V. Family Considerations**

- Academic careers are front-loaded, with tenure coinciding with prime childbearing years.
- Female graduate students are more likely to forego academia due to family considerations, and female faculty members are less likely to get tenure if they take a break to have a family.
- Motherhood in the workplace is valued and supported by childcare in some countries, while women are expected to stay at home and parent in others.
- Childcare is expensive and often difficult to obtain in most countries.
- The perception of a woman by her colleagues can change when she decides to become a mother.
- Extended travel or extended time in the field may not be an option for professional mothers, especially mothers who are single or have young kids.
- Do your research, as public assistance, child care support, maternity and paternity leave, and work and insurance benefits vary by country.
- Women who plan to have a child or children at later career stages may want to consider a suite of options for starting a family (e.g., egg freezing, IVF, or adoption) and should not feel embarrassed or afraid to plan ahead.
- Family-friendly policies are needed in academia, government, and non-governmental organizations to recruit and retain talented female staff.
- Some universities and organizations will practice couples hiring, which can be an equitable and viable option when both partners or spouses are scientists.

## VI. Female Dynamics

- Gender bias can actually fuel conflict among women.
- Some women in leadership positions may bully or undermine women and show a preference for men; quite possibly, these women experienced discrimination early in their careers.

## VII. Feminine Qualities

- Showing sensitivity, care, and empathy can be a positive quality for a researcher.
- Female primatologists were considered by Louis Leakey to be better observers, more patient, and better in the field, leading to the groundbreaking work of the "[trimates](#)."

## VIII. Leadership

- You can be a leader in your career without being a supervisor or a professor.
- Seeking leadership roles may involve trade-offs, including less time for research and more administrative, supervisory, and mentorship responsibilities.
- Brilliant or "superstar" scientists may not be the best leaders, as they may not have or may not have developed the qualities needed to be an effective leader.
- Likewise, the best leaders may not be science superstars, yet they may not advance to leadership positions, particularly in the case of women.

## IX. Gender Bias

- Gender bias varies by institution and discipline within and among countries.
- In many countries, fieldwork is conducted largely by men, and women are considered less suitable for various reasons (e.g., perceived endurance, menstruation, or lodging/restroom needs).
- Women are often told or led to believe that they cannot have both a family and a successful scientific career - with adequate work and home support, both goals can be realistic.
- Women may miss out on opportunities that arise from male-only office social networks or gatherings.
- Women *and men*, individually and collectively, need tools for confronting gender bias.
- Men can be proactive in promoting gender balance in international and national fora and societies; for example, by declining to participate in a

committee or panel if a female colleague is more qualified or if the gender balance is skewed.

#### **X. Sexual Harassment**

- Sexual harassment by superiors is a very real problem for women, especially female students, but can occur at all levels in a career.
- Sexual harassment and assault are serious issues that have not been effectively addressed in the marine mammal science community or by the SMM.
- Resources need to be shared across the entire research community so that women (and men) can report harassment and assault without repercussions, learn about options for counseling and legal advice, and have access to networks that can provide additional support.
- Speak up if someone is making advances toward you or a colleague, and make sure administrators are paying attention to harassment between scientists in higher positions and their students or employees.
- As with confronting gender bias, men can be allies in the effort to combat sexual harassment, so need access to resources that will provide them with the tools and language to help.

### **3.0 Survey Response Summary**

A total of 670 respondents (87.3% female, n = 585; 11.5% male, n = 77; 0.6% non-binary or prefer-not-to-say, n = 4; and 0.6% gender not reported, n = 4) completed the online survey on gender-specific experiences in marine mammal science. A majority (58.4%, n = 391) of the respondents identified the U.S. and Canada as their country of origin, although respondents span countries in Asia, Africa, South America, Europe, Australia, and other parts of Oceania. Respondents represent all ages classes, with 0.4% (n = 3) <20 years of age, 13.4% (n = 90) 20-25 years of age, 20.0% (n = 134) 26-30 years of age, 18.2% (n = 122) 31-35 years of age, 16.1% (n = 108) 36-40 years of age, 13.6% (n = 91) 41-45 years of age, 7.5% (n = 50) 46-50 years of age, 5.4% (n = 36) 51-55 years of age, 2.5% (n = 17) 56-60 years of age, and 2.7% (n = 18) >60 years of age (one respondent preferred not to say).

In terms of career status, most (53.6%, n = 359) respondents reported they are currently employed, with 16.7% (n = 112) seeking employment, 21.2% (n = 142) currently students, 2.2% (n = 15) seeking to be students, 1.0% (n = 7) retired, and 5.2% (n = 35) with some “other” career status. Of currently-employed respondents, the highest percentage (37.6%, n = 135) reported to be a government employee/affiliate/contractor, although all career sectors are represented. A selection of the 64 survey questions (Appendix 2) and responses are summarized below. For

the purposes of this report, these summaries focus on responses from the female and male respondents. These summaries are preliminary in nature, so readers should be careful about interpreting this information outside of an analytical context. The workshop steering committee will be submitting a comprehensive and inclusive analysis of the survey data for publication in the journal *Marine Mammal Science*.

## **Section A Questions**

### **Q7-8: Dependents or caregiving responsibilities**

Of female and male respondents who answered the question (n = 659), 27.3% (n = 180) reported having dependents or caregiving responsibilities (e.g., children or elderly family members). Of female respondents (n = 582), 25.9% (n = 151) reported having dependents or caregiving responsibilities, with the highest percentage (45.0%, n = 68) spending >50 hours per week engaged in caregiving. Of male respondents (n = 77), 37.7% (n = 29) reported having dependents or caregiving responsibilities, with the highest percentage (27.6%, n = 8) spending <20 hours per week engaged in caregiving.

### **Q11: Highest level of education completed**

Of female and male respondents who answered the question (n = 662), most (97.3%, n = 644) reported completing some level of university education, with 41.8% (n = 277) completing a Master's degree (or equivalent), 31.1% (n = 206) completing a doctoral level degree, 23.6% (n = 156) completing a Bachelor's degree, and 0.8 (n = 5) completing a diploma. The percentages of female (n = 585) and male (n = 77) respondents who reported completing a Master's degree are similar, at 41.9% (n = 245) and 41.6% (n = 32), respectively. The percentage of female respondents (29.9%, n = 175) who reported completing a doctoral level degree is lower than the percentage of male respondents (40.3%, n = 31) who reported completing a doctoral level degree.

### **Q18: Currently employed respondents in supervisory or leadership positions**

Of currently-employed female and male respondents who answered the question (n = 353), 49.3% (n = 174) reported being in a supervisory or leadership position. Of female respondents (n = 300), 47.0% (n = 141) reported being in a supervisory or leadership position compared to 62.3% (n = 33) of male respondents (n = 53).

### **Q22-22a: Taking a career break to raise children or for caregiving responsibilities and effects on career**

Of female and male respondents who answered the question (n = 532), 17.7% (n = 94) reported that they took a break from their careers to raise children or for caregiving responsibilities. Of female respondents (n = 466), 18.2% (n = 85) reported taking a break from their career to raise children or for caregiving responsibilities compared to 13.6% (n = 9) of male respondents (n = 66). Of female respondents who reported taking a break, most (54.1%, n = 46) reported that the career break had a somewhat negative effect on their career. Of the male respondents who reported taking a break, most (55.6%, n = 5) reported that the career break had neither a positive nor negative effect on their career.

**Q23-23a: Overnight travel or fieldwork and its duration**

Of female and male respondents who answered the question (n = 637), most (74.4%, n = 474) reported that their position involves overnight travel or fieldwork away from their primary residence. A higher percentage (88.2%, n = 67) of male respondents (n = 76) have these positions compared to the percentage (72.5%, n = 407) of female respondents (n = 561). The percentages of female (n = 404) and male (n = 67) respondents who answered the question about duration of time away and reported spending between 2-4 weeks and 1-3 months away from their primary residence are similar, at 64.4% (n = 260) and 65.7% (n = 44), respectively. The percentages differ between females and males spending >3 months away, at 16.8% (n = 68) and 22.4% (n = 15), respectively, and between females and males spending 0-2 weeks away, at 18.8% (n = 76) and 11.9% (n = 8), respectively.

**Q25: Gender of advisor/supervisor**

Of female respondents who answered the question (n = 502), 52.0% (n = 261) reported that their current advisor or immediate supervisor is male, 38.0% (n = 191) reported that their advisor/supervisor is female, 9.8% (n = 49) reported having both female and male advisors/supervisors, and one respondent reported that her advisor/supervisor is non-binary. Of male respondents who answered the question (n = 68), 54.4% (n = 37) reported that their advisor/supervisor is male, 36.8% (n = 25) reported that their advisor/supervisor is female, and 8.8% (n = 6) reported having both female and male advisors/supervisors.

**Q26-26a: Mentor guidance and gender**

Of female respondents who answered the question (n = 583), most (62.6%, n = 365) reported that they had (or have) mentors, while of male respondents (n = 76), an almost equal number reported that they had (or have) mentors (51.3%, n = 39) as those that have not (48.7%, n = 37). Of female respondents who reported being guided by mentors, 36.7% (n = 134) reported that these mentors were male, 32.6% (n=119) reported that these mentors were both male and female, and 30.7% (n = 112) reported that these mentors were female. Of male respondents who reported being guided by mentors, 46.2% (n = 18) reported that these mentors were male, 33.3% (n = 13) reported that these mentors were both male and female, and 20.5% (n = 8) reported that these mentors were female.

**Section B Multiple Choice Questions****Q31: Experienced gender bias**

Of female and male respondents who answered the question (n = 661), over half (54.5%, n = 360) reported having experienced gender bias during their career. A higher percentage (58.2%, n = 340) of female respondents (n = 584) reported experiencing gender bias compared to the percentage (26.0%, n = 20) of male respondents (n = 77) who reported this experience. The percentages for the remaining female respondents regarding their experiences with gender bias are 15.6% (n = 91) maybe, 20.2% (n = 118) no, and 6.0% (n = 35) unknown. The percentages for the remaining male respondents are 10.4% (n = 8) maybe, 50.6% (n = 39) no, and 13.0% (n = 10) unknown.

**Q32: Providing more evidence of competence than colleagues of the opposite gender**

Of female and male respondents who answered the question (n = 662), 40.2% (n = 266) reported having to provide more evidence of competence than colleagues of the opposite gender. A higher percentage (44.3%, n = 259) of female respondents (n = 585) reported having to provide more evidence of competence than their male colleagues compared to the percentage (9.1%, n = 7) of male respondents (n = 77) who reported having to provide more evidence of competence than their female colleagues. The percentages for the remaining female respondents regarding providing more evidence of competence are 19.0% (n = 111) maybe, 26.2% (n = 153) no, and 10.6% (n = 62) unknown. The percentages for the remaining male respondents are 5.2% (n = 4) maybe, 72.7% (n = 56) no, and 13.0% (n = 10) unknown.

**Q33: Portraying some gender-specific traits more than others**

Of female and male respondents who answered the question (n = 662), 40.9% (n = 271) reported having to portray some gender-specific traits more than others; with 42.6% (n = 249) of female respondents (n = 585) reporting this experience compared to 28.6% (n = 22) of male respondents (n = 77). The percentages for the remaining female respondents regarding portraying gender-specific traits are 17.6% (n = 103) maybe, 27.7% (n = 162) no, and 12.1% (n = 71) unknown. The percentages for the remaining male respondents are 6.5% (n = 5) maybe, 55.8% (n = 43) no, and 9.1% (n = 7) unknown.

**Q35: Negative assumptions about competence or commitment to work upon having children**

Of female and male respondents who answered the question (n = 198), 43.9% (n = 87) reported experiencing negative assumptions about their competence or commitment to work upon having children. Most (46.4%, n = 78) female respondents (n = 168) reported that they had experienced negative assumptions about their competence or commitment, with the remaining women reporting maybe (18.5%, n = 31), no (27.4%, n = 46), and unknown (7.7%, n = 13). In contrast, a majority (60.0%, n = 18) of male respondents (n = 30) reported that they had not experienced negative assumptions about their competence or commitment to work, with the remaining men reporting yes (30.0%, n = 9) and maybe (10.0%, n = 3).

**Q36: Without children and expected to work longer hours or commit to more time away from home**

Of female and male respondents without children who answered the question (n = 444), 48.6% (n = 216) reported that they were expected to work longer hours or commit to more time away from home, with 49.2% (n = 196) of female respondents (n = 398) and 43.5% (n = 20) of male respondents (n = 46) experiencing this expectation. The percentages for the remaining female respondents regarding this expectation are 13.8% (n = 55) maybe, 23.1% (n = 92) no, and 13.8% (n = 55) unknown. The percentages for the remaining male respondents are 17.4% (n = 8) maybe, 37.0% (n = 17) no, and 2.2% (n = 1) unknown.

**Q41: Experienced a salary disparity compared to an equally-qualified colleague of the opposite gender**

Of female and male respondents who answered the question (n = 657), 23.1% (n = 152) reported having experienced a salary disparity compared to an equally-qualified colleague of the opposite gender. A higher percentage (25.2%, n = 146) of female respondents (n = 580)

reported such a salary disparity compared to the percentage (7.8%, n = 6) of male respondents (n = 77) who reported a salary disparity. The percentages for the remaining female respondents regarding experiencing a salary disparity are 8.4% (n = 49) maybe, 43.3% (n = 251) no, and 23.1% (n = 134) unknown. The percentages for the remaining male respondents are 3.9% (n = 3) maybe, 72.7% (n = 56) no, and 15.6% (n = 12) unknown.

#### **Q42: Experienced imposter syndrome**

Of female and male respondents who answered the question (n = 658), most (60.8%, n = 400) reported having experienced imposter syndrome. The percentage of female respondents (n = 581) who reported experiencing imposter syndrome was 62.1% (n = 361), higher than the percentage (50.6%, n = 39) of male respondents (n = 77). The percentages for the remaining female respondents regarding experiencing imposter syndrome are 8.8% (n = 51) maybe, 25.0% (n = 145) no, and 4.1% (n = 24) unknown. The percentages for the remaining male respondents are 11.7% (n = 9) maybe and 37.7% (n = 29) no.

#### **Q43: Successfully negotiating for a professional opportunity, higher salary, or promotion**

Of female and male respondents who answered the question (n = 556), 52.5% (n = 292) reported having successfully negotiated for a professional opportunity, higher salary, or promotion. For the female (n = 485) and male (n = 71) respondents, just over half (52.2%, n = 253 women; 54.9%, n = 39 men) reported being successful in their negotiations. However, 47.8% (n = 232) of female and 45.1% (n = 32) of male respondents reported not being successful.

#### **Q44: Experienced difficulty negotiating for a professional opportunity, higher salary, or promotion**

Of female and male respondents who answered the question (n = 489), 73.2% (n = 358) reported having experienced difficulty in negotiating for a professional opportunity, higher salary, or promotion. The percentages of female (n = 427) and male (n = 62) respondents who reported having experienced this difficulty are similar, at 73.3% (n = 313) and 72.6% (n = 45), respectively.

#### **Q46: Feeling as though one more degree or credential is needed to make progress**

Of female and male respondents who answered the question (n = 660), a majority (52.3%, n = 345) reported feeling as though they need one or more degree or credential before making progress on a project, idea, analysis, publication, or presentation. A higher percentage (53.5%, n = 312) of female respondents (n = 583) reported feeling as though they need one more degree or credential before making progress compared to the percentage (42.9%, n = 33) of male respondents (n = 77) who reported feeling this way. The percentages for the remaining female respondents regarding feeling this way are 22.0% (n = 128) sometimes and 24.5% (n = 143) no. The percentages for the remaining male respondents are 15.6% (n = 12) sometimes and 41.6% (n = 32) no.

**Q47: Feeling as though permission is needed to have a seat at the table, voice opinion or idea, ask a question, etc.**

Of female and male respondents who answered the question (n = 660), 45.5% (n = 300) reported feeling as though they need permission to have a seat at the table, voice their opinion or idea, ask a question, etc. A higher percentage (46.7%, n = 272) of female respondents (n = 583) reported feeling as though they need this permission compared to the percentage (36.4%, n = 28) of male respondents (n = 77) who reported feeling this way. The percentages for the remaining female respondents regarding feeling this way are 25.2% (n = 147) sometimes and 28.1% (n = 164) no. The percentages for the remaining male respondents are 19.5% (n = 15) sometimes and 44.2% (n = 34) no.

**Q52: Experienced bullying or harassment over the course of career**

Of female and male respondents who answered the question (n = 661), 50.1% (n = 331) reported having been bullied or harassed over the course their career. A higher percentage (51.5%, n = 301) of female respondents (n = 584) reported having been bullied or harassed during their career compared to the percentage (39.0%, n = 30) of male respondents (n = 77). The percentages for the remaining female respondents regarding experiencing bullying or harassment are 5.3% (n = 31) unsure and 43.2% (n = 252) no. The percentages for the remaining male respondents are 7.8% (n = 6) unsure and 53.2% (n = 41) no.

**Q53: Experienced discrimination over the course of career**

Of female and male respondents who answered this question (n = 659), 43.9% (n = 289) reported having felt discrimination against them over the course of their career. A higher percentage (45.4%, n = 264) of female respondents (n = 582) reported having felt discrimination during their career compared to the percentage (32.5%, n = 25) of male respondents (n = 77). The percentages for the remaining female respondents regarding experiencing discrimination are 18.7% (n = 109) unsure and 35.9% (n = 209) no. The percentages for the remaining male respondents are 7.8% (n = 6) unsure and 59.7% (n = 46) no.

**Q54: Experienced bullying, harassment, or discrimination and reconsidering a career in marine mammal science**

Of female and male respondents who answered this question (n = 515), a majority (61.9%, n = 319) reported that experiences with bullying, harassment, or discrimination have not made them reconsider a career in marine mammal science. The percentages of female (n = 462) and male (n = 53) respondents who reported that they have not reconsidered a career in marine mammal science based on these experiences were similar, at 62.1% (n = 287) and 60.4% (n = 32), respectively. The percentages for the remaining female respondents regarding reconsidering a career in marine mammal science are 29.0% (n = 134) yes and 8.9% (n = 41) unsure. The percentages for the remaining male respondents are 34.0% (n = 18) yes and 5.7% (n = 3) unsure.

**Q59: The SMM providing enough opportunities for women to succeed in marine mammal science**

Of female and male respondents who answered this question (n = 643), a majority (61.4%, n = 395) reported that they were unsure if the SMM provided enough opportunities for women to

succeed in marine mammal science. A higher percentage (42.1%, n = 32) of male respondents (n = 76) reported that they thought the SMM provided enough opportunities for women to succeed in marine mammal science than the percentage (21.0%, n = 119) of female respondents (n = 567). Conversely, 16.4% (n = 93) of female respondents and 5.3% (n = 4) of male respondents reported that they thought the SMM did not provide enough opportunities for women to succeed.

## **Section B Long Answer Questions**

The following summaries of four selected long-answer questions (Appendix 2) are qualitative in nature, providing an overall synthesis of female and male responses. Quotes from respondents are used to illustrate key points, but only in cases where context would not allow possible identification of the respondent.

### **Q30: Challenges experienced in achieving career goals in marine mammal science**

A total of 424 female and male survey respondents answered the question, including 378 women and 46 men. The challenges raised by the male respondents focused on the limited availability of funding and poor pay, particularly for entry-level positions. Other challenges noted by men included a lack of available jobs, the expectation or need to move often for work, and the competitive nature of opportunities.

*"It has been extremely difficult to break into the field. I did several volunteer/intern positions that paid nothing to very little, but could not afford to keep doing that."*

*"Main challenge is limited paid positions. Another challenge while in university and after is that I never had the resources to be able to take unpaid positions to get experience."*

*"I have found the biggest challenges to achieving my goals to be overcoming interpersonal differences. Marine mammal science is highly competitive, and it can select for those who are 'pushy' and who feel they need to outcompete others rather than mentoring and developing others."*

Female respondents also reported that limited funding opportunities and job availability were key challenges, including a number of women who had either left, or were considering leaving, the field or found they had to diversify their research interests in order to secure paid positions. Many women expressed concern about the prevalence of unpaid internship and pay-to-work opportunities in this field. Another key challenge commonly raised by women was that of family-career balance. Many women noted that they had either forgone a family in favor of their career or had given up fieldwork due to the requirements related to travel and spending long periods away from home. Others mentioned losing out on job and fieldwork opportunities because of real or assumed family commitments.

*"I have ended up working outside of marine mammal science, even though it's my passion, in order to find more flexible work that is well paid, with advancement opportunities."*

*"The main challenge has been related to funding university and gaining experience when all volunteer/internship roles are either unpaid or require payment from the individual. This culture of charging volunteers actively discriminates against students from poorer backgrounds."*

*“A lack of paid positions and the fact that it seems to be more about ‘who you know’ than ‘what you know.’ I bounce between unpaid work, seasonal positions, and contract employment, which often includes limited or no benefits.”*

*“Having to move frequently, balancing my career goals with a spouse's career goals, not enough hours in the day for a full-time job and an engaged parent, didn't get a PhD because of the biological clock factor.”*

*“It is extremely difficult to balance a career in marine mammals - particularly one that requires field work and travel - with raising children.”*

Finally, many women reported challenges related to inappropriate behavior and gender-based discrimination, including bullying and hostility from male and female supervisors and colleagues, harassment, unequal pay, being bypassed for promotion in favor of less qualified males, and difficulty breaking through a male-dominated barrier to advance to leadership positions.

*“Some ruthless competition with females both as peers and supervisors and preference often given to males who were not as hard working or proficient.”*

*“The harassment tolerated on research cruises made research difficult.”*

*“I was paid less than the men I worked with. I had a MS degree. They did not.”*

*“On one occasion I was directly informed that I was not offered a position because I was a woman.”*

*“Difficulty gaining experience in boat operating skills, tagging, and other aspects of marine mammal field work - due to both lack of prior experience and gender.”*

*“The many 'bro-mance' clubs in the marine mammal field right now is distressing. Their desire to only collaborate internally (within their tight network) limits diversity and new ideas and opportunities for others.”*

### **Q53a: Experiences with discrimination over the course of career**

A total of 252 female and male survey respondents answered the question, including 229 women and 23 men. Many women reported being sexually harassed by supervisors, advisors, or men in leadership positions, both in the office and in the field. These women often indicated they reported the harassment, although they expressed a lack of repercussions for the male in the higher position. These instances often resulted in the woman changing research groups, being laid off, or resigning from the position. In some cases, women reported being “hit on” by men in senior positions and faced consequences for saying “no.” These outcomes ranged from losing productive communication, to losing control or authorship of their research, to losing their jobs. Women reported that harassment often occurred when doing fieldwork, which has been reported by women in other fields that operate in remote locations or from vessels.

*“I have had a professor make inappropriate suggestions, with other faculty saying they are aware of his behavior but not comfortable intervening.”*

*“I was...harassed by a man who was less qualified to perform the job than I was, and he was subsequently promoted.”*

*“My supervisor asked me out. I declined and explained that I didn't feel his behavior was appropriate or professional. Working with him after that became very difficult.”*

*“[Some advisors and supervisors] have sexually harassed me (made inappropriate comments, actively hit on me, etc.) and denied me raises because of ‘my attitude’.”*

*“In field projects, I have been exposed to extreme harassment (threatened in remote locations).”*

*“During time out in the field (at sea), sexual harassment is an issue I have personally experienced.”*

Numerous women reported other instances of overt sexism, citing their size, stature, age, and appearance as targets for prejudice against them. Women indicated that they are regularly discounted in the lab and in the field and frequently attributed this discrimination to gender stereotypes, namely that a woman's strength, intelligence, resilience, and competence are less than a man's. Some female respondents reported being excluded from specific activities, such as driving a boat, participation in field operations, and travel, based on their gender alone, citing that these were considered to be “male” jobs by leadership. Women also reported instances of men taking or receiving credit for their ideas and being discounted by other researchers despite being principal investigators of the project or field leaders. While many instances of discrimination in marine mammal science were inflicted by men in higher positions, women frequently reported facing discrimination from other women in leadership roles.

*“Former supervisor for current position made comments about my appearance and how it will negatively affect me in life (professional and personal).”*

*“[A male supervisor] stated outright that he would ‘never hire a woman’ for a certain project because it was too demanding.”*

*“I've had at least one captain that refused to communicate with me directly because I was a woman and refused to let me work aboard his vessel.”*

*“I wasn't taken seriously by male crew on a ship (including the captain) even though I was the lead scientist on the ship.”*

*“I have had male colleagues ask, ‘but who is leading the project?’ over my head to another colleague, when referring to a project that I am describing and leading.”*

*“My male colleagues regularly receive credit for my work. Only one of them will step in and acknowledge when it was really me that did all of the work.”*

*“I have made comments and suggestions at international meetings which were ignored, then a few minutes later repeated by my (male) colleague for which he got lots of praise and acknowledgement.”*

*“Other than the gender bias deeply rooted in our field, nearly all of the actual bullying or discrimination I've experienced in this field, I've experienced coming from women, not men.”*

*“I was told by a female advisor she would grade me harder because I was a woman.”*

A majority of the points raised by male respondents were echoed by female respondents as well. Both female and male respondents felt discriminated against for having a family, and both reported experiencing racial discrimination. Men and women felt discounted for their age and expressed a feeling of exclusion from the “old boy's club,” who reportedly fail to welcome new ideas.

*"I hid the fact...that I had a family when I applied for my current field work position because I did not want it to be a factor under consideration."*

*"Discrimination based on race, i.e., not being from either North America or Western Europe."*

*"Being sidelined by 'old boys' due to being open to new ideas and approaches and thus not being considered a 'pure' scientist."*

### **Q55: Top 3 barriers to success for women in marine mammal science**

A total of 525 female and male survey respondents answered the question, including 463 women and 62 men. Lack of funding and general access to equal opportunities came up regularly as a barrier to women. While the competitive nature of marine mammal science is experienced by both women and men, women noted a number of barriers that lead to a lack of a level playing field. For example, the career instability related to lower salaries, lack of jobs for early-career researchers, and limited support for maternity and child rearing requirements. Many women noted the negative effects of career breaks from having children or from having to balance family responsibilities. Female respondents also reported that the competitive nature of marine mammal science also leads to territorial behavior in terms of both methods and species, with individuals, often men but also women, acting as "gatekeepers" and blocking others access to research or publish on these topics. Women themselves were highlighted by female respondents as being barriers in other ways, particularly by being prejudicial to younger, early-career women.

*"Expectation of voluntary or low paid work, particularly hard for women with children."*

*"Many people have to pursue careers far away from their families, which eliminates an important support structure many working women rely on when they have children."*

*"Being overlooked for opportunities because 'you're a mom now'."*

*"Women tend to take on more 'uncredited' responsibilities in the workplace/research arena and at home (parenting, running a household) and this takes energy and resources away from success in their careers."*

*"Blatant sexism by both male and female supervisors, including female scientists who regularly state that children will ruin women's careers."*

Other barriers reported by women include opportunities that tend to be available only to those with the right connections, rather than qualifications or experience. Where experience is valued, it is often excessive compared to the requirements of the job; for example, requiring a PhD for poorly-paid, entry-level jobs. Additionally, required experience, particularly field experience, can generally only be acquired through unpaid or increasingly pay-to-work internships, which limits these positions to those with financial means or external support. Female respondents also noted how attitudes to women and their abilities in the lab and field are often related to gender-based biases and stereotypes. Such stereotypes may be socially and culturally ingrained and influence how women are perceived, evaluated, and promoted.

*"Hiring, promoting, accepting into the group based on likes/dislikes rather than a priori levels of skill/accomplishment/ability."*

*“Barrier created by need for 'experience' - often via unpaid internships that price out folks who are financially insecure.”*

*“Stereotypes, i.e., ‘dolphin girls’ or ‘dolphin barbies’ that paint women marine scientists as [other] than serious scientists.”*

*“Women held to standards designed by and for men.”*

*“Dismissive, belittling, paternalistic attitudes towards and underestimation and objectification of young female scientists by persons in positions of authority”*

*“Men have been promoted when women of similar background and experience actually have better management skills and are overlooked. Or the women who are promoted are known to have very masculine qualities.”*

Many women noted the constant need to prove their abilities and a lack of respect, especially when trying to be taken seriously as a scientist or have their ideas heard, acknowledged, and credited. These difficulties were suggested to be related to inherent biases stemming from the male-dominated upper echelons and leadership in marine mammal science. Many female respondents referred to the continued presence and reinforcement of the “old boys club” as a significant barrier to success for women in marine mammal science. Women also mentioned internal barriers, such as confidence, self-doubt, and imposter syndrome, that impact their career success. A number of the barriers highlighted by women were noted as being common to STEM and not unique to marine mammal science. Female respondents also highlighted the need to encourage girls from an early age and provide them access to skills, opportunities, and role models that would help them succeed in STEM careers.

*“Not being ‘heard’ equally (ideas not taken seriously or with as much merit).”*

*“Current leadership being male dominated, which leads to a lack of female role models and cultural norms that are often off-putting or not conducive to female communication and work styles.”*

*“Most upper level positions are currently held by older men, and there is a bias from these men to want to work with other men when they are doing field work (i.e., the boys club).”*

*“The field is still driven by “silverback” males [with] access to greater resources (financial/fieldwork/etc.).”*

*“Ourselves - we need more self confidence to self promote and believe in ourselves.”*

*“Sometimes women grow up thinking that it is not okay for them to pursue a career in science and/or don't gain useful skills at relatively young ages because they are pursuing other societal roles.”*

Male respondents reported gender discrimination and stereotyping, the impact of having children, salary deficiencies, limited opportunities for funding and career advancement, lack of female role models, and unfair hiring practices as barriers to success for women in marine mammal science. It should also be noted that a number of female and male respondents responded that they did not think that there were any barriers to women succeeding in marine mammal science.

*“Marine mammal science frequently requires interdisciplinary work, and sometimes those brought in from other disciplines are far less likely to want to work with a woman and/or are openly sexist.”*

*“Delays in careers associated with having children impacts women more than men.”*

*“Finding funding is tough for all, but especially those with less-established careers, which would currently include many women in the field.”*

### **Q58: Solutions to overcome internal and external barriers to success for women in marine mammal science**

A total of 422 female and male survey respondents answered the question, including 367 women and 55 men. Women expressed a number of common themes related to career viability, including the need for internships to be paid, more funding opportunities, equity in salaries and benefits, accountability for harassment and discrimination, and improved support surrounding caretaking responsibilities. Female respondents advocated for maternity and paternity leave and other forms of institutional support for having children, with the goal that having a family is eventually not seen as a hindrance. Ultimately, many female respondents indicated that to overcome the barriers to success, a cultural shift is needed in how women are valued in marine mammal science and in STEM fields overall.

*“Projects [requesting] that interns and volunteers pay them...[create] an obstacle to already disadvantaged peoples of color and women who have dependents to support. A good place to start would be to have the marine mammal science community eschew the use of ‘free labor’ in their projects.”*

*“Jobs that provide a living wage--I'm sick and tired of seeing ‘jobs’ that are advertised as such that are pay-your-way volunteer experiences.”*

*“Commitment to equality at high levels and making decisions on hiring, promotion, and salary accordingly.”*

*“Equal-opportunity employment, institutional support for child-caring mothers, equal pay for equal work, performance reviews of advising faculty in academia with meaningful consequences for poor/detrimental mentorship.”*

*“Eliminating supervisors that create gender bias/discrepancy in the workplace.”*

*“Getting males in positions of power in the field to recognize what subtler forms of sexism they are perpetuating (usually under the guise of requiring dedication to the field or the science).”*

*“Hold men who give women unwanted or inappropriate attention accountable (in my early years, we ALL knew men in leadership positions who took advantage of the enthusiasm of young women hungry for an opportunity, yet there was no accountability.”*

*“Reduce funding to those entities/labs/researchers that cannot prove equal treatment of women (level of pay, number of positions, scholarship allocations, etc.). Remove those individuals who are known to be discriminatory from holding positions of authority.”*

*“Provision of facilities/services at conferences and workshop to accommodate people with caregiving responsibilities.”*

*“We need to rethink our entire attitude towards family and work balance, from maternity/paternity leave to childcare, to how we measure success and productivity.”*

*“Thoughtful and aggressive correction of the issue by scientists in the field speaking out and making changes.”*

Over 50 female respondents raised the importance of mentorship and the need for greater access to good mentors and role models, particularly for students and early-career scientists. Women also called for more leadership opportunities and advancement, better networking and sharing of experiences, and increased amplification of women’s voices and perspectives. Female respondents pointed out the importance of men actively playing a part in achieving solutions, while also highlighting the role of women’s behavior towards each other as key to overcoming the barriers to success. Some female respondents highlighted the need for women to prioritize cooperation and collaboration over competing with each other. Finally, women pointed out the need to build confidence and self-esteem, particularly in students and early-career scientists, which improved mentorship, opportunities, and collaboration may be able to foster.

*“Create a mentoring network so that young professionals can ask questions about whether to apply for certain jobs, how to negotiate salaries, etc.”*

*“I would love to see a forum for women in the field that allowed us a platform to share our experiences and come together to help each other succeed. Learning from each other and sharing struggles and triumphs openly would assist with movement within the field.”*

*“Promote successful female students. Amplify the statements made by other women scientists in meetings by acknowledging them and repeating them. Highlight outstanding work by female scientists to others...Make being an advocate for female scientists just part of your every day practice.”*

*“Recruiting male allies that have an interest in helping bring this issue to the forefront, and creating additional platforms to amplify the voices/perspectives of women and underrepresented minorities in the field.”*

*“Helping men better understand how to unite and support women with these issues.”*

*“Confidence and collaboration. Building other women up and not seeing them as competition. We need to root for each other!”*

*“Finding ways to improve confidence in one's abilities and qualifications. Opportunities to work with other women in positions of leadership.”*

There were a number of similarities in the solutions offered by the male respondents, who mentioned the need for better mentorship programs, funding equity, improved maternity and childcare support, gender parity, and a change in mindset and culture. Compared to the female respondents, a higher proportion of men suggested that there are no barriers to women, with one male respondent stating that we should not be focused on a single group and rather be thinking about how we can represent the makeup of the Society as whole.

*“A mentorship program for early career women that pairs them with a more established woman scientist may be useful. An effort should also be taken to increase recruitment of minority women into the field.”*

*“The wages in marine mammal science should be more competitive and reflective of the work that is put in, making it more appealing for women to stay in the sector if they chose to raise a family.”*

*“Same paternity and maternity leave for men and woman. Program for both men and women to re-enter the field if a period of leave has been taken to raise children.*

*“I think the current structures for nurturing talent should also be exploded/explored and investigated for biases that favour men.”*

*“Creating a community of scientists that treat each other as peers and assess each other on merit as opposed to gender helps us all.”*

#### **4.0 Workshop Recommendations**

Participants at the workshop identified a number of potential insights and ideas for breaking down intrinsic and extrinsic barriers to success for women in marine mammal science. A selection of the recommendations made by workshop participants are included below.

1. Men need to be provided with tools and training on how to interact professionally with women, be cognizant of workspace boundaries, and acknowledge and recognize female colleagues.
2. The next SMM workshop or forum on women in marine mammal science should be organized by a combination of women and men with the goal of increased male representation at the event.
3. The SMM diversity committee proposed during the Members’ Meeting should have clear and tractable goals and measures that relate to promoting diversity and gender equality; addressing gender, racial, cultural, and disability issues; reporting and preventing harassment; and accommodating members with dependents, particularly during Biennial Conferences.
4. Hold similar workshops or conversations on women and diversity in marine mammal science at other conferences or venues; for example at meetings of the SOLAMAC, European Cetacean Society, ASCOBANS, International Whaling Commission, and IUCN Cetacean Specialist groups.
5. During both routine and specialized conference activities, the SMM and other societies should integrate practices and opportunities that reduce gender bias and facilitate mentoring, such as ensuring that event speakers, moderators, or panelists are gender-balanced and diverse; training on appropriate professional interactions between men and women and between students and mentors; establishing a conference

“buddy” program that pairs students with practicing professionals; and maintaining a list of mentors who can be contacted during and outside of the conference.

6. The websites of the SMM and other societies would benefit from a dedicated page that includes information and resources related to promoting gender equity and diversity, recognizing and reducing unconscious bias, and reporting and preventing harassment.
7. Establish a mentoring network and/or women’s network for women from different career stages, sectors, and background to seek input, share experiences, provide support likely using an online networking app (e.g., Slack or Facebook) to facilitate discussion and networking.
8. Launch initiatives within and potentially outside SMM aimed at encouraging women to remain and become leaders in marine mammal science, including establishing grants to support female-led research, scholarships to support female students or early-career professionals, and an award to recognize an “Emerging Woman in Marine Mammal Science.”
9. Analyze and publish the survey results and conduct follow-up surveys in coming years to track progress in overcoming barriers to success by women in marine mammal science.

## 5.0 Conclusion and Next Steps

The “*Women in marine mammal science: Breaking down barriers to success*” workshop was a great success. The practical advice and personal stories shared by the presenters, panelists, and participants led to positive and constructive discussions and motivated all present, particularly in terms of how to continue our community and grow our voices, and crucially, help achieve the specific goals and planned outcomes of the workshop identified in Section 2.0.

The survey results, while currently not analysed in depth, provide an overview of the experiences and challenges faced by women and men working or seeking a career in marine mammal science. While many results appear to be consistent with patterns observed in other STEM fields, some challenges are relatively specific to the marine mammal field, including fieldwork expectations and realities and a propensity for unpaid or pricey internship and volunteer experiences. Further analysis of these data will allow for a better understanding of the challenges and barriers faced by individuals, particularly women, pursuing a career in marine mammal science.

The WIMMS workshop and survey resulted in a number of promising ideas and actions for next steps, particularly in terms of how to foster a growing community of women *and* men

committed to advancing the careers of women in marine mammal science. As stated in the workshop recommendations detailed in Section 4.0, some future plans include: 1) planning for a WIMMS social event or workshop at the next Biennial Conference; 2) creating an online WIMMS community to facilitate continued discussion, networking, and mentoring; 3) working with the SMM Board to create an “Emerging Woman in Marine Mammal Science” award; and 4) analyzing and publishing the results of the survey on gender-specific experiences in marine mammal science. The workshop organizers are excited to tackle each of these steps and keep up the momentum established by the workshop participants and within the marine mammal science community at large.

## **Acknowledgments**

This workshop would not have been possible without the tremendous support of women and men within and outside the marine mammal science community, the SMM, and most importantly, the workshop funders (Sarah Hanney and the Canadian Whale Institute, JASCO Applied Sciences, Cascadia Research Collective, Stantec, Oceans Initiative, and an anonymous donor), presenters and panelists (Appendix 3), and the workshop participants (Appendix 1). We are especially grateful to our presenters and panelists for sharing their stories and advice. In many cases, their stories were deeply personal, and we would like to recognize their courage and willingness to discuss their experiences. Special thanks to Dr. Robyn Angliss, NOAA Fisheries, for her thoughtful comments that improved this report.

**Appendix 1 - List of participants (and their affiliation) who attended the “Women in marine mammal science: Breaking down barriers to success” workshop on October 28, 2017, in Halifax, Canada.**

1. Amerson, Alicia	Alimosphere
2. Andrews, Olive	Conservation International Pacific Islands
3. Ashe, Erin	Oceans Initiative
4. Barre, Lynne	NOAA Fisheries
5. Blackwell, Susanna	Greeneridge Sciences Inc.
6. Bradford, Amanda	NOAA Fisheries
7. Braulik, Gill	University of St. Andrews
8. Buchan, Susannah	University of Concepción
9. de Vos, Asha	Oceanswell
10. Dier-McComb, Sarah	University of British Columbia
11. Greenfield, Michelle	Princeton University
12. Gryba, Rowenna	Stantec
13. Hines, Ellen	San Francisco State University
14. Humble, Emily	Bielefeld University
15. Jacob, Jessica	University of Florida
16. Keaveney, Emer	University College Cork, ORCireland
17. Lian, Marianne	University of Alaska Fairbanks
18. Litz, Jenny	NOAA Fisheries
19. Lockyer, Christina	Age Dynamics
20. Malinka, Chloe	Aarhus University
21. Mann, Janet	Georgetown University
22. Marchesi, María Constanza	CESIMAR, CENPAT, CONICET
23. Marley, Sarah	Curtin University
24. Mastick, Natalie	Oceans Initiative
25. McCluskey, Shannon	Murdoch University
26. Mitani, Yoko	Hokkaido University
27. Moore, Katie	International Fund for Animal Welfare
28. Moreno, Paula	University of Southern Mississippi
29. Oleson, Erin	NOAA Fisheries
30. Pearson, Heidi	University of Alaska Southeast
31. Prendergast, Eva	Newcastle University
32. Raudino, Holly	Department of Biodiversity, Conservation, and Attractions
33. Robertson, Frances	SMRU Consulting, Simon Frasier University
34. Rosa de Oliveira, Larissa	UNISINOS, GEMARS
35. Smith, Courtney	University of Southern Mississippi

36. Soldevilla, Melissa	NOAA Fisheries
37. Solsona, Alba	Scripps Institution of Oceanography, Laboratori d'Aplicacions Bioacustiques
38. Srinivasan, Mridula	NOAA Fisheries
39. Stack, Stephanie	Pacific Whale Foundation
40. Stepanuk, Julia	Stony Brook University
41. Stockin, Karen	Massey University
42. Van Cise, Amy	Scripps Institution of Oceanography
43. Volgenau, Lisa	The Volgenau Foundation
44. Weindorf, Kim	Menlo-Atherton High School
45. Wierucka, Kaja	Macquarie University, Universite Paris-Sud
46. Wilkin, Sarah	NOAA Fisheries

**Appendix 2 - Questions posed in the survey on gender-specific experiences in marine mammal science conducted between September and November of 2017.**

Section A

- Q1. What is your country of residence?
- Q2. What is your country of origin?
- Q3. How would you describe your ethnicity/race (check the category or categories that best describe you)?
- Q4. What is your gender?
- Q5. What is your age?
- Q6. What is your marital status?
- Q7. Do you have dependents or caregiving responsibilities?
- Q8. If you have dependents or caregiver responsibilities, how many hours per week do you spend on them?
- Q9. Are there opportunities to seek a degree related to marine mammal science in your country of origin?
- Q10. Are there opportunities for employment in marine mammal science in your country of origin?
- Q11. What is the highest education level you have completed?
- Q12. How would you describe the status of your career in marine mammal science?
- Q13. If you are a current student, what degree are you seeking?
- Q14. If you are a student or are seeking employment in marine mammal science, what sector would you like to work in?
- Q15. If you are a current student, do you think you will have the skills or experience to obtain employment in marine mammal science after obtaining the degree you are seeking?

- Q16. If you are seeking employment in marine mammal science, what are some of the challenges you are experiencing in finding employment (check all that apply)?
- Q17. If you are currently employed, what is your position?
- Q18. If you are currently employed, are you in a supervisory/leadership position?
- Q18a. If no, would you like to be in a supervisory/leadership position?
- Q19. If you are currently employed, how many hours per week do you work (on average)?
- Q20. If you are currently employed, what is your annual income (in U.S. dollars)?
- Q21. How many years of experience do you have in marine mammal science?
- Q22. Did you take a break from your career to raise children or for care-giving responsibilities?
- Q22a. If yes, how you would characterize the effect of this break on your career?
- Q23. Does your current position in marine mammal science involve overnight travel or field work away from your primary residence?
- Q23a. If yes, how much time do you spend away from your primary residence each year?
- Q24. Are you satisfied with your current position in marine mammal science?
- Q25. What is the gender of your advisor (if student) or immediate supervisor (if employed)?
- Q26. Do or did you have a mentor(s) to provide you career guidance?
- Q26a. If yes, what is/was the gender of your mentor(s)?
- Q27. How many work experience opportunities (e.g., internships or temporary positions with universities, non-profits, government agencies, or independent scientists) in marine mammal science have you completed?
- Q28. What percentage of these work experience opportunities were paid?
- Q29. How important were these work experience opportunities for advancing your career?
- Q30. What challenges, if any, have you experienced in achieving your career goals in marine mammal science? Are there any other details related to your education and employment that you would like us to know?

## Section B

- Q31. Have you experienced gender bias during your career?
- Q32. Have you had to provide more evidence of competence than counterparts of the opposite gender in order to be viewed as equally competent?
- Q33. Have you had to portray some gender-specific traits more than others, e.g., more masculine traits vs. more feminine traits or more feminine traits vs. more masculine traits?
- Q34. Have you experienced negative responses to exhibiting assertive or self-promoting behaviors?
- Q35. Upon having children, have you experienced assumptions surrounding your competence or commitment to work?
- Q36. If you do not have children, have you been expected to work longer hours or commit to more time away from home?

Q37. Have you had to change your behavior, attitude, or work ethic when working with a team composed of mainly women or led by a woman vs. working with a team composed mainly of men or led by a man?

Q38. Have you had your ideas ignored, only to be accepted when suggested by a colleague of the opposite gender?

Q39. Have you had your research ideas taken over by a colleague of the opposite gender and been excluded from the subsequent research?

Q40. Have you been asked to dress a certain way or had your appearance commented on or criticized in a way that seemed related to your gender?

Q41. Have you experienced a salary or funding disparity compared to a colleague (with equivalent qualifications) of the opposite gender?

Q42. Have you experienced imposter syndrome (i.e., an inability to internalize self accomplishments and a persistent fear of being exposed as a “fraud”) at any time during your career?

Q42a. If yes, would you consider that it has affected your ability to advance in your career?

Q43. Have you successfully negotiated for a professional opportunity, higher salary, or promotion?

Q44. Have you experienced difficulty negotiating for a professional opportunity, higher salary, or promotion?

Q45. How would you characterize your negotiation skills when seeking a professional opportunity, higher salary, or promotion?

Q46. Do you ever feel as though you need one more degree or credential before you can make progress on a project, idea, analysis, publication, or presentation?

Q47. Do you ever feel as though you need “permission” to have a seat at the table, voice your opinion or idea, ask a question, submit a proposal, etc.?

Q48. Are you comfortable sharing your work at an early stage (i.e., before it’s finished)?

Q49. Do you intentionally “amplify” the work of your colleagues (i.e., assign credit and emphasize the value of the work to others)?

Q50. Do you ever give credit to others, while not acknowledging your own role in an effort?

Q51. Do you ever communicate about elements of a project where you fell short, while not communicating equally about the successful elements?

Q52. Have you ever been bullied or harassed (verbally, physically, or sexually) in the course of your career?

Q53. Have you ever felt discriminated against in the course of your career?

Q53a. If yes, please provide any details you can on the discrimination you experienced without disclosing names or places.

Q54. Have these experiences made you reconsider a career in marine mammal science?

Q55. In your view, what are the top 3 barriers to success for women in marine mammal science?

- Q56. In your opinion, what are some reasons for women being underrepresented in positions of leadership in marine mammal science?
- Q57. In your opinion, what are some reasons for women (and men) of color and other minorities being underrepresented in marine mammal science?
- Q58. In your opinion, what are solutions to overcoming some of the internal and external barriers to success for women in marine mammal science?
- Q59. Do you think the Society for Marine Mammalogy provides enough opportunities for women to succeed in marine mammal science?
- Q60. Have you ever participated in a women in science workshop?
- Q61. Have you ever received women's leadership training?
- Q62. Do you belong to a women in science professional organization (e.g., AWIS, AAUW, 500 Women Scientists, R Ladies, Society for Women in Marine Science)?

### Section C

- Q63. Which workshop theme is of interest to you (check all that apply)?
- Q64. Are there other themes or topics you would like addressed at the workshop that have not been captured in this survey? Any additional thoughts or comments?

**Appendix 3. Program (starts on next page) from the “Women in marine mammal science: Breaking down barriers to success” workshop held on October 28, 2017, in Halifax, Canada.**

# Women in Marine Mammal Science (WIMMS): Breaking Down Barriers to Success

Society for Marine Mammalogy  
22<sup>nd</sup> Biennial Conference on Biology of Marine Mammals  
**28 October 2017**  
**8:30-17:30**

World Trade and Convention Centre, Halifax, Nova Scotia (Rm 203)

**8:00** Registration, doors open

**8:30** Introduction: workshop organizers

**8:45** Keynote: Janet Mann  
*Navigating the Waters in Marine Mammal Science*

## SESSION 1

**9:15** Gill Braulik  
*Personal Reflections*

**9:30** Katie Moore  
*The Seesaw Effect*

**9:45** Asha de Vos  
*The Backstory*

**10:00** Break

## SESSION 2

**10:30** Olive Andrews  
*To Be Pacific - 19 million km<sup>2</sup> of Whale Sanctuary*

**10:45** Alicia Amerson  
*Finding my Professional Calling at Almost 40*

**11:00** Susannah Buchan  
*Personal Reflections*

**11:15** Larissa Oliveira  
*1997 El Niño: Transforming Death in a New Life*

**11:30** **PANEL 1:** Rowenna Gryba, Yoko Mitani, Erin Oleson  
*Conducting fieldwork (including remote/international areas and technology); networking and support*

**12:15** **Networking Lunch:** Location TBA

## SESSION 3

**1:30** Heidi Pearson  
*Iowa to Alaska: My personal and professional path*

**1:45** Karen Stockin  
*Career/Family Considerations: A Personal Perspective*

**2:00** Ellen Hines  
*Navigating an International Journey*

**2:15** **PANEL 2:** Lynne Barre, Susanna Blackwell, Amy Van Cise  
*Communication and negotiation (including conflict resolution); seeking leadership roles; confidence and imposter syndrome*

**3:00** Break

**3:30** Christina Lockyer  
*A personal journey through 50 years of marine mammal research*

**3:50** Survey summary and group discussion: workshop organizers

**5:30** Finish

## **About our speakers:**

### **Janet Mann: Navigating the Waters in Marine Mammal Science**

*Dr. Mann gives brief narrative describing key lessons throughout her career, followed by the studies/data on science-gender stereotypes, how implicit and explicit bias shape behavior. Discussion of attrition, bottlenecks for women and finally, solutions.*

Dr. Mann started out in animal behavior/behavioral ecology more broadly, but became involved in the Shark Bay Dolphin Research Project in graduate school. She moved from Assistant to Associate to Full Professor of Biology and Psychology at Georgetown University and is currently Vice Provost for Research. She has been studying the Shark Bay dolphins for 30 years and has been supported by the National Science Foundation continuously for 25 years.

### **Gill Braulik: Personal Reflections**

Dr. Braulik is the Director of Downstream Research & Conservation Ltd. and an Honorary Research Fellow at the University of St. Andrews. For over 15 years, she has conducted conservation-focused research on marine and freshwater cetaceans, primarily in South and Southeast Asia. In 2013, she was awarded a Pew marine fellowship that addressed the challenge that the greatest numbers of at-risk marine mammals populate the coastal waters of tropical developing nations. She designed and tested a marine mammal rapid assessment in Tanzania that allowed for broad-scale spatial data on marine mammal populations to be quickly generated at a national or regional level. A large focus of her previous work focused on river dolphins in Asia, especially the Indus River dolphin, which is a subspecies endemic to Pakistan. In addition to her work in Tanzania and Pakistan, she has been involved in work with river dolphins on the Brahmaputra River, India,

and in the Sundarbans of Bangladesh, as well as with the final efforts to save the Yangtze River dolphin in China.

### **Katie Moore: The Seesaw Effect**

*This is a background on Ms. Moore's path through marine mammal science and beyond with a focus on some life lessons along the way...basically "what she wishes she could tell her 22 year old self" or "what she wants her daughter to know". Dr. Moore will look at both the external and internal forces at play from her perspective.*

Ms. Moore ended up in marine mammal science in “a roundabout way.” She knew she wanted to change the world, but this wasn't the plan she had! She has a graduate degree from Duke University and has spent over 20 years in stranding response in the US and internationally. After graduating, Katie worked for NOAA Fisheries, then was a founding staff member of the Cape Cod Stranding Network, later becoming the Executive Director. In 2007, they merged with IFAW, and she became the manager of the Marine Mammal Rescue and Research team. Her primary work has been on improved stranding response and stranding related science, with human interactions, mass strandings, and AEP hearing evaluations as specific concentrations. Since then she has added to her role, taking on first the management of all of IFAW's Animal Rescue divisions, then oversight across all IFAW programs. She is currently in a dual role as the Director of Animal Rescue and the Deputy VP of Conservation and Animal Welfare.

### **Asha de Vos: The Backstory**

*A brief story of Dr. de Vos's life as it relates to her path, highlighting her challenges with some of the key lessons she has learnt along the way.*

Dr. de Vos is a Sri Lankan marine biologist and ocean educator working with blue whales in the Northern Indian Ocean. After years in academia, she escaped to start 'Oceanswell', with a mission to nurture the next generation of diverse ocean heroes, equipping

students from under-represented countries to conduct marine conservation research and engaging everyone in conversations about the magic of the world's oceans. Please check out [www.oceanswell.org](http://www.oceanswell.org) for more information!

### **Olive Andrews: To Be Pacific - 19 million km<sup>2</sup> of Whale Sanctuary**

*After attending her first IWC meeting at age 18 campaigning for the Southern Ocean Sanctuary, Ms. Andrews' career has taken her from the tropics to the poles. She will focus on her involvement in the development of national whale sanctuaries across the Pacific Islands region and the hurdles and opportunities that come with working in this region as a 'palagi' woman.*

Ms. Andrews is the Marine Programme Manager for Conservation International, New Zealand and Pacific Islands, where she is a marine science and policy advisor on large scale marine protected areas. A research scientist of the South Pacific Whale Research Consortium, she conducts whale research projects in New Zealand, Palau, Tonga, Timor-Leste, and Niue. For a decade, she directed Australian NGO Whales Alive focused on the management of whale watching, the development of national whale sanctuaries leading to the development of Pacific regional whale watching guidelines, an international whale watching operator and guide training certification, and the implementation of the Pacific Regional Environment Program's (CMS) Marine Species Action Plans for Whales and Dolphins, Turtles and Dugong, which covers 22 Pacific island countries.

### **Alicia Amerson: Finding my professional calling at almost 40**

*At almost 40 years old, Ms. Amerson shares her experience of leaving a six figure salary to follow her childhood calling to become a marine biologist. She finds herself in a role somewhere between policy and science, asking where does she fit in, looking for advice and mentorship, and knowing that she has to follow her own journey. Ms. Amerson has launched into a new venture to develop global*

*best practices for UAS technology for use in marine habitats, provide flight skill training for women and girls, and encourage innovation for UAS in conservation science and art applications. They are creating the platform for ocean conservation with UAS technology. She invites you to be a part of the technology discussion, share your interest and knowledge, and ultimately join them in becoming UAS pilots for conservation.*

Ms. Amerson worked as an environmental project manager for 13 years. She completed a Master's in Marine Biodiversity and Conservation at Scripps Institution of Oceanography, where she studied whale-watching along the west coast of North America from Canada to Mexico observing operations. She worked with the California Lt. Governor Gavin Newsom as his first Sea Grant Fellow and was able to secure \$100,000 for large whale entanglement response in 2016 and \$2.1M for entanglement and stranding in 2017. She spent two field seasons as a research assistant with Murdoch University using UAS to collect large whale body condition data. She is a licensed UAS pilot and instructor.

### **Susannah Buchan: Personal Reflections**

Dr. Buchan is a British-American biological oceanographer based in Chile. Her research in Chile over the past 11 years, including her doctoral studies, has examined the acoustics and ecology of blue whales in Chilean Patagonia with the University of Concepción, and more recently of fin whales off the Atacama Desert in northern Chile with the CEAZA Research Center, to support Marine Protected Area proposals and marine spatial planning. She is also a Guest Investigator at Woods Hole Oceanographic Institution, USA. She is particularly interested in how acoustic data and oceanographic data can be coupled to examine the oceanographic processes that drive baleen whale distribution in different marine ecosystems. Her work has always been conducted in close collaboration with local communities in northern and southern Chile, supporting indigenous marine territory use proposals and community-based whale

watching. She currently supervises several undergraduate and masters students to advance this area of research, which is new to Chile.

**Larissa Oliveira: 1997 El Niño: transforming death in a new life**

*Ms. Oliveira is going to talk about how her scientific journey blended with the discovery of a new species of pinniped in South America.*

Ms. Oliveira is a professor and researcher in Biology at the University of Vale do Rio dos Sinos and a member of the NGO, Study group of Aquatic Mammals of Rio Grande do Sul, working along the southern Brazilian coast. For 25 years, she has been studying marine mammals, mainly seals, fur seals, and sea lions along the coast of South America, Galapagos Islands, and Antarctica. Her professional career is mainly focused on the application of molecular tools to describe, manage, and conserve marine biodiversity. Her research seeks to generate knowledge for the mitigation of dilemmas of biological conservation and human welfare, in order to promote the sustainable use of marine resources and the conservation of pinniped species.

**Heidi Pearson: Iowa to Alaska: My personal and professional path**

*Dr. Pearson will discuss the path she took from her hometown in Des Moines, IA to her current home in Juneau, AK and the experiences and mentors that have shaped her path. She will also provide some tips on grant-writing, which is a critical component of success in research and academia.*

Dr. Pearson is an Associate Professor in Marine Biology at the University of Alaska Southeast (UAS) in Juneau. She earned a BS in Biological Anthropology and Anatomy, and Biology, from Duke University in 1998 and a PhD in Wildlife and Fisheries Sciences from Texas A&M University in 2008. Subsequently, she was the Assistant Director of the Whale Center of New England and a Lecturer at Stony Brook University. In 2011, Dr. Pearson was hired at UAS. Her

current research focuses on humpback whale, sea otter, and dusky dolphin behavior and ecology.

**Karen Stockin: Career/Family Considerations: A Personal Perspective**

*Ideas and discussion presented are based on Dr. Stockin's personal journey and the lessons learned, as well as things she wished she had considered or better informed herself about when wanting a family, but trying to establish herself as an early career/emerging researcher. A discussion and practical suggestions about family and career - if, when, and how best?\**

*\*Disclaimer from Dr. Stockin: "I don't have all the answers (sadly) and am certainly not advocating woman necessarily agree or accept all of the suggestions I present. However, I offer food for thought and hope to provoke useful conversation."*

Dr. Stockin was first appointed as a Research Officer at Massey University in 2007 before securing a 2-year fixed term lectureship in 2009. In 2011, she achieved tenure as a Lecturer and in 2013, was promoted to Senior Lecturer and Major Leader for BSc Marine Ecology. She is the current Director of the Coastal-Marine Research Group and applying to promote to professorial in 2018.

**Ellen Hines: Navigating an international journey**

*Dr. Hines will talk about how she met a woman scientist in Thailand in 1999, and started her research on dugongs. Since then she has worked in Thailand, Vietnam, Cambodia, Myanmar, Malaysia, Sri Lanka, and Belize and she believes she is one of the luckiest people she knows. She hopes her story is encouraging and positive.*

Dr. Hines received her PhD in Geography from the University of Victoria in 2001, and started a faculty position at San Francisco State University that same year. She is currently a Professor in the Department of Geography & Environment and the Associate Director of the Estuarine and Ocean Science Center at San Francisco State. Please see [online.sfsu.edu/ehines](http://online.sfsu.edu/ehines) for more about her lab.

### **Christina Lockyer: A personal journey through 50 years of marine mammal research**

*Dr. Lockyer will talk about how she decided what she wanted to do from childhood and stuck to her decision rigorously through school, university, and 50 years of research employment. It is a personal journey, and she will draw together her "recipe" for achievement and the factors that inspired her.*

Now retired from full-time employment, Dr. Lockyer continues with her own company Age Dynamics, started in January 2003 in reaction to redundancy. She has always believed in having other skills on the back burner, to be used when needed, and to steer one's own destiny as much as possible. She has primary and doctorate degrees from University of East Anglia and London (UK) starting in 1968, and has worked in several international research institutions doing fieldwork, lab work, administration, and run Secretariats for two intergovernmental organisations in the North Atlantic area. Her life's work has been in marine mammal research and conservation-management.

### **About our panelists:**

#### **Rowenna Gryba**

Ms. Gryba has 15 years in marine ecology working on a variety of projects, with a focus on spatial statistics, habitat modelling and field work. She has worked on all three Canadian coasts, and recently has been focusing (again) on ice-associated seal habitat use.

#### **Yoko Mitani**

Dr. Mitani is an associate professor of Hokkaido University. She received her PhD from SOKENDAI, the Graduate University for Advanced Studies for her work on reconstructing 3D diving behavior of Weddell seals. Now she is working on a variety of projects,

including projects with killer whales, northern fur seals, harbor seals, Antarctic minke whales, and humpback whales.

#### **Erin Oleson**

Dr. Oleson is the Cetacean Research Program Leader at Pacific Islands Fisheries Science Center in Honolulu, HI. She received her PhD at the Scripps Institution of Oceanography in 2005 on the calling behavior of blue and fin whales. For her postdoc, she began a passive acoustic monitoring network off Washington State to understand occurrence, movements, and abundance of cetaceans. In 2008, she made the big move to Hawaii where she has been since, leading a growing and dynamic team conducting assessment research on cetaceans in the Pacific Islands Region.

#### **Lynne Barre**

Ms. Barre has been with the NOAA Fisheries Protected Resources Division in Seattle for fourteen years implementing the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA). Since 2003, she has worked on the endangered listing of the Southern Resident killer whales, designated critical habitat, developed and finalized a Recovery Plan, and has implemented actions to conserve and recover the whales, including vessel regulations put in place in 2011. In addition to her work on killer whales, Lynne supports other aspects of the marine mammal program, such as helping coordinate the stranding network. Lynne also works on ESA-listed rockfish species and coordinates with Puget Sound salmon recovery efforts. Lynne's background is in marine mammal research including fieldwork in Southern California and Shark Bay, Western Australia, studying social behavior, mothers and infants, and genetic relationships of local dolphins. Lynne also worked with the Crittercam team at National Geographic, putting underwater cameras on marine animals to learn about their lives under the surface before joining NOAA first in the Office of Protected Resources in Silver Spring, MD and then on the West Coast. Lynne has a B.S in Biology from Georgetown University and an M.S. in Animal Behavior from San Diego State University.

## **Susanna Blackwell**

Dr. Blackwell has been working with large marine vertebrates for over 25 years - northern and southern elephant seals, Baltic grey seals, albacore tuna, Atlantic and Pacific bluefin tuna, bowhead whales, and narwhals, to name a few. In the early stages of her career, she was involved in the design and manufacture of several types of seal data loggers, recording parameters such as depth, temperature, heart rate, swim speed, activity levels, and bioluminescence. She joined Greeneridge in May 2000 and has since collected and analyzed acoustic data on man-made sounds, such as those produced by impact and vibratory pile-driving, airgun pulses, and numerous construction activities, to assess their range and impact on marine vertebrates, mostly marine mammals. More recently she has combined these two interests—in collecting data using tags and in assessing the effects of man-made sounds on marine animals—to examine how East Greenland narwhals react to sounds from airgun pulses, which are used the world over in seismic exploration for oil and gas. She is the first author of 11 refereed journal articles and a co-author in 31 others. She is a member and Fellow of the Acoustical Society of America, the Society for Marine Mammalogy, and Sigma Xi (National Society for Scientific Research).

## **Amy Van Cise**

Dr. Van Cise just earned her PhD from Scripps Institution of Oceanography in September of this year, where she studied genetic and acoustic population structure in short-finned pilot whales in the Pacific Ocean. Before attending Scripps, she worked as a biologist for NOAA's Antarctic Ecosystem Research Division, where she was part of a team that conducted research off the Antarctic Peninsula, which was used to set catch limits of Antarctic krill and create protections for the Southern Ocean ecosystem.

## **Additional advice, input, and insight:**

Some women who were unable to attend the WIMMS Workshop, along with some of the Workshop co-organizers, were kind enough to answer the following questions about their experiences in marine mammal science. Thanks to **Dr. Jo Marie Acebes** (BALYENA.ORG); **Dr. Amanda Bradford** (NOAA Fisheries Pacific Islands Fisheries Science Center); **Dr. Clare Embling** (Marine Biology and Ecology Research Centre, School of Biological & Marine Sciences Plymouth University); **Siri Hakala** (NOAA Fisheries Pacific Islands Fisheries Science Center); **Dr. Kristin Kaschner** (Department of Biometry and Environmental Systems Analysis, Albert-Ludwigs-University of Freiburg and Robert Bosch United World College); **Dr. Kristin Laidre** (School of Aquatic Fisheries and Science, University of Washington); **María Constanza Marchesi** (Centro para el Estudio de los Sistemas Marinos (CESIMAR)); **Dr. Ann Pabst** (Biology and Marine Biology, University of North Carolina Wilmington); and **Dr. Mridula Srinivasan** (NOAA Fisheries Office of Science and Technology).

### **1. What was one of the most difficult decisions you have had to make in your career?**

“One of the most difficult decisions I made in my career is whether to pursue marine conservation work by working in our own NGO or going into the academia and teach or finding a more financially stable job that does not entail much research or conservation. At the moment I'm making a compromise. I'm still working on our own NGO while juggling with a "normal" job. It is difficult, but the only way I can maintain my marine mammal research and conservation work while earning a living.” - **Jo Marie Acebes**

“The most difficult decision I made actually came within a decision that was relatively easy to make. When I got my current job toward the end of finishing my PhD, I was grateful and excited, and it was

easy to know that it was a good idea and great opportunity to take the position. However, emotionally, I really struggled with the decision, even long after making it, as it meant leaving a research project, network, and even residence that I loved and had been invested in for over a decade. I knew that I needed to define myself professionally in another way, but initially had a hard time letting go. I eventually did and realized that even in our careers, like so many other areas of life, we don't really move forward until we let go of our hold on the past." - **Amanda Bradford**

"I guess for me it was deciding in my late 20s to give up a permanent, well-paid job and to return to education to convert from my career in engineering to marine biology. It was rather daunting, but at the time I had no big commitments (such as a mortgage or family), so it felt exciting and I don't regret it for a minute! More recent difficult decisions have involved family-work balance -- now that I have 2 daughters, I've had to make difficult decisions such as taking a step back from research when the girls were very young, and the tough decision to return to work full time. I now always have to compromise either family commitments in favour of work/research, or research in favour of family (the former more difficult than the latter - there is always the resulting constant parental guilt). However, one thing I would add is that family does force work-life balance, which is a positive." - **Clare Embling**

"To move to Freiburg to join my husband after 6 years of transcontinental relationship directly after finishing my PhD, knowing very well that from a career perspective this was everything but ideal (Freiburg is a land-locked city about as far away from the sea as possible in Germany, and no marine science related department at any university nearby)." - **Kristin Kaschner**

"To pursue a career in marine mammals, I had to move almost 2000 miles away from my home, family and friends. As my parents are not getting any younger, it is difficult for me not to be able of seeing them more often or just being there for them." - **María Marchesi**

"To leave India and come to the United States in pursuit of a dream to become a marine mammal biologist without a single credential, skill, or qualification in the marine science field." - **Mridula Srinivasan**

## **2. Has the male-female dynamic in marine mammal science changed as you've grown as a researcher?**

"Yes. But it is not quite noticeable in our country (the Philippines). It used to be more male-dominated, but in the past 10 years or so, more senior women scientists have emerged. When I was starting, it was not easy to find a female mentor."- **Jo Marie Acebes**

"I came into the field in the late 1990's along with a lot of other women. My impression at conferences and other venues was that my peers consisted of more women than men. Yet, most people around me in leadership positions, all the established scientists I worked with, and all the people on my graduate committees were men. My male mentors and colleagues were phenomenal, and I feel fortunate for the support and opportunities I've had. I did think that the gender ratio within leaders in our field would start to balance out and reflect the number of women coming up with me through the ranks. To some degree, I think it has, although like in many other STEM fields, women in marine mammal science disproportionately fall out of career or leadership tracks. Leadership positions within most institutions, including my own, still seem so largely male-biased that sometimes it's hard to imagine how or when a more gender balanced composition will occur." - **Amanda Bradford**

"To be honest I'm not sure! One thing I do notice is the skew towards men as you progress higher in the 'ranks'. For example, when I was a PhD student in marine mammalogy, I was surrounded by predominantly female PhD students. As I've progressed higher there have been fewer and fewer women. For example in the marine biology department I work in at the moment, we feel like we are doing quite well because we have 5 female lecturers out of 20 (of

which 5 are professors – none are female). I do feel like there are more inspirational senior women in the field now than there were 10 years ago, and it does make a difference – it makes you feel like you can do it too (role models). I do feel there is more support for women than there was in the past to keep us in academia, but I also think there is a lot more that can be done.” - **Clare Embling**

“Yes, I think it’s currently changing. It used to be that a vast majority of the professors, the lead scientists etc. were male, and a majority of the undergraduates, interns, and younger graduate students were female. As these women mature, the balance is shifting and we are seeing more women in leadership positions; I think that filters down to all levels. One thing that doesn’t seem to be shifting as quickly is the representation in our field by minorities. We need to focus on that.” - **Siri Hakala**

“Yes. But depends on the country and in the United States, depends on the state. In my case, it was my ‘foreignness’ and skin color that was actually problematic and continues to be so, regardless of whether it is a male or female.” - **Mridula Srinivasan**

### **3. What changes have you noticed in your treatment from male counterparts/supervisors/colleagues as you have grown in “status” in the field?**

“In the Philippines, there is still some biased towards male researchers especially older male researchers. However, since I received my PhD and have published a few papers, it has become easier. But whenever I encounter other researchers in a different field (i.e. terrestrial), it still takes time for them to look at me seriously.” - **Jo Marie Acebes**

“There is a clear change in interactions as you progress in an area, but I’m not sure it’s male specific – I feel much more respected now than I did as a new student. That’s a nice feeling, to feel like others think you know something and respect your opinion (inside the

imposter syndrome still rages, so this type of support is good). I’m not sure I could differentiate between treatment by male or female colleagues/supervisors though and that is a positive. Of course, there are still some (particularly male) colleagues that I will probably always struggle with, ones who always treat you as a subordinate, treating their male colleagues with more respect. But thankfully they are few and far between (& seem to be unrelated to my ‘status’).” - **Clare Embling**

“I think it’s less that I’ve grown in status, and more that the world is changing. We are all becoming more aware of the impacts of unconscious bias, and also of sexual harassment.” - **Siri Hakala**

“None that I perceive. I like to work with folks who would not treat one differently based on status.” - **Ann Pabst**

“People are more respectful, but I still remain ‘foreign’ and culturally and socially alienated by both males and females professionally and personally (barring a few exceptions).” - **Mridula Srinivasan**

### **4. Who is your support network and how have you developed it?**

“We have a small group of local marine mammal researchers whom I have worked with in the past. We are all friends and it has made things much easier and more fun. I’m also lucky to have met a good, friendly group of Asian marine mammal researchers.” - **Jo Marie Acebes**

“I have a very good support network – I think it’s essential for all of us, but I find it is incredibly important as a parent. For me, a very supportive husband is my key support, we are both academics in the same field, so support each other, take it in turns to do research trips, write grants & papers together. We were also very lucky to have my mother-in-law move in a few doors away to help with childcare, which makes a huge difference with us both working as

full time academics. Outside this core support, I find that a network of colleagues both within the university, UK and worldwide is incredibly important for asking careers advice (as mentors), chatting through ideas, writing papers/grants, recommending each other for work/roles/reviewing, etc. My network has built up over time through colleagues, meeting people at conferences & workshops, tweeting/blogging, and keeping in contact with people.” - **Clare Embling**

“My support network comes from the friendships I’ve made with women in this field over the years and in my current job. Taking the time to nurture these relationships and be available to others is important.” - **Siri Hakala**

“This has probably been the biggest challenge due to my relative isolation (in an academic sense) throughout my career. My main PhD supervisor was Daniel Pauly, well connected in the field of fisheries science, but not really directly involved in marine mammal science, so from very early on I was generally on my own presenting my research at meetings, etc. Overall I think that having a mentor, who is well connected in your field and can introduce you to people and will get you involved in projects, is actually extremely helpful and can greatly facilitate your career.” - **Kristin Kaschner**

“My family (parents and sister) and old friends, although as I live far away from them sometimes is difficult having to deal with everything by yourself on the daily basis.” - **María Marchesi**

“My husband, parents, and brother are my support network. I don’t rely on anyone else. I have learned early in life that no one can be trusted when it comes to personal or professional decisions. The decision is ultimately yours, but only your family can give you an unbiased opinion and help make a decision in your favor.” - **Mridula Srinivasan**

## 5. What key advice or message would you like to convey to women in the early stages of their career in marine mammal science?

“I’d say they should try to seek out researchers within their country and they might be surprised that they are women...at least in Southeast Asia I have found this more common now.” - **Jo Marie Acebes**

“I usually pass on advice that applies to both women and men in the early stages of their career in marine mammal science - find a supportive mentor, *work hard*, ask good questions, learn quantitative skills, focus on a discipline not a species, work with or get to know people from other countries and cultures, *be kind*, love what you do (although you won’t all the time), and so much more, but specific to women, I would convey the following. Know that there are indeed a lot of internal and external barriers that keep some women from reaching their full potential. Be conscious of these barriers, but not self-conscious; aware, but not hyper-sensitive; empowered, but not antagonistic. I look back on some instances in my career and believe that I would have better advocated for myself and better developed some skills if I had a greater awareness and appreciation of these barriers. Most importantly, as you find good mentors to support and encourage you and begin to achieve your career goals, find ways to support and build up others around you” - **Amanda Bradford**

“Get a mentor or even better mentors! This can be formally (e.g. through mentorship schemes in organisations such as the BES (British Ecological Society)), or just be someone who inspires you, someone who you can talk to and gives good advice. I have had both formal mentors, and those I’ve thought of as mentors, and they have had the biggest impact on my career. Also *publish* – it wasn’t emphasised on me when I was working on my PhD, but is incredibly important if you want to stay in research. And network – talk to people, whether via email, in person, at conferences, through social

media, through a blog, have your own website – the more people you know and who know you and what you do, the more chance you will have of being able to make the most of opportunities. But it's also important to maintain that network, and keep in contact with people.” - **Clare Embling**

“Something I see people do (and not just women, but maybe more so), is do good work, wait to be recognized, and then get upset when years go by without a lot of advancement. In an ideal world we'd have perceptive, omniscient managers, but in lieu of that, you should adopt the practice of helping your supervisor help you. Highlight your strengths and accomplishments, and let them know what you would like to tackle next, or how you feel you should be rewarded. Your supervisor's job is to help you. Help them help you.” - **Siri Hakala**

“I am not sure that this is actually advice about how to be particularly successful in your career, but perhaps more some 'words of wisdom' with respect to managing expectations that can be quite stressful to live with (in my own experience): Even if this is not a very popular notion at the moment, to be honest, it is actually quite difficult (and very exhausting) to have it all - a career in marine mammal science and a family. Mostly because the geographic flexibility that is often expected and necessary during your postdoc phase (which tends to coincide for many with the time when you are starting to seriously think about having kids) and that often involves moving around for relatively short contracts and projects in addition to other travel requirements, which really is quite difficult to logistically manage in terms of your partner also having a job and child care arrangements, etc.

I know that there are successful women in marine mammal science who have one kid, but I would guess that there are certainly fewer women with two or more kids, and there are probably more women who are successful who don't have any kids. In my personal opinion, there are reasons for this that go beyond gender equality and are

perhaps more of a general nature - namely, that actually the amount of work required to be successful as a scientist - as defined in most western societies - is so much that you're missing out incredibly in terms of really enjoying your kids and a family life. Depending on where you live and the kind of partner you have, some aspects of this might be easier to solve from a logistical perspective, but my key message perhaps here is that I think that honestly, wanting to have a family and a career - not only in marine mammal science but generally - does involve some hard choices, and I believe that in many parts of the world it is not enough to simply be good at what you do, you also need to be in right place at the right time, have the right partner (and the right kids and the right grandparents, the right boss, etc. etc.) - and then you can maybe make it work. But if it doesn't work out - try to remember that this doesn't necessarily mean that you didn't work hard enough because I really think it takes more than hard work to make the combination of family and career work - at least in a way that also makes you happy.” - **Kristin Kaschner**

“I do not know if it is only for women, I would say it to males also: Do not listen to people when they tell you to choose a different path because working with marine mammals is “very difficult”. I was told that by a male professor when I was starting my career, I was 18. It took me a couple of years to realize that he was wrong!” - **María Marchesi**

“Do not anticipate that your path will be any different than another based upon sex or any other characteristic. Just decide what you want to do, and go do it. Surround yourself with people whom you value and who value you. Have a sense of humor. Work hard and enjoy what you are doing.” - **Ann Pabst**

“Passion and ambition is great, but develop career goals early in life and work to accomplish them. Don't be a humming bird moving from one project/job to another without an idea of whether you are achieving your goals of working towards your goals. Always have a

plan in hand before you graduate, not after you graduate.” - **Mridula Srinivasan**

**6. Do you have any specific recommendations for women wishing to achieve a leadership position in marine mammal science?**

“I think as long as you keep doing good work and make your work known by attending and participating in conferences or workshops, slowly you can build your network and will soon get recognized for the work that you do. I believe there is also a cultural barrier that we have to break through especially in Asia. We should speak up more in meetings, gatherings, workshops and whatever venue possible.” - **Jo Marie Acebes**

“Decide on what you’d like to achieve, work out what you need to do to get there, give yourself targets, focus, and work hard to achieve it. Use setbacks as learning experiences (we all make mistakes, and things rarely go to plan). But most importantly enjoy what you do, and be passionate – you want to enjoy the journey!” - **Clare Embling**

“If you want a leadership position, start by leading. Lead by example. Start a group. Look for areas that need attention and start to address them. Don’t wait to be asked. Build a strong foundation of skills, contribute as much as you can to the field, network and stay connected, and most importantly, help others around you. Be the person others would like to have in a leadership position.” - **Siri Hakala**

“I think it’s really important not to compare yourself to others or be deterred by others’ successes. It’s easy to feel like you’re not good enough when you do that. The most important thing is to stay focused, work hard (publish!), and be a colleague that other people want to have around in the field and in the office. Developing a network of people you can lean on for advice and support is also

key. Find people that you admire and that are good role models - male or female - people who can guide you through the rough patches or teach you based on their past experiences. It’s especially important to be around people who encourage you and do what they can to give you opportunities. However, in the end your career (whether it’s graduate school or a job) depend very much on you and what you put into it. Many young scientists are given golden opportunities and don’t make anything out of them. Don’t be one of those people. Aim high!” - **Kristin Laidre**

“As I am just starting my career I do not feel ready to give advice on this, but in my short experience I think believing in yourself is fundamental!” - **María Marchesi**

“Assess your work environment and observe leaders in your field, carefully. This assessment will help you determine what skills you have and what you lack if you are seeking leadership positions. Always, seek ways to improve and acquire the necessary skills to become a leader in your place of work or new organization. Learn from your mistakes and seek mentors who can guide you at the right time and be a sounding board.” - **Mridula Srinivasan**

“If you are so inclined, volunteer to take the lead on some project. Offering to do a job, and then doing it well, is being both a good colleague and a leader. Be dependable. I think I would also say to take advantage of leadership training opportunities if they become available.” - **Ann Pabst**