

Gender equity in ocean science

AMPLIFYING VOICES, INCREASING IMPACT



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada





Reshma Nilofer Naha: India's first woman river pilot; licensed in 2018.

Executive Summary

Women and those who identify as non-binary are underrepresented in ocean science globally, particularly in decision-making positions. To achieve sustainable ocean governance, increase innovation and discoveries, and ensure all the best people come to and stay in ocean science, gender equity is required.

This paper presents six recommendations to support gender equity in ocean science, developed through a literature review and 18 expert interviews with ocean leaders from 11 countries, representing ocean research, policy, and industry. The driver for this paper is Canada's commitment to gender equity as the Ocean Observation Champion of the Commonwealth Blue Charter. The recommendations may be applied beyond the Commonwealth, and interview participants that informed this paper are from Commonwealth and non-Commonwealth countries.

The key findings of this paper are:

- (1) many leaders are demonstrating best practices to increase opportunities for women and those who identify as non-binary in ocean science;
- (2) ocean science benefits from gender equity, and there are concrete steps that can make a difference; and,
- (3) for women and those who identify as non-binary to succeed in ocean science, requirements include building new or enhancing existing networks, supporting mentorship, and strengthening communities.

The recommendations of this paper are:

- (R1) ensure equity in decision-making;
- (R2) collect gender-disaggregated data (data separated by gender);
- (R3) create opportunities for mentorship and leadership for women and those who identify as non-binary;
- (R4) co-create ocean science management plans with women and those who identify as non-binary;
- (R5) facilitate capacity enhancement and exchange; and,
- (R6) support gender allies.

Following these recommendations will enable a more equitable future for those planning and doing ocean science, and for users of ocean science data.



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COVER IMAGE Cherisse Du Preez. Photo credit: DFO.

■ Introduction

The Commonwealth Blue Charter and Canada's Commitment to Increasing Gender Equity



CLEAR members Coco Coyle, Emily Wells, Melissa Novacefski, and Max Liboiron hold up three models of build-it-yourself surface water trawls during testing at Holyrood, Newfoundland, Canada. Photo credit: David Howells, MEOPAR.

In 2018, based on the shared values of the Commonwealth Charter (2013) and an understanding that the ocean is a shared resource, the Commonwealth developed the Commonwealth Blue Charter. It is an agreement between 54 Commonwealth countries to collaborate on solving ocean-related problems and on meeting sustainable ocean development goals. (Commonwealth Secretariat, 2018)

The Government of Canada is championing the Commonwealth Blue Charter's Ocean

Observation Action Group. Through this role, as well as through the Group of Seven (G7) and the United Nations (UN) Decade of Ocean Science, the Government of Canada is supporting its commitment to increasing gender equity.

***"Shared ocean,
shared values"***

- Commonwealth Blue Charter

BEST PRACTICES

Athena SWAN (Scientific Women's Academic Network)

The Athena SWAN Charter, started in the United Kingdom in 2005, **recognizes and encourages higher education institutions that work toward addressing gender inequities, including commitments to supporting career progressions.** Athena SWAN offers guiding principles that institutions use in conducting self-assessments and creating action plans. In the United Kingdom, gender equity is increasing more quickly at Athena SWAN member institutions than at non-member institutions (Xiao et al., 2020). At its most effective, it is implemented to: ensure policies and practices do not disadvantage any groups, and create changes in behaviours and attitudes (Graves et al., 2019).

Gender Equity in Ocean Science

Gender equity (*see Definitions*) in relation to ocean science includes understanding that there are inequities in society that may decrease certain genders' ability to participate in all aspects of ocean science and succeed. Gender equity is important to ocean science because it supports giving opportunities to all people to participate in ocean science. As articulated by Susan Lozier, physical oceanographer and Dean, College of Sciences, Georgia Institute of Technology, United States, "As a community, we are interested in keeping the brightest and best people in our field."

More broadly, scientific organizations with gender diverse teams, using carefully designed policy and dedicated leadership, can enhance innovation and discoveries (Nielsen et al., 2017).

The voices of women and those who identify as non-binary are also critical for sustainable ocean governance. For instance, women and those who identify as non-binary may play different roles from men in fisheries; without their voices, management plans may not consider all knowledge of and effects on marine ecosystems. (Gissi et al., 2018)

DEFINITIONS

Gender

Gender refers to the socially constructed roles, behaviours, expressions and identities of girls, women, boys, men, and gender diverse people. It influences how people perceive themselves and each other, how they act and interact, and the distribution of power and resources in society. Gender is usually conceptualized as a binary (girl/woman and boy/man) yet there is considerable diversity in how individuals and groups understand, experience, and express it. (Government of Canada)

Gender Equity

Gender equity is realizing that some genders already start from a place of disadvantage and reconciling that by providing them the extra assistance they need to ensure they can start at the same place as the dominant gender. Equity is putting programs in place to address the imbalances of benefits to certain genders. (Government of Canada)

Gender Parity

Gender parity is a "numerical concept," meaning that the men and women are equally represented, in this case, in ocean science. (UNESCO: *Glossary - Gender Parity, 2020*)

Gender Equality

Gender Equality means that people of all genders would experience the same advantages and disadvantages, be provided equal opportunities and treatment, and have equal outcomes. Gender equality is different from gender equity in that gender equality does not include providing extra assistance to people of genders that start from a place of disadvantage. (UNESCO: *Glossary - Gender Equality, 2020*)

Intersectionality

"Social identities such as race, class, gender, ability, geography, and age interact to form unique meanings and complex experiences within and between groups in society." (Hankivsky & Cormier, 2011)

Intersectionality encourages looking beyond the most clearly visible dimensions of inequality. It means recognizing there are multiple and intersecting disadvantages underlying the construction of inequities. Gender-Based Analysis Plus (GBA+) is a method the Government of Canada has developed that is used across all programs and policies to practice intersectional analysis.

This paper does not include an intersectional analysis. Below, however, is an example regarding the challenges that may be faced by people with multiple identity factors that emerged from the expert interviews.

“When you look at South Africa, in oceanography alone, the issues are so much more complex than gender because of the need for transformation and diversity and addressing the terrible racial inequalities arising from years of apartheid, and mixed in with this are the incredibly amazing cultural differences that we encounter everyday,” says Juliet

Hermes, Manager, Egagasini Node, South African Environmental Observation Network and Professor, University of Cape Town, South Africa. She explains that, in traditional South African cultures, a woman may be treated very differently from in mainstream culture such that she may not feel comfortable questioning older men in the workplace. In fact, in South Africa, black women students who are ‘high performers’ may feel they don’t belong in university culture and in their field of study (Liccardo & Bradbury, 2017).



Emily Wells and Max Liboiron collect the floating items from a surface water sample for laboratory analysis in Holyrood, Newfoundland, Canada. Photo credit: David Howells, MEOPAR.



Ocean Frontier Institute (OFI) researchers Felipe Kern Moreira, Melina Kourantidou, and Rachael Cadman arrive in Nain, Nunatsiavut, Labrador, Canada, to conduct focus group sessions with community members about their uses of marine resources and priorities for harvesting and management. Photo credit: Megan Bailey.

Canada acknowledges the knowledge gap in this paper regarding racialized and Indigenous women and those who identify as non-binary in ocean science, as well as other identity factors such as physical and mental disabilities, religion, age, ethnicity and geography. It is recommended that a follow-up paper be produced to investigate the representation of these groups in ocean science and determine what actions Canada, and other Commonwealth Countries, can take to support their participation.

BEST PRACTICES

The Government of Canada’s Gender-Based Analysis Plus (GBA+)

The Government of Canada has created and committed to implementing Gender-Based Analysis Plus (GBA+) which is a framework for analyzing how policies and programs may affect different intersecting identities, including gender. GBA+ is a policy tool that is required to be used by policymakers as an important lens when creating new legislation, new regulations or making any Parliamentary decisions (i.e., for funding), among others uses. The GBA+ framework and a training course are shared for public use, and mandatory training is often applied to key policy positions within departments.

A recent example of the Government of Canada prioritizing intersectional gender considerations and incorporating them into legislation is in the newly amended Fisheries Act, which states “when making a decision under this Act, the Minister may consider, among other things [...] the intersection of sex and gender with other identity issues.”

Goal, Methods and Scope

The goal of this paper is to provide recommendations for increasing gender equity in ongoing and new ocean science programs. It is part of Canada's commitments to promote gender equity (through the Commonwealth, G7, and UN Decade of Ocean Science).

Eighteen semi-structured hour-long expert interviews were conducted from March to June,

country perspectives are included in this paper to highlight various effective gender equity-related learnings and applications.

This paper considers ocean stakeholders vital to the ocean science community (i.e., those involved in the creation, dissemination and use of ocean knowledge). It is not a full treatment of gender equity – rather, it presents context



OFI researchers Melina Kourantidou, Filipe Kern Moreira, and Megan Bailey get a fire ready to cook the day's Arctic char catch in TikkoatokKak Bay, near Nain, Nunatsiavut, Labrador, Canada. Photo credit: Rachael Cadman.

2020. Experts were identified by the author, representatives of Fisheries and Oceans Canada (DFO), the lead reviewer (Wendy Watson-Wright), and by consulting sector experts. Interviewees hold or held roles in industry, management (observing networks and ocean resources), policy, and research (academic, conservation, observing networks). Interview participants are from 11 countries: Antigua and Barbuda, Canada, Denmark, Fiji, France, India, Samoa, South Africa, Sweden, the United Kingdom, and the United States of America. Commonwealth and non-Commonwealth

for the experiences of women and those who identify as non-binary in ocean science. This paper's content and its recommendations are drawn primarily from the expert interviews.

The recommendations presented in this paper are meant to be inclusive to anyone who identifies as a woman, which would include all gender expressions under that category and not just those that identify as women due to their sex assignment at birth. It is acknowledged that there is little data available on those who identify as non-binary, which is one of the paper's limitations.

BEST PRACTICES

Empowering Women for the United Nations Decade of Ocean Science for Sustainable Development

In 2019, the World Maritime University, with support from DFO, launched the Empowering Women for the Decade of Ocean Science graduate scholarship and postdoctoral fellowship program. They have recruited three people, all women, who are examining gender at national and international-level ocean organizations. The studies' aim is **to ascertain the state of gender equity at the start of the Decade of Ocean Science, to identify barriers for women to conducting ocean science and to participating in high-level science-based policymaking processes, and to recommend how to get better outcomes for the Decade of Ocean Science and for gender equality**. At ICES, which is being used as a case study, strategies to support gender equity will be implemented and tested as the study progresses.

State of Gender Equity in Ocean Science

Science, Technology, Engineering and Mathematics

The representation of women in ocean science follows the global trends in Science, Technology, Engineering and Mathematics (STEM) fields, largely indicated by the “leaky pipeline”: women’s representation decreases with increasingly senior roles (see Figure 7). (UNESCO Science Report, 2015)

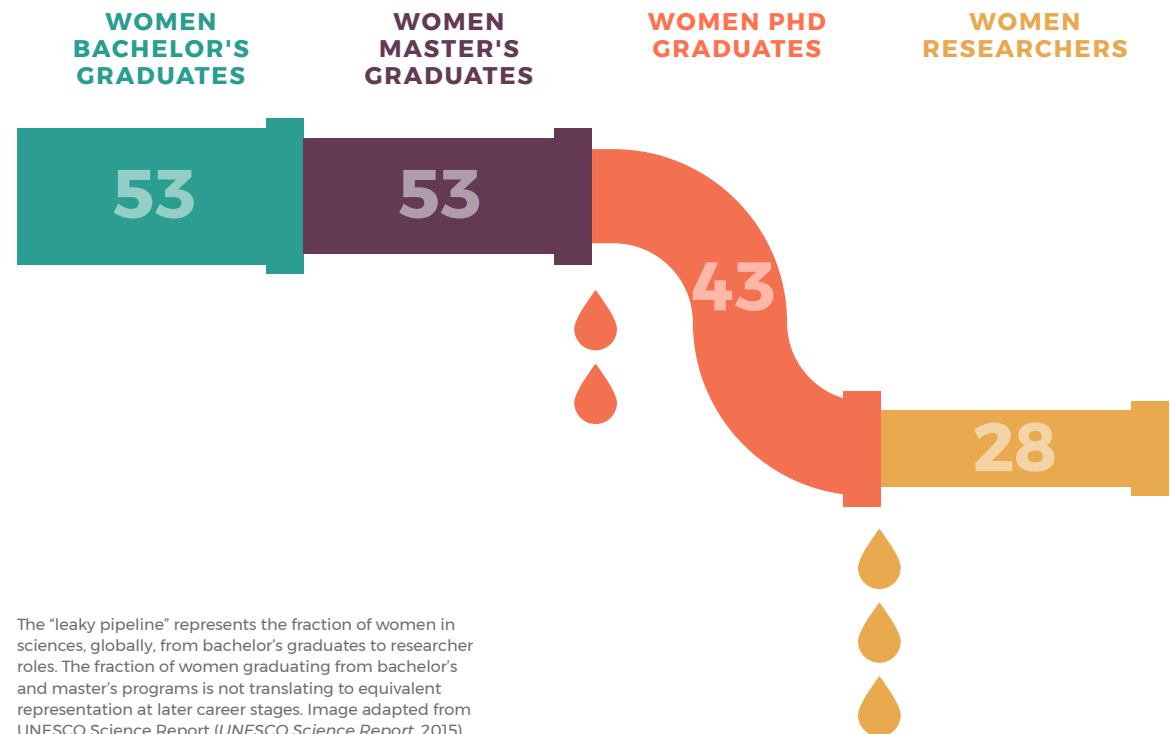
In the European Union, 22% of high education institutions were headed by women (2017) and women in research and development positions were paid on average 17% less than men (2014) (European Commission, 2019).

In the United States, bias, discrimination, and harassment are leading drivers of the underrepresentation of women in science. (National Academies of Sciences, Engineering, and Medicine, 2020).

Tiffany Straza, Deputy Editor, UNESCO Science Report, France, says: “We need to also ask how science careers, education, and implementation can respond to the different needs and identities of the people in the sciences and the people whom we need in the sciences.”

FIGURE 1

The Leaky Pipeline: Share of Women in Higher Education and Research, 2013 (%)



Ocean Science – Global

Based on the research undertaken for this report, it was found that there is a lack of gender-disaggregated data on ocean science. The Global Ocean Science Report (GOSR) found that women make up 38% of ocean scientists, which is 10% higher than science in general. Data for the GOSR was submitted

“Resources assessing and reviewing the national human capacities in ocean science are scarce.”

– Global Ocean Science Report (2017)

by 34 countries (23% of the United Nations’ Intergovernmental Oceanographic Commission’s membership). As a proxy for missing data on women ocean scientists, international ocean science conference attendance data showed that women make up 25% to 66% of scientific expert attendees. (IOC-UNESCO, 2017)

Canada’s submission to the GOSR provided information from DFO only; it is lacking contributions from industry, NGOs, other government agencies, and academic institutions.¹



This deficiency in gender-disaggregated data is also reflected in the work produced by ocean scientists. OceanObs’19 is an international conference held every 10 years to communicate progress in ocean observation and to plan to address society’s need for ocean information over the subsequent decade. Of the 135 white papers submitted to OceanObs’19, none focused on gender equity and only a handful mentioned it. For example, in a paper examining ocean data access for Pacific Islands, training was provided to 213 people, 19% of whom were women (Powers et al., 2019).

A global literature review of fisheries found that women’s roles in fisheries are becoming more widely recognized, though their contributions have not translated into a representative presence in fisheries decision-making positions (Alonso-Población & Siar, 2018). (See Case Study: *Too Big To Ignore*, pg 16)



Photo credit: DFO.

Women oceanographers in the United States are underrepresented in first authorships of peer-reviewed papers, as speakers at specialized conferences, and in honours awarded by societies.

Orcutt & Cetinic, 2014

¹ The data gap remains in Canada’s submission to the updated, 2020, Global Ocean Science Report (personal communication)

Ocean Science – Canada

Similar to the findings of the UNESCO Science Report (2015), gender data for select Canadian ocean science organizations and networks follow the “leaky pipeline,” where women in ocean science are underrepresented in senior positions (see Figure 2). When compared to global gender data, initial findings indicate that the leak in Canada’s ocean science pipeline begins at the postdoctoral stage.

These findings are preliminary. Data on the representation of women and those who identify as non-binary is currently limited for Canada. The only national study of Canada’s human capacity in ocean science found the available data was not sufficiently disaggregated to allow for a gender analysis (Council of Canadian Academies, 2013).



Ocean Frontier Institute (OFI) researcher Megan Bailey catches her first Arctic char in TikkoatokKak Bay, Nunatsiavut, Labrador, Canada. Photo credit: Rachael Cadman.

FIGURE 2

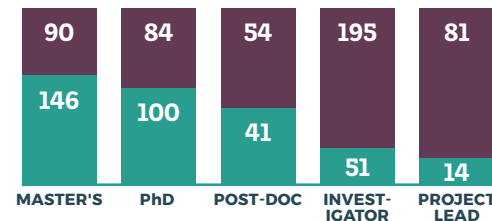
Representation of Women and Those who Identify as Non-Binary in Ocean Science in Canada

ARCTICNET



Women investigators had fewer research collaborators and were less well integrated into the network.

(Natcher et al., 2020)



CANADIAN OCEAN LITERACY COALITION (COLC)



OCEAN NETWORKS CANADA (ONC)

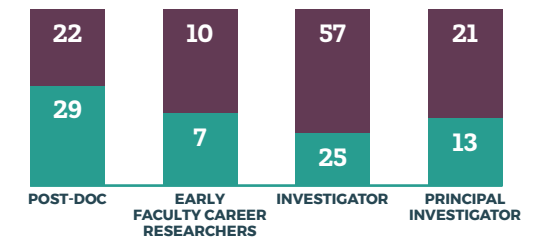


OCEAN RESEARCH IN CANADA ALLIANCE (ORCA)

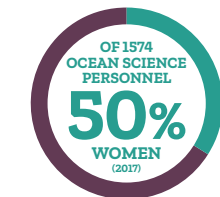


ORCA members self-identify as part of Canada’s ocean science and technology community, and come from multiple sectors.

MARINE ENVIRONMENTAL OBSERVATION, PREDICTION AND RESPONSE NETWORK (MEOPAR)



DFO CANADA



■ Women ■ Men ■ "Another gender identity"

Examples of Gender-Related Barriers in Ocean Science

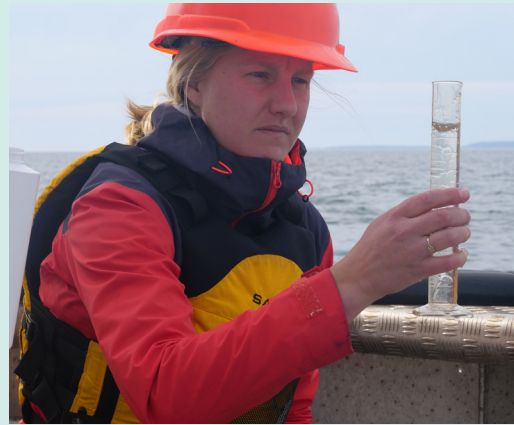
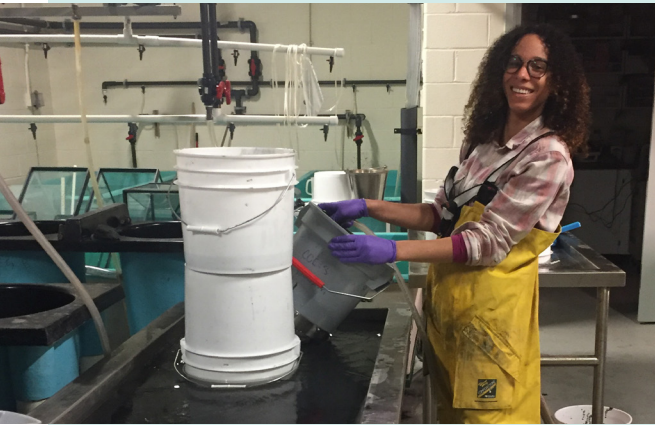


Photo credit: DFO.

Unconscious Bias

Unconscious bias involves the assumptions people make about others, including automatic quick judgements that may occur on meeting a person. Unconscious bias may be based on factors such as gender, race, age, etc., and can impact the opportunities of women and those who identify as non-binary to participate and succeed in ocean science.

A study of unconscious bias in science found that male and female researchers rate male applicants for lab manager positions as more competent than the same female (name change only), assigning higher starting salaries and offering more mentoring opportunities to male applicants (Moss-Racusin et al., 2012). In the biological sciences, a study found that elite male faculty² employ fewer female

graduate students and postdoctoral fellows (Sheltzer & Smith, 2014).

Juliet Hermes describes an instance of unconscious bias in her career when chairing a meeting as the only woman. Before the meeting began, her colleague connected with the international group over rugby. After the meeting, Hermes described to her colleague how his easy connection with the other men took the power away from her as the chair. She reports that he said, "It never occurred to me. I should just not have spoken about anything like that, because you're right, they identified with me then, and not with you at all."

² As defined in the paper, "elite male faculty" are "those whose research was funded by the Howard Hughes Medical Institute, who had been elected to the National Academy of Sciences, or who had won a major career award." (Sheltzer & Smith, 2014)

BEST PRACTICES

Canada Research Chairs Program (CRC)

The Canada Research Chairs Program (CRC) invests up to \$396 million (CAD) annually to attract excellent research talent to Canada.

FUNDS
2285
CHAIRS
ACROSS 76
CANADIAN
INSTITUTIONS

Tier 1 Chairs

OUTSTANDING
RESEARCHERS

receive

200k*

annually for **7** years

*in CAD, each renewable once.

Tier 2 Chairs

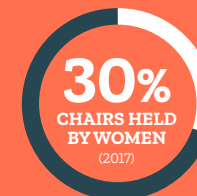
EXCEPTIONAL
EMERGING RESEARCHERS

receive

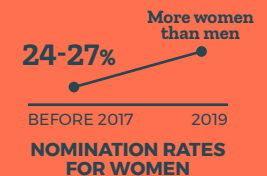
100k*

annually for **5** years

Equity, Diversity and Inclusion Action Plan



- Launched in 2017
- Three nomination cycles later **women hold 34%** (June, 2019)



(Government of Canada, 2020)

The diverse pools of nominees have the same success rate (about 98%), with no change to peer-review standards: the diverse nominees are excellent researchers.

CRC works collaboratively with institutions to help them reach their targets, involving institutions analyzing their environments - identifying chairholders, chair experiences, and systemic barriers - and creating an externally peer-reviewed action plan.

(Government of Canada, 2018a)

Work At Sea

As on land, women are underrepresented in leadership roles at sea, in shipping (see *Figure 3*), as well as ocean science. Women were Principal Investigators on 23% of oceanographic cruises on global-class research vessels (of which there are five

“When I started there were cruises where I was the only woman. For cruises from NOC over the last few years we have seen a change, where on average ~36%, and for a few expeditions, more than 50%, of scientists were women, and we have a completely different atmosphere. I think we have come a long way, and I think the cruises are better for it.”

– Angela Hatton,
Director, NOC, U.K.

in the United States) from 2010 to 2016 (Lehman, 2018). Of note is an improvement over time: a survey of American and international programs found that from 2003 to 2013, the fraction of women Principal Investigators doubled from about 10% to 20% on University-National Oceanographic Laboratory System vessels (of which there are 20), and from 15% to 30% on the German research icebreaker

Polarstern. However, the representation remained flat at 12% on international drilling vessels. (Orcutt & Cetinic, 2014)

“Today, women represent only two percent of the world's 1.2 million seafarers.”

(Women in Maritime, 2020)

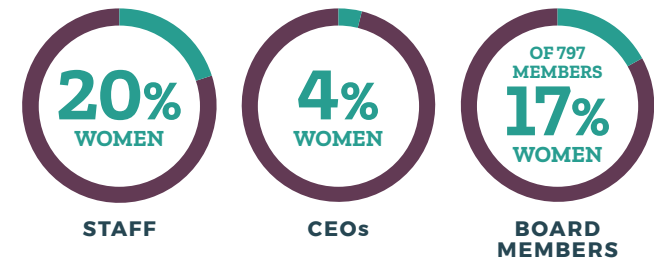
The Canadian Hydrographic Service is supporting gender equity in working conditions at sea, where there may be small vessels without washrooms, concerns for efficient same-sex cabin sharing on larger vessels, etc. (see *Profile: Geneviève Béchard, pg 17*). Megan Bailey, Assistant Professor, Canada Research Chair, Dalhousie University, Canada, mentions personal hygiene challenges for women when on vessels without washrooms.

The Canadian Coast Guard is implementing initiatives to ensure the physical work environment is not a barrier to equal participation. For example, in designing new classes of vessels for its fleet, it is ensuring the height of the bridge dashboard does not inhibit sightlines for shorter personnel, and that levers can be operated easily by shorter personnel or those with lower body weight and strength. (Government of Canada, 2018b)

FIGURE 3

Representation of Women in Shipping in India

A survey of 205 Indian shipping companies found that:



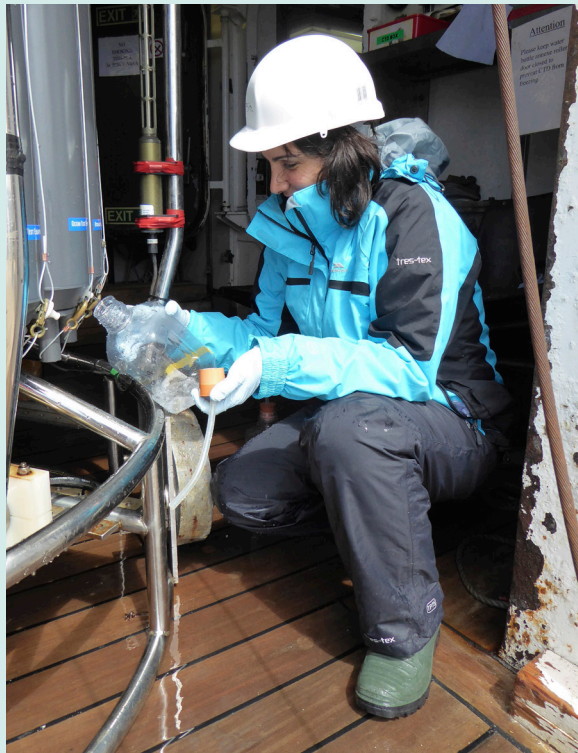
A regulatory requirement to have a woman on each board may be resulting in companies appointing family members or non-active members to their boards. (Gupta, 2019)

■ Women ■ Men

Care Responsibilities

Women, globally, spend two to ten times more time on unpaid care work than men. This impacts women's ability to participate in the labour market and the "type/quality of employment opportunities available to them." (Ferrant et al., 2014)

Care responsibilities can limit women and those who identify as non-binary's opportunities to participate in field work or ship board work. For instance, Susan Lozier didn't go to sea for 12 years when her children were young, and Angela Hatton switched to lab-based experiments



Scientist collecting subsurface water samples from CTD (conductivity, temperature, depth) niskin bottles, on RRS James Clark Ross in the Labrador Sea, North Atlantic Ocean. Photo credit: Penny Holliday.

and strategic work when she had her children. Hatton says she didn't stop contributing, rather, she changed how she contributed.

In the Samoan culture, where women are seen as the major caregivers in families, Patila Amosa, Dean, Faculty of Science, National University of Samoa, Samoa, noted the personal sacrifice of leaving her husband and children to take an international scholarship (which didn't provide support for her family to join her) for graduate school in New Zealand. Anne Christine Brusendorff, General Secretary, International Council for the Exploration of the Sea (ICES), Denmark, likewise says of an experience in her career, "I was pregnant, expecting my third child. I went to the interviews and I still remember all the men asking, how are you going to deal with this, because you will just have delivered your third child, so it's not possible for you to work. And there was a woman in the recruitment panel and she said, "you are not allowed to ask these questions." And then I got the position."

Several interviewees noted that care duties have affected their ability to publish and to attend conferences, which are often used as markers of successful researchers. Similarly, family leave as a professor can be challenging. Megan Bailey noted that while on family leave, she still administers her lab to keep it running. She also noted that because faculty are not replaced while on leave, her courses are either not taught or are taught by other faculty members, which adds to their workload.

BEST PRACTICES

Mentoring Physical Oceanography Women to Increase Retention (MPOWIR)

Since 2008, Mentoring Physical Oceanography Women to Increase Retention (MPOWIR) has been providing mentorship for Ph.D. to early career researcher women in physical oceanography in the United States. As of 2018, 173 women had participated in the program, which primarily involves virtual group mentorship, MPOWIR's Pattullo conference, and professional development opportunities. A survey of participants found the program had a large impact on their careers, most importantly by **expanding professional networks and supporting professional development**. Of note is that the mentors surveyed also reported professional and personal growth attributed to being a part of MPOWIR. (Mouw et al., 2018)

SIDS - Small Island Developing States

The Intergovernmental Panel on Climate Change report on ocean and cryosphere (2019) finds that communities closely connected to coastal environments, including SIDS, are particularly exposed to ocean change, such as sea level rise and extreme sea levels. Interview participants discuss the importance and capacity-related challenges of ocean science practice and education in SIDS.

surrounded by a natural ocean laboratory, yet lack the resources to develop the human capacity to fully study it. Gender is an issue in these countries, but before there can be a focus on gender, these interview participants say their countries have capacity development needs.

Given the opportunity to participate in post-secondary education, and ocean science



Women from Koro Island, Fiji, fishing in the lagoon for food for their families. Photo credit: Wildlife Conservation Society.

Tricia Lovell, Senior Fisheries Officer, Antigua and Barbuda, says in the Caribbean there is a need to expand tertiary education (she reports that islands that have university campuses have higher tertiary education enrollment rates) and expose youth to career possibilities in ocean science. In Samoa, Patila Amosa says they are

in particular, women are taking it (see *Figure 4*). At the Seychelles University, the environmental science degree (the only degree related to marine science), has higher enrollment by women. Tricia Lovell notes that in the Caribbean, it is men who are underrepresented in tertiary education.

FIGURE 4

Representation of Women at SIDS Universities

FIJI



Of over 31,000 students attending Fiji's three universities in 2014.

(Asian Development Bank, 2016)

UNIVERSITY OF THE WEST INDIES



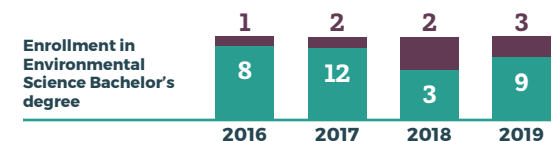
Of over 48,000 students across the 2014/15 to 2018/19 school years.

(The University of the West Indies, 2020)

UNIVERSITY OF SAMOA

In 2018, The University of Samoa launched a Bachelor's in Marine Science: Patila Amosa reports that more women than men are enrolling.

SEYCHELLES UNIVERSITY



In 2019, Seychelles University launched a Master's in Environmental Science program: only women (5) enrolled.

Note that this figure presents only select data from SIDS, and that data on those who identify as non-binary were not available to the best of the author's knowledge.

■ Women ■ Men

Successes



Scientists relaxing on deck after completing deep-sea moorings operations for the OSNAP (Overturning in the Subpolar North Atlantic Program) project, on *RRS Discovery* in the Irminger Sea, North Atlantic Ocean. Photo credit: Amanda Kowalski, Woods Hole Oceanographic Institution.

Eighteen expert interviews were conducted to inform this paper. These ocean science leaders represent many identities, roles and cultures. Here, some of their successes are presented, with a focus on actions they took to increase gender equity that may be implemented by others.

The contributions of all 18 interviewees to ocean science and gender equity are fundamental to the recommendations of this report. Five of these leaders are profiled. Their professional successes and contributions to increasing gender equity are highlighted. One case study is presented, showing how a global small-scale fisheries research

network has brought gender to centre stage in its work (see pg 16).

There are also quotes and examples. Susan Lozier ensured she had the support of the United States' physical oceanography community to fund and run a mentoring program for early career women. Anne Christine Brusendorff used her voice to include gender equity considerations in strategic organizational planning. Max Liboiron uses equity as a guiding principle for her lab's work, growing the definition of ocean science and changing who participates in science. (See pg 15.)

In her profile, Geneviève Bécard discusses giving women a safe space

BEST PRACTICES

Women's International Shipping & Trading Association (WISTA)

A global network of women in the shipping industry, with more than 50 national chapters, the Women's International Shipping & Trading Association's (WISTA's) activities include **scholarships to increase the professional development and educational opportunities for women, a gender diversity in shipping handbook** (Anglo-Eastern et al., 2017), and **an active networking community**.

“When I have these seeds of doubt, [WISTA members] send me these amazing encouraging messages and really pull me up.”

– Sanjam Gupta, Founder of WISTA, India

to talk about how their professional experiences could be made more equitable, including at sea (see pg 17). Cleopatra Doumbia-Henry discusses role models and supporters, and scholarships for women to study in ocean science (see pg 18). Sanjam Sahi Gupta talks about the power of gender disaggregated data to influence policy decisions and support women's leadership in shipping (see pg 19). Angela Hatton shares her concrete actions that support considering the fluidity of gender and ensuring opportunities for everyone (see pg 20). And Sangeeta Mangubhai shares how to include gender-disaggregated data collection in research programs and build a supportive community of women (see pg 21).



CLEAR members Max Liboiron, Jessica Melvin, and Melissa Novacefski gather cod samples at Petty Harbour, Newfoundland, Canada, during the recreational food fishery. Photo credit: Bojan Fürst.

Professor Max Liboiron's Civic Laboratory for Environmental Action Research (CLEAR), Memorial University of Newfoundland, Canada, studies ocean plastics from marine animal digestive tracts, beach surveys, surface water, benthic sediment, ice and snow. They co-create surveys with communities by having community participants develop the research questions. Research assistants from the community, who are employed and trained by CLEAR, take measurements in their own "backyard". Liboiron says "CLEAR changes what science looks like by including forms of knowledge and scientific labour that are usually left out." Equity is at the heart of CLEAR: laboratory equipment, knowledge, and employment opportunities are permanently held locally, with the communities. **Since 2015, 76% of CLEAR members have identified themselves as women, trans, non-binary, and/or two-spirit. CLEAR's work results in greater opportunities for participation in ocean research.**

"Diversity is an important issue for us, but also this was debatable in the board that we had. All the men said, "why do we need that, we already work this way." I then said to that, "if we already do it, it's great, so there's no harm in writing it down as well."

– Anne Christine Brusendorff,
General Secretary, ICES, Denmark,
on including diversity and gender
equity in ICES' 2019 strategic plan

"The lack of retention of women in our field [physical oceanography] is not a women's issue; it's a community issue, and so I involved men in our community from the start. And something that's made me incredibly proud throughout the years is that the men have accepted the invitations to be part of the conferences, workshops, etc., at the same rate that women have. I've really appreciated that the community as a whole, not just the women in the community, has really understood the need for this type of program. And the proposals were always peer-reviewed, so that meant that people in the physical oceanography community, men and women, were looking at these proposals and evaluating them and concluding that MPOWIR was worth spending money on."

– Susan Lozier, MPOWIR's Founder and Dean, College of Sciences,
Georgia Institute of Technology, United States

■ CASE STUDY

Too Big To Ignore

Ratana Chuenpagdee, Director



Women selling fish in Chennai, India. Photo credit: TBTI.



Small-scale, family fishing as a livelihood strategy in Thailand. Photo credit: TBTI.



Training participants in a short course on transdisciplinarity in fisheries (2018 Chiang Mai, Thailand). Photo credit: TBTI.

Mobilizing women's expertise and knowledge to enhance ocean and fisheries science

Too Big To Ignore (TBTI) is a global network of researchers and knowledge mobilizers that **work with communities to support the viability and sustainability of small-scale fisheries and with international organizations to ensure these fisheries are considered in policies and regulations.** Of about 600 members, 45% are women.

TBTI holds a conference every four years, inviting researchers, practitioners, policy makers as well as fishing people from small-scale fishing communities around the world. Ratana Chuenpagdee, Director of TBTI and professor at Memorial University of Newfoundland, Canada, says, "The conference is quite balanced when it comes to gender, and generationally. It's not just a scholarly conference in the traditional sense. It has a lot of real people there, and a lot of real people are women."

TBTI considers gender throughout their work, for instance, gender roles in fisheries. Going beyond defining

fisheries as catching the fish, TBTI includes preparing fishing gear, processing the catch, and marketing the catch, which is work typically done by women. Chuenpagdee explains that TBTI research takes into consideration cultural contexts, for example, where a woman researcher may have better access to women in fishing communities, to interact and collect data from them.

In 2014, TBTI formed a Women & Gender in Fisheries research cluster to bring gender to the forefront of their work. The Gender cluster, among other initiatives, has produced two special issues on gender for MAST, the Maritime Studies journal (Frangoudes & Gerrard, 2018; Frangoudes et al., 2019), which have contributed to bringing together the knowledge on gender topics in small-scale fisheries, elevating and advancing that knowledge, and supporting gender considerations in TBTI's work as it moves forward.

"Opportunities that we give to women, especially early career female scientists, to take leadership roles, to participate in our activities, to contribute to research, it's a very important impact. Raising attention on gender at a policy and governance level is also an important TBTI mandate."

– Ratana Chuenpagdee

■ PROFILE

Geneviève Béchard

HYDROGRAPHER GENERAL OF CANADA AND DIRECTOR GENERAL,
CANADIAN HYDROGRAPHIC SERVICE, CANADA

Geneviève Béchard leads the Canadian Hydrographic Service (CHS), which supports the blue economy and shipping industry by providing charts, bathymetric maps, water level data and more. She is one of 11 women to head a national hydrographic service of the 93 member countries of the International Hydrographic Organization. Trained as a microbiologist, she spent two decades taking on various science management positions in Canada's federal government before joining CHS in her current position in 2018.

After two competitions at CHS for leadership positions where no women qualified as candidates and few applied, Béchard created a women's network across CHS to develop gender equity recommendations to be implemented at CHS (presented in 2020). Béchard says, "When we're talking about gender issues, the whole organization has to work on it. You don't want to create silos, but what I did was create it so that the recommendations could be formulated by the women in a safe place." She is also looking to **make at-sea practices more gender-neutral**, for example, finding ways to make women more comfortable on small bathroom-less launches; and ensuring pairing of a coast guard and CHS woman is a recognized practice on large coast guard ships so that bunking does not limit women's participation.

Béchard wants CHS to have a **culture where women feel they want to apply for leadership positions, and, to "make sure through their career progression we actually provide them with the skill sets that they need to be able to compete."**

Support women's leadership by giving them the opportunities to develop the required skill sets

"We want you [women] to apply, because you have to be a part of that change."

"What I really want to get to is a place where everything is gender-neutral: it doesn't matter what your gender is, you've got a positive space to express whatever you want, and that doesn't hold you back."

"[Having kids] actually enriches [people's careers] because I think you develop other skills as a parent."

■ PROFILE

Cleopatra Doumbia-Henry

PRESIDENT, WORLD MARITIME UNIVERSITY, SWEDEN

Supporting women role models and mentors, and providing scholarships, particularly to women from the developing world

Cleopatra (Cleo) Doumbia-Henry, is the President of the World Maritime University (WMU), Sweden, a global centre of excellence in maritime and ocean education as recognized by the United Nations. She has spent her career working in the field of labour law and on maritime and shipping, notably at the International Labour Organization, where her work led in 2006 to the adoption of the Maritime Labour Convention, an international law instrument that helps to protect women seafarers.

Growing up on the Caribbean island of Dominica, Cleo received multiple international scholarships that made

her post-graduate education possible, and now, with her team at the WMU, since 2015 has increased the WMU's fraction of women students from 10% to 35%. She notes, however, that it is a yearly challenge to get **donors to provide funding specifically for women**, and Cleo says, particularly for women coming from the developing world, "For many women, to come, they need fellowships."

Cleo attributes her success to the people who supported her, in particular, "My father inspired me as an individual and a father, and always said, 'Yes you can.' That has governed my life: Yes, I can. And you will have obstacles; you overcome them and you move on."

"So many more doors have opened in recent years for all of us women. The question is: are we ready to take on the challenge?"

"Let's get these role models! It is possible."

"I work harder than anybody else because I have to lead by example."

"What I want to do is to give back as much as I can for what I can never pay back."

■ PROFILE

Sanjam Sahi Gupta

DIRECTOR / BOARD OF GOVERNORS,
SITARA SHIPPING LTD., INDIA

Sanjam Sahi Gupta has been working since 2001 within the shipping business her parents started, and now is a director of Sitara Shipping Ltd. Gupta has specialized the company in oversized cargo – she says, “If it’s something very difficult to move, we can move it for you.” – keeping Sitara competitive in an evolving industry.

Being a woman has made it challenging to be accepted as a leader in her field: “Poor man, they used to tell my father, you have no son to carry on the business. My father very proudly would tell everybody, my two daughters are equivalent to eleven sons.” When Gupta started out, she and her sister would be the only women at meetings: “The speaker would just address the gathering as, “Hello, gentlemen.””

Getting women onto ships and into shipping, and supporting them to lead

“That’s my goal, to push for that: We need more women leaders.”

“There’s been so much I’ve been able to do because there have been so many supportive women in my life; because there have been amazing mentors, men included.”

“It’s important to let people dream. The world is their oyster.”

In 2018, Gupta, **initiated the creation of a diversity handbook** (Anglo-Eastern et al., 2017) **with WISTA** (see *Best Practice: Women’s International Shipping & Trading Association*, pg 14), **illustrating through images depicting body language and situations, behaviours that are acceptable, or not, onboard ships with women seafarers**. Also in 2018, Gupta led a baseline survey of Indian shipping

companies and women seafarers (see figure 3). She has found, “when you have statistics, people take you seriously.”

The survey found that many women felt they didn’t have the proper training to enter leadership positions, so Gupta designed a **leadership accelerator program that will include lectures, experiential activities and exercises, case studies and field projects**.

■ PROFILE

Angela Hatton

DIRECTOR, SCIENCE & TECHNOLOGY, NATIONAL OCEANOGRAPHY CENTRE, UNITED KINGDOM



Being a role model by being yourself, and developing organizational processes that give people an equal chance to shine

Angela Hatton is a microbial biogeochemical oceanographer; the Director of Science and Technology at the National Oceanography Centre (NOC), United Kingdom; and until 2019, the Chair of the Science Committee for the Natural Environment Research Council (NERC), the UK's largest environmental science funding agency.

Through her participation in a range of committees, she has worked to change the recruitment process for committee members, moving from member nominations to an open call. She also advocates **encouraging people to ask those around them to apply (women tend to apply only when they meet 100% of job qualifications, men apply when they meet 60%** (Ignatova, 2019; Mohr, 2014), **and to advise women that they need to seize opportunities to effect change** (The Royal Society of Edinburgh, 2012)). When they introduced this to recruitment for the NERC Science Committee they immediately received more women applicants than men. "We just picked the best candidates and suddenly we had a much better balance in the committee."

At NOC, Hatton has supported changes in practices, such as **holding key meetings during core work hours and lunchtime events for important visitors; that way staff who may have outside responsibilities have an equal opportunity to participate**. The Athena SWAN (see box *Athena SWAN*, pg 3) team at NOC is a diverse group, which is critical to having multiple perspectives, because, Hatton says, "We have to think about the fluidity of gender and sexuality, and bias in all its forms, It's not about prejudice against one group. It's about equality for all."

"We've got lots of brilliant people and I want all of them to have an equal chance to shine."

"By being me, I hope I've made a whole bunch of people think, "well actually, if she can do it, I can do it.""

"Be proud of your strengths."

"Childcare is not just a gender issue: childcare is a parent issue."

■ PROFILE

Sangeeta Mangubhai

DIRECTOR, WILDLIFE CONSERVATION SOCIETY, FIJI

Sangeeta Mangubhai is the director of Wildlife Conservation Society (WCS), Fiji, which supports local communities to develop ecosystem-based management plans to help conserve Fiji's ecoscapes. Mangubhai, who received her Ph.D. in 2007 and is an expert in coral reef ecology, has a particular interest in supporting women fishers. Among other gender-related initiatives, she and her team have helped women to develop management plans for their fisheries that have been recognized by their larger communities

About 10 years ago, Mangubhai and a group of other women leaders in conservation organizations realized **they had a combined strength in collaboration, and committed to helping**

Building an informal "Conservation Divas" network, and collecting gender-disaggregated data

"Gender is not about women, and gender is not a stand-alone topic."

"If we can have a larger shift around men, women's lives are going to improve massively."

"[Gender] should be addressed in everything that we do, in every sector, and decisions that we make."

each other: "We formed a fun, conservation diva group". At international coral reef symposiums, they plan a Conservation Diva Night, and at each get-together they "invite more fabulous female friends to celebrate the contributions that women make to science and conservation".

Mangubhai includes gender in WCS's work whenever she can: "A donor came on board that was

interested in women's livelihoods and so we used that as a small stepping stone to start developing a gender in fisheries program. We started off very small, and then systematically tried to incorporate it. For example, the sea cucumber fishery, we **made sure that our data was collected in a way that allowed us to sex-disaggregate it so that we could analyze it through a gender lens.**"

■ Recommendations

Six recommendations have emerged from this paper to increase gender equity in ocean science. The recommendations are based on the experiences and knowledge of the interviewed experts.

R1. Ensure equity is considered in decision-making

In order to welcome and retain women and those who identify as non-binary in the field of ocean science, systematize the consideration of gender in program development; include women, those who identify as non-binary, and gender experts in program planning and recruitment/hiring processes; consider parity requirements when handing out awards, funds, scholarships, and other opportunities. All countries should prioritize gender equity with the goal to empower women and those who identify as non-binary in ocean science.

“No matter if you have women as part of your team or not, you should have practices that take women into account.”

– Megan Bailey, Assistant Professor,
Canada Research Chair,
Dalhousie University, Canada

R2. Collect gender-disaggregated data

To assess the state of the capacity in ocean science, conduct a cross-sectoral study of gender-disaggregated ocean science contributions. These could be conducted at the national or organizational (e.g., the Commonwealth) levels. Create a collaborative process to develop specific, measurable goals for increasing gender equity at the national level, which considers needs and cultures. Collect social ocean data (Case Study: TBTI, and Profile: Sangeeta Mangubhai), which would provide a better understanding of the people who use the ocean.

“In order to make a very good evaluation as to how we can get more women attracted to the field of ocean science, we first need to do a mapping and analysis of ocean science.”

– Cleopatra Doumbia-Henry,
President, World Maritime
University, Sweden



Hannah Stewart conducting a kelp survey in Gwaii Haanas, Gwaii Haanas National Park Reserve, British Columbia, Canada, 2018. Photo credit: DFO.



Stephanie Archer with ROPOS and hydrophones.
Photo credit: Anya Dunham, DFO, 2018.

R3. Create opportunities for mentorship and leadership for women and those who identify as non-binary

Mentorship:

Develop and run mentorship programs based on best practices, including professional development and networking opportunities. Mentorship programs can create communities for women, those who identify as non-binary, and allies that increase the retention of underrepresented groups in ocean science.

“Don’t just focus on the women, focus on the men as well. Make sure they go through their academic profession having great women role models, because men need great women role models as much as women do.”

– Juliet Hermes, Manager, Egagasini Node, South African Environmental Observation Network Professor, and Professor, University of Cape Town, South Africa

Leadership:

Provide career progression support for women and those who identify as non-binary, including training and development opportunities, that evolve with them throughout their careers, and provide the skill sets they need to assume leadership positions (see *Profile: Geneviève Béchard*). Support and accommodate individuals’ and families’ care responsibilities, for instance, by providing a stipend for care to allow more opportunities for individuals to attend in-person meetings/conferences (important for networking, making a person’s work known, and advancing careers). (see *Profile: Angela Hatton*)

“We need to make sure that women know what skill sets they need [to take on leadership roles] and that we provide them with those opportunities. We should be doing that for all of our staff, including the women.”

– Geneviève Béchard, Hydrographer General of Canada and Director General, Canadian Hydrographic Service, Canada

R4. Co-create ocean science management plans with women and those who identify as non-binary

The ocean observation community recognizes the importance of “delivering ocean information for societal benefit” (Lindstrom et al., 2012). Support a better understanding of the unique knowledge and roles of women and those who identify as non-binary in sustainable ocean management, and ensure they are included from the beginning in planning ocean science programs. Consider how current programming can be re-evaluated and updated to reflect gender objectives. For example, include gender equity and social observing (the human component) in the next version of the Framework for Ocean Observing (Lindstrom et al., 2012), which provides effective practices for setting observing requirements, coordinating observing networks, and for providing long-term ocean information to users.

“PICES considers gender balance in its award recipients, board of directors, conference presenters, and scientific leadership.”

– Robin Brown, past Executive Secretary, North Pacific Marine Science Organization (PICES), Manager, DFO (retired), Canada

“What is it they need to know? Align those questions about their needs with solutions. Engage them in defining the questions.”

– Brad deYoung, Professor, Memorial University of Newfoundland, Canada

“The more women who are present, the more women’s voices are present.”

– Megan Bailey, Assistant Professor, Canada Research Chair, Dalhousie University, Canada

R5. Facilitate capacity enhancement and exchange

Facilitate youth access and exposure to the ocean, to ocean education and to ocean careers, with a local focus. Co-develop research questions with communities; hire and train community members to collect and analyze data; and, keep instruments in communities. Make scholarships available to students in developing states, some specifically for women and those who identify as non-binary, to study all aspects of the ocean. Develop partnerships and collaborate across organizations and between countries, to better share knowledge and expertise.

“One of the outcomes that we need to see for the decade of ocean science is more women ocean scientists.”

– Cleopatra Doumbia-Henry, President, World Maritime University, Sweden

R6. Support gender allies

Create gender knowledge programs targeting men, who are the central allies for gender equity. Support men advocates for gender equity through education and training initiatives, ensure allies are present on all committees, and create a welcoming environment for gender allies. Recognize that women and those who identify as non-binary also need to be allies for gender equity.

“Women need men to be their allies, so women aren’t the only ones advocating for other women to go on cruises or to be speakers at meetings or be chairs of departments.”

– Susan Lozier, Dean, College of Sciences, Georgia Institute of Technology, United States

Create and deliver mandatory gender sensitivity training, which includes examples of the benefits of gender equity to ocean science. Enabling basic awareness and knowledge of the ethics and principles of gender equity by all ocean science community members, particularly leaders, is critical to making gender considerations ubiquitous in ocean science.

“We can’t spend our time fighting the gender equity battle, because it puts us behind in an academic setting, in terms of publishing, etc.”

– Megan Bailey, Assistant Professor, Canada Research Chair, Dalhousie University, Canada

“We need to be making the ships ready to receive the women.”

– Sanjam Gupta, Director, Sitara Shipping Ltd, India



Photo credit: DFO.

■ Moving Forward Together

Initial Actions

Building from the recommendations presented above, the paper outlines initial actions that can be taken to increase gender equity.

- 1. Create a gender-focused committee** with representation of racialized and Indigenous women that would ensure a coordinated gender approach for the Commonwealth Blue Charter, to make gender inequity more visible, and to ensure gender is considered in all facets of Blue Charter activities.
- 2. Undertake a baseline study of the ocean science contributions of women and those who identify as non-binary across the Commonwealth.** Work with data bodies, such as the World Intellectual Property Organization, to analyze and track these contributions to ocean innovation.
- 3. Develop and champion a gender equity category through IOC-UNESCO's Ocean Best Practices.** Share ocean best practices for gender equity with the ocean science community to build awareness, share ideas, and build a global "gender" community.
- 4. At the 2022 ICES/PICES early career researcher conference, implement gender equity best practices for scientific conferences,** including: establish a gender committee in support of conference planning; develop and publish a conference code of conduct (Favaro et al., 2016); create a parallel networking and mentorship program for women and those who identify as non-binary; ensure gender



Jessica Nephin and Lily Burke with an ROV to explore the Pacific Glass Sponge Reefs, Northeast Pacific Ocean, 2018. Photo credit: DFO.

parity in keynote and invited speakers, in part by including women and those who identify as non-binary as session convenors (Casadevall & Handelsman, 2014); provide childcare; and, deliver a panel discussion on gender equity and diversity in ocean science. These measures will help ensure that best practices become the norm at ocean science events moving forward.

- 5. Develop a research paper that employs intersectional analysis** to examine the barriers to greater participation in ocean science by underrepresented groups.



Photo credit: DFO.

Many initiatives around the world support gender equity in ocean science. This paper and its recommendations may be used to strengthen that work and build on it. For example, UN World Oceans Day, 2019, was themed "Gender and the Ocean," and brought attention to the missing voices of women in decision-making around ocean management and reaching ocean sustainability. Also, the IOC's Initiative for Women Marine Scientists, which promotes women marine scientists, in particular by sharing role models' stories.

Closing Statement

Canada, as the Ocean Observation Champion of the Commonwealth Blue Charter, and the author would like to acknowledge the strength, perseverance, and passion of the people interviewed for this paper. The ocean science community has benefited from their perseverance in the face of the inequities present in ocean science. By the sharing of their experiences and knowledge, a more equitable course can be charted for ocean science.

The leaders interviewed for this report consistently credited the support they received throughout their careers from their families, communities, mentors and colleagues for their success. By continually fostering more equitable support systems through networks and mentorship—a core recommendation of this report—future generations of ocean scientists will have more opportunities for success.



Kim Howland. Photo credit: DFO.

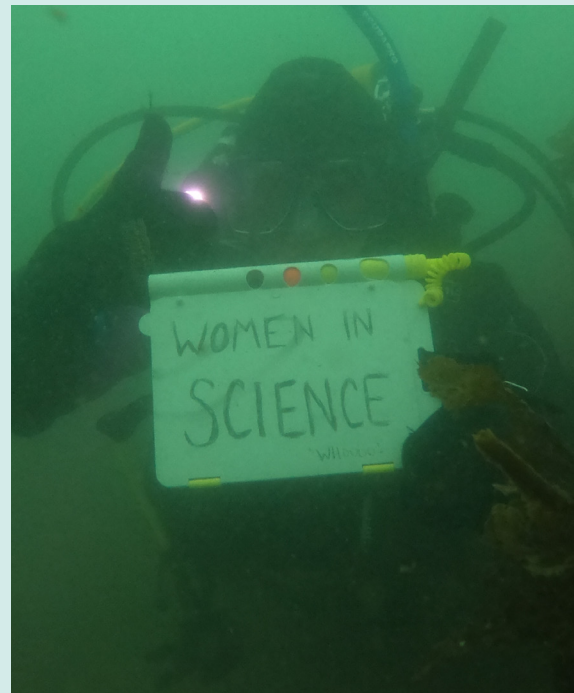


Photo credit: DFO.



Cherisse Du Preez, Curiosity on Stage 2019. Photo credit: DFO.

Resources

Key resources that interview participants have used with success to implement gender-based thinking in ocean programs:

- [Pacific handbook for gender equity and social inclusion in coastal fisheries and aquaculture](#)
- [Towards Building and Maintaining a Diverse Shipboard Team](#)
- Equity in Author Order: A Feminist Laboratory's Approach (Liboiron et al., 2017)

- [MPOWIR Mentoring Handbook](#)
- [MPOWIR Handbook](#) – describes how MPOWIR is structured, intended to help other disciplines in developing mentorship networks
- Ten strategies to reduce gender inequality at scientific conferences (Sardelis et al., 2017)
- [Government of Canada's GBA+ introductory course](#)

Expert Interviewees

1. **Patila Amosa**, Dean, Faculty of Science, National University of Samoa; Samoa
2. **Megan Bailey**, Assistant Professor, Canada Research Chair, Dalhousie University; Canada
3. **Geneviève Béchar**, Hydrographer General of Canada and Director General, Canadian Hydrographic Service; Canada
4. **Robin Brown**, past Executive Secretary, North Pacific Marine Science Organization, Manager, DFO (retired); Canada
5. **Anne Christine Brusendorff**, General Secretary, International Council for the Exploration of the Sea; Denmark
6. **Ratana Chuenpagdee**, Project Director, Too Big To Ignore, Professor, Memorial University of Newfoundland; Canada
7. **Brad deYoung**, Bartlett Professor of Oceanography, Memorial University of Newfoundland; Canada
8. **Cleopatra Doumbia-Henry**, President, World Maritime University; Sweden
9. **Sanjam Sahi Gupta**, Director / Board of Governors, Sitara Shipping Ltd.; India
10. **Angela Hatton**, Director, Science and Technology, National Oceanography Centre; United Kingdom
11. **Juliet Hermes**, Manager, Egagasini node, South African Environmental Observation Network and Professor, University of Cape Town; South Africa
12. **Max Liboiron**, Interim Associate Vice-President (Indigenous Research), Assistant Professor, Memorial University of Newfoundland; Canada
13. **Tricia Lovell**, Senior Fisheries Officer; Antigua and Barbuda
14. **Susan Lozier**, Dean, College of Sciences, Georgia Institute of Technology; United States of America
15. **Sangeeta Mangubhai**, Director, Wildlife Conservation Society, Fiji; Fiji
16. **Marie Robert**, Physical Oceanographer, DFO; Canada
17. **Tiffany Straza**, Deputy Editor, 2020 UNESCO Science Report; France
18. **Wendy Watson-Wright**, Founder and CEO, 7 Mile Bay; inaugural CEO, Ocean Frontier Institute; past Executive Secretary, IOC-UNESCO; Canada



Photo credit: DFO.

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■ Abbreviations

Abbreviations

CAD	Canadian dollar	IOC	Intergovernmental Oceanographic Commission of UNESCO	ROPOS	Remotely Operated Platform for Ocean Sciences
CEO	Chief Executive Officer	IPCC	Intergovernmental Panel on Climate Change	ROV	Remotely Operated Vehicle
CHS	Canadian Hydrographic Service	MEOPAR	Marine Environmental Observation, Prediction and Response Network	SIDS	Small Island Developing State
CLEAR	Civic Laboratory for Environmental Action Research	MPOWIR	Mentoring Physical Oceanography Women to Increase Retention	STEM	Science, Technology, Engineering and Mathematics
COLC	Canadian Ocean Literacy Coalition	NERC	Natural Environment Research Council	SWAN	Scientific Women's Academic Network
CRC	Canada Research Chairs	NOC	National Oceanography Centre	TBTI	Too Big To Ignore
DFO	Fisheries and Oceans Canada	NGO	Non-Governmental Organisation	UN	United Nations
EDI	Equity, Diversity and Inclusion	OFI	Ocean Frontier Institute	UNESCO	United Nations Educational, Scientific and Cultural Organisation
G7	Group of Seven	ONC	Ocean Networks Canada	WCS	Wildlife Conservation Society
GBA+	Gender-Based Analysis Plus	ORCA	Ocean Research in Canada Alliance	WISTA	Women's International Shipping & Trading Association
GOSR	Global Ocean Science Report	OSNAP	Overturning in the Subpolar North Atlantic Program	WMU	World Maritime University
ICES	International Council for the Exploration of the Sea				