

Dear readers,

The **Baltic Gender** newsletter provides you with information on upcoming events, women networks and interesting reading about females in (marine) science. Our newsletter is published every four months and is also available for download under the following link: www.baltic-gender.eu.

We report on recent and upcoming project activities and outcomes. This issue particularly informs about the past annual meetings and on how partners engage in internal and external events. Also, by taking a look on the winner of the Crafoord Prize in Biosciences 2019 you can read about the discovery of the most abundant photosynthesizing cyanobacterium in the world.

If you have information for next issues, comments on the content, or suggestions – let us know! Enjoy reading, and we look forward to your feedback to: baltic-gender@io-warnemuende.de.

Project news

Fourth Baltic Gender Annual Meeting, 14–15 May 2019 at Klaipėda University, Lithuania

This year, the partners from Klaipėda University hosted the 4th annual project meeting which took place on 14th – 15th of May, 2019 at Klaipėda University, Lithuania. The two days were used to exchange of interim experiences, discussion of the results achieved so far and coordination of the future actions. Parallely to the meeting sessions, members of the project advisory board have been invited to discuss and provide recommendations for the next year. The meeting took place in the new building of the [Marine Research Institute](#), which operates four different scientific laboratories and the fleet of Klaipeda University. □



Second Annual Baltic Gender Mentee Meeting 2019 held in Warnemünde 8–10 April 2019

In early spring, the Baltic Gender mentees met again in beautiful Warnemünde. Complemented by a supporting program, this annual meeting was second meeting for the first-round mentees and first meeting for the second-round mentees. All three days were filled with several trainings, interactive tasks and discussions. An introduction on gender and diversity (including equal opportunities in research institutions and gender in the research content) was presented by Katrien Van der Heyden, who has long experience in that field. On the second day, the focus of the workshop given by Eva Reichmann was on "Leadership and Communication". On the third day, the first-round mentees had the opportunity to participate in a workshop on "Conflict management in academia", conducted by Jacqueline von Saldern. Along these days, first and second-round mentees had the opportunity to work together with different tasks and share their knowledge and experiences in the field of being female marine scientist. – Here are some impressions from participants:

"We personally think that the 2019 Baltic Gender Mentee Meeting was well-organized and planned. All the courses and tasks were very interesting and useful. Additionally, it was very instructive and interesting to meet other mentees, who are participating in the Baltic Gender Mentoring Scheme. Many new thoughts and ideas were taken home from that meeting." (Liina and Anneliis, Estonian Marine Institute, University of Tartu)

"By the time I applied for the Baltic Gender Mentoring Scheme, I could not imagine the impact it would have in my perspectives on how our society is structured. It has not been even one year since the program has started for me but I got impacted already by the first meeting. During the annual meeting 2019 we had lectures about "Gender and diversity" concepts and "Leadership and communication". I found interesting to see how all these concepts affect our daily lives. Many behaviors are embedded

in our culture; we inherit them as our own DNA and continue to reproduce them without reflecting on our actions. Although we were educated to be researchers and think beyond, there is much to do for reaching gender equality. It is needed to raise awareness and generate debates in the scientific community in this regard. Sometimes we do not want to face reality because nobody wants to be the victim or the villain. The truth is that as long as we do not talk about it with women and men, the problem will remain. Our society deserves clear and transparent discussions about ongoing inequalities to achieve a conscious state that will make the world a fair place, or at least will move us closer to it." (Maysa, GEOMAR, Germany) □



Workshop series on "Raising awareness on gender and diversity issues in research institutions" at Klaipėda University, Lithuania.

On 29-30 of April, 2019 Katrien Van der Heyden from Nesma Consulting bvba, Mortsels, Belgium held a workshop series focused on gender issues in research institution for the top, middle management and researchers, as well as on integration of gender aspects into research content for researchers and students. □

Workshop on "Gender dynamics in academic recruitment and selection" at Lund University, Sweden

On April 10 Mathias W. Nielsen, assistant professor at Aarhus University in Denmark, held a workshop focused on gender perspectives in recruitment for the high management (faculty leaders as deans) and members of the faculties' appointment committees at Lund University. The workshop was arranged as part of the project Baltic Gender and constituted the main part of an annually re-occurring meeting that Lund University's vice chancellor Torbjörn von Schantz invites high-level management staff and appointment committees to. □

Check also the **Baltic Gender Blog** to read the latest entries:

(<http://www.oceanblogs.org/balticgender/>). □

News from Baltic Gender partners & Other news

New Equal Opportunities Team at GEOMAR Helmholtz Centre for Ocean Research Kiel

Dr. Ulrike Schroller-Lomnitz and Kristin Hamann have been elected as the new Equal Opportunities Commissioner and Deputy Equal Opportunities Commissioner at GEOMAR Helmholtz centre for Ocean Research Kiel. Ms Schroller-Lomnitz and Ms Hamann took up their posts on 01.06.2019. We wish our two colleagues much success and joy with their new tasks!

Conference "Responding to Evolving Challenges: Best Practices for Women Leadership in Academia"

The 6th EWORA (European Women Rectors Association) Conference took place in Malmö University, Sweden on 13-14 May 2019. It was attended by 80 persons, EWORA members and speakers. During the Conference the EWORA Honorary Award was offered to the Spanish Prime Minister Mr. Pedro Sanchez, represented by his ministry of Higher Education: the Spanish government has the highest women percentage among the ministers in Europe. Details: <https://www.ewora.org/6th-ewora-conference>

Baltic Gender on the 18th STS Conference: Critical Issues on Science, Technology and Society Studies

The 18th STS Conference took place from 7–8 May 2019 in Graz. The STS Conference is the joint Annual Conference of the Science Technology and Society Unit of the Institute of Interactive Systems and Data Science of the Technical University of Graz, the Inter-University Research Centre for Technology, Work and Culture (IFZ) and the Institute for Advanced Studies of Science, Technology and Society (IAS-STS).

Ines Weber from Kiel University presented a poster on the Baltic Gender project highlighting especially the work that was done in WP3 – best practices on structural change. Besides research questions concerning nature sciences and technology the conference also dealt with gender equality in higher education, such as in a session on "Intersectionality in research – celebrating equality and diversity". On the second day there was a daylong session "It's time for structural change, sister!" in which sister projects from the Horizon2020 Call "Support to research organisations to implement gender equality plans" presented their projects and exchanged their experiences.

Details: <https://sts-conference.isds.tugraz.at/event/2/overview>

Baltic Gender presented as example of an EU-funded project on Gender Equality

On May 6th the second meeting of the newly established Commission "Gender Equality and Internationalisation" of the Federal Conference of Gender Equality Officers in Higher Education in Germany (BukoF) took place in Kiel. Commission member Iris Werner had invited her colleagues to meet at CAU Kiel. Focus of the commission's work are the basic conditions of internationalisation and their effects on gender equality activities at universities. They also look into possibilities for cooperation and mutual learning of universities' gender equality practitioners on the European and international level. Ruth Kamm presented Baltic Gender as an example of a Horizon 2020-funded support action on gender equality and focused on the general idea and structure of Baltic Gender, the collection of indicators and the best practices on structural change. Afterwards the participants of the meeting discussed conditions for successful cooperation in a multinational consortium aiming at improved gender equality. More information on the bukoF under: <https://bukof.de/> (in German only)

Policy Brief on GENDERACTION Conference "The Future of Gender Equality in European Research and Innovation"

On 9 April 2019, at the conference in Brussels on the topic "The Future of Gender Equality in European Research and Innovation" a policy brief of the same title was published as part of the GENDERACTION EU project. Further policy briefs from the project can be found on the project website under the "Policy Advice" and "Horizon Europe" tab at: <http://genderaction.eu/>

International Conference "Gender Equality in STI: Progress and Challenges"

On 18-19 March 2019 the conference "Gender Equality in STI: Progress and Challenges" took place in Vilnius. The conference was devoted to the 10th anniversary of [BASNET Forumas](#), the regional Baltic States women scientists association and was organized by Dalia Satkovskiene and the BASNET association. Issues discussed at the conference dealt with gender equality in research: new challenges and policies; the role of NGOs in gender equality policy making, disseminating and implementing; implementation of gender equality in STEM research organisations; strengthening of women scientists networks in STEM in the Baltic States. A [Resolution](#) was adopted by the participants, targeting science policy-makers and politicians, from EU and from the Baltic States.

More information: <https://epws.org/international-conference-gender-equality-sti/>.

New EIGE website

The European Institute for Gender Equality EIGE has revised its website in March which should now be easier to use. A new element is that there is information on specific subjects (topic pages), also including research. In addition, country-specific pages are presented on which all respective resources are listed; EIGE publications may now be searched with respect to the languages into which they have been translated. Website: <https://eige.europa.eu/>

Upcoming events

"Things like this of course do not happen here?!" – Workshop series on "sexual harassment in institutions on higher education and research institutes" July–November 2019 in Kiel, Germany

Three workshops on this topic will take place in Kiel, which are organized by GEOMAR, Kiel University and Kiel University of Applied Sciences. The target group will be scientific staff from Marine Science.

The first workshop (02/07) and third workshop (28/11) will focus on "Border violations in Academia - How to deal with and prevent sexualized violations." The two workshops will be conducted by Dr. Sabine Blackmore. The second workshop (25/10) will be an "Assertiveness and Self-Defense Training for women". It is conducted by WING CONCEPTS, an academy in martial arts and self-defense.

More information via the Baltic Gender website: [here](#).

3–4 Oktober 2019, Amsterdam, The Netherlands: **GS17 EU – European Gender Summit**.

Details: <https://gender-summit.com/gs17-eu>

20–21 September 2019, Berlin, Germany: **I, Scientist 2019 – The conference on gender, career paths and networking**.

Details: <https://www.iscientist.berlin/>

16–17 September 2019, Naples, Italy: International Conference – **Inequality vs inclusiveness in changing academic governance: policies, resistances, opportunities**.

Details: <http://www.eument-net.eu/eument-net-conference-2019/>

8–9 August 2019, Kiel, Germany: **3rd CRC 1182 Young Investigator Research Day (YIRD)**.

Details: <https://www.metaorganism-research.com/news/crc-1182-young-investigator-research-day-august-8th-9th-2019-kiel/>

Women networks

[AcademiaNet](#)

- Data base with profiles of excellent female researchers from all disciplines in Germany (since 2010) and Europe (since 2012)
- initiative funded in 2010 by Robert-Bosch Stiftung and Spektrum der Wissenschaft

[epws](#) (European Platform of Women Scientists)

- since 2005
- >100 member networks in 40 countries
- international non-profit organisation
- represents >12,000 female scientists in Europe and beyond to give them a voice in EU research policy

[eswn](#) (Earth Science Women's Network)

[FemConsult](#) Note: Website functions only partially in English available

- data base of more than 3,000 female scientists with doctoral or post-doctoral qualification from all disciplines and working at universities, non-university research institutions, industry and commerce from the German-speaking countries

[Femdat](#) Note: Website only partially in English

- Swiss data base of highly qualified women (since 2001) with job offers (since 2006)
- swiss women career portal (log-in required)
- tips & knowledge for job entry, career and switching

[FEMtech](#)-Expertinnendatenbank

- database of female experts
- initiative of the Austrian Ministry for Transport, Innovation and Technology (BMVIT)
- further categories: news, events, knowledge, funding

[FiF](#) (Contact point women into EU Research) Website in German with partial information in English

- initiated 2001 by the German Federal Ministry of Education and Research (BMBF)
- to provide women in Germany with information and service relating to the EU's research framework programmes (currently: Horizon 2020); only advisory services – no funding
- offers for female scientists: (i) seminars, workshops & lectures on EU research funding and participation chances, (ii) first information about funding opportunities, (iii) consulting during application, (iv) information about being a consultant to the EU

[GEPRI](#) Note: project information available mainly in German language

- online database made available by the DFG
- provides information on current DFG-funded research projects

[INWES](#) (International Network of Women Engineers and Scientists)

[WICGE](#) (International Network of Women in Coastal Geoscience and Engineering)

Interesting reading

EFFORTI framework (Evaluation Framework for Promoting Gender Equality in Research and Innovation): Toolbox. Available at: <https://www.efforti.eu/efforti-toolbox-intro>

European Marine Board Position paper No. 24 and flagship publication "Navigating the Future V: Marine Science for a Sustainable Future" (NFV). Available at: <http://www.marineboard.eu/publications/navigating-future-v>

Brief history of women in [marine] science – Part 6



Past and present – Female scientists in portrait

Sally (Penny) W. Chisholm (*1947 in Marquette, USA.) — studies the biology, ecology, and evolution of the single most abundant marine phytoplankton species in order to understand the forces that shape microbial ecosystems¹

The Royal Swedish Academy of Sciences has decided to award the Crafoord Prize in Biosciences 2019 to Sallie W. Chisholm, Massachusetts Institute of Technology (MIT), Cambridge, USA, "for the discovery and pioneering studies of the most abundant photosynthesising organism on Earth, *Prochlorococcus*".

The Crafoord Prize is awarded in partnership between the Royal Swedish Academy of Sciences

and the Crafoord Foundation in Lund. The prize disciplines are chosen as a complement to the Nobel Prizes.²

A miniscule organism of huge importance

Life on Earth is dependent on photosynthesis – the ability of green organisms to absorb solar energy. The oxygen we breathe and the energy in the food we eat come from this process. The more knowledge we have about the plants and microorganisms that perform photosynthesis, the better answers we will have for the most fundamental questions about life on Earth: how it originated, how the ecosystem now works and, not least, the consequences of humanity's impact on the environment and atmosphere for the Earth's climate and all living things.

It has long been known that photosynthesis is largely carried out by invisible microorganisms in the oceans, but it was not until the mid-1980s that the most common photosynthesising species was discovered: the *Prochlorococcus* cyanobacteria. The total number of this organism on Earth has been estimated as 3×10^{27} (3,000,000,000,000,000,000,000,000,000). In some calculations, this species alone is responsible for as much photosynthesis as all the cropland on the planet – something no other single species comes close to. The reason that *Prochlorococcus* remained undiscovered for so long is that these tiny bacteria are only about half of a micrometre in size – considerably smaller than other oxygen-producing organisms, including other cyanobacteria. *Prochlorococcus* remains the smallest photosynthesising organism ever discovered.

Discovery

American marine biologist Sallie (Penny) Chisholm and her colleagues discovered *Prochlorococcus* in the second half of the 1980s. Her research group at the Massachusetts Institute of Technology, MIT, had come up with the idea of using a flow cytometer to study microorganisms in seawater. This instrument – which had thus far mainly been used for medical research – analyses cells in a fluid as they pass by, one at a time, through a laser beam. After successes on land, the group wanted to investigate whether they could also get this sensitive instrument to work onboard a research vessel, so that analyses could be carried out at sea while all the microorganisms in the water were still alive.

From 1985 onwards, during expeditions in the Atlantic and the Pacific Ocean that used the flow cytometer, the researchers noted a recurring, but very weak, signal in the results from the instrument. The signal was first interpreted as background noise, but eventually the researchers saw that it varied in specific patterns, including with depth, which could indicate that it came from something living. Additional studies confirmed these suspicions. They had found a previously unknown photosynthesising organism – microscopic, but of enormous significance. The discovery was published in *Nature* in 1988.

Since the discovery of *Prochlorococcus*, Sallie Chisholm has successfully spent a great deal of her research career studying this cyanobacterium in greater detail. It was apparent from an early stage that it is very different to other oxygen-producing organisms – partly because it is so small, but also because it is so abundant. Chisholm's continued research has further strengthened the image of *Prochlorococcus* as both a very strange and very important species. We now know that it is found

in all the seas and oceans of the world, and that it is by far the most abundant photosynthesising organism in the World Ocean. It dominates in nutrient-poor and relatively warm water – all the oceans that are far from continents and between the latitudes of 40°N and 40°S. There are few large organisms in these vast areas, but instead they teem with microscopic life – every drop of water in the upper layer of the ocean contains tens of thousands of *Prochlorococcus*. These bacteria do not only live at the surface, but can survive to a depth of a few hundred metres, where only a few per cent of the sun's light reaches. That far down the light is too weak for other photosynthesising organisms, but it is adequate for *Prochlorococcus*.



Crafoord Laureate in Biosciences 2019 Sallie W. Chisholm (Photo: Kennet Rouna)

Genetic studies

Sallie Chisholm's research into *Prochlorococcus* has remained at the forefront – not least because she has seen the potential of new research technology. She was quick to use new genetic tools for reading and comparing the entire genetic material of different populations of *Prochlorococcus*. These genetic analyses show that this type of bacteria has very few genes – but also astoundingly many. The entire DNA of a single *Prochlorococcus* may have as few as 1,700 genes, the smallest number among all known photosynthesising organisms. However, in total, the species is estimated to have around 80,000 genes in its gene pool – four times more than humans do. A thousand or so of these genes are common to all individuals; the others are adaptations to different habitats and only occur in certain populations. There is a particularly large genetic difference between populations close to the surface, which are adapted to strong light, and populations that are specialised in absorbing extremely weak light at great depth.

This wide genetic variation is the reason why *Prochlorococcus* thrives in conditions with such varying light, heat and nutrient levels, and thus dominates large areas of the world's seas and oceans.

Chisholm's research has helped us to understand the dynamics of the *Prochlorococcus* gene pool – how genetic adaptation is spread, and how different populations vary over time and space in recurring patterns. Viruses that live off *Prochlorococcus* are part of this. They can carry genes from the bacteria and appear to play an important role in the spread of genes and the evolution of its host. This is not least true for genes linked to photosynthesis.

Interaction with other species

Over time, *Prochlorococcus*' interaction with its surroundings and its importance for the ecosystem, biosphere and evolution have become a central theme of Chisholm's research. The above mentioned studies of the interaction between bacteria and viruses are a major part of this. She has also demonstrated that this type of bacteria exchange important "services" with other microorganisms in seawater, especially with decomposer bacteria. They produce various types of nutrition for each other, and *Prochlorococcus* also benefits from other bacteria's protection against oxygen free radicals.

Chisholm is also interested in the vital contribution that cyanobacteria have made to the development of life on Earth. Photosynthesis

is a requirement for almost all life – partly because it produces oxygen for the atmosphere, but also because it creates the energy-rich, carbon-based molecules that all organisms are made from. A couple of billion years ago, cyanobacteria began to produce oxygen as a by-product during photosynthesis, which created the right conditions for new forms of life to evolve. Chisholm believes that studies of current populations of *Prochlorococcus* cyanobacteria and how they co-evolve with the environment can help us to understand this early and crucial period in the development of life on Earth.

Research into *Prochlorococcus* is also extremely relevant for the future, for our understanding of how the oceans and their ecosystems are changing due to human influence and global warming. □

References:

[Cited with minor text cuts from the original text written by Anders Nilsson, Parabel Media at: https://s3.eu-de.cloud-object-storage.appdomain.cloud/crafoord-image-pdf/2019/01/pop_crafoord2019_en.pdf, access date: May 26, 2019]

¹[<https://biology.mit.edu/profile/sallie-penny-w-chisholm/>, access date: May 26, 2019]

²[<https://www.crafoordprize.se/biosciences/crafoord-days-2019>, access date: May 26, 2019]

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Baltic Gender brochure gives a summary of the motivation, aim, concept and activities of the project:

http://oceanrep.geomar.de/38342/1/fl_final.pdf



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