



Apr 27th, 4:30 PM - 5:00 PM

Community Science Project: Exploring Plastic Pollution With Undergraduate Researchers and Aspiring Girl Scientists

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Masura, Julie; Kovacs, Amy; and Huntley, Jenny, "Community Science Project: Exploring Plastic Pollution With Undergraduate Researchers and Aspiring Girl Scientists" (2022). *Salish Sea Ecosystem Conference*. 416.

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Community Science Project: Exploring Plastic Pollution With Undergraduate Researchers and Aspiring Girl Scientists

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We are ALL Shipmates



Introduction

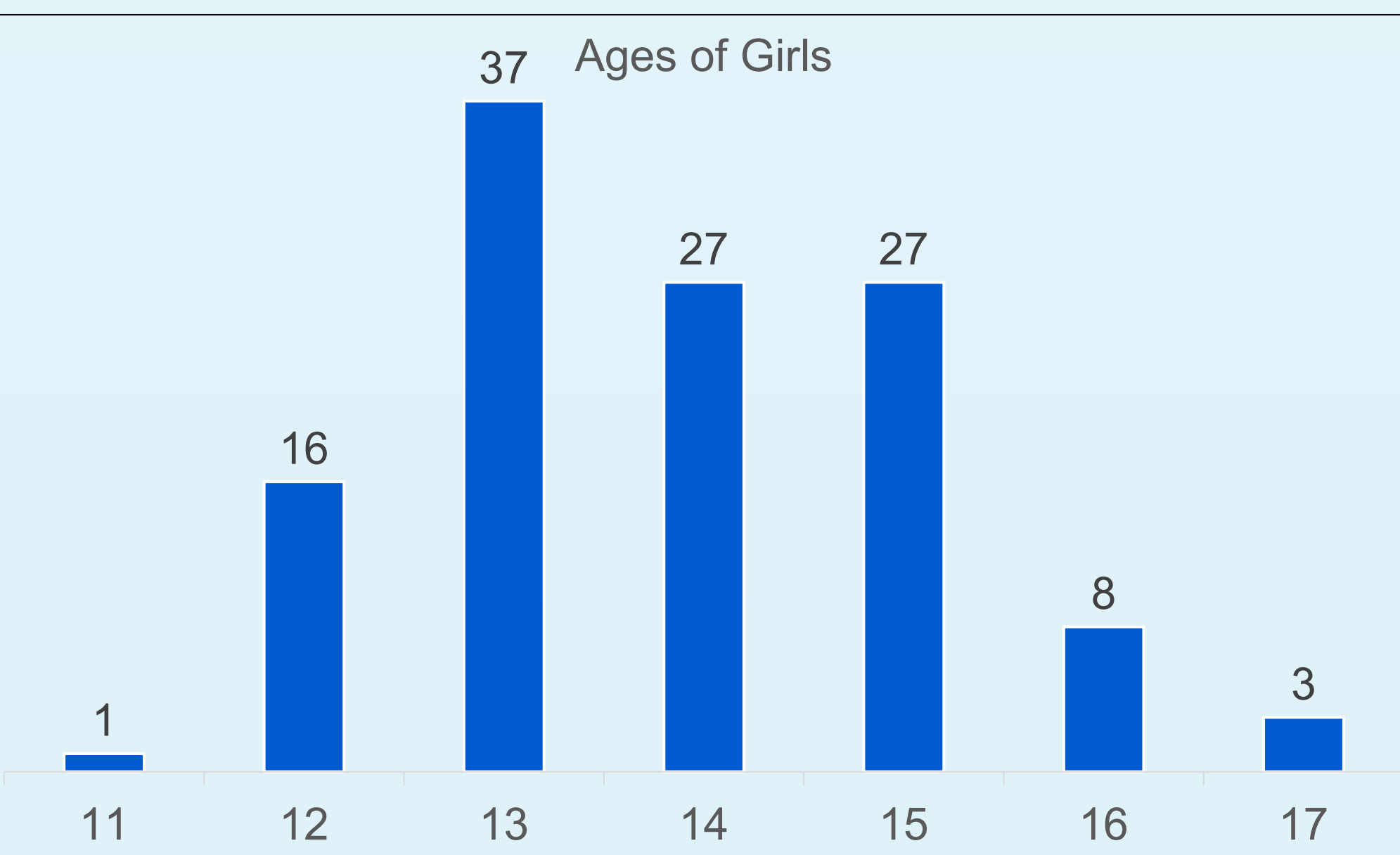
Elizabeth Becker had a dream to create a program to inspire girls to become leaders in science. **Girls at the Helm** – The goal is to provide an engaging, fun, supportive environment for middle and high school girls to build confidence, embrace challenges, improve communication, teamwork and leadership skills, get to know and learn from role models in STEM and related fields, become stronger environmental stewards and discover their own power.

Short Term Objectives

- Gain knowledge of the Salish Sea as a dynamic interactive ecosystem demonstrated by successfully participating in learning stations and connecting with their watershed.
- Understand basic mariner skills through the learning stations and day-to-day shipboard life. Use mariner skills to work as a collective community aboard the vessel to safely run the ship.
- Apply the concept of renewable vs nonrenewable resources on Earth by using *Adventuress'* systems to maintain a healthy ship.
- Take individual and cooperative action to become stewards of the Salish Sea by making responsible choices for a sustainable future.

Long Term Objectives

- People introduced to the *Adventuress* community will develop a stronger environmental awareness, understanding and appreciation of Puget Sound within the greater Salish Sea ecosystem, and the human impacts on it.
- People introduced to the *Adventuress* community will recognize the cultural values of our region's maritime activities and learn how those activities are dependent on a healthy Puget Sound/Salish Sea.
- To ensure that Puget Sound/Salish Sea consists of healthy habitats that support its vital natural resources, citizens will have access to knowledge useful for active participation in local and national environmental discussions.

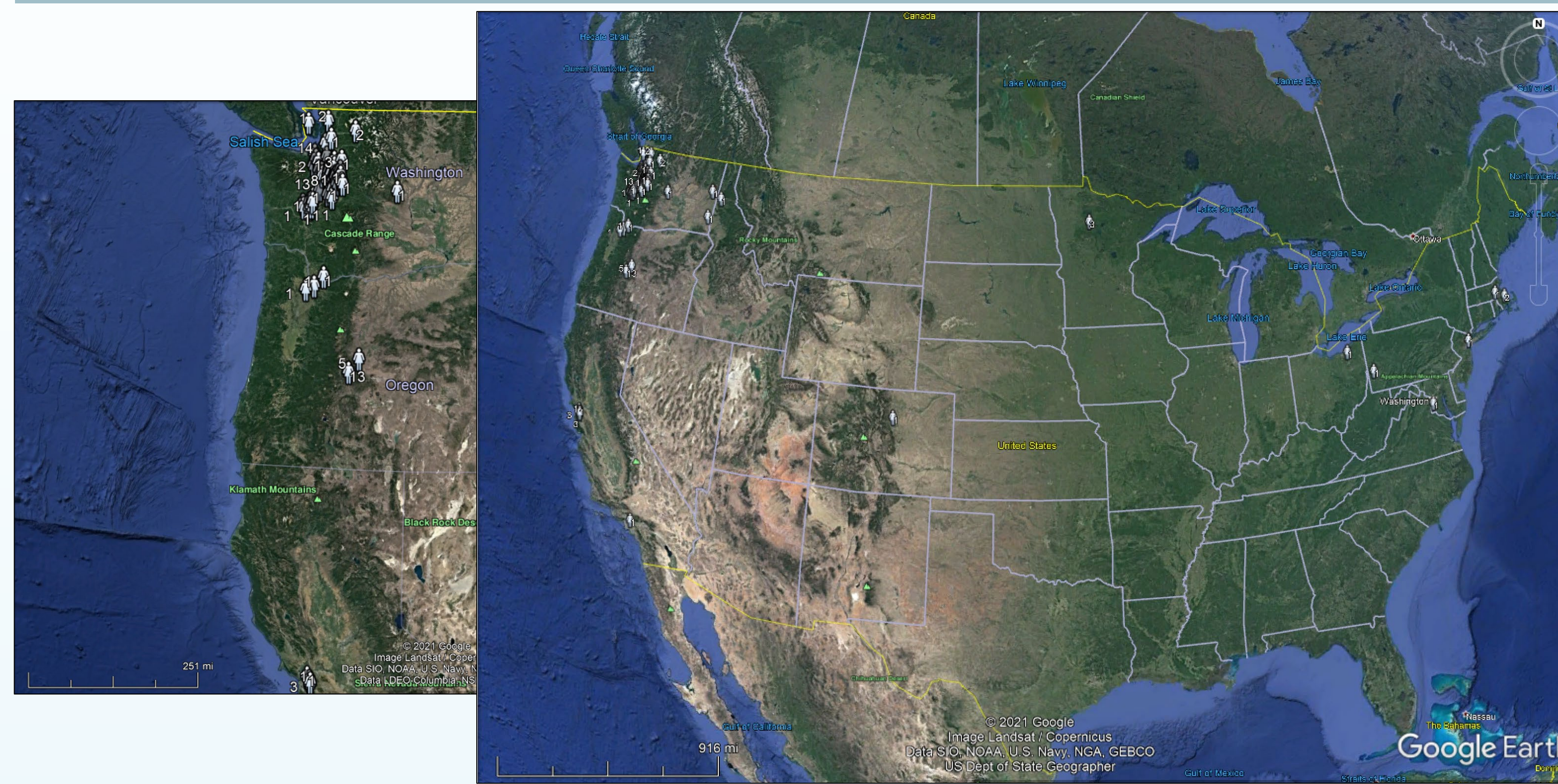


Ages of participants from 2011-2019

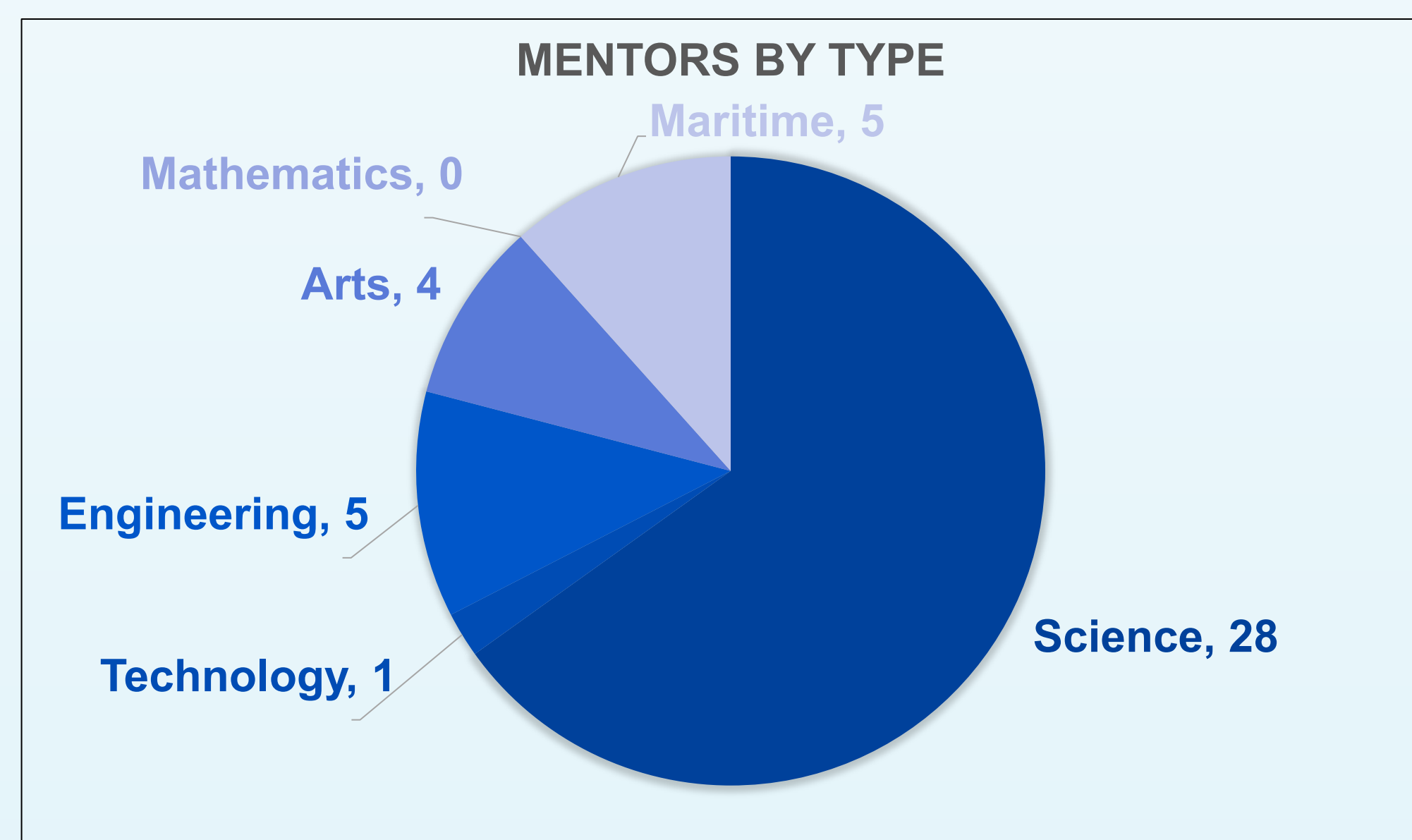
STEM programs for girls improve attitudes towards school, increase confidence using math skills, increase plans to attend college and interest in careers, improve problem-solving skills, and reduce gender stereotypes.

--Harvard Family Research Project (2011)

Participants and Mentors



Location of participants from 2011-2019 in the United States with west coast zoomed-in.



Mentor-types from 2011-2019



2016 GATH participants, mentors, and crew (photo by E. Becker)



2014 GATH mentors (photo by E. Becker)

"I actually stepped up and started to be a leader rather than a follower"... GATH 2014

Community Science Projects

Part of the Mission of Sound Experience is for participants to be actively engaged in hands-on learning. This includes conducting primary research through citizen science projects. Data, observations, and samples are shared for the following primary research projects:

- Plankton Diversity Survey for Puget Sound – plankton collection & identification
- Spices in Puget Sound – sample collection & analysis
- Pacific Mammal Research PacMam – identification of observed mammals
- Marine debris plastics research – sample collection & analysis

Marine Debris Plastics Research

The University of Washington Tacoma has been engaging in plastic research since 2008.

Research Objectives:

- Develop field and laboratory methods to quantify plastic pollution in environment.
- Determine concentration and changes of plastic pollution over time.
- Engage in public outreach to communicate the impact of plastic pollution in the environment.

A community science partnership with Sound Experience began in 2011.

Partnership Objectives:

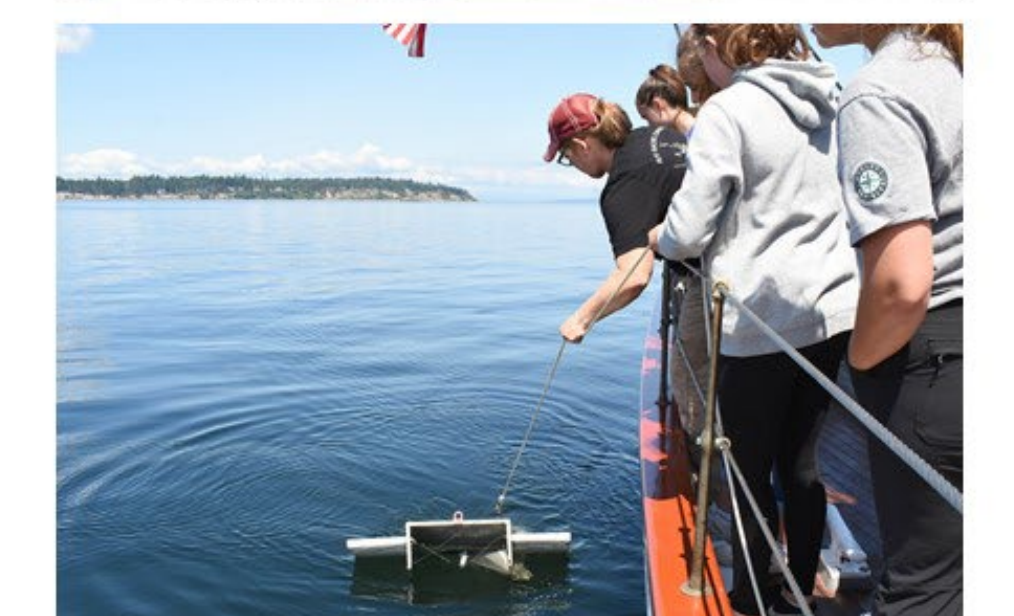
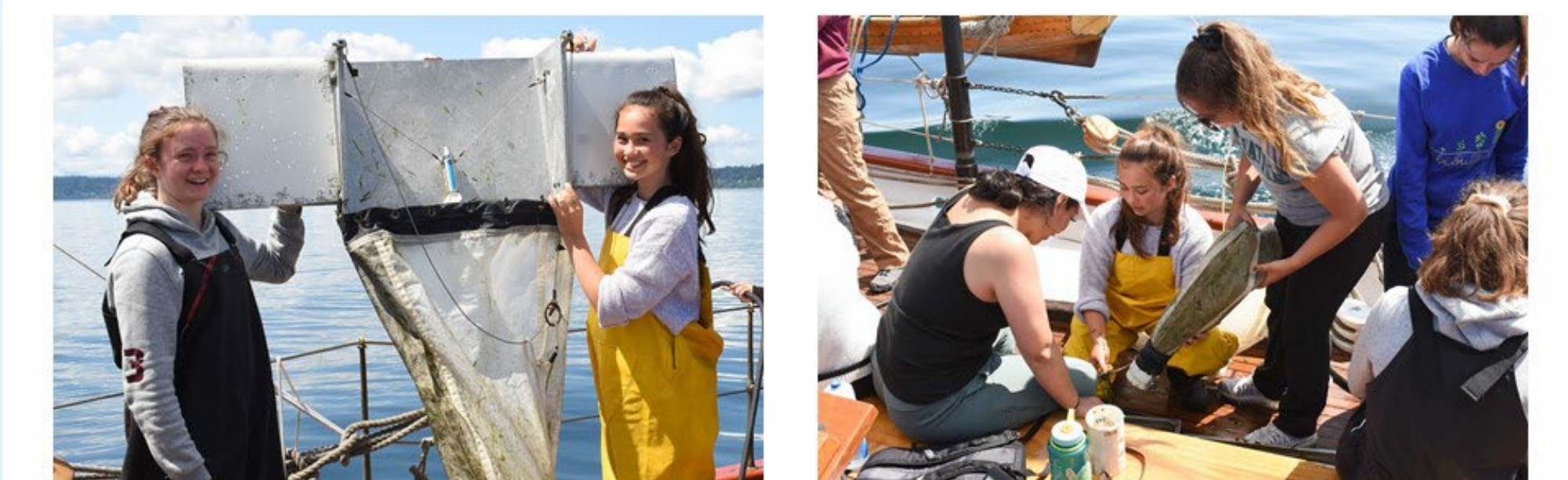
- Develop learning station for experiential programming involving marine pollution
- Gather environmental samples for analysis at the University of Washington Tacoma Labs
- Involve undergraduate & graduate researchers in training and educating deck-hand educators and program participants

Outcomes Since 2011:

- Contributed 15% of the samples for primary research project.
- 45 sampling days involving hands-on programming.
- 5 undergraduate & 1 graduate researcher mentored GATH trips.
- Served over 1000 participants, educating on marine debris.

Listen a Podcast

Plastic Pollution & Girls at the Helm



For More Information

If you would like to discuss the contents of this poster, contact Julie Masura at jmasura@uw.edu

To learn more about Girls at the Helm, click on

