

Students for Sustainable Water (S²H₂O): A Peer-to-Peer Student Research, Education, and Outreach Platform on the Global Water Climate Crisis

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ABSTRACT
Communities across the globe lack sustainable water supplies. This global water crisis will be amplified by climate change. The current generation of students will face unprecedented societal challenges but achieving sustainable water supplies is a critical first step toward climate change adaptation and security. Students for Sustainable Water (S²H₂O) is a student-run platform to connect and educate students and teachers about the impacts of climate change on local water resources. Engaged K-12 and undergraduate students want to learn, conduct research, and share their experience with peers around the world. Through this engagement, students can champion local sustainable solutions to the water climate crisis. S²H₂O is a global network of students and teachers creating impactful stories about local water resources, water related hazards (flooding, drought, and wildfire), potential impacts of climate change, and climate resilience and adaptation strategies. S²H₂O encourages students' stories based on student research projects, best scientific understanding, policy decisions, environmental justice, management actions, and personal experience.

<https://s2h2o.org/>



Students for Sustainable Water
A Climate Water Education Initiative

Empowering Students

To achieve sustainable water resources under climate change

About Us

Empowering Students

We help empower students dedicated to making a positive difference in their local communities. [Learn more.](#)

Join a Global Network

Join us! Create and share a story about your local water resources and adaptation strategies to climate change. [Learn more.](#)

Educational Materials

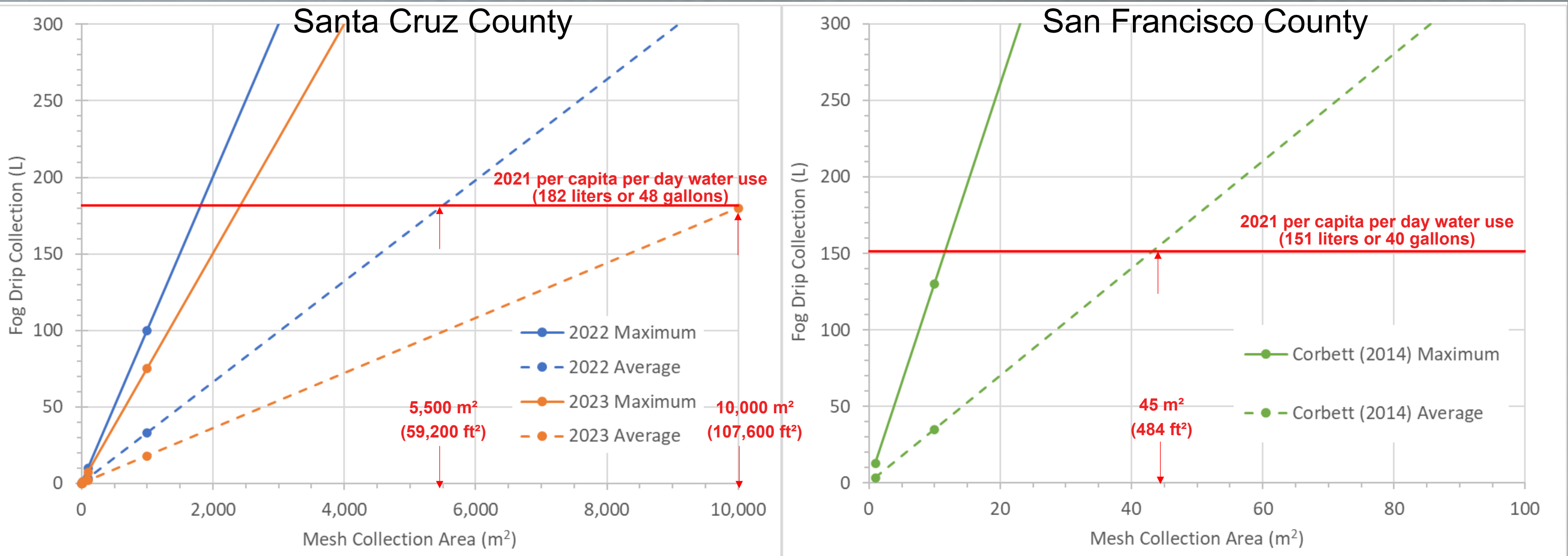
We provide science-based educational materials about water resources and climate change for educators and students. [Learn more.](#)



RESULTS
Collected daily fog drip rates were variable and generally less than 100 mL/day (0.026 gallons/day), which were lower than other fog drip studies. Average fog drip collection was higher in 2022 on the leeward side of the house. In 2023, of the 19 foggy days, only 11 resulted in fog drip.

DISCUSSION
2021 Water Use (per capita per day) ⁸ :
Santa Cruz County: 182 liters (48 gallons)
San Francisco County: 151 liters (40 gallons)

Extrapolating our fog drip results to practical human uses, such as outdoor irrigation, would require impractically large mesh fog collectors in Santa Cruz County but more reasonably sized collectors in San Francisco County.



Comparison to other studies:

1.2 to 37 mL/day,
San Mateo County, California ⁴

3.5 L/day (average); 0.17 to 13 L/day,
San Francisco, CA ⁵

3.86 L/day,
Big Sur, California ⁶

7,200 L/day,
El Tofo, Chile (48 m² fog collector) ⁷

CONCLUSION

Innovative or multi-layered mesh design geometries may reduce the required collection area, potentially making fog drip collection a more practical but temporary and seasonal water supply for small scale and outdoor household uses, such as irrigation of plants.

REFERENCES

- Bob Berwyn, David Hasemyer, and Mallory Pickett, With a warming climate, coastal fog around the world is declining. Inside Climate News, October 10, 2021.
- Jonathan Bloom, San Francisco's fog could be a casualty of climate change... but it could also be a solution. NBC Bay Area, December 28, 2022, <https://www.nbcbayarea.com/news/lo-cal/digital-originals/san-francisco-fog-climate-change/3114080/>
- John Branch, Nina Riggio, and Scott Reinhard, The Elusive Future of San Francisco's Fog, New York Times, September 14, 2022.
- Oberlander, G.T., 1956, Summer fog precipitation on the San Francisco Peninsula, Ecology, 37(4), 851.
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Global Network

Through education and engagement, today's students will champion sustainable solutions to the global water crisis. To find sustainable solutions, the world needs to hear the voice of the current generation of student through inspirational stories.

Join our global network by creating a story about your local water resources, water related hazards (e.g., flooding, drought, pollution, and wildfire), potential impacts of climate change, and climate resilience and adaptation. We encourage students and educators to work together to create stories based on best scientific research and understanding, policy decisions, environmental justice, management actions, and personal experience.

Stories by our Student Network:

To view stories created by our student network and other example stories about water and climate change, please see the [growing list of stories here](#).

How to Create and Share your Own Story?

To learn how to create and share your story on our Students for Sustainable Water platform, please see our [Story Guidance Document](#).

S²H₂O
Students for Sustainable Water

Empowering Students

Students for Sustainable Water is an online platform to help inspire students and educators through the power of story. The world's great leaders are all great storytellers. Their stories illustrate the path forward and inspire others to greatness. To find sustainable solutions to the global water and climate crisis, the world needs inspirational stories from the current generation of students.

Local stories about water and climate change can educate, engage, and connect people about solutions!

Climate change will affect many aspects of life on earth. One of the most fundamental will be climate change impacts on the supply and quality of water resources for humans and the environment. Students for Sustainable Water provides resources for educators and a platform to empower students to develop and share stories about their local water supply and impacts from climate change. By sharing these stories, students can become engaged and learn about challenges and solutions from students in other parts of the world. [Learn more about how to share your local story with our global network.](#)

Resources about Storytelling and Climate Change

There are a growing number of educational resources about the power of storytelling to combat climate change. Here are a few of our favorites:

- Another tool in the fight against climate change: storytelling, MIT Technology Review, by Devi Lockwood, December 23, 2021. "...one of the most powerful forms of climate action is to listen deeply to people already affected by the crisis. To ensure that solutions actually help communities

Educational Materials

This is a list of some of our favorite websites and online resources for teachers and students to learn more about water resources, the hydrologic cycle, and climate change. Please check back as we update the list as we find new favorites.

Environmental Fellowships for Students

ECO Circle International: <https://www.ecocircleinternational.org/> A youth-led non-profit bridging environmental education and sustainable action, through international student fellowships and educational platforms. (ECO Circle International is a fantastic program! I learned a lot about environmental and international issues, and this experience was a big inspiration to develop Students for Sustainable Water" -Talia, founder of S²H₂O)

Educational Resources for Teachers and Students

Environmental Protection Agency - Climate Change Resources for Educators and Students: <https://www.epa.gov/climate-change/climate-change-resources-educators-and-students> EPA's homepage for educational resources for teachers and students to learn about climate change and become more resilient to its impacts.

NASA Climate Kids: <https://climatekids.nasa.gov/> NASA's interactive website with educational activities, articles, videos about the science behind climate and how it is affecting the earth.

Contact

Don't hesitate to reach out with questions about how to participate or create your story. Send us your contact information and a message using the form below. In the Message, please include some information about your school or class.

Submitting a Story: We ask that all stories are reviewed and submitted by a supervising adult (educator or parent/guardian). If your story is finished and ready to share on our website, please send a message that you are ready to submit a story, and we will respond with a link to a secure file sharing site for you to upload your file. We will review your story and confirm before sharing on our [Global Network page](#).

Email: s2h2o.info@gmail.com

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