

From Annapolis to the Arctic: Research schooner begins journey to examine the effects of climate change

May 15 2023, by Christine Condon



**COME JOIN US AS WE
COMMISSION OUR
RESEARCH VESSEL!**

Come meet the crew
as we prepare to head out
on our next expedition.

May 14th 2:00 PM | City Dock - Annapolis



Credit: Ocean Research Project via Facebook

In the sunlight of a May afternoon on the Chesapeake Bay, a 72-foot schooner called the Marie Tharp floated above a shipwreck from long ago.

The boat's instruments were hard at work, mapping the ruins of the sunken wooden steam freighter, the New Jersey, using sonar equipment affixed to its hull.

But that effort Thursday afternoon was just a test, and the Chesapeake Bay a proving ground, for mapping the previously uncharted.

On Monday, the crew of the Marie Tharp will set sail from Annapolis for Greenland to begin mapping the seabed around the massive North Atlantic island and analyze the environmental impacts of glacial melting caused by a [warming climate](#).

The ship is named after Tharp, a woman whose work charting the ocean floor, and revealing its peaks and valleys, laid the groundwork for the theory of continental drift. However, she wasn't allowed aboard research ships due to her sex. Tharp died in 2006 at the age of 86.

From Annapolis, the ship will sail north to the Chesapeake and Delaware Canal, and go out through Delaware Bay to reach the Atlantic Ocean. In early June, the ship is scheduled to reach St. John's, Newfoundland. Next, the crew must traverse the Labrador Sea—known for its punishing conditions mingling fog, gale-force winds and ice—to reach Nuuk, Greenland.

From there, the crew will explore a series of fjords, which are estuaries formed by glaciers, along the coast of Greenland and even further north in the Canadian Arctic, near Devon and Ellesmere islands.

During their travels, they will gather seabed and [water samples](#) to assess the health of bodies of water in the wake of glacial retreat. Additionally, they will be charting what's below.

It will be the second Arctic voyage for the Marie Tharp, a steel-hulled sailboat constructed in 2000 that serves as home base for the nonprofit Ocean Research Project. This type of voyage is nothing new for the Annapolis-based organization's founder—Matt Rutherford.

Rutherford is best known for being the first to complete a nonstop solo sail circumnavigating North and South America. But after his 2011 trip, during which he "caught more plastic trash than I caught fish," Rutherford founded the Ocean Research Project, and—joined by scientist Nicole Trenholm of the University of Maryland Center for Environmental Science—decided to use his sailing prowess to map the eastern side of the North Atlantic Garbage Patch, a collection of microplastic and other trash concentrated by ocean currents.

In 2015, the nonprofit's attention turned to [climate change research](#), and it teamed up with NASA's Ocean Melting Greenland Program to conduct research in the coldest northern reaches of the planet.

The idea was simple, but groundbreaking. Aboard his small sailboat, Rutherford could conduct research more cheaply and efficiently than with a large icebreaker, which would burn far more fuel along the way. But it takes tremendous skill—and a "sailor's intuition"—to avoid icebergs and endure storms and fog without the safety net that a heftier vessel provides, Rutherford said.

It quickly became clear that the nonprofit was outgrowing its aging sailboat, which—at 42 feet—could only hold about four people at once.

Enter the Marie Tharp, a Bruce Roberts Voyager 650 that hardly had been sailed at all when it was donated to the nonprofit. Outfitting the boat, which had fallen into disrepair, for dangerous voyages north required significant work. The coronavirus pandemic found Rutherford living in a boat yard on his new ship, a layer of saw dust coating his bed and his belongings as he completed the repairs.

After the Tharp's first trip to Greenland last year, there were a few kinks to work out, Rutherford said. For one thing, the boat's multi-beam sonar system was attached to a pole in front of the boat, frequently endangered by ice formations and the elements. But now it is stowed on the bottom of the boat, protected by metal shark fins that will work to divert potentially damaging ice chunks.

During the trip, the Marie Tharp and her passengers (seven to nine people, including a rotating cast of scientists with Arctic research to complete) will visit what Trenholm called the "dirtiest fjord in all of Greenland," located near the southwestern town of Paamiut.

Water from melting glaciers have filled that fjord with excess sediment, which carries nutrients capable of upending the ecosystem's balance—the same phenomena playing out in an estuary closer to home: the Chesapeake Bay.

The water quality research collected by the Tharp and her crew will offer a critical snapshot of the current conditions stemming from [climate change](#) in the Arctic, assisting efforts to predict the future. And the seabed samples will tell the story of the fjord's history before glacier melt, in the same way rings on a trunk chart the life of a tree.

The Ocean Research Project's latest trip has attracted the attention of consumer advocate and environmentalist Ralph Nader, now 89-years-old, whose great nephew Adnaan Stumo is a crew member.

Nader, who ran four times for president, said he was struck by Rutherford's effort to make climate research cheaper and greener, calling it a bright spot amid otherwise distressing subject matter.

"There's so much grim reality in this climate violence, climate catastrophe," Nader said. "And he's quite a unique person."

Stumo, an experienced sailor who has completed trips across the Atlantic and Pacific oceans, said he learned about the Ocean Research Project while listening to Rutherford—one of his sailing heroes—speak on a podcast. When Rutherford mentioned that he was seeking sailors for his next voyage, Stumo reached out. And soon enough, he was set to join Rutherford and make his very first trip to the Arctic.

This year, the crew is all volunteer. After a critical funding source dried up, none of the crew members will receive a salary during the five-month voyage, though all the research activities are paid for.

That news did not deter Stumo.

"I thought about it for a minute," he said. "But at the end of the day, if I wanted to get rich, I would be doing something else."

The crew is mostly women, which is a first for sailor and shipwright Allie Gretzinger.

"Usually, I'm the only female or there's maybe one other," said Gretzinger, who also will be making her first voyage to the Arctic aboard the Marie Tharp.

Over the past several weeks, Gretzinger and Stumo and have been among those helping Rutherford prepare the boat. For Stumo, that has included installing a wind generator while "swinging high in the air trying not to drop tools" and a Costco haul for the ages, featuring massive amounts of dry and canned goods, from pasta to tuna.

The bill? More than \$3,500, he said.

"The girls behind the counter were kind of wide-eyed, like: 'Are you having a party?'" Stumo said.

But a party it won't be. Stumo and the crew will battle the elements, navigating narrow fjords and dodging submerged icebergs the size of school buses.

Of course, that is all part of the adventure. But Stumo said he is more energized by the knowledge that he will be contributing to climate change research conducted in a "unique window" in time, as glaciers packed with geological clues recede into the land.

In addition, he is sailing with the memory of his sister Samya Stumo, who perished at 24-years-old in the 2019 Ethiopian Airlines crash that took the lives of all 149 passengers and crew. At the time, Samya Stumo was heading to Kenya for her first project with a health systems development organization, trying to fulfill health care needs for vulnerable communities.

"She would have had a 50-plus-year career and touched so many lives," Stumo said. "So, I am trying to do my small part and keep her in mind."

2023 The Baltimore Sun.

Distributed by Tribune Content Agency, LLC.

Citation: From Annapolis to the Arctic: Research schooner begins journey to examine the effects of climate change (2023, May 15) retrieved 14 July 2024 from

<https://phys.org/news/2023-05-annapolis-arctic-schooner-journey-effects.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.