

FjordPhyto

This project requires some pre-season preparation

Background

Phytoplankton are microscopic, plant-like creatures that live in the ocean and use sunlight as well as nutrients to produce energy via photosynthesis. They are the foundation of the food web, providing a food resource for everything from microscopic, animal-like zooplankton to seals, penguins and multi-ton whales. They play a critical role in the global carbon cycle, drawing carbon dioxide out of the atmosphere and into the deep ocean. Phytoplankton contribute to half the annual oxygen input – same as all the trees and plants on land combined! Over the past 40 years, the Antarctic Peninsula has experienced some of the fastest warming rates on the planet. Warming temperatures cause ice and glaciers to melt, and this melted fresh water drains into the fjords, changing the ocean chemistry and potentially the phytoplankton biodiversity. FjordPhyto www.fjordphyto.org is a Citizen Science project relying on data collected by travellers as they visit various fjords along the Antarctic Peninsula throughout the austral summer. By collecting phytoplankton throughout the entire summer season, citizen scientists can help researchers understand how melted glacial water can influence and change the population of phytoplankton in fjords and what impact this might have on the polar coastal ecosystem.



IMPORTANT NOTICE: It is recommended that you discuss permitting or authorisation needs with the project lead for any citizen science project in advance of the Antarctic season, engaging with your National Competent Authority as necessary. Please remember to add citizen science activities to your Post Visit Report form.

How can you/guests participate?



FjordPhyto is a fantastic project to engage guests in the hands-on scientific sampling process to collect phytoplankton from fjords along the Antarctic Peninsula using some of the same techniques as oceanographers. Sampling is designed to take approximately one hour, but we recommend allotting 1.5 hours for a relaxed guest experience. This can be done as part of a Zodiac cruise or a landing stop. There is a list of GPS coordinates for multiple sites of interest, which will be provided by the FjordPhyto team.

The project should be led by a trained expedition staff member, who will help guests record data and collect phytoplankton. The leading expedition staff member is responsible for making sure samples are labelled and stored properly as well as data sheets are filled in correctly. Recorded data should be scanned and sent via email to the FjordPhyto Team (see contact info below). Transfer of samples and gear back to the USA or Argentina will be coordinated between the FjordPhyto Team and the leading expedition staff member in charge toward the end of the Antarctic season.

Training and equipment required

FjordPhyto requires a few hours (3-4) of pre-season training to become familiar with the equipment and sampling methods. The leading expedition staff member is asked to schedule a call with FjordPhyto Team members. There are two training aspects to be able to effectively facilitate this program: 1) training through a virtual eCourse is provided and 2) a required in-person training session with FjordPhyto Team members, or an expedition staff with the gear in hand. These two methods are the only combination to ensure project success in data collection and guest engagement.

All equipment needed for this project is provided by the FjordPhyto Team.

Expected results/feedback

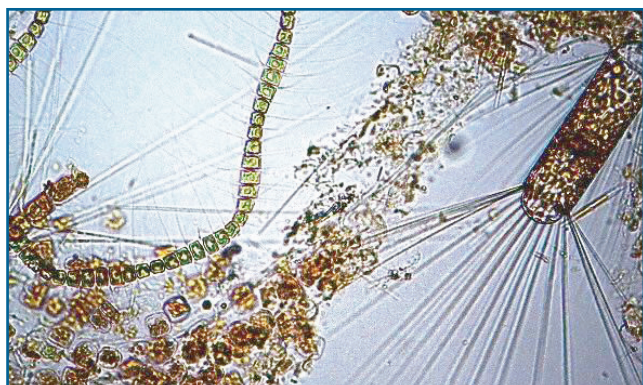
The collected samples will contribute to the doctoral and masters projects of graduate students investigating how glacial meltwater influences phytoplankton communities along the Antarctic Peninsula. Researchers will process the data and send updates and results to the expedition staff/participating company prior to each subsequent season. Guests can also follow blog posts and updates on www.fjordphyto.org and on social media [@fjordphyto](https://twitter.com/fjordphyto).



Resource material

Detailed project instructions, data sheets as well as on board presentation materials will be provided by the FjordPhyto Team.

Scientific project partners



The data and samples are collected in Ushuaia and sent to FjordPhyto scientists in the Vernet Lab at Scripps Institution of Oceanography, University of California San Diego and at Universidad Nacional de La Plata, Argentina for analysis.

FjordPhyto is sponsored by NASA's Citizen Science for Earth Systems Program (CSESP) award # 80NSSC21K0856 (Pilot phase) # 80NSSC22K1914 (Implementation phase) (2021 - present), NASA's SMD Community of Practice for Education (SCoPE) Seed Grant (2022 - 2024), the National Science Foundation Public Participation in STEM Research (PPSR) extension to NSF award # PLR-1443705 (2017), as well as from a grant award from Hurtigruten Foundation (2018), and from generous donors (2019).

Main contact information

To see how you can get involved for training, please contact the FjordPhyto Team at fjordphyto@gmail.com

The Lead Scientists are Allison Cusick and Martina Mascioni, and the Principal Investigator Maria Vernet and CO-PI Rick Reynolds

Social Media:

[@FjordPhyto](https://twitter.com/FjordPhyto) (Twitter, Facebook, Instagram)

www.facebook.com/fjordphyto

www.instagram.com/fjordphyto

<https://x.com/fjordphyto>

www.youtube.com/fjordphyto

Donation page: <https://crowdsurf.ucsd.edu/campaigns/citizen-science-microscopic-creatures-hold-the-key-to-the-future-1#/>

