

Running Tide Iceland Research Program Progress Report

Q3 2023

This report outlines the progress and status of Running Tides' research program in Iceland, submitted to the Marine and Freshwater Research Institute and the Environment Agency of Iceland, and is part of the consultation and progress update requirements set out in the research permit issued by the government of Iceland on July 8, 2022.

This progress report includes updates on the following research programs focused on furthering knowledge on the efficacy and potential environmental impacts of ocean based carbon removal:

1. Coastal Benthic Experiment
2. Open Ocean Macroalgae Growth Experimental Deployments
3. Open Ocean Carbon Removal Deployments Phase 1
4. Posters and European Marine Biology Symposium 2023 and IceBio 2023

Below is an overview of appendixes provided with this update.

Appendixes to Research Program Progress Report	
Appendix I	Iceland Experiments Overview V1.2 (Up to date as of October 17th, 2023)
Appendix II	Iceland Benthic Pilot Preliminary Overview
Appendix III	Open Ocean Growth Experiment Overview
Appendix IVI	Poster - Coastal Benthic Preliminary Data Overview

1. Coastal benthic experiment in Hvalfjörður

Ten sampling trips have now been completed since the baseline samples were collected for the coastal benthic experiment in Hvalfjörður. Sediment and seawater have been sampled regularly and data collected from loggers that were placed with the material, in both a control and an experimental plot. (See **Appendix II**).

This experiment is one of multiple benthic research projects Running Tide is engaging in related to the fate and impact of carbon removal material deposited in the benthic environment, but is the first one conducted within Icelandic waters.

2. Open Ocean Macroalgae Growth Experiments

Between June and September of this year, we executed a total of 5 open ocean macroalgae growth experiments, both in the North Atlantic and the Pacific.

The goal was to develop operational and scientific capability from inoculation to deployment to verification that can ladder up to full macroalgae deployments. Additionally, Open Ocean Growth Experimental deployments serve as a baseline assessment of the macroalgae product in a given oceanic location over time, setting an important starting point and uncovering opportunities for improvement in our system design.

Key results from the open ocean growth experiments performed in Iceland, show a successfully demonstrated baseline of visual growth. (See **Appendix III**)

3. Open ocean carbon removal system deployments

In September 2023 we concluded Phase 1 of experimental open ocean carbon removal system deployments. Phase 1 consisted of 15 discrete deployments deploying around . We're in the process of analyzing data from the deployments, quantifying the impacts on the carbon cycle and environment. In the following months we will finalize those reports and share accordingly.

For each deployment, we collect data required to quantify the net transfer of carbon from the fast cycle to the slow cycle, as well as seawater samples and other environmental data to evaluate local environmental impacts.

In Q3 through Q1'24 we will analyze the data generated by these experiments and produce the relevant reports related to certain aspects of the experiments. These reports will cover durability of carbon sequestration, modeling and quantification, and a lookback on phase 1 of the research program. We will share those reports as they become available.

4. Posters at EMBS 2023 and IceBio 2023

Running Tide presented benthic experiment results at the 56th European Marine Biology Symposium (EMBS) that was held in Iceland this year, and at the biennial Conference on Biology (IceBio) in Iceland. The poster was titled "Field experiments to evaluate the effects of amplifying natural ocean processes for carbon dioxide removal." (See **Appendix IV**).