

In the months following an initial convening in January 2021, Running Tide Technologies, Inc. (“Running Tide”) and Ocean Visions jointly formulated a plan described the topical areas whereby Ocean Visions advisors would advise and evaluate Running Tide. This research plan describes those areas of engagement. Future progress reports from Ocean Visions advisors will describe progress on these mutually agreed-upon areas of collaboration. Ocean Visions acknowledges that Running Tide can, and may, choose to pursue additional areas of research and development outside the scope of its relationship with Ocean Visions and the areas of agreed upon collaboration described in this research plan.

Engagement Scope

Experiment Review

For each experiment, Running Tide will share experimental design and methods, and Ocean Visions will provide expertise and guidance.

Coastal Experiment

- Summary: A coastal experiment consisting of large arrays of moored microfarms seeded with kelp. Several instrumentation buoys containing a suite of sensors, including GPS, depth, temperature, salinity, pH and light sensors, were released throughout the stations. Additionally, water samples were frequently collected for nutrients analyses. To correlate the growth rates and carbon content of the kelp with these environmental variables, subsets of microfarms were periodically surveyed and harvested for in-shop analyses. A few buoys equipped with cameras were tethered to the moored microfarms.
- Location: Casco Bay, Maine

Pilot Experiments

- Summary: Two pilot offshore experiments conducted in the North Atlantic to test the free-floating prototype microfarms. A proprietary system remotely monitors and quantifies growth and carbon content of select microfarms dependent on environmental variables.
- Size: 100 microfarms each
- Locations: North Atlantic

Environmental Impact Assessment

Evaluate environmental impact for deployments of approximately 100 and 12,500 microfarms.

Impact assessment will evaluate:

- Pelagic ecosystems
 - Wild kelp populations and fouling organisms
 - Impacts of abiotic microfarm components
 - Interactions with macrofauna and fisheries
 - Impact on community composition and functions
- Benthic ecosystems
 - Predicted fate of the microfarms
 - Impacts on the benthic communities

Physical Oceanography

Ocean Visions will provide expertise on the Running Tide system that models microfarm trajectories with ocean circulation data.

Legal Framework

Ocean Visions will provide insight into the regulatory landscape for Ocean CDR research occurring in international waters. Running Tide will assess this guidance in conjunction with outside legal counsel, and determine the best path forward for permitting its efforts.