

2ND QUARTER PROGRESS REPORT

2023



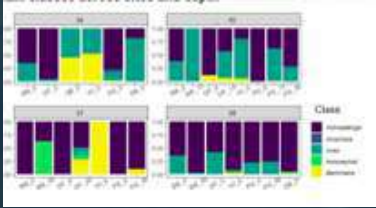
KELP FOREST
FOUNDATION

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Q2 HIGHLIGHTS

April



eDNA data analysis by Montpellier University

First board meeting of the year held online



Purchased multi-corer for sediment research

Samantha presented KFF to the eRotary Youth Leadership Awards



May



Samantha visited Scott Lindell of Woods Hole Oceanographic Institute

Samantha attended the MIT Solve Conference in Boston



KFF presented at Ocean's Day of the Double Nature Summit by Climate Cleanup

Samantha was interviewed by a grade 11 student from India for the Via News Didi program



Samantha attended the UK Marine Natural Capital Workshop

Kelp Blue concept note accepted by Gold Standard: to draft a carbon credit methodology for offshore cultivation of seaweed



June



The KFF team attended the Oceanovation Festival, The Hague

Xu attended the ChangemakersXChange Summit for the Planet near Berlin



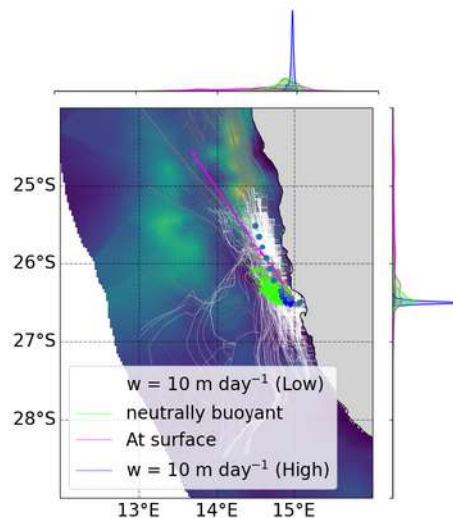


**RESEARCH
PROGRESS**

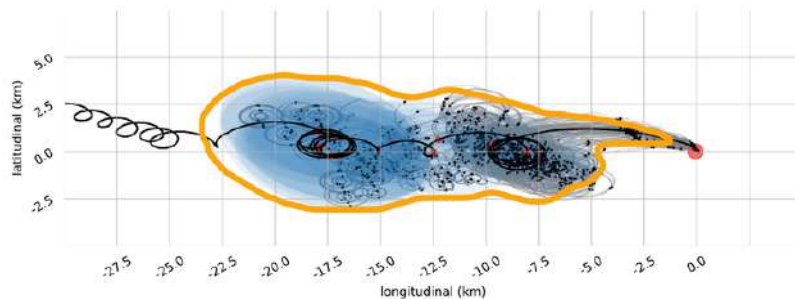
CARBON SEQUESTRATION RESEARCH PROGRESS

CAMBRIDGE UNIVERSITY CARBON PATHWAY MODEL

Over the last quarter, Prof. John Taylor and Dr. Ke Li of Cambridge University have advanced the kelp carbon dioxide removal model to include more accurate predictions of kelp trajectories in the ocean. This oceanographic model is one part of the three-part model aimed to assess the kelp carbon sequestration pathways. The image on the right is a result of their previous work, which is a trajectory model of the Luderitz coast, predicting how kelp detritus would move based on weather conditions such as wind and waves. Following this work, the recent focus was on creating a higher resolution, statistical model with the purpose of understanding how far the kelp detritus should travel.



The second image on the right shows this higher resolution model: the grey curves and black dots indicate the trajectories of kelp particles, whilst the blue shading and orange contour show the area over which kelp particles are expected to spread from a new statistical model that accounts for dispersal by wind, waves, and turbulence.

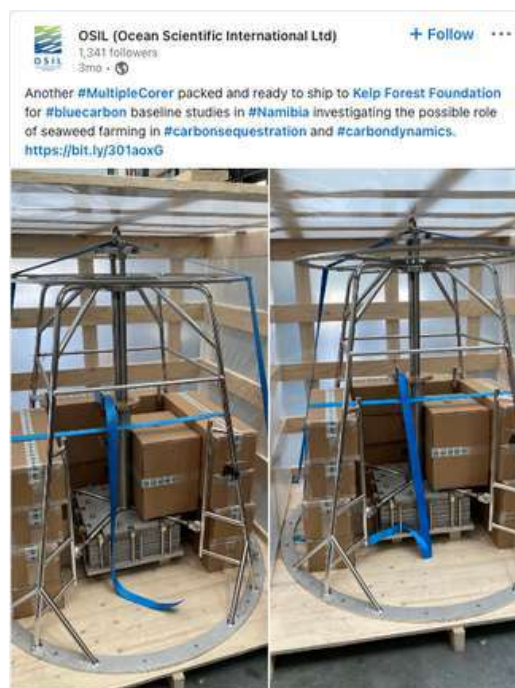


The Cambridge team has also started working on the kelp growth model, which is the second part of the three part model. The last part of the model will be a bio-geochemical model, assessing nutrients and other water parameters and how that affects kelp growth and trajectories. This will need data from the kelp farm in Namibia.

MULTI-CORER

Thanks to the Great Island Foundation, we have purchased a multiple corer that will be used to collect sediment samples from the ocean floor in and near the Kelp Blue farm and in the dispersal path calculated by the above model.

The multi-corer, manufactured by OSIL (Ocean Scientific International Ltd.), will accommodate cores of up to 1 meter deep and enable undisturbed sediment sampling. This data will help us create a baseline assessment of the carbon content present along the Luderitz coast, and allow us to track changes to the environment, meaning the accumulation of kelp carbon in the sediments.



CARBON SEQUESTRATION RESEARCH PROGRESS

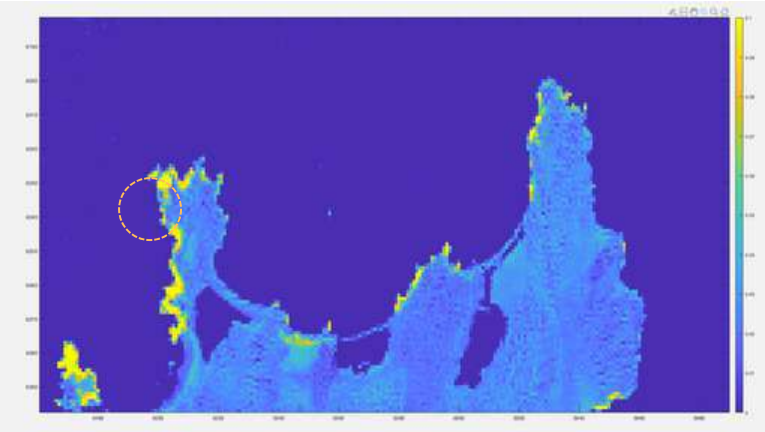
NET PRIMARY PRODUCTION (NPP)

Michael Mateus, a KFF scholar, is studying the Net Primary Production (NPP) of the cultivated giant kelp forests of the Kelp Blue pilot farm. The NPP is a study of the biomass that is present in the farm, and the amount of carbon that is captured in the kelp biomass. Michael is studying the growth rate and biomass present at the farm. He is also looking to calculate the dissolved organic carbon DOC and the sources of carbon in the farm.

With guidance from his supervisor Tom W. Bell at Woods Hole Oceanographic Institute, Michael uses a range of methods to estimate the biomass production, including remote sensing technologies, as well as assessing water samples and taking manual measurements of the giant kelp.



Photos taken from a drone, showing the Kelp Blue nearshore pilot site, as the kelp is growing towards the ocean surface.



The Luderitz coast observed with satellite imagery. The Kelp Blue farm is highlighted with the orange circle.

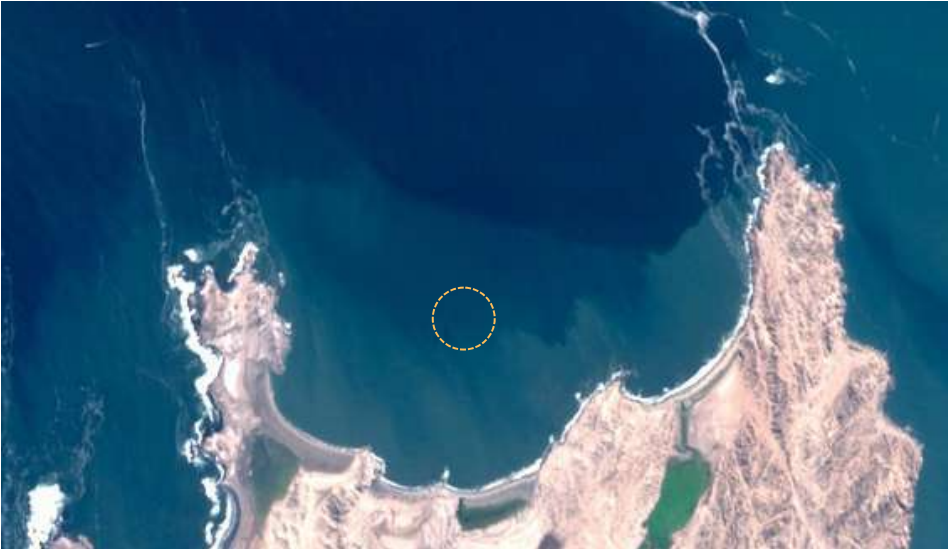


Image taken from the Sentinel 2 satellite. The farm can already be observed from space - see highlighted circle for the location.

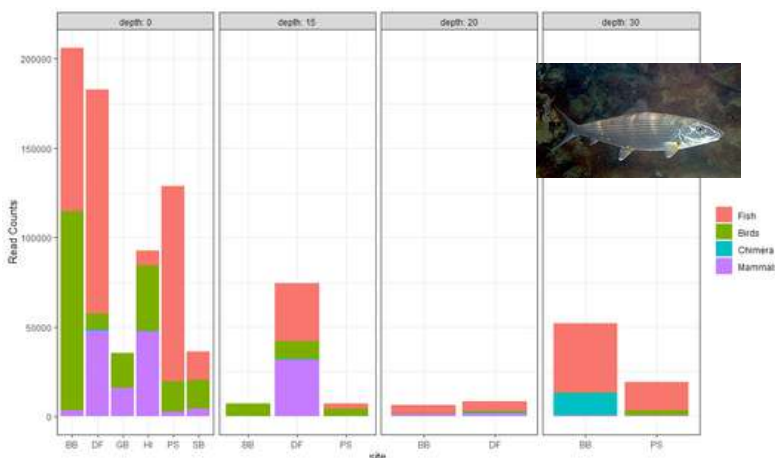
BIODIVERSITY RESEARCH PROGRESS

In the last quarter of 2022, a student at Montpellier University, under the supervision of Dr. Thomas Lamy, analysed the baseline environmental DNA (eDNA) data from samples collected from the Kelp Blue pilot site between February and September 2022. The aim was to explore the raw data and compare it against different databases and methods in order to gain deeper understanding of the overall data.

Findings on biodiversity at the Kelp Blue site indicate that:

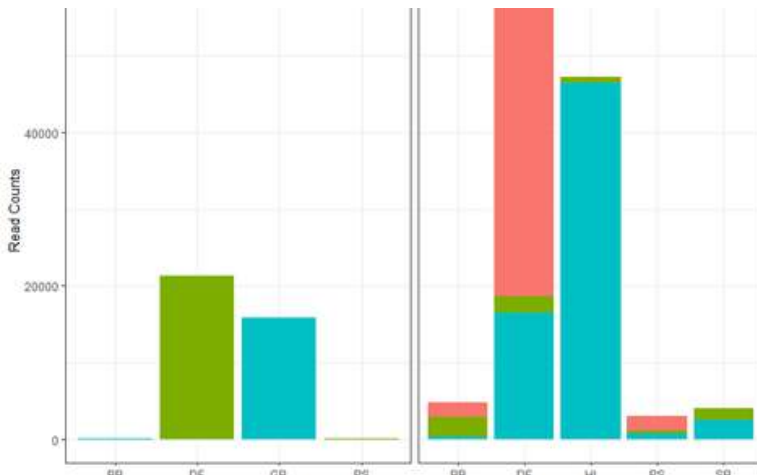
- The most diverse groups are fishes, followed by birds, and finally marine mammals;
- For fish and birds, seasons are a stronger signal of diversity and composition compared to difference in location;
- In total, two bird species were found to be endangered and two fish species were classified as vulnerable; and
- Two species of dolphins and birds were detected and classified as near-threatened.

Main taxonomic groups found in eDNA samples across sites



- High level of chimaera identified. Chimaera are soft-bodied, shark-like fish, with a bulky head and a long tail. These were highest in presence at Boat Bay at 30mts depth
- Fish is the most prevalent species
- Species identified in South Africa and Namibia are the same, but different stock
- The South African stock migrates to Namibia during spawning season
- At Halifax bay, a high level of cetaceans observed (Heaviside's dolphins and humpback whales - strong migratory pattern). Diversity is low (eg 2-3 species mammals) and stable

Main groups of mammals per sites



Cetacean: Heaviside dolphin



Pinniped: Cape fur seal



- The most dominant group are Cetacea (whales, dolphins, porpoises)

Laridae (Kelp Gull)



Haematopus ostralegus (Oystercatcher)



IUCN Red list:
Near Threatened

Temporal changes in aves across sites and depth

- Birds are well indicated, but only appear in samples at the surface level (only penguins shed DNA deep in the water)
- Bird diversity provide a good indicator if used with phytoplankton correlation, most abundant April/May/August –
- Halifax bay attracts birds as they gather for mating, Laridae is most abundant (there 4 species of galls)

Phalacrocorax capensis (Cape cormorant)



IUCN Red list:
Endangered

Spheniscus demersus (African penguin)



IUCN Red list:
Endangered

BIODIVERSITY ALGAL BASELINE STUDY



Angelique Dodds, KFF scholar, got her first go at thesis-data-collection in April, with the whole environmental monitoring and ops team assisting to collect kelp samples. This included the removal and biomass quantification of local kelp beds and understory kelp while looking at the correlation/relationship that phytoplankton might have with our two native kelps. Angelique's thesis aims to describe and analyze the full algal ecosystem of the local kelp forests.

Angelique presented her MSc proposal "The ecology of kelp bed communities at selected coastal areas in Luderitz: Analysis of diversity, biomass and spatial distribution: in front of the University of Namibia, School of Fisheries and marine science panel. It was successfully recommended to the School of Higher Education for approval and all documents have been submitted with the corrected proposal. Well done Angie!



THE ECOLOGY OF KELP BED COMMUNITIES AT SELECTED COASTAL AREAS IN LUDERITZ, ANALYSIS OF DIVERSITY, BIOMASS, AND SPATIAL DISTRIBUTION

By

Angelique Dodds
201408977

Main supervisor: Dr. S. Mafwila
Co-supervisor: Ms. C. Deelle
Co-supervisor Dr. I. Hendy



BIODIVERSITY

BENTHIC IMPACT STUDY



Beata Tooleni, our KFF scholar, collected sediments samples from under the kelp farm in Shearwater Bay using a Van Veen grab. For the adjacent coastal site, sediments were collected by digging a 30 cm long trench using a hand shovel. Sediments were packed into sealable plastics and transported to the laboratory for analysis. They were then passed through a sieves. Organisms were hand picked and fixed using 75% ethanol. Beata identified them by using an inverted microscope and compared them with those featured in the Two Oceans identification guide.

Betty identified a total of 139 individuals belonging to 3 families (Anthropoda, Mollusca and Annelidawere) identified at Shearwater Bay Pilot site and 217 individuals at Shearwater Bay sandy shores. Here are some images she recorded.



Aulacomya ater
(Ribbed mussel)



Bullia laevissima
(Flat plough shell)



Diopatra cuprea
(case-worm)



Bullia digitalis
(Finger plough shell)



Jasus lalandii
(West coast rock lobster)



Excirolana latipes
(Wide-foot beach louse)

BIODIVERSITY

VISITORS TO THE KELP BLUE FARM

The KFF scholars are monitoring biodiversity in and around the cultivated giant kelp forests by taking eDNA samples monthly. When they go out at sea, they also keep track of the visitors of the giant kelp. In the past few months, the team has encountered some beautiful and rare species, which we have explored in-depth. You can meet some of the visitors below:

MOLA MOLA (OCEAN SUNFISH)



- The Mola Mola is the largest bony fish species in the world.
- They are known for their unique appearance with a flattened body and a lack of a tail fin.
- It is listed on the IUCN Red List of Threatened species with "vulnerable" status.
- Its main threats include accidental capture in fishing gear, pollution and habitat destruction
- The best time to spot them is during the months of August and September when they migrate to the warmer waters of the Atlantic Ocean.
- They can lay up to 300 million eggs at once, more than any other known vertebrate.

DARK SHYSHARKS (*HAPLOBLEPHARUS PICTUS*)

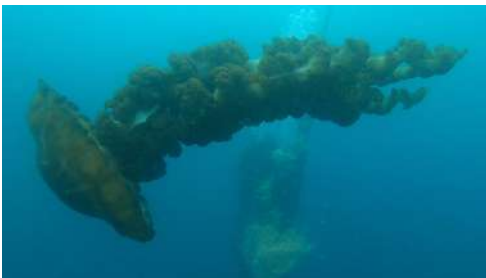
- Shysharks are a type of catshark, endemic to the temperate waters off southern Namibia and western South Africa. They dwell on the sea floor and like rocky reefs and kelp forests.
- This small shark grows to a maximum length of around 60 cm (24 in) and has a distinctive pattern of dark spots and blotches on its body, which help to camouflage it in its natural habitat.
- Here, they were seen during the day, but in general the shyshark is a nocturnal species that spends the day hiding in crevices or under rocks. It preys mainly on small crustaceans, bony fishes, and molluscs.
- The shyshark has a unique defense mechanism - when threatened, it can curl its tail around to cover its eyes (making it appear like it is sleeping) hence the name "shyshark". This behaviour is believed to deter predators from attacking.
- The shyshark is an important part of the marine ecosystem, playing a role in maintaining the balance of the food chain. It is also an important species for ecotourism, with divers and snorkelers often seeking out this shy and elusive shark.



BIODIVERSITY

VISITORS TO THE KELP BLUE FARM

JELLYFISH



- These ethereal creatures, including the Benguela Compass jellyfish, Crystal jellyfish, and Box jellyfish (all 3 shown in the photos), are captivating indicators of our ocean's health and they play a vital role in maintaining ecosystem balance
- Jellyfish are remarkable organisms, serving as a link in the trophic food web by feeding on fish larvae and eggs. Their presence or absence can indicate significant ecological changes. Unfortunately, jellyfish populations are increasing globally, signalling an imbalance in our oceans due to overfishing, rising ocean temperatures, and increased acidity. This is especially true in Namibia.
- Our team closely monitors these population changes and are testing their settlement by creating rafts with plates of different materials. So far, they have observed no attachment or growth of jellyfish polyps (baby jellyfish) on the farm structures.
- Understanding the settlement and recruitment rates of jellyfish polyps is crucial to comprehend their potential impact of kelp cultivation on jellyfish populations.



SPINY LOBSTER

- This spiny lobster is also known as a West Coast rock lobster (*Jasus lalandii*) and in Namibia, it is known as crayfish. Spiny lobsters have very long, thick, spiny antennae and lack claws on the first 4 pairs of walking legs. They are an important key species to maintaining marine biodiversity because they prey upon kelp-consuming species such as sea urchins.
- If a *Jasus lalandii* loses a limb due to injury or predation, it has the ability to regenerate a new limb through a process called autotomy. It also swims backwards in emergencies using the tail, but generally crawls around on the reef or kelp blades.
- The IUCN has listed spiny lobsters under "Least Concern", but overexploitation of *Jasus lalandii* in Namibian waters has been a cause for concern in recent years so restrictions on fishing for the species have been put in place.



BIODIVERSITY

VISITORS TO THE KELP BLUE FARM

COMMON OCTOPUS (*OCTOPUS VULGARIS*)

- The octopus is known for its exceptional problem-solving abilities, camouflage skills, and remarkable memory. With its flexible body, it effortlessly navigates through the intricate kelp forest environment. While primarily nocturnal, our divers recently had a rare daytime encounter with this intelligent marvel in the cultivated kelp forests.
- Two other captivating octopus species were observed: the Brush-tipped octopus (*Eledone schultzei*) showcases lengthy, brush-like appendages on its arms, though they remain hidden from view; and the Southern giant octopus (*Enteroctopus magnificus*), one of the largest octopuses worldwide, can reach lengths of up to 20 meters.
- Octopuses are among the most advanced mollusks and the largest and most sophisticated invertebrates. Some cephalopods have reduced or entirely lost their shells, relying on internal structures for buoyancy. Their head and foot have fused, forming remarkable arms adorned with suckers. Equipped with a powerful parrot-like beak, their mouths can swiftly subdue prey and deliver toxins.



MUSSELS

- These black mussels, (*Choromytilus meridionalis*) distinguished by their smooth, shiny and predominantly black shells, are the inhabitants of the Namibian cultivated kelp forests. Their natural predators are the rock lobsters, whelks (sea snails), and spiny starfish. Mussels remove harmful bacteria, algae, metals, and particles from the water, thus safeguarding aquatic ecosystems.
- These mussels enjoy a mutually beneficial relationship with kelp forests. Mussels provide the kelp forest with clear water and nutrients, while the kelp offers shelter and a pleasant environment (less acidic waters) for mussel growth. Due to this win-win relationship, kelp and mussels is sometimes grown purposely together in an innovative approach called Integrated Multi-Trophic Aquaculture)
- Apart from their ecological significance, black mussels also have culinary and economic importance.
- Other mussels we encounter in the cultivated kelp forests in Namibia, include the Brown mussel (*Perna perna*), Bisexual mussel (*Semimytilus algosus*), Ribbed mussel (*Aulacomya atra*), Mediterranean mussel (*Mytilus galloprovincialis*), and Half Hairy mussel (*Gregariella petagna*)- which all serve as ecosystem engineers in aquatic environments.

GEOCHEMISTRY RESEARCH PROGRESS

SEABIRD SENSOR

We have purchased and received the Seabird SUNA V2 Nitrate Sensor that is capable of monitoring nutrient levels in the water real-time. The sensor measures nitrate with accuracy and stability in different environmental conditions. This sensor is a key instrument in KFF's monitoring efforts of the water geochemistry at the Kelp Blue pilot farm. Nutrient levels are important indicators for water quality and can act as a proxy for kelp growth.



OCEAN ACIDIFICATION RESEARCH

Oceans play a vital role in absorbing the excess CO₂ that is emitted by human activity, as CO₂ is stored in the ocean waters as carbonic acid. The oceans have therefore buffered much of the effects of climate change. While the ocean is efficient in absorbing the excess CO₂, this increased level of carbon acid causes ocean acidification, a chemical imbalance in the ocean. A more acidic ocean is harmful to marine species, especially those that are calcifying, e.g. organisms that create shells and structures such as oysters, corals, and plankton. It also harms fish' ability to detect predators in the waters.

Cultivating giant kelp has the potential to reduce ocean acidification as the kelp absorbs vast amounts of CO₂ as it grows. To measure this potential, the KFF scholars are regularly taking water quality measurements, looking at nutrient levels alkalinity, oxygen, and more.

Our recent project within this topic was a collaboration with the Joint Global Ocean Flux Study (JGOFS) and World Ocean Circulation Experiment, and CSIR (Council for Scientific and Industrial Research). In this project, the KFF scholars collected water samples, spiked these samples with mercuric chloride for preservation, and sent to the CSIR lab in Cape Town for analysis. Indicators measured were total alkalinity, dissolved organic carbon, and particulate organic carbon.

*Top left: Michael Mateus taking water samples
Bottom left: spiking the water samples with mercuric chloride
Right: samples received at the CSIR.*



AVOIDED EMISSIONS KELP BIOSTIMULANT

PRELIMINARY RESULTS - WAGENINGEN UNIVERSITY

KFF is collaborating with reNature and Kelp Blue on a project aimed to develop a model farm design for regenerative agriculture cotton farming, which will allow the testing of giant kelp biostimulants as a sustainable input. The farm, located in Voi, Kenya, is a test case for the development of the design and field technical guidelines for Labl cotton - Labl is a fair clothing producer for fashion brands aiming to have an integrated value chain to ensure sustainable production of cotton and garments.

The model farm in Kenya is addressing key challenges of the farm area, including: water stress, low tree cover, low soil organic matter, poor soil health, climate variability, low productivity, and poor management and understanding of (regenerative) practices.

The first phase of the project was a training of seven Labl farmers. reNature trained farmers on soil health, the use of cover crops, runoff management, and other key management practices to maintain a regenerative and healthy farm. In this phase, the project participants also helped design the layout of the farm to include trees and a diverse selection of crops.



The farmers applying the methods on the land

The biostimulant at the Kelp Blue office

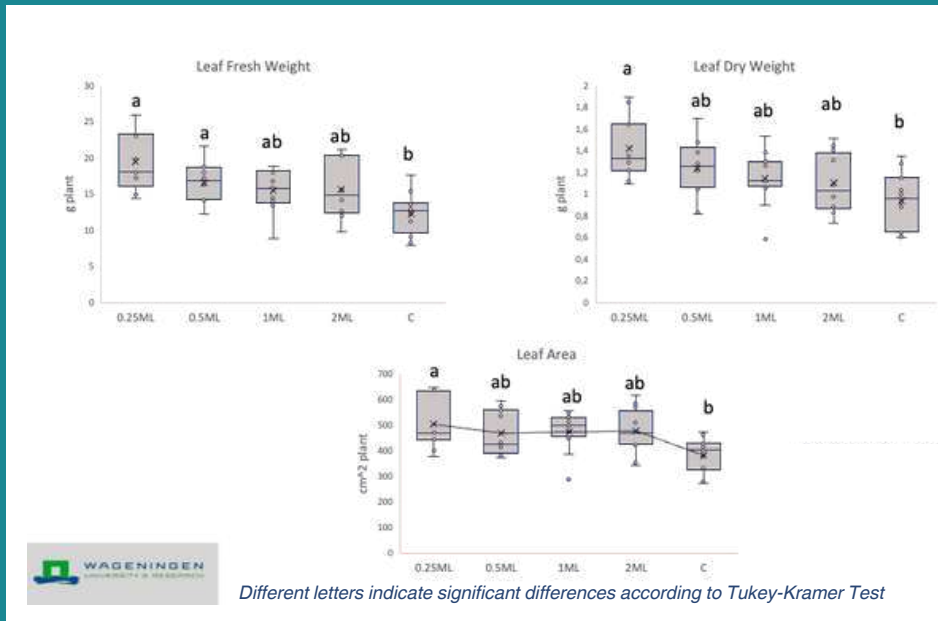
Cotton plant seeds

AVOIDED EMISSIONS KELP BIOSTIMULANT WUR STUDY

WAGENINGEN UNIVERSITY (WUR) PRELIMINARY TRIALS RESULTS

Hydroponics Trial: How much biostimulant to use?

WUR presented the initial results of their 3- stage study. The first stage involves trying to understand what the optimum dosage is of the biostimulant.



Four dosage rates were used on tomato plants: 0.25ml, 0.5ml, 1ml and 2ml per L⁻¹ nutrient solution over a 4-week growing period (28th April-26th May, 2023).

The preliminary results not only showed that the plants which had received the giant kelp biostimulant treatment grew better than those that did not receive any (ie. vs C=contol) but that the most effective dosage was 0.25ml L⁻¹ . It was however concluded that it is worth exploring even lower dosages



A dosage of 0,25ml per L⁻¹ also showed better results for root development.

AVOIDED EMISSIONS

KELP BIOSTIMULANT WUR STUDY



Here again we see that a dosage of 0,25ml per L⁻¹ of biostimulant also showed better results for root development.

WHAT'S NEXT?

Dr Romyana Karlova and Dr Francesco Cristofano will continue to the next stage of their research which will be to phenotype the roots in hydroponics

Once the best concentration is found, they provide for a stressful environment for plants to live in in order to assess their resilience with and without biostimulant. They will introduce the following stressors:

- Salt
- Drought
- Nutrient Stress (N – deficiency to evaluate nutrient use efficiency)

They will also look to obtain information on the biostimulant composition from the MS/MS (spectrometry) data.

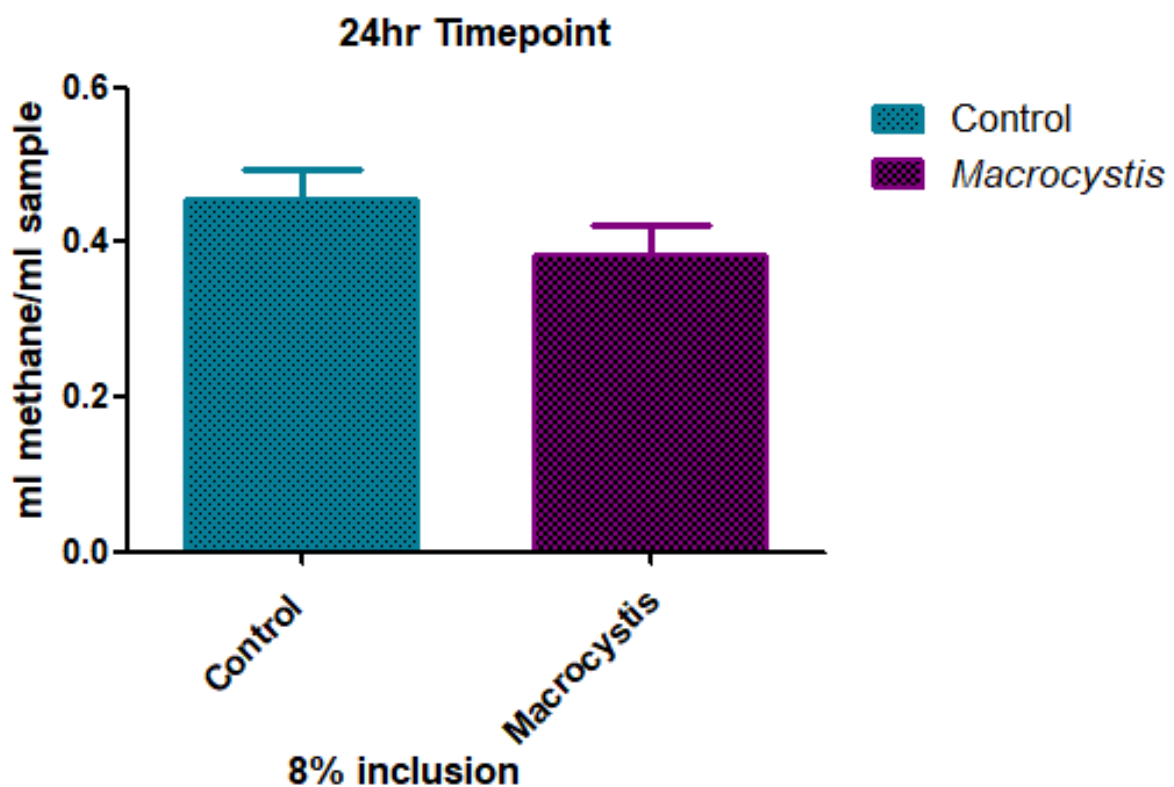


AVOIDED EMISSIONS

CATTLE METHANE REDUCTION

Dr. Sharon Huws and her team at the Queen's University of Belfast have tested the effects of adding giant kelp (*Macrocystis pyrifera*) to cattle diets to look for improved animal health and methane reductions. Cattle, such as cows and sheep, emit high levels of methane in their digestion, as they have multiple stomachs through which their food is passed. Adding seaweed to the diet has shown significant decrease of the methane emissions (up to 90% in some studies with red seaweed). This study aims to explore whether other types of seaweed have a similar potential, as species such as *Macrocystis pyrifera* are easier to cultivate at scale. The team has observed effects in lab-controlled experiments (in-vitro).

The below results show the Control (Grass Silage at 100%, 4 replicates) and the *Macrocystis* (8% Dry Matter basis inclusion, 92% grass silage substrate) for methane production after being incubated with rumen fluid and Van Soest buffer for 24hrs. The average reduction is 15.97% but the difference was not significant.



OCEAN LITERACY



BLUE HOUSE PROGRAMME

MEET OUR MSc CANDIDATES

As part of KFF's Blue House Programme, three MSc students from the University of Namibia have started their work in monitoring the cultivated giant kelp forests of Kelp Blue. The videos below introduce these three students and showcase the work that they do in measuring biodiversity and kelp production.



BEATA TOOLENI

- Performing a baseline assessment of the benthic biodiversity
- Co-supervised by dr. Dan Crossett, Cawthron Institute
- Intro video: <https://vimeo.com/836512756?share=copy>



MICHAEL MATEUS

- Assessing the Net Primary Production of the cultivated giant kelp of the Kelp Blue farm
- Co-supervised by dr. Tom W. Bell at Woods Hole Oceanographic Institute
- Intro video: <https://vimeo.com/831249266?share=copy>



ARISHA SEPTEMBER

- Performing a baseline assessment of fauna biodiversity at the Kelp Blue giant kelp farm
- Co-supervised by dr. Narissa Bax at the University of Tasmania
- Intro video: <https://vimeo.com/828273979?share=copy>

CAPACITY BUILDING

SEAmester VI 2023

Our scholar Arisha September attended the SEAmester VI - South Africa's class afloat, which is an educational platform established in 2016 by Dr Isabelle Ansoorge in collaboration with Mrs Tahlia Henry. The 10-day cruise aboard the SA Agulhas II is aimed at providing exposure of young scholars and researchers to marine science as an applied and cross-sectoral field.

The cruise covered various topics related to marine science including biological and physical oceanography, wind patterns and ocean circulation, the global conveyor belt and different oceanic systems, ocean productivity, microplastics, microbial ecology, environmental DNA and marine mammals. The practical lessons included CTD operations, eDNA and microbial DNA extraction, dredges and grabs for benthic sample collections, vertical & horizontal bongo nets, neuston nets and weather observations.

This is what Arisha thought of the cruise: "The SEAmester cruise was spectacular! I have learnt a lot from the cruise and know that these lessons learnt as well as connections made I will be able to apply in my career and life forever. Besides the lessons learnt, SEAmester was a gentle reminder that there is still so much more to learn out there and that this is merely the start of the journey of a marine scientist in every field. All the moments from breakfast to dinner, lectures to star gazing, playing cards in the lounge to chatting with my cabin mates and from working on deck to dancing in the lounge have been unforgettable. I am grateful for my experience on SEAmester and hope to reconnect through science soon towards sustainability, food security and understanding and mitigating climate change."



Arisha on the SA Agulhas II research vessel.

CAPACITY BUILDING

SCUBA DIVING LESSONS



Arthur Likando (top right), a Blue House Programme apprentice, successfully completed his SCUBA diving certification, alongside Tuwilika Amunyela (top left). Arthur is responsible for media content, he is well-versed in filming and operating a drone to support KFF in storytelling and communication projects. With his work, he takes footage of the cultivated kelp forests as well as captures the activities of the KFF scholar, helping spread awareness of the importance of our work.

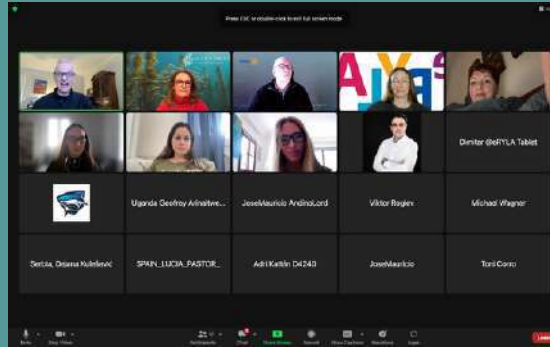


AWARENESS

PUBLIC AWARENESS

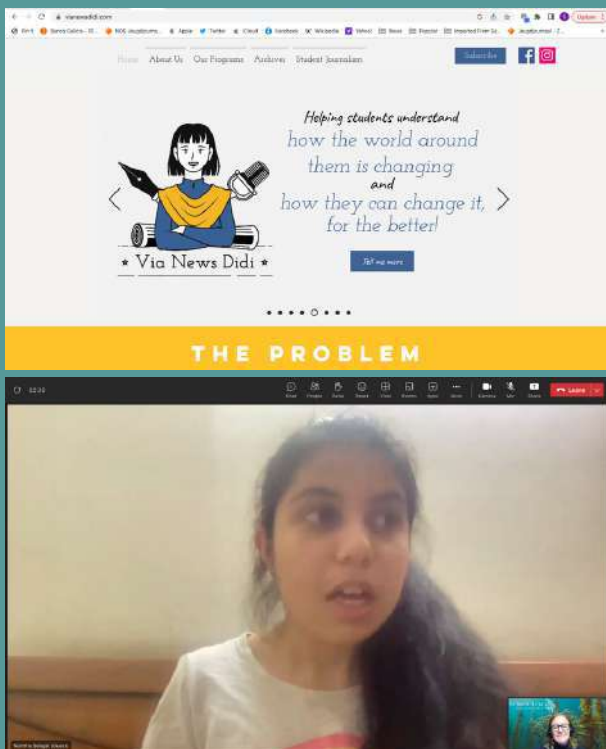
EROTARY YOUTH LEADERSHIP AWARDS

ERotary Club asked Samantha to speak at their eRtoray Youth Leadership Awards conference, an online gathering of young people between the ages of 16-30. The objective of the awards program is to give young people an opportunity to think about sustainability and what they can do for their communities and their own careers.



4x4 ELECTRIC

Maarten and Renske from 4x4electric are travelling from the Netherlands to South Africa and back with an electric car that they charge with solar panels. The expedition aims to raise awareness of climate change and climate solutions. On their route, they visit other sustainable initiatives to learn from and share what they learn with the world. They will be visiting the Kelp Blue site in Namibia on their way to South Africa.



VIA NEWS DIDI

Samantha was recently approached by a grade 11 student from India, Nishtha Sehgal. Nishtha works for Via News Didi, a climate change solutions-focused news website. The website aims to raise global awareness and support students in understanding our changing world. It also provides solutions for its audience to become responsible consumers and innovative creators of media.

MIT SOLVE

MIT Solve is a marketplace for social impact and social entrepreneurship. It is an initiative by Massachusetts Institute of Technology, aimed to bring together startups, funders and resources to solve global challenges.

The 2023 MIT Solve Summit was hosted in Boston and was a gathering of the 2022 Finalists ("Solvers"). Samantha attended the conference representing the project "Regenerating Soil with Cultivated Kelp", which is being carried out in collaboration with Kelp Blue and reNature.

The project aims to set up a model cotton farm that uses regenerative agriculture practices only. Giant kelp biostimulant, produced by Kelp Blue, can be an important ingredient in the success of this farm, as biostimulant has several benefits: it improves the plant's resilience to abiotic stress such as drought and heat, it can increase nutrient use efficiency, and support plant growth and health.

Samantha connected with fellow Solvers during this week and built stronger connections with startups and innovators all focused on climate action.



DOUBLE NATURE SUMMIT PRESENTING AT OCEANS DAY

In May, The Climate Cleanup hosted a 4-day summit aimed at showcasing and accelerating nature-based solutions to fight climate change. The second day of the Double Nature summit focused on ocean-related solutions and was held at the Royal Netherlands Institute for Sea Research (NIOZ) in Texel, The Netherlands. The KFF team presented the potential of cultivated giant kelp to sequester carbon and boost biodiversity, alongside organisations focused on other blue solutions such as mangroves and seagrass. The presentations and workshops on this Oceans-themed day were focused on the challenge of 'doubling nature' and applying regenerative practices to re-store carbon dioxide in the land and oceans.



Top left: Xu Ben Zhang(KFF), Samantha Deane (KFF), Elianne Oei (Kelp Blue) and Laura van den Heuvel (KFF)

Top right: The summit location, NIOZ

Bottom left: Samantha Deane presenting KFF and the biodiversity research

Bottom right: Xu Ben Zhang presenting the carbon sequestration research projects

OCEANOINATION FESTIVAL

The team attended the OCEANOINATION festival in June in The Hague, The Netherlands. OCEANOINATION aims to support ocean innovators and accelerate solutions for a sustainable ocean economy from the Atlantic to the Pacific and every sea in between, with ultimate the goal to protect our ocean for future generations.

The conference was a gathering of ocean startups, innovators, investors and partners. With seaweed high on the agenda, many discussions were held on how to leverage investment into the ecosystem benefits of blue ecosystems, the monitoring methods needed to gather the right data, and how we as an industry can work together to create an impact.



From left to right: Xu Ben Zhang (KFF Project Manager), Augaly Kiedi (grant writer, supporting KFF), Caroline Slotweg (Co-founder of Kelp Blue), Samantha Deane (KFF Managing Director), Laura van den Heuvel (KFF intern).



OTHER NEWS

OTHER NEWS

NEW SCIENTIFIC ADVISOR

We are thrilled to announce that Professor Dorte Krause-Jensen has joined the Kelp Forest Foundation as a scientific advisor. Her expertise and passion for marine ecosystems will greatly contribute to our mission of filling the gap in the science around the benefits of kelp forest cultivation.

Dr Krause-Jensen is a renowned figure in marine biology, focusing on coastal ecosystems and the role of kelp forests in climate change mitigation. She has dedicated her career to understanding the intricate dynamics of marine environments and their ecological significance.

She holds a distinguished position as a professor of marine ecology at Aarhus University, and her numerous publications and research contributions have earned her international recognition. We are privileged to have her aboard our team of scientific advisors, which include Prof. Carlos M Duarte, Dr Ian Hendy and Finn Ross. She is bringing an invaluable wealth of expertise to our research efforts.

NEW SCIENTIFIC ADVISOR



PROF. DORTE KRAUSE-JENSEN

Dorte Krause-Jensen is a professor in marine ecology and biodiversity at the Department of Bioscience and Arctic Research Center, Aarhus University, Denmark. With a focus on marine vegetated ecosystems, specifically seagrass meadows and kelp forests, her research delves into their ecology, role, and the nature-based solutions they offer. She has authored numerous leading scientific articles on the carbon sequestration potential of seaweed ecosystems. Dorte will provide us with scientific and technical guidance in our carbon sequestration-related research projects.

<https://kelpforestfoundation.org/>



OTHER NEWS

BOARD MEETING

The first KFF board meeting of the year was held online on the 3rd of April. KFF gathered with the board to discuss upcoming projects, research goals, and the budget for the year 2023.

Top, from left to right:

Caroline Slootweg (Board Chair), Xu Ben Zhang (Project Manager), Kat Bruce (Board Member), Daniel Hooft (Board Member), Laura van den Heuvel (KFF intern), Sarah Matthies (Board Member), and Samantha Deane (KFF Managing Director)



NEW PARTNERSHIPS



The Sustainable Ocean Alliance activates young people, develops and implements innovative solutions, and mobilises the global movement to restore the health of the ocean in our lifetime.



The International Alliance to Combat Ocean Acidification (OA Alliance) brings together governments and organizations from across the globe dedicated to taking urgent action to protect coastal communities and livelihoods from the threat of ocean acidification and other climate-ocean impacts.



The Kelp Forest Alliance is a collaborative home that brings together people and organisations to enhance, protect, and restore these incredible ecosystems.

OTHER NEWS

VISITING WOODS HOLE OCEANOGRAPHIC INSTITUTION

Samantha took advantage of her trip to Boston for the MIT Solve conference to visit Dr. Scott Lindell at the Woods Hole Oceanographic Institution (WHOI). Dr. Lindell is the Research Leader of Marine Farming Projects at WHOI and is focusing on selectively breeding kelp, as well as the automation of marine farms.

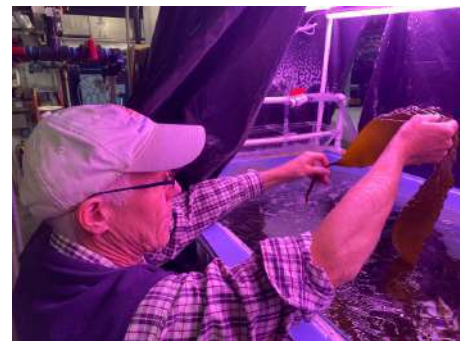
He took Samantha on a tour around the WHOI facilities, which included the kelp hatchery, the researchers' prototype for an automatic seeding gun, as well as a spore bank and the lab showcasing the kelp breeding program.



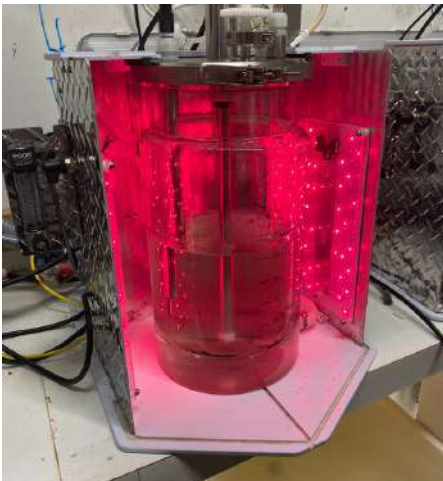
Dr Lodder and Samantha @ WHOI



Testing different materials for seeded twines



Dr Lodder showing a blade of his selectively bred kelp



Industrial Plankton bioreactors for their on-site algae culture



Seedbank

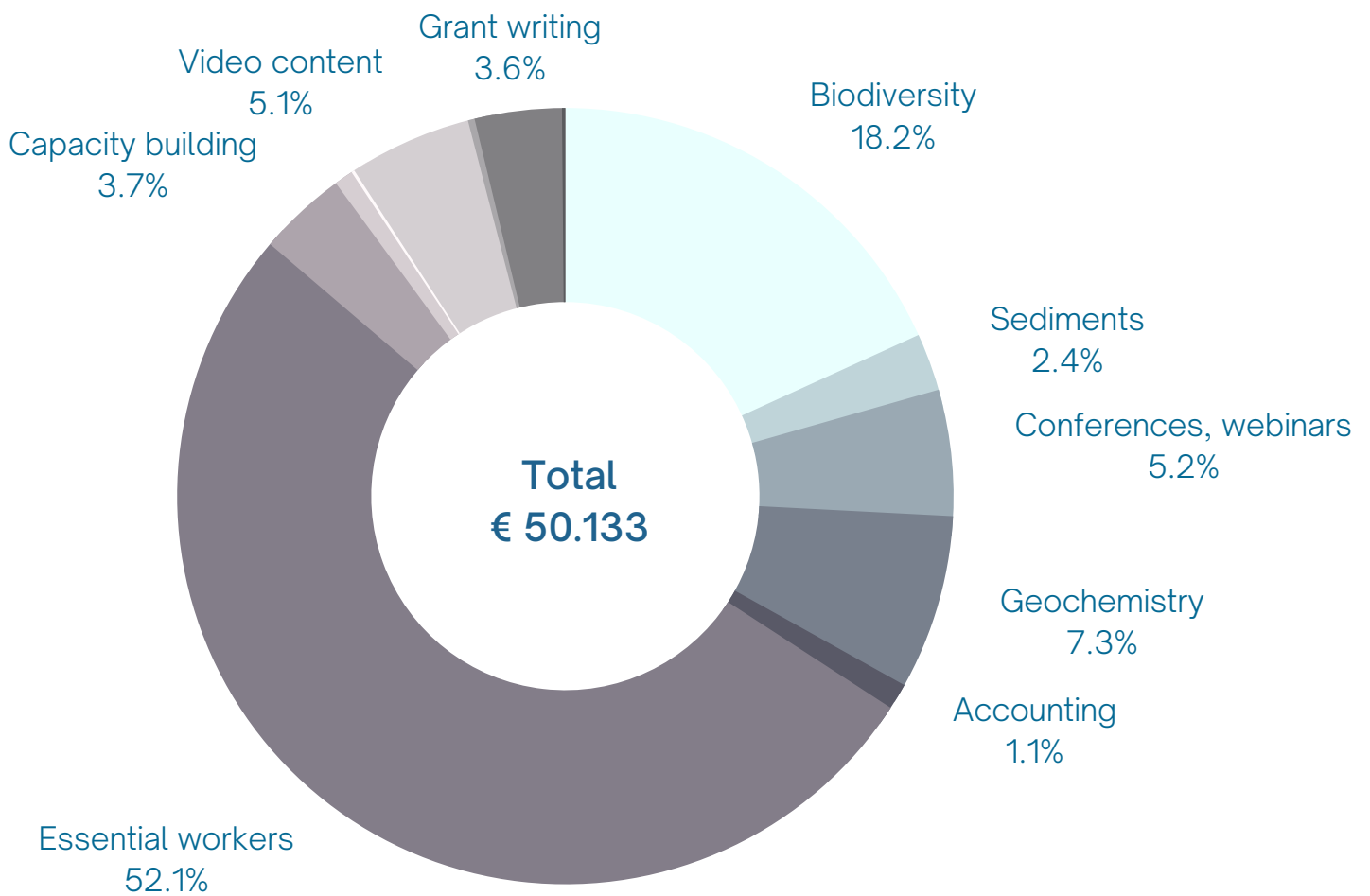


Left: Samantha also got a chance to see an in-person demonstration by Robin Littlefield and Benjamin Weiss of WHOI's automated underwater seaweed direct seeding device, which will not only improve seeding times and reduce labour costs but also enhance safety by avoiding unnecessary diving efforts and accidents.

FINANCIALS



Q2 EXPENSES





KELP FOREST
FOUNDATION