



OCEAN RAINFOREST

COMMERICAL SCALE SEAWEED CULTIVATION INITIATIVE IN THE SANTA BARBARA CHANNEL

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A rainforest in the ocean

Our purpose is to improve people's wellbeing by growing seaweed while making a unique contribution to our blue planet.



BUILDERS
BRIDGE



Grantham Foundation
for the Protection of the Environment



Katapult
Ocean



OCEAN
RAINFOREST

TEAM

OFFSHORE CULTIVATION

- Long-standing expertise in offshore aquaculture
- Maintains four ocean cultivation units at sheltered and exposed sites across the Faroe Islands
- 230,000m of seeded lines on approximately 150 acres
- Participated in or led 15+ EU projects since 2007



PROJECT VISION

DESIGN OF LARGE SCALE MACROALGAE SYSTEMS

***Make macroalgae
cultivation a
commercially attractive
business investment!***

- **Scalable** – in cultivation systems
- **Survivable** – in open ocean conditions
- **Sustainable** – in energy & marine ecosystems
- **Predictable** – in yield and quality
- **Profitable** – enabling return of investments



PROJECT VISION

PHASE I

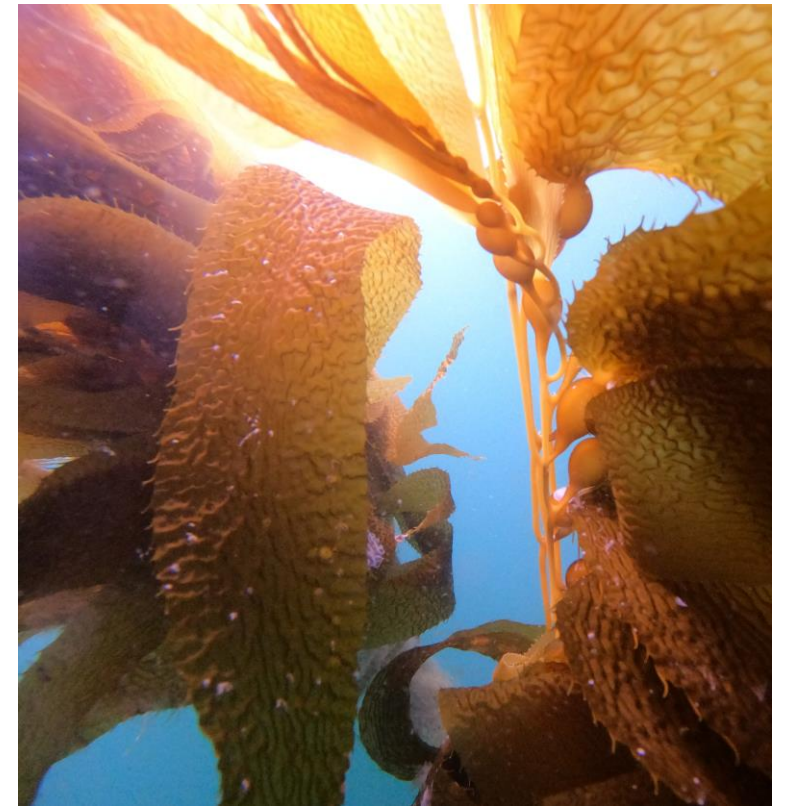
2018-2019

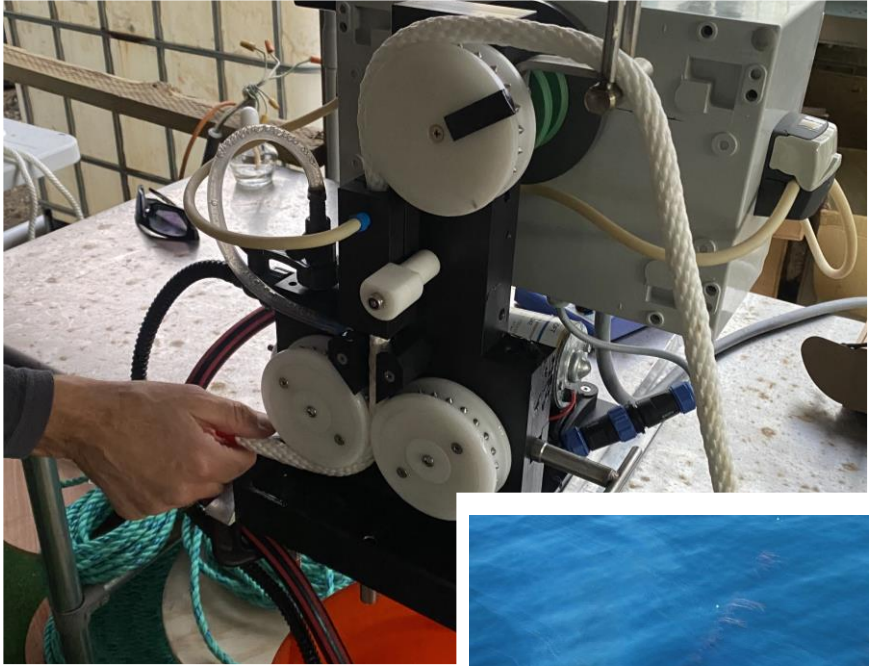
- Design cultivation system scalable >1000 ha
- Reduce cost by direct seeding
- Harvest up to 30 tons/ hour
- Profitability of operation with a production cost <\$80/DMT
- Identify over 100.000 ha suitable for *Macrocystis* cultivation

PHASE 2

2020-2023

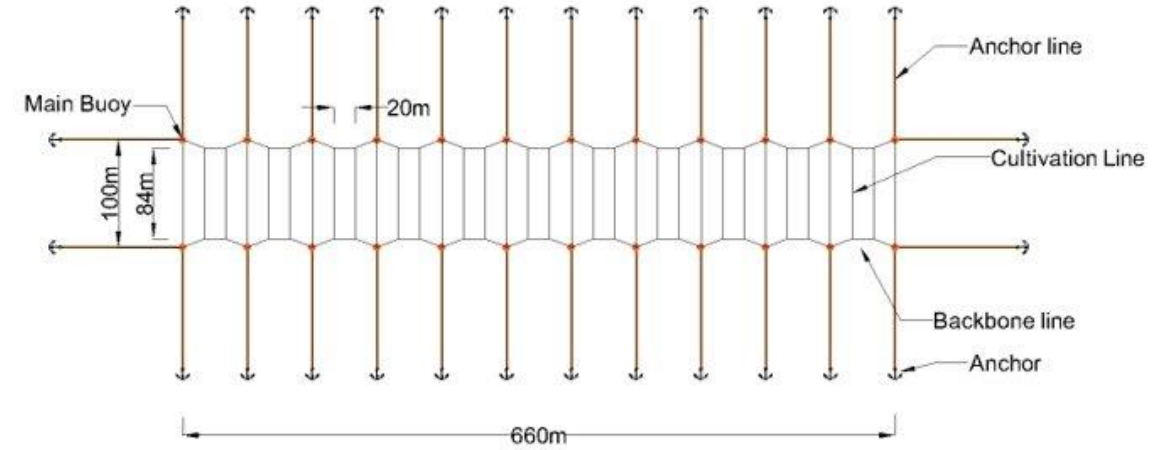
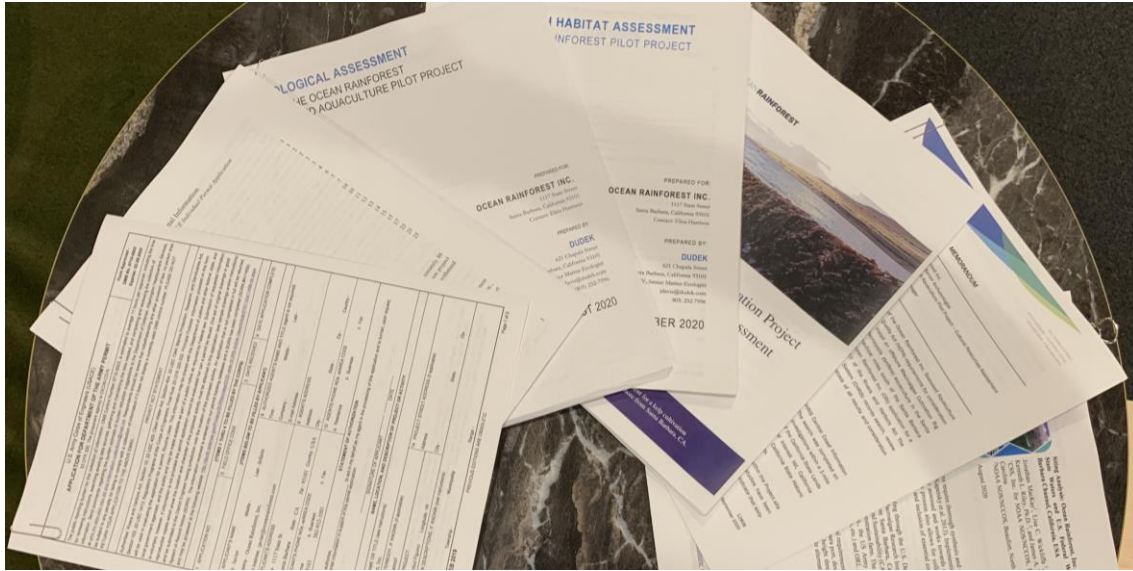
- De-risk the full chain from propagation to planting, cultivation and harvesting
- Demonstrate the capabilities of the proposed cultivation design
- Optimize the aspects and factors which have a great impact on the economics and scaling up of operations





PHASE 2 ACHIEVEMENTS

- Designed, installed and operated a hatchery facility
- Developed innovative machine for direct seeding in partnership with SEAWISER
- Successfully executed first known direct seeding trials with *Macrocystis*
- Seeded 5,500+ m of line at nearshore site over two years
- There was canopy development on virtually all experimental backbone lines.
- Biomass development met or exceeded expectations for year 2.



INDIVIDUAL PERMIT

- 86-acre permit 5 miles off the Santa Barbara Coast
- Proposed as a research and development initiative to support the goals and objectives of the ARPA-E Mariner Program
- Demonstrate the feasibility of growing Giant kelp in true offshore conditions.



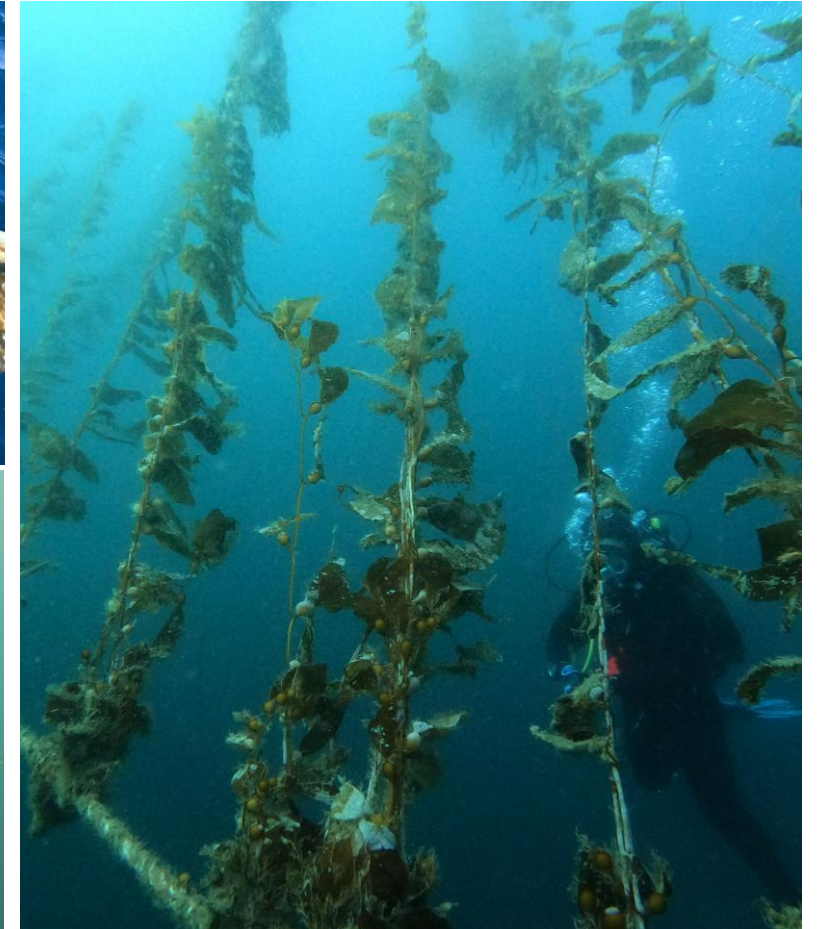
PHASE 3 2023 - 2026

- Operate the offshore site
- Test innovative aquaculture technologies
- Design and operate a pilot processing facility outside of Santa Barbara
- Facilitate product market development efforts



OFFSHORE DEMONSTRATION PROJECT

- All infrastructure was installed between April and May 2023
- Offshore Cultivation Unit (OCU) seeded in 2023 and 2024
- Opportunity to gather additional data regarding the impact of seaweed farming on the marine environment
- **Ocean Rainforest successfully demonstrated Giant kelp cultivation in offshore conditions in 2023!**

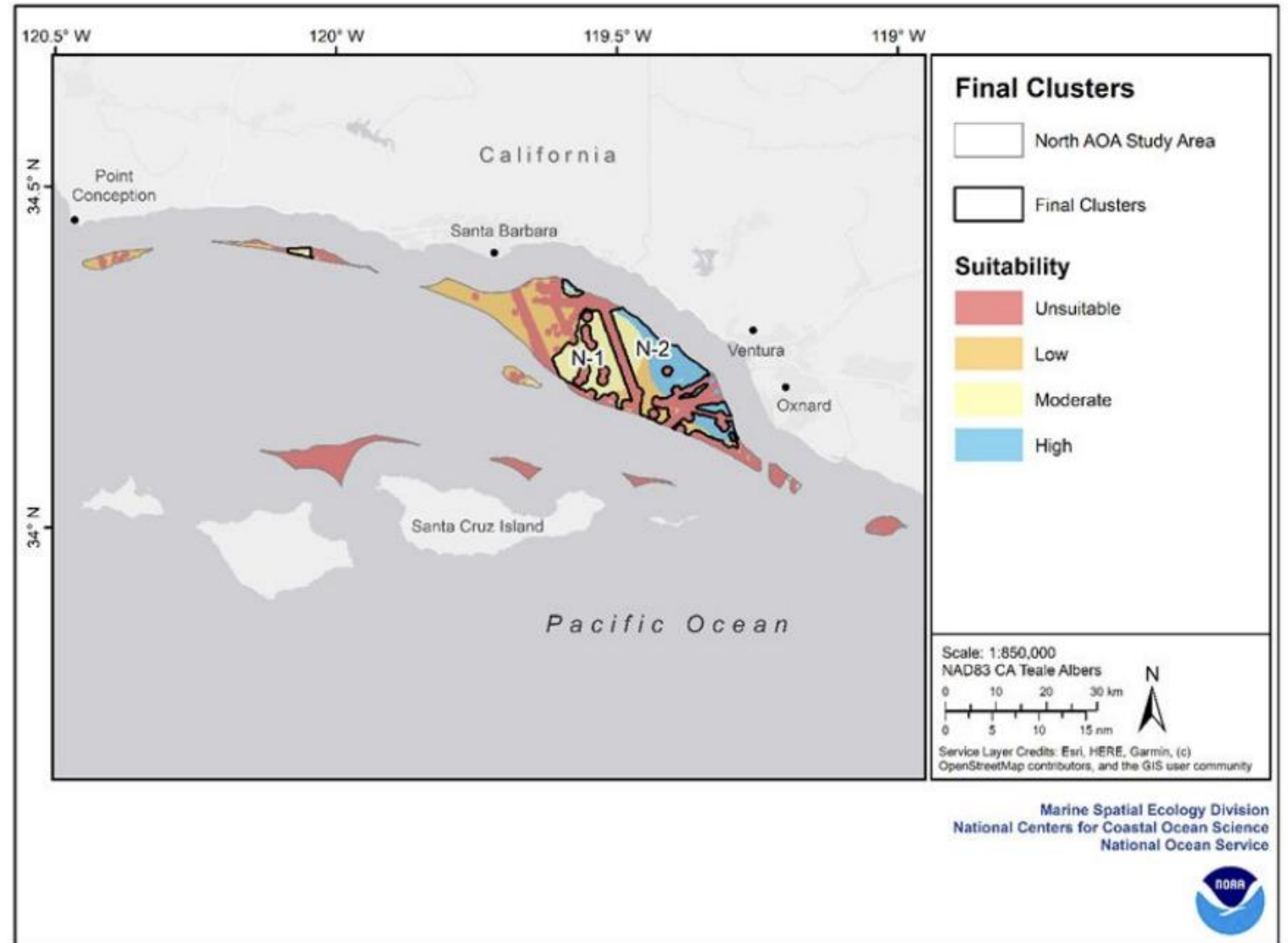


An underwater photograph showing a dense forest of seaweed. The seaweed has long, thin, yellowish-brown stalks and large, flat, greenish-brown blades. Several bright yellow sea urchins are attached to the stalks. The background is a clear, blue-green water.

UPCOMING COMMERCIAL SCALE APPLICATION

PROPOSED LOCATION

- Anticipated permit area request of 1,500 – 2,000 acres
- Network of highly tensioned, grid like cultivation units to support commercial scale aquaculture
- Expected yield between 216 288 tons per cultivation unit per year





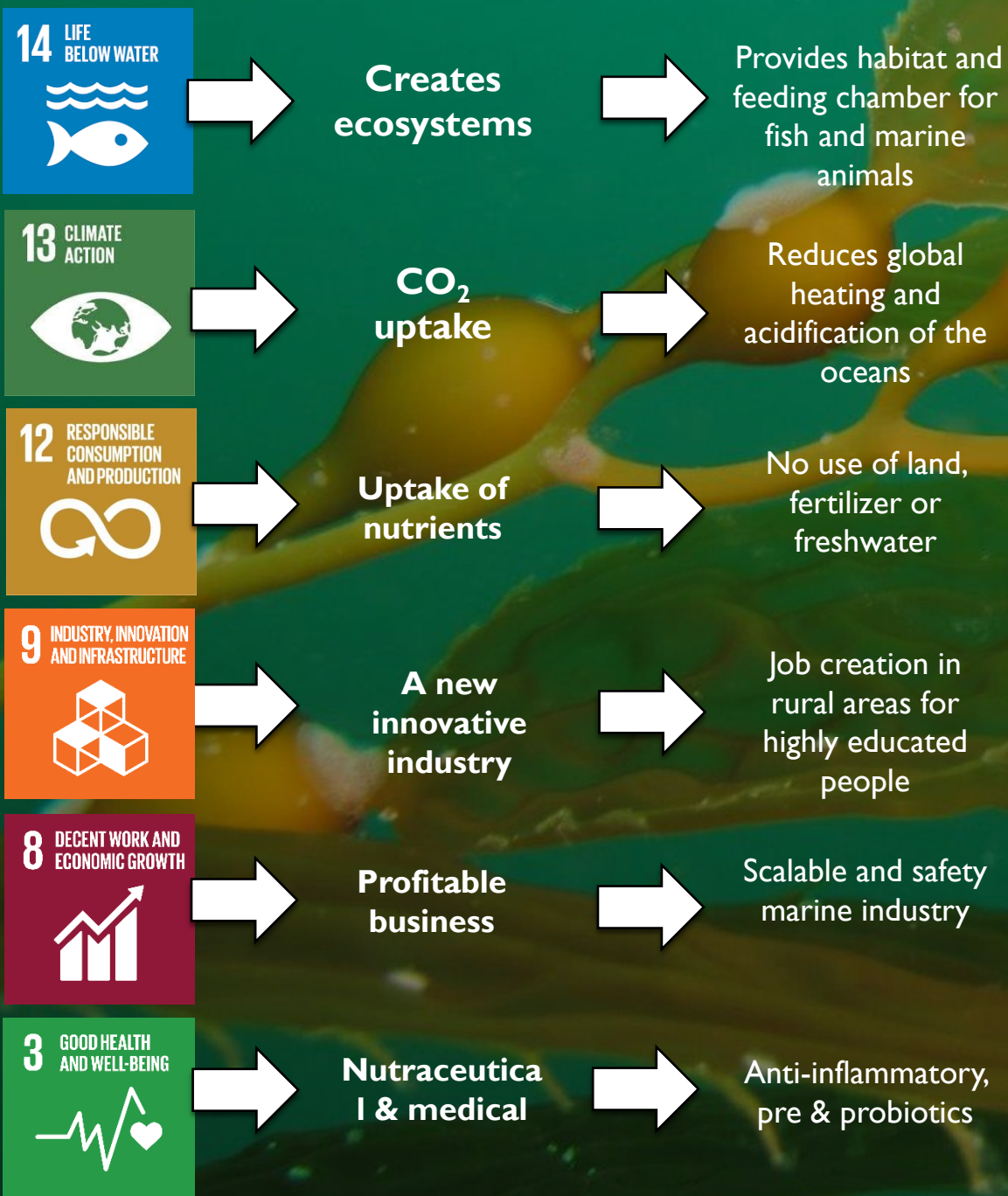
PRODUCTION REQUIREMENTS

- Dockside support (i.e., cranes, boat hoists, etc.)
- 10,000 to 12,000 sq ft facility
- Truck bay loading and unloading capacity
- Equipment storage and workshop space
- Opportunities for hands on internship experience in partnership with local schools/community colleges



PRELIMINARY ECONOMIC IMPACT ASSESSMENT

- Job creation during construction
 - ~ 150 direct
 - ~ 350 indirect
- Job creation during production
 - ~ 50 direct
 - ~ 125 indirect
- Gross Economic Impact: \$30 – 50 million per year



The potential for providing large quantities of food and biomass from seaweed mariculture is much larger than for any other group of marine organisms.”

Ref. SAPEA 2017 Evidence Review Report, more than 100 European science academies.



THANK YOU!

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