



# 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

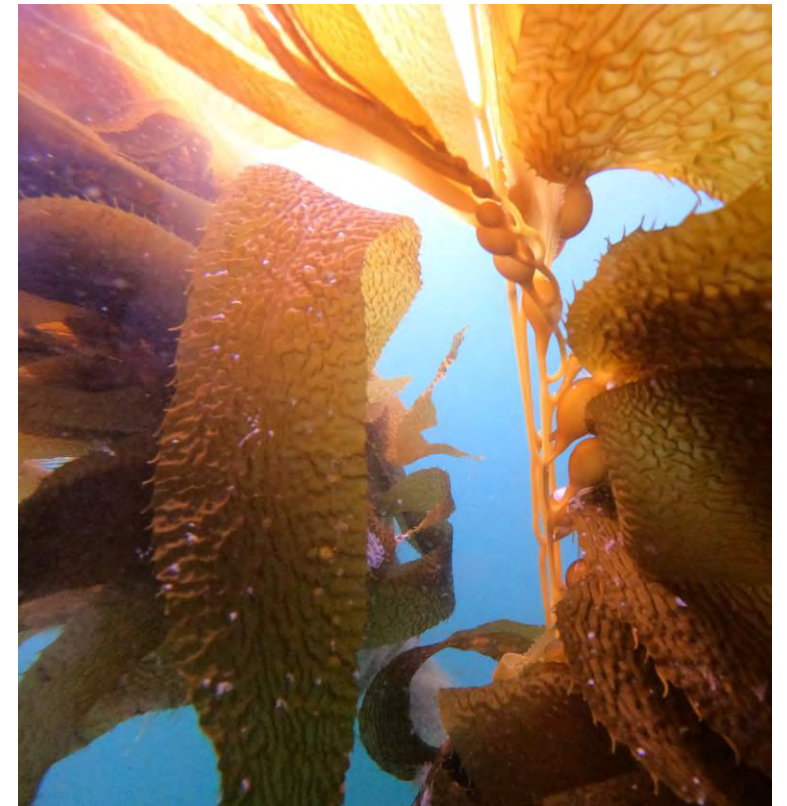
2018-2019

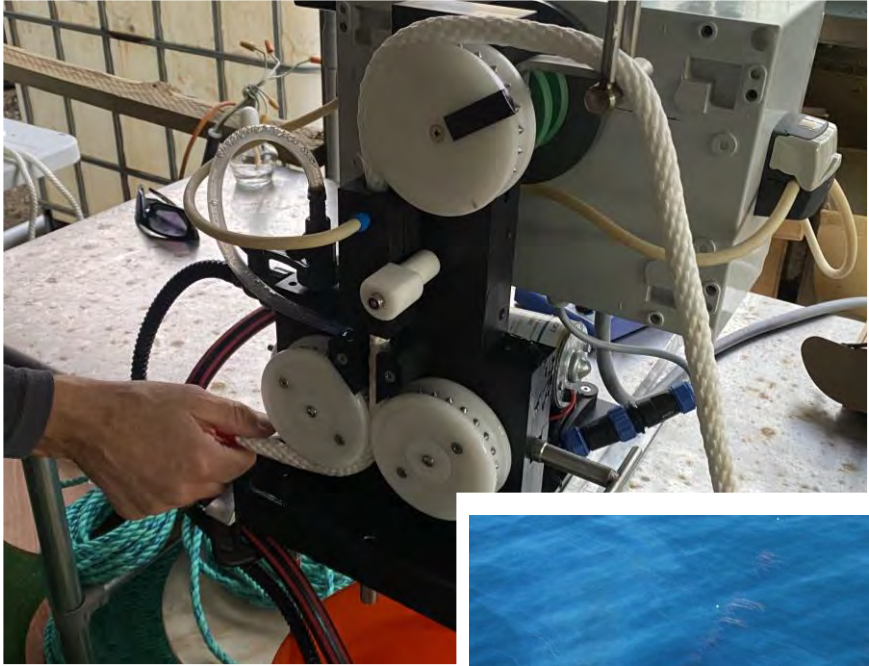
- Design cultivation system scalable >1000 ha
- Reduce cost by direct seeding
- Harvest up to 30 tons/ hour
- Profitability of operation with a production cost <\$80/DMT
- Identify over 100.000 ha suitable for *Macrocystis* cultivation

## PHASE 2

2020-2023

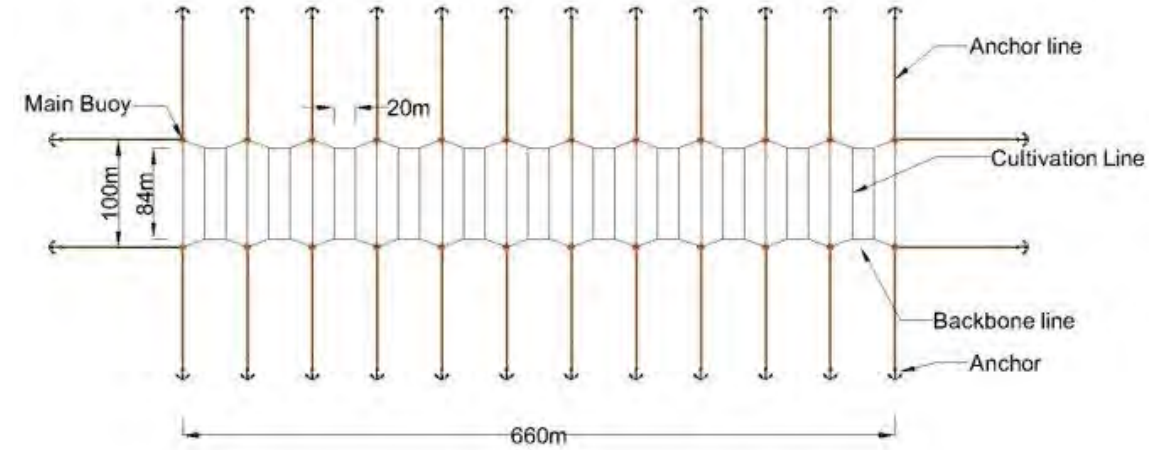
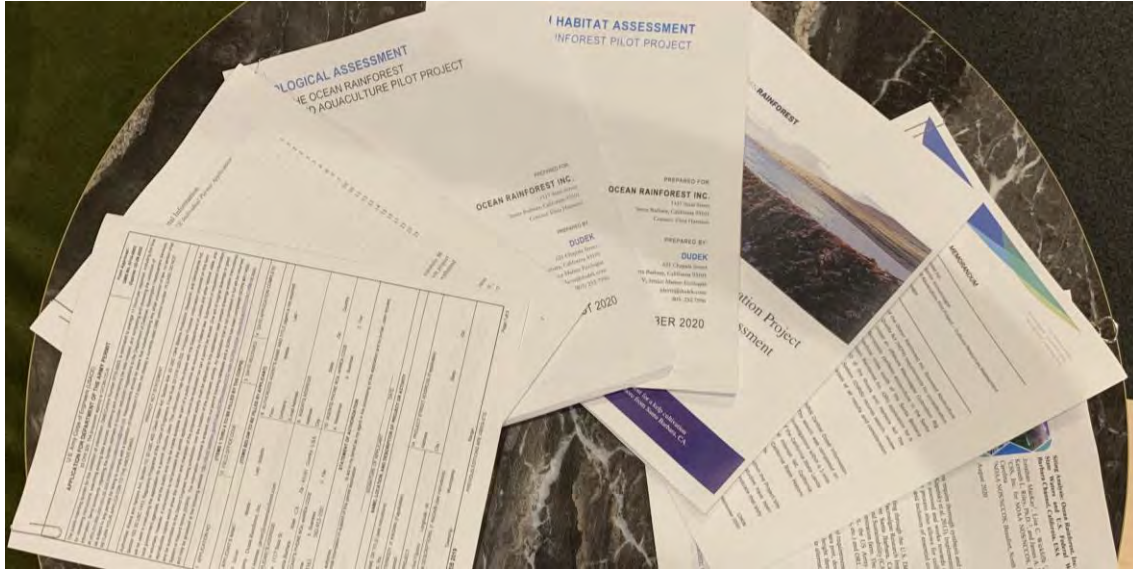
- De-risk the full chain from propagation to planting, cultivation and harvesting
- Demonstrate the capabilities of the proposed cultivation design
- Optimize the aspects and factors which have a great impact on the economics and scaling up of operations





## 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 *Macrocyctis*
- 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.



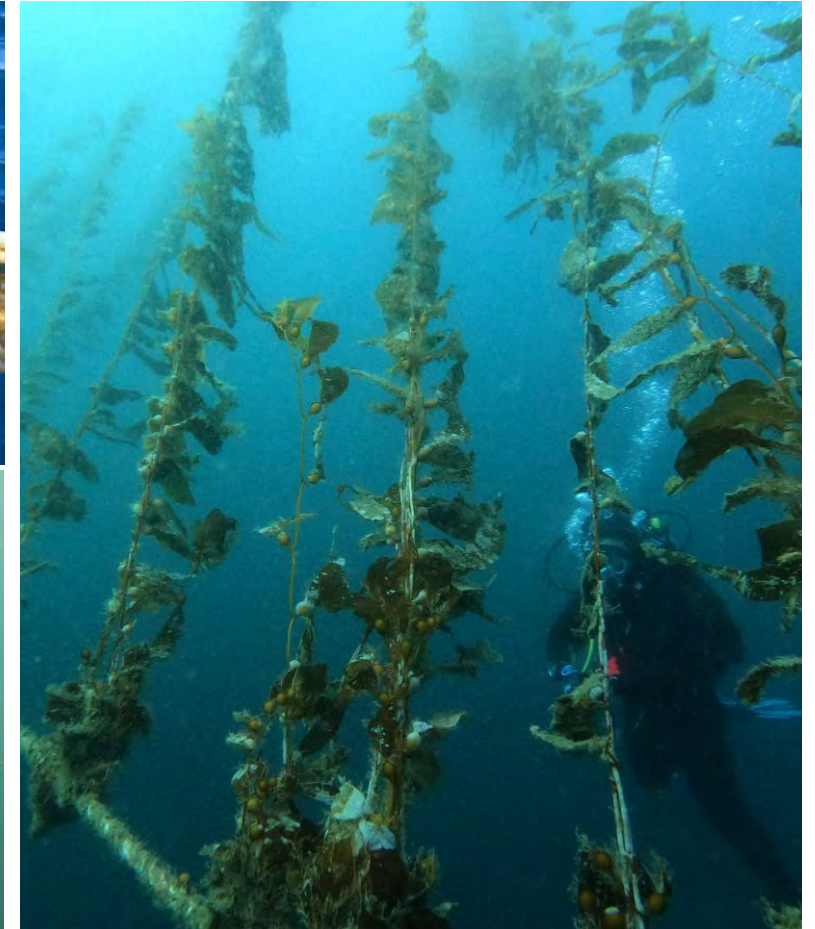
## PHASE 3 2023 - 2026

- 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!**

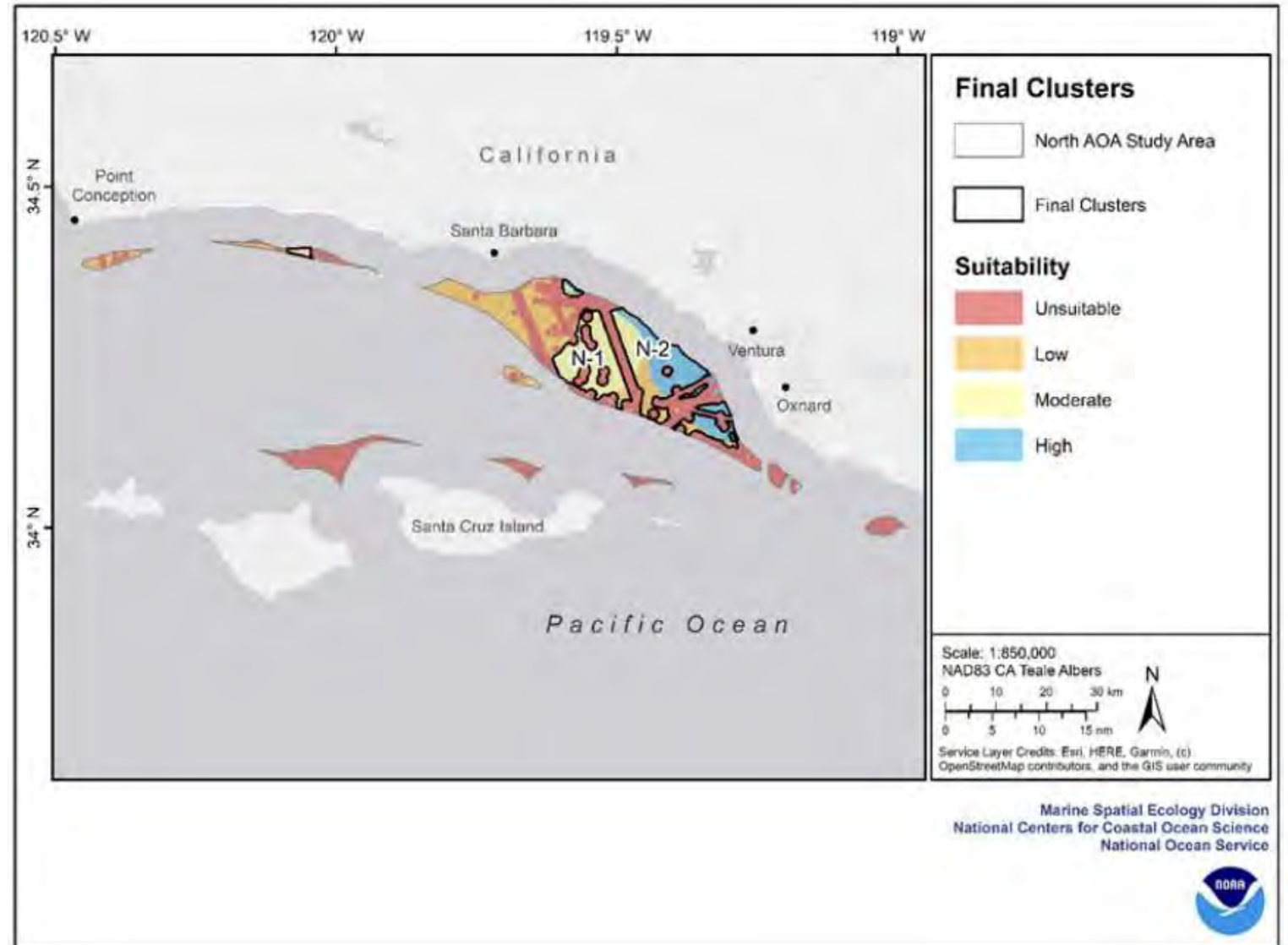




UPCOMING COMMERCIAL SCALE APPLICATION

# 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





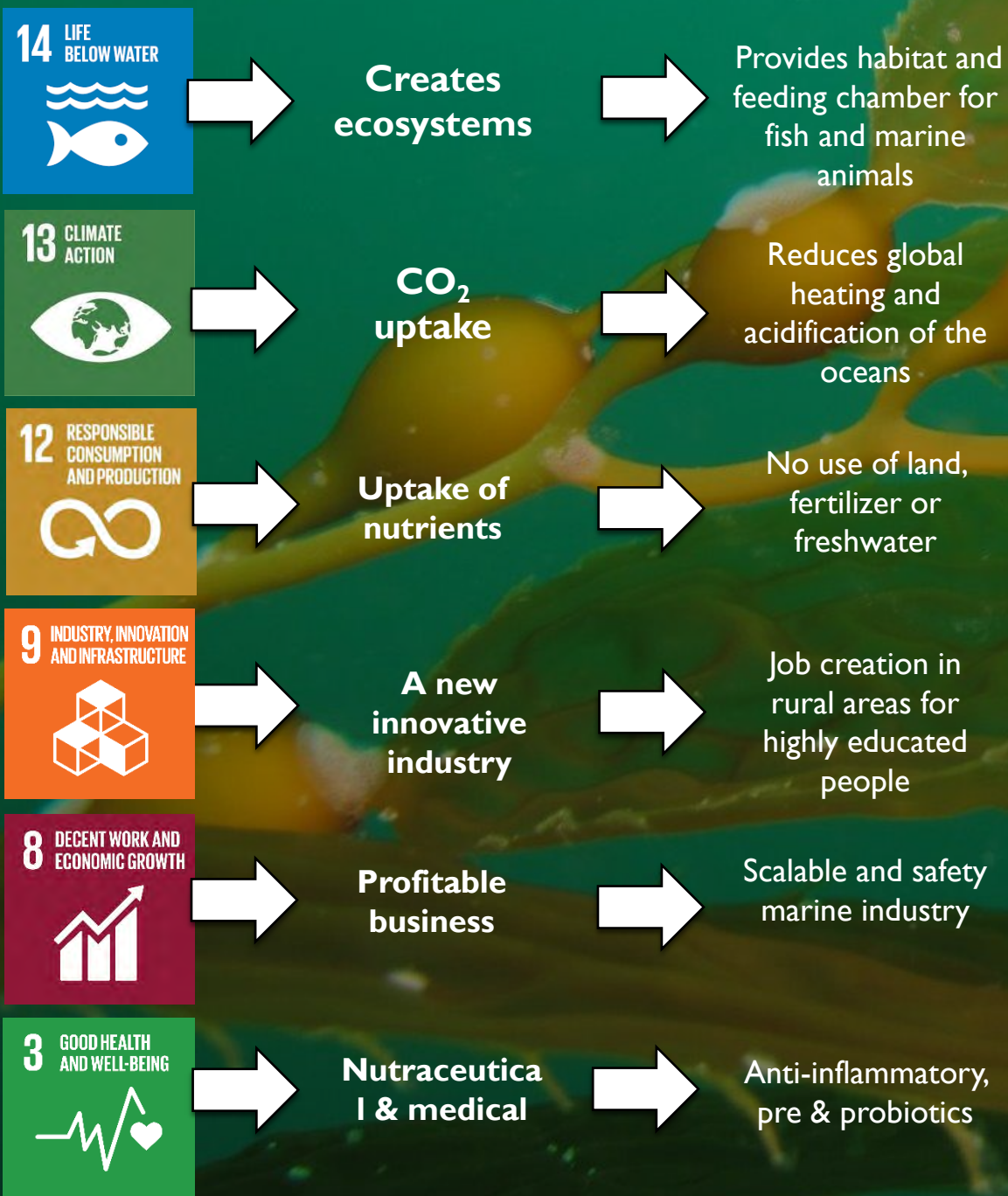
## PRODUCTION REQUIREMENTS

- 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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