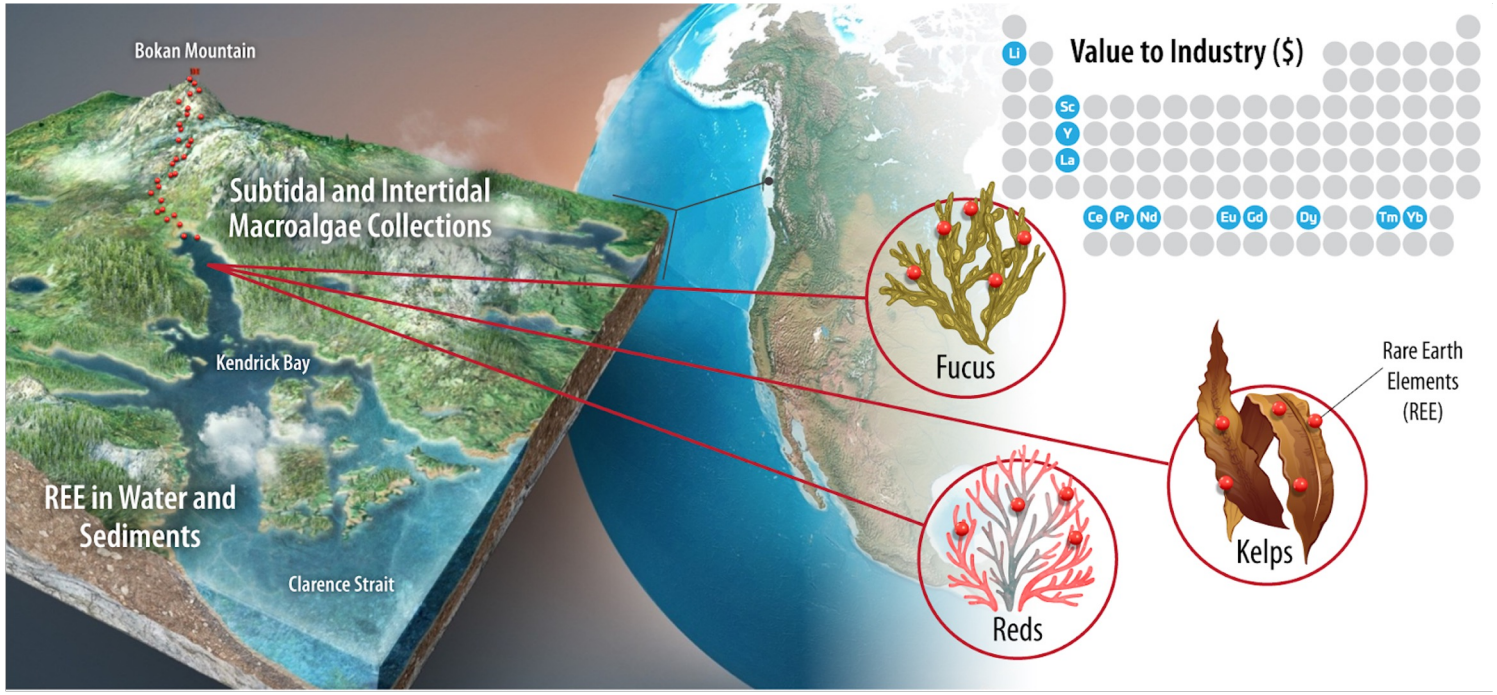
PATENT PENDING

PROVISIONAL PATENT APPLICATION

# The Alaska Bio-mining Project

*Schery Umanzor, LeeAnn Munk, Lieve Laurens, Michael S. Stekoll, Brandon Briggs, Kristy Clement, Javier Infante, and Markos Sheer*

Award: DE-AR0001843

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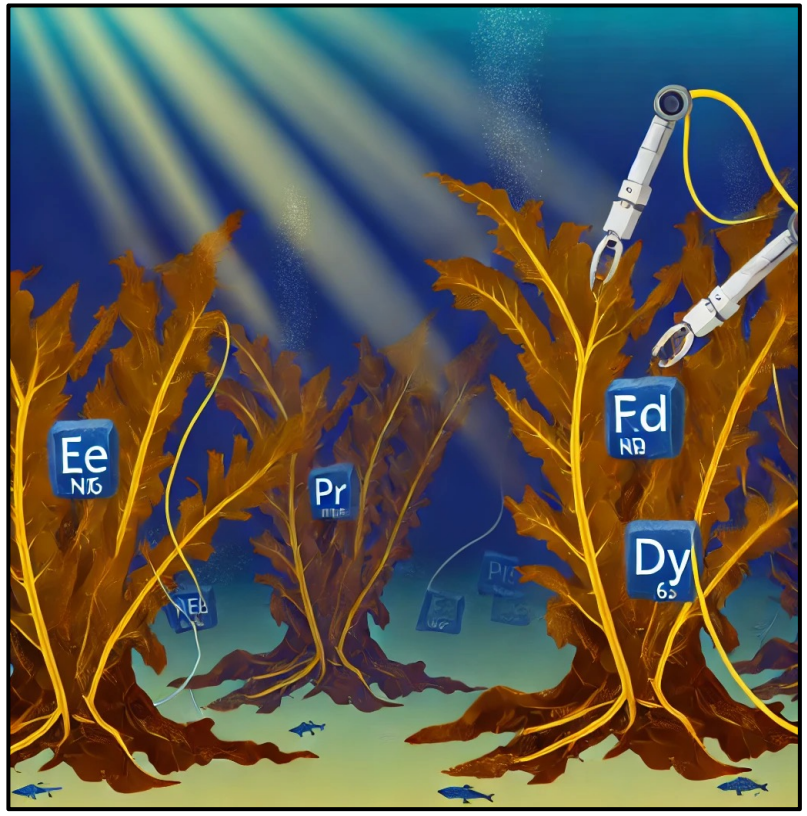
OCEAN RAINFOREST

AFDF Alaska Fisheries Development Foundation, Inc.

Seagrove KELP

# Ultra high-risk, high reward project

# Recover rare earth elements (REEs) from seaweeds



# Change the way in which we mine for REEs

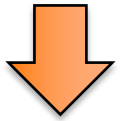
# Change the way in which we mine for REEs



**True Green Energies**

# Project goal

Create cultivation scenarios where REE content in seaweed becomes so high that '**seaweed mining**' becomes **economically feasible**.



# Project focus

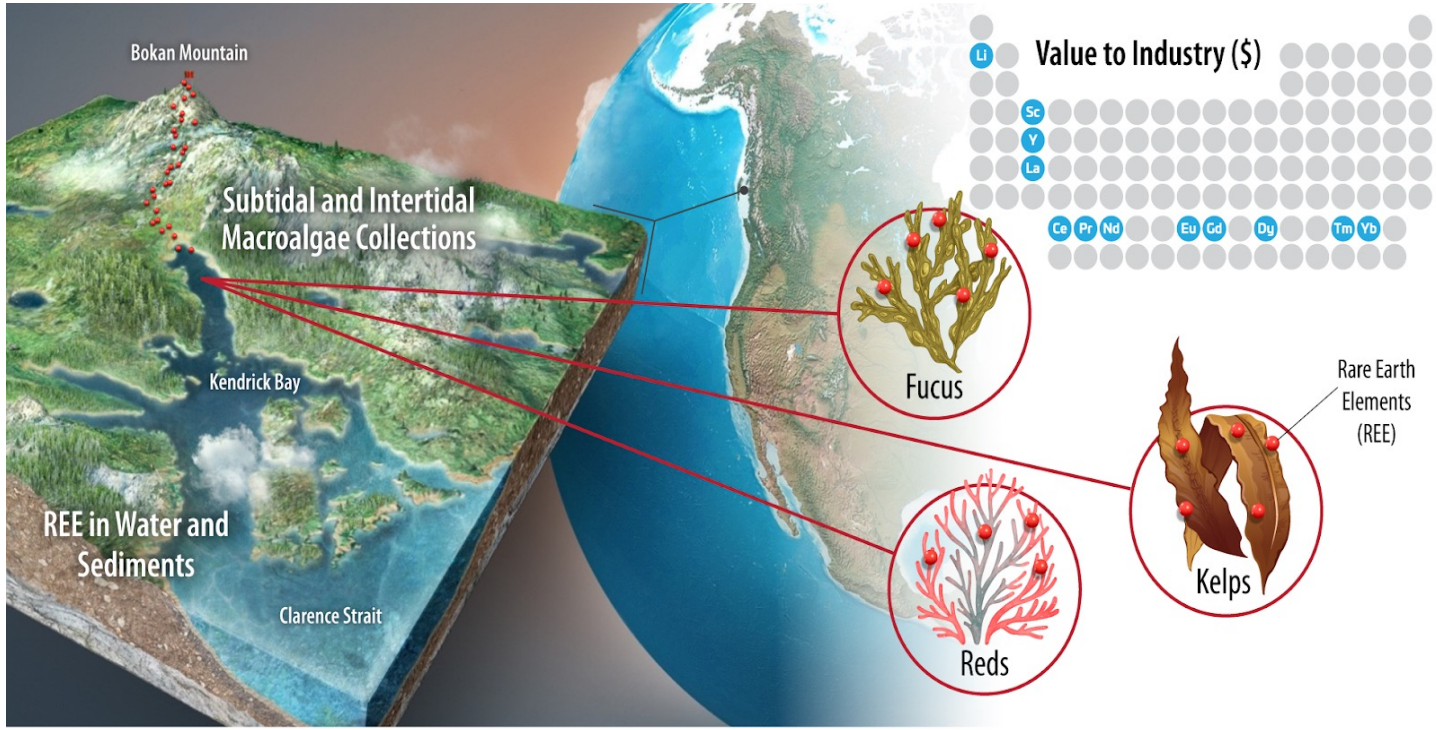
Understand the natural processes of REEs and biological **hyperaccumulation** by seaweeds.

# Prince of Wales, Alaska


Created with Datawrapper

Former Uranium mine
Exposed ore
Enriched with heavy REEs
Intense geochemical weathering
Runoff to the ocean

# Prince of Wales, Alaska




Geochemistry of REEs

Accumulation by seaweeds

AI-assisted modeling

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