

# The Power of Kelp

## THE PROBLEM

### Ocean acidification

Burning fossil fuels (coal, gas and oil) releases carbon dioxide (CO<sub>2</sub>) into the atmosphere. Every year, the oceans absorb about a quarter of these emissions. CO<sub>2</sub> makes seawater more acidic, which harms shellfish and other marine organisms. This process is called ocean acidification.



Juvenile oysters are particularly susceptible to acidification because it disrupts shell growth.

## OUR PROPOSAL

### Harness the Power of Kelp

Because kelp consumes CO<sub>2</sub> as it grows (through photosynthesis), we wondered whether it could be used to counteract acidification caused by humans' use of fossil fuels. The Paul G. Allen Family Foundation agreed to fund a proposal to cultivate native sugar kelp (*Saccharina latissima*) in a small bay in Puget Sound to see its effect on the acidity of the surrounding waters.

## THE PROJECT

### Experimental farm in Hood Canal

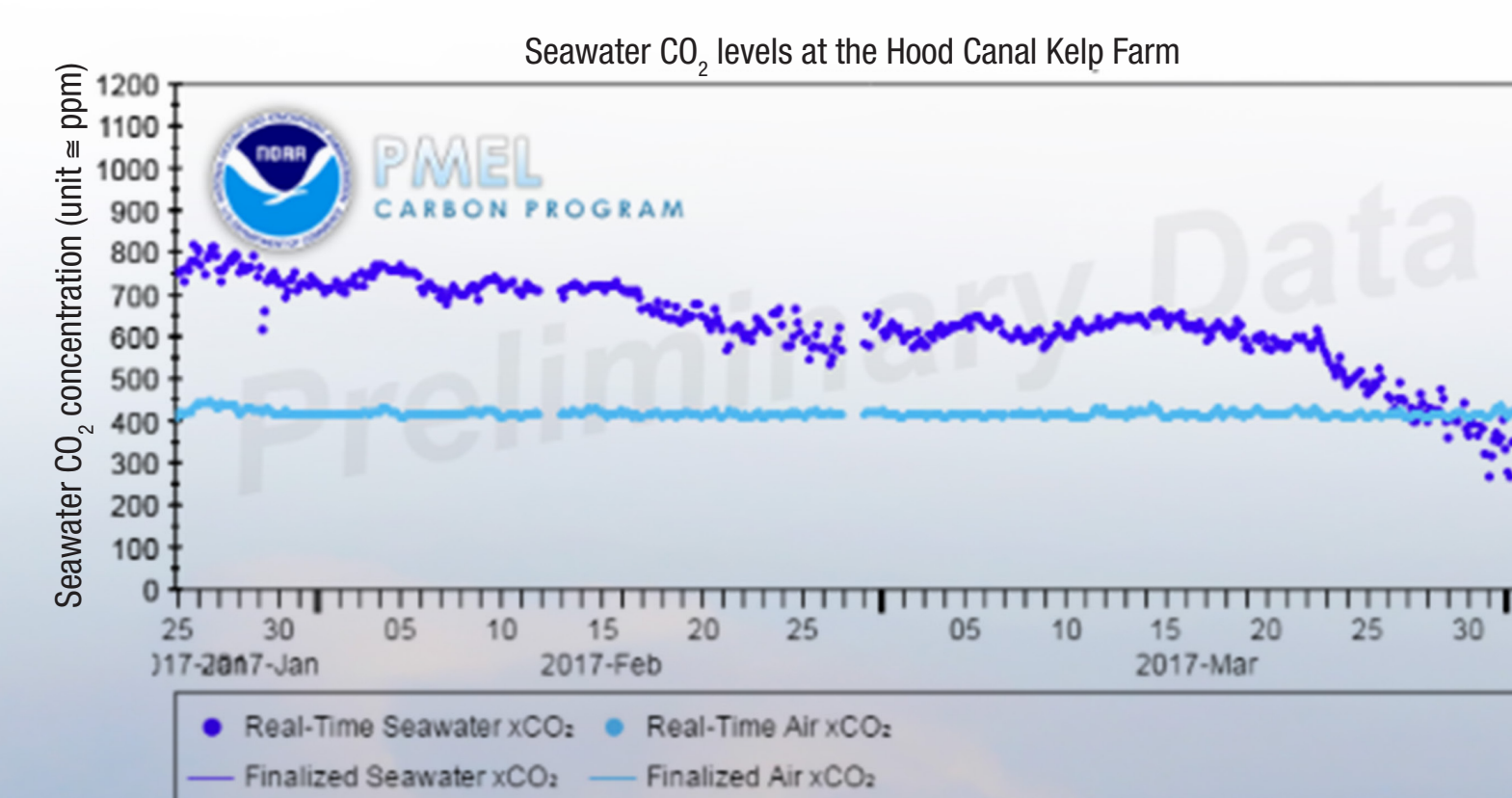
In January 2017, a football field-sized array of submerged lines seeded with juvenile kelp was installed near the Hood Canal bridge. A team of UW and NOAA scientists deployed instruments (yellow buoys in image below) to monitor CO<sub>2</sub> levels and acidity in and around this temporary kelp farm. We predict that the growing kelp will create a zone of less acidic water by drawing down CO<sub>2</sub> levels.



## PRELIMINARY RESULTS

### Results are promising

The spring 2017 crop is growing like gangbusters! The mid-season estimate is 15,000 pounds. Our monitoring data shows CO<sub>2</sub> levels starting to decline in March 2017. The full season of data must be analyzed before conclusions about the effect of kelp can be reached.



Project lead—and proud kelp farmer—Joth Davis, showing off early-season growth.

## THE POTENTIAL

### Better living through kelp

During the growing season, kelp forests may benefit vulnerable organisms by serving as an ocean acidification 'refuge'. Harvesting kelp permanently removes excess carbon from the marine environment. Kelp can be used for food, organic fertilizer, fuel and even candy.



Site image: John Mickett, UW Applied Physics Lab  
Juvenile oysters: Benjamin Drummond  
Kelp farmer: Puget Sound Restoration Fund (PSRF)  
Graph: NOAA Pacific Marine Environmental Laboratory

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