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Marketable kelp a byproduct of ocean acidification research

Author Wiedenhoft August 25, 2016



sfishing boats bob on the surface of a once-productive region of the Puget Sound, their ; hoping for a nibble or strike from passing fish. But from one of the boats, the fishing “li g through the water is slimy brown and covered in tiny plant spores. A diver slips underv nchors the line to a buoy about 10 feet under the surface. This slimy living twine could l ay to turn things around in this area.

; buffering capacity

The Hood Canal project funded by a Paul Allen Grant is the first of its kind on the West Coast to gate the potential of kelp to combat ocean acidification. The first kelp seedlings of a five-year projec ed into Puget Sound’s Hood Canal in Washington this spring. The spores, or sori, are raised in tanks ’s Manchester Research Facility. Scientists from NOAA and the Puget Sound Restoration Fund will or the kelp and surrounding waters over time to gauge it’s efficacy at taking up carbon dioxide from th column.

Excess CO2 is the main culprit behind acidification and lowers the pH of ocean waters when levels ar Due to upwelling and stratification the Puget Sound has a long history of ocean acidification issues. cation can cause huge problems for the shellfish and fishing industry in otherwise productive areas, ig the tiny shells of pteropods, a main source of food for small fish and salmon, to dissolve. Newly for f baby oysters and clams also suffer from shell malformation and cannot grow properly. The young ke xt as a natural sponge to take up excess CO2 that it uses for photosynthesis and growth. The native l can grow as much as 10 inches a day and grows to full maturity in one year. Along with its buffering ty, kelp beds create vital habitat and shelter for fish and invertebrates, and new research from NOAA ul Algal Bloom Program shows that macroalgae such as eelgrass and kelp harbor bacteria that fend 1 of toxic algae the cause algal blooms.

inability

nability is a large focus of this current project, and the project has strived to find a viable commercial t for the harvested kelp. The kelp can essentially be thought of as an agricultural product, but with so nefits over traditional farming. “Macroalgae aquaculture is an area a lot of the world is looking into,” ns Mike Rust, head of Aquaculture Activities for NOAA. “The biomass does not require fresh water, s nts, or even a land mass, and has a built-in resiliency against climate change like drought, floods, or rature fluctuations.”

ercial and economic benefits

o find a commercial foothold on the west coast, commercial kelp production is growing rapidly on the A ard where growers in Maine have been cultivating it successfully for several years (see ANA Jan/Feb :

And while we might still be a long way from seeing macroalgae beds replace sweeping fields of corn .

Besides the bull kelp project, NOAA has been experimenting with tumble-cultured macroalgae grown in tanks at Manchester. The three varieties they are testing: ulva (green), dulse (red) and Turki (red), all grow incredibly quickly and double or triple their weight in a week's time. This makes for a product that can be harvested every two weeks or less. The algae contains many important nutrients we need in their diet, like potassium, iodine, and omega-3 fatty acids. For vegans and vegetarians looking for a protein-rich alternative to meat, Johnson points out that not only can the algae be up to 20-percent protein, but many varieties contain large amounts of taurine, an important mineral found in meat and fish that is absent in grains and soy products. Taurine is essential for cardiovascular function, and development and function of skeletal muscle.

But what about the taste? Recently twitter was abuzz with the "tastes like bacon" quote taken from an archaeologist-turned-macroalgae-farmer Chris Langdon, a Professor of Fisheries at the Oregon State University. Langdon had been growing dulse to feed the abalone he was studying when approached by the business school on campus. Their idea was to take the dulse to the college's Food Innovation Center to find a tasty way to use it in foods. With the help of local chefs, one idea was to fry the dulse and crumble it as a garnish for burgers, and Chris got the surprising feedback that when dried and fried, the dulse tasted like bacon. A prominent James Beard award-winning chef now has dulse as a featured menu item at his restaurant in Portland. Other products the Innovation Center are looking into include juices, salad dressings, and snack foods. There has also been a movement to use algae in alcohol. NOAA's Mike Rust calls it "seashine" and has recently brewed seaweed infused beer and gin.