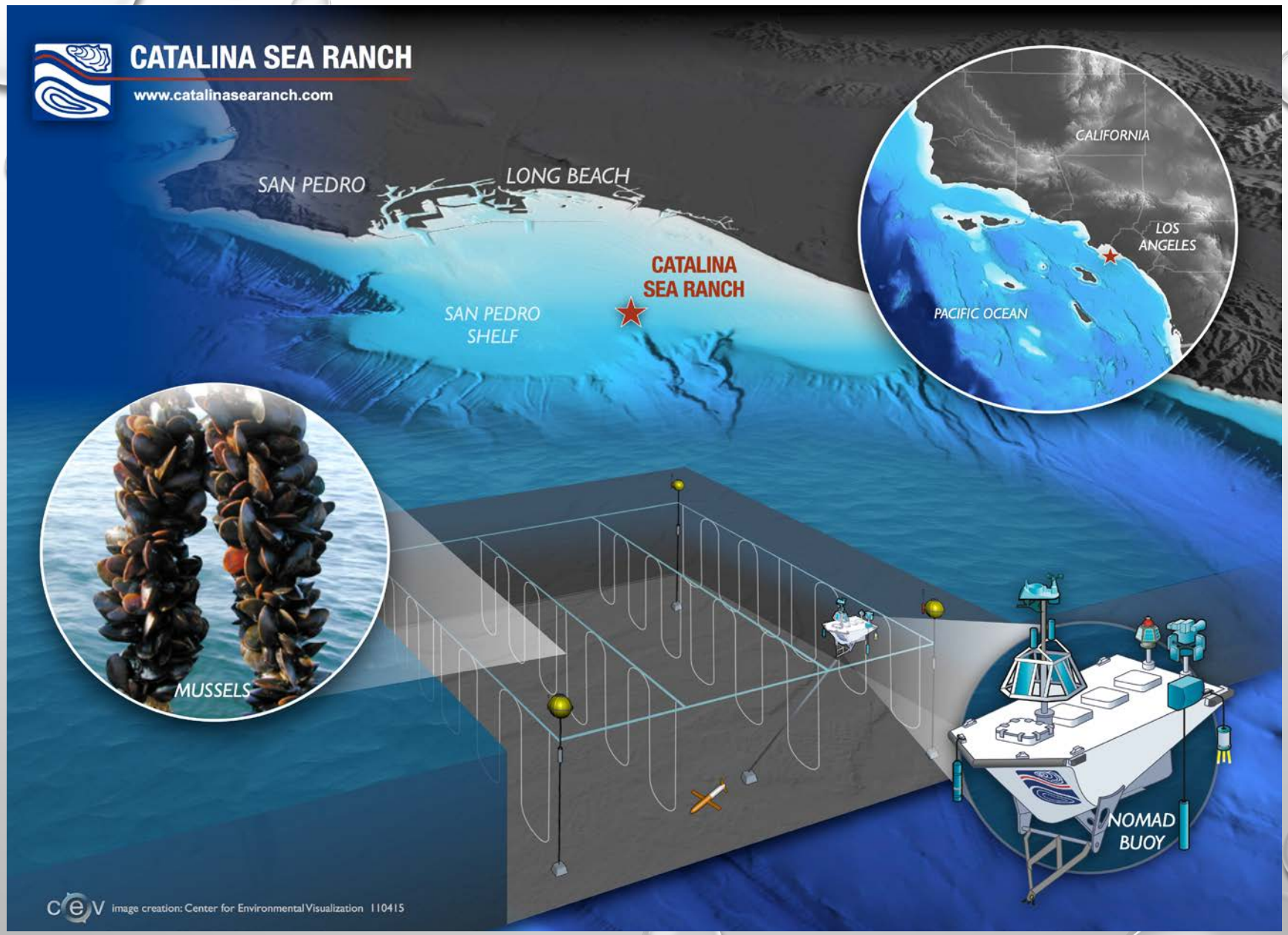

CATALINA SEA RANCH
www.catalinasearanch.com
SAN PEDRO
LONG BEACH
CATALINA
SEA RANCH
SAN PEDRO
SHELF
CALIFORNIA
LOS
ANGELES
PACIFIC OCEAN
MUSSELS
NOMAD
BUOY
cev image creation: Center for Environmental Visualization 110415

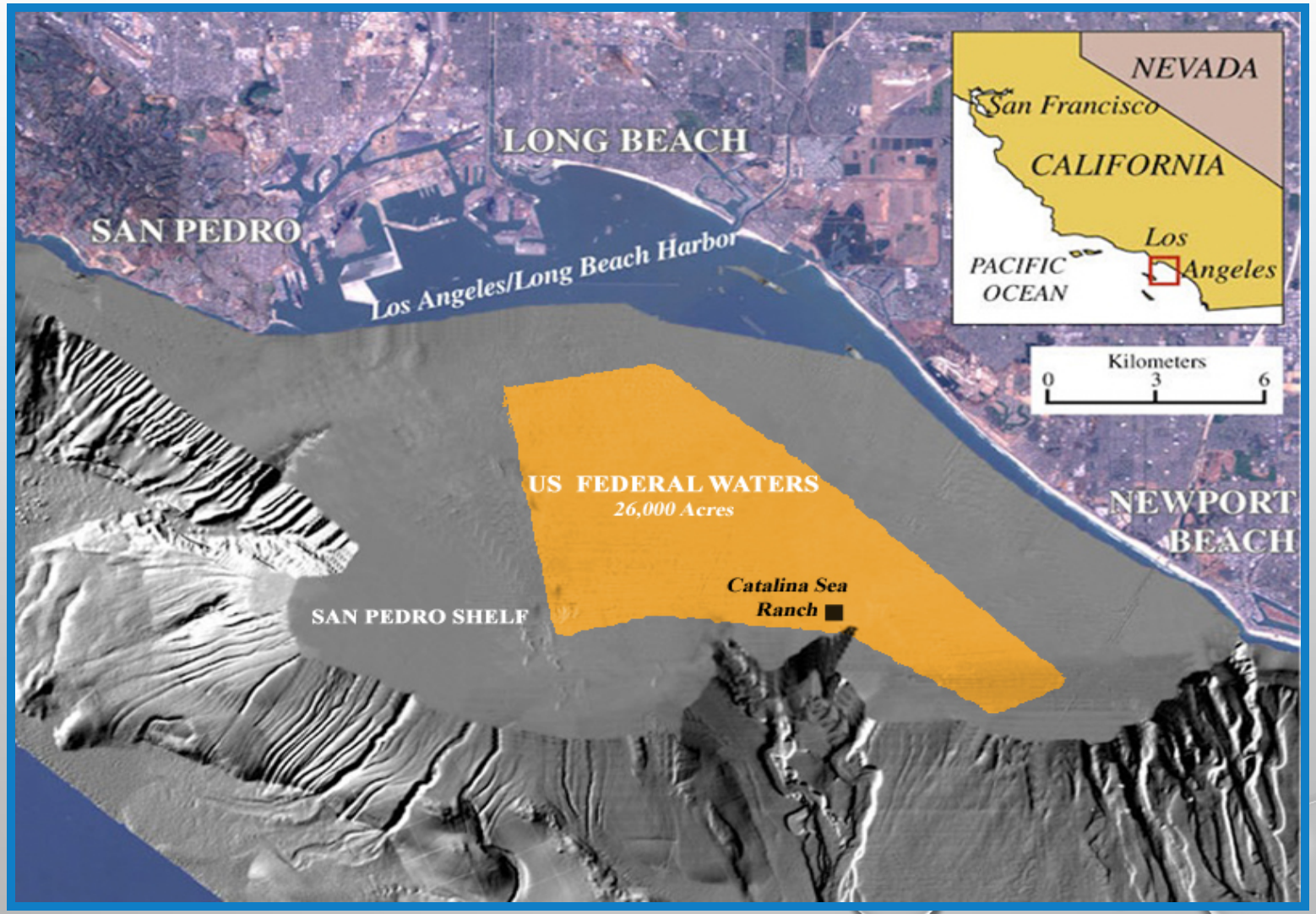
WE CAN GROW OUR OWN

National Marine Fisheries Service data show over 30 million pounds of **LIVE** mussels imported annually from Prince Edward Island (PEI), located over 3,500 miles from California.

1,000 acres on San Pedro Shelf would produce 20 million pounds of mussels significantly reducing the 80 million pounds of mussels imported every year.

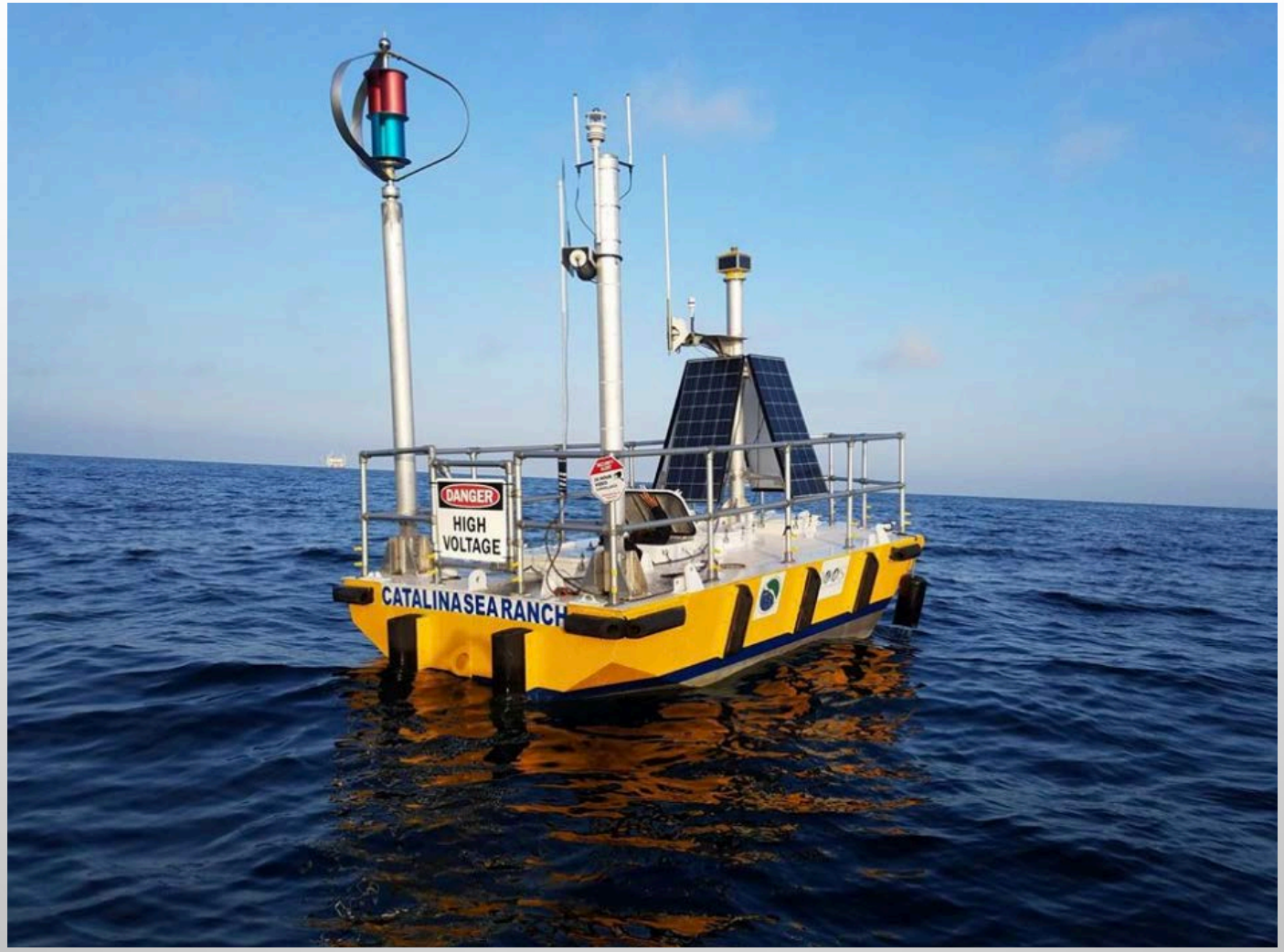
Globally, 4 billion pounds of mussels are produced annually.

There are 26,000 acres (40 square miles) of Federal waters located on the San Pedro Shelf that are ideal for offshore aquaculture. Massive upwelling for producing nutrients and constant currents for requisite flushing characteristics.



100 acres can produce about 2M pounds of mussels annually

REAL-TIME REMOTE MONITORING



NOMAD.CATALINASEARANCH.COM

Catalina Sea Ranch has developed an automated offshore aquaculture monitoring system for remotely evaluating real-time environmental data for collaborative and transparent web-based scientific analyses.

Verizon's shore-based cellular tower located in Huntington Beach, California transmits the data to its cloud server for analyses by marine scientists via the Internet.

This capability will allow expansion with **sound regulations based on solid science.**

OFFSHORE MONITORING PROGRAM

Catalina Sea Ranch is developing the "First Offshore Shellfish Ranch in U.S. Federal Waters" which will be monitored by independent scientists and research institutions. The data from this 100-acre project will provide science-based solutions for marine spatial planning in a sustainable and responsible manner that protects the environment.

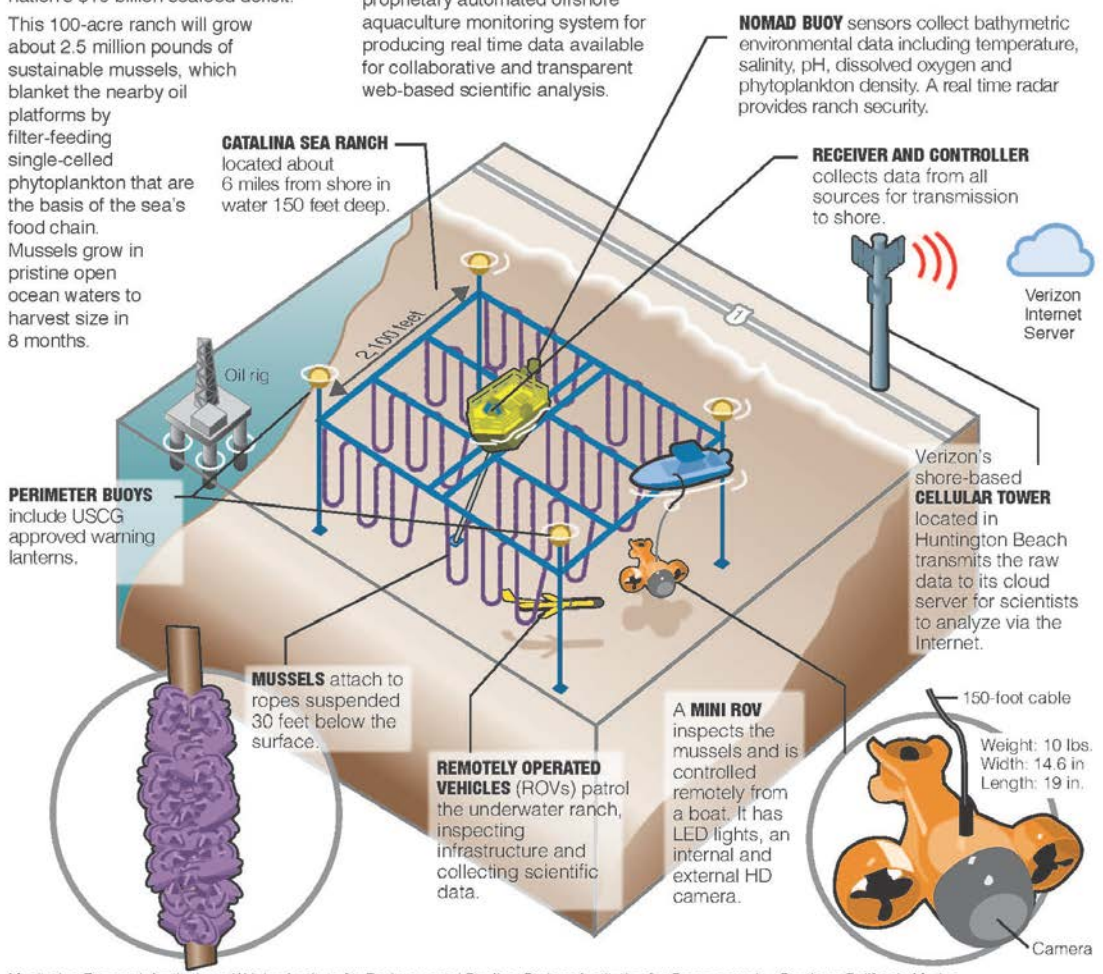
OFFSHORE RANCHING

A shellfish industry in Southern California would expand the state's economy in a clean and sustainable way while also putting a dent in our nation's $10 billion seafood deficit.

This 100-acre ranch will grow about 2.5 million pounds of sustainable mussels, which blanket the nearby oil platforms by filter-feeding single-celled phytoplankton that are the basis of the sea's food chain. Mussels grow in pristine open ocean waters to harvest size in 8 months.

SHARING THE SCIENCE

Catalina Sea Ranch is leveraging Verizon's network to develop a proprietary automated offshore aquaculture monitoring system for producing real time data available for collaborative and transparent web-based scientific analysis.



Monitoring Research Institutions: Wrigley Institute for Environmental Studies, Scripps Institution for Oceanography, Southern California Marine Institute, California State University Long Beach, Ocean Studies Network, National Ocean Tracking Network, NOAA's Integrated Ocean Observing System, NOAA's National Marine Fisheries Service Shellfish Aquaculture Laboratory in Milford, and NOAA's Southwest Fisheries Science

RESEARCH & WORKBOAT FLEET

Captain Jack Research Vessel is a floating laboratory for conducting research and promoting educational outreach at sea. This steel 111 ton versatile vessel is equipped with a wet laboratory, large lecture salon, 5 ton knuckle crane, and other amenities to comfortably accommodate scientists, researchers and students.

Enterprise Workboat is 70 foot landing craft converted as an all-purpose offshore aquaculture work vessel used for seeding, harvesting and transporting marine crops to shore. It has an 8-ton long reach crane and three davits with hydraulic winches. A $310,000 grant from the South Coast Air Quality Management District repowered this vessel with two new low-emission diesel propulsion engines.

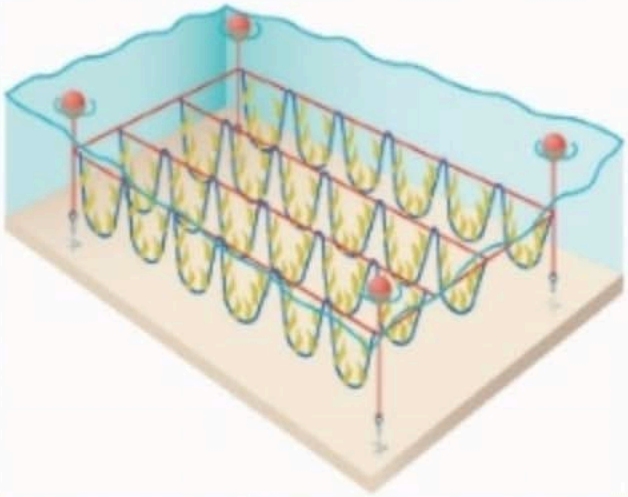
Catalina Sea Ranch has constructed a laboratory and research hatchery at AltaSea for expanding its R&D programs. It is planning a commercial hatchery and processing facilities for expanding seafood distribution domestically and for export markets

Catalina Sea Ranch has been awarded over $1 million in federal funding for research projects pioneering aquaculture best practices and husbandry efficiencies.

Improving Seed Production for Marine Shellfish Aquaculture in the United States *Awarded September 2015 and August 2016*	**PHASE I** $95,000	**PHASE II** $400,000
Cryopreservation of Mussel Larvae for Advancing United States Aquaculture *Awarded August 2016*	$100,000	

DOE funding a “Seaweed Industry“ for America

ARPA-E MACROALGAE RESEARCH AWARDS



PRIME

Catalina Sea Ranch

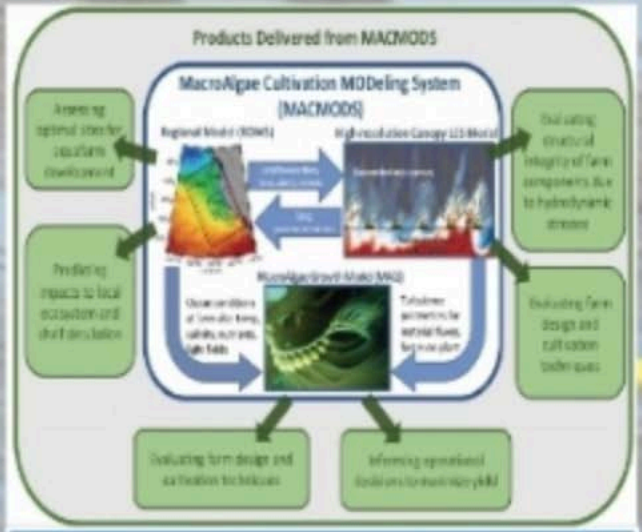
Subcontractors:

Ocean Rainforest

Patagonia Seaweeds

‘Design of Large Scale Macroalgae Systems’

$500,000



SUBCONTRACTOR TO:

UC-Irvine

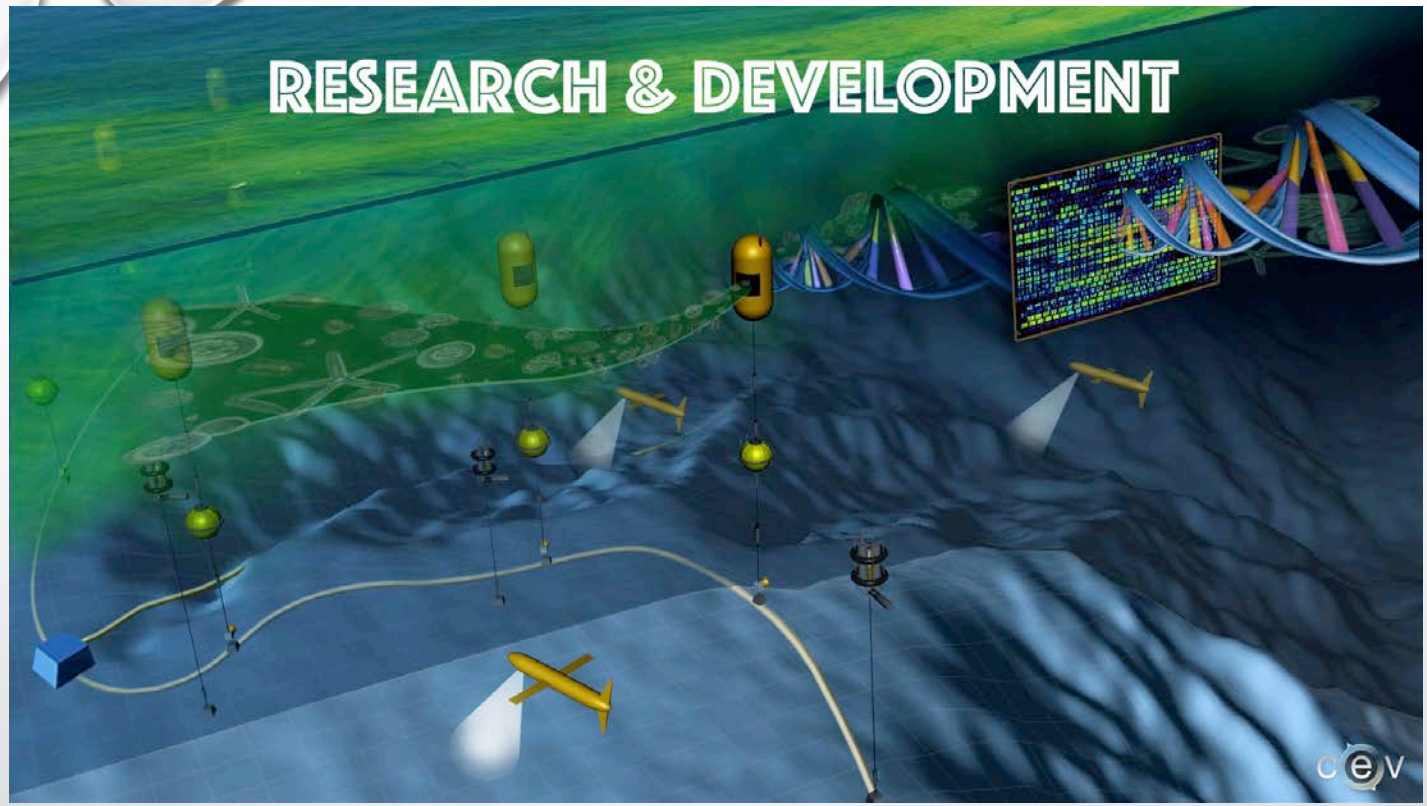
UC-Santa Cruz

UC-Los Angeles

‘MacroAlgae Cultivation MODeling System

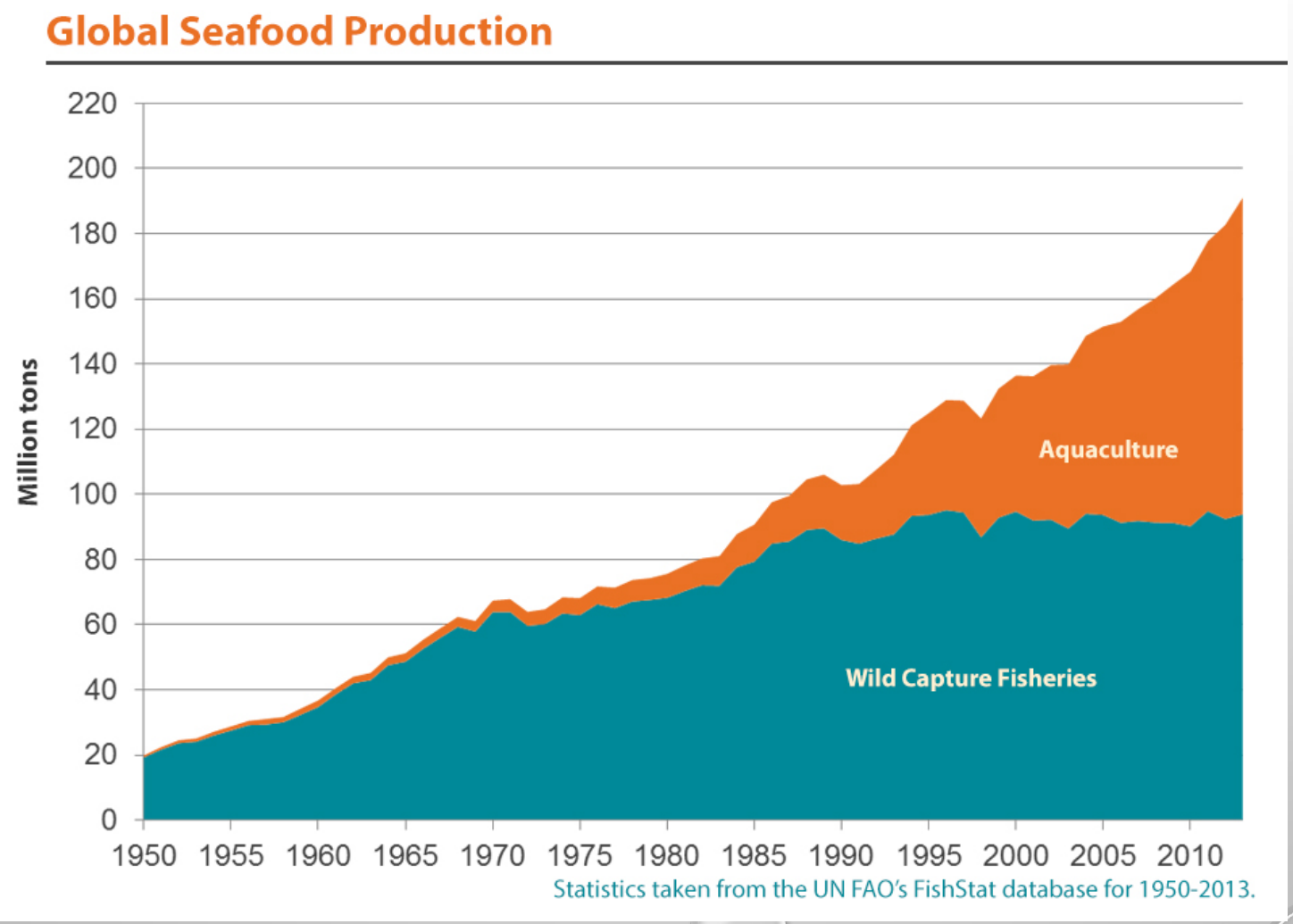
$1,815,529

Catalina Sea Ranch is collaborating with leading genomic institutions and scientists employing next generation DNA sequencing tools for producing higher performing marine crops with shortened growth cycles, higher yields and greater uniformity. Advances with selective breeding, cryopreservation and genomics promise to be disruptive and transformative to the global aquaculture industry.

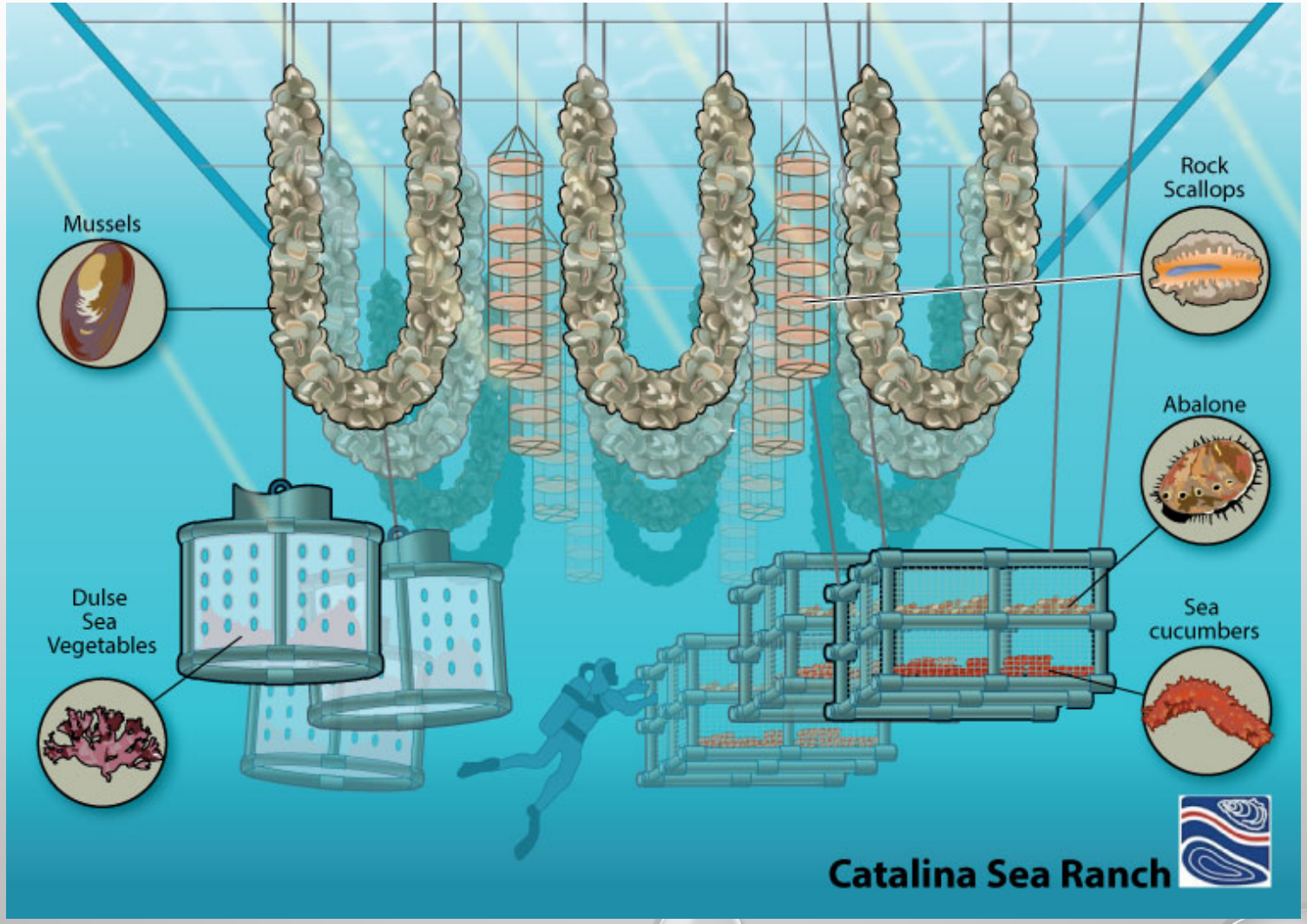


1) Applied research will increase marine aquaculture husbandry efficiencies.
2) These contracts to “conduct research” are booked on the balance sheet.
3) About 20% of an award contributes to corporate overhead.
4) Technology creates barriers to entry for future competition.
5) Intellectual Property patents expenses are paid for by U.S. Government.
6) R&D creates positive publicity and sophisticated corporate image.
7) Monitoring technologies will accelerate the scaling to over 1,000 acres

Catalina Sea Ranch has developed a strategic plan for putting a dent in our nation's $15 billion seafood trade deficit with the cultivation of additional marine crops that may have a measurable positive impact on the ocean environment.



Mussels are a low-risk cash crop. The infrastructure will support experimentation with the polyculture of additional sustainable and higher value marine crops for diversification with future expansion.



EXPANSION TO AN ADDITIONAL 2,900 ACRES ON SAN PEDRO SHELF