

WOODS HOLE OCEANOGRAPHIC INSTITUTE

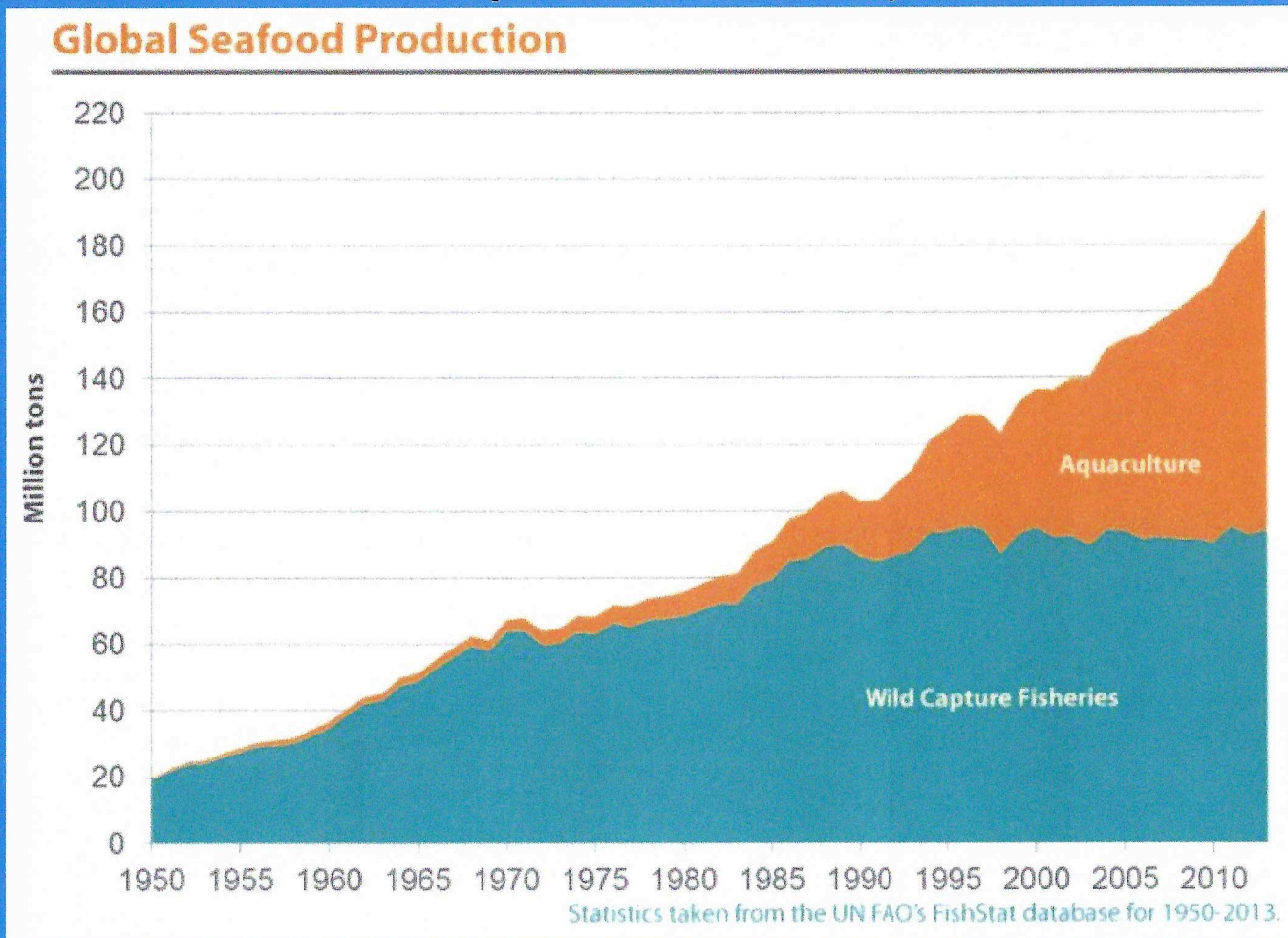
Center for Marine Robotics – 4th Annual CMR Entrepreneur Showcase

Donna Lanzetta:

CEO and Founder of Manna Fish Farms, Inc.

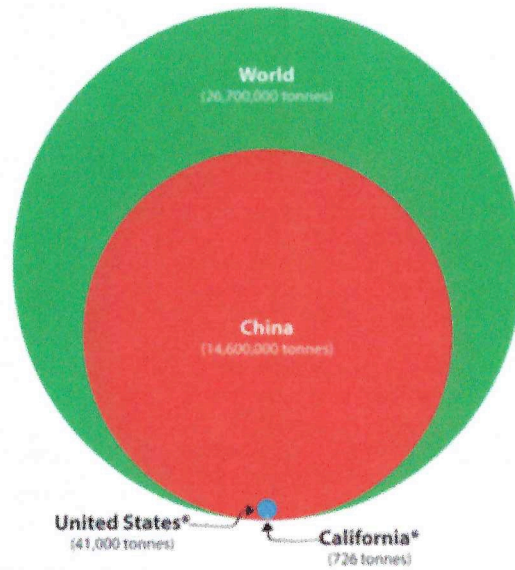


The United Nations advises: we must Double Aquaculture by 2030!

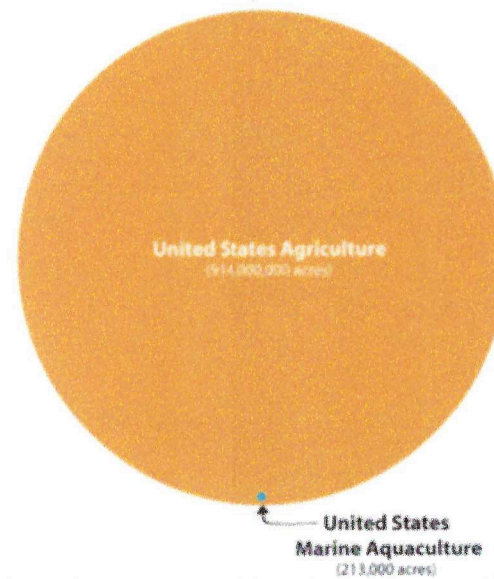


Current US Aquaculture

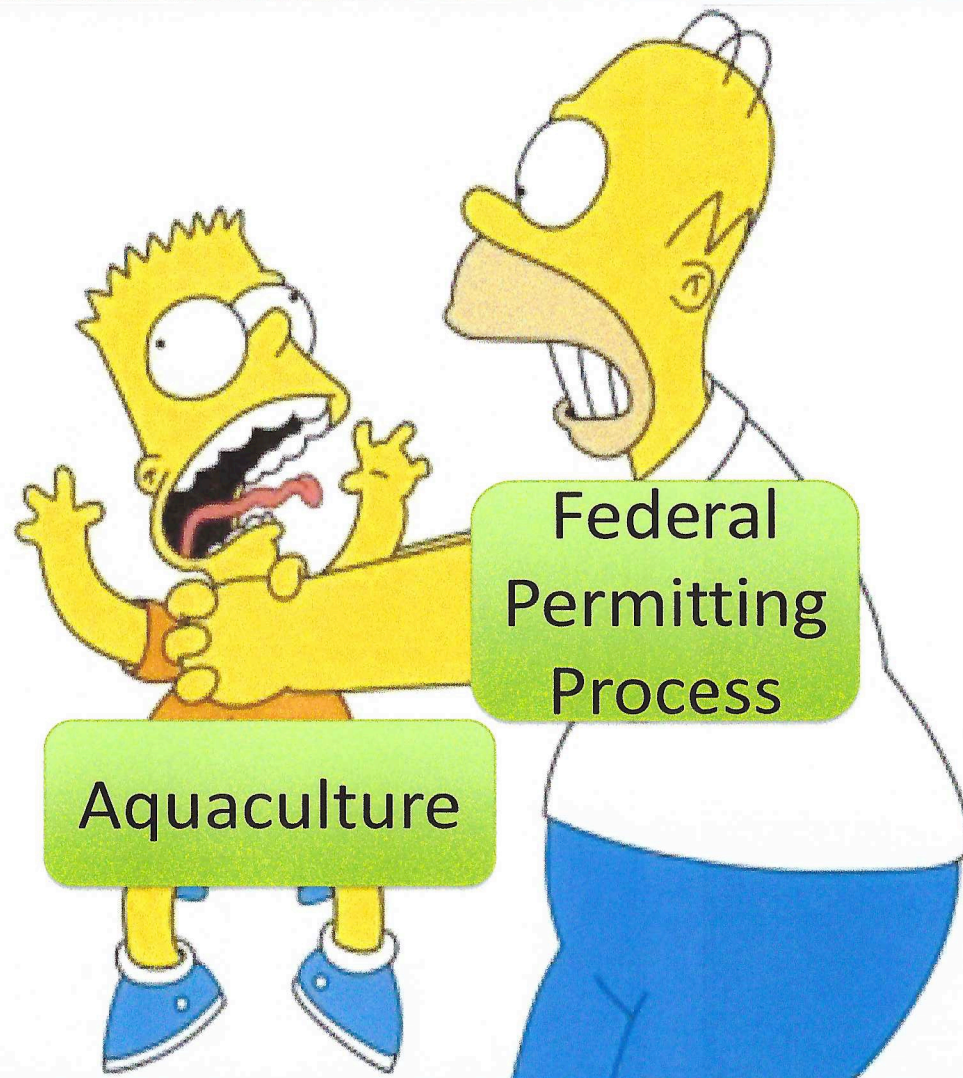
Marine Aquaculture Production 2014¹



Acreage Used for Agriculture and Marine Aquaculture 2013²



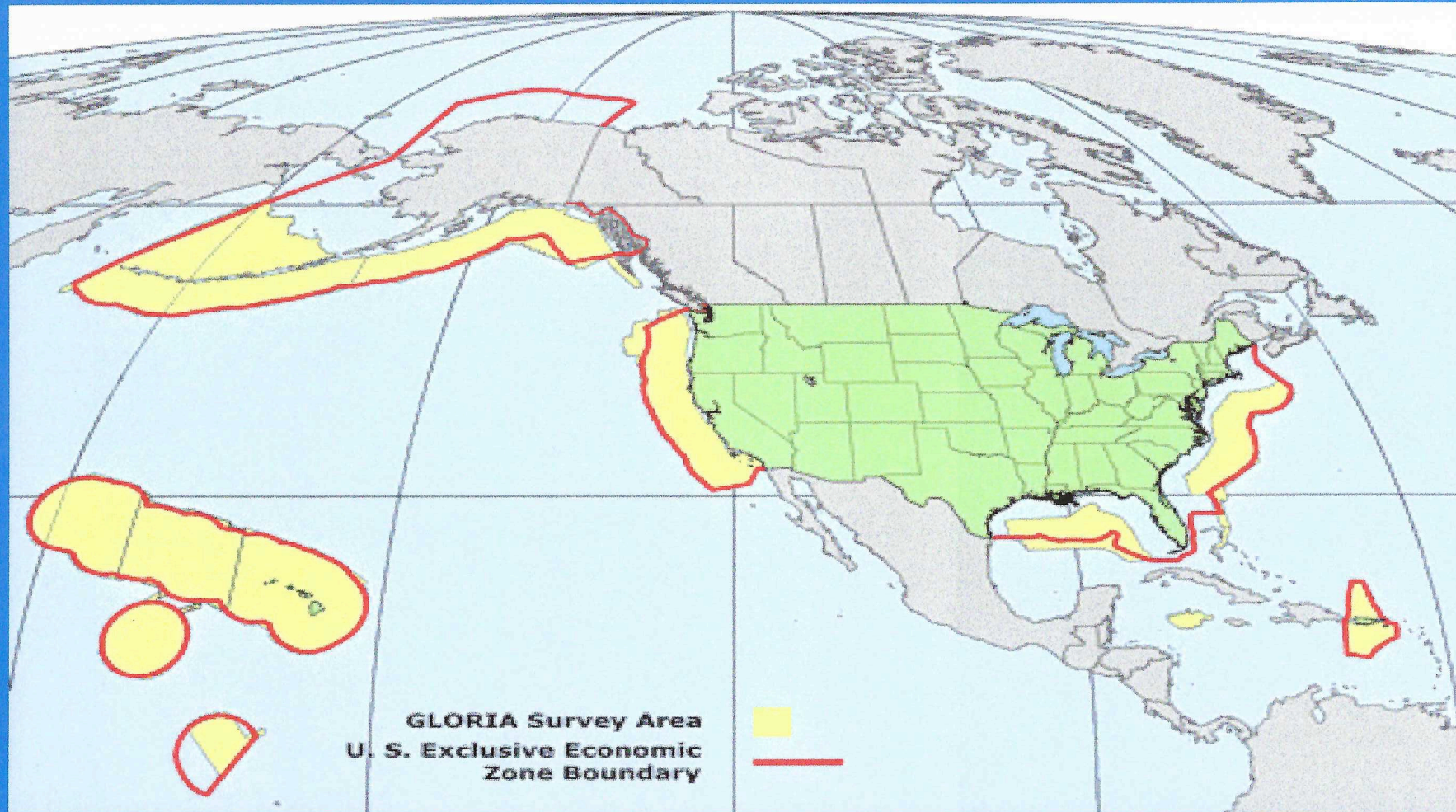
* Clams, oysters, and mussels are reported as meat weights (excludes shell), while all other species such as finfishes are reported as whole live weights.
Source: ¹ National Marine Fisheries Service (2016) Fisheries of the United States, 2015. U.S. Department of Commerce, NOAA Current Fisheries Statistics No. 2015, FNO (2016). The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all. Rome, 300 pp. ISBN 978-92-51-26922-1. ² USDA (2014). 2012 Census of Agriculture: Summary and State Data Volume 1. Geographic Area Series, Part 11. USDA (2014). Census of Agriculture 2012: Volume 1, Special Studies, Part 2.



Aquaculture

Federal
Permitting
Process

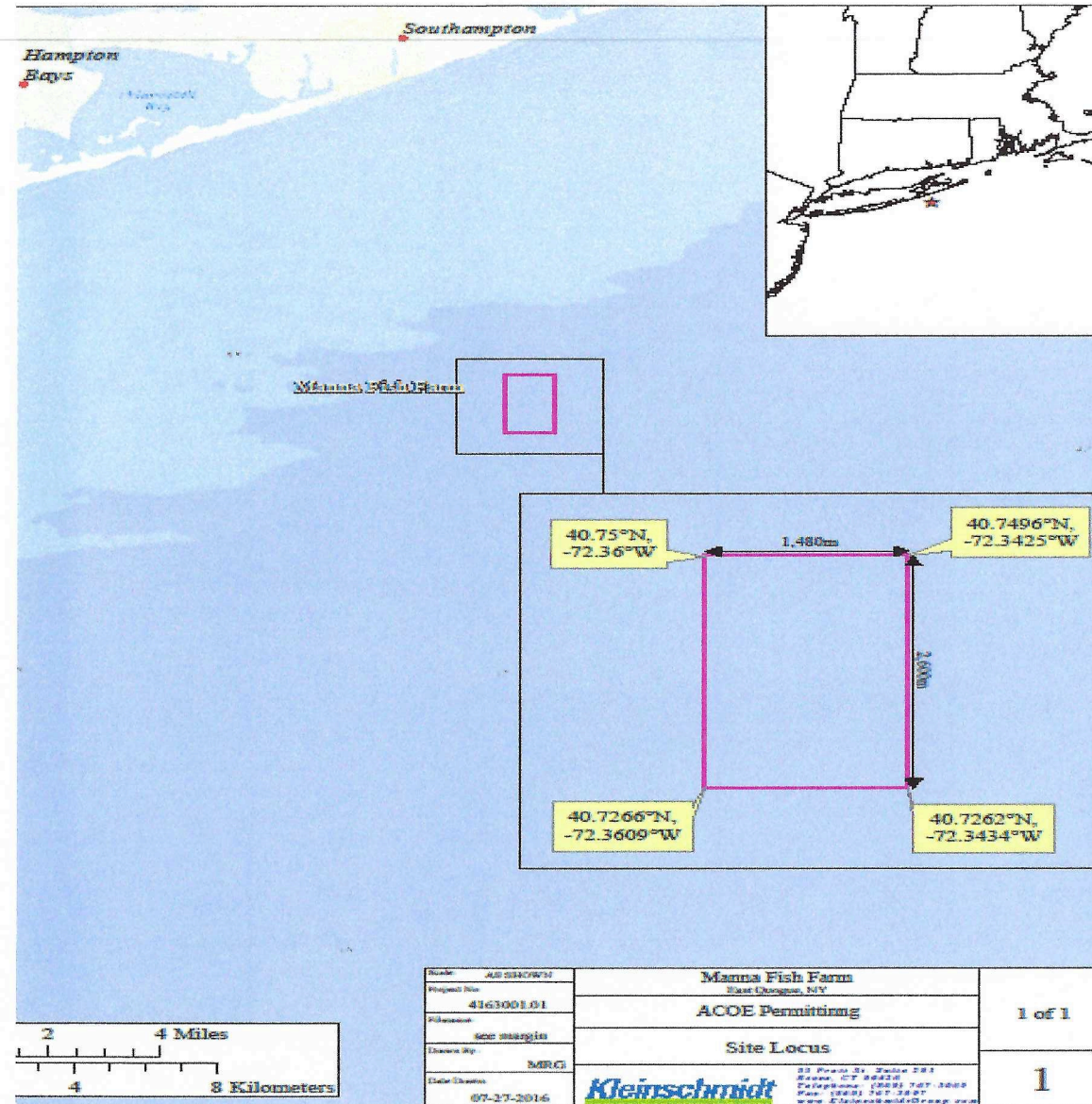
United State Exclusive Economic Zone (EEZ)



Proposed Location

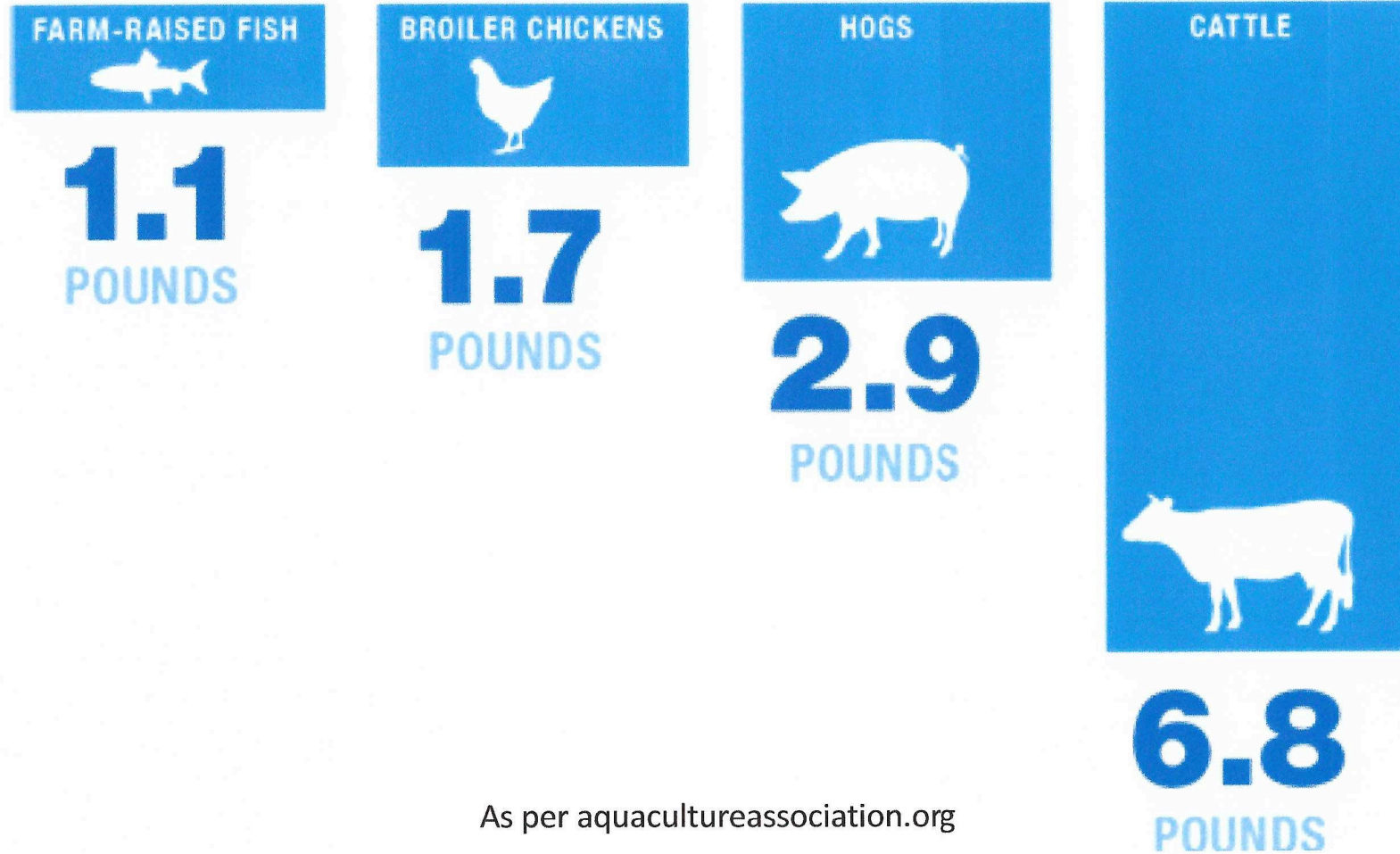
The Offshore Marine Aquaculture Facility is proposed for 8 miles off the coast of eastern Long Island (Shinnecock Inlet)

1.5 square miles



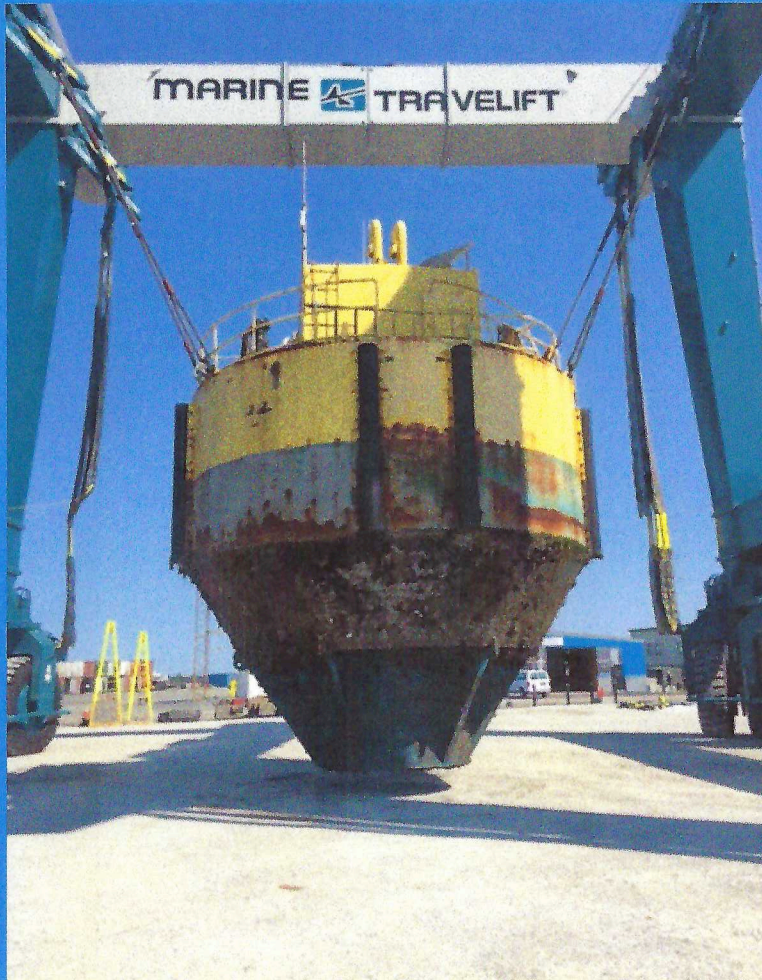
FEED CONVERSION RATIO

Estimated feed required to gain one pound of body mass.⁵



As per aquacultureassociation.org

Automated Feed System – Before and After



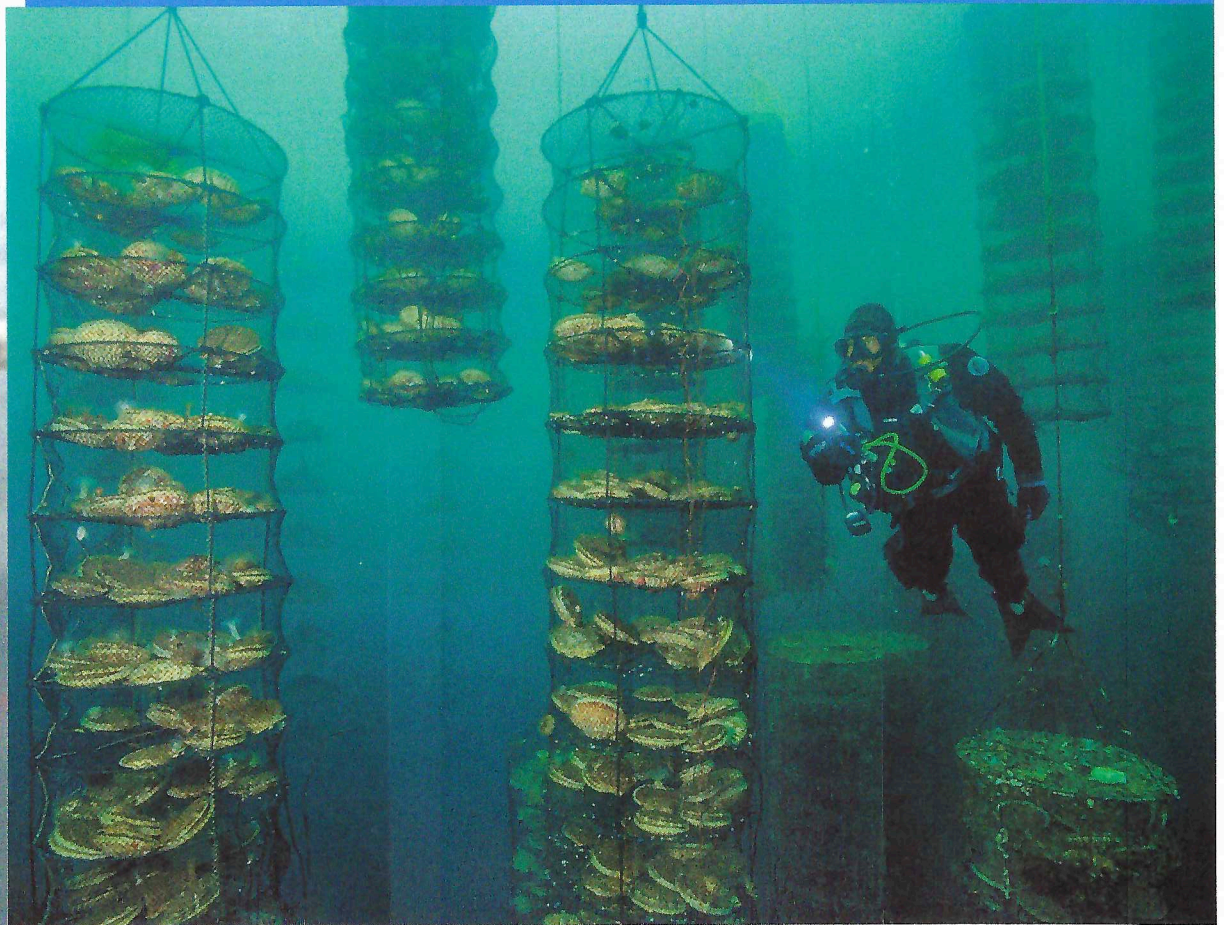
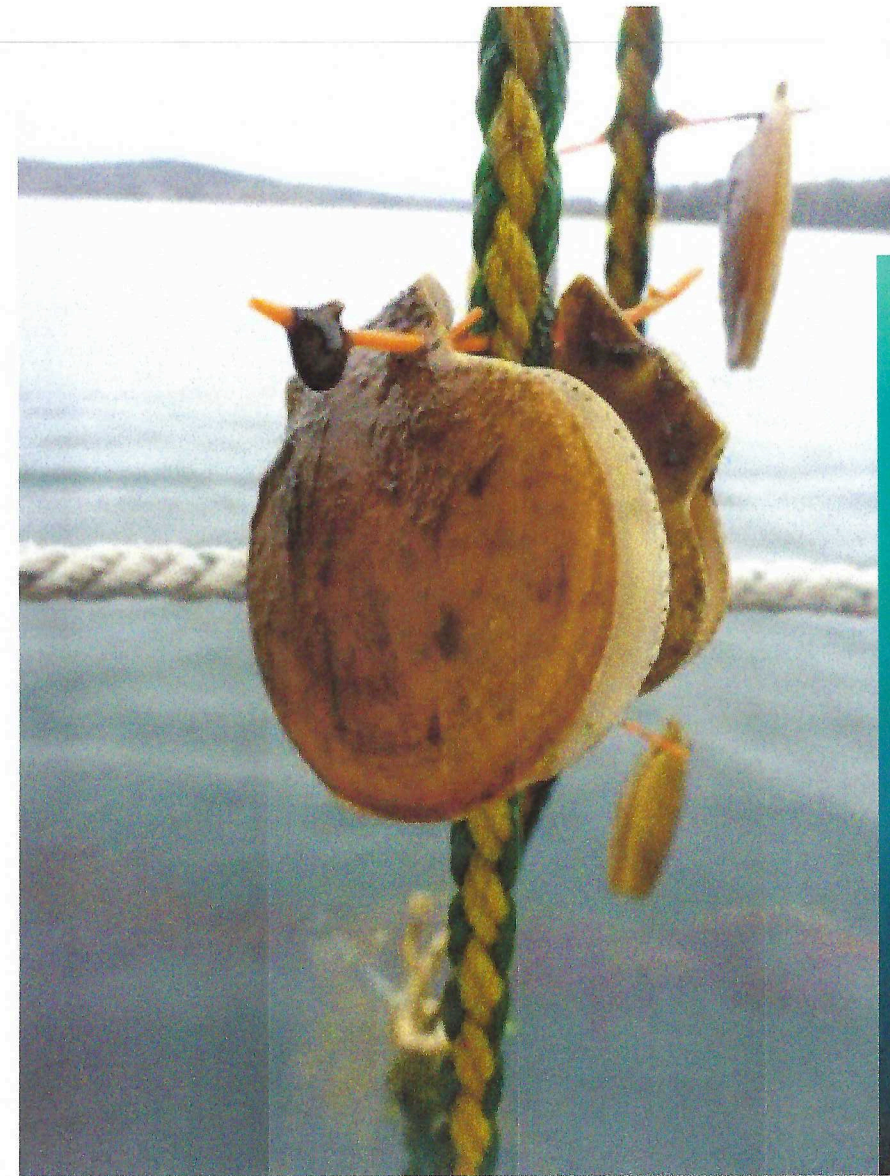
Getting ready to go off shore



Submersible Cage Technology



Scallop farming methods



EDIBLE LONG ISLAND – INNOVATION





Autonomous Underwater Vehicles (AUVs)



Deep Water

Surf Zone



Full Ocean

3000 M

300 M

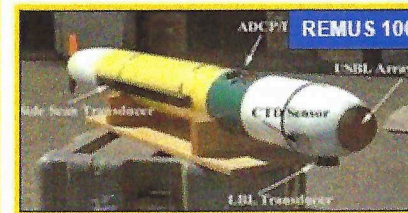
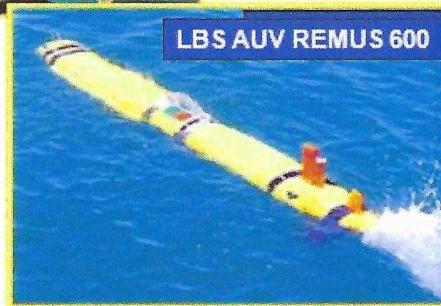
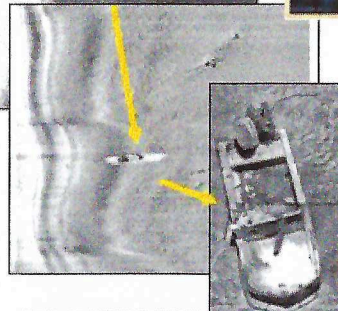
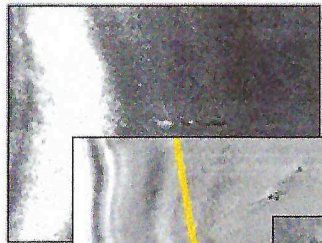
100M

Shore Line



Capabilities

- Side Scan Sonar
- Sub-Bottom Profiler
- Camera
- CTD
- ADCP
- GPS
- Iridium, Freewave, & Acoustic Comms



Over a Decade of Full Ocean Depth AUV Expertise

New technology available to support
the sustainable production of seafood



Research and Education



MANNA OCEAN
FOUNDATION

Thank you for your attention!



Charting the course to operate the first open ocean finfish farm on the East Coast of the United States!