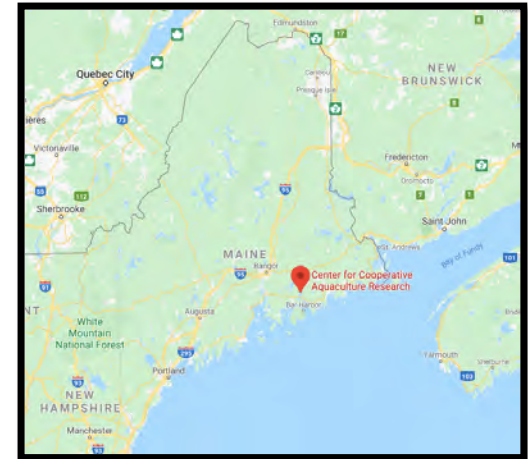


Business Incubation in Maine for Marine Finfish Aquaculture: 20 years of Improvement and Lessons Learned

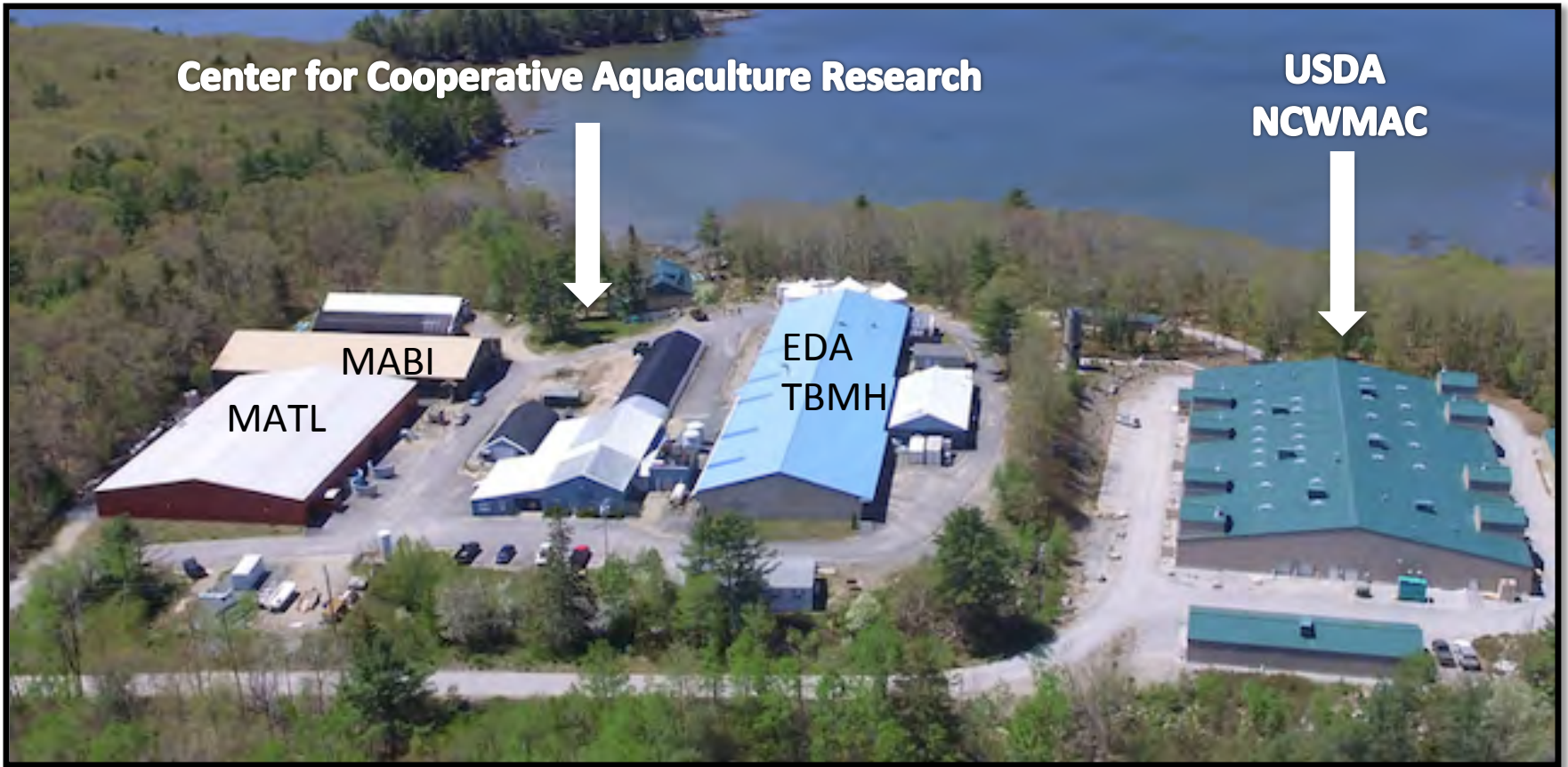
Melissa Malmstedt and Steve Eddy
Aquaculture America 2020
Honolulu, HI

CCAR History

- Penobscot Salmon, 1989
 - 24 acre site
- Maine Economic Improvement Fund, 1997
 - Targeted seven economic sectors in Maine
- Research → Industry



The CCAR Site



CCAR's Mission

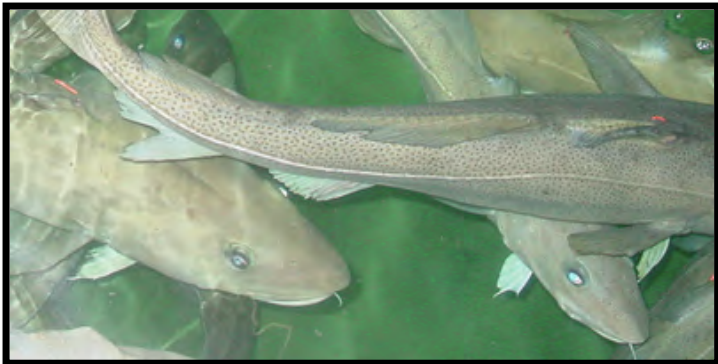
To grow the aquaculture sector in Maine through...

- **Innovation** *Develop and improve farming technologies for aquatic species*
- **Demonstration** *Pilot trials and demonstration projects*
- **Facilitation** *Facilities for industry and researchers to carry out projects and trials*
- **Collaboration** *Work with others towards sustainable aquaculture and fisheries*
- **Education** *Train staff and students and educate the public about aquaculture*

Species at CCAR

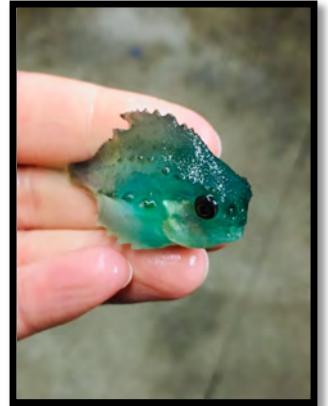
Past

- Atlantic cod, 2003-2018
 - Demonstration, cataracts, and breeding
- Black sea bass, 2012-2017
 - Growth, feeding, and marketing trials (AHI)



Present

- Atlantic halibut, 2000
- Yellowtail kingfish, 2012
- Lumpfish, 2018
- American eels, 2018
- Marine polychaete worms
 - Bait, IMTA, bioremediation, alternative feed
- Green sea urchins
- Marine ornamentals
- Macro and micro algae



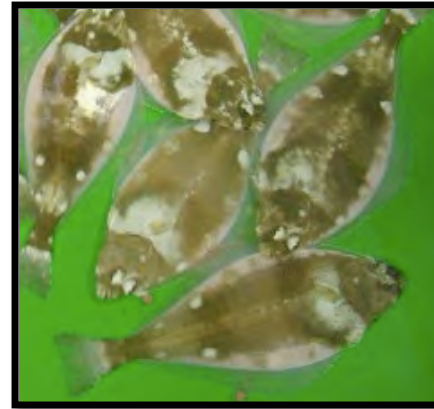
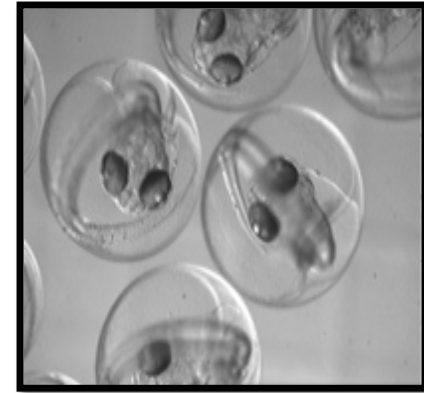
Funding

- Maine Economic Improvement Fund
 - Supports CCAR to this day through annual state appropriations to UMS
- Sponsored research projects
 - Maine Sea Grant, National Sea Grant, NRAC, SBIR, and NSF
- Infrastructure funding
 - Economic Development Administration
 - EDA Taunton Bay Marine Hatchery
 - Maine Technology Asset Fund (bond-funded)
 - MATL
 - 2.6M, 2008
 - MABI



Cost Recovery

- Fees paid to CCAR for incubation space
- Hatchery services
 - Egg and juvenile sales
- Training courses



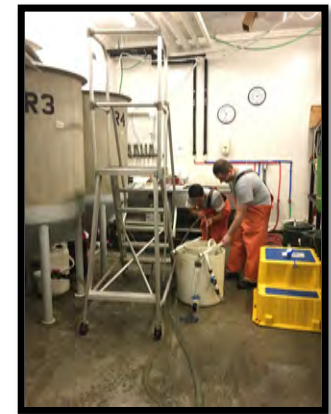
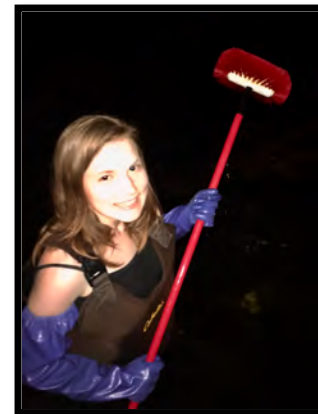
Business Incubation

- Current Industry Partners
 - Sea and Reef Aquaculture, 2012
 - American Unagi, 2018
 - Kingfish Maine, 2020
 - Springtide Seaweed, 2017
- Past Industry Partners
 - Maine Halibut, 2003-2010
 - Acadia Harvest, 2012-2017
 - Great Bay Aquaculture, 2005-2010



Workforce Development

- Introduction to Aquaculture
- Marine Hatchery Technician Training
- Internships
- Summer Programs
- SMS 449: Aquaculture Systems
 - Pilot 12 credit certificate
 - RAS
 - Shellfish and Finfish Husbandry
 - Aquatic Animal Health
 - Shellfish Farming
 - Industry Internship



Why Maine?

- Maine has a strong aquaculture business development and incubation infrastructure



Why do some fail to commercialize?

Causes of Commercialization Failure

- Lack of capital
 - Greater economic environment (lack of private investment)
- Public funding in Maine
 - Double-edged sword

Conditions for Success

- Startup capital
 - For CCAR operations and off site expansion
- Public funding in Maine
- Detailed business plan
- Solid understanding of aquaculture and business



Thank you!

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