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

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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?

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<thead>
<tr>
<th>Causes of Commercialization Failure</th>
<th>Conditions for Success</th>
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<tbody>
<tr>
<td>Lack of capital</td>
<td>Startup capital</td>
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<tr>
<td>Greater economic environment (lack of private investment)</td>
<td>For CCAR operations and off-site expansion</td>
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<td>Public funding in Maine</td>
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<td>Double-edged sword</td>
<td>Detailed business plan</td>
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<td>Solid understanding of aquaculture and business</td>
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Thank you!

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