



UMaine Aquaculture Research Institute

Experiential Learning in Maine Aquaculture



Aquaculture
Research Institute



ARI Strategic Framework



Mission

The Aquaculture Research Institute serves Maine as an objective authority on aquaculture research with the goal of advancing a sustainable aquaculture future in Maine and the Nation.



Photo Credit: UMaine Marketing

Aquaculture Research Focus Areas

Healthy Species: Aquatic Animal Health



- Nutrition
- Disease and pathogens
- Immunology
- Vaccine development



Healthy Ecosystems: Ecological Dimensions of Aquaculture

- Productivity
- Ecosystem modeling
- Ecosystem services
- Climate resilience

Healthy Populations: Aquatic Species Biology and Reproduction



- Genetic diversity
- Reproductive endocrinology
- Biology of aquacultured species
- Biological response to climate change

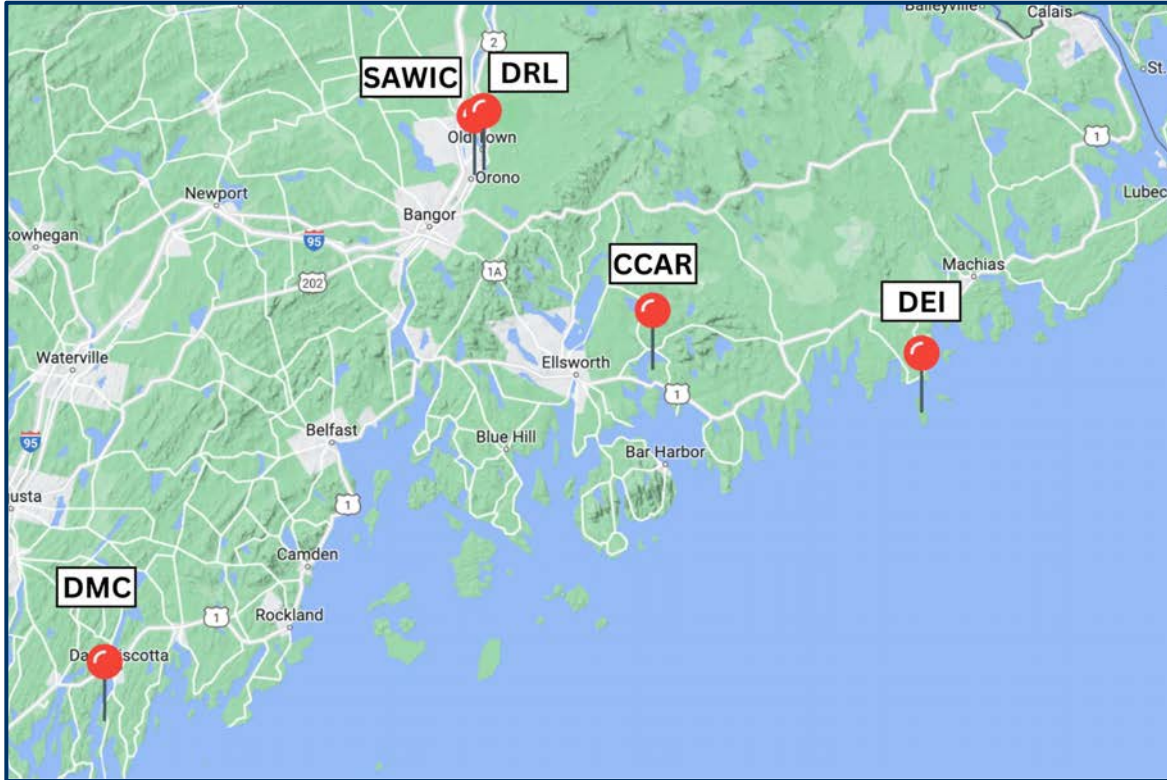


Healthy Communities: Social Dimensions of Aquaculture

- Risk communications and perceptions
- Sustainable development
- Policy and regulation
- Food safety and nutrition



UMaine Aquaculture Facilities



- Downeast Institute (DEI) - Beals Island
- Center for Cooperative Aquaculture Research (CCAR) - Franklin
- Aquatic Animal Health Lab at the Cooperative Extension Diagnostic and Research Lab (DRL) - Orono
- Darling Marine Center (DMC), Walpole
- *Sustainable Aquaculture Workforce and Innovation Center (SAWIC) - Orono*



ARI Values



- **Collaborative:** As an interdisciplinary institute, we recognize that many of the aquaculture sector's most challenging research questions will require experts from multiple disciplines and backgrounds coming together to create innovative solutions.
- **Relevant:** Inclusive stakeholder engagement on research and education priorities will drive our research portfolio.
- **Applied:** We will conduct translational, inclusive and applied research and training that attempts to solve current and emerging challenges in aquaculture.
- **Balanced:** We will conduct and support science that is inclusive of the needs and perspectives of multiple and diverse stakeholders including tribal communities, coastal communities, industry, processors, consumers and conservationists.
- **Sustainable:** Sustainability, defined as a balanced system where environmental, social, and economic impacts allow continued benefit for diverse future generations, will be at the core of our research and educational programming.



ARI Strategic Framework



Strategic Category - Research

Goal 1: Conduct research that supports sustainable aquaculture systems and innovation in the sector.

Strategic Category - Service

Goal 2: Engage stakeholders, researchers, consumers and policy makers around advancing sustainability within the sector.

Strategic Category - Education

Goal 3: Support inclusive workforce development in the sustainable aquaculture sector.

Strategic Category - Institutional Sustainability

Goal 4: Increase ARI's organizational capacity and economic, social and environmental sustainability.

ARI's Undergraduate Engagement

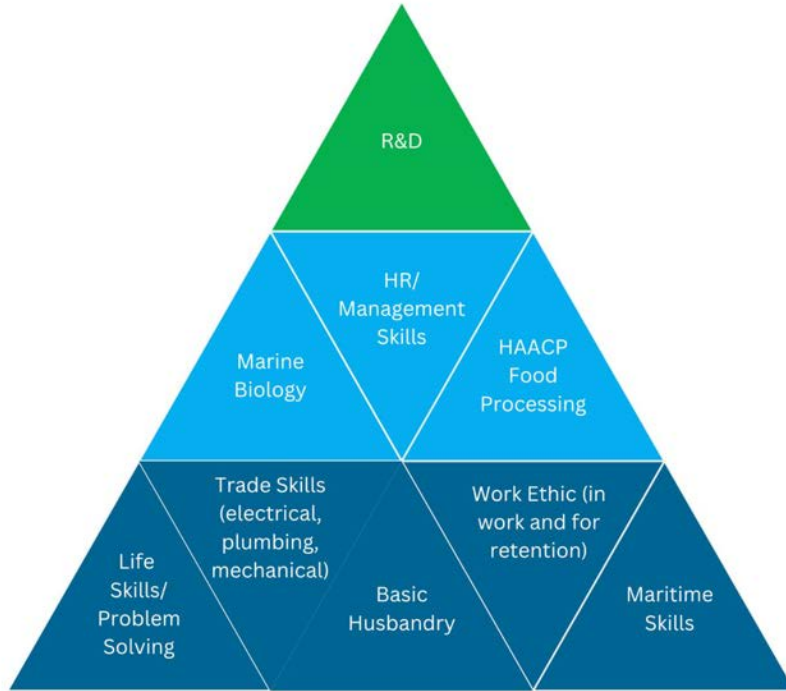
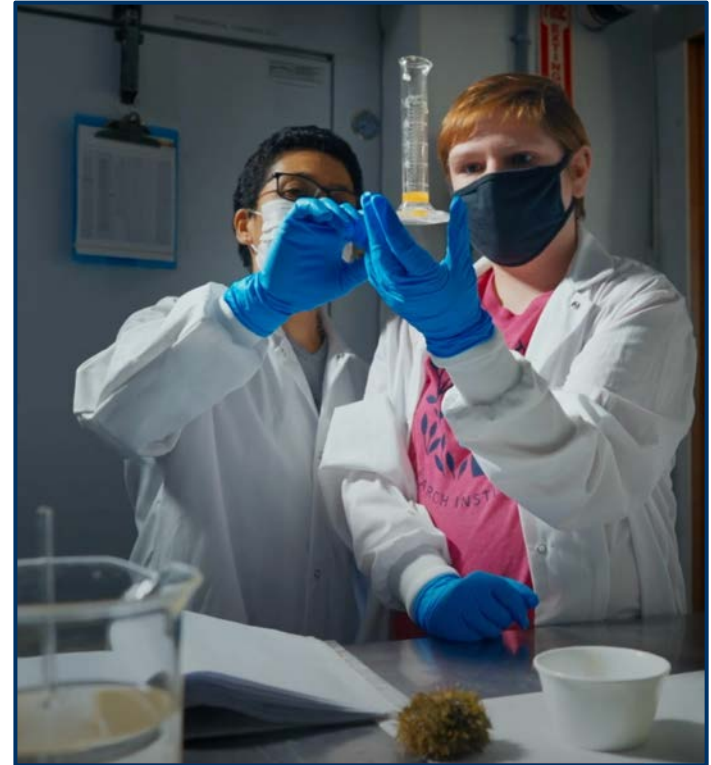


Figure 2: Maine Aquaculture Sector Skills Pyramid as Perceived by Industry

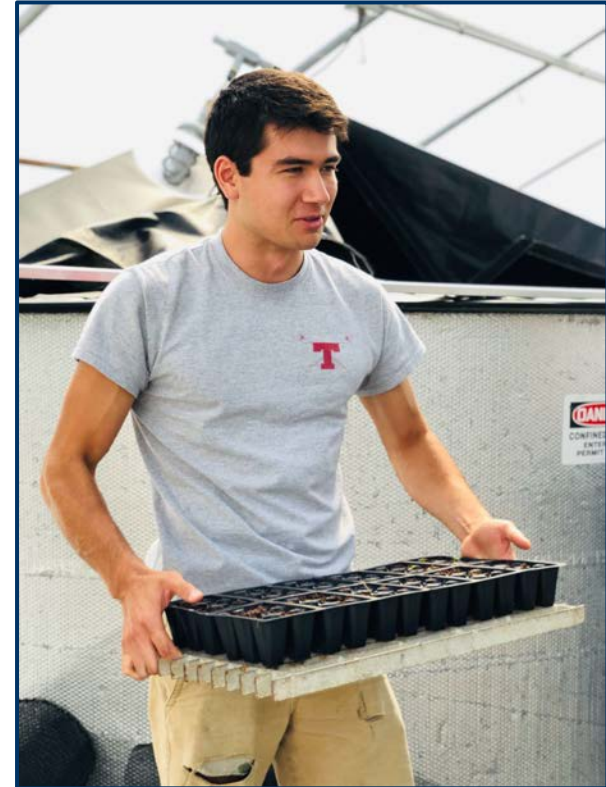




ARI Aquaculture Externship Program



- 12-week paid internship
- Two part application process
- 15 different partner sites around Maine
- Inclusive Science Communications training
- Microbadge available as part of Sustainable Aquaculture Microcredential pathway
- Professional development opportunities
- Presentation at Student Research Symposium





ARI Aquaculture Externship Program



"Being able to approach aquaculture through experience on the farm as well as research. Having both sides helped me understand their importance to a much greater degree."

"It was a very positive experience to be able to be out in the field instead of in the classroom, and to apply the things I've been learning in school the past two years. I learned to improve many of my skills, from things actually dealing with animal husbandry, to things such as vessel operations and data analytics."

"In the concrete sense, this role helped me develop very applicable communications skills. In a more abstract sense, I have been able to explore what types of tasks resonate with my abilities and interests. Being in an in-person work setting was helpful in orienting me in what a future work week could look like."



AquEOUS Fellowship

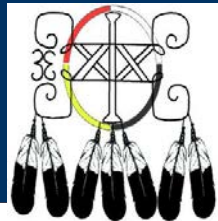
INTEGRATING INDIGENOUS AND WESTERN SCIENCE THROUGH APPLIED AQUACULTURE RESEARCH



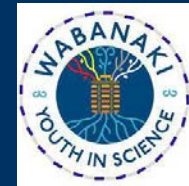
Photo Credit: UMaine Marketing



Photo Credit: Melissa Malmstedt



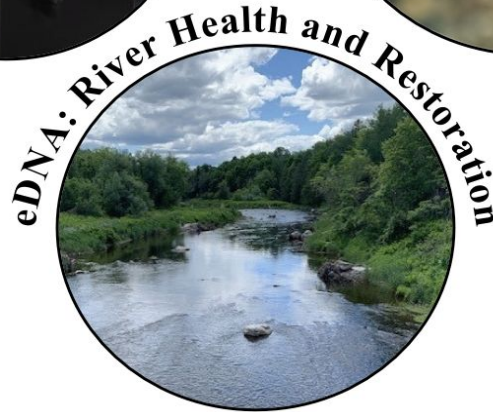
AquEOUS Fellowship



- Collaboration between ARI, UMaine Wabanaki Center and the Wabanaki Youth in Science program (WaYS)
- 2 weeks virtual & 10-week in person
- Inclusive Science Communications training
- Presentation at Student Research Symposium
- Stipend/R&B and materials budget
- Mentorship teams
- Statewide field trips



AquEOUS Projects





AquEOUS Fellowship



“It is a very interesting program. It is one of the only ones that begins to make space for indigenous ways of knowing the world, indigenous collaboration, etc.”

“I learned a lot about collaboration and the power of it, I’m inspired to continue directly collaborating with communities, especially indigenous people.”

“Not going to lie, I’m kind of tempted to start up a kelp farm now.”



Sustainable Aquaculture Workforce Innovation Center (SAWIC)



- ~15,000 ft² cold-water recirculating aquaculture facility
- Sustainable Aquaculture outreach and demonstration space
- Environmental Change Lab
- Open and flexible tank space
- UMaine aquaculture hub connecting aquaculture across campuses and facilities
- Aquaculture R&D, commercialization and services supporting industry needs
- Classroom and outreach spaces



Thank you!



Photo Credits: Corinne Noufi

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