

## ADVANCING US MARINE AQUACULTURE AT THE UNIVERSITY OF NEW HAMPSHIRE

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The University of New Hampshire (UNH), through programs like the School of Marine Science and Ocean Engineering, NH Sea Grant, and the College of Life Sciences and Agriculture, has a long-standing history of innovative marine aquaculture research, demonstration sites (both at research and commercial scales), and working with industry partners. These activities mostly have occurred at the Judd Gregg Marine Facility Complex in New Castle, NH which consists of the Coastal Marine Laboratory (CML) and the Marine Research Pier (Pier), as well as at nearshore and exposed, offshore demonstration aquaculture farms in the Gulf of Maine.

The CML is a marine laboratory facility with both wet and dry lab infrastructure for faculty, graduate, and undergraduate student research projects. The wet lab, with full strength seawater capabilities, ultra violet filtration systems, and a variety of supporting infrastructure, contains tanks from 3 L to 7,570 L, both on flow-through and re-circulating systems. Ambient water temperature can range from 0 to 20°C. More than 30 cold water, marine species have been cultured at the CML. Current aquaculture research in the CML is focused on producing and promoting lumpfish as biological delousers in US salmonid farms.

UNH is a leader in aquaculture research in high-energy, offshore environments. The Pier is the staging operations center for the UNH vessels and open ocean aquaculture projects, including the steelhead trout farm (AquaFort), offshore kelp farms in NH and ME, as well as *in-situ* experimental cage systems and nursery pens beneath the pier. Our successes are due, in part, to the wide range of experts at UNH, including ocean engineers, marine biologists, ecologists, and oceanographers, who collaborate and participate in public-private partnerships. Results of the projects are communicated through extension and outreach activities. In addition, UNH provides guidance and assistance in acquiring state and federal permits necessary to conduct offshore research and operations in the Gulf of Maine.