



Aquaculture Careers and Educational Opportunities in Connecticut

AQUACULTURE FACT SHEET

Sea Grant is a unique partnership between the nation's universities and its primary ocean agency, the National Oceanic and Atmospheric Administration (NOAA). Connecticut Sea Grant, based at the University of Connecticut, collaborates with maritime industries and coastal communities to identify needs, and fund research, outreach, and educational activities that have special relevance to Connecticut and Long Island Sound. Its mission is to foster the wise use and conservation of our nation's coastal and marine resources.

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INTRODUCTION

Aquaculture is generally defined as the cultivation of aquatic plants and animals in a controlled environment. As wild fisheries production continues to decline, the availability of domestic farm-raised fish and shellfish is growing exponentially. The market continues to be very promising with more health conscious consumers becoming aware of the benefits of eating fish and shellfish products. Aquaculture is now the fastest growing animal-production industry, and it represents nearly a \$100 billion dollar industry worldwide. In Connecticut, the aquaculture industry is dominated by shellfish production, mainly oyster and clams. However, there are a variety of other aquaculture products that are produced in the state including trout, baitfish, ornamental fish and invertebrates, and plants.

Aquaculture is an applied science that integrates the subjects of biology, ecology, physics, chemistry, oceanography, and engineering. As such, there are a variety of careers available to those interested in this field. These opportunities range from farm workers to accountants to engineers, among many others.

TYPES OF CAREERS

Aquaculture farmer	Investor
Aquatic microbiologist	Laboratory technician
Boat captain	Marketing professional
Consultant	Pathologist
Economist	Pharmaceutical industry
Enforcement officer	Processor
Engineer	Product distributor
Equipment vendor	Resource manager
Extension specialist	Scientific writer
Feed developer	Teacher
Gear technology designer	Veterinarian
Hatchery manager	Water quality technician
Health inspector	Zoo keeper /Aquarist

SALARY

There is a wide range of salaries paid in aquaculture careers. Salaries are dependent on many factors including geographic location, education, experience, and the type of occupation. Many entry-level and seasonal or part-time jobs offer hourly wages, while full-time positions usually offer more competitive salaries and benefits packages.

CAREER QUALIFICATIONS

All aquaculture careers require enthusiastic, hard-working individuals, though not all require previous experience or advanced degrees. Many entry-level farm employers will conduct on-the-job training and require only a high school diploma.

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For entry-level jobs such as a laboratory technician or resource management positions an undergraduate degree (B.S. or B.A.) is usually required. Graduate degrees (M.S., M.A, Ph.D.) are usually necessary for teaching, research and management-level government positions. In addition, other degrees or certificates may be relevant depending on the particular job, for example: veterinary degree, captain's license, SCUBA, etc.

PROS AND CONS OF AQUACULTURE CAREERS

Careers associated with the field of aquaculture are extremely demanding, and employers seek self-motivated, independent individuals to work in their operations. There are many advantages to working in this field, although there are some conditions which may prevent some individuals from being qualified or able. Aquaculture farms are similar to agriculture farms, in that they require 24-hour monitoring or supervision. Farm work requires long hours in sometimes unpredictable weather conditions, though many people prefer field rather than an office atmosphere. Many operations in the Northeast region are owned and operated by families or a small number of individuals. Aside from husbandry, these farmers must have skills in business planning, accounting, and marketing in order to be successful.

Other career opportunities such as resource management, enforcement, research and extension allow for field work as well as laboratory and office responsibilities. These professionals often work together with farmers to answer questions or solve problems related to business development and farming practices.

Many opportunities are available in support industries such as engineering, gear design, and equipment manufacture and sales. These careers require direct collaboration with the aquaculture industry, and require ingenuity to develop and market products that can prosper in aquatic environments.

Environmental laboratory technicians, pathologists and veterinarians may specialize in aquaculture or facilitate diagnostic testing for aquatic organisms. These types of careers will continue to be in high demand as aquaculture grows in our region.

AQUACULTURE EDUCATION IN CONNECTICUT

High School Programs

In the mid-1980s, the State of Connecticut Department of Education collaborated with a statewide Advisory Committee to initiate a plan to develop five vocational agriculture centers focused on the study of aquaculture and marine trades. These centers were intended to prepare students for occupations in the marine trades, and further education in marine technology and science. To date, two centers have been built to serve students along the Connecticut coast, and a third is in the planning stages.

The Bridgeport Regional Vocational Aquaculture School (BRVAS) opened its doors in 1993 and now enrolls more than 350 students per year, drawn from urban and rural areas. The school boasts several specialized laboratories and classrooms, and a 56-foot research vessel, the R/V Catherine Moore. BRVAS is now under-going a major expansion and renovation of their campus. The school will increase to 55,000 square feet, almost twice the size of the original facility.

The Sound School is a specialized school with a focus on marine sciences and aquaculture. In 1999, a Regional Vocational Aquaculture Center was opened at the Sound School, as part of the Connecticut Vocational Agriculture System. The school enrolls students from New Haven and ten surrounding towns. In 2003, a new aquaculture building opened at the edge of New Haven Harbor which hosts a number of classrooms, laboratories, and a library, where the students may study aquaculture production, nautical drafting, boat building, fisheries gear technology, and natural resources management, among other topics. The students are also encouraged to perform community service projects that provide them on-the-job training.

The Marine Science Magnet High School, which is in the planning stages, will have an aquaculture focus and is scheduled to be built in eastern Connecticut.

Many other public and Vocational-Agricultural and Vocational-Technical schools offer course work or full-fledged programs in aquaculture. Specialized programs exist at Ella Grasso Vocational Technical School, Ledyard Vocational Agricultural School, Killingly High School, Middletown High School, Rockville High School, Bloomfield High School, and E.O. Smith Vocational Agricultural School.

Undergraduate and Graduate Programs

At the present time, there are not any colleges or universities within Connecticut that offer a major program of study in the area of aquaculture. However, the University of Connecticut has two minors in aquaculture jointly offered by the College of Agriculture and Natural Resources and the College of Liberal Arts and Sciences. This minor provides students with a basic understanding of aquaculture, especially in closed recirculation systems. The University of New Haven also offers a minor in aquaculture business management.

For additional information on aquaculture careers and aquaculture education in Connecticut, visit Connecticut Sea Grant Extension's Online Resource Guide for Aquaculture in Connecticut, <http://www.seagrants.uconn.edu/aquaguide> and select "Careers in Aquaculture" from the menu.

