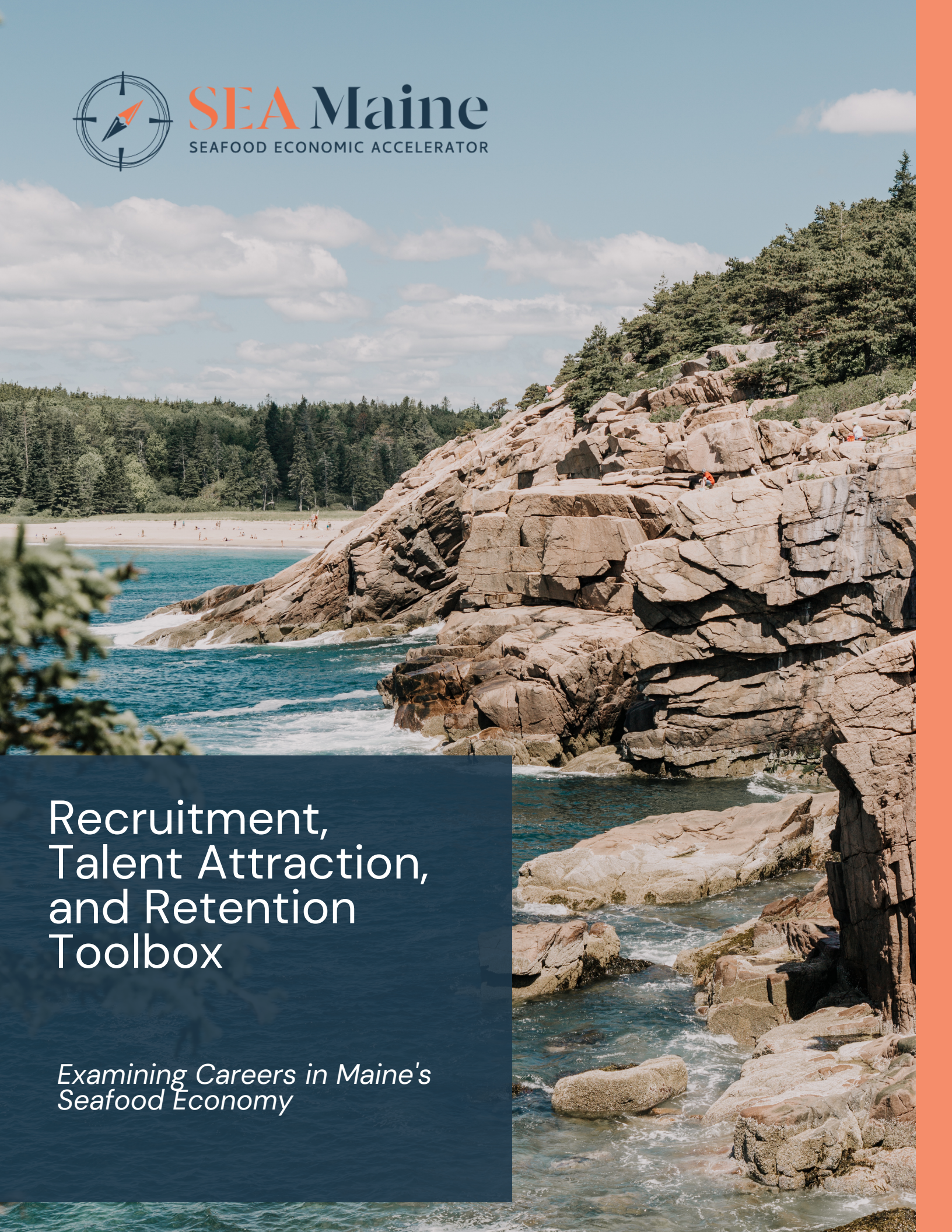




SEA Maine
SEAFOOD ECONOMIC ACCELERATOR

Recruitment, Talent Attraction, and Retention Toolbox

*Examining Careers in Maine's
Seafood Economy*



Acknowledgements

A special thanks is extended to the SEAMaine Workforce and Talent Development Subcommittee and working group members who made the toolbox possible:

Annie Langston-Noll (Co-chair)
Maine Aquaculture Innovation Center

Annie Tselikis
Maine Lobster Dealers' Association

Keri Kaczor (Co-chair)
Maine Sea Grant

Lia Morris
Island Institute

Leo Waterston
FocusMaine

Chris Davis
Maine Aquaculture Innovation Center

Holly Parker
Bowdoin College

Nichole Sawyer
Washington County Community College

Meggan Dwyer
Aquaculture Research Institute

Dan Belyea
Maine Community College System

Carol White
Southern Maine Community College

Christian Brayden
Maine Aquaculture Association

Jason Judd
Educate Maine

Armadeep Kahlon
Unity College

Jake Ward
University of Maine

Scarlett Tudor
University of Maine

Yvonne Thomas
Island Institute

Carol White
Southern Maine Community College

Carissa Maurin
Gulf of Maine Research Institute

Alex Zipparo
Island Institute

SEAMaine is made possible with support from the U.S. Economic Development Administration (EDA), FocusMaine, and the Maine Technology Institute (MTI).

Table of Contents

01

About SEAMaine
and TPMA

02

About the
Toolboxes

03

About this
Toolbox

08

Seafood
Producers and
Harvesters

24

Processing and
Distribution

34

Inputs and
Services

41

Innovation, Science,
and Engineering

47

Regulatory and
Policy

54

Advocacy and
Education

55

Sales and
Marketing

60

Resource Page

61

Workforce Gaps

65

Addressing
Workforce Gaps

71

Appendix:
Additional
Occupations



About SEAMaine

SEAMaine, or the Seafood Economic Accelerator for Maine, is an industry-led initiative bringing together leaders in Maine's commercial fishing, aquaculture, and seafood economy. Funded by the U.S. Department of Commerce Economic Development Administration, with match funding from the Maine Technology Institute and FocusMaine, the statewide initiative is developing a roadmap and action plan for economic growth, market and workforce development, and greater resiliency in Maine's seafood economy.

The seafood that comes from Maine's coastal waters and the Gulf of Maine, and the working waterfront communities along the coast, support thousands of good-paying jobs, and already contribute to the state's \$6 billion tourism industry. Imagine what Maine could be if the wild-caught fisheries, aquaculture businesses, fishermen, sea-farmers, and communities were granted opportunities to diversify and grow our marine economy in Maine, the U.S., and across the globe, and create new market opportunities.¹

About TPMA

Since 1989, TPMA has provided consulting services across the United States, working with local and state governments, economic development organizations, workforce development agencies, industry associations, non-profit organizations, and educational institutions.

TPMA is headquartered in downtown Indianapolis with a staff of about 50 professionals, across twelve states, who possess diverse professional experience and educational backgrounds but work collaboratively to provide our clients with holistic solutions. TPMA provides expertise in assessing markets, identifying business sector opportunities, building innovation and entrepreneurial ecosystems, and organizing social and economic resources to implement community and economic development strategies.



¹ "What is SEAMaine." *SEAMaine*. <https://www.seamaine.org/about/>.

About the Toolboxes

Recruitment, Talent Attraction, and Retention Toolbox: Examining Careers in Maine's Seafood Economy

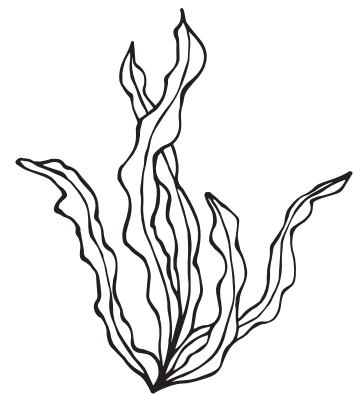
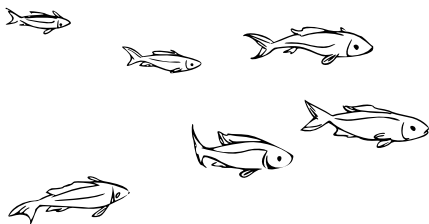
The first toolbox explains the Maine seafood economy, which encompasses six sectors and two subsectors. Occupations that are vital to the seafood economy are captured in occupational profiles. Occupational profiles have job descriptions, technical and employability skills, common certifications, and more. Additional relevant occupations are present in an appendix list by sector. Other information in the toolbox includes workforce gaps, case studies addressing those gaps, and resource links.

Education and Training Toolbox: Learning Skills for Maine's Seafood Economy

The second toolbox details education and training opportunities in Maine for those who want to work in the Maine seafood economy. The toolbox is organized by conventional education and training (such as K-12 or college/university programs that lead to a degree/credential); other education and training opportunities (such as short courses, field trips, and fellowships); and micro-credentials. The education and training offerings are organized by county in Maine and associated with the sectors explained in the first toolbox in order to provide some linkages between occupations and education and training. Other information includes skills gaps, case studies addressing those gaps, and resource links.

Best Practices Toolbox: Sharing Statewide and National Knowledge

The third toolbox is comprehensive in that it has information for multiple audiences: employers and job seekers; educators; students; human resources representatives; social service agency representatives; and diversity, equity, and inclusion (DEI) advocates. This toolbox showcases information learned about Maine and workforce-related gaps. Summaries of best practices in Maine and throughout the United States are explained, which contribute to what Maine is already doing successfully and what it could do differently to support learning around the seafood economy. Resource links are included as well.



About this Toolbox

The Seafood Economic Accelerator for Maine (SEAMaine) and Thomas P. Miller & Associates (TPMA) contracted together to create a number of informational toolboxes about the Maine seafood economy. SEAMaine has provided valuable expertise, connections, and insight to complement TPMA's extensive workforce and economic development knowledge. SEAMaine and TPMA launched their work together in April 2022 and continue their progress until June 2023.

The **Recruitment, Talent Attraction, and Retention Toolbox** addresses the make up and pipeline into the Maine seafood economy. Recruitment processes that are multi-faceted and equitable are necessary to catch a wide net of Maine's labor force in this economy. Talent attraction emphasizes the qualities and benefits of becoming part of this workforce such as the rewarding, hard work of fishing and sustaining residents' food supply. Retention relates closely to talent attraction in that those qualities and benefits keep workers satisfied and enriched in their work for years to come. The livelihood of the Maine seafood economy is highly dependent on these three elements for a thriving workforce.

The information found in this toolbox came from a variety of great sources. TPMA immersed itself in the existing data and reporting in Maine, such as *The Maine Aquaculture Workforce Development Strategy* report and *Maine Aquaculture Association Occupational Standards*. TPMA conducted extensive research about fitting sectors and occupations. TPMA has closely collaborated with the working group of SEAMaine's Workforce and Talent Development subcommittee. The working group has regularly met with TPMA throughout different meetings and iterations of the toolbox. One-on-one interviews and roundtables assisted with research and resource collection in which TPMA heard about local workforce programming and needs. A workforce development survey was also sent out to Maine organizations and employers in the summer of 2022 to gather additional, local input.

The toolbox outlines the major sectors that encompass the economy and their in-demand occupations. Career pathway visuals depict some variation in skill and aptitude. The toolbox provides ample resources for further investigation into careers and job postings in the Maine seafood economy. Lastly, the end of the toolbox addresses workforce gaps and identifies existing practices in Maine that the seafood economy can implement.

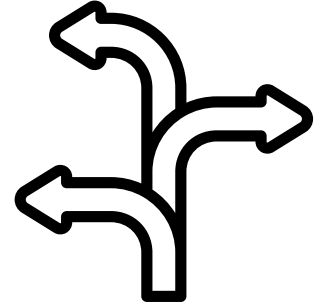
The Maine Seafood Economy

The Maine seafood economy encompasses the sectors and occupations that deal with all things seafood. SEAMaine and TPMA identified 7 sectors in the Maine seafood economy. The sectors are similar to standardized industries. This range of sectors includes fishing and sea-farming, packaging and distribution, sales and marketing, and so much more. The seafood producers and harvesters sector covers a wide breadth of careers and has two sub-sectors, aquaculture and commercial fishing. More information on each sector can be found in the toolbox.

- 1 Seafood Producers and Harvesters
 - Aquaculture
 - Commercial Fishing
- 2 Processing and Distribution
- 3 Inputs and Services
- 4 Innovation, Science, and Engineering
- 5 Regulatory and Policy
- 6 Advocacy and Education
- 7 Sales and Marketing

Understanding Career Pathways


Career pathways present connections between education and training and what employers expect of their workers.



What will you see in the career pathways in the toolbox?

- The career pathway visuals are connections among the occupations in each sector.
- Additional occupations in the sectors appear in the appendix and do not appear in career pathway visuals.

Organization

- Career Pathways are organized by **entry-level, intermediate, and advanced tiers**.
 - These tiers are variable per sector. For example, in some cases, a Bachelor's Degree may be the highest degree in an advanced tier while another sector may have an occupation with a Ph.D. in the advanced tier.
- **Shapes** 
 - Shapes that are the same color may be in the same occupational family/career pathway.
 - Shapes that do not have the same colors stand alone and do not have higher correlations with other occupations in the sector.
- **Lines**
 - **Solid lines** show a clear career trajectory to another tier.
 - **Dashed lines** mean that occupations have transferrable or similar skills, but do not necessarily directly connect to an occupation of the next tier up; another occupation or more skills and education may be needed to get to that next tier.

Understanding Skills



Technical skills are specialized skills privy to a certain occupation; these skills set an occupation apart and speak to the education, qualifications, and certifications needed.



Employability skills are broader skills that are more common across occupations and sectors; they reference more generalized work needs such as communication, research, and problem-Solving.

Toolbox Terminology – General/Technical Skills

This terminology is to help you understand some skills, definitions, and other information in the following occupational profiles.

Vessel safety and operation: A vessel is a ship or large boat. Occupations may be skilled in the safety and maintenance of ships/boats.

Hatchery: A place for hatching eggs such as fish eggs. Some occupations may have hatchery specializations.

Auditing: Conducting a financial examination of an organization's accounts. This relates to the business and financial aspects of occupations.

RAS: Recirculating Aquaculture System, a land-based aquaculture production model.

Blueprint reading: This is common in construction and engineering fields. It pertains to the reading and interpretation of drawings.

Procurement and purchasing: This has to deal with obtaining and buying goods or services. These terms are common in business and when thinking about company spending.

Supply Chain: The individuals, companies, resources, and more, that are part of the making and selling of products.

Field Sampling: scientific samples taken outside of a laboratory and in a real-world setting

CRM software: Customer Relationship Management software.

Operations management: Overseeing and redesigning of business practices to maximize efficiency.



Photo by Jack Sullivan, Island Institute

Toolbox Terminology – Employability Skills

This list is to help you understand some of the most frequently used terms in the "Employability Skills" sections of the occupational profiles.

Active Listening: A communication technique where an individual gives their full attention to the speaker. The individual intentionally hears and comprehends information, which could be communicated verbally (words spoken) or non-verbally (body language, hand gestures, etc.). Active listeners reflect on what has been communicated and ask questions to fully understand what has been conveyed.

Communication: The ability to convey information clearly and effectively. This includes in-person interactions, phone calls, and virtual interactions (such as social media, video calls, and email).

Customer service: The skills used to interact and support current and potential customers to ensure a positive customer experience.

Attention to detail: Paying close attention to tasks and noticing small, important details. For example, a person with excellent attention to detail might notice differences in budgets over time, grammar/spelling errors, or equipment in need of maintenance.

Management: The ability to effectively lead a team, department, or business. This includes overseeing other employees in a supervisory/leadership role and dealing with larger-scale business operations and strategies to meet company goals.

Physical labor: Work that is physically demanding or requires exertion. This includes tasks such as lifting, carrying, pushing, and standing or walking for long periods.

Problem-solving: The process of finding solutions to complex problems. This includes identifying the problem, investigating the sources of the problem, brainstorming potential solutions, applying a solution, and assessing the outcome (and restarting the process if the solution does not fix the problem).

Teamwork: The ability to work well with others to achieve a shared goal or outcome.



Photo by Jack Sullivan, Island Institute



Photo by Jack Sullivan, Island Institute

Seafood Producers and Harvesters



Photo by Scott Sell, Island Institute

Seafood producers and harvesters are an exceptionally important part of the Maine seafood economy. Seafood producers and harvesters are involved with the feeding, growing, and catching of various seafood species. This sector of the Maine seafood economy warrants two sub-categories, aquaculture and commercial fishing.

The following descriptions express the unique aspects of these two major parts of seafood producers and harvesters.

Aquaculture

The *National Oceanic and Atmospheric Association (NOAA)* defines aquaculture as "the breeding, rearing, and harvesting of fish, shellfish, algae, and other organisms in all types of water environments."² The occupational profiles resonate with this definition. Some occupations reference popular species in Maine such as finfish. Aquaculture touches upon Maine's coastal waters as well as land-based Recirculating Aquaculture Systems (RAS), a growing production model.³

Commercial Fishing

Commercial fishing symbolizes the heritage of fishing as a livelihood for Maine residents. It is a critical economic input and output to provide seafood selections at distribution warehouses, seafood markets, restaurants, and on residents' tables.

² "What is aquaculture?." *NOAA*. <https://oceanservice.noaa.gov/facts/aquaculture.html>.

³ "Maine Aquaculture Workforce Development Strategy Report." *GMRI*. https://gmri-org-production.s3.amazonaws.com/documents/Maine_AWDS_evidence_report_summary.pdf.

Crew Chief (Shellfish/Seaweed)

O*Net Code: 45-1011.00



Description: Crew chiefs work independently to carry out the operation and production of an aquaculture farm. They take direction from aquaculture managers and directly oversee the farm hands.

Work Context: Crew chiefs may work non-traditional hours, depending on the tides. In this role, individuals will primarily work outside on the shellfish farm.

Median Wages ⁴

\$23.25 per hour

\$48,360 per year

Photo courtesy of the Island Institute

Other Job Titles

- Lead hand
- Team lead
- Foreman
- Assistant manager

Top Technical Skills

- Aquaculture processing and production
- Marine science
- Vessel safety and operation
- Maintenance and repair of equipment
- Seaweed growing standards

Top Employability Skills

- Management
- Delegation
- Communication
- Conflict resolution
- Problem-solving
- Time management
- Computer literacy

Potential Steps Towards this Career

Common Education ⁵

Associate's degree

Common Certifications

Scuba Certification

Selected Training Programs

Aquaculture in Shared Waters, Maine Sea Grant

Associate's degree in Coastal Fisheries and Marine Technology, Washington County Community College

Sustainable Aquaculture Micro-Credential, University of Maine Systems

⁴ Wage data for First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011.00) in Maine.

⁵ Industry experience can be substituted for higher education degrees.

Deckhand (Finfish)

O*Net Code: 45-2093.00



Description: Deckhands are involved in the day-to-day operations of the finfish farm, including working on the service boat, monitoring and treating finfish health, operating the service boat crane and seine, monitoring and maintenance of gear, and overseeing fish feeding.

Work Context: Deckhands may work non-traditional hours. In this role, individuals will primarily work outside on the service boat.

Average Wages⁶
\$33,203 per year

Photo by Jack Sullivan, Island Institute

Other Job Titles

N/A

Top Technical Skills

- Vessel safety and operation
- Basic nautical knots
- Service crane operation
- Finfish health

Top Employability Skills

- Timeliness
- Communication
- Active listening
- Teamwork
- Problem-solving

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

100-ton captain's license

Selected Training Programs

Aquaculture in Shared Waters, Maine Sea Grant

Associate's degree in Coastal Fisheries and Marine Technology, Washington County Community College

Sustainable Aquaculture Micro-Credential, University of Maine Systems

⁶ Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Intermediate technician" role. **10**

Farm Hand (Shellfish/Seaweed)

O*Net Code: 45-2093.00



Description: Farm hands are responsible for carrying out the day-to-day tasks necessary for the operation of the farm. Their tasks are broad, ranging from the monitoring of shellfish/seaweed to cleaning and repairing gear.

Work Context: Farm hands may work non-traditional hours, depending on the tides. In this role, individuals will primarily work outside on the shellfish farm.

Average Wages⁷
\$31,664 per year

Photo by Jack Sullivan, Island Institute

Other Job Titles

River crew

Top Technical Skills

- Vessel safety and operation
- Basic shellfish knowledge
- Basic biology
- Basic seaweed knowledge

Top Employability Skills

- Positive attitude
- Problem-solving
- Timeliness
- Communication
- Active listening
- Teamwork

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

Aquaculture in Shared Waters, Maine Sea Grant

Associate's degree in Coastal Fisheries and Marine Technology, Washington County Community College

Sustainable Aquaculture Micro-Credential, University of Maine Systems

⁷ Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Unskilled technician/operative" role.

Farm Manager (Shellfish)

O*Net Code: 11-9013.00



Photo by Jack Sullivan, Island Institute

Description: Farm managers oversee the day-to-day operations of the shellfish farm. This includes overseeing crews and training employees, implementing and designing systems, ensuring regulatory compliance, and collaborating with the other areas of the business.

Work Context: Farm managers may work non-traditional hours, depending on the tides. In this role, individuals will work both inside and outside, depending on the tasks needing to be accomplished that day.

Average Wages⁸
\$51,226 per year

Other Job Titles

- Farm operations manager
- Farm site manager
- Operational manager

Top Technical Skills

- Aquaculture production and best practices
- Marine science
- Vessel safety and operation
- Operations and financial management

Top Employability Skills

- Management
- Collaboration
- Delegation
- Problem-solving
- Conflict resolution
- Communication
- Computer literacy

Potential Steps Towards this Career

Common Education

- Bachelor's degree⁹

Selected Training Programs

- Bachelor's degree in Aquaculture and Aquarium Science, University of New England
- Aquaculture in Shared Waters, Maine Sea Grant
- Sustainable Aquaculture Micro-Credential, University of Maine Systems

Common Certifications

- Scuba Certification
- Hazard Analysis Critical Control Point (HACCP) Certification
- Occupation Safety and Health Administration (OSHA) Certification
- First Aid Certification
- Confined spaces training

⁸ Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Management" role.

⁹ Industry experience can be substituted for higher education degrees.

Hatchery Manager (Shellfish/Seaweed)

O*Net Code: 11-9013.00



Description: Hatchery managers are responsible for the day-to-day tasks of a shellfish/seaweed hatchery, including microalgae production, conditioning, spawning, larval culture, and grading of shellfish. The hatchery manager will train and delegate many of these duties to the team leads and aquaculture technicians.

Work Context: Hatchery managers will work both in the hatchery and in an office, depending on the tasks needing to be accomplished that day. Their work is seasonal and they may work more than full-time during peak hatchery season.

Average Wages¹⁰
\$51,226 per year

Other Job Titles

N/A

Top Technical Skills

Hatchery dynamics and food production systems
Shellfish hatchery and microalgae culture equipment
Shellfish biology and health
Seaweed biology and health
Operations management

Top Employability Skills

Management
Delegation
Team building
Conflict resolution
Problem-solving
Communication

Potential Steps Towards this Career

Common Education

Bachelor's degree¹¹

Common Certifications

First aid certification
Confined spaces training

Selected Training Programs

Bachelor's degree in Aquaculture and Aquarium Science, University of New England
Aquaculture in Shared Waters, Maine Sea Grant
Sustainable Aquaculture Micro-Credential, University of Maine Systems

¹⁰ Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Management" role.

¹¹ Industry experience can be substituted for higher education degrees.

Hatchery Technician (Finfish)

O*Net Code: 45-2021.00



Description: The hatchery technician is responsible for monitoring the hatchery system and the juvenile fish. Their responsibilities include feeding the fish, cleaning tanks, monitoring fish health and water quality, assisting in spawning new stock, data collection and reporting, and microalgae cultivation.

Work Context: Hatchery technicians for finfish often tend to work indoors, but some positions may have a mix of indoor and outdoor environments.

Average Wages¹²
\$31,664 per year

Other Job Titles

N/A

Top Technical Skills

Basic knowledge of aquaculture science
Basic finfish knowledge
Conversions and dilutions

Top Employability Skills

Physical labor
Timeliness
Active listening
Communication
Teamwork
Problem-solving
Attention to detail

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

Aquaculture in Shared Waters, Maine Sea Grant

Associate's degree in Coastal Fisheries and Marine Technology, Washington County Community College

Sustainable Aquaculture Micro-Credential, University of Maine Systems

¹² Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Unskilled technician/operative" role.

Hatchery Technician (Shellfish)

O*Net Code: 45-2021.00



Description: The hatchery technician is responsible for monitoring the hatchery system and the juvenile shellfish. Their responsibilities include cleaning and monitoring the tanks, monitoring shellfish health, assisting in spawning new stock, and data collection and reporting.

Work Context: Shellfish hatchery technicians mostly work indoors, especially in winter and early spring. It is possible that some outside work is included.

Average Wages¹³
\$31,664 per year

Photo by Jack Sullivan, Island Institute

Other Job Titles

Hatchery assistant

Top Technical Skills

Basic knowledge of shellfish and shellfish health
Conversions and dilutions

Top Employability Skills

Physical labor
Timeliness
Active listening
Communication
Teamwork
Problem-solving
Attention to detail

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

Aquaculture in Shared Waters, Maine Sea Grant

Associate's degree in Coastal Fisheries and Marine Technology, Washington County Community College

Sustainable Aquaculture Micro-Credential, University of Maine Systems

¹³ Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Unskilled technician/operative" role.

RAS Production Technician

O*Net Code: 45-2021.00



Description: The RAS production technician is responsible for the care of the fish after they leave the hatchery. This includes feeding, performing health checks, water quality management, and data collection and reporting.

Work Context: RAS production technicians work indoors in wet environments.

Average Wages¹⁴
\$31,664 per year

Other Job Titles

N/A

Top Technical Skills

Basic knowledge of aquaculture science and fish health
Conversions and dilutions

Top Employability Skills

Physical labor
Timeliness
Active listening
Communication
Teamwork
Problem-solving
Attention to detail

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

Aquaculture in Shared Waters, Maine Sea Grant

Associate's degree in Coastal Fisheries and Marine Technology, Washington County Community College

Sustainable Aquaculture Micro-Credential, University of Maine Systems

¹⁴ Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Unskilled technician/operative" role.

Saltwater Marine Technician (Finfish)

O*Net Code: 45-2093.00



Description: This is an entry-level position on a finfish farm. Saltwater marine technicians are involved in the day-to-day operations of the finfish farm, including monitoring fish health and feeding the fish, equipment inspection, and assisting with feed delivery, fish harvest, and fish treatment

Work Context: Saltwater marine technicians may work non-traditional hours. In this role, individuals will primarily work outside on the service boat.

Average Wages¹⁵
\$31,664 per year

Other Job Titles

N/A

Top Technical Skills

Vessel safety and operation
Basic nautical knots
Finfish health

Top Employability Skills

Physical labor
Timeliness
Communication
Active listening
Teamwork
Problem-solving

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

Aquaculture in Shared Waters, Maine Sea Grant

Associate's degree in Coastal Fisheries and Marine Technology, Washington County Community College

Sustainable Aquaculture Micro-Credential, University of Maine Systems

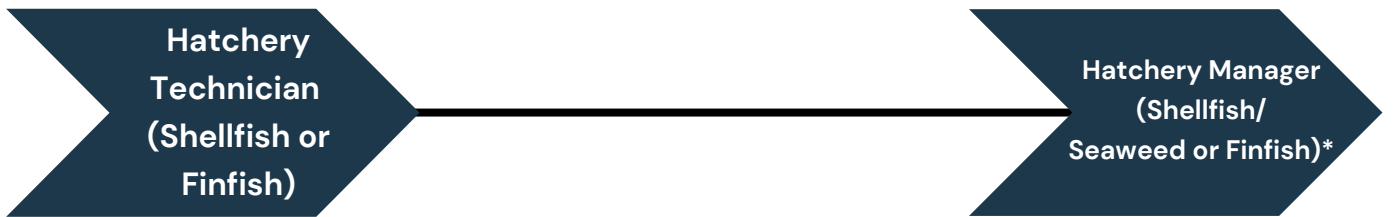
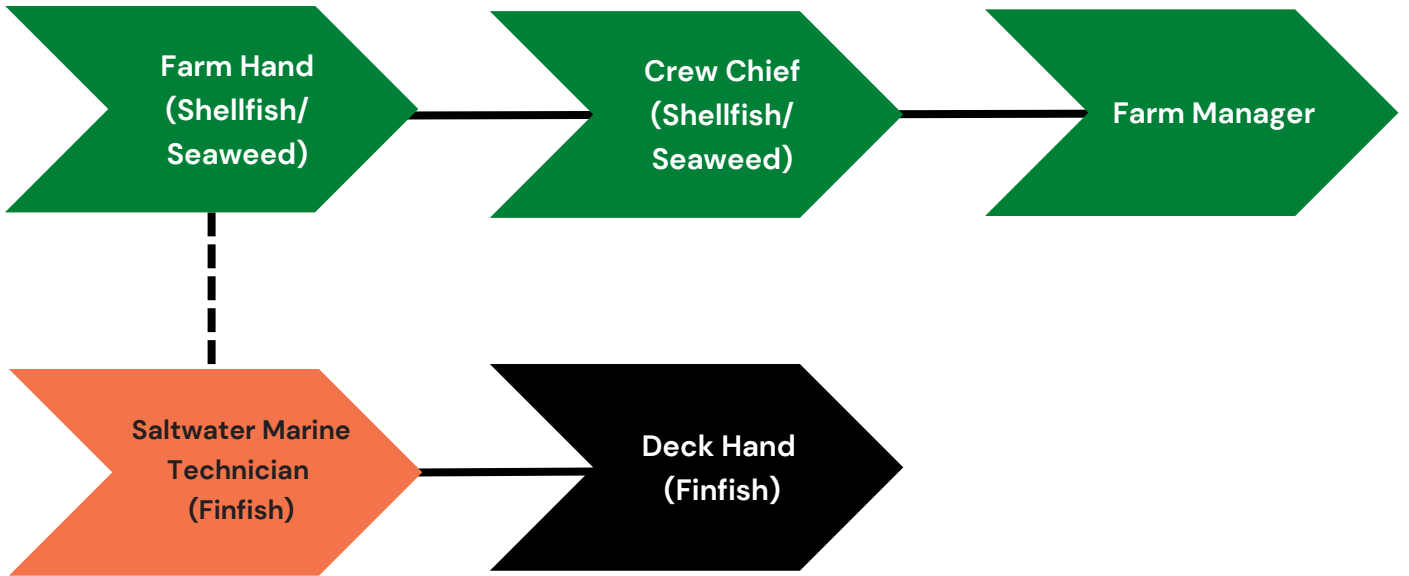
¹⁵ Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Unskilled technician/operative" role.

Aquaculture Pathway

Entry-Level

Intermediate

Advanced



KEY

- Transferrable Skills
- Clear Career Trajectory

*Hatchery titles vary slightly from their occupational profile titles.

Captain/Fisherman

O*Net Code: 45-3031.00



Description: Captains oversee all work aboard a fishing/lobster boat, including overseeing the crew, route planning and navigation, maintenance and repairs, maintaining fishing logs and permits, and selling the fish.

Work Context: Captains work outside aboard fishing vessels. They work non-traditional hours and their work is seasonal.

Median Wages
N/A

Photo by Jack Sullivan, Island Institute

Other Job Titles

Lobsterman

Top Technical Skills

Knowledge of Maine commercial fishing/lobstering laws and regulations
 Marine ecosystems
 Harvesting techniques
 Vessel safety and operation
 Map reading and navigation

Top Employability Skills

Critical thinking
 Problem-solving
 Teamwork
 Communication

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

Captain's License
 Fishing Vessel Drill Conductor Certification

Selected Training Programs

Eastern Maine Skippers Program, Maine Center for Coastal Fisheries
 Associate's degree in Coastal Fisheries and Marine Technology, Washington County Community College

Dock/Float Worker

O*Net Code: 53-7199.00



Description: Dock workers are the go-between for commercial fishing and distribution. They assist fishermen with offloading their catch, packing orders, and load trucks for distribution.

Work Context: Dock workers work outside on docks and aboard docked ships.

Median Wages¹⁶

\$15.13 per hour

\$31,470 per year

Photo by Jack Sullivan, Island Institute

Other Job Titles

Lumper

Top Technical Skills

Forklift operation

Records management

Top Employability Skills

Communication

Teamwork

Customer service

Attention to detail

Physical labor

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

N/A

¹⁶ Wage data for Material Moving Workers, All Others (53-7199.00) in Maine.

Sternman/Deckhand

O*Net Code: 45-3031.00



Photo by Jack Sullivan, Island Institute

Description: A sternman assists the lobsterman with the harvest of lobster. They will bait and handle traps, and sort and band lobsters. When they're not fishing, sternmen may assist with boat and trap maintenance and repair. They do not hold a lobster license.

Work Context: Sternmen works outdoors, primarily aboard lobster boats. They work non-traditional hours and their work may be seasonal, though some lobstermen fish year-round.

Median Wages

N/A

Other Job Titles

Aftsmen

Top Technical Skills

Knowledge of Maine lobstering laws and regulations

Top Employability Skills

Timeliness
Attention to detail
Organization
Physical labor

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

N/A

Wharf Manager



Photo by Jack Sullivan, Island Institute

Description: Wharf managers are responsible for the planning, organization, and management of all wharf operations. This includes overseeing the daily operations of fish buying and selling, purchasing fuel and bait supplies, and maintaining the wharf infrastructure.

Work Context: Wharf managers work both on the wharf and in an office. They tend to work non-traditional hours.

Median Wages

N/A

Other Job Titles

N/A

Top Technical Skills

Procurement and purchasing
 Knowledge of Maine commercial fishing laws and regulations
 Harbor operations
 Inventory management
 Records management
 Forklift and crane operation

Top Employability Skills

Negotiation
 Leadership
 Communication
 Problem-solving
 Customer service

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

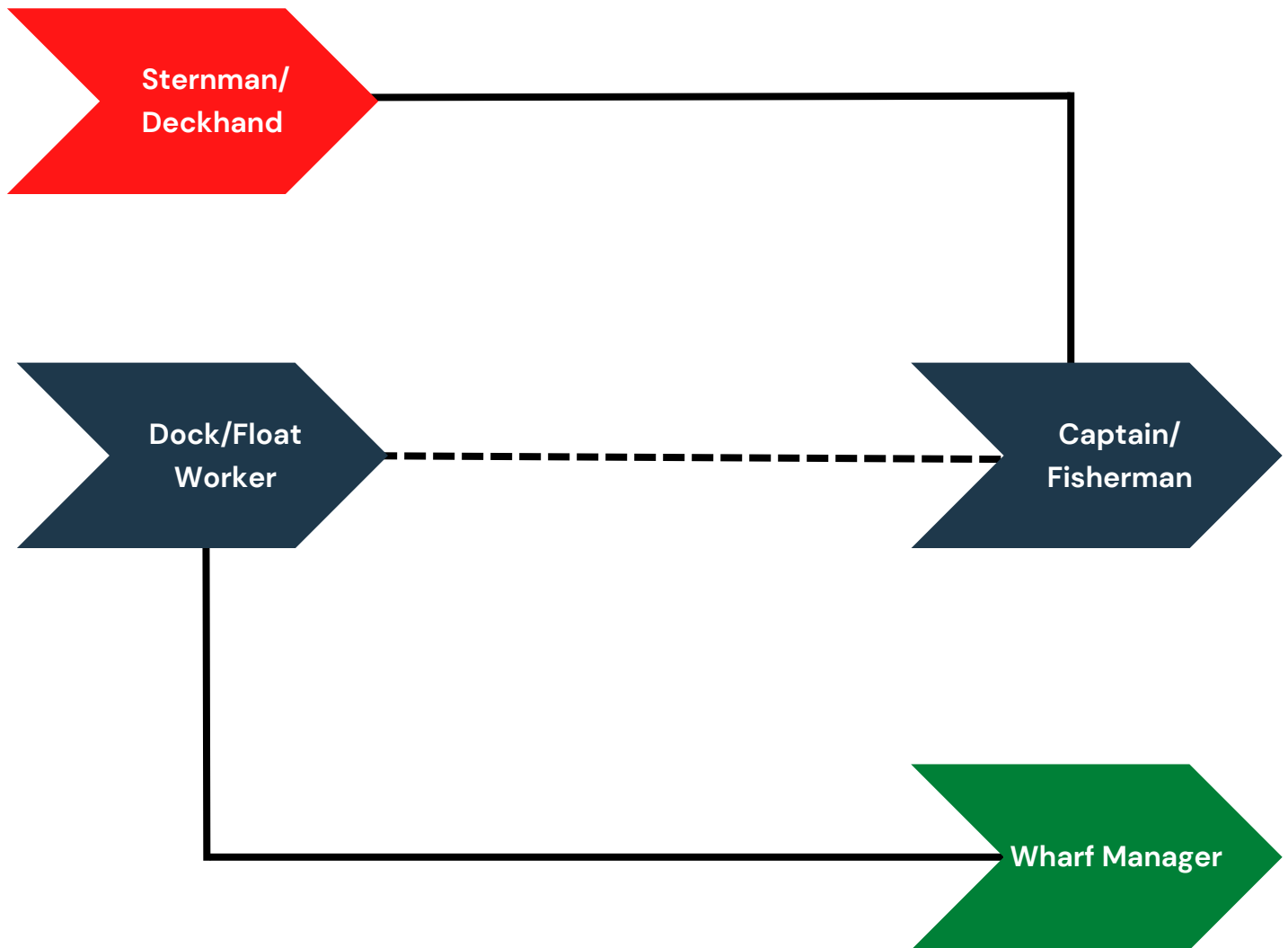
N/A

Commercial Fishing Pathway

Entry-Level

Intermediate

Advanced



KEY

----- Transferrable Skills

———— Clear Career Trajectory

Processing and Distribution



Photo by Jack Sullivan, Island Institute

Processing and distribution deals with seafood products after the harvesting and fishing phases. Processing and distribution contains occupation titles responsible for packaging, warehousing, managing, buying, and transporting seafood products. These occupations are vital for sharing the wealth of products that the Maine seafood economy has to offer.

Class A, B, & C Truck Drivers

O*Net Code: 53-3032.00



Description: A, B, and C truck drivers operate large or heavy vehicles, as well as vehicles carrying hazardous material. Their cargo is diverse; they could be transporting gear shipments from a manufacturer, transporting fish and seafood products from a distribution center, and more.

Work Context: Class A, B, and C truck drivers primarily work full-time and have regularly assigned routes, which may include non-traditional hours or weekend work.¹⁷

Median Wages
\$22.53 per hour
\$46,860 per year

Photo by Jack Sullivan, Island Institute

Other Job Titles

- CDL driver
- Tractor trailer driver
- Over-the-road driver
- Delivery driver

Top Technical Skills

- Commercial truck driving
- Knowledge of safety standards
- Load securement
- Vehicle maintenance

Top Employability Skills

- Customer service
- Active listening
- Communication
- Time management
- Critical thinking

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

- Commercial Driver's License (CDL)
- Maine Hazardous Materials Endorsement

Selected Training Programs

Commercial truck driving course, Caribou Regional Technology Center, Region 9 School of Applied Technology, Somerset Career and Technical Center, St. Croix Regional Technical Center, Tri-County Technical Center, Westbrook Regional Technology Center
Commercial driving academy, Northern Maine Community College

¹⁷ Wage data for Heavy and Tractor-Trailer Truck Drivers (53-3032.00) in Maine.

Logistics/Operations Manager

O*Net Code: 11-3071.00



Description: Logistics/operations managers coordinate and oversee the distribution of fish and seafood products. Their responsibilities vary, from supervising workers filling orders to solving transportation and logistics challenges, to analyzing finances to determine the most cost-effective transportation methods.

Work Context: Logistics/operations managers work in a warehouse. Their time is mostly spent in an office, but they also work on the warehouse floor.

Median Wages¹⁸

\$38.25 per hour

\$79,550 per year

Other Job Titles

Logistics operations manager
Logistics director
Purchasing and logistics manager

Top Technical Skills

Logistics
Knowledge of safety standards
Operations management
Audit processes
Inventory control and management
Supply chain management

Top Employability Skills

Communication
Management
Customer service
Leadership
Time management

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

N/A

¹⁸ Wage data for Transportation, Storage, and Distribution Managers (11-3071.00) in Maine

Processing Plant Technician

O*Net Code: 49-9043.00



Description: Processing plant technicians are responsible for maintaining, troubleshooting, and repairing plant equipment, such as graders, filleters, conveyors, and scales.

Work Context: Processing plant technicians work in warehouses or processing plants.

Median Wages¹⁹
\$23.09 per hour
\$48,040 per year

Other Job Titles

Maintenance technician

Top Technical Skills

Equipment maintenance
Equipment repair
Blueprint reading

Top Employability Skills

Troubleshooting
Active listening
Critical thinking
Judgement and decision-making

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

N/A

¹⁹ Wage data for Maintenance Workers, Machinery (49-9043.00) in Maine.

Quality Control/Quality Assurance Manager

O*Net Code: 11-3051.01



Description: The quality control/quality assurance (QC/QA) manager is responsible for ensuring that the business, be it an aquaculture farm or seafood processor, delivers the highest quality product possible. They create standard operating procedures and quality assurance manuals, analyze the results of quality control tests, and supervise QA/QC technicians.

Work Context: Most QC/QA managers work full-time. Some of their time will be spent in an office and some of it will be spent on the production floor.

Median Wages ²⁰

\$47.24 per hour

\$98,250 per year

Other Job Titles

Quality assurance managers
Quality control managers
Quality managers

Top Technical Skills

Quality management
Audit processes
Continuous improvement process
Regulatory compliance
Data analysis

Top Employability Skills

Management
Communications
Leadership
Planning
Problem-solving
Attention to detail

Potential Steps Towards this Career

Common Education

Bachelor's degree

Common Certifications

HACCP Certification

Selected Training Programs

Bachelor's degree in Food Science and Human Nutrition, University of Maine

²⁰ Median hourly wage for 1the mroe general Industrial Production Managers (11-3051.00) in Maine.

Seafood Buyer

O*Net Code: 13-1020



Description: Seafood buyers are responsible for purchasing seafood from vendors (individual fishermen, co-ops, etc.) to fulfill orders from clients (restaurants, processors, individuals).

Work Context: Seafood buyers tend to work in an office, but may travel to visit vendors and suppliers.

Median Wages²¹
\$30.70 per hour
\$63,850 per year

Other Job Titles

Purchasing specialist
Purchasing agent

Top Technical Skills

Procurement and purchasing
Contract management
Finance and invoicing
Supply chain management

Top Employability Skills

Negotiation
Communication
Customer service
Attention to detail
Problem-solving
Organization

Potential Steps Towards this Career

Common Education

Bachelor's degree

Common Certifications

N/A

Selected Training Programs

Bachelor's degree in Business Administration – Supply Chain Management, University of Maine at Presque Isle

²¹ Median hourly wage for 13-1020 Buyers and Purchasing Agents.

Seafood Production Workers

O*Net Code: 51-3022.00



Description: Seafood production workers break down and process whole fish and seafood products for packaging and distribution.

Work Context: Seafood production workers work in warehouses or processing plants. Seafood production workers may work standard hours or work shift hours, depending on the employer.

Median Wages²²

\$14.18 per hour

\$29,500 per year

©Adobe Stock

Other Job Titles

- Seafood processor
- Deboner
- Fish processor
- Trimmer

Top Technical Skills

- Food safety and sanitation
- Fish and seafood processing techniques

Top Employability Skills

- Active listening
- Communication
- Teamwork
- Critical thinking
- Physical labor

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

N/A

²² Maine wage data for Meat, Poultry, and Fish Cutters and Trimmers.

Seafood Warehouse Managers

O*Net Code: 53-1043.00



© [Moreno Soppelsa]/Adobe Stock

Description: Seafood warehouse managers oversee the distribution hub workers. They review orders, plan work assignments, and monitor the shipment and delivery of the products.

Work Context: Seafood hub distribution warehouse managers work in a warehouse. Their time is split between working in an office and working on the warehouse floor.

Median Wages²³

\$23.65 per hour

\$54,850 per year

Other Job Titles

Warehouse supervisor
Distribution lead

Top Technical Skills

Supply chain management
Freight transportation

Top Employability Skills

Communication
Customer service
Management
Planning
Time management

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

N/A

²³ Wage data for First-Line Supervisors of Material-Moving Machine and Vehicle Operators

Supply Chain Managers

O*Net Code: 11-3071.04



Description: Supply chain managers plan the distribution of fish and seafood products. The focus of those in this role is operational efficiency -- making processes as efficient and cost-effective as possible -- and customer satisfaction.

Work Context: Supply chain managers typically work full-time in an office or warehouse environment.

Median Wages²⁴

\$47.22 per hour

\$98,230 per year

Other Job Titles

Supply chain project managers

Supply chain director

Materials manager

Demand planning managers

Top Technical Skills

Supply chain management

Procurement and purchasing

Finance

Process improvement

Operations management

Top Employability Skills

Communication

Leadership

Management

Planning

Problem-solving

Customer service

Potential Steps Towards this Career

Common Education

Bachelor's degree

Common Certifications

Association for Supply Chain Management (ASCM) Certified Supply Chain Professional (CSCP)

ASCM Certified in Production and Inventory Management (CPIM)

Selected Training Programs

Bachelor's degree in Business Administration - Supply Chain Management, University of Maine at Presque Isle

Bachelor's degree in International Business and Logistics, Maine Maritime Academy

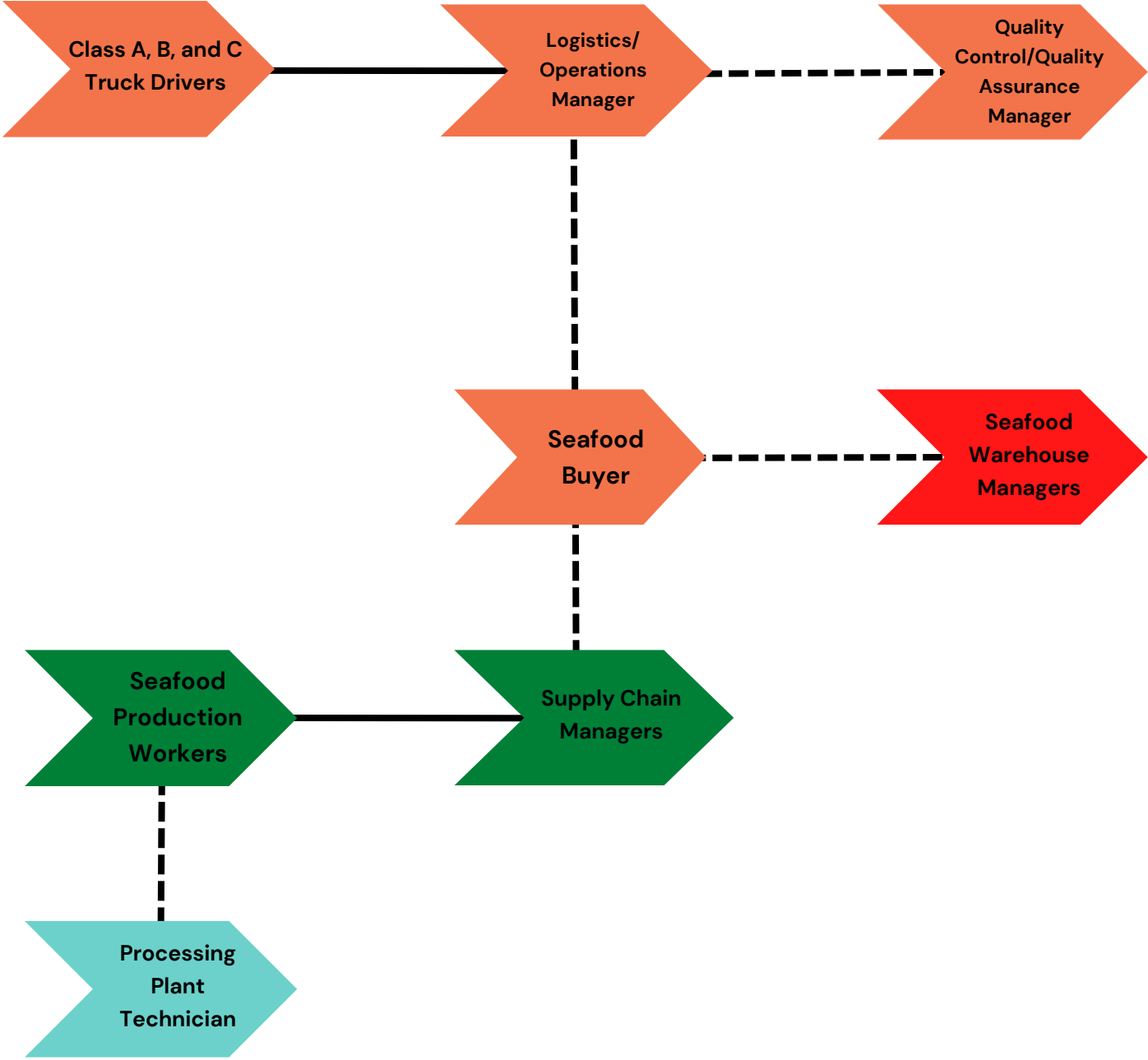
²⁴ Wage data for the more general occupation "Transportation, Storage, and Distribution Managers (11-3071.00)."

Processing and Distribution Pathway

Entry-Level

Intermediate

Advanced



KEY

- - - - Transferrable Skills
- Clear Career Trajectory

Inputs and Services



Photo by Jack Sullivan, Island Institute

The inputs and services sector represents a variety of occupations that provide technical, mechanical, and financial expertise. These occupations provide support to other related sectors such as innovation, science, and engineering.

Aquatic Animal Health Technician

O*Net Code: 19-4021.00



Description: Aquatic animal health technicians monitor fish during all life stages. They are specialists trained to examine fish and recognize and treat health problems.

Work Context: Aquatic animal health technicians work in multiple places, including in the field, a laboratory, and an office. They tend to work full-time, but must have flexibility in their working hours as they may have to respond to emergencies.

Average Salary²⁵
\$60,163 per year

Other Job Titles

Fish health technician

Top Technical Skills

Fish health
Disease diagnostics and treatment
Microscope techniques
Records management
Vessel safety and operation

Top Employability Skills

Communication
Attention to detail
Time management
Problem-solving
Organization

Potential Steps Towards this Career

Common Education

Bachelor's degree

Common Certifications

Assistant Laboratory Animal Technician

Selected Training Programs

Bachelor's degree in Aquaculture and Aquarium Science, University of New England
Bachelor's degree in Wildlife and Fisheries Biology, Unity College

²⁵ Wage data from the Maine Aquaculture Workforce Development Strategy Evidence Report for the "Scientific/research" role.

Boat Mechanic

O*Net Code: 49-3051.00



© [Ilya Orsha]/Adobe Stock

Description: Boat mechanics are responsible for the installation, maintenance, and repair of electrical and mechanical systems onboard boats, including engines.

Work Context: Boat mechanics often work in confined spaces aboard vessels. Because of the seasonal nature of the fishing and boating industries, boat mechanics often work long hours during the season and may work less during other times of the year.

Median Wages²⁶

\$22.66 per hour

\$47,120 per year

Other Job Titles

- Boat motor mechanic
- Marine technician
- Outboard technician
- Service technician

Top Technical Skills

- Mechanical and diesel engine repair
- Workplace safety
- Plumbing and HVAC
- Electrical systems
- Blueprint reading

Top Employability Skills

- Problem solving
- Cleanliness
- Communication
- Customer service

Potential Steps Towards this Career

Common Education

- High school diploma or HiSET
- Post-secondary certificate

Common Certifications

- American Boat and Yacht Council Certification

Selected Training Programs

- Diesel and Small Engines Technology program, Waldo County Technical Center
- Diploma in Marine Systems, The Landing School

²⁶ Wage data for Motorboat Mechanics and Service Technicians (49-3051.00) in Maine.

Finance Manager

O*Net Code: 11-3031.01



Description: Finance managers oversee and direct the financial activities of an organization. This includes financial planning and budget preparation, monitoring expenditures and the financial health of the organization, and analyzing financial data.

Work Context: Finance managers work regular, full-time hours in an office environment.

Median Wages²⁷
\$60.60 per hour
\$126,230 per year

Other Job Titles

Director of finance
Chief financial officers
Financial controllers

Top Technical Skills

Accounting
Audit processes
Financial analysis
Financial modeling
Financial planning

Top Employability Skills

Management
Budgeting
Leadership
Communication
Attention to detail
Problem-solving

Potential Steps Towards this Career

Common Education

Bachelor's degree

Common Certifications

N/A

Selected Training Programs

Bachelor's degree in Business Administration – Accounting, University of Maine
Bachelor's degree in Business Administration – Finance, University of Maine

²⁷ Wage data for the more general occupation Financial Managers (11-3031.00).

Gear Production Employee



Photo by Jack Sullivan, Island Institute

Description: Gear production employees are responsible for the manufacturing of fishing gear, including (but not limited to) buoys, rope, lobster traps, and other fishing tackle. Most gear production employee jobs have a focus on machining.

Work Context: Gear production employees work on-site in a manufacturing facility.

Median Wages²⁸
\$23.05 per hour
\$47,940 per year

Other Job Titles

Assembly associate

Top Technical Skills

Mechanical aptitude
Blueprint reading

Top Employability Skills

Physical labor
Teamwork
Attention to detail
Timeliness

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Common Certifications

N/A

Selected Training Programs

N/A

²⁸ Wage data is for Machinists (51-4041.00) in Maine.

HVAC & Cooling Equipment Engineers

O*Net Code: 49-9021.00²⁹



Description: HVAC technicians are crucial to maintaining and fixing heating, air, and cooling systems. They are in-demand jobs that are necessary for system upkeep.

Work Context: It involves on-site work with various systems and physical labor.

Median Wages³⁰
\$50,380 per year

© [David Spates]/Adobe Stock

Other Job Titles

HVAC technician - ventilation
HVAC service tech
HVAC specialist

Top Technical Skills

Ventilation
Preventative maintenance
Construction
Engineering skills

Top Employability Skills

Physical labor
Basic math and reading
Communication

Potential Steps Towards this Career

Common Education

Associate's degree

Common Certifications

AC and Refrigeration Certification
HVAC-R Professional Certification
National Propane Gas Association Certification

Selected Training Programs

HVAC-R professional certification, MEMA Technical Education Center
Associate's degree in Heating, Air Conditioning, and Refrigeration, Southern Maine Community College

²⁹ The O*NET title closest is Heating, Air Conditioning, and Refrigeration Mechanics and Installers (49-9021.00).

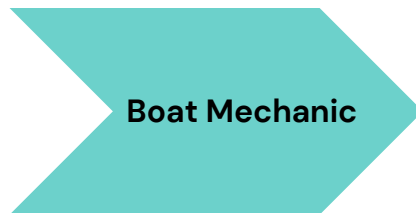
³⁰ Wage data is for Maine from <https://www.hvacclasses.org/schools/maine>.

Inputs and Services Pathway

Entry-Level

Intermediate

Advanced



KEY

· - - - - Transferrable Skills

— Clear Career Trajectory

Innovation, Science, and Engineering



The innovation, science, and engineering sector involves scientific and academic occupations. These occupations have higher education requirements and technical skills compared to other sectors; additional titles appear in the appendix.

Aquaculture Academic Researcher



Photo courtesy of Maine Aquaculture Association

Description: An aquaculture academic researcher is a highly skilled aquaculture expert. They are highly educated and may specialize in a certain type of aquaculture.

Work Context: Their work may involve field and/or laboratory work. Aquaculture academic researchers can work in multiple settings, such as conducting research at a research branch of a university or for a private research organization.

Median Wages

N/A

Other Job Titles

Aquaculture professor
Aquaculture researcher

Top Technical Skills

Expert knowledge of aquatic species and environments
Biology
Chemistry
Handling of organisms and other laboratory skills
Field sampling
Research and analysis
Evaluation

Top Employability Skills

Communication
Problem-solving
Computer literacy
Organization

Potential Steps Towards this Career

Common Education

Master's degree
Ph.D.

Selected Training Programs

Master's degree in Aquaculture and Aquatic Resources, University of Maine
Ph.D. in Aquaculture and Aquatic Resources, University of Maine

Marine Academic Researcher



Photo courtesy of Maine Aquaculture Association

Description: A marine academic researcher has similarities to an aquaculture academic researcher. A marine academic researcher is also highly skilled and highly educated. They have a penchant for marine organisms and ocean and coastal environments.

Work Context: Their work may involve field and/or laboratory work. Marine academic researchers can work in multiple settings, such as conducting research at a research branch of a university or for a private research organization.

Median Wages

N/A

Other Job Titles

Marine science professor

Marine researcher

Top Technical Skills

Marine biology

Chemistry

Marine ecosystems

Field sampling

Handling of organisms and other laboratory skills

Research and analysis

Evaluation

Top Employability Skills

Communication

Problem-solving

Computer literacy

Organization

Potential Steps Towards this Career

Common Education

Bachelor's degree

Master's degree

Ph.D.

Selected Training Programs

Bachelor's degree in Marine Sciences, University of New England

Ph.D. in Oceanography, University of Maine

Marine Biologists (Research)

O*Net Code: 19-1023.00



Photo by Jack Sullivan, Island Institute

Description: Marine biologists (research) are extremely important to understanding the Maine seafood economy. Their thorough scientific and technical training makes them equipped for studying and researching biological phenomena.

Work Context: Marine biologists work in laboratories and/or field study sites. They could also appear at conferences or meetings about regulation and policy.

Median Wages³¹

\$29.02 per hour

\$60,36 per year

Other Job Titles

N/A

Top Technical Skills

Biology
Ecology
Marine conservation
Fisheries oceanography
Regulation process
Research and data collection
Teaching

Top Employability Skills

Management
Communication
Leadership
Planning

Potential Steps Towards this Career

Common Education

Ph.D.

Common Certifications

Open Water Certification

Selected Training Programs

Ph.D. in Marine Biology, University of Maine

³¹ The wage data is for the state of Maine based on the more general occupation of Zoologists and Wildlife Biologists (O*NET Code: 19-1023.00).

Marine Engineer

O*Net Code: 17-2121.00



Photo by Jack Sullivan, Island Institute

Description: Marine engineers are responsible for the engineering of boats, ships, and other marine vessels. This includes designing, drafting, and testing of new models and prototypes. Marine engineers also work on the power supply and propulsion systems.

Work Context: Marine engineers typically work standard, full-time hours in offices.

Median Wages³²

\$44.89 per hour

\$93,370 per year

Other Job Titles

Composite design engineer
Marine engineering consultant
Marine structural designer
Structural engineer
Ships equipment engineer

Top Technical Skills

Naval architecture
Marine engineering
Ship design
Fluid dynamics
Structural engineering
Materials science

Top Employability Skills

Planning
Communication
Leadership
Attention to detail
Time management

Potential Steps Towards this Career

Common Education

Bachelor's degree

Common Certifications

Fundamentals of Engineering (FE)
Professional Engineer (PE)

Selected Training Programs

Bachelor's degree in Marine Systems Engineering, Maine Maritime Academy

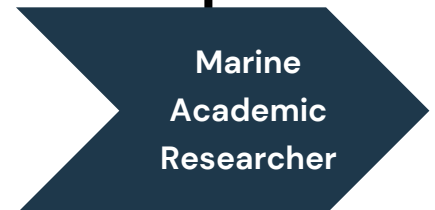
³² Wage data for Marine Engineers and Naval Architects (17-2021.00) in the United States

Innovation, Science, and Engineering Pathway

Entry-Level

Intermediate

Advanced



KEY

----- Transferrable Skills

———— Clear Career Trajectory

Regulatory and Policy

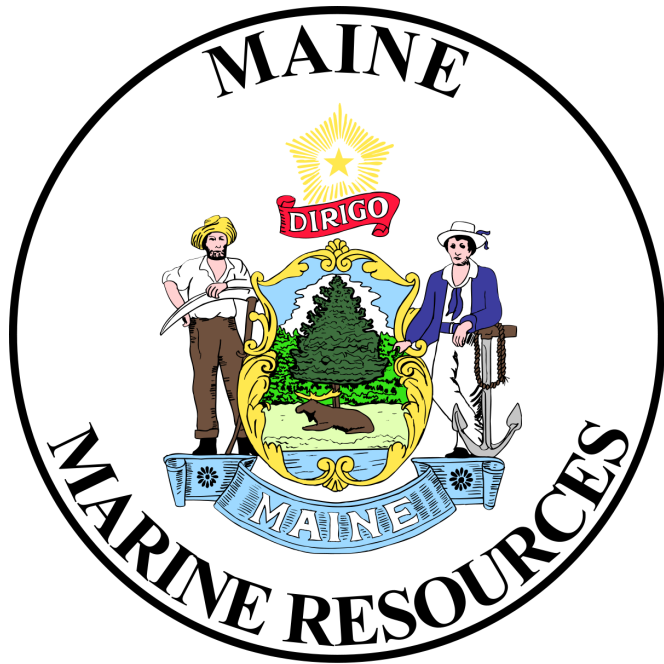


Photo by Jack Sullivan, Island Institute

The regulatory and policy sector is important for sustaining and maintaining the Maine seafood economy. The occupations are necessary for the oversight, regulation, and patrolling of marine environments. Laws and policies help to keep these ecosystems around for generations to come.

Hearings Officer

O*Net Code: 23-1021.00



Description: Hearings officers oversee rulemaking and lease hearings for the Department of Marine Resources (DMR). They represent the DMR in adjudicatory hearings, administer permitting and licensing programs, conduct outreach, and develop and implement programs to manage Maine's marine resources.

Work Context: Hearings officers work in offices and courtrooms. They oversee public hearings, which may require working non-traditional hours.

Median Wages³³
\$62,098 per year

Other Job Titles

N/A

Top Technical Skills

Adjudication
Administrative process
Knowledge of state laws
Marine science

Top Employability Skills

Communication
Decision-making
Active listening

Potential Steps Towards this Career

Common Education

Master's degree
J.D.

Common Certifications

N/A

Selected Training Programs

LL.M. and certificate in Environmental and Oceans Law, University of Maine School of Law

³³ Wage data is the average of the posted salary range in a March 2022 DMR job posting for a Hearings Officer and Project Manager.

Marine Biologists (Regulatory)

O*Net Code: 19-1023.00



Description: Marine biologists (regulatory) are crucial positions for the maintenance and regulation of the marine ecosystem. They utilize their scientific expertise to make recommendations and regulations for the management of Maine fisheries.

Work Context: Marine biologists work in laboratories and/or field study sites. They could also appear at conferences or meetings about regulation and policy.

Median Wages³⁴

\$29.02 per hour

\$60,36 per year

Other Job Titles

N/A

Top Technical Skills

- Biology
- Ecology
- Marine conservation
- Fisheries oceanography
- Regulation process
- Research and data collection
- Teaching

Top Employability Skills

- Management
- Communication
- Leadership
- Planning

Potential Steps Towards this Career

Common Education

Ph.D.

Common Certifications

Open Water Certification

Selected Training Programs

Ph.D. in Marine Biology, University of Maine

³⁴ The wage data is for the state of Maine based on the more general occupation of Zoologists and Wildlife Biologists (O*NET Code: 19-1023.00).

Marine Patrol Officer



Photo by Jack Sullivan, Island Institute

Description: Marine patrol officers have a legacy of protecting Maine's marine environment. Their role supplies law enforcement, search and rescue, and ensuring the security of Maine's coast and tidal waters. Notably, Maine Marine Patrol (of the Maine Department of Marine Resources) has been in existence since 1869.

Work Context: Marine patrol officers work in varying environments. They could be aboard patrol vessels, inspecting at commercial and recreational boating areas, or testifying in court for enforcement purposes.

Median Wages ³⁵

\$28.99 per hour

Other Job Titles

N/A

Top Technical Skills

Law enforcement
Criminal investigation
Coastal/tidal expertise

Top Employability Skills

Organization
Communication
Problem-solving

Potential Steps Towards this Career

Common Education

Associate's degree

Common Certifications

Must successfully pass Maine Criminal Justice Academy examinations

Selected Training Programs

Basic law enforcement trainings and certifications, Maine Criminal Justice Academy

³⁵ Wage data is based on a Maine Marine Patrol Officer job posting. It is an average hourly range determined from the posting. <https://mainebhr.hire.trakstar.com/jobs/fkOupq3/>.

Marine Policy Analyst

O*Net Code: 11-3071.04



Description: A marine policy analyst is knowledgeable about the marine ecosystem. Analysts demonstrate this through their tracking, analysis, and policy recommendations.

Work Context: A marine policy analyst usually works in an office environment and attends policy meetings or campaigns as needed.

Median Wages³⁶

\$27.81 per hour

\$57,840 per year

Other Job Titles

Water conservation analyst
Water policy analyst

Top Technical Skills

Policy prioritization
Relationship building
Campaigning
Data visualization skills
Reporting and budgeting

Top Employability Skills

Critical thinking
Communication
Research
Active listening
Problem-solving

Potential Steps Towards this Career

Common Education

Bachelor's degree
Master's degree

Selected Training Programs

Bachelor's degree in Marine Science, University of Maine
Master's degree in Marine Policy, University of Maine

³⁶

Wage data is for Maine and drawn from the more general occupation "Climate Change Policy Analysts" (19-2041.01).

Water Quality Analyst



Description: Water quality analysts provide monitoring and inspection of Maine's waterways. They provide expert inspection of water samples to meet safety standards.

Work Context: Water quality analysts work within a laboratory environment. It also involves the collection of water samples.

Median Wages
N/A

Other Job Titles

N/A

Top Technical Skills

Water quality standards
Laboratory equipment
Water quality sampling
Research and analysis
Scientific method

Top Employability Skills

Attention to detail
Organization

Potential Steps Towards this Career

Common Education

Bachelor's degree

Selected Training Programs

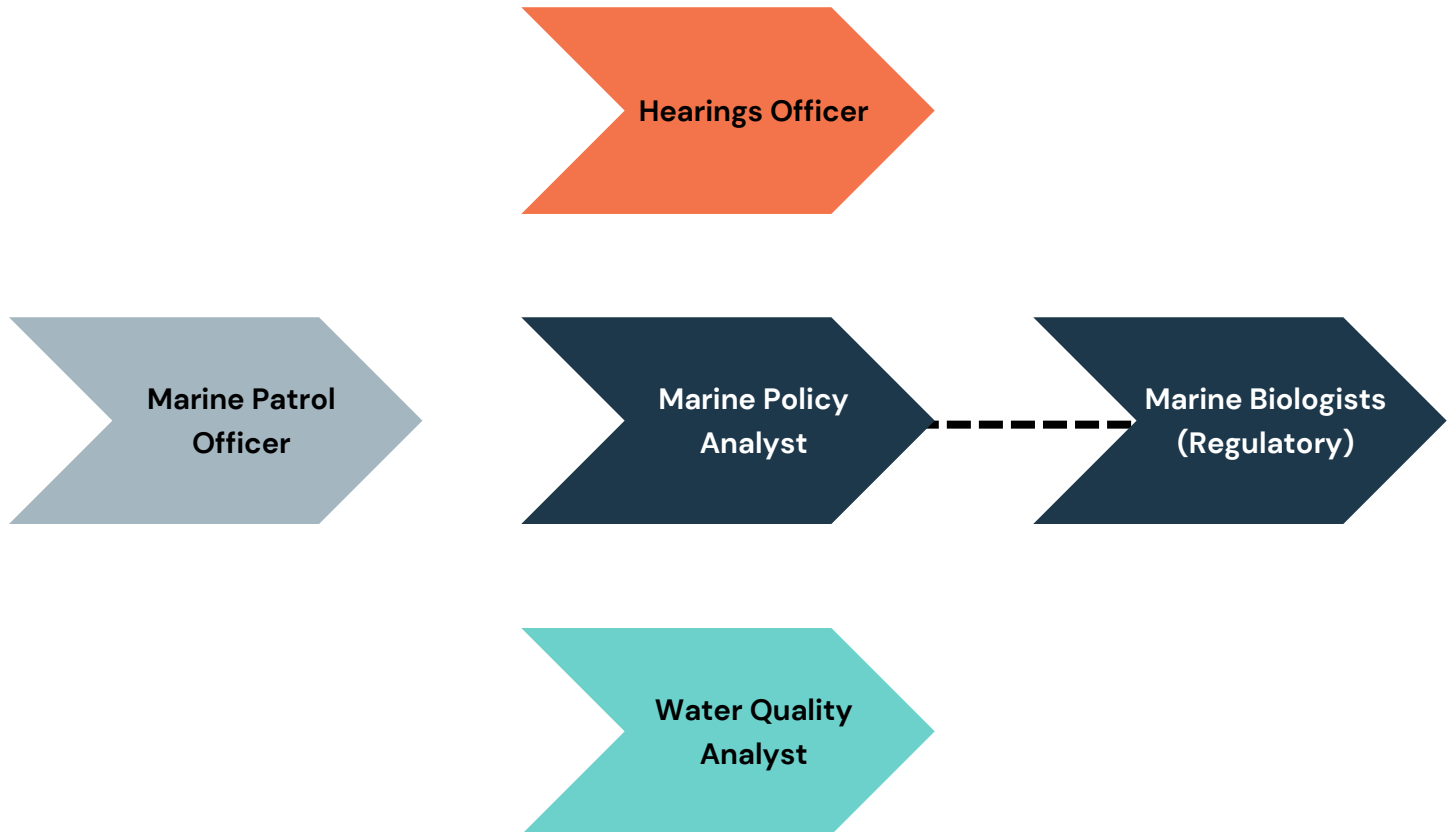
Bachelor's degree in Biology, University of Maine

Regulatory and Policy Pathway

Entry-Level

Intermediate

Advanced



KEY

----- Transferrable Skills

———— Clear Career Trajectory

Advocacy and Education



Photo courtesy of Maine Aquaculture Association

Advocacy and education are essential for providing awareness of the Maine seafood economy and educating the next generation of researchers, managers, and fishermen, among many other occupations. The occupations in this sector have a less direct connection to the Maine seafood economy; therefore, the advocacy and education occupations are expressed in the appendix.

Sales and Marketing



Photo courtesy of Maine Aquaculture Association

Sales and marketing generate revenue for and awareness of the Maine seafood economy. The livelihood of the economy is dependent on the selling and campaigning of seafood products. The occupations relate to business affairs and the needs of seafood companies and associations.

Market Research Analysts & Marketing Specialists

O*Net Code: 13-1161.00



Description: Market research analysts and marketing specialists are involved in gaining information on point-of-sale data. They provide information on prices, sales, and competitors, among other things, in order to drive marketing and advertising campaigns.

Work Context: This position works in a standard office environment within regular business hours.

Median Wages³⁷
\$35.60 per hour
\$74,060 per year

Other Job Titles

Marketing strategists
Market research specialist
Market researcher
Market research consultant

Top Technical Skills

CRM software
Adobe InDesign
Search engine optimization
Salesforce
SQL
Data analysis
Graphic design
Marketing

Top Employability Skills

Communication
Attention to detail
Business acumen

Potential Steps Towards this Career

Common Education

Bachelor's degree

Selected Training Programs

Bachelor's degree in Business Administration – Marketing, University of Maine

³⁷ Wage data is for the state of Maine under Market Research Analysts and Market Specialists (13-1161.00). These wages may vary even more for marketing needs in the Seafood Economy.

Retail Salespersons

O*Net Code: 41-2031.00



Description: Retail salespersons are important entry-level positions for the organizing and selling of products. They can work in a variety of businesses.

Work Context: This position works in a retail space and works a variety of hours, including weekends.

Median Wages³⁸
\$14.22 per hour
\$29,570 per year

Other Job Titles

Sales associate
Sales representative
Sales clerk

Top Technical Skills

Merchandising
Cash handling
Product knowledge
Inventory management

Top Employability Skills

Communication
Sales
Customer service
Basic math

Potential Steps Towards this Career

Common Education

High school diploma or HiSET

Marketing Managers

O*Net Code: 11-2021.00



Description: Marketing managers are instrumental in providing oversight and decision-making for marketing needs. They coordinate with other team members like marketing research analysts after assessing the financials of marketing endeavors.

Work Context: This position works in a standard office environment within regular business hours.

Median Wages³⁹
\$52.29 per hour
\$108,770 per year

Other Job Titles

Market development executive
Brand manager
Products manager
Marketing director
Business development manager

Top Technical Skills

Product roadmaps
CRM software
Brand strategy
Marketing

Top Employability Skills

Communication
Management
Business development

Potential Steps Towards this Career

Common Education

Bachelor's degree

Common Certifications

Project Management Professional Certification
Professional Scrum Product Owner
Certifications
Certified Scrum Master

Selected Training Programs

Bachelor's degree in Business Administration – Marketing, University of Maine

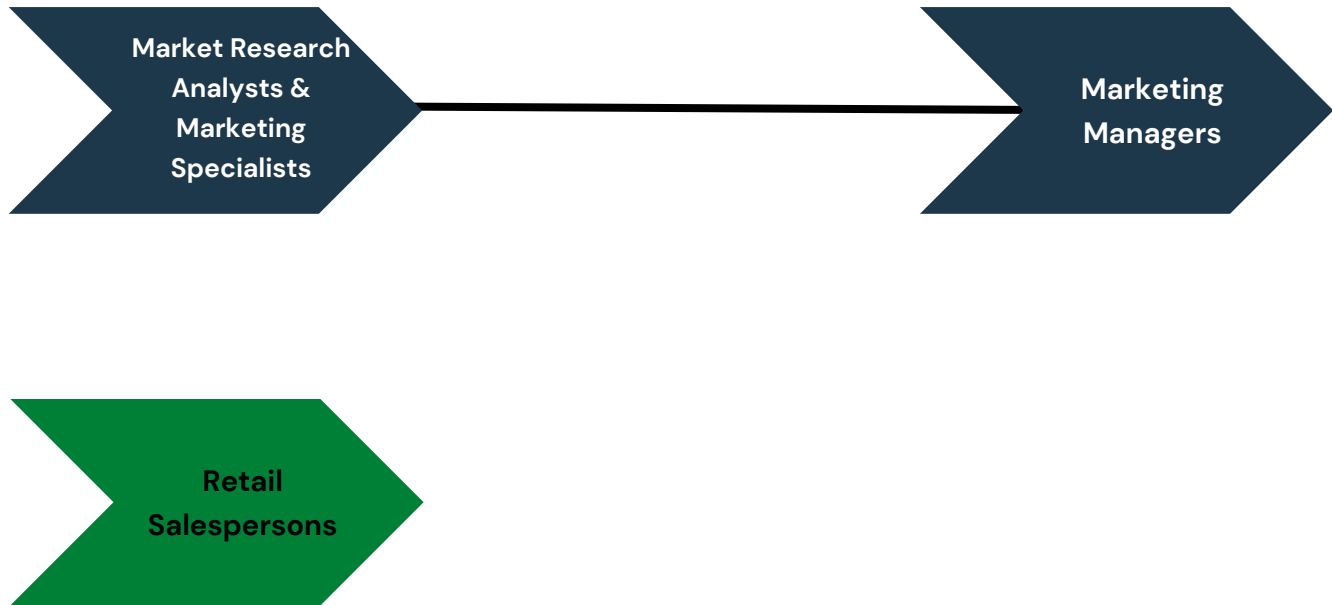
³⁹ Wage data for Marketing Managers (11-2021.00) for the state of Maine. Wages may be slightly different for Marketing Managers in the seafood and related sectors.

Sales and Marketing Pathway

Entry-Level

Intermediate

Advanced

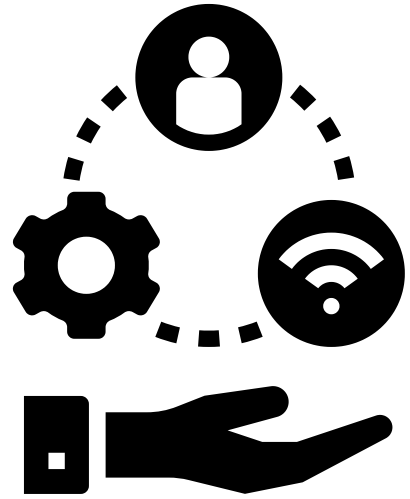


KEY

----- Transferrable Skills

———— Clear Career Trajectory

Resource Page



Where can I find more information about occupations and workforce data?

- O*NET: <https://www.onetonline.org/>
- Bureau of Labor Statistics (BLS): <https://www.bls.gov/>
- Maine Center for Workforce Research and Information (CWRI): <https://www.maine.gov/labor/cwri/>
- Oceancareers.com: <http://oceancareers.com/2.0/index.php>
- Maine Aquaculture Association Occupational Standards: <https://maineaqua.org/education/>

Where can I find more information about Maine employers in this economy?

- CWRI Interactive Employer Locator: <https://www.maine.gov/labor/cwri/employers2.html>

Where can I find related job postings in Maine?

- Maine Career Center: <https://www.mainecareercenter.com/>
- The Maine Aquaculturist, an Aquaculture Job Board: <https://www.themaineaquaculturist.org/aquaculture-job-board/>
- Maine Marine Trades Association Job Board: <https://www.mainemarinetrades.com/jobs/>
- Maine Department of Marine Resources: <https://www.maine.gov/dmr/about-us/jobs>
- American Fisheries Society Career Center: <https://jobs.fisheries.org/>
- Live and Work in Maine Job Search: <https://careers.liveandworkinmaine.com/search>

Workforce Gaps



Based on TPMA's research and work with local stakeholders, there were 3 key workforce gaps identified. These are followed by several examples for addressing workforce gaps. The recommendations and takeaways in the examples are important for employers, job seekers, and educators.

- 1 Breaking through the Heritage Economy:
Broadening Recruitment, Attraction & Retention
- 2 Attracting Diverse Talent
- 3 Encouraging Education and Training
Opportunities

1

Breaking through the Heritage Economy: Broadening Recruitment, Attraction, & Retention

The seafood economy has a long-rooted legacy in Maine. The coastal waters off of Maine have long shaped the livelihoods of local residents. However, the COVID-19 pandemic changed the landscape of work in America. The labor market seems to be tighter than ever, increasing competition for the limited labor pool and driving up wages.

To understand the recruitment, attraction, and retention challenges that the Maine seafood economy is facing, TPMA conducted a workforce survey in the summer of 2022. Through this survey, TPMA learned that many employers were unable to find enough job seekers or retain their employees.



Photo by Cortney Simmons, Island Institute

There are Maine employers that have been in business for generations. In certain cases, family businesses pass on work and duties to others in the family so that new hire searches and recruitment tactics do not need to be not conducted frequently. Many respondents discussed that their recruitment is merely word-of-mouth and that they were not currently recruiting workers. A plethora of recruitment tactics like job fairs, social media advertising, and internships that turn into full-time workers are important for fulfilling the talent pipeline.

Competitive wages can be another tool for employers to use to in recruitment and retention. Employers should strive to ensure that their wages are not just competitive in their own industry, but with other similar industries, with whom employers in the Maine seafood economy are competing.

Increasing workplace flexibility in the "where and when" of employment is another tool employers can use. For "where," employers should give the option for hybrid or remote work to employees who do can perform their jobs remotely. The "when" can include employers allowing employees to set their own working days and hours, giving ample notice when overtime will be required, and providing employees with a set schedule. Employers may not be able to provide employees with all of these due to business needs, but employers should evaluate what opportunities can be instituted. These "where and when" can widen the potential talent pool and can be attractive to job seekers.

Employers in Maine need to broaden their talent attraction and recruitment for this economy to continue. Employers also need to instill confidence and respect for future employees of different personal and professional backgrounds. Relationships and connections within the state can assist with low-cost training, innovations, and new ways of sustaining employees.

2

Attracting Diverse Talent

Diversity spans a whole gamut of inclusive practices when it comes to the following:

- Race/ethnicity
- Sexual orientation
- Disability
- Gender
- Religion
- Age
- Culture
- Socioeconomic status



Over 1.2 million Maine residents are Caucasian. The Hispanic population is around 27,000 residents. Black or African American (25,115), Asian (16,668), and American Indian (7,293) make up the next three largest racial groups from highest to lowest. Additionally, there are approximately 53,000 residents of two or more races.⁴⁰ While Maine is predominantly White, this cannot be a stopping point for augmenting inclusive hiring and retention of workers. There are ways to expand racial/ethnic diversity in Maine in addition to other diverse and inclusive characteristics of workers.

Only a small number of respondents to TPMA's workforce survey identified "lack of diversity" as a pressing talent issue at their organization. In order for employers to commit to inclusive change, there must be representation of different races/ethnicities, genders, cultures, and ages, among others.



Employers should provide welcoming environments and acceptance for diverse candidates. Cultural training and awareness would be valuable. Multi-lingual documentation and signage are also important. Employers should also consider supportive services that are necessary for their workers to maintain their roles. Examples include childcare, housing, and transportation. Benefits, flexibility in hours, and employee housing coverage, such as for seasonal workers, can make a huge difference in comprehensively providing for a long-lasting workforce.

⁴⁰ "Hispanic or Latino, and Not Hispanic or Latino by Race- Decennial Census." *United States Census Bureau*. 2020. <https://data.census.gov/table?q=maine+race&tid=DECENNIALPL2020.P2>.

3

Encouraging Education and Training Opportunities



Photo by Jack Sullivan, Island Institute

Understanding the needs of employers is crucial in creating a workforce pipeline that is equipped to handle the demands of today's jobs. To further understand the needs of employers in the Maine seafood economy and the training opportunities available to job seekers and employees, TPMA conducted educator focus groups in the fall of 2022, as well as reviewing existing literature, such as the Maine Aquaculture Workforce Development Strategy and Capture and Culture Fisheries of Maine: Training the Next Generation,

in addition to the workforce survey conducted in the summer of 2022. Throughout this knowledge-gathering process, it became clear that new jobseekers hoping to enter the Maine Seafood Economy lacked skills in two categories: basic employability skills and technical knowledge.

Jobseekers and employees should be encouraged to seek education and training, at all stages of their work life. High school students, who may be just starting in their career exploration journey, should be encouraged by guidance counselors to seek training opportunities. This could be through Career and Technical Education (CTE), pre-apprenticeships and apprenticeships, internships, or pursuing two- or four-year degrees post-graduation.

Accessing education and training opportunities does not have to be a financial burden for job seekers. Apprenticeships are a way to get on-the-job training and classroom education, while also receiving a wage. Funded training opportunities, like the Yamaha Outboard Motor Repair training course at Southern Maine Community College, provide learning opportunities at no expense to the student.

Employees should be encouraged to seek out training opportunities, fill in skill gaps, and upskill. Providing this benefit increase recruitment, attraction, and retention for employers.

By encouraging job seekers and employees to pursue education and training opportunities, employers in the Maine Seafood Economy can have access to a robust, well-trained, and highly skilled workforce pipeline.



Addressing Workforce Gaps

The Farm to Table Network includes farms, food production companies, education institutions, non-profit organizations, and government representatives, among others. This unique Network is dedicated to the implementation of the 15 strategic goals of Vermont's 2021-2030 Food System Plan.⁴¹ They are integral to propelling goals, assessing opportunities and gaps, and tracking the progress of Vermont's food system.

The Career Pathways Taskforce was formed out of the Education and Workforce Working Group of the Farm to Table Network. The Career Pathways Taskforce created an Exploring Food System Careers report to showcase different careers. They separated out into topic areas such as Farm Inputs, Production, and Retail Distribution.

Careers such as Farmworkers; Feed, Seed, and Equipment Dealers; and Food Hub Directors provided work context, work values and skills, wage data, and education and training opportunities.

Exploring Food System Careers is a best practice and inspiration for TPMA and SEAMaine's toolbox work. It provides vital information about careers for interested job seekers, employers, and others. Additionally, it builds off of other resources, such as the Career Profiles and Pathways, and connections to their goals. The strategic goals are organized by Sustainable Economic Development; Environmental Sustainability; Healthy Local Food for all Vermonters; and Racial Equity.⁴²



Maine Seafood Economy employers should consider involvement in task forces and committees like the one organized in Vermont. It could provide assistance in connecting needed skills and talent needs to educators and others involved in other workforce steps. This is also valuable for marketing and advertising the Seafood and related sectors.

⁴¹ "Vermont's 2021-2030 Food System Plan." *Farm to Table Network*. <https://www.vtfarmtoplate.com/vermont-agriculture-food-system-plan-2021-2030>.

⁴² "Farm to Plate: Career Profiles and Pathways." *Farm to Table Network*. https://www.vtfarmtoplate.com/sites/default/files/2022-03/2016_career_profiles_and_pathways_small.pdf.

Addressing Workforce Gaps

As a state with an aging population and slow population growth, Maine has been struggling to establish a robust talent pipeline for the state's employers. In response to these challenges, Ed McKersie, the founder of Pro Search, a recruiting and staffing firm in Portland, founded Live and Work in Maine in 2015.⁴³

Live and Work in Maine is a non-profit initiative that started to attract workers to the state of Maine. Their goal is to raise awareness of the quality of life and career opportunities available to job seekers in Maine.⁴⁴

To do this, the "Live and Work in Maine" website was created. This acts as a career network, providing resources to those looking to relocate or continue their careers in Maine.

Information for jobseekers includes a job board, success stories, information about the different regions of Maine, and a listing of lifestyle interests (such as live music, ATV riding, etc.).

Live and Work in Maine also partners with Maine employers. Employers can create two profiles: 1) a free employer profile and 2) a job board account to post open positions, view resumes, and receive applications. Employers can join Live and Work in Maine at job fairs and recruiting events.

Live and Work in Maine serves as an employment clearinghouse for current and future Mainers. It attracts job seekers with information about the Maine lifestyle, recruits them using the job board, and helps the state retain its workforce. This can serve two purposes for the Maine Seafood Economy. Employers should immediately take advantage of this resource to recruit new talent into the industry and fill open positions. In the longer term, this could serve as an inspiration for a seafood-specific version. By utilizing Live and Work in Maine, the Maine Seafood Economy can establish a more robust and diverse talent pipeline.



⁴³ "Featured on Bangor Daily News: New Worker Recruitment Website Showcases Life in Maine." *Live and Work in Maine*. <https://www.liveandworkinmaine.com/2015/11/featured-on-bangor-daily-news-new-worker-recruitment-website-showcases-life-in-maine/>.

⁴⁴ "About." Live and Work in Maine. <https://www.liveandworkinmaine.com/about/>.

Addressing Workforce Gaps



Forest Opportunity Roadmap/Maine (or FOR/Maine) is a collaboration between industry, communities, government, education, and non-profits coming together to grow Maine's forest products industry, an important Maine heritage industry.

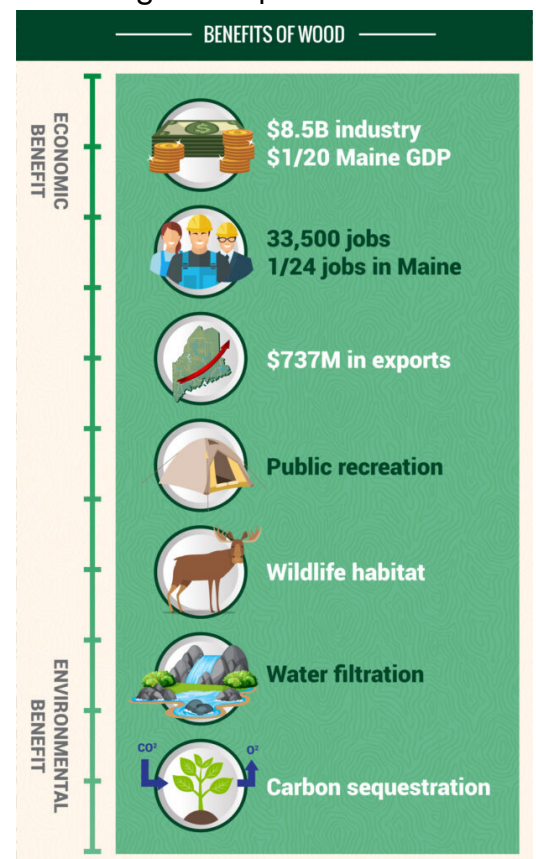
The FOR/Maine initiative was developed following the closing of six Maine paper mills between 2013 and 2015.⁴⁵ This coalition was created with support from the U.S. Economic Development Administration, the U.S. Department of Agriculture, and the Maine Timberlands Charitable Trust. Upon its founding, this coalition was charged with assessing the current state of the industry, its assets and readiness, and formulating a strategy to develop new markets and capitalize on new opportunities.

Through research, strategy development, and cross-sector collaboration, FOR/Maine has identified five goals for Maine's Forest Products sector. They are:

1. Sustain and grow Maine's existing and emerging forest products economy, reaching \$12 billion in economic impact by 2025
2. Manage the wood resource using sustainable and responsible forest management practices
3. Prepare the workforce for the future of the forest products economy.
4. Increase prosperity in Maine forest economy communities, especially those in rural Maine, including those affected by mill closures.
5. Organize the forest products industry with committed public sector partners, including the University of Maine, to implement the vision and goals.⁴⁶

They utilize their website to work towards their goals, by establishing a clear and recognizable brand (including infographics, as seen here), providing updates on progress towards their goals, as well as publishing information on careers and innovation in the forest products industry.

Having an attractive and informative website and branding helps broaden recruitment and attraction. Jobseekers gain a better understanding of opportunities within the industry. Employers will benefit from a larger potential labor pool and the growth of the forest products industry.



⁴⁵ "Phase 1 - Report Out on Progress, Deliverables, and Goals." FOR/Maine. https://formaine.org/wp-content/uploads/2021/04/For_Maine_Phase_1_Report_Out.pdf.

⁴⁶ "Goals to Enhance the Future of Maine's Forest." FOR/Maine. <https://formaine.org/home-page/the-vision/goals-strategies/>.

Addressing Workforce Gaps

More Maine employers and organizations should shift to equitable hiring and recruitment practices, which will have long-term retention benefits as well. Two organizations are exemplifying this charge: Luke's Lobster and Catholic Charities Refugee Immigration Services.



Luke's Lobster is a great example of a Maine seafood company providing quality benefits and care for its employees. The beginnings of Luke's Lobster emerged in 2009; in the 2010s, it expanded into seafood purchasing and production as well as grocery markets.⁴⁷

Luke's Lobster specifically calls out its benefits on the career page of its website.

The areas they call out are:

- Medical, Dental, and Vision
- Growth Opportunities
- Dynamic Company Culture
- Discounts
- 401K Program
- Competitive Pay and Flexible Scheduling
- Commuter Benefits
- Parental Leave
- Casual Dress Code

"We reward success with a fair wage, opportunities to grow, and best in class benefits. We foster a fun and supportive community that drives engagement and passion." – Luke's Lobster

The areas relate to the workforce survey asked of Maine employers and align with national best practices for training and maintaining employees. Luke's Lobster offers internal promotions and professional development opportunities. They put forth effort for more livable wages and scheduling. Employees across sectors experience external or personal circumstances that contribute to an employee leave; Luke's Lobster respects parental leaves. Lastly, they offer a flexible dress code.⁴⁸

Luke's Lobster has contributed to the legacy of the lobster industry in Maine and adapted to meet the needs of its local workforce. Other employers across the Maine seafood economy should emulate these practices.

⁴⁷ "About Luke's Lobster." *Luke's Lobster*. <https://lukeslobster.com/pages/about-us>.

⁴⁸ "Careers." *Luke's Lobster*. <https://lukeslobster.com/pages/careers>.

Addressing Workforce Gaps

Catholic Charities is an international organization and has a presence in Maine. There are many refugees that leave their home countries due to political climates, wars, and other issues. Catholic Charities has its strongest presence in Portland, Maine. Refugee Immigration Services (RIS) can help with resettlement. Importantly, they provide case management and employment services. For example, Portland RIS can assist with employment for refugees, who have been in the United States for less than a month, for a maximum of 60 months.⁴⁹

According to a Catholic Charities survey, employers involved in the RIS employment program were 92% "satisfied" or "very satisfied" with their hire. All the respondents said they would be interested in Catholic Charities employment services again.



Catholic Charities describes the following benefits of hiring a refugee:

- They are skilled, educated, and long-lasting employees; they bring their education and former business experience from their home countries
- They are multilingual and culturally competent
- They are motivated to live and thrive anew in the US with strong work ethics
- Businesses avoid hiring costs and have access to refugees constantly coming into Maine
- Businesses may receive tax credits and/or training incentives if hiring individuals on public assistance programming
- It propels a sense of community for refugees (and in Maine too!)
- Refugees do have work authorizations in the United States

Furthermore, Catholic Charities' website has contact information for employment case management and resources in a variety of languages such as Arabic, French, Somali, and Swahili.⁵⁰ Organizations and businesses should consider the advantages of programs like these. The RIS is a testament to benefit of a diverse and equitable workforce in Maine.



⁴⁹ "About: Catholic Charities Refugee Immigration Services." *Catholic Charities*. <https://www.ccmaine.org/refugee-immigration-services/about>.

⁵⁰ **Employ a Refugee." *Catholic Charities*. <https://www.ccmaine.org/refugee-immigration-services/employ-a-refugee>.

Addressing Workforce Gaps

From the survey and focus groups, heard that employers were struggling to find and hire suitable talent. This problem is plaguing many employers in Maine. In response to these challenges, in 2021, the Maine Legislature enacted a two-year peer workforce navigator pilot program.

This pilot program, funded by the American Rescue Plan (the 2021 COVID-19 stimulus plan) is run by a five-organization coalition: Maine AFL-CIO, Maine Equal Justice, Food AND Medicine, Prosperity Maine, and Gateway Community Services. These organizations will work with the Maine Department of Labor to support the entry of underserved populations that were disproportionately impacted by COVID-19 into the workforce.⁵¹



Peer Workforce Navigator
partners in success

Across organizations, we have come together to do 3 things

1. Connect people to good quality jobs, education, and training opportunities.
2. Help people navigate Unemployment Insurance and receive the benefits they deserve in critical times
3. Connect people with public benefits and worker supports (like MaineCare, food assistance, and childcare) that allow them to pursue their career goals

@mainepeerworkforcenavigator
@maine_navigator
facebook.com/MainePeerWorkforceNavigatorProject



The goals of the peer workforce navigator pilot program are to:

1. Connect 3,000+ people with education, training, workforce, or other support services.
2. Connect 1,500+ individuals to employment.

Peer navigators are located throughout the state, with

connections to immigrant and refugee communities in Lewiston/Auburn and Greater Portland, low-income families, communities connected to the Maine AFL-CIO network, and individuals experiencing unemployment in rural communities.

Peer navigators conduct outreach and educational activities, connect individuals to jobs, benefits, and workforce programs, and track data on participants. Individuals can connect with peer workforce navigators in-person, by phone, email, text, or WhatsApp.

The peer navigators program can help connect jobseekers with jobs, education, and training opportunities in the Maine Seafood Economy. They can also connect individuals with public benefits and worker supports, like MaineCare, food assistance, and childcare, which may enable an individual to join the workforce. This program can help create a more diverse workforce for Maine and a more robust talent pipeline for the Maine Seafood Economy.

⁵¹ "Maine Department of Labor Launches Peer Workforce Program to Connect Maine People to Jobs and Training." *Maine Department of Labor*. https://www.maine.gov/labor/news_events/article.shtml?id=7066600.

Appendix – Additional Occupations

Seafood Producers and Harvesters – Aquaculture

- Hatchery team lead (shellfish/seaweed)
- Lead hand (finfish)
- Phycologist
- RAS hatchery technician
- RAS hatchery manager
- RAS production manager
- RAS quality control technician
- RAS quality control manager
- RAS systems operation & maintenance director
- RAS systems operation & maintenance technician



Photo courtesy of Maine Aquaculture Association



Photo courtesy of Maine Aquaculture Association

Processing and Distribution

- Facilities engineer
- First receiver (wharves/co-ops)
- Fish and seafood merchant wholesaler
- Grocery and related product wholesaler
- Processing plant manager
- Sanitation worker
- Stockers and order filler
- Transportation, storage, and distribution manager
- Waste manager

Inputs and Services

- Accounts payable and accounts receivable specialist
- Bookkeeper
- Electrician
- Feed and bait distribution worker
- Human dietician and nutritionist
- Lawyer
- Machinist
- Marine resource manager
- Mechanical engineering technician
- Physical oceanographic technician
- Small business advisor

Appendix – Additional Occupations

Innovation, Science, and

Engineering

- Applied food scientist
- Aquatic animal health nutritionist
- Biomedical scientist
- Biotechnology research scientist
- Endocrinologist
- Microbiologist
- Molecular biologist
- Public health researcher

Regulatory and Policy

- Environmental policy analyst
- Marine geologist



Photo by Scott Sell, Island Institute

Advocacy and Education

- Extension associate
- Fisheries lobbyist
- K-12 educator
- Post-secondary educator
- Seafood writer/journalist
- Trade association executive

Sales and Marketing

- Advertising and promotions manager
- Public relations manager
- Public relations specialist
- Research chef
- Seafood dealer



Photo courtesy of Maine Aquaculture Association



Photo by Jack Sullivan, Island Institute

SEAMaine
www.seamaine.org
seamaine@mdf.org