



S E A P O R T S

FLORIDA SEAPORT TRANSPORTATION & LOGISTICS: EDUCATIONAL NEEDS ASSESSMENT



JUNE 2025

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INTRODUCTION



Florida's maritime sector is the second largest in the country in terms of employment and is supported by maritime-specific educational programs and opportunities in the state. Florida's vision to produce the highest quality education and workforce development in the nation by 2030¹ offers the potential to improve upon this success. This document examines existing programs in Florida and other states, including programs and opportunities for training minorities and secondary school students in job skills associated with employment opportunities in the maritime industry. The background of educational programs, opportunities, and needs identified in this document will provide a basis for improving educational opportunities in the maritime industry.

1.1 Statement and Purpose

The purpose of this study is established in 311.09, Florida Statute:

"The council shall develop programs, based on an examination of existing programs in Florida and other states, for the training of minorities and secondary school students in job skills associated with employment opportunities in the maritime industry, and report on progress and recommendations for further action to the President of the Senate and the Speaker of the House of Representatives annually."

As required by Florida Statute, this document provides an update to the Department's knowledge of existing maritime education programs and opportunities ranging from the high school level to post-graduate education in both Florida and other states. This includes a review of changes made in maritime related employment and provides recommendations for further improvements in the coming years. Impacts to the industry have been profound over the last five years as the workforce has adjusted to changes in supply chain operations, which had a widespread impact on seaport staff and tourism employment.

The graphics on the two following pages list jobs that are directly and indirectly related to maritime operations, which gives insight into the breadth of education and opportunities needed to maintain Florida's workforce in these sectors. Note that these predominately focus on maritime operations at Florida's seaports and do not reflect the more than 1 million registered recreational boaters in Florida.

¹ *Florida Workforce 2030: Changing Landscape of the "World of Work" Requires 21st Century Skills.* Florida Chamber. <https://www.flchamber.com/research/research-programs/florida-workforce-2030/>



MARITIME *(Ocean and Inland)*

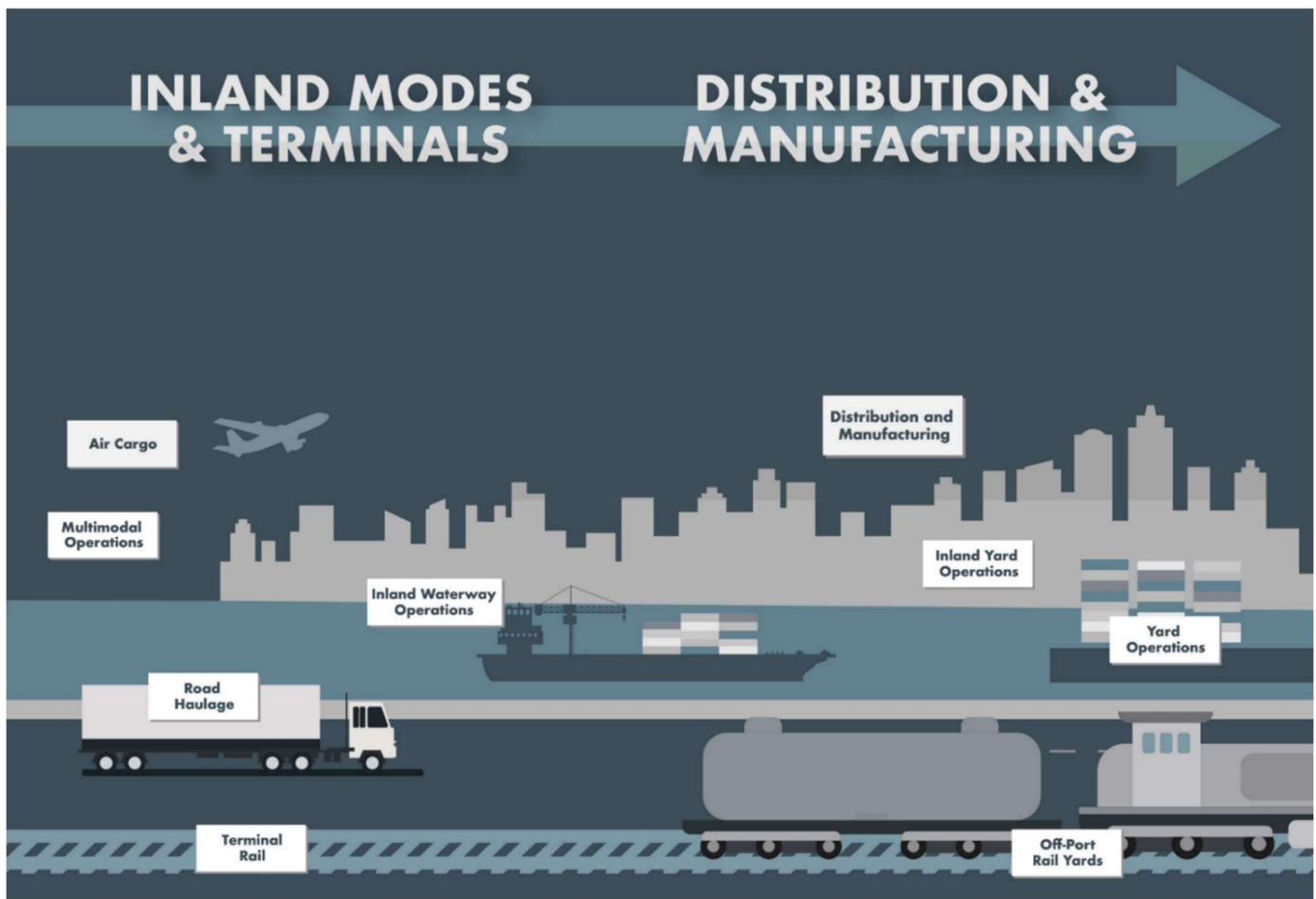
- Sailors and Marine Oilers
- Ship Engineers
- Captains, Mates, and Pilots of Water Vessels
- Motorboat Operators
- Bridge and Lock Tenders
- Marine Engineers and Naval Architects
- Stewards

RAIL

- Railroad Brake, Signal, and Switch Operators
- Locomotive Engineers
- Locomotive Firers
- Railroad Conductors and Yardmasters
- Rail Yard Engineers, Dinky Operators, and Hostlers
- Rail Car Repairers
- Signal and Track Switch Repairers
- Rail-track Laying and Maintenance Equipment Operators

TERMINAL OPERATIONS WORKFORCE *(Port and Inland)*

- Tank Car, Truck, and Ship Loaders
- Conveyor Operators and Tenders
- Laborers and Freight, Stock and Material Movers
- Hoist and Winch Operators
- Crane and Tower Operators
- Gas Compressor and Gas Station Operators
- Gas Plant Operators
- Petroleum Pump Station Operators, Refinery Operators, and Gaugers
- Machine Feeders and Offbearers
- Electrical and Electronics Installers and Repairers, Transportation Equipment
- Baggage Porters and Bellhops



AIR CARGO

- Airline Pilots, Copilots, and Flight Engineers
- Aircraft Cargo Handling Supervisors
- Aircraft Mechanics and Service Technicians
- Airfield Operations Specialists
- Commercial Pilots
- Avionics Technicians

ROAD HAULAGE

- Heavy and Tractor-Trailer Truck Drivers
- Light Truck or Delivery Services Drivers
- Bus and Taxi Drivers and Chauffers
- Bus and Truck Mechanics and Diesel Engine Specialists
- Industrial Truck and Tractor Operators

ADMINISTRATIVE AND MANAGEMENT WORKFORCE

- Cargo and Freight Agents
- Reservation and Transportation Ticket Agents and Travel Clerks
- Transportation, Storage, and Distribution Managers
- Shipping, Receiving, and Traffic Clerks
- First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators
- First-Line Supervisors of Helpers, Laborers, and Material-Movers
- Weighers, Measures, Checkers, and Samplers, Recordkeeping

SECURITY AND ENFORCEMENT WORKFORCE

- Dispatchers
- Transportation Inspectors: Aviation, Transportation Vehicle, Equipment, and Systems, Freight and Cargo
- Transit and Railroad Police
- Emergency Vehicle Drivers and Attendants

A STATEWIDE VISION— FOR MARITIME WORKFORCE EDUCATIONAL NEEDS



The State of Florida supports workforce development initiatives with its Pathways to a Career Opportunity Grants² and Work Florida³ Initiative at state colleges. This section includes the visions of key stakeholders’ interests in workforce training and development at Florida seaports and in associated industries. This section culminates into Table 1, which shows common interests and initiatives shared by these key stakeholders.

TABLE 1. CROSSWALK OF STAKEHOLDER VISIONS

Stakeholders CROSSWALK	Build Transportation Worker Job Awareness	Collaborate with Private Sector Workforce Development	Connect Workers and Employers	Credentialing and Licensing	Grants and Funding Opportunities	Interagency Collaboration for Workforce Development	Job Specific Skills Development	Maritime Industry Workforce Advocacy	Skilled Workforce Development	Support Apprenticeships	Vocational and Technical School Support and Coordination	Youth Worker Development Opportunities	Workforce Quality
Florida Seaport Transportation and Economic Development Council	●					●		●					
Florida Department of Commerce	●	●			●				●		●		●
CareerSource Florida		●	●			●	●			●			
The Florida Chamber of Commerce	●	●				●	●						●
Florida Department of Education				●			●		●			●	●
U.S. Department of Labor			●	●	●				●	●		●	●

This summary of the programs and opportunities helps identify the key focuses of private and public sector partners, as well as where these focuses overlap. As shown in the above table, one-third of the organizations identified include enhancing workforce quality in their visions and/or strategies, suggesting that having a well-trained and educated

² *Pathways to Career Opportunities Grant Program Annual Report*. Florida Department of Education. <https://www.fldoe.org/pathwaysgrant/annual-report/#:~:text=The%20Pathways%20to%20Career%20Opportunities,Centers%2C%20Charter%20Technical%20Career%20Centers%20>

³ *Future of Work Florida*. Get There. <https://gettherefl.com/future-of-work/>

workforce is paramount to enhancing Florida’s transportation sector. Following this, skilled workforce development and job-specific skills development were identified in half of the partners’ messaging on workforce development. Lastly, half of the partners also identified collaboration within and between the public and private sectors in their visions and strategies.

2.1 Florida Seaport Transportation and Economic Development Council (FSTED)

FSTED⁴ provides an annually updated 5-Year Florida Seaport Mission Plan which states the mission of the Council. A primary component of this mission is “to enhance economic vitality and quality of life in Florida by fostering growth in domestic and international waterborne commerce.” Florida Seaports support more than 900,000 thousand jobs in the state and provide \$117.6 billion in economic value, accounting for 13.3 percent of Florida’s gross domestic product (GDP).⁵ These jobs are high paying and require skilled laborers to operate heavy machinery. Growing cargo and cruise operations at Florida seaports fuel demand for jobs like these and require an educated, trained, and skilled workforce. The FSTED Council fulfills its mission, in part, by advocating for the maritime industry workforce, creating jobs through funding infrastructure improvements, and working with state agencies on workforce matters.

2.2 Florida Department of Commerce

FloridaCommerce advances Florida’s economy by championing the state’s economic development vision and by administering state and Federal



programs and initiatives to help visitors, citizens, businesses, and communities. FloridaCommerce tracks workforce statistics as well as provides business growth and partnership opportunities, community planning, development and services, and workforce development resources.⁶

2.3 CareerSource Florida

CareerSource Florida⁷ is a statewide workforce and policy board that partners with their 24 local workforce development boards, and their 100 career centers across Florida. The Board provides oversight and policy direction for talent development programs that support Florida’s workforce and employers. In 2019, CareerSource Florida, FloridaCommerce (then the Florida Department of Economic Opportunity), and the Department of Education



⁴ Florida Seaport Transportation and Economic Development Program. Florida Ports Council. <https://flaports.org/about/florida-seaport-transportation-and-economic-development-program/>

⁵ 2022-2023 Seaport Mission Plan. Florida Ports Council. https://flaports.org/wp-content/uploads/Florida-Seaports-Mission-Plan-2023_web.pdf

⁶ Florida Commerce. <https://www.floridajobs.org/>

⁷ CareerSourceFlorida. <https://careersourceflorida.com/>

(DOE) developed a statewide Apprenticeship Policy for Florida’s workforce system.⁸ This policy supports continued expansion of apprenticeship opportunities in industry sectors that are important to Florida’s economy through collaboration with stakeholders, expanded apprenticeships in high demand occupations, and encouragement of a diverse workforce.⁹

2.4 The Florida Chamber of Commerce (The Chamber)

The Chamber¹⁰ is dedicated to enhancing Florida businesses and workforce. One of The Chamber’s primary goals is to Catalyze Workforce Innovation, which aims to capture and retain the next generation of talent. The Chamber recognizes the workforce shortage in transportation and construction skill sets, which has financial implications (e.g. increased project cost).¹¹ The Chamber makes several recommendations to overcome this shortage including a dedicated effort to attract and retain a skilled workforce; developing skills that complement novel technologies; and increased collaboration on best practices and emerging workforce deficiencies.



2.5 Florida Department of Education (DOE)

DOE¹² is a primary repository of education data from school districts, colleges and universities, and independent postsecondary institutions. This data provides the ability to track student performance over time for various educational areas.



DOE promotes the economic self-sufficiency of Floridians through programs and services focused on college, workforce education, apprenticeships, job-specific skills, and career development. Their mission is “to increase the proficiency of all students within one seamless, efficient system, by providing them with the opportunity to expand their knowledge and skills through learning opportunities and research valued by students, parents, and communities, and to maintain an accountability system that measures student progress.” Goals for the department are higher student achievement; seamless articulation and maximum access; skilled workforce and economic development; and quality efficient services.¹³

⁸ CareerSource FLORIDA. <https://careersourceflorida.com/careersource-florida-board-approves-statewide-apprenticeship-policy/>

⁹ *Apprentice Florida*. FloridaCommerce. <https://www.floridajobs.org/office-directory/division-of-workforce-services/workforce-programs/apprenticeship-fla>

¹⁰ Florida Chamber of Commerce. <https://www.flchamber.com/>

¹¹ *Infrastructure Coalition*. The Florida Chamber of Commerce. <https://www.flchamber.com/infrastructure-coalition/>

¹² Florida Department of Education. <https://www.fldoe.org/>

¹³ *Strategic Plan*. Florida Department of Education. <https://www.fldoe.org/policy/state-board-of-edu/strategic-plan.stml>

2.6 U.S. Department of Labor (DOL)

“To foster, promote, and develop the welfare of the wage earners, job seekers, and retirees of the United States; improve working conditions; advance opportunities for profitable employment; and assure



U.S. DEPARTMENT OF LABOR

work-related benefits and rights” is the DOL’s mission.¹⁴ DOL’s Employment and Training Administration (ETA), has a portfolio of programs and services to assist American businesses and workers in improving their competitive advantage through talent development. This network includes programs that give workers opportunities to acquire skills and credentials by providing high-quality job training, employment, labor market information, and income maintenance services primarily through state and local workforce development systems. The guiding principles of the ETA include:

- Encourage business growth through the creation of an agile workforce—one that can respond quickly and effectively to the changing needs of business and the new economy.
- Turn individuals into career entrepreneurs by equipping them with the information they need to develop the knowledge, skills and abilities sought after in the new economy.
- Administer a workforce system that partners and connects with public and higher education systems to prepare the workforce of the 21st century with career opportunities and skills in high-job-growth sectors.
- Ensure that youth workforce training programs have a strong educational component, since it is clear that income and opportunities increase exponentially with education credentials.¹⁵

¹⁴ U.S. Department of Labor. <https://www.dol.gov/>

¹⁵ *Mission*. U.S. Department of Labor. <https://www.dol.gov/agencies/eta/about/mission>

FLORIDA'S MARITIME WORKFORCE (EXISTING CONDITIONS)



This section explores the current opportunities for transportation-specific education available in the United States, including Florida. Offered programs range from technical training to graduate degree opportunities. Table 2 displays the different types of programs and opportunities currently available including a sampling of state-by-state institutions that provide curricula directly and indirectly related to the maritime industry. While Florida has a significant number of colleges and universities focused on maritime related industries, it falls short of having a U.S. Maritime Academy located in the state, despite having one of the largest volumes of maritime activity in the country.

3.1 U.S. Maritime Academies

The flagship institutions for training in the maritime business and operations jobs consist of the six U.S. maritime academies and the United States Merchant Marine Academy (USMMA) detailed in Table 2. The U.S. Department of Transportation Maritime Administration (MARAD) supports maritime training and educational programs and provides limited funding to each of these academies. Programs at these academies include shipbuilding, steamship company operations, port operations, and security. These academies supply workforce for the U.S. Merchant Marine, U.S. Armed Forces, and transportation companies, including shipping lines, cruise lines, shipyards, and port terminal operations. Each of these academies also offer a variety of four- to six-year degrees in disciplines such as maritime studies, engineering, business and logistics, and marine sciences. Some of these programs culminate in licensing graduates.

3.2 Centers of Excellence (CoE) for Domestic Maritime Workforce Training and Education

The U.S. DOT may designate certain eligible and qualified training entities as Centers of Excellence for Domestic Maritime Workforce Training and Education (CoE). Centers of Excellence designations serve to assist the maritime industry in obtaining and maintaining the highest quality workforce. The Maritime Administration (MARAD) developed the CoE Program to support maritime workforce training and education at designated CoEs, including efforts of the designees to admit additional students; recruit and train faculty; expand facilities; create new maritime pathways; and award students credit for prior experience, including military service. The inaugural CoE designees were announced in 2021 with new designees recently announced in February 2024.¹⁶

¹⁶ *Centers of Excellence (CoE) for Domestic Maritime Workforce Training and Education*. U.S. DOT Maritime Administration. <https://www.maritime.dot.gov/maritime-workforce/maritime-centers-excellence>

The 2024 designees consist of 50 maritime training locations in 44 cities across 17 states and Guam. Of these, two are located in Florida:

- Star College in Dania Beach, FL
- College of the Florida Keys in Key West, FL

3.3 Florida Maritime and Logistics Related Training Programs

Maritime business and operations programs are located throughout the state of Florida and provide graduates with the necessary training and credentials to perform respective competencies for ports and related industries. The sampling of educational opportunities for institutions listed in Table 2 show specific categories of educational programs and certifications across the U.S., including Florida. As displayed, Florida provides a range of opportunities. The state has a strong presence of vocational training and certificate- based training programs, which provide alternative educational opportunities and enable more Floridians to seek upward mobility and economic self-sufficiency. Florida colleges and universities also have an array of diploma offerings. The most widely available undergraduate and graduate programs at Florida institutions include maritime business and administration, marine management and environmental science, and logistics and supply chain management.

3.4 Florida’s Ports Participation

Many of Florida’s deepwater seaports participate in some form of community workforce development. This is accomplished through internship programs through local schools, nearby community colleges, and vocational training programs. Ports have also worked towards cultivating interest in seaport and related industry jobs through outreach at Florida schools.¹⁷ For example, ports such as Port Tampa Bay have highlighted efforts to engage with their workforce and the need for skilled and educated laborers and port administration. The visibility of seaport workforce development initiatives and partnerships is important to expanding programs and garnering further interest from students. The following is a sample of successful programs within Florida’s seaports:

- Port Tampa Bay: Tampa Bay Maritime Scholarship Foundation—The mission of the Foundation is to assist high achieving graduates of the Hillsborough County Maritime Technology Programs at Thomas Jefferson High School Magnet Honors Maritime Academy and other public institutions by providing meaningful scholarship support for post high school education leading to maritime careers.¹⁸

PORT TRAINING INITIATIVES

- 🚢 At least **8 Florida ports** have developed training initiatives as of 2024.
- 🤝 Ports are **partnering** with state and local schools, colleges & universities.
- 👷 Paid **internships & apprenticeships** statewide.
- 🔧 Hands-on programs in **operations, logistics & technical trades**.
- ⚡ Programs in **energy & diesel technologies**.
- 🏠 Ports provide **facilities for mechanical training**.

¹⁷ A summary of port-led internship and apprenticeship programs, including participating educational institutions and focus areas, is provided in Appendix C.

¹⁸ Tampa Bay Maritime Scholarship Foundation. <https://tbmsf.org/>

- JAXPORT: Annual Scholarship Fund—JAXPORT contributes to an annual college scholarship fund coordinated by the International Longshoremen's Association (ILA) Local 1408 to help area high school seniors and college students pursue higher education.¹⁹
- PortMiami: Maritime Apprenticeships —PortMiami is partnering with Seaboard Marine and Miami-Dade County Public Schools' Office of Postsecondary Career and Technical Education to launch an apprenticeship program.²⁰

¹⁹ Education. JAXPORT. <https://www.jaxport.com/corporate/community/education/>

²⁰ PortMiami and Partners Launch Maritime Apprenticeships to Bolster Workforce and Economy. <https://hoodline.com/2024/03/portmiami-and-partners-launch-maritime-apprenticeships-to-bolster-workforce-and-economy/>

TABLE 2. MARITIME EDUCATIONAL INSTITUTIONS THROUGHOUT THE UNITED STATES AND FLORIDA

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
California Maritime Academy	California	X	1,090	1,050	B	B	B	B,M	B					M,C	B	B, M, C			
Great Lakes Maritime Academy	Michigan	X	200	200						B									
Maine Maritime Academy	Maine	X	897	878	B, M			B			B,	B	A, B,			B, M, C			
Massachusetts Maritime Academy	Massachusetts	X	1425	1326	B, M	B		B				B		B, M	B				
SUNY Maritime College	New York	X	1545	1401	B, M	B		B	B		B		A, B		B				
Texas A&M Maritime Academy	Texas	X			B, M			B							B				
U.S. Merchant Marine Academy	New York	X	1098	931				B,M			B					B			
Florida Institute of Technology	Florida				B, M				B, M, D					B, M	M	B, M			
U.S. Naval Academy	Maryland							B	B				B		B				
The University of New Orleans Naval Architecture & Marine Engineering	Louisiana							B, M					B, M						
U.S. Coast Guard Academy	Connecticut				B			B, M	B, M				B		B,M				
Webb Institute of Engineering	New York		105					B	B				B						
Amber Road's Trade Academy	New Jersey															C			

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
Arizona State University—W.P. Carey School of Business	Arizona																B, M, D, C		
ASCM	Illinois																C		
Baruch	New York																B, M, C		
Bryant University	Rhode Island						B										B, C		
Bucknell University	Pennsylvania						B	B, M								B, M	B		
California State Polytechnic University	California							B, M								B, M			
California State University, Long Beach	California							B									C		
Central Washington University	Washington																B, C		
Clemson University—Department of Management	South Carolina																B, M, D		
Cleveland State University	Ohio																B, M, C		
Columbus State Community College	Ohio																A, B, C		
Duquesne	Pennsylvania															B, M	B, M, C		
East Carolina University—College of Business	North Carolina							M									B		

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
Elmhurst College	Illinois				B												B, M		
Fairleigh Dickinson University	New Jersey				B		M, C	B					C		B		M		
Forsyth Tech Community College	North Carolina				B			A									A, B, C		
Georgia Southern University	Georgia							B									B, D		
Georgia Tech School of Industrial & Systems Engineering	Georgia																B, M, C		
Georgia Tech Supply Chain & Logistics Institute	Georgia																B, M, D		
Golden Gate University	California & Washington				B, M												C		
Governors State University	Illinois																M		
Illinois Institute of Technology	Illinois							B, M								B, M	B, M		
Illinois Institute of Technology—School of Applied Technology	Illinois																B, M, C		
Indiana State University—Scott College of Business	Indiana																B, M,		
Indiana University—Kelley School of Business	Indiana																B, M		

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
Iowa State	Iowa								B							B	M, C		
Kansas State University	Kansas																B		
Lehigh University	Pennsylvania								B, M							B	B, M, C		
Loyola University	Illinois																B, M, C		
Marquette University	Wisconsin																B, M		
Miami University	Ohio								B							B	B, M		
Michigan State University	Michigan								B, M, D							B, D B	B, M, D, C		
MIT Center for Transportation and Logistics	Massachusetts																M, D		
MIT SCALE Global Network	Massachusetts																M, C		
MIT Sloan Executive Education	Massachusetts																C		
NC State University- Poole College of Management	North Carolina																M, C		
Norco College	California																A, C		
Northeast Wisconsin Technical College	Wisconsin																A, C		
Ohio State University	Ohio						B		B, M, D							B, M, D	B, M, C		

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
Palo Alto College	Texas																A, C		
Penn State University	Pennsylvania						B		A, B							B	B, C		
Purdue University—Krannert School of Management	Indiana																B, M, D		
Shippensburg University	Pennsylvania																B, M, C		
Whitman Syracuse University	New York																B, M, D		
Texas A & M University—Industrial Distribution Program	Texas								B, M, D										
Texas Christian University—Neeley School of Business	Texas																B, M		
University of Akron	Ohio																B, M		
University of Alabama	Alabama								B, M, D							B, M	B, M, D		
University of Alaska Anchorage	Alaska																A, B, M		
University of Arkansas—Walton College of Business	Arkansas																B, D, C		
University of North Florida	Florida				B		B	B	C							B	B		
University of Florida	Florida				B, M			M					C			B	B, M		
Broward College	Florida															B	B		

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
Florida State College at Jacksonville	Florida				B											A, C	B, C		
Polk State College	Florida																A, B, C		
Maritime and Marine Environmental Science Leadership Academy	Florida				V		V	V			V					V			
Port Canaveral Marine Firefighting Training Academy Inc	Florida												V						
Maritime and Science Technology Academy	Florida				HS		HS	HS			HS								
Palm Beach Maritime Academy at West Palm Beach	Florida				HS		HS	HS			HS								
Chapman School of Seamanship at Stuart	Florida						V	V			V					V			
University of Miami	Florida				M, D														
Embry-Riddle Aeronautical University Worldwide at Daytona Beach	Florida				B, M				B, M, D								B, M		
University of West Florida (UWF) at Pensacola	Florida						B												
Nova Southeastern University	Florida				B, M		B									B, M	M		

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
Florida State College at Jacksonville	Florida																A, B, C		
Broward College	Florida																B, C		
Indian River State College	Florida												A, B, C		A				C
University of Central Florida	Florida																		
University of Tampa	Florida				B, M, C											B			
Miami-Dade College	Florida																A, B		
Florida Atlantic University	Florida				B, M, D			B, M, D								B, M			
University of South Florida	Florida				B, M, D		B	B, M, D								B, M, D	B, M		
College of the Florida Keys	Florida				C			A, C					A						
Adams Marine Seminars at Crystal River	Florida						V						V		V				
Sea School at St. Petersburg	Florida				V	V		V		V	V	V	V	V					
Wartsila Land and Sea Academy at Ft. Lauderdale	Florida							V	V			V	V						
Maritime Professional Training at Ft. Lauderdale	Florida				V	V		V	V	V	V	V	V			V			

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
Bluewater Maritime School at Jacksonville	Florida				V	V		V	V	V		V	V	V					
Pinellas Technical College	Florida					V			V										
Wyotech at Daytona	Florida								V										
STAR Center at Dania Beach	Florida				V	V		V	V	V	V	V	V	V		V			
Resolve Maritime Academy at Ft. Lauderdale	Florida							V	V	V	V	V	V						
Manatee Technical College	Florida															V			
Universal Technical Institute at Orlando	Florida							V	V			V	V						
Florida Maritime Training Academy at Ft. Pierce	Florida												V	V	V				
American Yacht Institute at Ft. Lauderdale	Florida									V	V		V		V				
Michigan State University—Eli Broad College of Business	Multiple																	C	
Roadmaster Drivers School, Jacksonville	Florida																		C

	U.S. State Location	MARAD Funded and Operated Maritime Academy	Total Enrollment	Undergrad Enrollment	Maritime Business Administration/International	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation & Systems Engineering	Mechanical Engineering	Deck Officer/Engineering Officer	Maritime Operations/Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations & Technology	Emergency & Facilities Management	Pollution Compliance Seafarers Certificate	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training and Education	Truck and Motor Carrier
Pinellas Technical Education Centers at St. Petersburg	Florida																		C
Florida Coast Career Tech at Jacksonville	Florida																		C
Truck Driver Institute at Sanford	Florida																		C
Orange Technical College	Florida																		C
North Florida Technical College	Florida																		C

Source: Education Institutions Websites, accessed 2023. Links provided in document excel version of matrices

Legend: A = Associates; B = Bachelors; M = Masters; D = Doctoral; V = Vocational; C = Certificate; HS = High School

3.5 Workforce Development Needs

To understand the workforce development needs of the maritime and related industries, an assessment was conducted of projected employer demands and opportunities for expanding education portals in Florida. Table 3, below, identifies areas of potential need in Florida's educational system by synthesizing these projection statistics with educational program areas found in Table 2. Table 4 through Table 8 then follow to show historical and projected employment statistics for Florida. Data was sourced from the Bureau of Labor Statistics²¹ and CareerOneStop²², which is a website sponsored by the U.S. Department of Labor, Employment and Training Administration. These tables include information on wages for each employment sector to demonstrate entry level salary (here represented by the 10th percentile wage), median wage (50th percentile), and upper level salaries (90th percentile). Appendix A provides additional details on the data update approach and methodology and Appendix B provides a detailed description of the role of each employment position.

The employment data from 2020 and 2023 shows reductions for certain jobs across the sectors. This information was verified by reviewing 2020 and 2023 Occupational Employment Statistics (OES) employment data. Many jobs in OES datasets have year-by-year fluctuations that can be attributed to changes in reporting, data management, job-specific matters within an industry (e.g., increased efficiencies), and a number of other reasons. The Railroad Conductors and Yardmasters job category of the Inland Modes and Terminals serves as an example. The 940 employees in 2020²³ decreased to 750 in 2023; however, the same job category noted 870 employees during its 2020 base projection exercise, which was used to calculate future employment numbers. Both numbers show a continuing decline. This example highlights that these statistics are estimates, but, collectively, have value in conveying the general landscape of the Inland Modes and Terminals sector from an employment perspective.

Employment opportunities requiring successful completion of degree programs are mostly concentrated in the maritime operations industry sector, but there are certain degree programs that are more cross-cutting including rail training/education and resource management/environmental science. For the remainder of the five industries training programs involve limited course work and/or field training for entry level employment opportunities. To advance, employees need continued education and certifications or licenses. This represents an opportunity gap that could be addressed by encouraging completion of educational programs prior to seeking entry-level employment or through outreach to entry-level employees seeking advancement.

²¹ Bureau of Labor Statistics, www.bls.gov/oes/tables.htm

²² CareerOneStop, www.careeronestop.org

²³ Bureau of Labor Statistics, <https://www.bls.gov/oes/tables.htm>

TABLE 3. SUMMARY OF JOB CATEGORY

Educational Need by Job Category	Maritime Business Administration/Int'l	Facilities Engineering Technology	Global Studies & Maritime Affairs	Marine Transportation Systems Engineering	Mechanical Engineering	Deck Officer / Engineering Officer	Maritime Operations / Shipyard Management	Power Engineering Technology & Operations	Vessel Design, Operations, & Technology	Emergency & Facilities Management	Pollution Compliance for Seafarers Certificate Program	Marine Resource Management & Environmental Science	Logistics & Supply Chain Management	Rail Training & Education	Truck & Motor Carrier
Maritime Operations	●	●	●	●	●	●			●	●	●	●			
Port Terminal Operations	●	●			●		●			●		●		●	●
Inland Freight & Terminals								●					●	●	●
Distribution and Manufacturing Centers		●											●	●	●
Indirect Maritime	●	●			●			●		●	●	●	●	●	●

3.6 Maritime Operations (Ocean and Inland)

Table 4, below, shows jobs and Florida employment data for the maritime operations industry. The top three jobs related to maritime operations are:

- Captains, mates and pilots of water vessels;
- Sailors & Marine Oilers; and
- Shipping, receiving and traffic clerks.

These three jobs comprise 94 percent of the current jobs in the maritime operations industry. This industry is well ahead of 2030 projections with 15 percent more jobs in 2023 than were expected in 2030. Jobs which have exceeded their projections the most include tank car, truck, & ship loaders, bridge & lock tenders, and captains, mates, and vessel pilots.

Despite an overall increase in employment of 26 percent in this industry, several job types are lagging behind their expected employment levels include dredge operators, ship engineers, and commercial divers. In particular, each of these jobs have lost employees since 2020 and a continued downward trend in these industries could threaten the availability of a workforce. There appears to be ample training available for most of these job categories, although there are limited programs in Florida to educate prospective talent in this area.

Although the lowest starting wages for these positions start at \$25,540 (bridge & lock tenders), three positions have an upper limit of over \$100,000 (captains, mates, and vessel pilots; ship engineers; and marine engineers & naval architects).

TABLE 4. MARITIME OPERATIONS EMPLOYMENT DATA

Job Title	Employment Data (2023)*	Employment Base (2020)**	Growth (2020 —2023)	Employment Projected (2030)**	2023 Percent of 2030 Projection	10 th Percentile Wage	Median (50 th Percentile) Wage	90 th Percentile Wage
Bridge & Lock Tenders	570	200	185%	210	271%	\$25,540	\$34,330	\$53,150
Captains, Mates, and Vessel Pilots	5,010	3,110	61%	3,700	135%	\$35,930	\$77,600	\$133,310
Commercial Divers	330	430	-23%	540	61%	\$44,660	\$56,540	\$78,270
Dredge Operators	50	160	-69%	160	31%	\$37,870	\$54,710	\$99,000
Marine Engineers & Naval Architects	N/A	530	N/A	710	N/A	\$62,470	\$107,230	\$146,880
Motorboat Operators	480	430	12%	550	87%	\$28,500	\$41,320	\$54,160
Sailors & Marine Oilers	1,870	1,780	5%	2,110	89%	\$32,190	\$52,030	\$78,120
Ship Engineers	840	1,510	-44%	1,780	47%	\$64,560	\$101,680	\$134,800
Shipping, Receiving & Inventory Clerks	46,730	36,730	27%	39,390	119%	\$28,890	\$40,080	\$54,480
Tank Car, Truck & Ship Loaders	990	300	230%	350	283%	\$43,740	\$61,710	\$64,970
Total	56,870	45,180	26%	49,500	115%			

*Source: Bureau of Labor Statistics, www.bls.gov/oes/tables.htm. **Source: CareerOneStop.org. Accessed on 11/02/2023

N/A = Data not available

3.7 Port Terminal Operations

Table 5 shows Florida employment data for the Port Terminal industry sector. The top three job categories related to port terminal operations are:

- Transportation, Storage, & Distribution Managers;
- Reservation and transportation ticket agents and travel clerks; and
- Security guards.

These three jobs comprise nearly 78 percent of the current jobs in the port terminal operations industry. This industry has nearly achieved the 2030 projected employment numbers. In this case, all of the jobs are within 69 percent or higher of the 2030 projection. The exception to this is hoist & winch operators which only meet 23 percent of this projection due to a loss of 75 percent of the employment since 2020.

In general, the jobs in this industry could be further supported by educational and training programs in Florida. Although on-the-job training is a primary source of training for many of these jobs, specific vocational programs related to these jobs would assist in further professionalizing this industry.

Salaries for these positions are generally lower than those in maritime operations. The lowest starting salary is \$23,130 (baggage porters & bellhops) and only two positions have an upper salary range over \$100,000 (transportation, storage, & distribution managers; and transportation inspectors). Several positions do not exceed more than \$50,000 per year, even at the highest wage limits.

TABLE 5. PORT TERMINAL OPERATIONS EMPLOYMENT DATA

Job Title	Employment Data (2023)*	Employment Base (2020)**	Growth (2020 —2023)	Employment Projected (2030)**	2023 Percent of 2030 Projection	10 th Percentile Wage	Median (50 th Percentile) Wage	90 th Percentile Wage
Automotive & Watercraft Service Attendant	5,320	5,610	-5%	6,580	81%	\$29,040	\$34,240	\$42,010
Baggage Porters & Bellhops	4,220	3,520	20%	5,000	84%	\$23,130	\$32,460	\$41,010
Conveyor Operators & Tenders	670	590	14%	700	96%	\$31,960	\$36,980	\$47,540
Crane & Tower Operators	2,270	2,780	-18%	3,260	70%	\$39,000	\$63,910	\$84,830
Gas Compressor and Gas Pumping Station Operators***	290	40	625%	50	580%	\$33,410	\$38,660	\$39,130
Hoist & Winch Operators	30	120	-75%	130	23%	\$31,200	\$45,380	\$60,090
Mobile Heavy Equipment Mechanics, Except Engines	9,100	7,910	15%	9,070	100%	\$39,940	\$61,350	\$80,590
Pile-Driver Operators	550	430	28%	500	110%	\$36,880	\$49,490	\$59,330
Rail Car Repairers	380	480	-21%	490	78%	\$37,420	\$54,480	\$62,810
Reservation & Transportation Ticket Agents & Travel Clerks	13,340	10,900	22%	13,220	101%	\$31,380	\$45,230	\$72,600
Security Guards	91,200	81,140	12%	92,410	99%	\$28,210	\$35,980	\$44,290
Transportation Inspectors	1,820	1,720	6%	1,890	96%	\$46,960	\$88,190	\$131,890
Transportation Security Screeners	6,180	6,410	-4%	6,910	89%	\$38,650	\$46,190	\$54,700
Transportation, Storage, & Distribution Managers	10,030	7,530	33%	9,100	110%	\$47,610	\$103,570	\$169,940
Weighers, Measurers, Checkers, & Samplers	2,760	3,210	-14%	4,020	69%	\$30,840	\$41,620	\$50,970
Total	148,160	132,390	12%	153,330	97%			

*Source: Bureau of Labor Statistics, www.bls.gov/oes/tables.htm. **Source: CareerOneStop.org. Accessed on 11/02/2023

***Job Title was Petroleum Pump Station Operators in past reports

3.8 Inland Modes and Terminals

Table 6 shows Florida employment data for the Inland Modes and Terminals industry. The top three job categories related to Inland Modes and Terminals are:

- Railroad Conductors and Yardmasters;
- First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors; and
- Machine feeders and off-bearers.

These three jobs comprise nearly 97 percent of the current jobs in the Inland Modes and Terminals industry.

Similar to port terminal operators, this industry has nearly achieved 2030 projections, largely driven by first-line supervisors of transportation and material moving. This industry is generally well-served by educational opportunities statewide and nationally. There appears to be an opportunity for training front-line supervisors of transportation and material moving workers, especially those seeking advancement in this job category. Training to assist entry-level transportation and material moving workers in obtaining skills necessary for supervisory positions would aid in the upward mobility of Floridians employed in this sector. As a note, 2022 OES data²⁴ indicate there were approximately 807,830 transportation and material moving occupations. Applicable categories in this field have been included throughout these tables.

In regards to salaries, the upper salary range for inland modes and terminals is the lowest of the three categories examined thus far with no positions expected to exceed six figure salaries. However, the starting salaries are generally higher with the lowest expected salary to be \$30,870 (machine feeders and off-bearers).

²⁴ Bureau of Labor Statistics, www.bls.gov/oes/tables.htm. Accessed on 11/02/2023

TABLE 6. INLAND MODES AND TERMINALS EMPLOYMENT DATA

Job Title	Employment Data (2023)*	Employment Base (2020)**	Growth (2020 —2023)	Employment Projected (2030)**	2023 Percent of 2030 Projection	10 th Percentile Wage	Median (50 th Percentile) Wage	90 th Percentile Wage
Electrical and Electronics Installers and Repairers, Transportation Equipment	260	340	-24%	390	67%	\$44,700	\$64,120	\$75,080
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	34,740	29,910	16%	36,900	94%	\$38,420	\$60,930	\$87,760
Locomotive Engineers	420	840	-50%	690	61%	\$55,950	\$74,720	\$90,500
Machine Feeders and Off-Bearers	1,370	1,710	-20%	2,450	56%	\$30,870	\$40,430	\$49,290
Railroad Conductors and Yardmasters	750	940	-20%	770	97%	\$59,190	\$72,070	\$79,000
Rail-Track Laying and Maintenance Equipment Operators	340	N/A	N/A	N/A	N/A	\$46,140	\$59,520	\$71,320
Signal and Track Switch Repairers	260	260	0%	250	104%	\$46,050	\$63,920	\$75,130
Total	38,140	34,000	12%	41,450	92%			

*Source: Bureau of Labor Statistics, www.bls.gov/oes/tables.htm. **Source: CareerOneStop.org. Accessed on 11/02/2023

N/A = Data not available

3.9 Distribution and Manufacturing Centers

Table 7 shows Florida employment data for the Distribution and Manufacturing Centers industry. The top three job categories related to Distribution and Manufacturing Centers are:

- Heavy and Tractor-Trailer Truck Drivers;
- Industrial Truck and Tractor Operators; and
- Light Truck Drivers.

These three job titles make up 86 percent of the Distribution and Manufacturing Centers industry. Again employment is within range of 2030 projections. With growth of 10 percent between 2020 and 2030, this industry is well in line with expected employment.

The largest job categories in this industry are drivers and truck operators. These jobs can require anywhere from three weeks to six months of training²⁵ prior to obtaining a CDL license. Though there may be some independent programs for truck driver training, many truck carrier companies offer training to prospective drivers.

²⁵ Schneider, <https://schneiderjobs.com/blog/how-long-does-it-take-to-get-cdl>.

Logisticians are a diverse group of professionals that can work in numerous areas and have a variety of credentials. For example, some logisticians manage origins and destinations for products, while others may work in purchasing, inventory, or warehousing. Many logisticians require some form of higher education in logistics and supply chain management.²⁶ Most of Florida's higher education institutions have specializations for logistics and supply chain management in their business schools.

Florida appears to have the educational offerings needed to train a workforce in Distribution and Manufacturing Centers employment areas; however, as innovations are made in distribution and manufacturing centers (e.g., process automation, autonomous trucking, drone parcel delivery), the educational needs of this industry could evolve. It will be important to ensure educational offerings remain relevant to the impending transformations of this industry.

In regards to salary, most positions start below \$45,000 with the lowest starting at \$27,700 (light truck drivers). Logisticians are expected to have the highest salary potential with an upper range of \$122,970.

TABLE 7. DISTRIBUTION AND MANUFACTURING CENTERS EMPLOYMENT DATA

Job Title	Employment Data (2023)*	Employment Base (2020)**	Growth (2020 —2023)	Employment Projected (2030)**	2023 Percent of 2030 Projection	10 th Percentile Wage	Median (50 th Percentile) Wage	90 th Percentile Wage
Cargo & Freight Agents	8,450	8,710	-3%	10,670	79%	\$35,340	\$55,170	\$84,290
Dispatchers, Except Police, Fire, Amb	14,360	11,720	23%	13,410	107%	\$29,890	\$44,920	\$64,480
Heavy & Tractor-Trailer Truck Drivers	101,920	95,750	6%	114,140	89%	\$37,450	\$52,760	\$72,170
Industrial Truck & Tractor Operators	31,850	29,970	6%	40,910	78%	\$33,690	\$43,790	\$59,970
Light Truck Drivers***	72,460	63,420	14%	77,210	94%	\$27,700	\$44,060	\$67,240
Logisticians	11,520	8,300	39%	9,900	116%	\$45,120	\$77,960	\$122,970
Total	240,560	217,870	10%	266,240	90%			

*Source: Bureau of Labor Statistics, www.bls.gov/oes/tables.htm. **Source: CareerOneStop.org. Accessed on 11/02/2023

***Job Title was Light Truck/Delivery Services Drivers in past reports

3.10 Indirect Maritime Employment

Table 8, below, shows Florida employment data for indirect maritime employment. Florida's maritime and related industries require a vast network of professions to remain competitive. The job categories displayed in this table show a sample of the professions these industries support. Overall these industries have increased by 8 percent since 2020.

²⁶ Bureau of Labor Statistics, Occupational Outlook Handbook, <https://www.bls.gov/ooh/business-and-financial/logisticians.htm>.

Florida’s educational institutions widely support the education and training of indirect maritime workforce. Some of these institutions are non-traditional, such as the Commercial Diving Academy (CDA) Technical Institute, which assists prospective talent with obtaining an underwater welding certification.²⁷

Some of the professions listed (e.g., cement masons, fence erectors, travel agents) appear to only require on-the-job training for entry-level positions. As noted previously, advancement opportunities may be limited for such professions without further education or training. Therefore, there may be an opportunity for Florida’s educational apparatus to conduct outreach that matches entry-level workers in these jobs with training opportunities that provide them the knowledge and certifications for upward mobility.

Due to the number of job types included here, the salary range is broader than the other employment categories. Salaries begin at \$27,730 (transportation worker, all others) and go up to \$230,880 (general & operations manager).

TABLE 8. INDIRECT MARITIME EMPLOYMENT DATA

Job Title	Employment Data (2023)*	Employment Base (2020)**	Growth (2020 —2023)	Employment Projected (2030)**	2023 Percent of 2030 Projection	10 th Percentile Wage	Median (50 th Percentile) Wage	90 th Percentile Wage
Architectural & Civil Drafters	8,460	6,750	25%	8,110	104%	\$36,710	\$60,330	\$85,650
Architectural & Engineering Managers	7,160	7,460	-4%	9,060	79%	\$102,460	\$164,220	\$222,340
Cement Masons & Concrete Finishers	15,680	14,470	8%	16,750	94%	\$35,700	\$47,850	\$62,400
Chemical Engineers	170	350	-51%	400	43%	\$75,000	\$107,300	\$140,630
Chemical Equip Operators & Tenders	3,090	1,230	151%	1,320	234%	\$32,940	\$50,460	\$64,430
Chief Executives	18,840	30,300	-38%	31,200	60%	\$72,020	\$248,690	N/A
Civil Engineers	18,130	16,750	8%	20,490	88%	\$60,010	\$101,660	\$163,370
Conservation Scientists	660	590	12%	660	100%	\$31,120	\$59,640	\$99,380
Construction & Building Inspectors	12,050	10,710	13%	12,280	98%	\$42,910	\$66,130	\$91,580
Construction Laborers	69,690	96,140	-28%	116,020	60%	\$28,780	\$40,680	\$51,380
Construction Managers	26,720	34,480	-23%	42,320	63%	\$60,380	\$118,530	\$177,890
Cost Estimators	14,750	12,940	14%	14,530	102%	\$39,640	\$72,800	\$113,420
Economists	480	570	-16%	690	70%	\$39,300	\$104,730	\$174,250
Electric Motor, Power Tool, & Related Repairers	1,160	1,090	6%	1340	87%	\$35,880	\$48,580	\$62,580

²⁷ CDA Technical Institute, <https://www.commercialdivingacademy.com/available-certifications.cms>.

Job Title	Employment Data (2023)*	Employment Base (2020)**	Growth (2020 —2023)	Employment Projected (2030)**	2023 Percent of 2030 Projection	10 th Percentile Wage	Median (50 th Percentile) Wage	90 th Percentile Wage
Electric/Electronics Engineering Technologists and Technicians	5,690	6,610	-14%	7,880	72%	\$44,830	\$65,540	\$89,810
Electric/Electronics Repairers, Commercial & Industrial Equipment	3,860	2,590	49%	2,900	133%	\$38,100	\$59,170	\$79,350
Electrical Engineers	6,710	6,980	-4%	8,660	77%	\$63,340	\$105,050	\$159,170
Electricians	46,690	46,150	1%	54,990	85%	\$37,490	\$52,380	\$64,660
Engine & Other Machine Assemblers	840	N/A	N/A	N/A	N/A	\$35,510	\$45,980	\$66,570
Engineering Techs, Except Drafters, All Other	2,470	N/A	N/A	N/A	N/A	\$36,860	\$68,430	\$106,670
Engineers, All Other	8,080	N/A	N/A	N/A	N/A	\$49,980	\$102,500	\$161,050
Environmental Engineering Techs	580	900	-36%	1160	50%	\$36,630	\$52,610	\$76,110
Environmental Engineers	1,380	1,940	-29%	2,290	60%	\$37,670	\$89,490	\$150,470
Environmental Science & Protection Techs, Including Health	2,350	1,910	23%	2,260	104%	\$29,740	\$50,170	\$83,420
Excavating & Loading Machine & Dragline Operators	1,990	2,500	-20%	2,840	70%	\$36,710	\$50,180	\$65,890
Executive Secretaries & Executive Administrative Assistants	21,850	23,690	-8%	21,420	102%	\$40,190	\$69,410	\$99,250
Fence Erectors	1,760	2,000	-12%	2,300	77%	\$32,160	\$48,380	\$64,260
General & Operations Managers	203,090	142,390	43%	172,210	118%	\$46,480	\$130,720	\$230,880
Information Security Analysts	12,840	7,680	67%	11,670	110%	\$67,410	\$113,020	\$165,990
Maintenance & Repair Workers, Gen.	102,700	104,430	-2%	126,590	81%	\$29,790	\$43,960	\$61,600
Maintenance Workers, Machinery	2,720	1,650	65%	2,020	135%	\$36,780	\$56,750	\$86,000
Market Research Analysts & Specialists	55,760	45,770	22%	63,330	88%	\$40,000	\$80,830	\$130,870
Marketing Managers	17,420	12,840	36%	15,890	110%	\$69,890	\$155,990	N/A
Motorboat Mechanics & Service Tech	4,290	3,630	18%	4,420	97%	\$36,690	\$54,440	\$76,770

Job Title	Employment Data (2023)*	Employment Base (2020)**	Growth (2020 —2023)	Employment Projected (2030)**	2023 Percent of 2030 Projection	10 th Percentile Wage	Median (50 th Percentile) Wage	90 th Percentile Wage
Operating Engineers & Other Construction Equipment Operators	27,540	23,200	19%	26,250	105%	\$35,830	\$57,570	\$85,010
Outdoor Power Equipment & Other Small Engine Mechanics	3,970	2,130	86%	2,560	155%	\$30,050	\$42,860	\$55,570
Riggers	1,030	980	5%	1,220	84%	\$35,530	\$51,290	\$73,880
Structural Iron & Steel Workers	2,350	3,110	-24%	3,780	62%	\$36,000	\$51,390	\$70,500
Structural Metal Fabricators/Fitters	2,150	2,800	-23%	2,800	77%	\$34,320	\$48,010	\$64,210
Surveying & Mapping Techs	4,290	4,570	-6%	5,570	77%	\$34,320	\$48,150	\$66,810
Surveyors	3,720	3,580	4%	4,340	86%	\$38,550	\$66,440	\$104,770
Transportation Workers, All Other	220	N/A	N/A	N/A	N/A	\$27,730	\$45,580	\$78,300
Travel Agents	9,350	9,590	-3%	11,210	83%	\$29,350	\$46,540	\$64,960
Welders, Cutters, Solderers, Brazers	15,130	14,460	5%	17,180	88%	\$35,710	\$49,250	\$64,600
Welding, Soldering, Brazing Machine Setters, Operators, & Tenders	N/A	550	N/A	590	N/A	\$33,490	\$39,830	\$54,150
Total	769,250	712,460	8%	853,500	90%			

*Source: Bureau of Labor Statistics, www.bls.gov/oes/tables.htm. **Source: CareerOneStop.org. Accessed on 11/02/2023

N/A = Data not available

3.11 Employment Demands Summary

Table 9 summarizes the existing and future employment data of these industries and related professions. Currently, there are more than 1.2 million jobs in maritime and related industries in Florida. More than 100,000 additional jobs are expected in these sectors by 2030. Each of these industries, including the indirect maritime jobs, show strong growth potential and have nearly met or exceeded the 2030 projections signifying a stronger than expected growth in maritime and related industries.

TABLE 9. SUMMARY OF EXISTING AND FUTURE EMPLOYMENT DATA

Job Category	2023 Employment	2020 Base Employment	Growth (2020—2023)	Projected (2030)**	2023 Percent of 2030 Projection
Maritime Operations	56,870	45,180	26%	49,500	115%
Port Terminal Operations	148,160	132,390	12%	153,330	97%
Inland Modes and Terminals	38,140	34,000	12%	41,450	92%
Distribution & Manufacturing Centers	240,560	217,870	10%	266,240	90%
Indirect Maritime Jobs	769,250	712,460	8%	853,500	90%
Total	1,252,980	1,141,900	10%	1,364,020	92%

SUMMARY OF FINDINGS



The Department remains focused on growing Florida as an international trade hub with countries to the East, West, and South, as well as expanding domestic trade. Florida seaports support more than 900,000 high-paying direct and indirect jobs, which generate nearly \$117.6 billion total economic value and contribute \$4.3 billion in state and local taxes. In the next ten years, as shown in Table 9 above, it is projected that Florida seaports will support at least 100,000 more jobs. Florida's growing population and visitor needs will continue to rely on maritime jobs for goods and services. As demonstrated in Section 3, these industries are growing faster than expected and most have nearly reached the 2030 projections as of 2023.

Supporting growth in these employment sectors requires evaluation of the existing employment landscape, educational offerings, and potential gaps. As discussed throughout this document, there are sufficient programs nationally to support a highly skilled and educated workforce. Florida also has many programs and trainings available to prospective talent; however, there were a few key gaps identified within this assessment including increasing visibility of seaport and related industry career paths, establishing means for connecting with talent that is seeking advancement, keeping pace with evolving industry needs and practices, and increasing access to training.

Some Florida seaports have instituted measures to increase their visibility among prospective talent; however, it can also be difficult to find information on seaport career paths without industry knowledge and knowing where to look. Florida seaport administrators have an opportunity to increase visibility on seaport career paths through a variety of methods including outreach at educational centers and development of literature (e.g., brochures, webpages) to connect with prospective talent. Furthermore, increased coordination with CareerSource Florida, DOE, and FloridaCommerce to identify new or existing ways of reaching talent could assist in recruitment efforts.

Another theme within this document is availability of training to increase individual career advancement and economic self-sufficiency. Prospective talent can gain training while employed or prior to employment in most cases. From a systemwide perspective, Florida has many educational offerings across the state; however, certain specializations might only be found in Florida's most populated areas. The challenge that emerges is how to ensure employees seeking career advancement can obtain training regardless of their location. There is not a single well-defined answer to this issue, but industry partners will need to ensure access to training to retain talent.

With Florida's many transportation initiatives to grow freight and related facilities, the need to meet the workforce demands of seaports and intermodal logistic facilities is critical. Understanding and meeting the growing needs could support tens of thousands of high paying jobs for Florida residents. This ensures that Florida will continue to serve its shippers, manufacturers, distribution centers and customers in an efficient and cost-effective manner.

RECOMMENDATIONS



Based on the review of existing employment, educational facilities, and Florida’s capacity for workforce development, recommendations were developed to support the maritime industry. These recommendations are intended to be foundational, and there will be a continuous need for industry, educational institutions, and other partners to maintain and improve educational offerings for these industries. These recommendations are aligned with the goals of the *Maritime Administration Mariner Workforce Strategic Plan, FY 2023 —FY 2027*.²⁸

- *Goal 1: Strengthen mariner workforce development programs.*
 - » Expand workforce development programs that maintain or supplement workers’ skillsets and competencies.
 - » Formalize partnerships and increase visibility of current workforce development initiatives.
 - » Encourage the development of new mariner apprenticeship programs.
- *Goal 2: Support maritime education and training institutions.*
 - » Adopt education, training and employment outreach elements or sections in Florida’s deepwater seaport strategic master plan updates.
 - » Investigate opportunities with public-private partnerships, to provide educational offerings for seaport, supply chain, and logistics personnel.
 - » Partner with high schools, colleges, universities, and vocational schools near Florida Seaports to encourage curriculum that prepares students for work in the seaport transportation and logistics fields.
 - » Support the maintenance of education and training programs whose curricula aligns with the summary of job categories as shown in Table 3.
 - » Look for opportunities for partners to utilize the Seaport Employment Training Grant Program.²⁹
 - » Consider the need and potential for the U.S. Department of Transportation, Maritime Administration and Florida to develop a new Maritime Academy in Florida.

²⁸ *Maritime Administration Mariner Workforce Strategic Plan, FY 2023 to FY 2027*. U.S. DOT. August 2023. <https://www.maritime.dot.gov/maritime-workforce/mariner-workforce-strategic-plan>

²⁹ *2023 Florida Statutes*. The Florida Senate. <https://www.flsenate.gov/Laws/Statutes/2023/311.11>

- *Goal 3: Ensure a sufficient, skilled mariner workforce for national security.*
 - » Create actionable items for underserved industries to develop additional workforce.
 - » Coordinate with MARAD to identify potential pilot programs to support national security needs.
- *Goal 4: Support maritime innovation.*
 - » Encourage the inclusion of emerging technology subject matter in the curricula of maritime education and training institutions.
 - » Position Florida as a leader in maritime innovation and research.
 - » Work with private industry to understand emerging maritime technologies.
 - » Support training programs for the existing workforce on new technologies.

DATA UPDATES APPROACH AND METHODOLOGY



Research was conducted on the current stakeholders for this study, including the Florida Seaport Transportation and Economic Development Council, U.S. Department of Labor, the Florida Department of Education, CareerSource Florida, and the Florida Chamber of Commerce. Research was completed seeking current visions and strategies to determine if selected stakeholders have areas of interest to related maritime education or have areas where they agree or overlap on how to move forward to provide related workforce trainings. The educational opportunities included: on-the-job trainings, apprenticeships, and maritime educational academies and institutions. A sample was also taken to determine what actual jobs were available and needed for Florida in the maritime field.

The current educational matrix was updated to include the different levels of education that are available at each of the institutions, such as High School, Vocational Training, Associate Degree, Bachelor's Degree, Master Degree, Doctorate Degree, and Certificate of Completion. The matrix included the types of professions in the Maritime Field and then whether there was an Educational Institution that offered this type of education needed to achieve the profession. This was necessary to determine where further educational needs may be needed. Website research was completed on each maritime educational institution in the U.S.

Occupational Data was pulled from the BLS website to determine which "Transportation and Material Moving Occupations" would be included in the matrix (https://www.bls.gov/oes/current/oes_fl.htm). It was determined that this would only include the Maritime Direct Worker positions.

Employment numbers were accessed via www.CareerStopOne.org to show what professions were showing an increase or decrease in demand.

DESCRIPTIONS OF MARITIME WORKFORCE JOBS



Table 10 through Table 14 provide the job descriptions for each of the maritime workforce jobs included in Section 3.

TABLE 10. MARITIME OPERATIONS EMPLOYMENT DESCRIPTION

Job Title	Job Description
Bridge & Lock Tenders	Operate and tend bridges, canal locks, and lighthouses to permit marine passage on inland waterways, near shores, and at danger points in waterway passages. May supervise such operations. Includes drawbridge operators, lock operators, and slip bridge operators.
Captains, Mates, and Vessel Pilots	Command or supervise operations of ships and water vessels, such as tugboats and ferryboats. Required to hold license issued by U.S. Coast Guard. Excludes "Motorboat Operators."
Commercial Divers	Work below surface of water, using surface-supplied air or scuba equipment to inspect, repair, remove, or install equipment and structures. May use a variety of power and hand tools, such as drills, sledgehammers, torches, and welding equipment. May conduct tests or experiments, rig explosives, or photograph structures or marine life. Excludes "Athletes and Sports Competitors," "Police and Sheriff's Patrol Officers," and "Fishing and Hunting Workers."
Dredge Operators	Operate dredge to remove sand, gravel, or other materials in order to excavate and maintain navigable channels in waterways.
Marine Engineers & Naval Architects	Design, develop, and evaluate the operation of marine vessels, ship machinery, and related equipment, such as power supply and propulsion systems.
Motorboat Operators	Operate small motor-driven boats. May assist in navigational activities.
Sailors & Marine Oilers	Stand watch to look for obstructions in path of vessel, measure water depth, turn wheel on bridge, or use emergency equipment as directed by captain, mate, or pilot. Break out, rig, overhaul, and store cargo-handling gear, stationary rigging, and running gear. Perform a variety of maintenance tasks to preserve the painted surface of the ship and to maintain line and ship equipment. Must hold government-issued certification and tankerman certification when working aboard liquid-carrying vessels. Includes able seamen and ordinary seamen.
Ship Engineers	Supervise and coordinate activities of crew engaged in operating and maintaining engines, boilers, deck machinery, and electrical, sanitary, and refrigeration equipment aboard ship. Excludes "Engineers."
Shipping, Receiving & Inventory Clerks	Verify and maintain records on incoming and outgoing shipments involving inventory. Duties include verifying and recording incoming merchandise or material and arranging for the transportation of products. May prepare items for shipment. Excludes "Weighers, Measurers, Checkers, and Samplers, Recordkeeping," "Mail Clerks and Mail Machine Operators, except Postal Service," and "Stockers and Order Fillers."
Tank Car, Truck & Ship Loaders	Load and unload chemicals and bulk solids, such as coal, sand, and grain, into or from tank cars, trucks, or ships, using material moving equipment. May perform a variety of other tasks relating to shipment of products. May gauge or sample shipping tanks and test them for leaks.

Source: Bureau of Labor Statistics.

TABLE 11. PORT TERMINAL OPERATIONS EMPLOYMENT DESCRIPTION

Job Title	Job Description
Automotive & Watercraft Service Attendant	Service automobiles, buses, trucks, boats, and other automotive or marine vehicles with fuel, lubricants, and accessories. Collect payment for services and supplies. May lubricate vehicle, change motor oil, refill antifreeze, or replace lights or other accessories, such as windshield wiper blades or fan belts. May repair or replace tires. Excludes "Cashiers."
Baggage Porters & Bellhops	Handle baggage for travelers at transportation terminals or for guests at hotels or similar establishments.
Conveyor Operators & Tenders	Control or tend conveyors or conveyor systems that move materials or products to and from stockpiles, processing stations, departments, or vehicles. May control speed and routing of materials or products.
Crane & Tower Operators	Operate mechanical boom and cable or tower and cable equipment to lift and move materials, machines, or products in many directions.
Gas Compressor and Gas Pumping Station Operators	Operate steam-, gas-, electric motor-, or internal combustion-engine driven compressors. Transmit, compress, or recover gases, such as butane, nitrogen, hydrogen, and natural gas.
Hoist & Winch Operators	Operate or tend hoists or winches to lift and pull loads using power-operated cable equipment. Excludes "Crane and Tower Operators."
Mobile Heavy Equipment Mechanics, Except Engines	Diagnose, adjust, repair, or overhaul mobile mechanical, hydraulic, and pneumatic equipment, such as cranes, bulldozers, graders, and conveyors, used in construction, logging, and mining. Excludes "Bus and Truck Mechanics and Diesel Engine Specialists" and "Rail Car Repairers."
Pile-Driver Operators	Operate pile drivers mounted on skids, barges, crawler treads, or locomotive cranes to drive pilings for retaining walls, bulkheads, and foundations of structures such as buildings, bridges, and piers.
Rail Car Repairers	Diagnose, adjust, repair, or overhaul railroad rolling stock, mine cars, or mass transit rail cars. Excludes "Bus and Truck Mechanics and Diesel Engine Specialists."
Reservation & Transportation Ticket Agents & Travel Clerks	Make and confirm reservations for transportation or lodging, or sell transportation tickets. May check baggage and direct passengers to designated concourse, pier, or track; deliver tickets and contact individuals and groups to inform them of package tours; or provide tourists with travel or transportation information. Excludes "Cashiers," "Travel Agents," and "Hotel, Motel, and Resort Desk Clerks" who sell tickets for local transportation.
Security Guards	Guard, patrol, or monitor premises to prevent theft, violence, or infractions of rules. May operate x-ray and metal detector equipment. Excludes "Police Officers" and "Transportation Security Screeners."
Transportation Inspectors	Inspect equipment or goods in connection with the safe transport of cargo or people. Includes rail transportation inspectors, such as freight inspectors, rail inspectors, and other inspectors of transportation vehicles not elsewhere classified. Excludes "Transportation Security Screeners."
Transportation Security Screeners	Conduct screening of passengers, baggage, or cargo to ensure compliance with Transportation Security Administration (TSA) regulations. May operate basic security equipment such as x-ray machines and hand wands at screening checkpoints.
Transportation, Storage, & Distribution Managers	Plan, direct, or coordinate transportation, storage, or distribution activities in accordance with organizational policies and applicable government laws or regulations. Includes logistics managers.
Weighers, Measurers, Checkers, & Samplers	Weigh, measure, and check materials, supplies, and equipment for the purpose of keeping relevant records. Duties are primarily clerical by nature. Includes workers who collect and keep record of samples of products or materials. Excludes "Inspectors, Testers, Sorters, Samplers, and Weighers."

Source: Bureau of Labor Statistics.

TABLE 12. INLAND MODES AND TERMINALS EMPLOYMENT DESCRIPTION

Job Title	Job Description
Electrical and Electronics Installers and Repairers, Transportation Equipment	Install, adjust, or maintain mobile electronics communication equipment, including sound, sonar, security, navigation, and surveillance systems on trains, watercraft, or other mobile equipment. Excludes "Avionics Technicians" and "Electronic Equipment Installers and Repairers, Motor Vehicles"
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	This occupation includes the 2018 SOC occupations 53-1042 First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand; 53-1043 First-Line Supervisors of Material-Moving Machine and Vehicle Operators; 53-1044 First-Line Supervisors of Passenger Attendants; and 53-1049 First-Line Supervisors of Transportation Workers, All Other.
Locomotive Engineers	Drive electric, diesel-electric, steam, or gas-turbine-electric locomotives to transport passengers or freight. Interpret train orders, electronic or manual signals, and railroad rules and regulations. Excludes "Engineers."
Machine Feeders and Off-Bearers	Feed materials into or remove materials from machines or equipment that is automatic or tended by other workers.
Railroad Conductors and Yardmasters	Coordinate activities of switch-engine crew within railroad yard, industrial plant, or similar location. Conductors coordinate activities of train crew on passenger or freight trains. Yardmasters review train schedules and switching orders and coordinate activities of workers engaged in railroad traffic operations, such as the makeup or breakup of trains and yard switching.
Rail-Track Laying and Maintenance Equipment Operators	Lay, repair, and maintain track for standard or narrow-gauge railroad equipment used in regular railroad service or in plant yards, quarries, sand and gravel pits, and mines. Includes ballast cleaning machine operators and railroad bed tamping machine operators.
Signal and Track Switch Repairers	Install, inspect, test, maintain, or repair electric gate crossings, signals, signal equipment, track switches, section lines, or intercommunications systems within a railroad system.

Source: Bureau of Labor Statistics.

TABLE 13. DISTRIBUTION AND MANUFACTURING CENTERS EMPLOYMENT DESCRIPTION

Job Title	Job Description
Cargo & Freight Agents	Expedite and route movement of incoming and outgoing cargo and freight shipments in airline, train, and trucking terminals and shipping docks. Take orders from customers and arrange pickup of freight and cargo for delivery to loading platform. Prepare and examine bills of lading to determine shipping charges and tariffs.
Dispatchers, Except Police, Fire, Amb	Schedule and dispatch workers, work crews, equipment, or service vehicles for conveyance of materials, freight, or passengers, or for normal installation, service, or emergency repairs rendered outside the place of business. Duties may include using radio, telephone, or computer to transmit assignments and compiling statistics and reports on work progress.
Heavy & Tractor-Trailer Truck Drivers	Drive a tractor-trailer combination or a truck with a capacity of at least 26,001 pounds Gross Vehicle Weight (GVW). May be required to unload truck. Requires commercial drivers' license. Includes tow truck drivers. Excludes "Refuse and Recyclable Material Collectors."
Industrial Truck & Tractor Operators	Operate industrial trucks or tractors equipped to move materials around a warehouse, storage yard, factory, construction site, or similar location. Excludes "Logging Equipment Operators."
Light Truck Drivers	Drive a light vehicle, such as a truck or van, with a capacity of less than 26,001 pounds Gross Vehicle Weight (GVW), primarily to pick up merchandise or packages from a distribution center and deliver. May load and unload vehicle. Excludes "Couriers and Messengers" and "Driver/Sales Workers."

Job Title	Job Description
Logisticians	Analyze and coordinate the ongoing logistical functions of a firm or organization. Responsible for the entire life cycle of a product, including acquisition, distribution, internal allocation, delivery, and final disposal of resources. Excludes "Transportation, Storage, and Distribution Managers" and "Project Management Specialists."

Source: Bureau of Labor Statistics.

TABLE 14. INDIRECT MARITIME EMPLOYMENT DESCRIPTION

Job Title	Job Description
Architectural & Civil Drafters	Prepare detailed drawings of architectural and structural features of buildings or drawings and topographical relief maps used in civil engineering projects, such as highways, bridges, and public works. Use knowledge of building materials, engineering practices, and mathematics to complete drawings.
Architectural & Engineering Managers	Plan, direct, or coordinate activities in such fields as architecture and engineering or research and development in these fields. Excludes "Natural Sciences Managers."
Cement Masons & Concrete Finishers	Smooth and finish surfaces of poured concrete, such as floors, walks, sidewalks, roads, or curbs using a variety of hand and power tools. Align forms for sidewalks, curbs, or gutters; patch voids; and use saws to cut expansion joints. Installers of mortarless segmental concrete masonry wall units are classified in "Landscaping and Groundskeeping Workers."
Chemical Engineers	Design chemical plant equipment and devise processes for manufacturing chemicals and products, such as gasoline, synthetic rubber, plastics, detergents, cement, paper, and pulp, by applying principles and technology of chemistry, physics, and engineering.
Chemical Equip Operators & Tenders	Operate or tend equipment to control chemical changes or reactions in the processing of industrial or consumer products. Equipment used includes devulcanizers, steam-jacketed kettles, and reactor vessels. Excludes "Chemical Plant and System Operators."
Chief Executives	Determine and formulate policies and provide overall direction of companies or private and public sector organizations within guidelines set up by a board of directors or similar governing body. Plan, direct, or coordinate operational activities at the highest level of management with the help of subordinate executives and staff managers.
Civil Engineers	Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems. Includes architectural, structural, traffic, and geotechnical engineers. Excludes "Hydrologists."
Conservation Scientists	Manage, improve, and protect natural resources to maximize their use without damaging the environment. May conduct soil surveys and develop plans to eliminate soil erosion or to protect rangelands. May instruct farmers, agricultural production managers, or ranchers in best ways to use crop rotation, contour plowing, or terracing to conserve soil and water; in the number and kind of livestock and forage plants best suited to particular ranges; and in range and farm improvements, such as fencing and reservoirs for stock watering. Excludes "Zoologists and Wildlife Biologists" and "Foresters."
Construction & Building Inspectors	Inspect structures using engineering skills to determine structural soundness and compliance with specifications, building codes, and other regulations. Inspections may be general in nature or may be limited to a specific area, such as electrical systems or plumbing.
Construction Laborers	Perform tasks involving physical labor at construction sites. May operate hand and power tools of all types: air hammers, earth tampers, cement mixers, small mechanical hoists, surveying and measuring equipment, and a variety of other equipment and instruments. May clean and prepare sites, dig

Job Title	Job Description
	trenches, set braces to support the sides of excavations, erect scaffolding, and clean up rubble, debris, and other waste materials. May assist other craft workers. Construction laborers who primarily assist a particular craft worker are classified under "Helpers, Construction Trades." Excludes "Hazardous Materials Removal Workers."
Construction Managers	Plan, direct, or coordinate, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems. Participate in the conceptual development of a construction project and oversee its organization, scheduling, budgeting, and implementation. Includes managers in specialized construction fields, such as carpentry or plumbing.
Cost Estimators	Prepare cost estimates for product manufacturing, construction projects, or services to aid management in bidding on or determining price of product or service. May specialize according to particular service performed or type of product manufactured.
Economists	Conduct research, prepare reports, or formulate plans to address economic problems related to the production and distribution of goods and services or monetary and fiscal policy. May collect and process economic and statistical data using sampling techniques and econometric methods. Excludes "Market Research Analysts and Marketing Specialists."
Electric Motor, Power Tool, & Related Repairers	Repair, maintain, or install electric motors, wiring, or switches.
Electric/Electronics Engineering Technologists and Technicians	Apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, adjust, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions. Excludes "Broadcast Technicians."
Electric/Electronics Repairers, Commercial & Industrial Equipment	Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas. Excludes "Avionics Technicians," "Electrical and Electronics Installers and Repairers, Transportation Equipment," and "Electronic Equipment Installers and Repairers, Motor Vehicles."
Electrical Engineers	Research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use. Excludes "Computer Hardware Engineers."
Electricians	Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems. Excludes "Security and Fire Alarm Systems Installers."
Engine & Other Machine Assemblers	Construct, assemble, or rebuild machines, such as engines, turbines, and similar equipment used in such industries as construction, extraction, textiles, and paper manufacturing.
Engineering Techs, Except Drafters, All Other	All engineering technologists and technicians, except drafters, not listed separately.
Engineers, All Other	All engineers not listed separately. Excludes "Sales Engineers," "Locomotive Engineers," and "Ship Engineers."
Environmental Engineering Techs	Apply theory and principles of environmental engineering to modify, test, and operate equipment and devices used in the prevention, control, and remediation of environmental problems, including waste treatment and site remediation, under the direction of engineering staff or scientists. May assist in the development of environmental remediation devices.
Environmental Engineers	Research, design, plan, or perform engineering duties in the prevention, control, and remediation of environmental hazards using various engineering disciplines. Work may include waste treatment, site remediation, or pollution control technology.

Job Title	Job Description
Environmental Science & Protection Techs, Including Health	Perform laboratory and field tests to monitor the environment and investigate sources of pollution, including those that affect health, under the direction of an environmental scientist, engineer, or other specialist. May collect samples of gases, soil, water, and other materials for testing.
Excavating & Loading Machine & Dragline Operators	Operate or tend machinery at surface mining site, equipped with scoops, shovels, or buckets to excavate and load loose materials.
Executive Secretaries & Executive Administrative Assistants	Provide high-level administrative support by conducting research, preparing statistical reports, and handling information requests, as well as performing routine administrative functions such as preparing correspondence, receiving visitors, arranging conference calls, and scheduling meetings. May also train and supervise lower-level clerical staff. Excludes "Secretaries."
Fence Erectors	Erect and repair fences and fence gates, using hand and power tools.
General & Operations Managers	Plan, direct, or coordinate the operations of public or private sector organizations, overseeing multiple departments or locations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. Usually manage through subordinate supervisors. Excludes First-Line Supervisors.
Information Security Analysts	Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. Assess system vulnerabilities for security risks and propose and implement risk mitigation strategies. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses. Excludes "Computer Network Architects."
Maintenance & Repair Workers, Gen.	Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of a building in repair. Duties may involve pipe fitting; HVAC maintenance; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs. Excludes "Facilities Managers" and "Maintenance Workers, Machinery."
Maintenance Workers, Machinery	Lubricate machinery, change parts, or perform other routine machinery maintenance. Excludes "Maintenance and Repair Workers, General."
Market Research Analysts & Specialists	Research conditions in local, regional, national, or online markets. Gather information to determine potential sales of a product or service, or plan a marketing or advertising campaign. May gather information on competitors, prices, sales, and methods of marketing and distribution. May employ search marketing tactics, analyze web metrics, and develop recommendations to increase search engine ranking and visibility to target markets. Excludes "Web and Digital Interface Designers," "Art Directors," "Graphic Designers," and "Public Relations Specialists."
Marketing Managers	Plan, direct, or coordinate marketing policies and programs, such as determining the demand for products and services offered by a firm and its competitors, and identify potential customers. Develop pricing strategies with the goal of maximizing the firm's profits or share of the market while ensuring the firm's customers are satisfied. Oversee product development or monitor trends that indicate the need for new products and services.
Motorboat Mechanics & Service Tech	Repair and adjust electrical and mechanical equipment of inboard or inboard-outboard boat engines. Excludes "Bus and Truck Mechanics and Diesel Engine Specialists."
Operating Engineers & Other Construction Equipment Operators	Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. May repair and maintain equipment in addition to other duties. Excludes "Extraction Workers" and "Crane and Tower Operators."

Job Title	Job Description
Outdoor Power Equipment & Other Small Engine Mechanics	Diagnose, adjust, repair, or overhaul small engines used to power lawn mowers, chain saws, recreational sporting equipment, and related equipment.
Riggers	Set up or repair rigging for construction projects, manufacturing plants, logging yards, ships and shipyards, or for the entertainment industry.
Structural Iron & Steel Workers	Raise, place, and unite iron or steel girders, columns, and other structural members to form completed structures or structural frameworks. May erect metal storage tanks and assemble prefabricated metal buildings. Excludes "Reinforcing Iron and Rebar Workers."
Structural Metal Fabricators/Fitters	Fabricate, position, align, and fit parts of structural metal products. Shipfitters are included in "Layout Workers, Metal and Plastic."
Surveying & Mapping Techs	Perform surveying and mapping duties, usually under the direction of an engineer, surveyor, cartographer, or photogrammetrist, to obtain data used for construction, mapmaking, boundary location, mining, or other purposes. May calculate mapmaking information and create maps from source data, such as surveying notes, aerial photography, satellite data, or other maps to show topographical features, political boundaries, and other features. May verify accuracy and completeness of maps. Excludes "Cartographers and Photogrammetrists," "Surveyors," and "Geoscientists, Except Hydrologists and Geographers."
Surveyors	Make exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes.
Transportation Workers, All Other	All transportation workers not listed separately.
Travel Agents	Plan and sell transportation and accommodations for customers. Determine destination, modes of transportation, travel dates, costs, and accommodations required. May also describe, plan, and arrange itineraries and sell tour packages. May assist in resolving clients' travel problems.
Welders, Cutters, Solderers, Brazers	Use hand-welding, flame-cutting, hand-soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.
Welding, Soldering, Brazing Machine Setters, Operators, & Tenders	Set up, operate, or tend welding, soldering, or brazing machines or robots that weld, braze, solder, or heat treat metal products, components, or assemblies. Includes workers who operate laser cutters or laser-beam machines.

Source: Bureau of Labor Statistics

PORT INTERNSHIP AND APPRENTICESHIP PROGRAMS



Table 15 provides a summary of port-led internship and apprenticeship programs, including participating educational institutions and focus areas.

TABLE 15. PORT INTERNSHIP AND APPRENTICESHIP PROGRAMS

Port	Educational Initiatives	Focus Areas	Partners
Port Canaveral	The Canaveral Port Authority Internship Program (paid). The Canaveral Port Authority Junior Ambassador Program.	Port operations, logistics, maritime security, cruise and leisure, cargo, engineering and public administration areas.	Local colleges and Brevard County high schools.
Port Everglades	Internship program.	Port operations, environmental compliance.	Florida Atlantic University, Hampton University, Florida International University, University of Miami, Broward College, Nova Southeastern University
Port of Fort Pierce	Aims to initiate a skilled trade program.		Indian River State College
JAXPORT	The JAXPORT EXPRESS Program	Zero-emissions equipment and technologies.	Higher education institutions in Northeast Florida
Port of Pensacola	Port provides the facility (Warehouse #8) to run a mechanical program.		University of West Florida
Port of Palm Beach	Eight-week internship program		High schools and colleges in Palm Beach County.
PortMiami	Apprenticeship programs. Paid on-the-job training and classroom instruction to prepare maritime industry workers. Career days.	Trade and logistics, construction trades, diesel systems, diesel off-road maintenance, commercial refrigeration technicians.	Miami Dade College. Miami-Dade County Public Schools' Office of Postsecondary Career and Technical Education. Companies in the maritime industry.
Port Tampa Bay	Internship program	Maritime government, finance, business development, engineering.	

Source: Florida Department of Transportation and Florida Ports Council, Florida Seaport Annual Data Collection, 2024.



S E A P O R T S
