



Marine Industry Skill Gaps & Job Vacancy Survey



**Miami-Dade, Broward, Monroe, and
Palm Beach Counties**

2018

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Executive Summary

The Marine Industry Skills Gap and Job Vacancy Survey was designed to provide a statistically valid analysis of the nature of skills gaps in the three counties in the Miami-Fort Lauderdale-West Palm Beach Metropolitan Statistical Area (MSA) for the marine industry cluster. The existence of skills gaps has been a matter of much discussion among employer groups, industry associations, labor economists, and in the workforce system. To research skills gaps, CareerSource Florida, in coordination with CareerSource Broward, funded a pilot project survey conducted in 2016 by the Florida Department of Economic Opportunity (DEO), Bureau of Labor Market Statistics (LMS). The pilot survey was successful and LMS now has the capability to conduct these types of surveys for different geographic and custom industry configurations. Building on deep knowledge and experience in conducting local job vacancy surveys, LMS designed a survey instrument that collected skills gaps and job vacancies along with the attributes of vacancies. A total of 31 individual skills gaps could be collected based on seven broad skills questions.

The final survey results measured 1,352 job vacancies with the largest number of vacancies being in the *Deep Sea Passenger Transportation* industry. The number of hard skills gaps reported were lower than those for soft skills however, the ratio of soft to hard skills gaps was much less than for the entire state across all industries. Information technology/research related skills ranked first among hard skills gaps while leadership ranked first among soft skills gaps. There were an estimated 1,335 total weighted gaps within the industry cluster.

The *Support Activities for Water Transportation* industry had the highest gap per vacancy measure for soft skills, while *Sporting Goods and Merchant Wholesalers* had the highest measure of gap per vacancy for hard skills of all the detailed industries in the marine cluster. The *Construction and Extraction* major occupation group reported the most soft skills gaps per vacancy. The *Installation, Maintenance, and Repair* major occupation group reported the most hard skills gaps per vacancy. Employers without gaps were asked how they avoided skills gaps in hiring, recruitment, training, and retention. More than one-third of the skills gap mitigation responses indicated that applicants are screened carefully before hiring. Next, the most used gap mitigation technique was to retain high skilled/productive staff.

According to these employers, skills gaps are found across a wide range of occupations and education levels in these labor markets. As such, the survey results provide one of the clearest signals from marine industry employers to the workforce, education, and economic development partnerships about employers' skills needs. Skills are a key to a growth economy and a viable labor market for employees, students, and jobseekers.

Upgraded skills will help Florida's workers and employees be more competitive in the production of the goods and services demanded by state, national, and international economies. The results of enhanced skills to Florida's workers will include better wages, increased wage gains, higher rates of job retention, broader opportunities for career advancement, and more stable and rewarding career pathways. For the workforce and education partnerships, enhancements made to wraparound services, training, and curriculum developed from gap results could make the workforce and education systems much more effective in meeting the skills needs of private-sector employers. The skills gap survey results contain enough actionable data to inform both individual workers and the industries (and employers) who need higher skilled workers.

Marine Industry Survey of Skills Gaps and Job Vacancies

Survey Goals

The purpose of the survey was to collect labor market information on the marine industry cluster for each of the three counties in the Miami-Fort Lauderdale-West Palm Beach MSA. The counties that comprise the MSA are Miami-Dade, Broward, and Palm Beach. The survey was designed to collect job vacancies and vacancy attributes in the MSA with skills gaps and to identify whether gaps are soft skills such as reliability/time management, communication-related, leadership, problem-solving or hard skills such as math, technology/research, and workplace-related skills such as safety. Though job vacancy data were collected, the major focus of the survey was on skills gaps. The survey was also intended to provide insights on how businesses mitigate against skills gaps in hiring, retention, and staff development. By following the basic design and methods of prior Job Vacancy/Hiring Needs Surveys, LMS was able to capitalize on experiences gained to collect and analyze skills gap data.

The final results were designed to be actionable, enabling workforce, economic development, and education partners to modify their operations and service delivery to be more aligned to meet the skills needs of private-sector employers in the marine industry.

Background

The marine industry is a critical component in the economies and labor markets of Southeast Florida. This industry cluster provides goods and services to several parts of the economy. Boat and ship manufacturing is one of the major goods-producing components to the marine industry. This industry provides boats for the recreational market and repair and fitting services for the commercial shipping market. Intracoastal and deep-water transportation services deliver the goods needed by the Florida economy while marinas and cruise lines support tourism and recreational services. There are approximately 1,800 employers in this industry representing 28,000 direct jobs in the MSA.

One of the latest innovations in data collection to support employers is skills gap research. CareerSource Broward has been a state leader in its support of Job Vacancy/Hiring Needs surveys and in promoting skills gap research. To further serve Broward County employers, CareerSource Broward agreed to host a pilot project in 2016 to collect skills gaps. The pilot survey was successful and solved all the major technical issues with reporting and estimating skills gaps. Because of this success, LMS was able to proceed with the full statewide survey of all 24 Local Workforce Development Areas in 2017. This survey and study was one of the largest efforts to date addressing the issue of skills gaps in the labor market. The Marine Industry Skills Gap and Job Vacancy Survey builds on these experiences; however, this was the first skills gap study targeting an industry cluster.

Sample Frame and Selection

The survey sample was drawn from a file of employers covered by Florida's Reemployment Assistance law using U.S. Bureau of Labor Statistics (BLS) methods and software. The sample included only private-sector establishments, and was stratified by six size classes within detailed North American Industry Classification System (NAICS) industries. The marine industry cluster consists of twenty separate detailed (six-digit NAICS) industries. These are provided in Appendix II. Each of the three counties had separate samples drawn from the universe of establishments in the cluster industries. Establishments were selected at random within the size/industry strata, except for large firms (250+ employment) of which all were included. All establishments in the fishing industry in the three-county area were also included in the survey. Utilizing this methodology resulted in a representative sample for each county and industry size strata. Each sample member was assigned



a strata code (combination of industry and size) and a weight (the count of total establishments divided by the number of sample establishments in each strata) that was used to produce the final estimates. A total of 844 establishments were in the final cluster sample.

Survey Instrument Design

A search of other skills gap surveys helped to identify effective survey structures and viable questionnaire wording for skills gaps. The final survey design conformed to widely-used questions from job vacancy surveys, with skills gap questions added. The survey instrument was designed to first collect job vacancies, along with vacancy attributes, with a structured loop from the vacancy questions to address the skills gap questions. This provided a direct link between active job vacancies and the barriers to filling them. The gap questions were divided into seven major skills groups and then broken down further into soft and hard skills. The final design of 19 soft skills and 10 hard skills with an additional open-ended “other” skills gap selection for each. If an establishment reported no gaps, they were asked how gaps were avoided in hiring, retention, and recruitment (gap mitigation). There were four gap mitigation choices and an “other” mitigation category. If the establishment reported no vacancies, they were asked if they were experiencing skills gaps in any occupations for which they had no current vacancies. If they reported yes, they were asked to identify the occupations and related skills gaps. See Appendix I for the final survey questions.

Data Collection

The survey data collection was conducted by DEO contractor, Oppenheim Research. The survey was conducted by phone using CATI technology. This method of data collection has proven response times, provides excellent sample control, and allows for monitoring with minimal employer burden.

Estimation of Vacancies and Skills Gaps

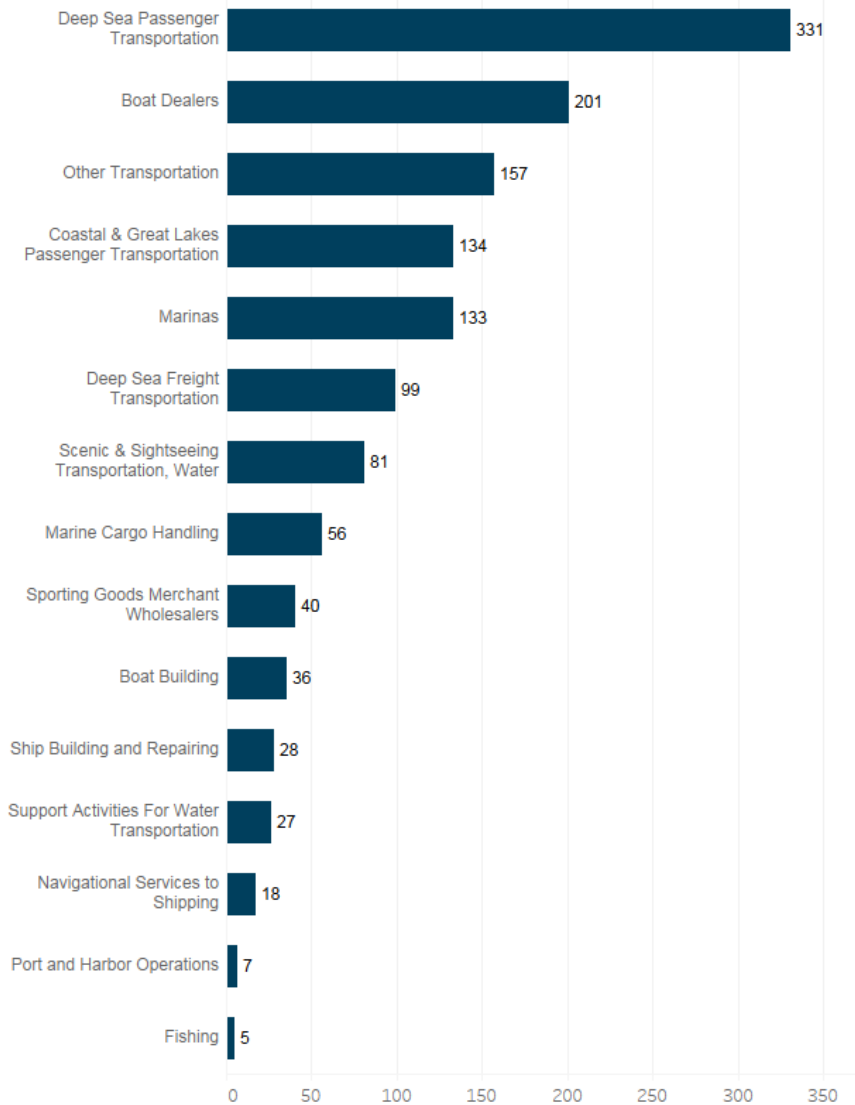
All the sample establishments in the survey were assigned an estimating stratum that was based on the parameters set when the sample was designed and selected. For example, one of the strata in size class 1 of an industry, contained 224 employers. The sample selection software indicated that 10 employers were needed to represent this stratum. Consequently, this stratum was assigned a weight of 22.4 (224/10) when the sample was selected using BLS software. When the job vacancy, attributes, gaps, and gap mitigation data were collected by an establishment, they were arrayed by estimating strata and each numeric response was multiplied by the weight. Additional weighting was applied due to survey nonresponse within the estimating strata. The goal was to account for all survey units and employment originally found in all the size/industry estimating strata. The final estimate for occupational vacancies was the aggregate weighted estimate for the occupation by estimating strata. Vacancy attributes (full-time/part-time, temporary/permanent, experience requirements, etc.), skills gaps, and gap mitigations were weighted and aggregated the same way. All data reported were subjected to extensive review including coding, proper data format, and adherence to data definitions.

Final estimates for skills gaps were calculated. The total number of skills gaps could be high as they represented responses for all establishments in an area. Job vacancy data were calculated as the number of estimated vacancies by occupation and these could be combined to provide data by occupational group or industry.

Job Vacancies

Figure 1 shows estimated vacancies by detailed industry. Most of the vacancies were in *Deep Sea Passenger Transportation* (331) followed by *Boat Dealers* (201). *Other Transportation Goods Merchant Wholesalers* ranked third with 157 estimated job vacancies. There were 1,352 estimated job vacancies across all cluster industries in the three county MSA.

**Figure 1
Job Vacancies by Industry**



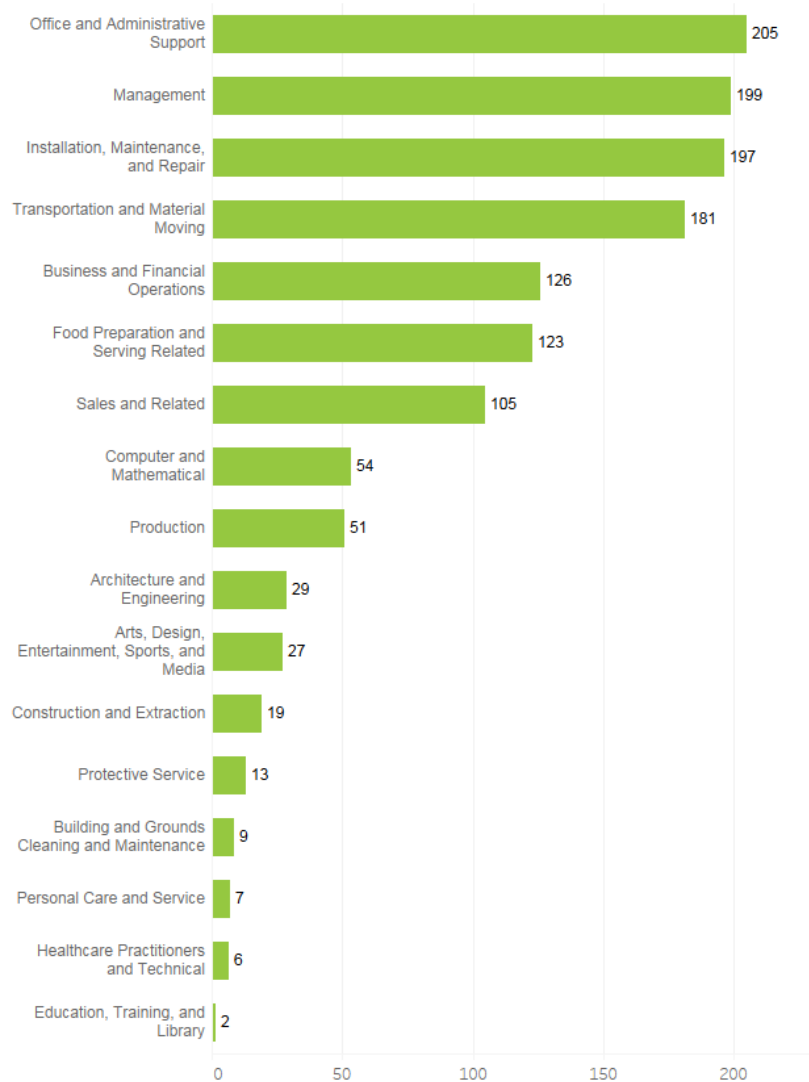
Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics

The Standard Occupational Classification (SOC) system is used by government agencies to assist in the collection and analysis of occupational data. The two-digit SOC codes are used in reporting aggregate occupations at the broadest SOC level (major occupational groups). Figure 2 shows the 10 major occupational groups in the marine cluster with the most vacancies. Office and administrative support occupations had the most vacancies (205) followed by management occupations (199). Installation, maintenance and repair



occupations ranked third (197 vacancies). Note that the top two major occupational groups by vacancy contain occupations used by all industries in the marine cluster.

Figure 2
Job Vacancies by Major Occupational Group



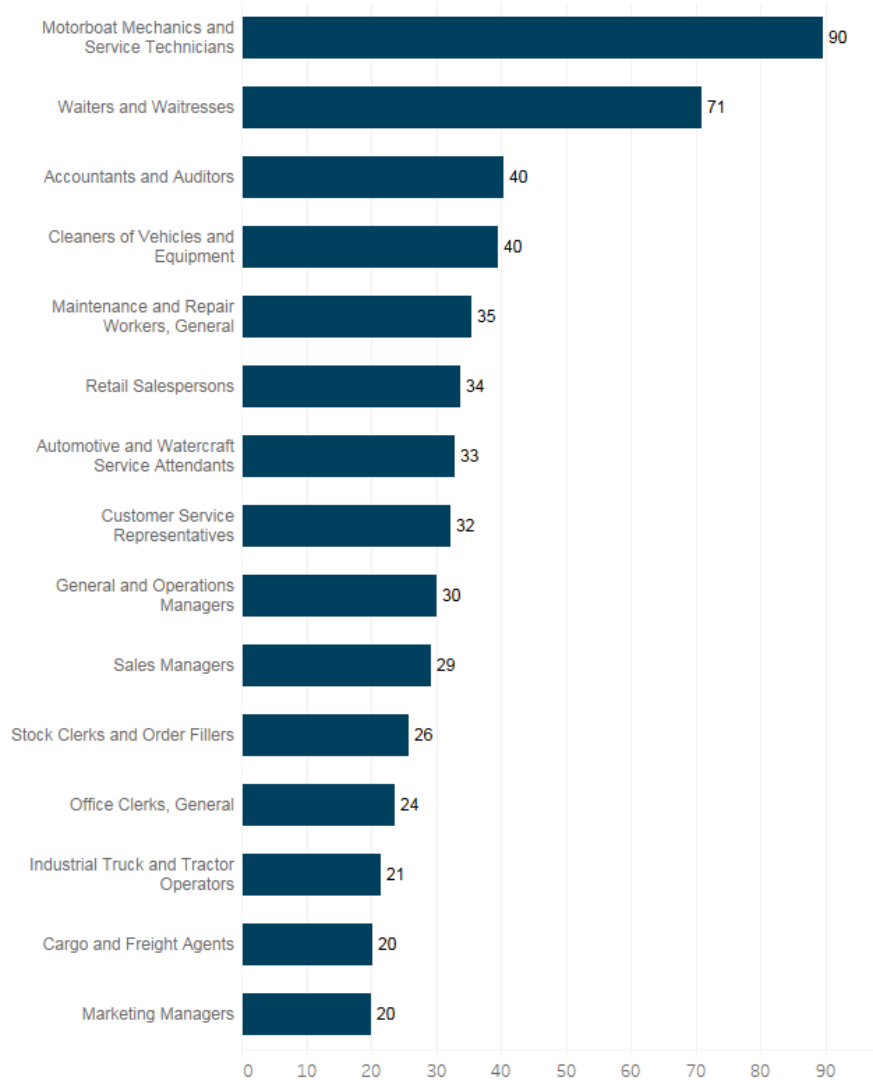
Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics

Figure 3 shows the 15 occupations in the marine industry cluster with the most vacancies. Examining occupations by estimated vacancies measures the demand for the knowledge, skills, and abilities (KSAs) within the occupation. These are the KSAs needed by employers to deliver the goods and services produced by the marine industry cluster and in demand by the economy. The first occupation is highly concentrated in the marine cluster, *Motorboat Mechanics and Service Technicians* with 90 vacancies followed by *Waiters and*



Waitresses (71 vacancies) and *Accountants and Auditors* (40 vacancies). The last two occupations are more likely to work in a variety of industries within the marine cluster.

Figure 3
Top 15 Occupations by Vacancy



Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics

Job Vacancy Attributes

The attributes of job vacancies were also collected along with the number of vacancies. Attributes included permanent/temporary status, full-time/part-time, required experience in years and whether the job required a certification or license, how long the vacancy had been open (in days), and the education requirement specified by the employer. Attributes were important since they provided more detailed information about the nature



of the vacancy. Vacancies open for an extended length could be classified as hard-to-fill and possibly in shortage, while education requirements specify what the employer specifically needs. This was an important measure and provided better indication of employer-based needs. Overall, the marine industry in the three-county MSA had much higher educational requirements than all industries across the state in addition to having a slightly higher share of permanent positions. Educational requirements were much higher in MSA marine industries than all industries in the state, and a higher percent of marine vacancies were open between 30 and 59 days and for more than 60 days (indicating that they may be harder to fill).

Table 1A Permanent/Temporary Status of Vacancies		
Description	Estimated Vacancies	Percent
Permanent	1,315	97.3%
Temporary/Seasonal	37	2.7%
Total	1,352	100%

Source: Marine Industry Skills Gap & Job Vacancy Survey,
Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
Values may not sum to the total due to rounding.

Table 1B Full-Time/Part-Time Status of Vacancies		
Description	Estimated Vacancies	Percent
Full-Time	1,246	92.2%
Part-Time	105	7.8%
Total	1,352	100%

Source: Marine Industry Skills Gap and Job Vacancy Survey,
Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
Values may not sum to the total due to rounding.

A clear majority of marine cluster vacancies (92.2 percent) were for full-time positions, as shown in Table 1B. Nearly one-third required between one and two years of experience, as shown in Table 1C. Over five years of experience was required for 21.7 percent of vacancies.

Table 1C Experience Requirement of Vacancies		
Experience	Estimated Vacancies	Percent
Less than 1 year required	144	10.6%
1-2 years required	414	30.6%
3-4 years required	171	12.7%
Over 5 years required	294	21.7%
Not reported	329	24.3%
Total	1,352	100%

Source: Marine Industry Skills Gap and Job Vacancy Survey,
Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
Values may not sum to the total due to rounding.

Table 1D Certificate/License Requirement of Vacancies		
Certificate/License	Estimated Vacancies	Percent
Certificate Required	355	26.3%
No Certificate Required	996	73.7%
Total	1,352	100%

Source: Marine Industry Skills Gap and Job Vacancy Survey,
Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
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Almost three in four of reported vacancies (73.7 percent) required no certificate or license requirement (996) and under one-third of vacancies (406) were open for less than 30 days, as reported in Tables 1D and 1E. Of total vacancies, 15.7 percent or 212 were open for more than 60 days. Employers were always recruiting and hiring for 6.4 percent of vacancies, while 38.7 percent did not define the length of the vacancy.



Table 1E		
Length of Vacancies		
Length Vacant	Estimated Vacancies	Percent
Less than 30 days	406	30.1%
Between 30 and 59 days	123	9.1%
More than 60 days	212	15.7%
Always recruiting/hiring	87	6.4%
Not Specified	524	38.7%
Total	1,352	100%

Source: Marine Industry Skills Gap and Job Vacancy Survey,
 Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
 Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
 Values may not sum to the total due to rounding.

Table 1F shows the minimum education level required for the reported vacancies. The most frequent education requirement of vacancies reported was for high school or GED (30.3 percent), followed by a bachelor's degree (27.5 percent). A total of 42.4 percent of the reported vacancies required an education level beyond high school. This is much higher than the percent requiring education above high school for the entire state across all private-sector industries (28.1 percent).

Table 1F		
Education Requirement of Vacancies		
Education Level	Estimated Vacancies	Percent
No Education Requirement	153	11.3%
High School / GED	409	30.3%
Vocational or Technical Training	119	8.8%
Associate's Degree	66	4.9%
Bachelor's Degree	372	27.5%
Advanced Degree	16	1.2%
Not Specified	216	16.0%
Total	1,352	100%

Source: Marine Industry Skills Gap and Job Vacancy Survey,
 Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
 Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
 Values may not sum to the total due to rounding.



Skills Gaps

Employers reported skills gaps in applicants applying for vacancies from a list of four major soft skills groups and three major hard skills groups. These were estimated like vacancies with the sample weight and nonresponse adjustments applied to provide gap totals for all gap measures across all employers in the private sector. These were then converted to a skills gap per vacancy by dividing by the number of vacancies in each industry, occupational group, and occupation. Each major soft and hard skills gap group was comprised of detailed skills. For example, the major soft skills gap group Reliability and Time Management included the detailed skills of Attendance, Meeting Deadlines, and Dependability. Figure 4 displays a list of detailed skills categories that make up each major skills gap group. The “other soft skills” and “other hard skills” fields provided respondents with the opportunity to write in skills gaps that they experienced, but felt that they did not fit into any of the predefined categories.

Figure 4 Soft/ Hard Skills Gaps of Job Applicants	
Soft Skills	Hard Skills
<p>Reliability and Time Management</p> <ul style="list-style-type: none"> Attendance Meeting Deadlines Dependability <p>Communication</p> <ul style="list-style-type: none"> Interpersonal Reading and Writing Phone Etiquette Customer Service Sales Active Listening Following Directions <p>Leadership</p> <ul style="list-style-type: none"> Management Team Work/ Team Participation Initiative Motivation Entrepreneurial/ Business Ideas <p>Problem-Solving</p> <ul style="list-style-type: none"> Critical Thinking Analytical Research Trouble-Shooting <p>Other Soft Skills</p>	<p>Math</p> <ul style="list-style-type: none"> Arithmetic Accounting/ Bookkeeping Logic Job-Specific Mathematics Requirements <p>Information Technology or Research</p> <ul style="list-style-type: none"> Computer/ Information Technology Usage System-Specific Job Related Research Electrical/ Electronic <p>Workplace</p> <ul style="list-style-type: none"> Tool Use and Selection Safety Skills <p>Other Hard Skills</p>

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistic

Gap Mitigation

Marine industry employers reported a higher proportion of skills gaps as compared with the Statewide Skills Gap & Job Vacancy survey of all private industries. This indicates that the marine industry had a harder time filling vacancies. If employers reported no skills gaps, they were asked how they avoided gaps in hiring, training, and retention. Four options were available to report gap mitigation (screen applicants carefully, then hire; hire and then train or upskill; retain high skill/productive staff; contract out/outsource).

Across all marine cluster industries, careful screening practices, used by 98.9 percent of employers, and retaining valuable staff (96.5 percent of employers) were the most favored techniques. Outsourcing was the least used gap mitigation method (6.6 percent).

Table 2
Skills Gap Mitigation by Industry

Industry	Screen Applicants Carefully, Then Hire	Hire and Then Train or Upskill	Retain High Skill/Productive Staff	Contract Out or Outsource	Other Methods
Boat Building	100.0%	100.0%	100.0%	40.0%	-
Boat Dealers	100.0%	96.6%	96.6%	24.1%	-
Coastal & Great Lakes Passenger Transportation	100.0%	100.0%	100.0%	-	-
Deep Sea Freight Transportation	100.0%	100.0%	100.0%	-	-
Deep Sea Passenger Transportation	96.2%	48.4%	96.2%	-	-
Fishing	100.0%	100.0%	100.0%	50.0%	-
Marinas	100.0%	88.9%	85.2%	18.5%	-
Marine Cargo Handling	100.0%	100.0%	100.0%	-	-
Other transportation goods merchant wholesale	100.0%	60.0%	96.7%	10.0%	-
Port and Harbor Operations	100.0%	100.0%	100.0%	-	-
Scenic & Sightseeing Transportation, Water	100.0%	100.0%	100.0%	-	-
Ship Building and Repairing	100.0%	50.0%	50.0%	50.0%	-
Sporting goods merchant wholesalers	100.0%	100.0%	100.0%	16.7%	-
Support Activities For Water Transportation	100.0%	100.0%	100.0%	-	-

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
 Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
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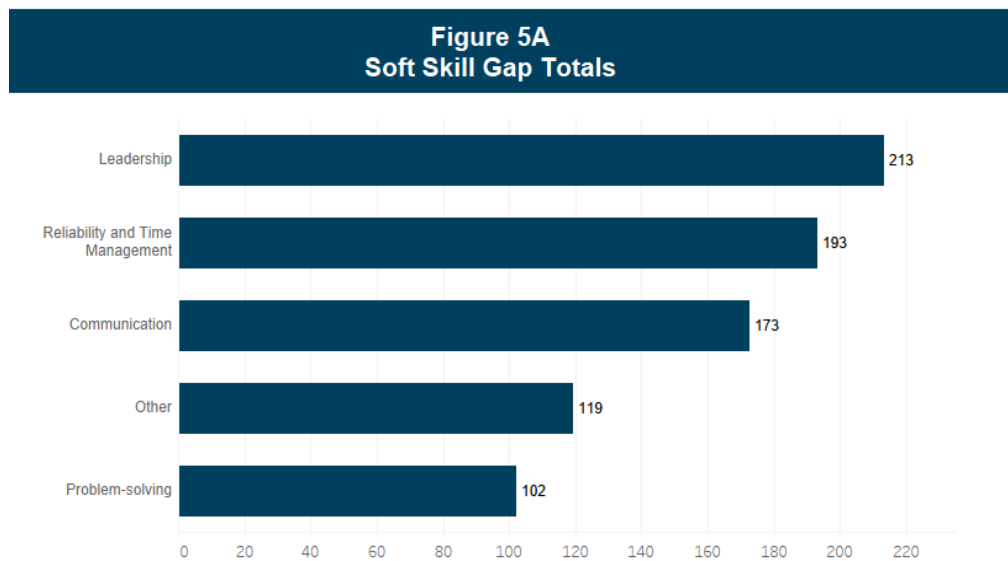
The top 25 occupations, by ratio of skills gap scores to vacancies available for the occupation, were also evaluated. *Security Guards* were ranked the highest by this metric, with an overall score of 3.04 gaps to every vacancy, followed by *Shipping, Receiving, and Traffic Clerks* (2.87). Employers of both occupations typically used screening, training, or upskilling and then retention as a way of mitigating skills gaps. For the top 25



occupations, careful screening was the most frequently reported gap mitigation method, followed by retention methods. Outsourcing was the least frequently reported mitigation technique by industry, however, outsourcing was used extensively to provide gap mitigation for two occupations: *Motorboat Mechanics* and *Security Guards*.

Gap Measurement

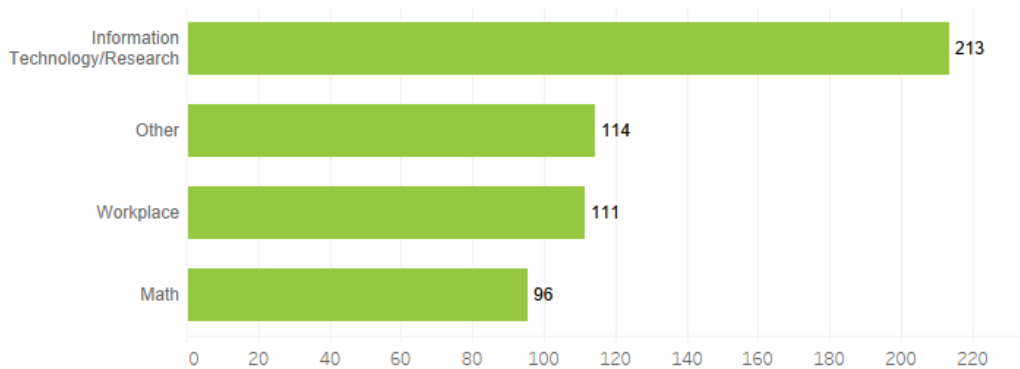
Figure 5A reports the frequency of occurrence for soft skills gaps in the marine industry cluster. Communication-related skills as well as reliability and time management were the most significant soft skills gaps reported in Florida. Gaps in leadership skills occurred in 14.2 percent of all vacancies and gaps in reliability and time management skills occurred in 12.8 percent of all vacancies.



Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
Values may not sum to the total due to rounding.

Figure 5B reports the rate of occurrence of hard skills gaps in the marine industry cluster. Gaps in hard skills were reported less frequently than gaps in soft skills. Information technology/research-related skills represented the largest estimated hard skills gaps across all sectors, with skills gaps occurring in 14.2 percent of vacancies.

**Figure 5B
Hard Skill Gap Totals**



Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
 Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
 Values may not sum to the total due to rounding.

Among employers reporting skills gaps, the ratio of soft skills to hard skills gaps was 1.49 compared to the statewide all private industry ratio of 2.86. Hard skills gaps are therefore much more prevalent in the marine industry cluster than in the private-sector part of the state labor market.

Table 3A reports the rate of occurrence of soft skills gaps by detailed industry. The number in the column “Number of Skills Gaps per Vacancy” indicates the average number of soft skills gaps per vacancy reported. For example, the two industries that reported the largest overall gaps per vacancy were *Support Activities for Water Transportation* (1.82) and *Boat Building* (1.43).

The percent in each skills column can be interpreted as the percent of vacancies in which a skills gap had been reported in each industry listed. For example, 69.6 percent of the job vacancies in the *Boat Building* industry had reported leadership skills gaps compared to the 24.2 percent of the job vacancies in the *Boat Dealers* industry.

The industries that most frequently reported leadership gaps were *Support Activities for Water Transportation* (63.6 percent) and *Boat Building* (69.6 percent). Of all the detailed industries, *Navigational Services to Shipping* had the largest soft skills gap rates in the areas of reliability and time management (66.7 percent). *Boat Building* had the highest percent of communication-related gaps (43.5 percent). Problem-solving skills gaps occurred less frequently than the four other soft skills gaps.

Table 3A
Percent of Vacancies with Soft Skills Gaps by Industry

Industry	Communication	Reliability and Time Management	Leadership	Problem-Solving	Other	Number of Skills Gaps per Vacancy
Support Activities For Water Transportation	27.3%	63.6%	63.6%	9.1%	18.2%	1.82
Boat Building	43.5%	8.7%	69.6%	-	21.7%	1.43
Sporting goods merchant wholesalers	17.6%	41.2%	11.8%	11.8%	29.4%	1.12
Boat Dealers	27.4%	19.4%	24.2%	17.7%	8.1%	0.97
Other transportation goods merchant wholesale	10.9%	19.6%	26.1%	13.0%	17.4%	0.87
Navigational Services to Shipping	16.7%	66.7%	-	-	-	0.83
Ship Building and Repairing	-	15.4%	23.1%	7.7%	23.1%	0.69
Marinas	7.5%	10.0%	10.0%	10.0%	15.0%	0.53
Deep Sea Freight Transportation	4.7%	4.7%	4.7%	-	-	0.14
Deep Sea Passenger Transportation	4.1%	3.1%	3.1%	2.6%	-	0.13
Scenic & Sightseeing Transportation, Water	7.7%	-	-	-	-	0.08
Coastal & Great Lakes Passenger Transp.	1.1%	-	1.1%	-	-	0.02

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
 Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
 Values may not sum to the total due to rounding.

Table 3B reports the rate of occurrence of hard skills gaps by detailed marine industry. *Sporting Goods Merchant Wholesalers* and *Boat Dealers* reported the largest overall numbers of gaps per vacancy at 1.24 and 0.98 hard skills gaps per vacancy, respectively. The hard skills gaps reported by *Sporting Goods Merchant Wholesalers* and *Boat Dealers* firms were driven by information technology/research-related gaps as well as other skills. *Boat Dealers* had the highest percent of vacancies among all marine industries with math-related hard skills gaps (19.4 percent).

Table 3B
Percent of Vacancies with Hard Skills Gaps by Industry

Industry	Information Technology/ Research	Workplace-Related	Math	Other	Number of Skills Gaps per Vacancy
Sporting goods merchant wholesalers	58.8%	17.6%	11.8%	35.3%	1.24
Boat Dealers	35.5%	25.8%	19.4%	17.7%	0.98
Ship Building and Repairing	15.4%	15.4%	-	46.2%	0.77
Support Activities For Water Transportation	36.4%	-	9.1%	9.1%	0.55
Navigational Services to Shipping	16.7%	16.7%	-	16.7%	0.50
Other transportation goods merchant wholesale	15.2%	10.9%	10.9%	4.3%	0.41
Boat Building	4.3%	-	8.7%	17.4%	0.30
Marine Cargo Handling	10.7%	7.1%	-	3.6%	0.21
Marinas	5.0%	2.5%	-	2.5%	0.10
Deep Sea Freight Transportation	4.7%	-	4.7%	-	0.09
Deep Sea Passenger Transportation	4.1%	1.0%	3.1%	0.5%	0.09

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
 Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
 Values may not sum to the total due to rounding.



Skills Gaps by Major Occupational Group

Table 4A breaks down the soft skills gaps by each major occupational group. Because of the concentration of occupations in the marine cluster, only 12 of the 22 major occupational groups reported soft skills data in the survey.

Construction and Extraction Occupations had the largest ratio of total soft skills gaps to vacancies with 1.03 gaps per vacancy. Gaps in leadership, reliability, and time management were the most frequent for this occupation group, with employers reporting that 52.7 percent of vacancies featured a gap for the former and 34.8 percent for the latter. *Production Occupations* had the second-highest ratio of total gaps per vacancy with 1.02. Gaps in reliability and time management (26.7 percent) followed by leadership-related skills (25.4 percent) were the most frequent for this occupation group. *Transportation and Material Moving Occupations* had the third-highest ratio of total soft skills gaps to vacancies with 1.01 gaps per vacancy, followed by *Sales and Related Occupations* with 0.92 gaps per vacancy. Gaps in leadership skills were the most commonly cited soft skills gap for *Transportation and Material Moving Occupations*, with 29.2 percent of vacancies experiencing such a gap. The second-highest percent for soft skills gaps on the table is for communication-related skills in *Building and Grounds Cleaning and Maintenance Occupations* (40.9 percent).

Major Occupational Group	Communication	Reliability and Time Management	Leadership	Problem-Solving	Other	Number of Skills Gaps per Vacancy
Construction and Extraction Occupations	-	34.8%	52.7%	-	15.6%	1.03
Production Occupations	20.8%	26.7%	25.4%	9.1%	20.4%	1.02
Transportation and Material Moving Occupations	25.1%	25.6%	29.2%	12.9%	8.5%	1.01
Sales and Related Occupations	19.4%	19.9%	18.6%	13.0%	21.0%	0.92
Architecture and Engineering Occupations	13.5%	13.5%	13.5%	13.5%	-	0.54
Installation, Maintenance, and Repair Occupations	7.5%	14.3%	15.1%	8.5%	6.3%	0.52
Office and Administrative Support Occupations	13.6%	7.0%	13.9%	1.7%	12.2%	0.48
Protective Service Occupations	-	-	22.5%	-	22.5%	0.45
Building and Grounds Cleaning and Maintenance Occupations	40.9%	-	-	-	-	0.41
Food Preparation and Serving Related Occupations	9.3%	9.3%	-	9.3%	-	0.28
Business and Financial Operations Occupations	5.5%	5.5%	8.3%	5.5%	2.8%	0.28
Management Occupations	3.3%	5.5%	3.3%	3.3%	2.2%	0.18

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics

Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.

Values may not sum to the total due to rounding.

Table 4B breaks down each hard skills gap by major occupational group. Only nine of the 22 major occupational groups reported hard skills gap data, again due to the concentration of certain types of occupations in the marine industry cluster. *Installation, Maintenance and Repair Occupations* had the highest gap per vacancy measure (0.77) followed closely by *Architecture and Engineering Occupations* (0.76). Gaps in information technology/research-related skills were most commonly reported for *Installation, Maintenance and Repair Occupations* (33.4 percent of vacancies), as were gaps in workplace-related skills (17.7 percent of vacancies).

Table 4B
Percent of Vacancies with Hard Skills Gaps, by Major Occupational Group

Major Occupational Group	Information Technology/ Research	Workplace-Related	Math	Other	Number of Skills Gaps per Vacancy
Installation, Maintenance, and Repair Occupations	33.4%	17.7%	8.5%	17.3%	0.77
Architecture and Engineering Occupations	13.5%	-	13.5%	49.0%	0.76
Transportation and Material Moving Occupations	25.1%	16.2%	14.0%	10.0%	0.65
Production Occupations	20.8%	9.1%	9.1%	11.7%	0.51
Sales and Related Occupations	17.0%	8.8%	10.1%	12.7%	0.49
Construction and Extraction Occupations	23.2%	12.1%	-	-	0.35
Office and Administrative Support Occupations	7.8%	2.7%	3.7%	2.7%	0.17
Business and Financial Operations Occupations	5.5%	5.5%	5.5%	-	0.17
Management Occupations	6.3%	1.7%	4.1%	4.0%	0.16

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics

Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.

Values may not sum to the total due to rounding.



Skills Gaps by Occupation

Table 5A reports the frequency with which soft skills gaps were reported by occupation. This table contains the top 15 occupations with 15 or more estimated vacancies.

Table 5A Percent of Vacancies with Soft Skills Gaps, by Occupation						
Occupation	Communication	Reliability and Time Management	Leadership	Problem-Solving	Other	Number of Skills Gaps per Vacancy
Automotive and Watercraft Service Attendants	69.1%	69.1%	69.1%	69.1%	11.6%	2.88
Welders, Cutters, Solderers, and Brazers	43.6%	71.6%	85.6%	43.6%	14.0%	2.58
Stock Clerks and Order Fillers	47.3%	19.9%	32.5%	13.7%	40.0%	1.54
Cleaners of Vehicles and Equipment	51.6%	8.7%	70.7%		10.3%	1.41
Cashiers	25.0%	25.0%	25.0%	25.0%	25.0%	1.25
Retail Salespersons	29.3%	22.3%	21.0%	14.0%	15.3%	1.02
Marine Engineers and Naval Architects	22.8%	22.8%	22.8%	22.8%	-	0.91
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	-	28.2%	-	-	50.2%	0.78
Light Truck or Delivery Services Drivers		29.7%	-	-	29.7%	0.59
Shipping, Receiving, and Traffic Clerks	16.8%	16.8%	16.8%	-	-	0.51
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	-	-	24.2%	-	24.2%	0.48
Security Guards	-	-	22.5%	-	22.5%	0.45
Motorboat Mechanics and Service Technicians	7.5%	6.1%	15.7%	2.3%	9.1%	0.41
Inspectors, Testers, Sorters, Samplers, and Weighers	-	-	19.7%	-	19.7%	0.39
Laborers and Freight, Stock, and Material Movers	-	19.0%	-	-	19.0%	0.38

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics

Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.

Values may not sum to the total due to rounding.

Soft skills gaps were most commonly reported among vacancies for *Automotive and Watercraft Service Attendants*; *Welders, Cutters, Solderers, and Brazers*, and *Stock Clerks and Order Fillers*, with skills gap to vacancy ratios of 2.88, 2.58 and 1.54, respectively. Gaps in vacancies for *Automotive and Watercraft Service Attendants* and *Welders, Cutters, Solderers, and Brazers* were driven by reliability and time management as well as leadership skills gaps. *Stock Clerks and Order Filler* vacancies most commonly displayed communication gaps.

Table 5B reports the top 15 occupations by highest ratio of total hard skills gaps to vacancies for the occupation, and breaks down the hard skills gaps for each occupation by share of vacancies reporting gaps for the skill. This table contains only occupations with 15 or more estimated vacancies.

Table 5B
Percent of Vacancies with Hard Skills Gaps, by Occupation

Occupation	Information Technology/ Research	Workplace-Related	Math	Other	Number of Skills Gaps per Vacancy
Automotive and Watercraft Service Attendants	69.1%	69.1%	69.1%	-	2.07
Welders, Cutters, Solderers, and Brazers	71.6%	43.6%	43.6%	-	1.59
Electrical and Electronics Installers and Repairers, Transportation Equipment	85.4%	-	-	70.8%	1.56
Marine Engineers and Naval Architects	22.8%	-	22.8%	82.5%	1.28
Cashiers	25.0%	25.0%	25.0%	25.0%	1.00
Light Truck or Delivery Services Drivers	59.5%	-	-	29.7%	0.89
Motorboat Mechanics and Service Technicians	36.1%	22.5%	7.5%	13.6%	0.80
Laborers and Freight, Stock, and Material Movers, Hand	28.5%	9.5%	-	26.3%	0.64
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	28.2%	-	-	28.2%	0.56
Industrial Truck and Tractor Operators	9.7%	-	9.7%	25.5%	0.45
Retail Salespersons	15.3%	7.0%	7.0%	15.3%	0.45
Stock Clerks and Order Fillers	13.7%	13.7%	13.7%	-	0.41
Shipping, Receiving, and Traffic Clerks	16.8%	-	16.8%	-	0.34
Maintenance and Repair Workers, General	10.1%	10.1%	5.9%	5.9%	0.32
General and Operations Managers	13.0%	-	-	13.0%	0.26

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics
 Note: Total estimated vacancy counts may differ due to varying valid response totals received for each question.
 Values may not sum to the total due to rounding.

Soft skills gaps were reported most commonly among vacancies for *Automotive and Watercraft Service Attendants*; *Welders, Cutters, Solderers, and Brazers*, and *Electrical and Electronics Installers and Repairers, Transportation Equipment* with skills gaps to vacancy ratios of 2.07, 1.59, and 1.56, respectively. Gaps in information technology/research skills were either the largest contributor or tied for the largest in each of these occupations, with vacancies in these three occupations experiencing IT/research gaps at a rate of 69 percent or higher. Gaps in the “other”



category also occurred frequently in vacancies across a number of occupations, with seven of the 15 occupations experiencing other gaps at a rate of 25 percent or higher.

Educational Attainment

Job vacancies for different occupations often require different levels of educational attainment. Occupations reported in the skills gap survey were matched to their respective Florida education levels. The Florida education levels represent the minimum educational level for a given occupation as defined by the Florida Department of Education. The Florida education levels are different than the education levels reported by the employers in Table 1F. Table 6 shows the most common soft skills gap for each level of educational attainment.

Table 6	
Most Common Soft Skill by Educational Attainment	
Education Level	Most Common Soft Skills Gap
Less than High School	Communication Skills
High School Diploma/GED	Leadership Skills
Postsecondary Vocational	Leadership Skills
Associate's Degree	Reliability and Time Management
Bachelor's Degree	Leadership Skills

Source: Marine Industry Skills Gap and Job Vacancy Survey, Florida Department of Economic Opportunity, Bureau of Labor Market Statistics

Gaps in leadership skills were the most common soft skills gaps in occupations that require a high school diploma/GED, a postsecondary/vocational degree, and a bachelor’s degree. Occupations that require an associate’s degree had the most gaps in reliability and time management skills, while those that require less than a high school diploma had the most gaps in communication skills.

Table 7	
Most Common Hard Skill by Educational Attainment	
Education Level	Most Common Hard Skills Gap
Less than High School	Information Technology/Research Skills
High School Diploma/GED	Information Technology/Research Skills
Postsecondary Vocational	Information Technology/Research Skills
Associate's Degree	Information Technology/Research Skills
Bachelor's Degree	Other Skills
Master's or Higher Degree	Information Technology/Research Skills

Source: Marine Industry Skills Gap and Job Vacancy Survey, Department of Florida Economic Opportunity, Bureau of Labor Market Statistics

Table 7 shows the most common hard skills gap for each level of educational attainment. Information technology/research skills are the most common gaps for occupations of all education levels except for those that require a bachelor’s degree, which most frequently experienced gaps in other skills.



Conclusion

The Marine Industry Skills Gap and Job Vacancy Survey offers an insightful look into the real decisions employers face when confronted with today's challenging and the rapidly changing workforce environment. Unlike aggregate data produced at the national level, this data provides a window into the specific challenges facing marine industry businesses in Miami-Dade, Broward, and Palm Beach counties. When compared to employers in all industries across the state, marine industry employers in this region reported greater trouble filling vacancies. When compared to employers in all industries across the state, marine industry employers in this region reported greater trouble filling vacancies. This is possibly a reflection of the higher skill and experience requirements related to reported vacancies for this industry and region.

The results of this study can be used to develop tools and strategies based on gap mitigation findings to promote gap mitigation and retention among employers struggling with retention issues. It also can be used to help better align workforce and educational training program outcomes and design to better fit employer-reported needs.

This study was made possible because of the participation of marine industry employers throughout Miami-Dade, Broward, and Palm Beach counties. The continued cooperation of employers, Local Workforce Development Boards, CareerSource Florida, and DEO in studies like this will help Florida become the nation's top performing economy and be recognized as the world's best place to live, learn, play, work and do business.

Appendix I

Job Vacancy and Skills Gaps Core Questions

Do you currently have any job vacancies at your business or office?
If yes, collect vacancies by occupation

Job.Q1 Job Title

Job.Q2 Job Type:
a. Full-Time
b. Part-Time

Job.Q3 Job Status
a. Permanent
b. Temporary

Job.Q4 Number of openings

Job.Q5 What are the general responsibilities and description for this position?

Job.Q6 What minimum education level is required?
a. No education required
b. High school or GED
c. Vocational or technical training
d. Associate's degree
e. Bachelor's degree
f. Advanced degree
g. Not specified

Job.Q7 Is a license or certification required?
a. Yes
b. No
c. Not specified

Job.Q8 How much work experience does this position require?
a. Less than 1 year
b. 1-2 years
c. 3-4 years
d. Over 5 years
e. Not Specified

Job.Q9 How long has this position been vacant?
a. Less than 30 days
b. 30-59 days
c. 60+ days
d. Always hiring
e. Not specified

Do applicants for this vacancy lack any of the following skills?

If no skills gaps ask gap mitigation question:

If you have no skills gaps, do you:

- a. Screen applicants carefully, then hire?
- b. Hire and then train or upskill?
- c. Retain high skill/productive staff?
- d. Contract out or outsource?
- e. Other (SPECIFY)

End Survey if no gaps and mitigation questions collected.

If yes to gap question collect both soft and hard skills by occupation.

SQ1: Do applicants for this vacancy lack any of the following skills related to reliability and time management?

- a. Attendance
- b. Meeting deadlines
- c. Dependability

SQ2: Do applicants lack any of the following communication-related skills?

- a. Interpersonal
- b. Reading and writing
- c. Phone etiquette
- d. Customer Service
- e. Sales
- f. Active listening
- g. Following directions

SQ3: Do applicants lack any of the following leadership skills?

- a. Management
- b. Team work/Team participation
- c. Initiative
- d. Motivation
- e. Entrepreneurial/business ideas

SQ4: Do applicants lack any of the following problem-solving skills?

- a. Critical thinking
- b. Analytical
- c. Research
- d. Trouble-shooting

SQ5: Are there any other soft skills applicants lack?

SQ6: Do applicants lack any of the following math skills?

- a. Arithmetic
- b. Accounting/Bookkeeping
- c. Logic
- d. Job-specific mathematics requirements

SQ7: Do applicants lack any of the following technology, information technology, or research-related skills?

- a. Computer/information technology usage
- b. System-specific job related
- c. Research
- d. Electrical/Electronic

SQ8: Do applicants lack any of the following workplace-related skills?

- a. Tool use and selection
- b. Safety skills

SQ9: Are there any other hard or technical skills applicants lack?

Note: This reflects the core questions of the 2017 survey and does not include instructions to interviewers or skip patterns used in the actual survey script. The actual survey was conducted using CATI technology. There are numerous checks used in the actual script to collect employment at the business site, verify area, and verify addresses and to find out if the employer would like to be contacted from the regional CareerSource staff.

Marine Industry Cluster
North American Industry Classification System (NAICS)

Industry Title	NAICS Code
Fishing	1141
Finfish fishing	114111
Shellfish fishing	114112
Other marine fishing	114119
Ship and boat building	3366
Ship building and repairing	336611
Boat building	336612
Other transport. goods merchant wholesalers (includes ships merchant wholesalers)	423860
Sporting goods merchant wholesalers (includes marine pleasure craft wholesalers)	423910
Boat dealers	441222
Water transportation	483
Sea, coastal, and Great Lakes transportation	4831
Deep sea freight transportation	483111
Deep sea passenger transportation	483112
Coastal and Great Lakes freight transport	483113
Coastal and Great Lakes passenger transport	483114
Inland water transportation	4832
Inland water freight transportation	483211
Inland water passenger transportation	483212
Scenic and sightseeing transportation, water	487210
Support activities for water transportation	4883
Port and harbor operations	488310
Marine cargo handling	488320
Navigational services to shipping	488330
Other support activities for water transport	488390
Marinas	713930

North American Industry Classification System codes for the marine industry were selected by the Florida Department of Economic Opportunity, Bureau of Labor Market Statistics

