



Project Report

Economic Impact & Skills Gap Analysis

Presented To:
The Rhode Island Marine Trades Association
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1. Executive Summary

The cluster of enterprises that comprises Rhode Island’s marine trades “industry” encompasses a wide range of distinct industrial sectors. It includes:

- ✓ *manufacturers*—ship and boat builders, repair operations and specialized equipment producers;
- ✓ *service providers*—marinas, boat rentals, cruise operators and instruction facilities;
- ✓ *professional services*—marine-related insurance, finance, employment and publishing;
- ✓ *construction*—dock/wharf construction and repair; diving and salvage;
- ✓ *transportation*—marine shipping, harbor masters and port operations.

In Rhode Island in 2012 (the most recent year for which official Department of Labor and Training employment data are available), this cluster, including estimates of sole proprietors and allowing for the impact of recreational boating in Rhode Island originating in other states, includes approximately 650 employers providing nearly 7,000 jobs and paying wages and benefits of over \$325 million.

This collection of marine trade related enterprises has a far greater impact on the Rhode Island economy than its job and wage totals. Through backwards linkages to vendors supplying products and services to the marine trades “core” and forward linkages to the payrolls being spent and the businesses that rely on marine products, the total economic impact of the marine trades cluster on the economy of Rhode Island amounts to sales for Rhode Island businesses of \$2.6 billion that supports 14,700 FTE jobs earning \$598 in wages and benefits. All of this economic activity generates \$117.9 million in taxes and fees for Rhode state and local governments.

In addition to this widespread economic impact, the marine trades cluster has provided an important engine of stability and now growth for the Rhode Island economy through the severe recession of the past half-decade. Over the 2006 to 2012 period, total employment in the Rhode Island private economy as a whole fell by 6%. For the state’s marine trades cluster, in contrast, employment increased by 1%. Total wages in the private economy as a whole rose by 8% while in the marine trades cluster they rose by 21%. Average wages in the Rhode Island private economy as a whole rose by 15% while average wages in the marine trades cluster rose by 20%. As a result, average wages in the marine

trades cluster rose from just 1% above the state average in 2006 to 5% above the state private sector average in 2012.

Looking to the future, a survey of marine trades businesses indicates that they plan, over the next three years, to hire between 1,600 and 2,000 additional workers, both to replace those expected to retire and to accommodate expected growth.¹ At the same time, occupational projections by the Department of Labor indicate that because of the combined pressures of expected retirements and anticipated growth, the state's marine trades cluster will have to replace fully 26% of its current work force over the next ten years. In short, finding ways to attract, train and retain skilled workers will be a critical challenge facing the cluster over the coming decade.

To face that challenge, RIMTA conducted a survey of its members. The results indicated that

- ✓ a majority of respondents felt that there were moderate to severe problems in finding qualified candidates for new positions;
- ✓ problems with attitudes and social skills were considered more critical than problems with technical skills; and
- ✓ a majority of respondents have implemented some form of training program from in-house learning activities to tuition reimbursement to address the skills gap problem.

¹ Rhode Island Marine Trades Association, survey conducted December 2013 to March 2014; see Appendix 2 below for list of questions; because of a relatively small sample size, this result has a large (12.5%) margin of error; nonetheless, an increase of 1,450 to 2,250 still indicates a desire to add a significant number of new marine trades workers.

2. What Is the Marine Trades “Industry” in Rhode Island?

Marine trades are, by definition, occupations—activities people perform. Industries, in contrast, are enterprises defined by the types of goods or services they make. In that strict sense, there is no such thing as the marine trades “industry.” Marine trades are occupations that find employment in a variety of industries—the shipbuilding industry, the boatbuilding industry, the marina industry, etc. As a result, efforts to define a marine trades “industry” involve grouping a variety of industries that include marine-related occupations.

For example, using employment and wage data for 2012, the Rhode Island Department of Labor and Training defined “the Marine Trades” as encompassing 317 business establishments that employed 5,190 people who earned \$268.9 million in wages in seven separate “industries.”

Table 1

Marine Trades in Rhode Island 2012				
Industry	Number of Units	Average Employment	Total Wages	Average Wage
Total Private & Government	35,289	451,357	\$21,063,313,935	\$46,667
Total Private Only	34,572	392,758	\$17,509,572,721	\$44,581
Total for Marine Trades	317	5,190	\$268,912,277	\$51,814
Ship & Boat Building	42	3,399	\$198,396,850	\$58,369
Sporting & Recreational Goods & Supplies Merchant Whlsrs.*	28	203	\$12,977,609	\$63,929
Boat Dealers	60	331	\$14,007,426	\$42,319
Scenic & Sightseeing Transportation, Water	40	123	\$3,349,162	\$27,229
Support Activities for Water Transportation	16	254	\$10,280,488	\$40,474
Marinas	75	742	\$25,675,054	\$34,602
Other Personal & Household Goods Repair & Maintenance**	56	138	\$4,225,688	\$30,621

Source: Rhode Island Department of Labor and Training *Industry Cluster Profile: Marine Trades*, published October 2013.

In contrast, the Rhode Island Economic Monitoring Collaborative in 2007 defined the marine trades “industry” more broadly as “boatbuilding and boating-related businesses including but not limited to related design, fiberglass and plastics, woodworking, metalworking, magazines/publishing, brokerage, chartering, rigging, engine repair, moorage/docking, sails/canvass, marine retail, and yacht/sailing activities (including the large community of professional sailors

resident in the state).”² Planning Decisions, Inc. (PDI) used this broader definition in its 2008 analysis of the industry that concluded, “the Rhode Island Marine Industry includes over 2,300 businesses, accounts for \$1.6 billion in sales, provides 6,600 jobs; and pays \$260 million in salary and benefits.”³

The totals included in this 2008 report, include estimates for the marine-related portions of industries such as wood products, textiles, metal fabrication, publishing and design services. After careful consideration of the 2012 employment data and lengthy discussions with officials from the Rhode Island Department of Labor and Training, PDI decided to limit its analysis for this report to a narrower list of industries comparable to what, in 2008, it called the “Core Marine Trades Industries.”

In 2012, these core industries included approximately 650 business establishments that provided over 6,900 jobs and paid over \$325 million in payroll. Table 2 below summarizes these totals. Row A lists the Marine Trades Cluster as reported in the DLT brochure. Row B lists PDI additions. The first six rows in the B section list data provided by DLT. The last two rows (*italicized*) list data PDI estimated from the Census Non-employer Statistics.⁴

Finally, there remains the question of visiting recreational boaters as reported in the 2012 Northeast Recreational Boater Survey⁵. The major conclusion of the report as far as economic impact is concerned is that most of those surveyed make 70% to 80% of their boating-related expenditures in their home states. In Rhode Island, this spending as well as the spending of boaters visiting from other states is already reflected in the demand that supports the 640 businesses listed above. To add the spending from the Boater Survey to the above totals would thus represent double counting. The one area where this would not be true would be visitor spending outside the “marine trades cluster” described above. For this, PDI calculated the amount spent by non-Rhode Island

² RFP for Study of Marine Trades, June 1, 2007. Further delineation of this definition is provided in the Appendix below.

³ Planning Decisions, Inc. The Marine Trades in Rhode Island: A Skills Gap Analysis, February 1, 2008.

⁴ Nonemployer data refer to sole proprietorships—businesses whose owner is its employee and thus do not file formal payroll reports with the DLT; many enterprises in the boat repair and marine services portion of the “Marine Trades Industry” are sole proprietors; PDI used census data on Rhode Island’s “non-employer” enterprises to estimate their additions to the state marine trades total employment.

⁵ <http://www.seaplan.org/project/2012-northeast-recreational-boater-survey/>.

recreational boaters in Rhode Island for fuel (\$14.7 million) and food (\$7.8 million). PDI added this to the marine cluster total to arrive at an estimate of the total direct impact of the marine trades cluster on the Rhode Island economy.

Table 2
Elements of Rhode Island’s Marine Trades Cluster by Industry Sector, 2012

Description	Number of Units	Average Employment	Total Wages	Average Wage
Ship & Boat Building	42	3,399	\$198,396,850	\$58,369
Sporting & Recreation Wholesalers	28	203	\$12,977,607	\$63,929
Boat Dealers	60	331	\$14,007,426	\$42,319
Scenic & Sightseeing Transport, Water	40	123	\$3,349,162	\$27,229
Support Activities for Water Transport (Port services)	16	254	\$10,280,488	\$40,474
Marinas	75	742	\$25,675,054	\$34,602
Repair & Maintenance	56	138	\$4,255,688	\$30,838
A. DLT Sub-total	317	5,190	\$268,942,275	\$51,819
Inflatable boats	5	115	\$4,900,000	\$42,600
Marine-related wholesalers	9	19	\$1,081,468	\$56,919
Boat rental	13	19	\$403,105	\$21,216
Marine instruction	22	183	\$7,679,323	\$41,964
Chartering & boating clubs	64	483	\$8,783,649	\$18,186
Specialized trucking, (boat transport)	80	311	\$13,845,705	\$44,520
Water Transportation	9	180	\$8,110,356	\$45,058
Other Support Services (diving & salvage)	83	407	\$9,980,554	\$24,522
<i>Transportation Equipment Manufacturing</i>	<i>18</i>	<i>18</i>	<i>\$923,250</i>	<i>\$51,292</i>
<i>Sporting & Recreation Wholesalers</i>	<i>30</i>	<i>30</i>	<i>\$724,500</i>	<i>\$24,150</i>
B. RIMTA additions	363	2,788	\$100,532,247	\$36,059
RIMTA Core Marine Trades Industries	650	6,955	\$325,317,221	\$46,776

Sources: RI DLT, Bureau of the Census, Nonemployer Statistics; <https://www.census.gov/econ/nonemployer/> and PDI estimates.

In sum, this analysis indicates that the “core” marine trades industries in Rhode Island as measured by 2012 employment data include 650 business establishments employing 6,955 workers earning wages of just over \$325 million.

3. How has Rhode Island’s Marine Trades Cluster Performed?

Recognizing that comparison of the estimate of the “Core Marine Trades Industries” taken from 2006 data and included in the 2008 report with that derived in this report using 2012 data is not precise, it is nevertheless evident that the Marine Trades “industry” seems to have fared quite well over the period considering the fact that it encompassed the greatest recession since the 1930’s.

Table 3 Comparison of the “Core” Marine Trades Industries in Rhode Island, 2006 to 2012

Unit of Measure	2006	2012*	change
Number of Establishments	528	578	50
Average Employment	6,116	6,459	343
Total Wages	\$239.8	\$307.3	\$67.5

Sources: Rhode Island Department of Labor and Training and PDI estimates; 2012 totals exclude estimates of sole proprietors and out-of-state recreational boating not included in 2006 data.

Over the six-year period, the number of “core” marine trade businesses in Rhode Island increased by approximately 50, the number of employees in these businesses increased by nearly 350 and total wages paid in the sector increased by nearly \$70 million.

Further evidence of the relative strength of the state’s marine trades sector is shown in its performance compared to that of the Rhode Island economy as a whole.

Table 4 Measures of Change RIMTA Cluster, 2006 to 2012

2006-12 change	RIMTA Cluster	RI Private Economy
Employment	1%	-6%
Total Wages	21%	8%
Average Wages	20%	15%
Year	2012	2006
RIMTA wages/State Avg.	105%	101%

Sources: RI DLT, Bureau of the Census, Nonemployer Statistics, PDI estimates.

Over the 2006 to 2012 period, total employment in the Rhode Island private economy as a whole fell by 6%. For the state’s marine trades cluster, in contrast, employment increased by 1%. Total wages in the private economy as a whole

rose by 8% while in the marine trades cluster they rose by 21%. Average wages in the Rhode Island private economy as a whole rose by 15% while average wages in the marine trades cluster rose by 20%. As a result, average wages in the marine trades cluster rose from just 1% above the state average in 2006 to 5% above the state private sector average in 2012.

All of these trends underscore the strategic importance of the marine trades cluster to the overall Rhode Island economy. The relative stability of the cluster through a period of severe economic distress made the state's economic decline less severe than it otherwise would have been. Similarly, the growing demand for commercial water transport resulting from expansion of the Panama Canal and the movement of the United States from a net importer to a net exporter of oil and gas coupled with the resurgence of recreational boating opens great opportunities for the marine trades cluster to become an even more important engine of growth for the state's economy.

4. **What is the Strategic Importance of the Marine Trades Cluster?**

The “marine trades cluster” identified above has an economic impact beyond the jobs and payroll within the sector and the fuel and food spending of visiting recreational boaters. In addition, it has a backwards, *supply chain, impact* on all the in-state vendors from which cluster members buy materials, supplies and services. These include the textile industry for canvas and upholstery; the chemical industry for fiberglass, resin and paints; the fabricated metals industry for a wide variety of products as well as electricity, telecommunications and business services such as banking, insurance and technical expertise.

In addition, the workers employed in both the marine trades cluster itself and in all its vendors have their own *consumer spending impact* through the Rhode Island economy. Their spending for rent, groceries, transportation, health etc. spread the ripple effects of the marine trades cluster further across the state.

To estimate these indirect impacts, PDI fed the direct impacts listed in the last row of Table 2 plus the food and fuel spending of visiting recreational boaters into the IMPLAN economic model of the State of Rhode Island. This is the same model used to calculate the total economic impact of the spending by recreational boaters in the 2012 Northeast Recreational Boater Survey. Table 5 lists the results of this analysis.

Table 5
Total Economic Impact on the State of Rhode Island of the Marine Trades

Impact Category	Spending	Jobs	Wages	Avg. Wages
Direct Impact	\$1,538,703,870	7,100	\$327,717,000	\$46,157
Indirect Impact	\$518,507,565	3,500	\$137,160,000	\$39,189
Induced Impact	\$524,970,913	4,100	\$133,610,000	\$32,588
Total Impact	\$2,582,182,348	14,700	\$598,487,000	\$40,713
Multiplier	1.7	2.1	1.8	n.a.

Sources: RI DLT and IMPLAN Model for State of Rhode Island.

Adding the recreational boating impact of visiting boaters brings total employment created by Rhode Island’s marine trades cluster to approximately 7,100 jobs earning wages of just over \$327 million. The spending (meaning sales revenue coming into the cluster) that generates this employment and earnings amounts to just over \$1.5 billion.

As some of this money passes through Rhode Island based vendors up the supply chain serving the marine trades cluster (the indirect impact), it turns into more than \$518 million in revenue to other Rhode Island businesses that employ the equivalent of 3,500 FTE workers earning wages of nearly \$140 million. The major sectors to which this spending flows are wholesale trade (over \$50 million), technical, scientific and engineering services (\$41 million), banking and investment services (\$39 million), management services (over \$36 million), leasing services (\$29 million), telecommunications (\$25 million), electricity (\$13 million and insurance (\$11 million).

As both direct and indirect sales revenues pass to workers both within the marine trades cluster and in its supply chain, their spending becomes over \$524 million in sales revenue to other Rhode Island businesses that support the equivalent of 4,100 FTE jobs earning over \$133 million in wages. The major sectors to which this spending flows are health care (\$76 million), residential housing ownership (\$70 million), residential housing rental (\$31 million), wholesale trade (\$26 million), food service and drinking places (\$24 million), insurance (\$22 million), banking (\$16 million) and telecommunications (\$15 million).

In sum, the total economic impact of the marine trades cluster on the State of Rhode Island amounts to nearly \$2.6 billion in sales for Rhode Island businesses supporting the equivalent of 14,700 FTE jobs earning total wages of nearly \$600 million.

Finally, all of this activity generates tax and fee revenue for Rhode Island State & Local governments of nearly \$118 million. Table 6 summarizes this total by major category.

**Table 6 State & Local Tax and Fee Revenue
Generated by Rhode Island Marine Trades Cluster**

Category	Amount
Property Taxes	\$45,930,000
Individual & Corporate Income Taxes	\$28,120,000
Sales Taxes	\$33,030,000
Other Taxes & Fees	\$10,850,000
Total State & Local Tax Revenue	\$117,940,000

Source: IMPLAN Pro 3.1 and calculations made by PDI.

5. Does Rhode Island’s Marine Trades Cluster Face a Skills Gap?

The future wellbeing of the marine trades cluster in Rhode Island depends on its ability to replace retiring workers while adding the new workers needed to meet projected industry growth. To estimate this potential skills gap, PDI translated the 2012 employment in the RIMTA sector categorized by industry as presented in Table 2 (6,955 jobs) into the same total categorized by occupation as derived from surveys conducted by the U.S. Department of Labor.⁶ The 2012 totals are followed by job openings from replacement and new growth for each occupational category as estimated by the Rhode Island Department of Labor and Training.⁷ Most of the figures refer to major occupational categories. Those in italics refer to the major sub-categories within the Construction, Production and Transportation categories.

Across all occupations, the Rhode Island marine trades cluster must plan to replace 1,281 workers who (based on current retirement patterns) are likely to leave the labor force and add an additional 523 workers necessary to realize the growth needed to meet future demand for workers as projected by the Department of Labor and Training for 2020. In total, this amounts to over 1,800 new jobs or 26% of the existing labor force to be replaced and added by 2020.

This total potential “skills gap” ranges from highs of 37% (metal and plastic lay-out workers), 37% (textile and furnishing workers), 34% (plumbers, pipefitters and steam fitters) and 32% (electricians), to lows of 20% (painters, assemblers) and 21% (building cleaning and maintenance workers).

Table 7 illustrates the full listing of occupations and potential skill gaps. Some of the occupations listed here—waitresses to work in marinas, or designers to work in marine-related publication enterprises—may not seem to be specifically “marine” occupations. They are, nevertheless, occupations that marine-related businesses must have to operate successfully. RIMTA may not choose to sponsor training for restaurant wait staff, but it needs to know that some of its member organizations may face shortages in filling openings in this field.

⁶ U.S. Bureau of Labor Statistics Occupational Employment Statistics Query System, <http://data.bls.gov/oes/occupation.do>.

⁷ DLT Rhode Island’s Occupational Outlook for 2020. <http://www.dlt.ri.gov/lmi/proj.htm>.

Table 7 Rhode Island Occupational Projections to 2020

Occupational Title	RIMTA	Job Openings to 2020 for:			
	Jobs 2012	Replacement	Growth	Total	%
Total, All Occupations	6,955	1,281	523	1,804	26%
Management Occupations	295	50	17	67	23%
Business & Financial Operations	215	35	27	62	29%
Computer and Mathematical	42	7	6	13	30%
Architecture and Engineering	355	65	23	88	25%
Education, Training, and Library	97	17	8	24	25%
Arts, Design, Entertainment, Sports, Media	83	17	7	24	29%
Healthcare Practitioners and Technical	19	3	2	5	28%
Protective Service Occupations	100	22	4	26	26%
Food Preparation and Serving Related	352	109	38	147	42%
Building Cleaning and Maintenance	180	26	13	38	21%
Sales and Related Occupations	365	90	32	122	34%
Office and Administrative Support	781	134	48	182	23%
Construction and Extraction	630	112	76	188	30%
<i>Electricians</i>	88	19	9	28	32%
<i>Painters, Construction and Maintenance</i>	32	5	3	8	26%
<i>Plumbers, Pipefitters, and Steamfitters</i>	95	22	10	32	34%
Installation, Maintenance, and Repair	525	95	39	134	25%
Production Occupations	1,673	257	72	329	20%
<i>First-Line Supervisors of Prod. & Ops. Workers</i>	134	21	6	26	20%
<i>Electrical, Metal, Fiberglass, Plastic Assemblers</i>	318	49	14	63	20%
<i>Machinists</i>	117	17	7	24	21%
<i>Welders, Cutters, Solderers, and Brazers</i>	284	61	28	89	31%
<i>Lay Out Workers, Metal and Plastic</i>	50	8	11	18	37%
<i>Textile, Apparel, and Furnishings Workers</i>	67	10	14	25	37%
<i>Inspectors, Testers, Sorters, Samplers</i>	134	23	8	32	24%
<i>Painters, Transportation Equipment</i>	50	9	1	10	20%
<i>Production Workers, All Other</i>	100	21	7	28	28%
Transportation and Material Moving	1,234	242	112	354	29%
<i>First-Line Supervisors</i>	49	8	5	13	26%
<i>Motor Vehicle Operators</i>	642	126	58	184	29%
<i>Sailors, Pilots, Captains, Mates, Ship Engineers</i>	86	17	8	25	29%
<i>Material Movers & Other Transport</i>	457	90	41	131	29%

To further investigate this potential skill gap and inquire as to what problems Rhode Island marine trade businesses are experiencing in trying to fill any such gaps, RIMTA conducted a survey of its members (see Appendix 2).⁸ Over the period between November 2013 and May 2014, 55 responses were received from businesses representing every category listed in question #1⁹.

These business ranged in age from 1 year to 85 years. The median age was 22 years. Collectively these businesses represented 1,463 years of operation. Using the mid-point of the employee size categories as an estimate of the number of jobs in each business, the sample represented 1,480 jobs, approximately 21% of the cluster's estimated 2012 employment. In 2014, survey respondents said that they planned to hire 386 additional employees—213 to replace leaving workers and 173 as net additions. Based on their business plans, they hoped, over the next three years to increase their total employment by 236, an increase of 26%. Applying this increase to the cluster total of 6,955 and recognizing the sample's margin of error of +/- 12.5% indicates that the cluster as a whole could seek to add between 1,600 and 2,000 jobs over the next three years, both to replace existing workers and to add those needed to accommodate anticipated growth.

To realize these growth objectives, Rhode Island's marine trade businesses face two primary obstacles—the aging of its current workforce and the apparent inability to fill currently open jobs for lack of qualified candidates.

With respect to the aging workforce, survey respondents reported that 259 (or 17%) of its current work force is 55+. Applying this rate to the cluster total of 6,955 and recognizing the sample's margin of error of +/- 12.5% indicates that the cluster as a whole has between 1,060 and 1,370 workers over the age of 55. In addition, 13 survey respondents (24% of the total) reported that the 55+ age-cohort represented more than 50% of their total workforce. Perhaps more importantly, the aging work force is especially significant for the smallest of the state's marine trades businesses. For all respondents, the age 55+ cohort

⁸ See Appendix 2 for a list of questions.

⁹ Assuming that the "universe" of "core" marine trades businesses (including sole proprietors not filing payroll reports) is approximately 650, the confidence interval for a sample size of 55 is 12.5%. This is to say that there would be a 95% probability that the results derived from this survey would be an accurate reflection of the entire "universe" of marine trade businesses with a margin of error of +/- 12.5%. In short, the results of the survey have a large margin of error. Thus the results should be treated not as statistically significant measures of the entire population of marine trades businesses, but rather as the opinions of knowledgeable participants in the industry who represent approximately 21% of its 2013 employment.

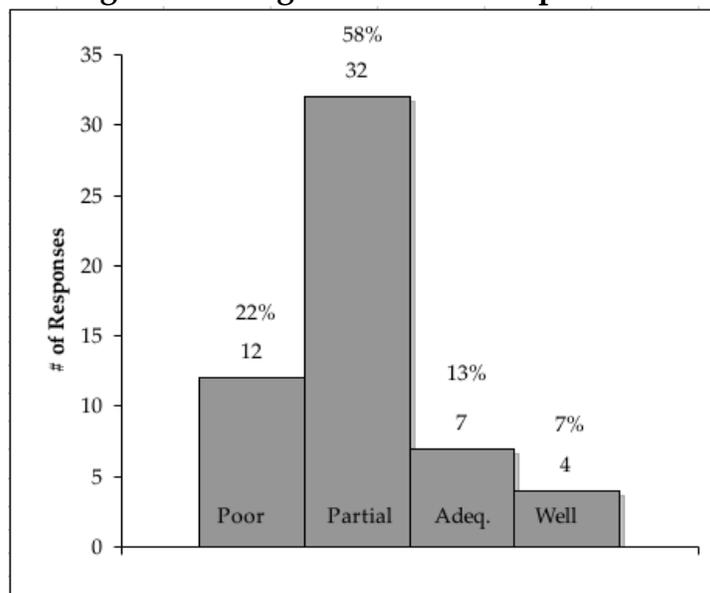
constituted 30% of the work force. For respondents in the 1 to 4 employee size category, that share was 40%.

With respect to the unqualified candidates, 35 survey respondents (64% of the total) reported that 0% to 10% of their current openings are unfilled because of a lack of qualified candidates. Another 10 respondents (18% of the total) reported that 10% to 25% of their current openings are unfilled because of a lack of qualified candidates, and 7 respondents (13% of the total) reported that more than 25% of their current openings are unfilled because of a lack of qualified candidates.

Using the mid-points of these ranges to estimate the number of unqualified candidates indicates a survey total of 62 amounting to 4% of their current workforce. Applying this percentage to the cluster total of 6,955 and recognizing the sample's margin of error of +/- 12.5% indicates that the cluster as a whole has between 250 and 325 jobs currently unfilled for lack of qualified workers.

Having established the general parameters of the skills gap problem, it remains to see where, specifically, the problems lie and what businesses are doing to address them. The RIMTA 2013-14 survey asked respondents to rate the preparedness of applicants for entry-level positions on a 1 to 4 scale (1 = poorly prepared, 2 = partially prepared, 3 = adequately prepared and 4 = well prepared). Figure 1 shows the results

Figure 1 Rating of New Hire Preparation



Source: RIMTA survey 2013-14

A majority of respondents (58%) said that applicants for entry-level positions were partially prepared; 22% said they were poorly prepared and progressively smaller percentages said they were adequately or well prepared.

To investigate the nature of this problem, respondents were asked to consider a series of skills and attitudes deemed important qualities needed in new employees and rank each on a scale of 1 to 3 with 1 being “Difficulty of finding candidates with this skill or attitude is a critical problem,” 2 being “This is a moderate problem,” and 3 being “This is not a problem.”

Table 8 Skill Shortage Problem Severity

Skills	Avg. Score	# Critical
engine repair	2.3	10
electrical/electronics	2.3	10
fiberglass/molding	2.3	9
woodworking	2.5	9
metal working	2.5	6
plumbing/HVAC	2.5	8
project management	2.5	5
computer/IT	2.6	2
retail/customer service	2.6	1
design/engineering	2.7	3
finance/accounting	2.7	1

Source: RIMTA survey, 3013-14.

Table 8 lists survey results ranked in declining severity based on the average score received for each skill and the number of respondents rating the absence of that skill as a critical problem. Since the lower the score, the more critical the problem, the results show that engine repair, electronics and fiberglass molding were the most critical problems.

Table 9 presents survey results in a similar fashion for attitudes.

Table 9 Attitude Problem Severity

Attitudes	Avg. Score	# Critical
pride in work	2.1	14
thinking/problem solving	2.1	14
leadership/supervision	2.2	12
communication (listen/speak /read/write)	2.2	12
initiative/motivation	2.2	12
teamwork/social interaction	2.2	11
basic math	2.2	11
punctuality	2.5	8

Source: RIMTA survey, 3013-14.

The most striking fact evident from examining the two tables is that respondents find attitudes and social skills to be a far more critical problem than technical skills. For technical skills the “worst” (meaning most critical) scores were 2.3. For attitudes and social skills all but one got scores below 2.3—meaning that respondents rated every attitude/social skill except punctuality as a more critical problem than the most critical technical problem. Across all eleven technical skills an average of 6 respondents (11%) rated them as a “critical” problem. For the attitudes/social skills, the average “critical” rating was 12—double the average for technical skills. Clearly this calls for action to include the qualities listed here in future skills training programs.

In response to this skills gap environment, a strong majority of respondents (62%) offered some sort of training program. Table 10 summarizes the type.

Table 10 Training Programs Offered

Program Type	Respondents	% of Total
Employee time off for school	27	49%
OJT	26	47%
Vendor provided classes	25	45%
Paid employee tuition	22	40%
Brought instructor to work	11	20%

Source: RIMTA survey, 3013-14.

In addition to these responses, some respondents added comments such as “We are revising our work processes to alleviate training problems,” “We have an on-site learning lab” and “Training certification is required by our accreditation agency.”

In sum, it appears that RIMTA members clearly recognize the need for increased workforce training and are taking advantage of those programs now being offered by industry trainers.

Appendix 1 Definition of Marine Trades Sector

The standard system for categorizing businesses by type of product or service produced is the North American Industrial Classification System (NAICS). For the purposes of this report, the following industry categories (identified by their NAICS codes) are defined to be part of Rhode Island's Marine Trades Industry. Some such as wood, textile and metal products devote only a portion of their production to marine uses (oars, canvas sails, boat fixtures, for example), so only those portions devoted to marine uses will be considered part of the Marine Trades.

1. Ship & Boat Building, Repair & Storage

- a. Ship building & repair (NAICS 336611) establishments primarily engaged in operating a shipyard. Shipyards are fixed facilities with drydocks and fabrication equipment capable of building a ship, defined as watercraft typically suitable or intended for *other than personal or recreational use*. Activities of shipyards include the construction of ships, their repair, conversion and alteration, the production of prefabricated ship and barge sections, and specialized services, such as ship scaling. For the purposes of this report, only shipbuilding devoted to vessels intended for recreational use will be considered.
- b. Boat building (NAICS 336612) Boats are defined as watercraft not built in shipyards and typically of the type suitable or intended for personal use.
- c. Boat repair (NAICS 811490) repair and maintenance services without retailing new boats (NOTE: this code includes types of repair services)
- d. Marinas (NAICS 713930) This industry comprises establishments, commonly known as marinas, engaged in operating docking and/or storage facilities for pleasure craft owners, with or without one or more related activities, such as retailing fuel and marine supplies; and repairing, maintaining, or renting pleasure boats, may include NAICS 532292 boat rental,

2. Boat Dealers (NAICS 441222)

Establishments primarily engaged in (1) retailing new and/or used boats or retailing new boats in combination with activities, such as repair services and selling replacement parts and accessories, and/or (2) retailing new and/or used

outboard motors, boat trailers, marine supplies, parts, and accessories, Boat/Yacht Sales/brokerage.

3. Services Supplying Boatbuilding & Repair

- a. Design/naval architecture, engineering services
 - i. (NAICS 54131 architectural services),
 - ii. (NAICS 54133 engineering services)
- b. Engine maintenance (NAICS 8111 automotive repair)
- c. Systems integration: electronics, plumbing, HVAC. (NAICS 8112 Electronic & precision equipment repair & maintenance)
- d. Marine supplies (NAICS 4238602 Marine machinery, equipment & supplies merchant wholesalers)
- e. Diving services. Salvage operations (NAICS 561990 All Other Support Services)
- f. Port and Harbor Operation (NAICS 488310)
- g. Boat transport services (NAICS 48422)

4. Boating as an activity, especially sailing

- a. Chartering & boating clubs without marina & boat rental
 - i. (NAICS 7139908 All other miscellaneous amusement & recreation services)
 - ii. (NAICS 487210 Scenic and Sightseeing Transportation, Water)
 - iii. Boat rental (NAICS 532292)
- b. Boating & Marine Related Instruction
 - i. (NAICS 61162, Sports & recreation instruction),
 - ii. (NAICS 611519, Marine instructional schools),
- c. Magazines/publishing (NAICS 51112 Periodical publishers)
- d. Business associations (NAICS 81391 Business associations).

Appendix 2 Marine Trades Skills Gap Survey, 2013-14

Name of Business

Category of Business

1. Which of the following categories **best** describes the **primary** marine related product or service your business provides? If you are a subsidiary of a larger company, please answer for your particular operation or location.

- Boatbuilder
- Boat service/repair
- Marina/boat storage
- Marine equipment manufacturer
- Boat dealer/broker
- Boat rental/chartering/instruction
- Marine transport, (tug, taxi, ferry, barge)
- Marine products wholesale distributor
- Marine products retailer
- Marine related professional services (engineering, repair, design etc.)
- Other (please describe) _____

2. On average over the past year, how many people did you employ (include full and part time employees)?

- 1 to 4
- 5 to 25
- 26 to 49
- 50 to 100
- 100+ (Approximately how many? _____)

3. Based on your current business goals and your view of your market prospects, how many people do you plan to employ in three years?

- 1 to 4
- 5 to 25
- 26 to 49
- 50 to 100
- 100+

4. What percentage of your total positions/jobs is currently unfilled due to a lack of qualified applicants?

- 0% to 10%
- 10% to 25%
- more than 25%
- Don't Know

5. What percentage of your current workforce is older than 55?

%

6. Please rate the importance of any skill deficiency or labor shortage in each of the following subject areas (1 = critical problem, 2 = moderate problem, 3 = no problem).

- fiberglass/moulding
 - woodworking
 - metal working
 - engine repair (gasoline and/or diesel)
 - plumbing/HVAC
 - electrical/electronics
 - design/engineering
 - project management
 - computer/IT
 - finance/accounting
 - retail/customer service
 - other (please specify below)
-

7. Please rate the importance of any skill deficiency in each of the following worker traits (1 = critical problem, 2 = moderate problem, 3 = no problem).

- punctuality
 - pride in work
 - teamwork/social interaction
 - leadership/supervision
 - communication (listen/speak /read/write)
 - basic math
 - initiative/motivation
 - thinking/problem solving
 - other (please specify below)
-

8. Has your company offered training programs to existing employees to attempt to address the above shortages, either in house or through an educational institution?

No (go to # 9)

Yes (go to # 10)

9. If no, why not? (check as many as apply)

can't afford to give employees time off

can't afford cost of programs (in house or tuition out)

not aware of any available training programs

don't believe available programs are effective

other (please specify below)

10. If yes, what sort of training have you offered (check as many as apply)?

Please specify how many employees participated in each form of training.

On the Job Training/Mentoring inhouse for employees

Outside instructor brought in house for employees

Offered employee time off to attend classes for employees

Paid tuition for employee to attend classes for employees

Employee attended manufacturer/service classes for employees

Other (please describe)

_____ for employees

11. Are you aware of any grants available to subsidize the cost of employee training?

No

Yes

12. Overall, how would you rate the applicants for a typical entry-level job in your company?

poorly prepared.

partially prepared.

adequately prepared.

well prepared.

13. Overall, how important are each of the following potential obstacles to achieving your business goals (0 = not a problem, 1 = moderate problem, 2 = severe problem)?

- _____ utility prices.
 - _____ problems with transportation (access, congestion or other)
 - _____ access to water.
 - _____ government regulations.
 - _____ access to capital.
 - _____ high property taxes.
 - _____ high cost of real estate (land and buildings).
 - _____ learning about and adapting new technologies.
 - _____ shortage of skilled labor.
 - _____ cost of health care.
 - _____ Other (please describe)
-

14. Use the following space to make any comments you think may be useful to our efforts to improve Rhode Island's workforce training for the marine trades.

Rhode Island Marine Trades

Impact Report, 2014

What is the Marine Trades Cluster?

There is no single “marine trades” industry; the “marine trades” include a wide range of distinct industrial sectors including:

- *manufacturers*—ship and boat builders, repair operations and specialized equipment producers;
- *service providers*—marinas, boat rentals, cruise operators and instruction facilities;
- *professional services*—marine-related insurance, finance, employment and publishing;
- *construction*—dock/wharf construction and repair; diving and salvage;
- *transportation*—marine shipping, harbor masters and port operations.

How big is Rhode Island's marine trades cluster?

Description (2012 data)	Businesses	Jobs
Ship & Boat Building	42	3,399
Sporting & Recreation Wholesalers	28	203
Boat Dealers	60	331
Scenic & Sightseeing Transport, Water	40	123
Support Activities for Water Transport (Port services)	16	254
Marinas	75	742
Repair & Maintenance	56	138
Inflatable boats	5	115
Marine-related wholesalers	9	19
Boat rental	13	19
Marine instruction	22	183
Chartering & boating clubs	64	483
Specialized trucking, (boat transport)	80	311
Water Transportation	9	180
Other Support Services (diving & salvage)	83	407
<i>Transportation Equipment Manufacturing</i>	18	18
<i>Sporting & Recreation Wholesalers</i>	30	30
RIMTA Core Marine Trades Industries	650	6,955

What is the impact of Rhode Island's marine trades cluster on the state?

Direct impact (including recreational spending of non-Rhode Island boaters in Rhode Island):

- \$1.5 billion in sales for Rhode Island businesses;
- Supporting 7,100 jobs in Rhode Island;
- Earning \$328 million in wages;

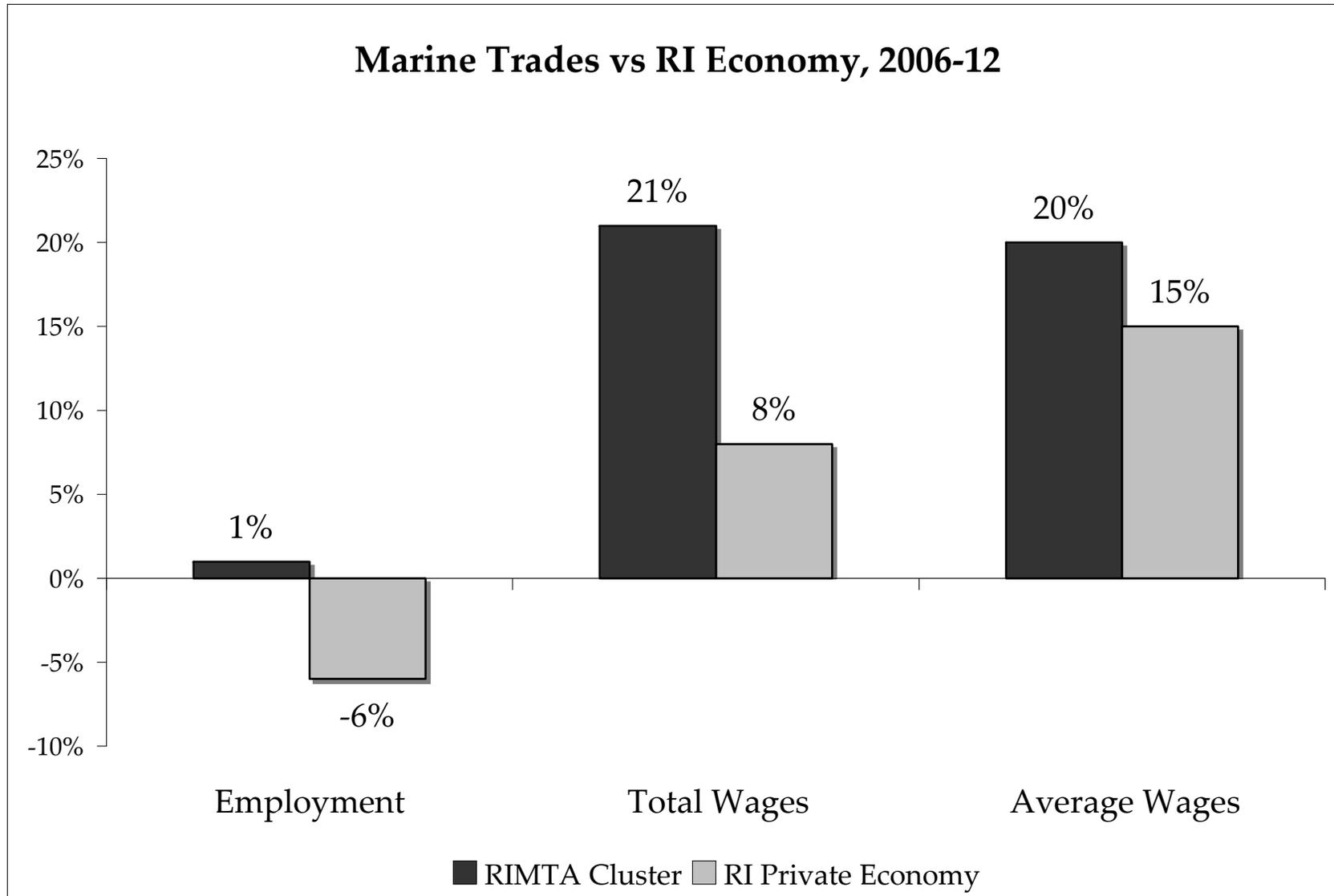
Indirect Impact (vendor supply chain and employee spending impacts):

- \$1.1 billion in sales for Rhode Island businesses;
- Supporting 7,600 FTE jobs in Rhode Island;
- Earning \$271 million in wages;

Total Impact:

- \$2.6 billion in sales for Rhode Island businesses;
- Supporting 14,700 jobs in Rhode Island;
- Earning \$598 million in wages;
- Generating \$118 million in state & local tax payments

How has the state's marine trade cluster performed?



Does the state's marine trades cluster face a skills gap?

Based on Dept. of Labor projections to 2020, Rhode Island's marine trades cluster:

- Will have to replace nearly 1,300 retiring workers; and
- Add over 500 workers to meet projected growth.

Based on RIMTA survey, the most critical skills shortages were:

- Engine repair;
- Electronics;
- Fiberglass molding;

But survey respondents reported that social skills and attitude problems were far more critical problems than technical skills.

- Pride in work;
- Thinking/problem solving;
- Leadership/supervision;
- Communication.