Marine Services **Report**

Winter 2025

Prepared For :
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EDC PACIFIC COUNTY

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EDC PACIFIC COUNTY

Executive Summary

Pacific County aims to retain and grow its marine services labor force by establishing a local marine services training program. This will provide local youths with a pathway to employment in the local maritime industry. The county is exploring potential partnerships with Grays Harbor College and Riverview Education Center to achieve this goal. Strengthening the marine services sector by developing skills-based educational programs that lead directly to job opportunities with local businesses will benefit the local economy and prevent youth displacement. The suggested program must emphasize industry-recognized certifications and concrete skills that prepare students for the demands of the marine service sector and enable Pacific County to build a resilient and adaptable workforce. Pacific County has partnered with Liveable City Year (LCY) to analyze equivalent marine services educational programs as a precursor to the site selection process.

To achieve the LCY project goals, the graduate student group has split into three subteams to research marine services educational programs across the United States. Three scopes of research were chosen to examine the paths to achieving Pacific County's goal of establishing an educational program through examining local, regional, and national marine education programs. These programs were evaluated on a variety of metrics[1] to determine their feasibility in the context of the proposed Pacific County program. Most programs evaluated resulted in a degree at either a high school, associates, or bachelors level.

The selected metrics were used to compare programs and identify unique characteristics that will benefit the site selection and program development process. The analyzed data led to the selection of relevant case studies for Pacific County's goals. Some data was deemed to not be a useful metric due to the U.S. Government removing that data before it could be reliably archived. This particularly impacted demographic data at programs in southern and midwestern states.

The local, regional, and national subteam data reports are below. The data collected will be used for determining site feasibility in the next stage of the project. Further data collection will come from a local level.

Local

Existing academic and training programs serving marine services in Pacific County include programs out of Grays Harbor College and through the Sea Grant program. Academic and training programs within Pacific County were researched as the client is interested in the creation

[1] Tuition cost, annual operations cost, student faculty ratio, funding sources, types of facilities offered, skills advertised, graduate employment outcomes, admitted class size, demographic data, and whether students were primarily admitted from the surrounding region or from across the nation

of new educational and training facilities to support the marine services industry. An inventory of current programs is necessary to see what applicable training is currently available.

Grays Harbor College, is a 2-year community college located in Aberdeen, Grays Harbor County. As it is the only regional community college, it serves Pacific County as well and has facilities in both counties. The Pacific County facilities include the Riverview Education Center in Raymond and the Columbia Education Center in Ilwaco. The college has a few applicable programs to this project including the Diesel Technology Program (includes marine engines) and welding (construction, pipe, structural). Additionally there are existing workforce funding programs such as Basic Food Education & Training Program (BFET), Early Achievers Grant (EAG), Opportunity Grant (OPG), WorkFirst Program (WF), and Worker Retraining Program (WRT). These provide a strong foundation for a dedicated maritime program.

Sea Grant is a program based through the University of Washington funded through federal-university partnerships. The program is offered to coastal areas and has recently started in Pacific County. Sea Grant funds marine research and works with communities, businesses, and educators in understanding and sustainably using coastal resources. Sea Grant currently offers many 2 day training courses including: basics of welding, fiberglass repairs, vessel handling, navigation, maintenance of inboard and outboard engines, fishing gear repair (net mending and knot tying), marine hydraulics, marine electronics, vessel cleaning and safe product handling, and fisherman first aid and safety training.

Initial industry data from the Bureau of Labor Statistics has also been researched to see which industries are dominant in Pacific County. The data suggests that trade, transportation, and utilities is a growing industry while many others are shrinking. The clients have ideas for the educational focus to support the Marine Services industry e.g., oysters, millwrights, etc. Data needs to be confirmed to see which uses would be most beneficial to the community.

Supersector **Service - Providing**	**Number of Establishments Private Q1 2024**	**Employment Private Mar 2024**	**% change in employment since 2017**
Education and Health Services	47	665	23.38%
Trade, Transportation, and Utilities	96	741	-2.76%
Financial Activities	53	227	14.65%

Leisure and Hospitality	103	909	-11.58%
Information	11	43	-21.82%
Other Services	42	152	-15.08%
Total Service Providing	**426**	**3128**	**4.48%**
Goods - Producing			
Construction	66	290	29.46%
Manufacturing	32	712	-6.56%
Natural Resources and Mining	72	551	-31.30%
Total Goods - Producing	**174**	**1553**	**-13.14%**
Total - All Industries	**600**	**4681**	**-2.11%**

Figure 1: Green indicates the largest employment or growing sectors. Red indicates highlighted sectors with shrinking employment. BLS Pacific County Private Ownership Industry Data. Adapted from (Bureau of Labor Statistics, 2024) and (Bureau of Labor Statistics, 2017)

Regional

Programs throughout the Pacific Northwest are accredited by a variety of entities, such as the United States Coast Guard, the Marine Trades Accredited programs, and the Accrediting Commision of Career Schools and Colleges (ACCSC) for programs in community colleges. Within Washington, seven programs report an average job employment rate of 73%, indicating the percentage of graduating students placed into relevant occupations.

Marine services educational programs in Washington, consisting of community colleges and vocational schools, maintain an average graduation rate of 77% across seven programs that have reported data. Considering the cumulative data, higher education institutions in Oregon report an average graduation rate of 48% respectively. The graduation rate is evaluated by students that have either successfully graduated with an associates degree or completed a bachelor's degree program within 6 years.

The curriculums for each program vary, but have common themes when it comes to classroom and hands-on training. Skagit Valley College, as part of the Pacific Northwest Maritime Industries Education Alliance (PAC Maritime), has a curriculum divided between the classroom and lab facilities. Its curriculum is designed to prepare students for marine trades employment in three major areas; marine propulsion, marine vessel systems, and marine composites. The Maritime Institute of Technology, located in Seattle, has several different programs and areas of focus as part of the curriculum. Programs include AB (Able Seafarer) to MATE Program, Mate to Master Program, Military Sealift Command (MSC), Maritime Apprenticeship Program, and Navigational Skills Assessment Program (NSAP). Clatsop Community College is a US Coast Guard approved facility that offers STCW courses with classroom, lab, and on-vessel training at the mouth of the Columbia River as part of the curriculum. Most programs have class sizes between ten and ninety five students, with a few larger outliers. Cost is highly variable based on many factors such as in state residency, two or four year degree, and program duration. Maritime programs are generally two year degrees, with some shorter or longer depending on the individual student's choice in certificate programs.

National

Existing national academic and training programs serving marine services across the US include MARAD (United States Department of Transportation, Maritime Administration) recognized programs, Sea Grant Institutions, and an array of independent institutions with a variety funding sources. Marine services institutions and programs were researched to identify information and unique features from other programs that will benefit Pacific County's goals. The research analyzed in this report offers several strong case studies for the site selection process.

Nine institutions, six K-12, and three higher education, were selected for a broad analysis. Information on these programs came primarily from school webpages and data published by the US government. K-12 institutions teach students about local issues such as Marine Engineering and Marinebiology. A key case study is the New York Harbor School on Governors Island in Brooklyn, NY. Higher education institutions often focus on larger scale marine industries, such as domestic boatbuilding and millwright skills. The Maine Maritime Academy in Castine, Maine, is a key example of coordination between MARAD funds and the United States Coast Guard Academy to create a strong, accredited maritime education program.

Conclusion

It is vitally important that Pacific County develops a training program that can help revitalize the marine services sector. The local, regional, and national subgroups have conducted research programs that the county can look to as they build their own program in the years to come. As outlined by the client, there is a gap in the labor market of workers with the necessary certifications and skills to work in the marine services sector. A new Willapa Bay based program

can bridge this gap by providing a new generation of qualified workers and make the county less reliant on a non-local workforce.

Going forward, the studio will utilize the data at local, regional, and national levels to conduct site feasibility studies on the possible sites for Pacific County's potential training program. There is also a need to further study Pacific County's labor market to provide a more complete understanding of the challenges that could be addressed by a new training program. The expectation is that these data sources will provide a strong foundation for URBAN 507 and allow client goals to be met.

Initial Recommendations

Local

There is a drastic need for economic revitalization through education in Pacific County. Willapa Bay offers potential to host new educational opportunities to improve the existing marine services workforce, and promote economic development within the community. Currently, the most prominent existing academic and training programs in Willapa Bay that support marine services is Grays Harbor College. Located in neighboring Grays Harbor County, the college still serves Pacific County with facilities in Raymond and Ilwaco. It offers relevant programs such as Diesel Technology (including marine engines) and welding. However, these facilities are heavily underutilized. The college provides workforce funding through various programs such as SeaGrant, BFET, WorkFirst, and Worker Retraining. The Sea Grant program focuses on coastal resource sustainability and offers training in marine-related skills including welding, fiberglass repairs, vessel handling, and more. In order to identify curriculum to be encouraged in these facilities to improve the workforce within Pacific County, data from the Bureau of Labor Statistics is being researched to identify dominant industries in Pacific County. The data suggests that trade, transportation, and utilities are growing industries while many others are shrinking.

Regional

Washington's maritime training programs, particularly at community colleges like Skagit Valley College, provide strong models of workforce-aligned education that could be adapted for Pacific County. These programs integrate hands-on training, industry-recognized certifications, and employer partnerships, aligning well with local needs in oystering, crabbing, and boat maintenance. In contrast, Oregon's larger programs cater more to deep-sea commercial industries, making them less applicable to Pacific County's workforce. Short-term certifications and apprenticeship-based models, such as those at the Maritime Institute of Technology and Graduate Studies (MITAGS) in Seattle, offer a more practical approach for the county's small-scale marine industries.

To address workforce gaps, Pacific County should explore partnerships with established Washington programs to expand access to maritime training. Strategies could include offering satellite courses, mobile training units, or employer-sponsored apprenticeships to reduce barriers to entry. Additionally, securing workforce development grants and aligning training with certifications like STCW (Standards of Training, Certification, and Watchkeeping), ABYC (American Boat & Yacht Council), and NMEA (National Marine Electronics Association) would ensure that local workers gain industry-relevant skills without needing to relocate.

National

National maritime education programs offer strong examples for what Pacific County intends to develop in partnership with Grays Harbor Community College. The data analyzed in this report suggests that a community college approach may be best aligned with both local capacity and goals. Most programs across the United States are either structured to be administered as a high school level training program or a Bachelor's degree, but meeting in the middle may produce the best results for lowest costs to both the student body and the County. We recommend tailoring a two year curriculum to local needs and reserving classes not required for basic knowledge or achieving certifications for those students who want to pursue further education.

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Introduction

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MARINE SERVICES

Introduction

Pacific County Economic Development Council (PCEDC) has contracted with Liveable City Year (LCY) to develop a plan to retain and grow the local marine services labor force. PCEDC intends to develop a marine services education facility in partnership with Grays Harbor College and Riverview Education Center. The proposed program has a strong focus on skills-based programs with a built in degree to job flow. Pacific County's marine services sector is struggling to maintain jobs and retain local youth. This program proposes to address these issues with industry certifications and hands-on skill building to provide local youth with economic opportunities and build a sustainable workforce. The UW 506 Studio provides an analysis of equivalent programs across the United States as a precursor to a site selection process for a marine services educational facility.

The 506 Studio formed three subteams to research and analyze marine services educational programs across the United States. One group looked at existing programs and needs in Pacific County, one group examined regional programs in the Pacific northwest (PNW), and the last group researched programs across the US and outside of the PNW. Metrics were chosen to apply across research areas and assist in determining transferable practices when developing a program in Pacific County. to determine their feasibility in the context of the proposed Pacific County program.

Metrics were selected to ensure the reliability of data collection across all three subteams. These metrics were used to compare programs and identify unique characteristics that will benefit the site selection and program development process in spring 2025. The analyzed data allowed for the selection of case studies relevant to Pacific County's goals. There were some difficulties due to the changing political climate and the removal of publicly available information by the United States government. These gaps were most notable in schools in the midwestern and southern regions.

The subteam data reports are below and the collected data will be used in the upcoming site selection process.

Metrics

Ten metrics were chosen to evaluation marine services education programs across the United States. These were chosen to aid in the site selection and program development process. The use of these metrics assumes that the analyzed education institutions report their metrics and program structures accurately.

Funding sources

Funding sources were selected as marine services programs have high start up costs and funding will need to be determined well in advance. All institutions receive funding at a federal, state, and local level. Significant funds have come through the US Department of Transportation. Non-profits, donations, and tuitions comprise the remainder of program funding.

Demographics

Demographics reporting highly varied between schools, but did provide helpful information on the student body. Significant percentages of students had Pell grants or similar funding, indicating a primarily working class student body. Other demographic categories were gender and race.

Credit hour allocation

Credit hour allocation is the ratio between expected time in class and work outside of class. This metric only applies to higher education. Marine services institutions follow local or state guidelines in alignment with degree certification.

Length of programs

The expected length of completion often aligns with the credit hour allocation. The length is important when considering the costs and benefits of a bachelor's degree or other certifications. Especially given that many students are from lower income backgrounds, a longer program may be less sustainable.

Number of students

The program size will greatly influence the site selection process.

Division of curriculum

Regulating institutions greatly influence curriculum distribution. Depending on what certificates are offered, the curriculum will need to adapt to those requirements.

Square feet of land usage

The campus size is highly relevant to the site selection process, but was often hard to find references to the specific square footage dedicated to the programs. Most maritime academies are attached to other schools or offer multiple programs that are not relevant to Pacific County.

Infrastructure

Community and site infrastructure varies by site, but the selected case studies provide an overview of what may be necessary to have a sustainable program.

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Local Report

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Local Report

Vocational Training

Grays Harbor College is a 2 year community college that serves Pacific County and the surrounding area. The college has a few programs that are applicable to the Marine Services industry. Applicable programs include: Diesel Technology Program (includes marine engines), welding (construction, pipe, structural). Additionally there are workforce funding programs such as Basic Food Education & Training Program (BFET), Early Achievers Grant (EAG), Opportunity Grant (OPG), WorkFirst Program (WF), and Worker Retraining Program (WRT).

Locations

While Grays Harbor College is located in Aberdeen (Grays Harbor County), it still serves as the local community college for Pacific County. The college also has facilities in Pacific County - the Riverview Education Center in Raymond and the Columbia Education Center in Ilwaco. Currently, the Riverview Education Center houses the Washington State Running Start program, which allows high school students to take college courses which are paid for in part by their current high schools. The site is also currently used for Adult Basic Education (ABE) programs, which are courses tailored towards adults that are older than high school aged but are currently seeking a GED or high school diploma.

Sea Grant

Sea Grant is a program based through UW funded through federal-university partnerships. The program is offered to coastal areas and has recently started in Pacific County. Sea Grant funds marine research and works with communities, businesses, and educators in understanding and sustainably using coastal resources. Sea Grant currently offers many 2 day training courses including: basics of welding, fiberglass repairs, vessel handling, navigation, maintenance of inboard and outboard engines, fishing gear repair (net mending and knot tying), marine hydraulics, marine electronics, vessel cleaning and safe product handling, and fisherman first aid and safety training.

Industry Data

Research industry data from the Bureau of Labor Statistics to see which industries are dominant in Pacific County. The clients have ideas for the educational focus to support the Marine Services industry e.g., oysters, millwrights, etc. We need to see if these industries should be what we recommend Pacific County to pursue.

The below table reflects the data that was gathered regarding the different employment sectors from private ownership companies within Pacific County. The table shows the number of

establishments of each sector, along with the number of employees. The % change in employees of each sector from the year 2017 is also displayed. Key points were highlighted. Green highlight shows selected large or growing industries, whereas red indicates selected industries that have decreased.

Supersector **Service - Providing**	**Number of Establishments Private Q1 2024**	**Employment Private Mar 2024**	**% change in employment since 2017**
Education and Health Services	47	665	23.38%
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Trends

The table above demonstrates an overall decrease in the number of Goods-Producing employment by -13.14%. Slight increase in total Service Providing employment by 4.48%. It is worth noting that the total number of workers in the Goods-Producing (1,553) category is more than half of those that work in Service providing (3,128).

Natural Resources and Mining was the sector that has shown the greatest decrease in number of employees (-31.3%), whereas Construction has shown the greatest increase (29.46%), although Construction is a relatively smaller industry with 290 workers. Both of these sectors fall under the overarching Goods-Producing sector.

Within the Service-Providing sector, Leisure and Hospitality contains the largest number of workers (909), although has experienced a -11.58% decrease since 2017. The fastest growing Service-Providing industry since 2017 has been Education and Health Services at 23.38%.

Largest Employment industries 2023 - Number of Employees (7-Year % change)

1. Leisure and Hospitality - 909 (-1.8)
2. Trade, Transportation, and Utilities - 741 (-2.76%)
3. Manufacturing - 712 (-6.56%)
4. Education and Health Services - 665 (23.38%) Largest increase
5. Natural Resources and Mining - 551 (-31.30%) Largest decrease
6. Construction - 290 (29.46%)
7. Financial Activities 227 (14.65)

SWOT (Strengths, Weaknesses, Opportunities, Threats)

Strengths: Shellfish Production. Shellfish farming is a key industry in Pacific County. As the largest shellfish producer on the West Coast, the county annually produces nearly 50 million pounds of clams and oysters, along with 21 million pounds of fish and shellfish. This industry not only creates thousands of jobs but also supports the charter boat and tourism sectors, making it an economic cornerstone. (Bureau of Labor Statistics, 2024)

Weaknesses: High School Graduate Unemployment and Slow Population Growth. Across all education levels, the highest unemployment rate is for people who's highest level of education is a high school diploma as opposed to non-graduates and graduates who have received additional education. The unemployment rate for high school graduates is 7.5%, which is the highest across all education levels, even exceeding the rate for those without a high school diploma. Slow population growth compared to other areas has begun to impact the workforce: The total civilian labor force was 7,985, down from 8,293 from 2023 to 2024. (Bureau of Labor Statistics, 2024)

Opportunities: Potential Within the Education Sector. Grays Harbor College has facilities that are currently underutilized but could potentially lead to economic development. If better utilized, these educational facilities could help bridge the gap between the county's strengths of a historically strong marine services industry and the weaknesses and threats posed by a workforce that is in need of adaptability to technological advancements within the industry.

Threats: Environmental Concerns and Workforce Challenges. Washington State has emphasized the need for technological advancements in the marine services sector which was aimed to address climate change concerns laid out in WAC 173-26-360. If the current workforce is not trained to adapt to new technological standards, the local economy may be impacted.

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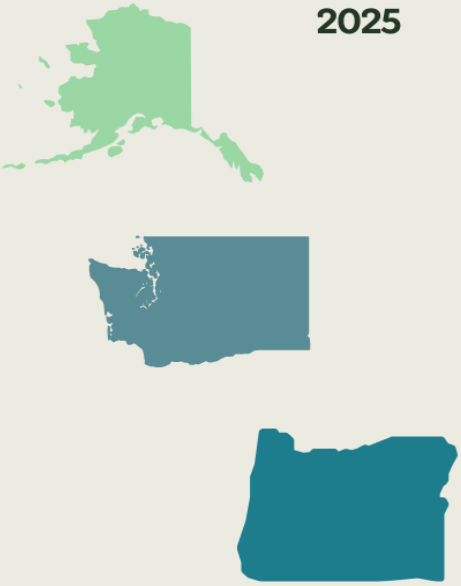
Regional Report



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EDC PACIFIC COUNTY

Regional Report

Introduction

The maritime industry plays an important role in the Pacific Northwest's economy, requiring a skilled workforce in specialized programs. This report will provide an overview of maritime training programs in the Pacific Northwest (PNW) in order to assess key factors such as accreditation, graduation rates, job placement rates, curriculum, duration, and cost. The selected programs are federally recognized as Centers of Excellence for Domestic Maritime Workforce Training and Education (CoE) to identify best practices and challenges within maritime workforce development. These findings aim to highlight strengths that can be applied to a program in Pacific County, WA.

Criteria Selection

We initially identified 20 maritime programs through the Center of Excellence (CoE) and refined our selection to five programs that best align with Pacific County's needs (*Centers of Excellence for Domestic Maritime Workforce Training and Education (CoE)*, 2024). Our selection process was guided by several key criteria to ensure relevance, feasibility, and impact. First, we prioritized programs with readily available data to support a thorough assessment. We also considered regional relevance, focusing on programs that directly address Pacific County's economic, environmental, and workforce development needs. Additionally, we evaluated each program's accessibility, ensuring that implementation would be practical given local infrastructure and resources. Funding opportunities and long-term sustainability were also key factors, as we aimed to identify programs with viable financial support and lasting benefits. Finally, we considered stakeholder alignment, selecting programs that complement existing county initiatives and have the potential for strong community and industry support. By applying these criteria, we identified the most promising programs for Pacific County's maritime sector.

Pacific Northwest Programs

The Pacific Northwest is home to several esteemed maritime training institutions that provide hands-on education and industry-recognized certifications for those pursuing careers in marine trades. These programs offer a range of training in boat building, vessel operations, marine systems, and maritime navigation, equipping graduates with the skills needed for employment in the region's thriving maritime industry. Below is an overview of four key programs:

Skagit Valley College – Marine Maintenance Technology Program

Located in Anacortes, Washington, Skagit Valley College offers a Marine Maintenance Technology program designed to prepare students for employment in the marine trades. The

program focuses on two major disciplines: marine mechanics and marine electrical systems. Students can pursue one-year certificates in these high-demand areas or a two-year Associate of Applied Science (AAS) degree by completing coursework in both fields. The curriculum combines classroom instruction with hands-on experience, ensuring graduates are well-equipped for various career pathways in the marine industry (*Marine Maintenance Technology*, n.d.).

Students working in the marine maintenance lab at Skagit Valley College, where hands-on training prepares them for careers in marine propulsion, vessel systems, and composites
Source: https://www.skagit.edu/academics/areas-of-study/industrial-technology-transportation/marine-maintenance-technology/

Maritime Institute of Technology and Graduate Studies (MITAGS)

MITAGS is a renowned non-profit vocational training center with campuses on both the East and West Coasts of the United States, including Seattle, Washington. The institute offers comprehensive maritime training programs for individuals seeking to enter the maritime profession and for professional mariners aiming to advance their careers. Key programs include the Mate to Master Program, AB (Able Seafarer) to Mate Program, Military Sealift Command (MSC) training, and the Maritime Apprenticeship Program. With state-of-the-art simulation facilities and a focus on practical skills, MITAGS prepares maritime professionals for successful careers in the industry (*MITGAS Programs*, n.d.).

A state-of-the-art maritime simulation facility at MITAGS, used for advanced training programs
Source: https://www.mitags.org/programs/

Northwest School of Wooden Boat Building

Situated in Port Hadlock, Washington, the Northwest School of Wooden Boat Building offers a comprehensive curriculum that combines classic traditional skills with contemporary wood composite methods. The school emphasizes safety and quality of work, adhering to industry standards set by organizations such as The National Marine Electronics Association. Students receive practical training on actual boats made from various materials, including wood, fiberglass, aluminum, and steel, ensuring they

Students honing traditional boatbuilding techniques at the Northwest School of Wooden Boat Building, which integrates classic craftsmanship with modern materials.
Source: https://nwswb.edu/

gain hands-on experience relevant to the marine industry (*Marine Systems Program*, n.d.).

Clatsop Community College – Maritime Science Program

Students participating in hands-on vessel training at Clatsop Community College, which offers STCW courses and practical maritime instruction at the mouth of the Columbia River.
Source:https://www.clatsopcc.edu/maritime/

Located in Astoria, Oregon, Clatsop Community College offers a Maritime Science program that provides practical training adhering to industry standards. The curriculum places a strong emphasis on safety and quality of work, with training conducted on actual boats made from various materials, including wood, fiberglass, aluminum, and steel. The program offers classroom, lab, and on-vessel training at the mouth of the Columbia River, preparing students for various roles in the maritime industry (*Maritime Science*, n.d.).

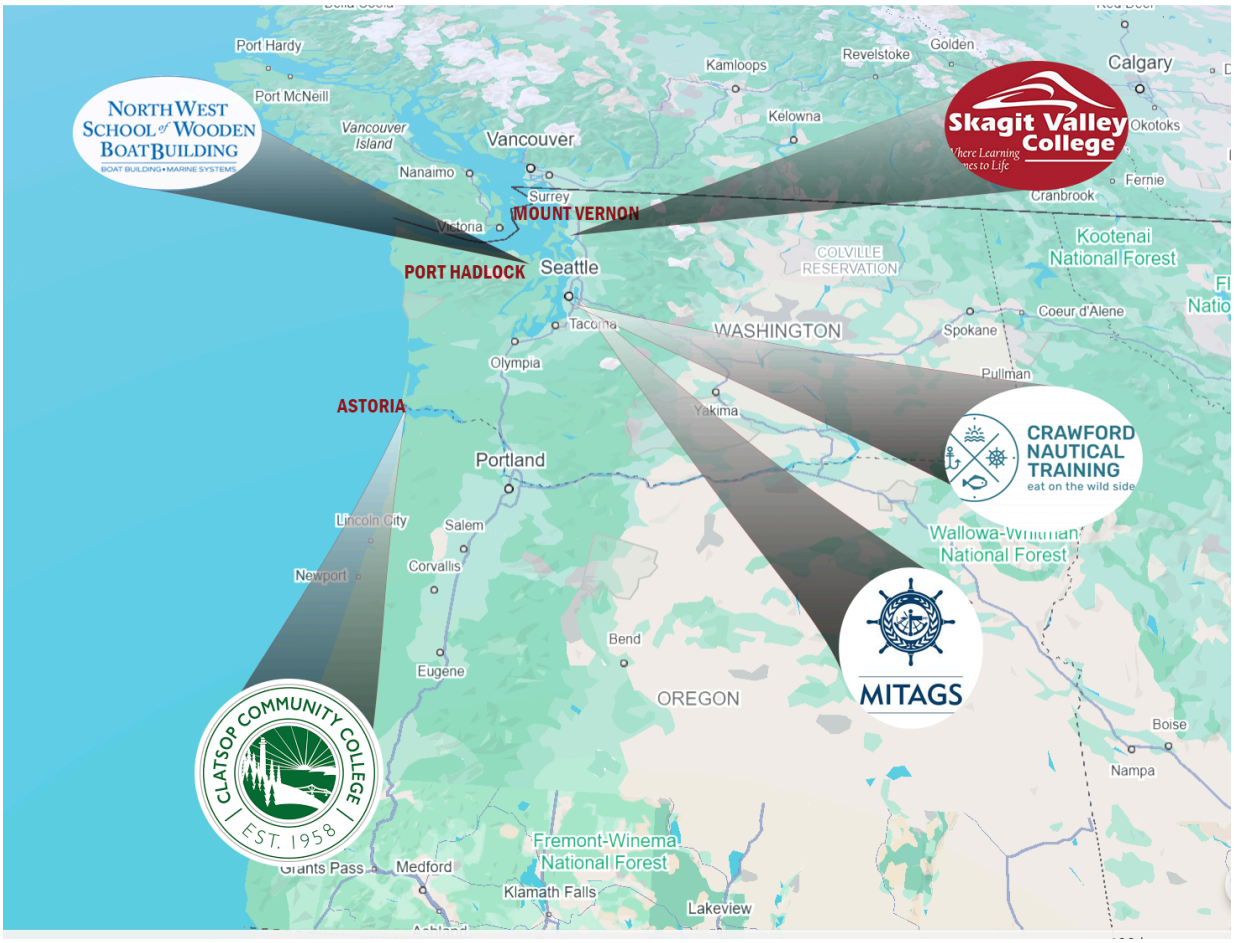

Figure 2. This map highlights the locations of four Centers of Excellence (CoE) for Domestic Maritime Workforce Training and Education programs in Washington and Oregon. Source: U.S. Department of Transportation Maritime Administration.

Comparative data on the four key programs at regional schools can be seen in the table below:

Colleges	Skagit Valley College	Maritime Institute of Technology and Graduate Studies	Northwest School of Wooden Boat Building	Clatsop Community College
State	Washington	Washington	Washington	Oregon
City	Mount Vernon	Seattle	Port Hadlock	Astoria
Institution Type	Group of Training Entities	Non-Profit Training Program	Postsecondary Vocational Institution	Postsecondary Educational Institution
Accreditation	member of the Marine Trades Accredited (MTA) program	Accrediting Commission of Career Schools and Colleges (ACCSC)	United States Coast Guard approved training facility	United States Coast Guard approved training facility
Job employment post grad	66%	94%	65%	77%
Graduation rate	54%	70%	80%	44%
Curriculum	- prepares students for marine trades employment in three major areas: marine propulsion, marine vessel systems, and marine composites - students divide their time between the classroom and well-equipped lab facilities	AB to MATE Program, Mate to Master Program, Military Sealift Command (MSC), Maritime Apprenticeship Program, Navigational Skills Assessment Program (NSAP)	A thorough and concise curriculum that combines classic traditional skills with contemporary wood composite methods. The practical training adheres to industry standards set by CFR, ABYC, NFPA, ABS, and NMEA, placing a strong emphasis on safety and quality of work. Training in the field takes place on	- STCW courses - classroom, lab, and on-vessel training at the mouth of the Columbia River

			actual boats made from various materials, including wood, fiberglass, aluminum, and steel.	
Duration	2 years	Various, with one program at 2 years	9 months	6 months to 1 year
Size	30	19	35	Undisclosed
Student and Faculty Demographics	**Student** *Gender* Male: 89% Female: 11% *Race* Hispanic: 6% White: 85% Multi-racial: 8% Other: 2% *Age* <20: 4% 20 to 29: 30% 30 to 39: 25% 40 to 49: 20% 50+: 21%	**Student** *Gender* Male: 93% Female: 6% *Race* Hispanic: 50% Other: 50% *Age* <20: 0% 20 to 29: 63% 30 to 39: 26% 40 to 49: 11% 50+: 0%	**Student** *Gender* Male: 89% Female: 11% *Race* Hispanic: 6% White: 85% Multi-racial: 8% Other: 2% *Age* <20: 4% 20 to 29: 30% 30 to 39: 25% 40 to 49: 20% 50+: 21%	**Faculty**: 3
Degrees/Certifications/internships/work study	-Associate in Applied Science Degree, AAS -Marine Electrical Technician Certificate -Marine Mechanical Technician Certificate -opportunity to earn credentials with the American Boat & Yacht Council (ABYC),	-Maritime Apprenticeship Program - AB to Mate Program	Associate's Degree in Boatbuilding Diploma in Marine Systems Certificate in Marine Systems Intensives	Seamanship, Vessel Operations (AAS),

	National Marine Electronics Association (NMEA), Occupational Safety and Health Administration (OSHA), and Environmental Protection Agency (EPA), as well as forklift certification and original equipment manufacturer (OEM) specific training.			
Overall Cost for Students per Academic Year	$3,742	Varies on program	$23,600	$2,000-$8,000

Figure 3: This table provides a comparative overview of four maritime training programs in Washington and Oregon, detailing their location, accreditation, job placement rates, curriculum focus, program duration, student demographics, and costs. These programs offer a range of certifications and degrees tailored to workforce needs in the maritime industry, with an emphasis on hands-on training and industry-aligned education

Limitations

The data collection process presented several challenges that impacted the specificity of our analysis. One of the primary issues was the decentralized nature of the data, which made it difficult to locate comprehensive and consistent information across different sources.

Additionally, the size and structure of the programs created obstacles in finding sufficient and program-specific data. In some cases, data was either incomplete or unavailable, limiting our ability to conduct a more in-depth analysis.

Lastly, there were limitations to the graduation rates for Oregon. The data available for these states reflects overall school graduation rates rather than those specific to the maritime programs. Similarly, job employment data was not always available at the program level, and in some cases, only overall school employment outcomes could be obtained. Due to the lack of program-level graduation and employment data, our analysis had to rely on broader school-wide statistics, which may not accurately represent program outcomes.

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National Report

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EDC PACIFIC COUNTY

National Report

Introduction

This report discusses approaches to marine services education from across the US. It begins with examples from K-12 education, and proceeds to examples from higher education. The data in this report has been sourced from publicly available information such as program websites and census data. The report compares many factors of these educational facilities to see which will be most applicable as case studies for Willapa Bay. The comparative tables below highlight these factors and suggest where the strengths and shortcomings of other programs can be best utilized to build an outstanding program in Pacific County, WA. All programs are high ranking and well known maritime schools.

K-12 Analysis

The U.S. Department of Transportation made a list of K-12 maritime schools that provided students with the skills to directly lead to employment in the maritime industry or allow them

entrance into a maritime-oriented college or vocational/technical school post-high school graduation (U.S. Department of Transportation, 2025). These schools needed to encompass courses that had CTE certified instructors and courses on general seagoing operations. The school also needed to include the potential to earn credentials required to obtain afloat positions in the maritime industry. The schools chosen from this list to further investigate had similar environmental landscapes and skill programs that were specific to mechanical and electrical marine engineering, and ship building.

The first three schools listed, Tybee beach, MAST Academy and NY Harbor are all schools specifically dedicated to maritime education. S.Broward High School, Port of LA High School and Inlet Grove High School are all public schools that incorporated programs into their already established schools.

Skills

The New York Harbor School, Port of Los Angeles High School and Inlet Grove High School's programs are most in line with the kinds of programs Pacific County would need. The focus on hands-on learning, operations, and maintenance would be more useful in creating a pipeline to the industry needs that the PCEDC has identified than the research, oceanography, and environmental science focuses of that of other schools like Tybee Island and MAST.Their program and certifications allow for significant crossover industries that are highly valuable, such as welding and professional diving, especially when worked in tandem. Coast Guard programs often teach boat building within their curriculum. The table below compares the six K-12 programs analyzed for this report.

K12	Tybee Beach	MAST Academy	NY Harbor School	S. Broward High School	Port of LA High School	Inlet Grove High School
	Dedicated Maritime Schools			Schools with a Maritime Program		
Program (s)	Marine Engineering	Marine Studies/ Culture; Maritime Related Industries; Oceanic Atmospheric	Vessel operations; Marine tech Welding	Marine biology; Oceanography; Environmental science; Marine conservation, Maritime Technology.	Boat operations; Welding	Marine engine operation/ servicing

		Science Technology				
Skills/ Subjects	Research; Build mechanical systems for vessel operation; Propulsion mechanics; Electrical systems; Power generation.	Research Trips on vessels; Mobile science laboratories; Scuba license, Cambridge Advanced International Certificate of Education (AICE) Diploma.	Navigation; Boat handling; Safety; Industry rules standards; Marine mechanics/ electrical; Welding metal fabrication, Diver, Seafood HACCP training.	Field Studies; Laboratory work; Research projects, Cambridge Marine Science, Dual Enrollment coursework local colleges. Yamaha University Industry Cert.	Sailing; Navigation; Boat building; Red Cross CPR; First Aid, U.S. Coast Guard STCW through El Camino College.	Four-stroke, two-stroke, Diesel engines operation; 12-volt electrical systems; Yamaha University Industry Cert.

Figure 4: This table looks at skills and certifications that can be acquired from these higher education programs. Orange title indicated best case study match for Pacific County.

NY Harbor School

The Billion Oyster Project is a plan to bring back one billion live oysters to New York Harbor. Training and employing thousands of young people to restore this ecology to help restore the economy of the marine environment.

Photo: Urban Assembly New York Harbor School — Billion Oyster Project

Recognized Exams and Certifications

K12	Tybee Beach	MAST Academy	NY Harbor School	S. Broward High School	Port of LA High School	Inlet Grove High School
	Dedicated Maritime Schools			Schools with a Maritime Program		
Mechanical / Electrical			**X** (NOCTI Marine Mechanics)	**X**(Marine Service Technology Yamaha University)		**X**(Marine Service Technology Yamaha University)
Vessel Building					**X** (The U.S. Coast Guard STCW through El Camino College)	
Vessel Operation			**X** (US Power Boating Certificate, FCC Marine Operators Permit, USCG Limited Masters License)			
Welding			**X** (Metal Fabrication, American Welding Society/SENSE Program Entry Level Welder 1 exam)		**X** (National Center for Construction Education Research (NCCER)	
Physical Cert		**X** (Scuba License)	**X** (Diving, American Academy of Underwater Sciences (AAUS) Scientific Diver Final Exam, Red Cross CPR)		**X** (Red Cross CPR)	

Figure 5: This table highlights the certifications and licenses that will allow for movement into other industries. Orange title indicated best case study match for Pacific County.

Coast Guard STCW through El Camino College

STCW includes ABE Engine knowledge such as marine engineering at the support level; electrical and control engineering at the support level; maintenance and repair at the support level.

Photo: El Camino College - Maritime, Import-Export & APICS Certifications Training

Costs

It is clear that specialized education programs like these require funding outside of the property taxes that fund general public education programs. Pacific County and the Studio group would need to identify reliable funding sources for a program like this. Donations acquired through prestige, community investment and connection to the industry. Knowledge on how to create these dynamic ties to the industry would need further investigation into the communities values, biases and sigmas on the marine industry and working within it. The length of time since founding of the programs does not have an impact on the donations given, this means these connections can be made fast.

K12 Founding Dates	Tybee Beach (2013)	MAST Academy (1991)	NY Harbor School (2003)	S. Broward High School	Port of LA High School (2005)	Inlet Grove High School (2003)
	Dedicated Maritime Schools			Schools with a Maritime Program		
Annual Operational costs (Per Student)	$15,676	$3,161	$28,846	N/A County wide operational costs	$19,695	$12,949

Funding Sources	Local and state revenues; Grants and donors (maritime fund).	Donations and capital grants; Trading activities; charitable activities.	No available data	No available data	State and federal grants; Interest and rental income; Ownership in subsidiary income.	State, local, federal resources.

Figure 6: This table compares the annual costs and funding sources of the K-12 schools. Orange title indicated best case study match for Pacific County.

Environment

Tybee Beach, MAST Academy, NY Harbor School are all programs that are dedicated specifically to marine academics, they are all situated on islands. Being situated on islands allows for expansive space, full immersion in marine life and the programs. All are located in areas with brackish waters (like Pacific County). Understanding Willapa Bay's unique environmental conditions will be essential to developing a successful site for this educational center.

K12	Tybee Beach	MAST Academy	NY Harbor School	S. Broward High School	Port of LA High School	Inlet Grove High School
	Dedicated Maritime Schools			Schools with a Maritime Program		
Water Bodies	Atlantic Ocean, Savannah River, saltmarshes	Atlantic Ocean, Biscayne Bay	New York Harbor, Atlantic Ocean, Hudson River	Atlantic Ocean, Stranahan River/South Florida canal	Pacific Ocean, Port of LA Channels	Atlantic Ocean, South Florida canal
Landscape types	Barrier Island	Barrier Island	Island	Coastal Plain	Coastal Basin	Coastal Plain

Figure 7: This table shows the different environments that these K-12 schools are situated in and the water bodies surrounding these schools that they use for their studies. Orange title indicated best case study match for Pacific County.

Facilities

Ny Harbor school in 2024 agreed to double the size of their already large campus, due to the needs of a school for marine technology, mechanics and electrical require. (New York Harbor

School Expansion). To ascertain more information on the facilities at each school speaking with the schools directly would be necessary.
Survey questionnaires could include: What facilities do you use for your marine coursework, how large are these facilities (sq footage), what equipment is needed to teach these classes, and what outdoor space is needed for these activities?

K12	Tybee Beach	MAST Academy	NY Harbor School	S. Broward High School	Port of LA High School	Inlet Grove High School
	Dedicated Maritime Schools			Schools with a Maritime Program		
Unique	No data available	Boathouse, docks	No data available	No data available	No data available	No data available
Sq ft building, Acres	5,000 sq ft, 0.76 acres	100,749 sq ft, 11.182 acres	80,000 sqft	n/a	72,960 sq ft 1.634 acres	7,732 sq ft 23.99 acres

Figure 8: This table shows both a lack of data on facilities at the high school level without outreach and the differing sizes of these school campuses. Orange title indicated best case study match for Pacific County.

Student Data

Specific program demographics for the schools that programs are within existing schools would need to be investigated through speaking to the schools directly.

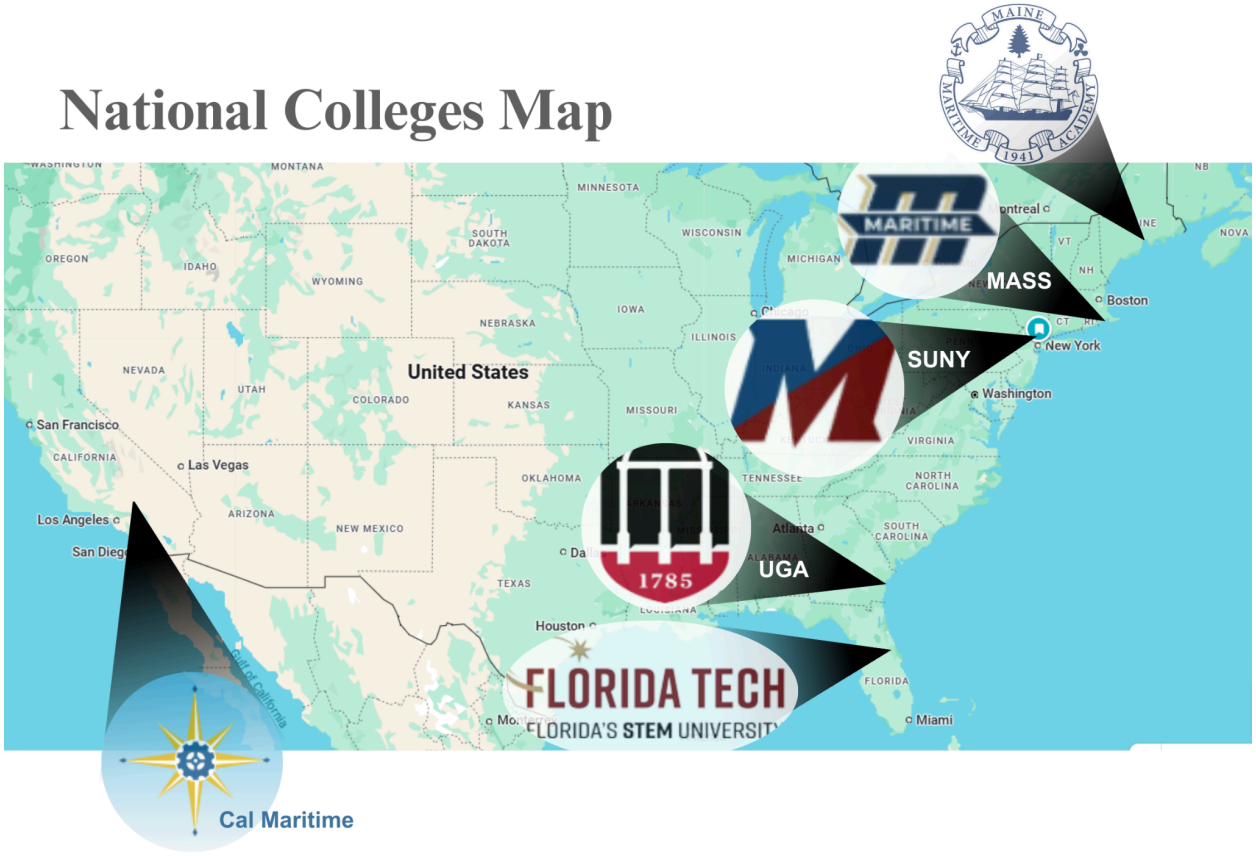
These schools generally all have high graduation rates, low student teacher ratios, and high percentage of students who are economically disadvantaged. In order to ensure high graduation rates at a future school in Pacific County, those creating a program should understand that many students will come from disadvantaged backgrounds and will need high levels of support in order to succeed.

K12	Tybee Beach	MAST Academy	NY Harbor School	S. Broward High School	Port of LA High School	Inlet Grove High School
	Dedicated Maritime Schools			Schools with a Maritime Program		
Number of Students	421	1,057	499	2,397	928	774
Class hour Allocation	Quarter system	Semester Systems, block schedule	8 periods	Semester System	Semester System, 4 periods	Semester system, 4 periods

Student Teacher Ratio	13:1	20:1	12:1	27:1	18:1	18:1
Graduation Rate	n/A	100%	91%	93%	94%	95%
Economically Disadvantaged (Free/Reduced Lunch)	37%	13%	61%	73%	62%	67%

Figure 9: The table above shows maritime K-12 programs annual enrollment of students who are eligible for free or reduced lunch meaning they are at or below 130% of the Federal Poverty Level, specific to the school, not the program. Orange title indicated best case study match for Pacific County.

Higher Education Analysis



Eight higher education institutions were identified as potential case studies useful for the Pacific County facility's site selection needs. These institutions are spread across the nation and generally draw their student body from the nearby regions. Similar to most other higher

education institutions, they are largely dependent on government funding. Some of the metrics used to analyze these institutions are displayed in charts below, including skills, cost, environment, facilities, and outcomes. Much of the gathered data comes from the program's webpages, and census data.

The selected maritime academies were evaluated based on budget, tuition, funding sources, campus size and scope, skills gained by students, graduate outcomes, and student origin in the US. These metrics were selected to identify transferable knowledge for Pacific County. In general, all programs resulted in a degree, with differing amounts of tuition paid by in-state and out-of-state students. The most applicable data in site selection is the land use criteria. Maritime academies generally require larger campuses per capita as water access is necessarily horizontal. Similar programs are located in coastal or lake regions with training ships, deep harbors, boat services equipment, engine simulator labs, libraries, and other facilities for programs with research funding.

Skills

Colleges	Maine Maritime	Cal Maritime	Florida Tech	Mass. Maritime Academy	UGA Marine Institute	Maritime College – SUNY
Program (s)	Maritime Engineering; Marine Trans-portation; Small vessel operation	Marine/ facilities engineer-ing tech; Marine trans-portation	Ocean engineer-ing; Marine sciences	Maritime Center for Responsible Energy, Marine engineering, International maritime business.	Ocean Science, Biology, Marine Sciences concentration, Marine Sciences, Ecology	International Transportation and Trade, Marine Environmental Science
Skills/ Subjects	Engineer license (steam and motor); Operations; Maintenance; Manufacturing	Water safety; Shipboard maintenance; Operations; Manage-ment; Small boat handling; Fall/Spring: rowboats, work boats,	Field intensive ocean research	USCG Third Assistant Engineering License for unlimited horsepower Steam, Diesel or Gas Turbine power propulsion	Intensive salt marsh and estuarine research	Shipping logistics, professional internships, U.S. Coast Guard Engine License

		tug boats, and T-boat		system, Institute for Chartered Shipbrokers		

Figure 10: This table looks at skills and certifications that can be acquired from these higher education programs. Orange title indicated best case study match for Pacific County.

Florida Tech

Ocean research at Florida tech investigates coastal engineering, corrosion and materials, shipbuilding, fluid dynamics, engineering and the development of underwater vehicles. This array of research would be greatly beneficial for brackish water marine services.

Photo: Research | Florida Tech

Costs

With very high operating costs, a Pacific County marine program will need to find stable and large sources of funding. The state of Washington would likely be the main source of funding. Given that the anticipated student body is low-income, tuition should not be expected to cover the majority of expenses. The programs we have highlighted sit average in annual operation costs, with country wide operation costs being 63 million annually (CLRN Team, 2024).

Schools	Maine Maritime	Cal Maritime	Florida Tech	Mass. Maritime Academy	UGA Marine Institute	Maritime College – SUNY
Annual Operational costs	$51,000,000	$52,616,675	$200,000,000 (entire university)	$ 19,355,243	$2,387,642,487	$49,820,193
Funding Sources	State/ Federal funding, Tuition	State funding, tuition	Tuition, donors	Federal funds, tuition, grants/ contracts, state funding	State, federal, Student tuition payments, Sales and services, grants and gifts.	Tuition, State Support, contributions and endowments, dormitory programs and

						capital funding. Gifts (foundations and societies)
Overall costs to student	$11,818-$27,762	$31,062	$28,784 - $48,367	$2180 - $14850	$28,394 - $49,240	$51,804 - $41,778
Annual cost to student Medical Insurance	Insurance : $2,129 + $210 fee	$1,613	$1,595	$3943 + $142 fee	$3,092	$3943

Figure 11: This table shows the differences in annual costs between programs and the different funding sources used for the costs of these programs. Orange title indicated best case study match for Pacific County.

Environment

The schools chosen are all located on or around brackish water for easy access. Like with the K-12 institutions, understanding Willapa Bay's unique environmental conditions will be essential to developing a successful site for this program. The diversity of water bodies and landscapes represented with these schools shows how even challenging environmental conditions can be worked with to develop a successful campus.

Schools	Maine Maritime	Cal Maritime	Florida Tech	Mass. Maritime Academy	UGA Marine Institute	Maritime College – SUNY
Water Bodies	Penobscot Bay, Atlantic Ocean	San Francisco Bay	Indian River (Brackish water lagoon), Atlantic Ocean	Buttermilk bay, Mooring basin, Onset bay	Sapelo Island, Gray's Reef National Marine Sanctuary	Little Neck Bay
Landscape types	Coastal inlets	Coastal Mountains, valleys	Coastal Plain	Coastal inlet	Barrier Island	Coastal Inlet

Figure 12: This table shows the different environments that these higher education are situated in and the water bodies surrounding these schools that they use for their studies. Orange title indicated best case study match for Pacific County.

Facilities

A focus on mechanical, electrical skills for boat servicing means large facilities to house training ships, and laboratories. Maine Maritime's facilities likely match the best with Pacific County's needs, with its focus on operations and maintenance.

Colleges	Maine Maritime	Cal Maritime	Florida Tech	Mass. Maritime Academy	UGA Marine Institute	Maritime College – SUNY
	500 ft training ship; Steam and diesel engine simulator labs; Machine shop; Electrical/ electronics lab; Full-service boat yard/shop	Navigation Lab; Training Ship Golden Bear (500 ft); Boathouse; Marina	139 acre campus on the Space Coast; Labs for fluid mechanics, wave dynamics, underwater tech, corrosion and bio-fueling, instrumentation, materials, electronics; Small craft for shallow water testing; Autonomous underwater vehicles	Training ship, labs and radar, electronic chart display and full-mission bridge simulators.	Main lab building is 23,000-square-foot w/ labs, a 1,700-square-foot wet lab (pump 75 gallons seawater per min., offices, a library, and an auditorium.	565-foot Training Ship Empire State VI.

Figure 13: This table shows the facilities that make these programs successful in Marine education. Orange title indicated best case study match for Pacific County.

State of Maine Training Ship

Maine Maritime academy has a 500 ft training ship called the State of Maine that they use for training for hands-on experience.

Photo: Training Ship State of Maine - Waterfront - Maine Maritime Academy

Areas of Interest

These metrics are helpful in the crafting of an academic higher education program through a variety of metrics. These include lower class sizes which are more applicable for programs that are technical and vocational over research based. Graduation rates do not always tell the full story and so job placement percentages can give a rounded look at the success of a program. 6 year programs at these same colleges can also have higher graduation rates, but for the purposes of Pacific County the 4 year programs were our focus area.

While highschool programs made access to these marine programs achievable for students from low income families, colleges often were the opposite with a much small percentage receiving pell grants. This will need to be addressed for the pacific county.

College	Maine Maritime	Cal Maritime	Florida Tech	Mass. Maritime Academy	UGA Marine Institute	Maritime College – SUNY
Number of Student	889	808	3,469	1,425	14	1,350
Credit Hour Allocation	1 hr/2hr	N/A	50/100 min	2hr	2hr	2hr
Student-Teacher Ratio	11:1	12:1	10:1	16:1	17:1	14:1
Graduation Rate	46%	49%	65%	79%	62%	64%
Job Placement (Within 3-6 months)	90%	94%	84%	96%	N/A	79%
Students receiving Pell Grants	66%	21%	31%	18%	17%	22%

Figure 14: This table shows the culmination of helpful metrics to show successful programs. Orange title indicated best case study match for Pacific County.

Limitations

While researching maritime programs on the national scale helps the team fully understand the range of possible programs a Pacific County maritime program could emulate, because other

communities around the country have different economic, environmental, and educational conditions it is difficult to know whether a program would be directly replicable in Pacific County. Rather, this data should help Pacific County understand the options available. Outreach to facilities would allow for a more comprehensive look at these programs. Information on prices of the programs materials and faculty can only be ascertained through networking. The information available online only supplies information for the entire college not for specific programs.

Recommendations

Local

There is a drastic need for economic revitalization through education in Pacific County. Willapa Bay offers potential to host new educational opportunities to improve the existing marine services workforce, and hopefully promote economic development within the community. Currently, the only program in Willapa Bay that supports marine services is Grays Harbor College. Located in neighboring Grays Harbor County, the college still serves Pacific County with underutilized facilities in Raymond and Ilwaco. It offers relevant programs such as Diesel Technology (including marine engines) and welding. The college provides workforce funding through various programs such as SeaGrant, BFET, WorkFirst, and Worker Retraining. The Sea Grant program, funded by federal-university partnerships, focuses on coastal resource sustainability and offers training in marine-related skills, including welding, fiberglass repairs, vessel handling, and more.

Bureau of Labor Statistics data is being used to identify dominant industries within Pacific County. This data can be used to identify curriculum that should be encouraged in the Raymond and Ilwaco facilities.The data suggests Education and Health Services is the fastest growing labor market while Natural Resources and Mining is the fastest declining sector. The goods producing sector as a whole has experienced a 13.14% decrease in employment since 2017 which helps provide a foundation for why this new training program could be useful. That is, Pacific County is becoming more reliant on tourism related economic activity while goods production is playing an increasingly small role. A major factor in this trend is the lack of qualified workers in the marine services industry and a new training program can help rebuild this local workforce.

Regional

To effectively support Pacific County's maritime workforce, the region should focus on developing training programs that align with the county's small-scale marine industries, such as oystering, crabbing, boat maintenance, and tourism-related vessel operations. Washington's maritime programs, particularly those at Skagit Valley College, offer workforce-aligned training models that could be adapted for Willapa Bay. These institutions emphasize hands-on learning, industry-recognized certifications, and employer partnerships—key elements that Pacific County should integrate into its own program development. Expanding access to apprenticeship-based learning and short-term certifications will ensure that students can quickly gain the skills needed for local employment without the burden of long-term educational commitments.

Collaboration with existing institutions and industry partners will be essential for program implementation. Establishing satellite training programs, mobile learning units, and on-site training opportunities in partnership with established maritime schools can make education more accessible to Pacific County residents. Engaging local marine employers in program development can also help ensure that training directly aligns with workforce needs, increasing job placement rates for graduates. Additionally, securing state and federal workforce development grants, such as those offered by Washington's Department of Commerce or the Workforce Innovation and Opportunity Act (WIOA), can provide crucial funding support.

Given that Oregon's larger programs focus more on deep-sea commercial industries, Pacific County should take a more localized approach that prioritizes nearshore and estuary-based maritime activities. Programs should incorporate coursework on sustainable fisheries, marine conservation, and vessel maintenance, ensuring that graduates are well-equipped to support the region's maritime economy. Industry-recognized credentials such as STCW (Standards of Training, Certification, and Watchkeeping), ABYC (American Boat & Yacht Council), and NMEA (National Marine Electronics Association) should be offered to enhance employability. By leveraging Washington's best practices and adapting them to local conditions, Pacific County can create a training program that is both sustainable and directly relevant to its workforce needs.

National

While regional models offer valuable frameworks, national case studies provide insights into broader strategies for developing a successful maritime education program. Willapa Bay's unique environmental conditions—including its status as a National Wildlife Refuge and vulnerability to natural hazards—necessitate a curriculum that goes beyond traditional maritime training. Lessons from national programs suggest that incorporating conservation-oriented courses, hazard mitigation strategies, and climate adaptation techniques will be essential. Institutions like Maine Maritime Academy and Florida Tech offer coursework in ocean engineering, ecosystem restoration, and vessel maintenance, which could be adapted to fit Pacific County's needs. Developing specialized coursework in environmental sustainability and disaster resilience will ensure that the program not only supports the workforce but also contributes to regional conservation efforts.

In addition to technical training, Pacific County should explore funding and policy mechanisms that have enabled national maritime programs to thrive. Many successful institutions rely on a combination of federal grants, state funding, and private sector partnerships to maintain financial stability. Establishing funding streams through government initiatives such as the Maritime Administration's (MARAD) workforce development programs or tapping into regional economic development funds could provide the necessary financial backing. Furthermore, engaging with national maritime industry associations can help Pacific County's program gain recognition and attract additional funding and resources.

By integrating the best practices from local, regional and national programs, Pacific County can build a maritime training initiative that is both locally relevant and aligned with national industry standards. A well-structured, flexible training model will not only strengthen the local economy but also enhance the county's ability to adapt to environmental and economic changes in the maritime sector.

Future Considerations

As we move into the next phase of this project, the focus will shift toward site-specific analysis and assessing the feasibility of potential locations for a maritime training program in Pacific County. The baseline understanding of local, regional, and national educational programs developed this quarter will serve as a foundation for evaluating how different sites can support workforce training needs. Considerations such as infrastructure requirements, environmental constraints, and proximity to key maritime industries will be central to this next stage.

A key component of the upcoming work will be engaging with stakeholders in the marine services sector. The background knowledge gained from this quarter's research will help facilitate meaningful discussions with local business owners, educators, and policymakers. Understanding the nuances of existing maritime programs and industry needs will allow us to advocate for a training program that is both practical and sustainable. Stakeholder input will be crucial in identifying potential challenges, ensuring industry alignment, and refining curriculum priorities to best serve Pacific County's workforce.

Community engagement will play a critical role in addressing the limitations encountered in this quarter's research. The decentralized nature of available data and the lack of program-specific graduation and employment metrics highlight the need for direct input from those involved in maritime industries and education. By conducting outreach efforts—such as interviews, surveys, and public meetings—we can fill information gaps, gather local perspectives, and ensure that the proposed training program is designed with community needs in mind.

Moving forward, site selection and program feasibility must be informed not only by technical data but also by the lived experiences of those who will directly benefit from the initiative. Establishing open channels for community participation will be essential in creating a maritime training program that is both viable and widely supported.

References

ALASKA VOCATIONAL TECHNICAL CENTER. (2022, November 1). *Catalog 2022-2023*. avtec.edu. https://avtec.edu/admissions/avtec_catalog_22_23.pdf

Alaska Vocational Technical Center. (n.y, n.m n.d). Collegescorecard. Retrieved March 16, 2025, from https://collegescorecard.ed.gov/school?102711-Alaska-Vocational-Technical-Center

Alaska Vocational Technical Center. (n.y, n.m n.d). *Alaska Vocational Technical Center*. datausa. Retrieved March 16, 2025, from https://datausa.io/profile/university/alaska-vocational-technical-center#netprice

Annual report and financials. (2024). The MAST Academy Trust. Retrieved February 20, 2025, from https://files.schudio.com/the-mast/files/documents/10357163_The_Mast_Academy_Trust_2324_FinStat.pdf.

Bureau of Labor Statistics. (2024, April 1). *Pacific County Industry supersector data table, Private ownership*. beta.bls.gov. https://beta.bls.gov/maps/cew/WA?period=2024-Q1&industry=1012&geo_id=53049&chartData=3&distribution=Quantiles&pos_color=blue&neg_color=orange&showHideChart=show&ownerType=5

Bureau of Labor Statistics. (2017, October 1). *Pacific County Industry supersector data table, Private ownership*. beta.bls.gov. https://beta.bls.gov/maps/cew/WA?period=2017-Q3&industry=1012&geo_id=53049&chartData=3&distribution=Quantiles&pos_color=blue&neg_color=orange&showHideChart=show&ownerType=5

California State University Maritime Academy. (2022, June 1). *Cal Maritime: Cost and Financial Aid*. The California State University. Retrieved March 10, 2025, from https://www.calstate.edu/dev/campuses/maritime-academy/Pages/cost-and-financial-aid.aspx.

CLRN Team. (2024, October 8). *How much does it cost to run a college?* California Learning Resource Network. Retrieved March 17, 2025, from https://www.clrn.org/how-much-does-it-cost-to-run-a-college/

El Camino College. (2023, August 26). *El Camino College - Maritime, Import-Export & APICS Certifications Training*. edumaritime. https://www.edumaritime.net/california/el-camino-college-hawthorne

Florida Institute of Technology. (n.d.). *General Academic Information (All Students) - Florida Tech - Modern Campus Catalog™*. Catalog. Retrieved March 10, 2025, from https://catalog.fit.edu/content.php?catoid=18&navoid=1051.

https://www.mitags.org/programs/. (2024, n.m n.d). *MITAGS Programs*. mitags.org. https://www.mitags.org/programs/

https://www.skagit.edu/academics/areas-of-study/industrial-technology-transportation/marine-maintenance-technology/. (n.y, n.m n.d). *Power up your career in the marine trades*. skagit.edu. Retrieved March 16, 2025, from https://www.skagit.edu/academics/areas-of-study/industrial-technology-transportation/marine-maintenance-technology/

INLET GROVE COMMUNITY HIGH SCHOOL, INC. INDEPENDENT AUDITOR'S REPORT AND FINANCIAL STATEMENTS. (2024, June 30). Flauditor. Retrieved February 20, 2025, from

https://flauditor.gov/pages/chschools_efile%20rpts/2024%20inlet%20grove%20community%20high%20school.pdf.

Magnet Academy. (2024). South Broward High School iCAN Academy Programs. Retrieved February 20, 2025, from https://www.browardschools.com/cms/lib/FL01803656/Centricity/Domain/17726/2024_Digital%20Flipbook%20final%203.pdf.

Maine Maritime Academy. (n.d.). *Academic Policies - Undergraduate Catalog*. Maine Maritime Academy. Retrieved March 10, 2025, from https://mainemaritime.edu/undergraduate-catalog/academic-policies/.

Maritime Administration. (n.y., n.m. n.d.). *2024 CoE Interactive Map*. maps.dot.gov. Retrieved March 16, 2025, from https://maps.dot.gov/portal/apps/dashboards/b6fae78ce08043ffa189cc986b305a49

Miami-Dade County Public Schools. (n.d.). *MARITIME AND SCIENCE TECHNOLOGY Magnet Program Fact Sheet*. Retrieved February 20, 2025, from https://mast.dadeschools.net/publications/Publication/Fact%20Sheet.pdf.

National Center for Education Statistics. (2023-2024). *Search for public schools*. National Center for Education Statistics (NCES). Retrieved February 20, 2024, from https://nces.ed.gov/ccd/schoolsearch/.

Office of Funding and Financial Reporting. (2024, February 26). *Florida Department of Education Broward School District* [Division of Finance and Operations].

Oregon CIS. (n.y, n.m n.d). *Oregon CIS*. uoregon.edu. Retrieved March 16, 2025, from https://oregoncis.uoregon.edu/Portal.aspx#Prog490600

Pacific County Economic Development Council. (2025). Marine/Seafood. Pacific County Economic Development Council. https://pacificcountyedc.org/industries/marine-seafood/

POLAHS. (2024, January 1). *POLAHS*. POLAHS. https://www.polahs.net/apps/pages/index.jsp?uREC_ID=810912&type=d&pREC_ID=1197643

The Official Website of the City of New York. (2024, November 7). *Adams Administration Breaks Ground on New York Harbor School Expansion on Governors Island*. NYC.gov. https://www.nyc.gov/office-of-the-mayor/news/818-24/adams-administration-breaks-ground-new-york-harbor-school-expansion-governors-island?emci=4933eb13-5ea3-ef11-88d0-6045bdd62db6&emdi=ea000000-0000-0000-0000-000000000001

The School Board of Broward County, Florida. (2021, January 1). *SBHS Curriculum Guide - 2020-2021*. Broward Schools. https://www.browardschools.com/cms/lib/FL01803656/Centricity/Domain/19468/SBHS%20Curriculum%20Guide%20.pdf

U.S. Department of Transportation. (2025, February 4). *K-12 Maritime Education Programs*. Maritime administration. Retrieved February 20, 2025, from https://www.maritime.dot.gov/maritime-workforce/maritime-training.

US News and World Report. (n.d.). *California State University-Maritime Academy*. US News Education. Retrieved March 10, 2025, from https://www.usnews.com/best-colleges/california-state-university-maritime-academy-1134.

US News and World Report. (n.d.). *Florida Institute of Technology - Profile, Rankings and Data | US News Best Colleges*. USNews.com. Retrieved March 10, 2025, from https://www.usnews.com/best-colleges/florida-institute-of-technology-1469.

US News and World Report. (n.d.). *Florida Institute of Technology - Tuition and Financial Aid | US News Best Colleges*. USNews.com. Retrieved March 10, 2025, from https://www.usnews.com/best-colleges/florida-institute-of-technology-1469/paying.

US News and World Report. (n.d.). *How Does Urban Assembly New York Harbor School Rank Among America's Best High Schools?* USNews.com. Retrieved March 10, 2025, from https://www.usnews.com/education/best-high-schools/new-york/districts/new-york-city-public-schools/urban-assembly-new-york-harbor-school-13334.

US News and World Report. (n.d.). *Inlet Grove Community High School*. US News Education. Retrieved March 10, 2025, from https://www.usnews.com/education/best-high-schools/florida/districts/the-school-district-of-palm-beach-county/inlet-grove-community-high-school-5388#:~:text=Inlet%20Grove%20Community%20High%20School%20is%20ranked%20153rd%20within%20Florida,of%20students%20.

US News and World Report. (n.d.). *Maine Maritime Academy - Profile, Rankings and Data | US News Best Colleges*. USNews.com. Retrieved March 10, 2025, from https://www.usnews.com/best-colleges/maine-maritime-academy-2044.

US News and World Report. (n.d.). *MAST Academy in Key Biscayne, FL - US News Best High Schools*. USNews.com. Retrieved March 10, 2025, from https://www.usnews.com/education/best-high-schools/florida/districts/miami-dade-county-public-schools/mast-academy-4872.

US News and World Report. (n.d.). *Port of Los Angeles High School*. US News Education. Retrieved March 10, 2025, from https://www.usnews.com/education/best-high-schools/california/districts/port-of-los-angeles-high-district/port-of-los-angeles-high-school-2640#:~:text=Port%20of%20Los%20Angeles%20High%20School%202024%20Rankings,rank%20the%20Best%20High%20Schools.

US News and World Report. (n.d.). *South Broward High School*. US News Education. Retrieved March 10, 2025, from https://www.usnews.com/education/best-high-schools/florida/districts/broward-county-public-schools/south-broward-high-school-4719.