

NYSERDA Overview of Offshore Wind Opportunities for Experienced Mariners

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NYSERDA provides resources, expertise, and objective information so New Yorkers can make confident, informed energy decisions.

Our Vision:

New York is a global climate leader building a healthier future with thriving communities; homes and businesses powered by clean energy; and economic opportunities accessible to all New Yorkers.

Our Mission:

Advance clean energy innovation and investments to combat climate change, improving the health, resiliency, and prosperity of New Yorkers and delivering benefits equitably to all.

NYSERDA Overview of Offshore Wind Opportunities for Experienced Mariners

Final Report

Prepared for:

New York State Energy Research and Development Authority

Albany, NY

Morgan Brunbauer
Project Manager

Prepared by:

Renewables Consulting Group

New York, NY

Emily Kuhn
Project Manager



11,400

Total job-years available to Mariners



2,600

Total job-years available to mariners for supplemental work



23.3

Total GW of OSW in operation by 2035 in the Northeast

Summary

The emerging offshore wind (OSW) industry offers the potential for mariners to supplement their income. The vast experience of the Northeast maritime industry is well known and interested mariners should be considered for jobs in this growing industry. In fact, the OSW industry has already seen the benefits of tapping into the experience of fishermen and other mariners to support development activities. Fishermen have been hired for liaison positions, and fishing vessels are currently being used for surveys, scientific data collection, and as scout vessels to prevent conflict between offshore wind activities and vessel traffic or encounters with fishing gear.

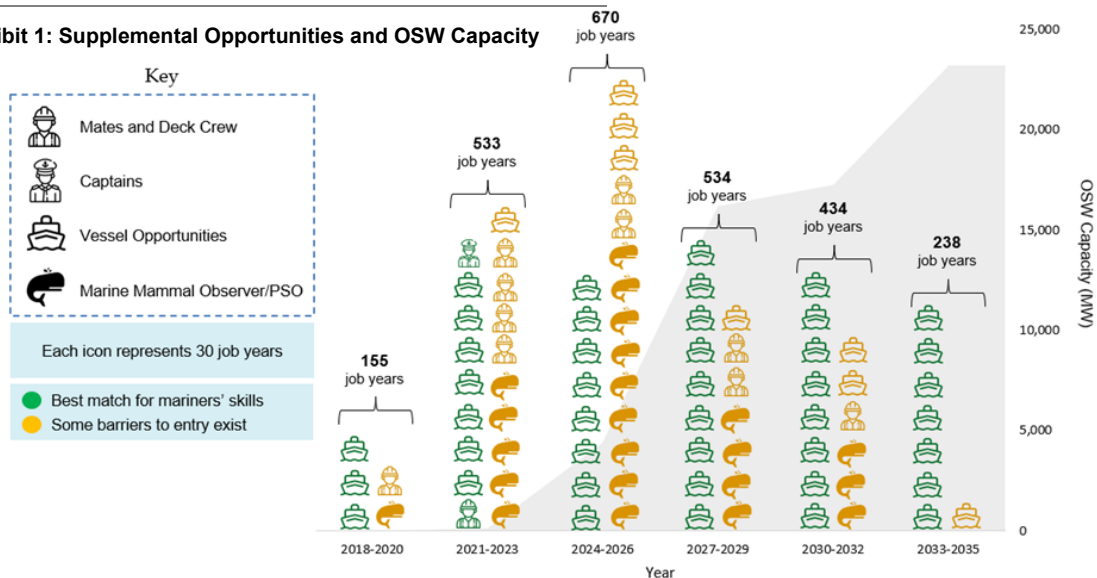
One “**job-year**” equals one year of work for one person. It can also mean six months of work for two people or three months of work for four people—or in general, whenever the sum of the months worked by each person equals 12.

As the industry matures, there will be additional work available for local fishermen and mariners during construction as well as operation phases.

In a recent study commissioned by New York State Energy Research and Development Authority (NYSERDA), the skills and qualifications held by the local maritime industry and the skills required to work in offshore wind jobs were examined to determine the most applicable jobs to mariners. Ultimately, the purpose of the study was to identify ways for experienced mariners to complement their income and to forecast the number of opportunities available. In the study, a variety of supplemental full- and part-time OSW jobs were evaluated; however, the analysis focused mainly on the supplemental part-time work.

The study concluded that the current Northeast offshore wind commitments can support 2,600 job-years of supplemental work, and many of these jobs require minimal training for local mariners.¹

Exhibit 1: Supplemental Opportunities and OSW Capacity



¹ The forecast was calculated using the Renewable Consulting Group’s proprietary model. RCG’s results are presented in “job-years.” The definition of a job-year is a full-time employee who works five days a week with five weeks of vacation (or 235 working days a year). Job-years is used in this analysis because it accounts for the varying shift length of supplemental and part-time work rather than assuming all positions are “full-time equivalents.” The quantification of opportunities in job-years allows for a calibrated estimate of time rather than a gross number of jobs.

Once the United States offshore wind industry is established, the number of supplemental jobs will remain a consistent and viable opportunity for mariners to supplement their income.

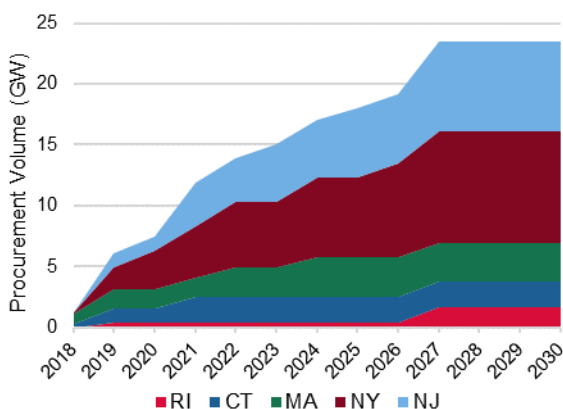
The Northeast’s Growing Offshore Wind Industry

New York State is leading the nation with its commitment to develop 9,000 megawatts of offshore wind power by 2035. Many different offshore wind projects will contribute to this target, with the first phase of projects anticipated to be operational by the mid-2020s.

The commitment of New York State, along with that of other Northeastern states, will lead to a total of 23.3 GW of offshore wind built by 2035. As the OSW industry grows, the option for mariners to supplement their income will become available during all phases of OSW projects. The life of an OSW project extends over 30 years from early development to decommissioning, and different marine activities will be required throughout the project life cycle. Each project represents its own potential to employ mariners.

The offshore wind build-out scenario used for this study is based on the procurement schedules of states in the Northeast (New Jersey, New York, Connecticut, Rhode Island, and Massachusetts) as well as data from RCG’s Global Renewable Infrastructure Projects database (GRIP).

Exhibit 2: Cumulative OSW Procurement Forecast 2018-2030



Skills and Trainings Gap Analysis

A gap assessment was conducted to identify the most promising opportunities in the OSW industry and to highlight the skills and training that mariners will need for each position. The findings from the gap assessment have been summarized in a “red-amber-green” (RAG) score for each job and vessel opportunity, classifying the jobs according to their compatibility with mariners’ skills. By categorizing the skills that mariners may typically be missing in qualifying for a position, individuals seeking employment and/or training can identify the gaps in their experience and quickly find the training they require.

The jobs analyzed in the gap assessment represent opportunities with potential to employ mariners in the development, construction, or operation of offshore wind farms. While the assessment focused on supplemental income opportunities, it is understood that the offshore wind industry will deliver full-time opportunities for mariners as well. The gap assessment included full-time and part-time jobs to show the total breadth of opportunities that may be available. The results of this assessment have been summarized in Exhibit 4.

The analysis defined “mariner” as fishermen and other mariners who are not already engaged with the OSW industry, excluding those who already come from specialized marine construction careers.

Exhibit 3: Red-Amber-Green Criteria Description

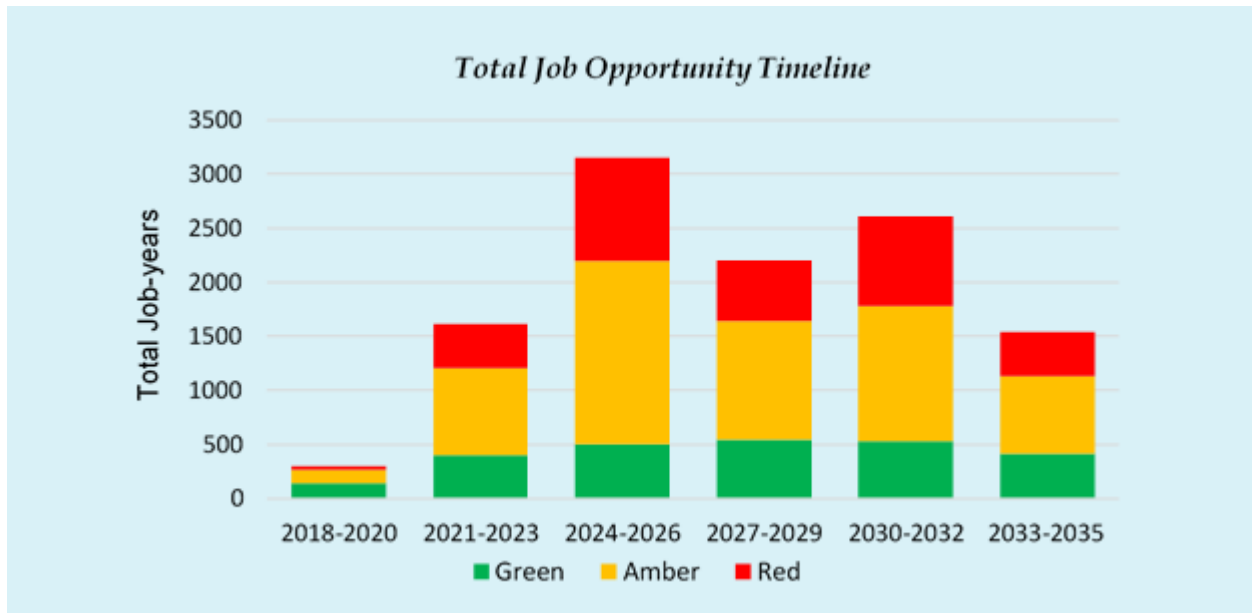
Green	Amber	Red
<p>Opportunities best match existing skills and qualifications of local mariners</p> <p>Strong alignment with mariners’ skill sets</p> <p>Additional trainings or certifications achievable in a relatively short time frame.</p>	<p>Opportunities match existing skills and qualifications of local mariners</p> <p>There are some skills gaps and a modest amount of additional training is required.</p>	<p>Opportunities are not an effective supplement to existing mariner work.</p> <p>Significant skill gaps and existing industries that require a complete career shift or substantial schooling/training pose barriers.</p>

Each of the jobs analyzed occur during different stages of a project life cycle, and the number of workers required to fill these jobs will vary year to year. Exhibit 5 summarizes the number of job-years required to fill these jobs over the next 15 years, categorized by their RAG score.

Exhibit 4: Gap Analysis Results

Fourteen Roles Yield 2,535 “Green” Job-Years	Sixteen Roles Yield 5,686 “Amber” Job-Years	Seven Roles Yield 3,185 “Red” Job-Years
<ul style="list-style-type: none"> • Fisheries Representative • State Fisheries Representative • Fisheries Liaison Office (FLO) • Heavy Lift Spotter • Mates and Deck Crew: Fish Survey • Mates and Deck Crew: Marine Mammals and Bird Survey • Mates and Deck Crew: Crew Transfer Vessels (CTVs) • Captain: Fish Survey Vessel • Captain: Mammal and Birds Survey Vessels • Vessel Opportunity: Fish Survey • Vessel Opportunity: Mammal and Bird Survey • Vessel Opportunity: Safety Vessel • Vessel Opportunity: Scout Vessel • Vessel Opportunity: Charter Fishing, Sight-Seeing, and Tourism 	<ul style="list-style-type: none"> • Marine Specialist • Marine Affairs Manager • Dock Master • Crew Manager • Vessel Inspector • Mates and Deck Crew: Geotechnical/Geophysical Vessels • Mates and Deck Crew: Construction Vessels • Mates and Deck Crew: Feeder Barges • Mates and Deck Crew: Diving Support Vessels • Captain: CTVs • On-Site Marine Operations Manager • Lifting Operations Supervisor • Marine Mammal Observer/PSO • Vessel Opportunity: Buoy & Marker Deployment Support • Vessel Opportunity: Bubble Curtain Equipment Positioning • Vessel Opportunity: Miscellaneous Support 	<ul style="list-style-type: none"> • Stevedoring • Mates and Deck Crew: Tugboats • Captain: Tugboats • Wind Turbine Technician • Offshore Health and Safety Manager • Client Representation (HSSE) • Riggers/Slingers <p><i>*Note: For the type of mariner defined in this analysis, attaining these jobs may present a problem; however, other mariners who already have specialized skill sets (such as tugboat captains and crew, stevedores, riggers/slingers) can easily participate in these roles in the offshore wind industry.</i></p>

Exhibit 5: Job Opportunity Timeline (Including Both Supplemental and Full-Time Jobs)



Key Findings

Once the United States offshore wind industry is mature, supplemental jobs will remain a consistent and viable option for mariners to supplement their income.

There are 2,572 job-years of supplemental work available between now and 2035 and a little more than half of these opportunities will require minimal training.

Exhibit 6 lists the roles that could provide supplemental work for mariners. These roles either require some trainings that can be achieved in a short time frame or have some barriers to entry and require a modest amount of additional training. These roles range in length from two-day engagements as is typical for buoy deployment to two- to three-month engagements typical for geophysical and geotechnical surveys.

Exhibit 6: Supplemental Opportunities

Green Supplemental Opportunities:

- Mates and Deck Crew: Fish Survey
- Mates and Deck Crew: Mammal and Bird Survey
- Mates and Deck Crew: CTVs
- Mates and Deck Crew: Geophysical/technical Survey
- Captain: Fish Survey
- Captain: Mammal and Bird Survey
- Captain: CTVs
- Marine Mammal Observer/PSO
- Vessel Opportunity: Scout Vessel
- Vessel Opportunity: Safety Vessel
- Vessel Opportunity: Charter Fishing, Sightseeing and Tourism

Amber Supplemental Opportunities:

- Mates and Deck Crew: Diving Support Vessels
- Vessel Opportunity: Buoy and Marker Deployment Support
- Vessel Opportunity: Bubble Curtain Equipment Specialists

Some barriers exist for local mariners when applying to full- and part-time supplemental jobs in the OSW industry. However, there are training opportunities available for those who wish to seek additional certifications.

In the United States, there is a gap between the formal qualifications of local mariners and the internationally recognized certifications required by the OSW industry. Examples of trainings that can address some of the barriers to entry identified in the study include the following:

- Standards of Training, Certification and Watchkeeping for Seafarers (STCW) Training: To gain STCW certification, STCW Basic Safety Courses (Personal Safety and Social responsibilities, Basic Fires Prevention and Fire Fighting, Personal Survival Techniques and Elementary First Aid) must be completed. These courses can usually be completed in under a week.
- Global Wind Organization (GWO) Basic Safety Training and Sea Survival Training: These trainings are required for jobs which involve work on the wind turbines and will require offshore transfer between vessels and structures. This training takes five to seven days to complete and would require travel outside of the Northeast to a training provider.
- Master License for Captains: A Master License (likely either USCG Near Coastal Master of 100 ton or less or USCG Near Coastal Master of 200 ton or less) is required for vessel captains working in the OSW industry. This license requires 720 total days of service, completion of a USCG examination, drug testing, and a medical certificate.
- Limited/Unlimited able-bodied (AB) seamen for Mates and Deck Crew: Able Seaman (AB) is a deck rating that requires qualifying experience (1080 days deck service for AB Unlimited and 540 deck service for AB Limited), a USCG examination, drug testing, a medical certificate, and Lifeboatman training.

OSW vessel contracts provide accessible opportunities for local mariners; however, vessel safety standards may be a potential barrier.

There are jobs available for mariners to utilize their vessels for supplemental work in the OSW industry. Jobs that employ entire vessels in the OSW industry align well with vessel specifications in the NY Bight and include fish surveys, mammal and bird surveys, safety vessels, scout vessels, and charter fishing, sight-seeing, and tourism.

According to the results of the analysis, jobs that employ entire vessels comprise most of the supplemental work available. This type of work may be particularly appealing to local vessel owners/operators because they would be more likely to keep captains, crews, and vessels and avoid disbanding talented crew members.

However, vessel safety standards required for work in the OSW industry are a potential barrier for leasing local vessels for part-time work. Global wind industry standards are often above the typical formal qualifications required for commercial fishing vessel operation in the United States. These vessel requirements can pose a challenge for those interested in engaging in work in the OSW industry.

Some mariners may be well suited to participate in OSW work, while for others this may not be the case.

While some mariners may be able to supplement their income when they are not fishing, other mariners' schedules are not compatible with OSW jobs. This notion does not reflect any one fishery or geographic region as each fisherman has a unique schedule which will determine if any additional income opportunities are possible.

Recommendations and Next Steps

Based on the results of the study, it is evident that many of the OSW job openings available to mariners are scored as "amber," indicating that opportunities are available with some additional training and certification. As time goes on and training and workforce development programs become more widespread, these "amber" jobs may become "green" opportunities, more easily accessible to local mariners.

To overcome some of these employment barriers to mariners, specific next steps are recommended to key stakeholders:

- Ensure continued collaboration between maritime community and offshore wind industry
- Initiate interstate collaboration on regional training initiatives
- Undertake follow-up studies regarding wages and benefits for mariner opportunities identified
- With the help of local mariners and the offshore wind industry, develop training programs and curricula at local colleges, universities, and extension programs that match the barriers identified in this study
- To maximize the exposure of opportunities to the local mariner community, utilize a web portal to connect mariners to training programs and job opportunities

In conclusion, the growth of the United States offshore wind industry will deliver a substantial number of opportunities for mariners to supplement their income. As the maritime community, offshore wind industry, and government agencies continue to work together to diminish the barriers to employment for mariners, they will not only provide access to additional jobs for individuals, potentially improving the economy, but offer the offshore wind industry increased access to a local, talented workforce.

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. NYSERDA professionals work to protect the environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York State since 1975.

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**New York State
Energy Research and
Development Authority**

17 Columbia Circle
Albany, NY 12203-6399

toll free: 866-NYSERDA
local: 518-862-1090
fax: 518-862-1091

info@nyserda.ny.gov
nyserda.ny.gov



State of New York

Andrew M. Cuomo, Governor

New York State Energy Research and Development Authority

Richard L. Kauffman, Chair | Doreen M. Harris, Acting President and CEO