A Strategic Alliance for Maritime Innovation and a Sustainable Blue Economy

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The Blue Economy is sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

The Blue Economy encompasses many activities...

**Renewable Energy**
Sustainable marine energy can play a vital role in social and economic development.

**Tourism**
Ocean and coastal tourism can bring jobs and economic growth. Coastal Least Developed Countries and Small Island Developing States receive more than 41 million visitors per year.

**Climate Change**
The impacts of climate change on oceans—rising sea-levels, coastal erosion, changing ocean current patterns, and acidification—are staggering. At the same time, oceans are an important carbon sink and help mitigate climate change.

**Fisheries**
Marine fisheries contribute more than US$230 billion annually to global GDP. More sustainable fisheries can generate more revenue, more fish and help restore fish stocks.

**Maritime Transport**
Over 80% of international goods traded are transported by sea, and the volume of seaborne trade is expected to double by 2030 and quadruple by 2050.

**Waste Management**
80% of litter in the ocean is from land-based sources. Better waste management on land can help oceans recover.

To learn about other aspects of the blue economy, visit www.worldbank.org/oceans
### Benefit-cost ratio (average)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Benefit-cost Ratio</th>
<th>Net Benefit (Average, US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation &amp; restoration of mangroves</td>
<td>3:1</td>
<td>$0.2 trillion</td>
</tr>
<tr>
<td>Decarbonization of international shipping</td>
<td>4:1</td>
<td>$5.1 trillion</td>
</tr>
<tr>
<td>Sustainable ocean-based food production</td>
<td>10:1</td>
<td>$6.7 trillion</td>
</tr>
<tr>
<td>Offshore wind energy production</td>
<td>12:1</td>
<td>$3.5 trillion</td>
</tr>
</tbody>
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**Total** $15.5 trillion
AMERICA’S MARINE ECONOMY:
Based on the Most Recent 2018 Data from Ocean Economy Statistics

Tremendous Output.

$389 Billion in sales.
$429 Billion in sales.
$509 Billion in sales.
$617 Billion in sales.

Agriculture
Data Processing and Internet Publishing
Utilities
Ocean Economy

$373 Billion in GDP.

Sales Comparison of Ocean Economy with Other Industries
The maritime industry paid nearly $4.5 billion in wages in 2015 with average salaries of $65,300. In comparison, the state’s average wage in 2015 was $56,700 (does not include benefits).

Industry-wide, revenues have grown 2.4% per year from 2012 to 2015, with the largest growth rate in Maritime Logistics & Shipping at 5.2%.
Washington State’s Strategy for the Blue Economy

The first, and only, US statewide strategy for the Blue Economy was delivered in January 2019 by Governor Inslee’s Maritime Innovation Advisory Council and Washington State Dept. of Commerce after 18 months of stakeholder engagement.

Advisory Council Co-Chairs:


Dennis McLerran, Fmr. EPA Region 10 Administrator

Frank Foti, CEO and Board Chair, Vigor Shipyard

(link to Full Strategy and Council)
The first, and only, US statewide strategy for the Blue Economy was delivered in January 2019 by Governor Inslee’s Maritime Innovation Advisory Council and Washington State Dept. of Commerce after 18 months of stakeholder engagement.
### Deep Decarbonization:
Accelerate the transition of Washington's maritime industry to a low-carbon future.

- **Initiative 1:** Low-carbon maritime technologies on board
- **Initiative 2:** Low-carbon shore side infrastructure
- **Initiative 3:** Strategies for emissions reductions

### Blue Innovation:
Drive the commercialization of emerging blue technologies.

- **Initiative 1:** Digital transformation
- **Initiative 2:** Modernization of fishing and seafood industries
- **Initiative 3:** Collaborative R&D
- **Initiative 4:** Maritime Innovation Center

### Working Waterfronts:
Lead the nation in efficient, clean, and safe maritime practices across all sectors of the industry.

- **Initiative 1:** Smart Ports
- **Initiative 2:** Infrastructure & regulatory strategy
- **Initiative 3:** Green Gateway

### 21st Century Workforce:
Next generation of an inclusive and diverse maritime workforce with technological expertise and access to clean, healthy, living wage jobs.

- **Initiative 1:** Career pipeline, pathways, & connections
- **Initiative 2:** Inclusivity, support, & outreach

### Cluster Coordination:
A formal cluster organization will drive implementation of Washington Maritime Blue to ensure a strong maritime industry founded on competitive companies and an attractive business environment.

- **Blue Focus:** Communications & Marketing
- **Blue Forum:** Knowledge Sharing
- **Blue Forward:** JIPs & Business Services
- **Blue Force:** Training & Education
- **Blue Finance:** Funding & Investment
Formal Ocean/Maritime Clusters have emerged as organizational entities that enhance competitiveness and collaboration. To ensure accountability and implementation we spun out an independent, nonprofit, Cluster Organization charged to Implement the State’s strategy – using the “Quadruple Helix” approach.
Part of a Global Enterprise for the Blue Economy
Maritime Blue engages members, partners and stakeholders in a number of ways in order to fulfill its mission. Taking lessons learned and models from other cluster organizations and innovation ecosystem builders around the globe.
Members come together through **Joint Innovation Projects (JIPs)** and collaboration to implement key demonstration projects and strategic planning for growth in the Blue Economy

- Use the collective strength of our Cluster for collective benefits
- Addressing local needs and concerns
- Share resources
- Take advantage of diverse funding mechanisms
- Model the success of other global centers of excellence
Zero Emission Fast Foil Ferry Joint Innovation Project

**CHALLENGE**
A zero-emission, clean transit concept for high-speed hydrofoil craft using lightweight carbon fiber hull construction. Vision is to relaunch the Puget Sound “Mosquito” fleet & reduce vehicle traffic.

**BENEFITS**
More efficient vessel, reduced emissions, improved commuter & transit options, quieting & strike avoidance to reduce marine mammal impacts, platform for WA manufacturing, innovation & economic development.

- Partners -

![Partners Logos]
Green Hydrogen for Tacoma Maritime Joint Innovation Project

**CHALLENGE**
Alternative fuels and energy are needed to reduce emissions from transportation and port operations. Hydrogen shows great promise, if it can be generated at scale in our region from renewable energy, as well as stored and transported in a safe manner.

**BENEFITS**
Provides large-scale local production and use for Hydrogen in maritime ports that can be stored as a liquid carrier in the form of Formic Acid, overcoming some key storage and movement challenges. Potential to show ports, utilities, and maritime end-users what can be achieved when H₂ is used at scale.

**- Partners -**

[Logos of partners including OCO, Pacific Northwest National Laboratory, Tacoma Power, and DNV]
**CHALLENGE**

Ports are unable to take advantage of emerging technology because the lack of infrastructure for networking, computing, and connectivity. We lack actionable data on solving our largest problems surrounding port and industrial areas.

**BENEFITS**

Tacoma would instantly become the most tech advanced regions in North America. We could more easily recruit companies to base here, knowing this infrastructure existed to prove their concepts, and we could become a global leader in new technology in the maritime sector.

- Partners -
Facilitating **Entrepreneurship**, start-up incubation, acceleration, mentorship, coworking, and public meeting spaces as a hub to the many spokes of maritime communities across the state.
Mentorship Based Programming
35 Startups Engaged since Jan 2020

- 32 from US, 18 from WA State, 15 from King County
- 18 Women founders, 12 BIPOC founders/co-founders

Wins and Deals

- $265M in Private Capital Investments
- 3 Exits (1 pending)
- Several Demonstration Projects & Customer Acquisitions
- Combined reports of over %500 increase in revenue
- At least 400 jobs created
Enable an equitable and diverse 21st century workforce of the future through coordination, funding, and public forums for industry-driven, career connected learning opportunities.

Providing organizational support, resources and an employer - agency network for the Youth Maritime Collaborative.
A partnership between service providers, educational institutions, and employers to make maritime an accessible option for young women, low-income youth, and youth of color. YMC creates career pathways through events, mentorship and internships.
Quiet Sound is a collaborative program to better understand and reduce the cumulative effects of acoustic and physical disturbance from large, commercial vessels on Southern Resident Killer Whales in Washington waters.
Build Back Blue: Green Energy to Charge the Blue Economy

**Capital Projects**
- **Puget Sound Ports of the Future**: Private 5G Network, Green Hydrogen Mobile Shorepower & Zero-Emission Foil Ferry
- **Columbia River Tribal & Clean Energy Hub**: Douglas PUD, Port of Benton, Umatilla Tribe, Lewis County Coal to Clean Tech Corridor

**Planning & Pipeline**
- BlueTech-CleanTech project pipeline & support
- Clean fuels market analysis for maritime & heavy-duty transportation
- Blue-Green Economic Impact Analysis

**Entrepreneurship**
- Expand Blue Hub & Spoke w/ Regional Assets.
- Shared entrepreneurial training modules
- Reverse Pitch/Challenge Program
- Lab to Launch Initiative for commercialization

**Workforce**
- Expand equity internship model for BlueTech-CleanTech sectors incl, equity training for employers
- Clean energy jobs curriculum development for trades and higher education