



## A Strategic Alliance for Maritime Innovation and a Sustainable Blue Economy

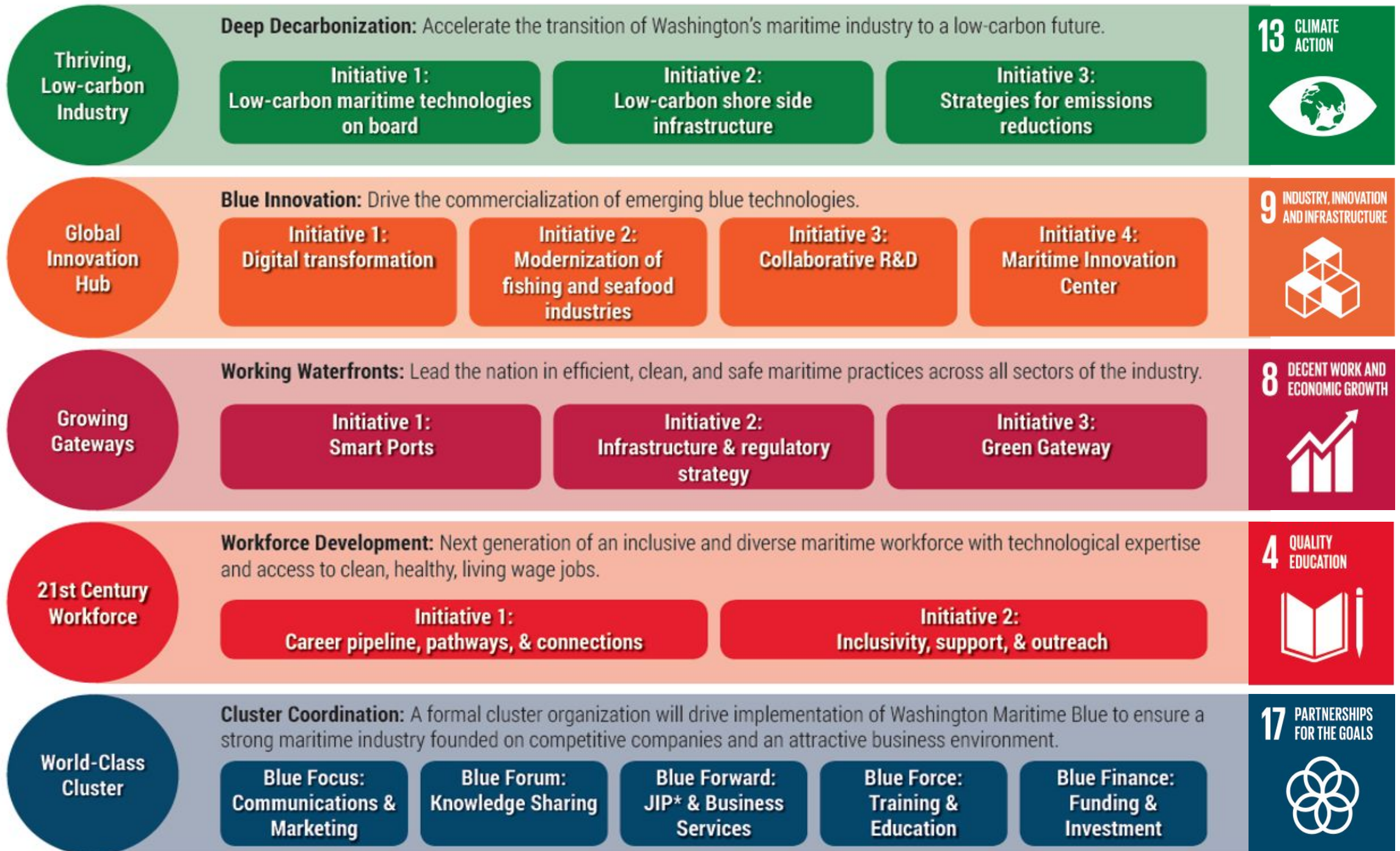
***Washington Maritime Blue** is a non-profit, strategic alliance formed to accelerate innovation and sustainability in support of an inclusive blue economy. With a mission to implement Washington State's Strategy for the Blue Economy delivered by Governor Jay Inslee's Maritime Innovation Advisory Council, we are a partnership between industry, public sector, research & training institutions, and community organizations. Maritime Blue works to create a world-class, thriving, equitable and sustainable maritime and ocean industry through knowledge sharing, joint innovation, entrepreneurship, commercialization, business and workforce development.*



# 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.









# Independent, Innovation Cluster Formed

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.

**Industry & Business**

**Government & Public Sector**

**Academia & Research**

**Workforce & Community Org's**





## Industry Members



## Organizational Partners



## Startups



## Research Institutions



## Public Partners





## Scope of Work – The 6 Blue “F”s

### Blue Focus

Marketing &  
Communications

### Blue Forum

Networking & Knowledge  
Sharing Events

### Blue Forward

Facilitating Joint  
Innovation Projects

### Blue Force

Career Connected  
Workforce Development

### Blue Finance

Access to Capital  
Public & Private Funding

### Blue Founders

Supporting  
Entrepreneurship

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.





## Blue Forward

Members come together through **Joint Innovation Projects (JIPs)** and collaboration to implement key demonstration projects and strategic planning for growth in the Blue Economy

- Washington State Ferry Electrification
- Seattle Waterfront Decarbonization Strategy
- JIP: Zero-emission Foiling Fast Ferry
- JIP: Green Hydrogen for Tacoma Maritime
- JIP: Early Covid-19 Detection for Maritime and Fisheries
- JIP: Quiet Sound – Whale Report Alert System (WRAS)



# Joint Innovation Program (JIP) Zero Emission Fast Foil Ferry

Development of an innovative Hydrofoil craft



## CHALLENGE

A zero-emission, clean transit concept for a high-speed hydrofoil craft using lightweight carbon fiber hull construction. Vision is to help relaunch the “Mosquito” fleet & reduce vehicle traffic. A collaborative approach is needed to identify & solve the challenges related to technical, safety, operational risks & financial feasibility.

## SCOPE

This collaborative JIP will advance through feasibility & demonstration phases with project tasks that may run in succession/parallel. These include:

- Advance design spiral from concept to preliminary design, to contract design for construction.
- Economic & environmental benefits & impacts
- Terminal & shoreside infrastructure requirements
- Materials & construction
- Routing analysis & operations
- Advance detection & avoidance strategies
- Regulatory, testing & permitting
- Hybrid funding model for first demonstration

## 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.

## VALUE

A zero-emission high speed waterborne transportation alternative in the Puget Sound. The foil ferry can offer a safe, reliable & cost-effective option, while minimizing the environmental impact on air & water quality as well as marine life. Washington companies to develop state of the art technology & competence to support our region as a center of excellence for maritime decarbonization.

## Partners



Glosten

**BIEKER BOATS**



DNV







# Joint Innovation Project (JIP) - DRAFT

## Zero-Carbon Maritime Hydrogen Ecosystem through Formic Acid Storage Pathways

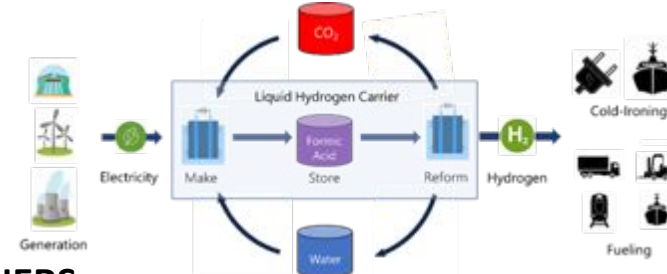
### CHALLENGE

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. Tacoma Power has excess clean hydropower generation that can be utilized to make Green Hydrogen. They also need to provide energy for cold-ironing services to berthed vessels, which have large variances in power demand and timing.

### SOLUTION

- Build and scale a Maritime hydrogen ecosystem through a project at the Port of Tacoma that demonstrates the concept of a port-based hydrogen (H<sub>2</sub>) solution utilizing Formic Acid for lower cost and safer storage and movement.
- This demonstration features a system that creates a liquid H<sub>2</sub> carrier, formic acid, directly from green renewable electricity, water and recycled CO<sub>2</sub>. This unique technology is provided by two of the partners: OCO Inc., whose electrolyzer technology creates the formic acid as a liquid H<sub>2</sub> carrier and the Pacific Northwest National Laboratory, that provides a reformer technology to decompose and release the H<sub>2</sub> from formic acid when needed.
- A Tacoma Power will provide the green electricity, which comes primarily from hydroelectricity and is 97% carbon free. They will also be the end user of the H<sub>2</sub>, to generate energy on demand for cold-ironing services to berthed vessels.
- DNV GL will provide techno-economic modeling so that this demo can be used to provide the anchor application for scaling-out hydrogen use in other maritime applications like hydrogen fueling for trucks, trains, vessels and a wide variety of cargo handling applications.

### PARTNERS



### VISION

Regional collaboration to make Tacoma, WA the production and distribution nerve center for scaling up the use of clean hydrogen for port and maritime applications.

### BENEFITS

This approach provides a 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 of the key storage and movement challenges. This demonstration has the potential to show ports, utilities, and numerous maritime end-users what can be achieved when H<sub>2</sub> is used at scale



## Joint Innovation Project (Proposed)

# Support and Scale the Whale Report Alert System for



### CHALLENGE

As a relatively new tool in Washington State, the Whale Report Alert System (WRAS) requires more robust participation from various user groups to improve the data input for cetacean sightings. As such, the challenge is to work with various entities to garner data, facilitate smooth implementation of WRAS, and evaluate WRAS efficacy in Washington State based on how alerts impact mariner actions on the water.

### SOLUTION

Recruit and train users:

- Education and outreach
- Implementation Planning w/ operators
- Develop and deliver trainings

Implement WRAS:

- Work with end-users to operationalized
- Aggregate visual sightings networks data
- Provide ongoing support to users
- Monitor data input

Efficacy and Adaptive management:

- Plan for and develop usage analysis
- Continued implementation support and data monitoring

Integration of Data sources:

- Expand coordination of data cross-boarder and sector
- Assessment of hydrophone networks
- Continued improvement and long-term recommendations

### Proposed PARTNERS



### VISION

Support and scale use of Whale Reporting and Alert System (WRAS) in Washington waters.





## Joint Innovation Project

# COVID-19 Early Detection System for Fisheries & Maritime

### CHALLENGE

Every summer 10,000 plus people go to work in the Alaska based fisheries through Washington State. Most of the fishing and processing companies are based in WA as well as the workforce. The entire fishery contributes more than \$10 Billion dollars to our economy and is a vital part of our food security supply chain. However - How do we support and enable this activity and workforce in a way that is safe and not contributing to the spread of COVID-19, threatening small communities throughout Alaska and hence, the entire fishery itself? How can we monitor and track the health of the workforce who is particularly high risk due to the nature of the work?

### SOLUTION

A partnership between Maritime Blue, the Institute for Health Metrics and Evaluation (IHME) and Discovery Health MD (DHM) will build, implement and scale an early detection system to prevent the spread of COVID-19 in this high risk workforce.

- IHME will build a survey, provide data analysis, and dashboard for early detection
- Survey results will inform and support businesses internal data collection needs
- DHM will work with the Fishing and Maritime industry to support operationalization
- Engage in further technology partnership to ensure efficient and safe data transfer to and from vessels
- Scale the solution in concert with other contact tracing efforts to be utilized in other high risk workforce sectors and eventually to whole communities, regions and states.

### PARTNERS



Institute for  
Health Metrics  
and Evaluation



### VISION

Provide the technology and communications platform to allow the fishing and maritime sector to return to work safely and build a pilot that can be scaled to other sectors and regions.

### BENEFITS

The overall goal for this Program is prevent the spread of COVID-19 as industries are implementing back to work initiatives, while maintaining the health of employees and the communities in which they live or operate. Strategic analyses that utilize the survey and testing data will allow us to look for a potential for resurgence, protect jobs and protect the global food supply chain



## Blue Forums

**Networking and strengthening of the knowledge base:**  
host events, workshops, and public forums on key topics and critical discussions utilizing member expertise and outside thought leaders.

- Uptown Tech Meets the Working Waterfront
- R&D Pathways for Maritime Energy Solutions

Upcoming...

- Investing in the Blue Economy and Accelerator Showcase
- Equity in a 21<sup>st</sup> Century Maritime Workforce
- Maritime Battery Safety Forum
- Technology Innovation for Marine Conservation





## Blue Force

**Enable an equitable and diverse 21<sup>st</sup> 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**.





# 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. The YMC creates career pathways through experiential events, mentorship and internships.





# Strategic Vision & YMC Partners



We aspire for the Youth Maritime Collaborative to be a partnership that makes maritime an appealing career option for low-income youth and youth of color. To achieve this, we propose a system that is grounded in career connected learning and equity. By guiding today's youth toward career pathways, experiential events, internships and apprenticeships, the Collaborative works to connect employers with the next generation of skilled workers.

An aerial photograph of numerous sailboats scattered across a vast expanse of clear, turquoise blue water. The boats are seen from above, showing their white hulls and various sail configurations. The water's clarity reveals some of the seabed below. The overall scene is bright and serene, representing the 'Blue Economy' theme.

## Blue Finance

**Conduit for public and private funding** opportunities for a diverse and varied financing approach to the Blue Economy, including fund pipeline development and establishing common impact metrics.





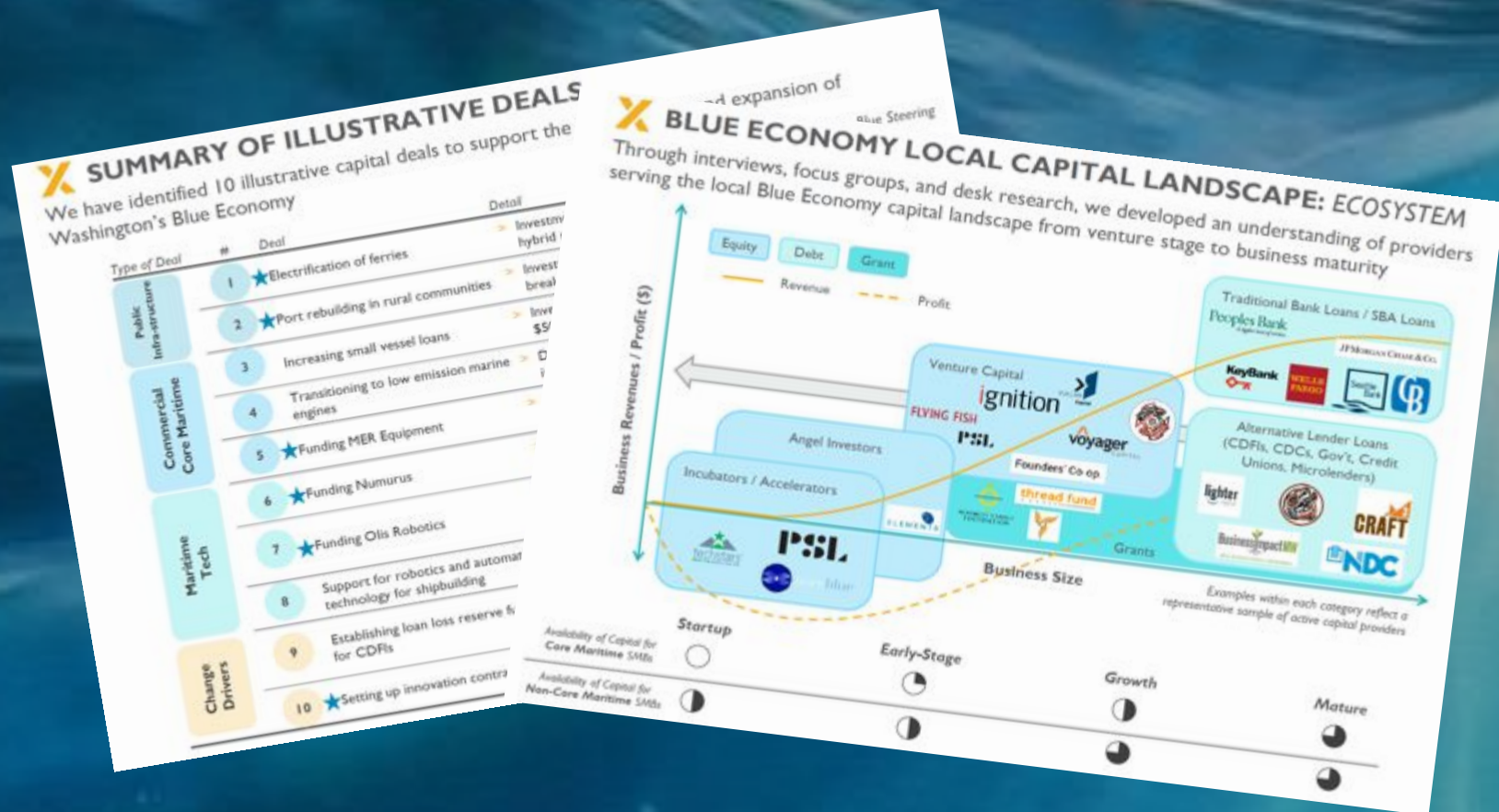
# Capital Landscape Study

There is a particular need for early-stage capital.

Venture Capital is NOT seeking out Maritime.

Government and philanthropic grants can help de-risk investments.

Clusters, incubators, & accelerators can support pipelines of new deals and demonstration projects.



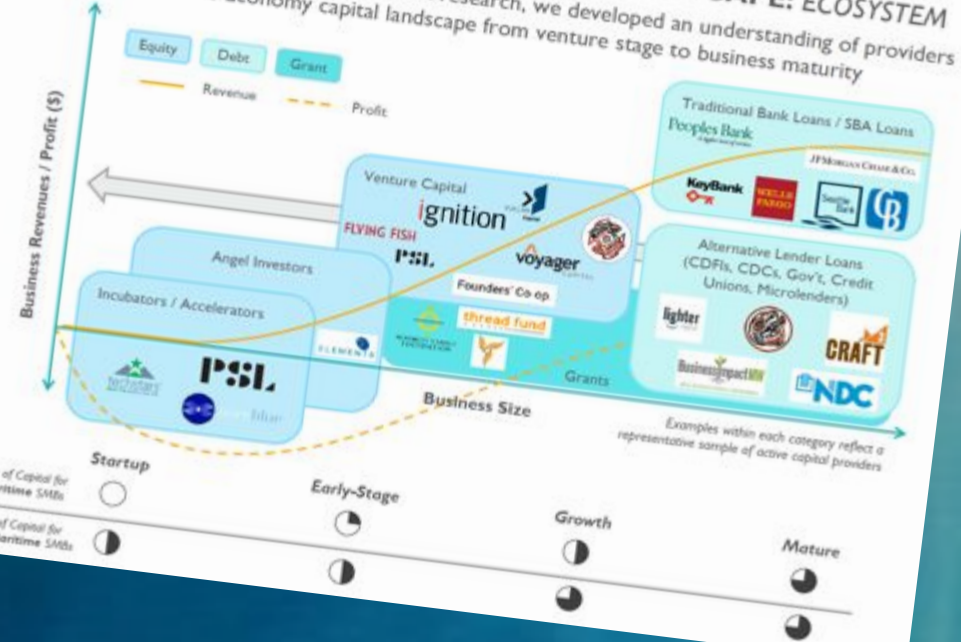
## SUMMARY OF ILLUSTRATIVE DEALS

We have identified 10 illustrative capital deals to support the Washington's Blue Economy

Type of Deal	#	Deal	Detail
Public Infrastructure	1	★ Electrification of ferries	Investm hybrid
	2	★ Port rebuilding in rural communities	Invest break
	3	Increasing small vessel loans	Invest \$5/
Commercial Core Maritime	4	Transitioning to low emission marine engines	
	5	★ Funding MER Equipment	
	6	★ Funding Numurus	
Maritime Tech	7	★ Funding Otis Robotics	
	8	Support for robotics and automa technology for shipbuilding	
Change Drivers	9	Establishing loan loss reserve f: for CDFIs	
	10	★ Setting up innovation contra	

## BLUE ECONOMY LOCAL CAPITAL LANDSCAPE: ECOSYSTEM

Through interviews, focus groups, and desk research, we developed an understanding of providers serving the local Blue Economy capital landscape from venture stage to business maturity





# Funding and Investing in the Blue Economy

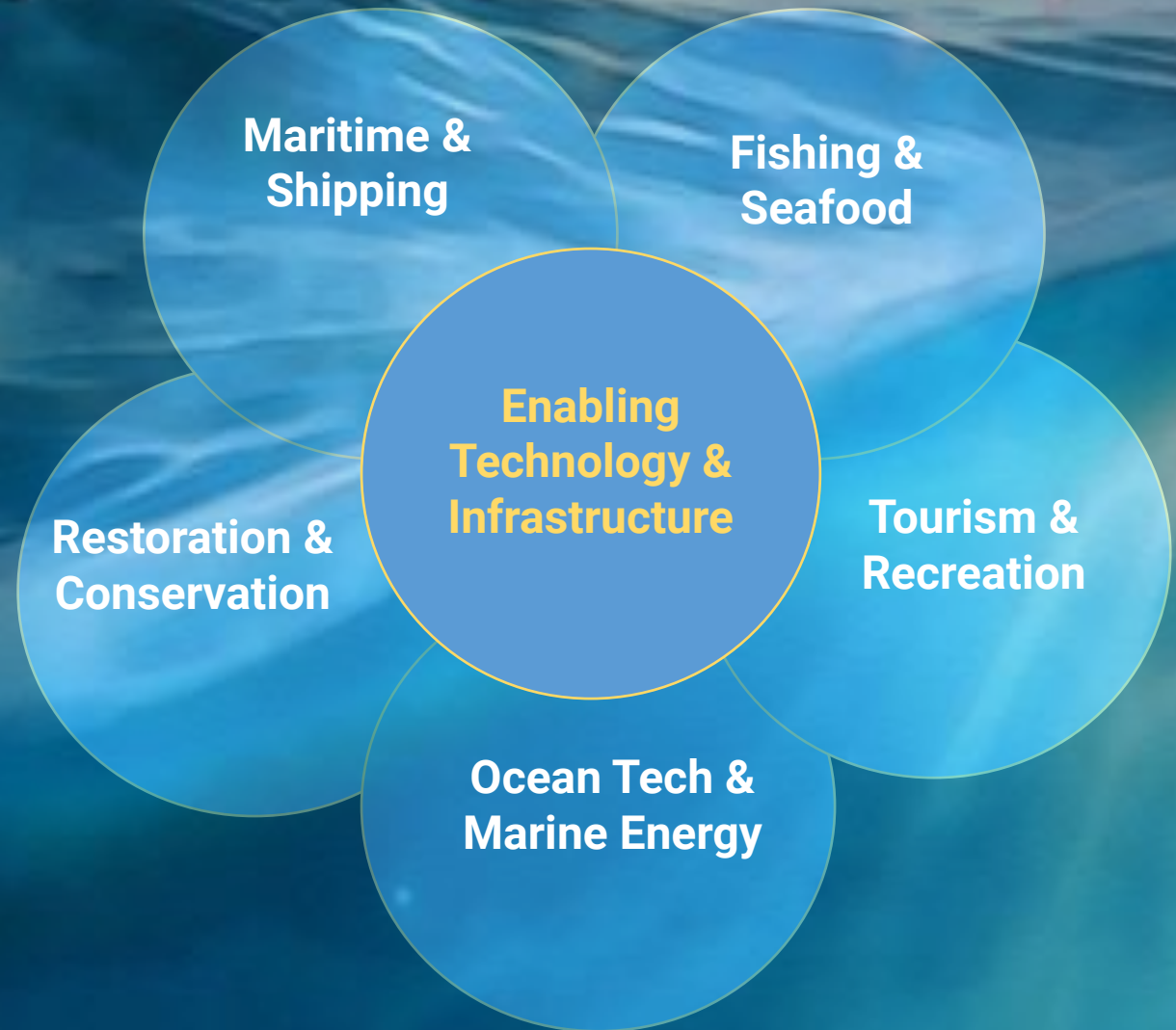
Increasing Global Market and Consumer Demand

Converging Ocean Sectors increasing tech transfer

Global Regulation from UN to Regional pulling markets

Reducing Technology Costs

Increasing Global Cooperative Approach







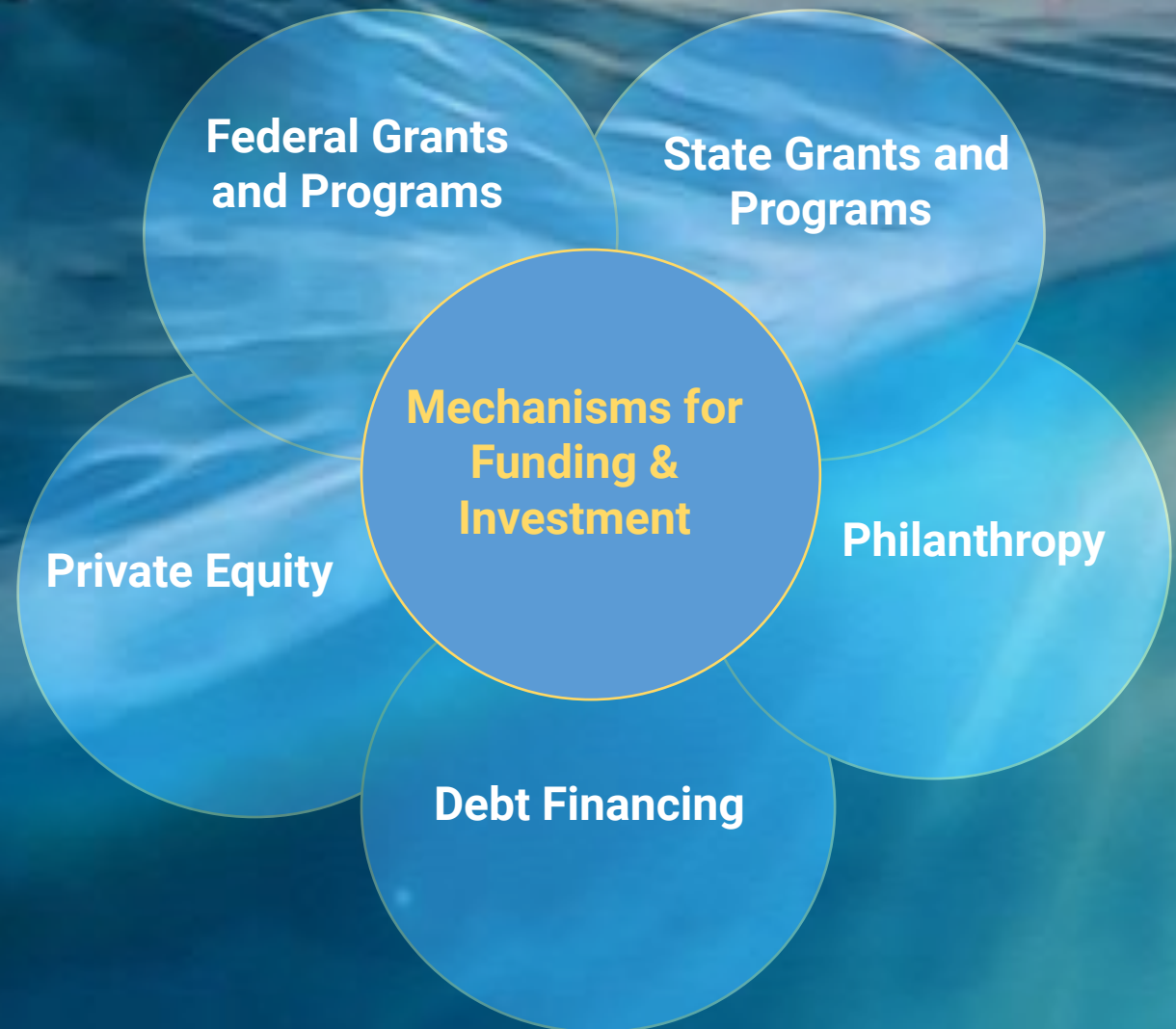
# Hybrid Funding and Investment Opportunity

May need to buy down risk for developing new technology

Various forms of private capital. In both debt and equity forms

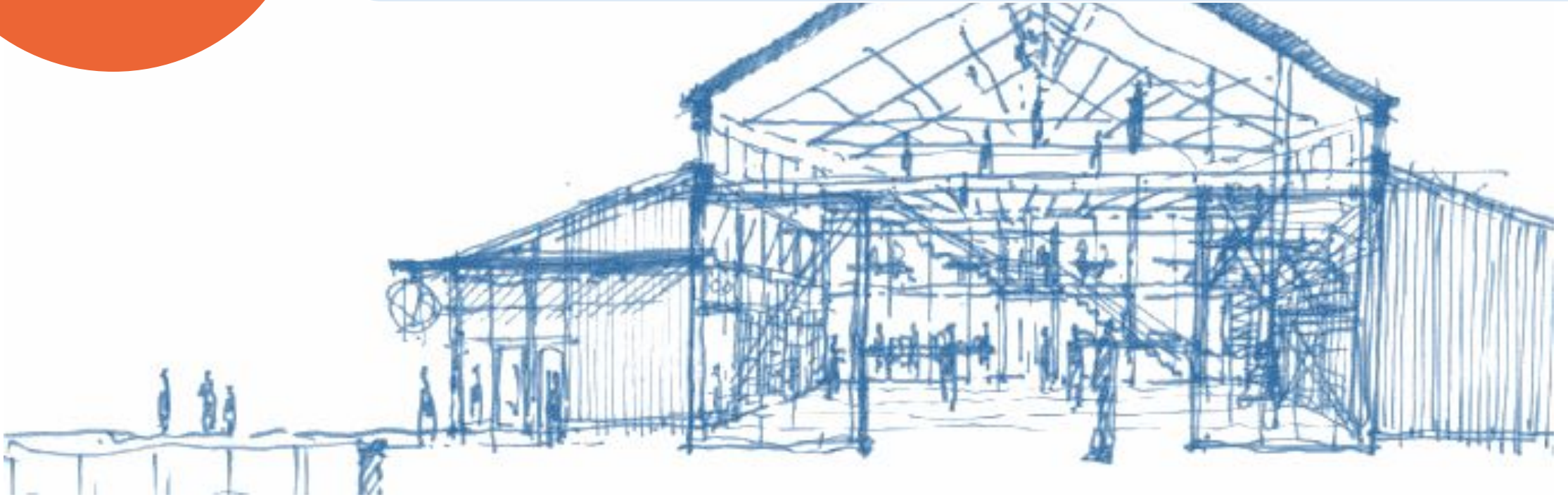
Economic Recovery is looking for news ways to deploy capital and fund infrastructure

Growth in "Impact Investing" from both individuals and institutional giving



## Blue Founders

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.

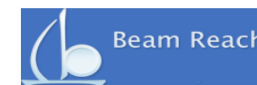






# Maritime Blue Innovation Programs

- 4 Month Mentor-based Innovation Accelerator (no equity)
- One Year Innovation Incubator in Partnership with Port of Tacoma (focus on Port Operations)
- Hub and Spoke Model Creating Partnership Programs with PNW Organizations in Newport, OR and Bellingham, WA







# Mentors Make This Program Special!

- Weekly CEO roundtable with industry leading experts
- HUNDREDS of hours of individual mentor meetings
- Shared contextual experiences







# Wins, Deals, Stats and Media

## 25 Startups Engaged since Jan 2020

- 23 from US, 12 from WA State, 8 from King County
- 10 Women,, 6 POC founders/co-founders

## Wins and Deals

- Over \$80M in Private Capital Investments
- Increased Business Sales
- Several Demonstration Projects & Customer Acquisitions
- Combined reports of over %500 increase in revenue
- Over 75 jobs created







**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.







## Blue Focus

**Creating a world-class cluster** through a sustainable organization rooted in values of equity and resilience.

- Growing membership and leadership
- International recognition and speaking engagements
- Cluster to Cluster relationships



# Part of a Global Enterprise for the Blue Economy







# Organizational Development & Leadership

Founded in October 2018, the organization has taken significant steps towards organizational sustainability by diversifying revenue, increased operational capacity and Board leadership. Current Board of Directors include:

President/CE) - Joshua Berger, Maritime Blue

Chair - Simon Geerlofs, PNNL

Vice-Chair - Lauren Offenbecher, SSA Marine

Vice-Chair - Eleanor Kirtley, Green Marine

Secretary - Steve Metruck, Port of Seattle

Treasurer - Deloit Wolfe, Impact Washington

Joe Allen, Jamestown S'klallam EDA

Ann Avary, NW Center of Excellence for Marine

Comm. Fred Felleman, Port of Seattle (ex-officio)

Jason Jordan, Northwest Seaport Alliance

Cosmo King, ioCurrents

Vesa Koivumaa, Wärtsilä

Sen. Liz Lovelett, WA State Legislature (ex-officio)

Dennis McLerran, Cascadia Law Group

Bob Miyamoto, University of WA - APL

Barbara "b.g." Nabors Glass, Seattle Goodwill

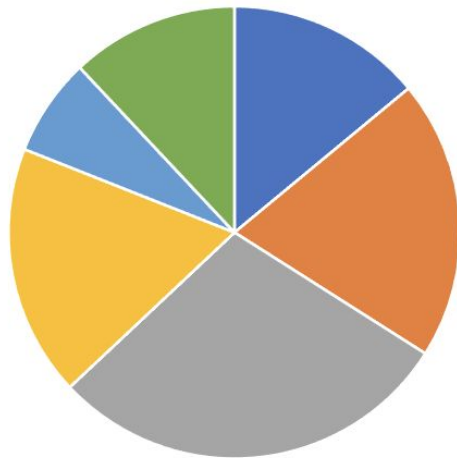
Patty Rubstello, Washington State Ferries

Andy Stewart, Amazon



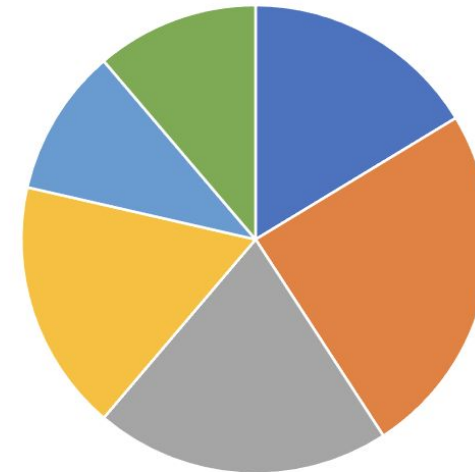
# Annual Budget

2020 - 2021 Annual Budget: \$1.4M



- Federal 14%
- State 20%
- Local 29%
- Private 18%
- Foundation 7%
- Revenue 12%

2021-2022 Annual Budget: \$2.4M



- Federal 16%
- State 24%
- Local 20%
- Private 17%
- Foundation 10%
- Revenue 11%





# 2019 – 2021 Sponsors

## Catalytic Sponsors



Washington State  
Department of  
**Commerce**



**Seattle** Office of  
Economic Development



**SSAMarine**  
A Carrix Enterprise



**Pacific Northwest**  
NATIONAL LABORATORY



## Impact Sponsors



## Sustaining Sponsors



KONGSBERG





# 2021 Annual Membership/Sponsorship Options

Benefits	Catalytic Sponsorship	Impact Sponsorship	Sustaining Sponsorship	Industry Membership*	Organizational Partnership
Annual membership fees (calendar year)*	\$10,000 +	\$5,000	\$2,500	\$250 - \$1,500	In-kind
Membership for all employees	X	X	X	X	Limited
Invitation to VIP only events	X	X	X		
Website logo recognition	X	X	X	Limited	Limited
Highlighted in marketing and e-news	X	X	X	X	X
Features, Executive Q&As, and Stories	X	X			
Committee participation opportunities	X	X	X	X	X
Forum sponsor recognition / topic choice	All	2	1		
Preference for trade shows and delegations**	X	X	X		
Business Development Services	X	X	X	X	n/a
Access to grants & Joint Industry Projects	X	X	X	X	X
Access to incubation/accelerator mentorship	X	X	X	X	X
Access to co-working space (coming soon)	X	X	X	X	X

*\*Membership fees are assessed as \$250 for 1-7 employees, \$500 for 8-14; \$1,000 for 15-24; \$1,500 for 25 or more employees.*

*\*\*WMB will follow all public health advisories when determining event schedules and modalities.*





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[www.maritimeblue.org](http://www.maritimeblue.org)

[#WaMaritimeBlue](#), [#BuildBackBlue](#)

