Inflatable Marine Products for Aquaculture Containment Technology

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Aquaculture: How Did I End Up Here?

1. What is Impact-9 ?
2. Offshore Aquaculture and Links to Ocean Power?
3. Next Steps: Opportunities and Challenges for Impact-9

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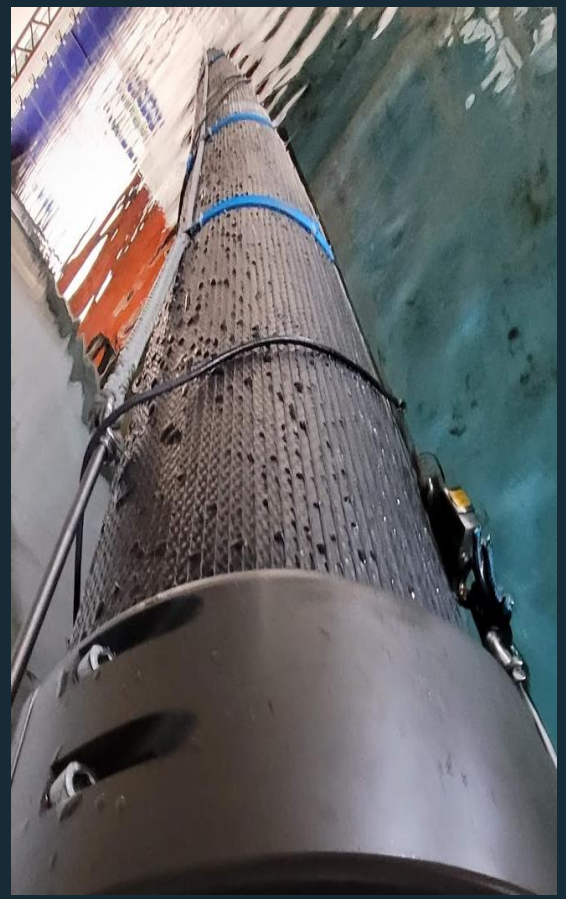
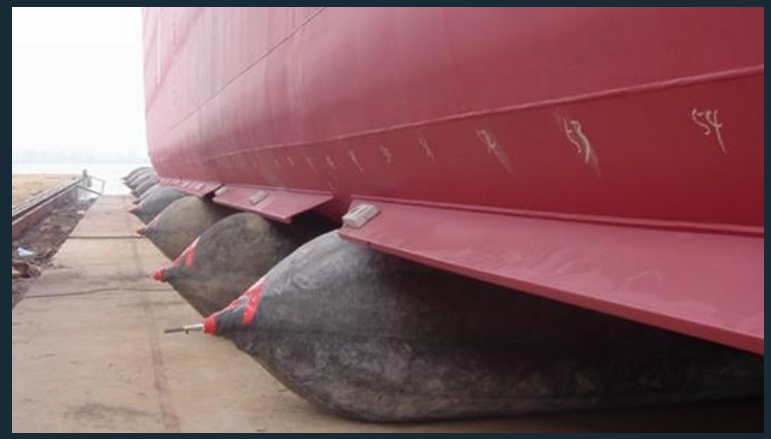
Strength in Flexibility

New Technology:



From Proven Materials:



SeaStrut: Marine Beam for Aquaculture

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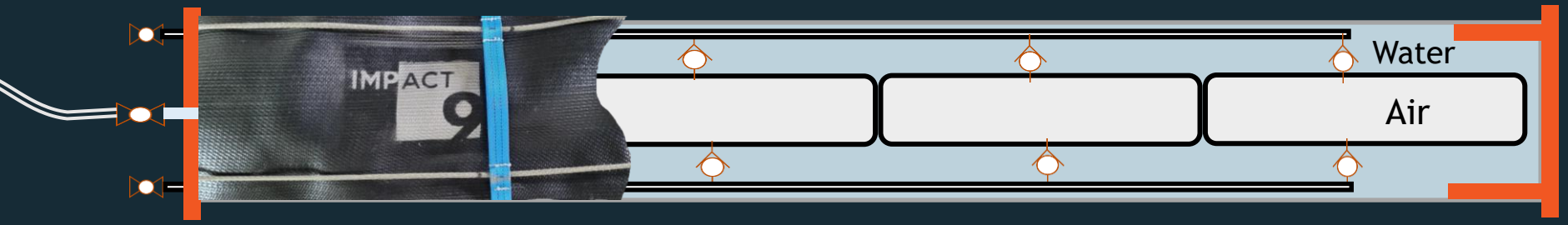
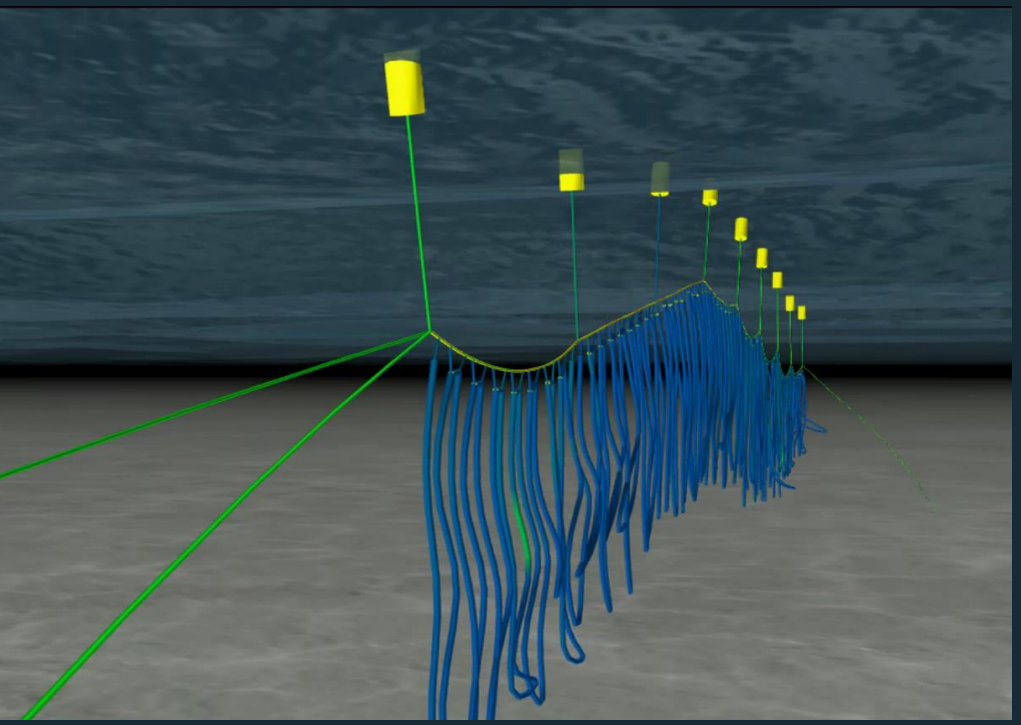
- Structural Efficiency
- Buoyancy Control
- Very High Pressures
- Bend Stiffness Control up to 10 times PE
- Hugely Versatile



(Patent Pending)

SeaStrut: Full-Scale Build Trials (TRL6)

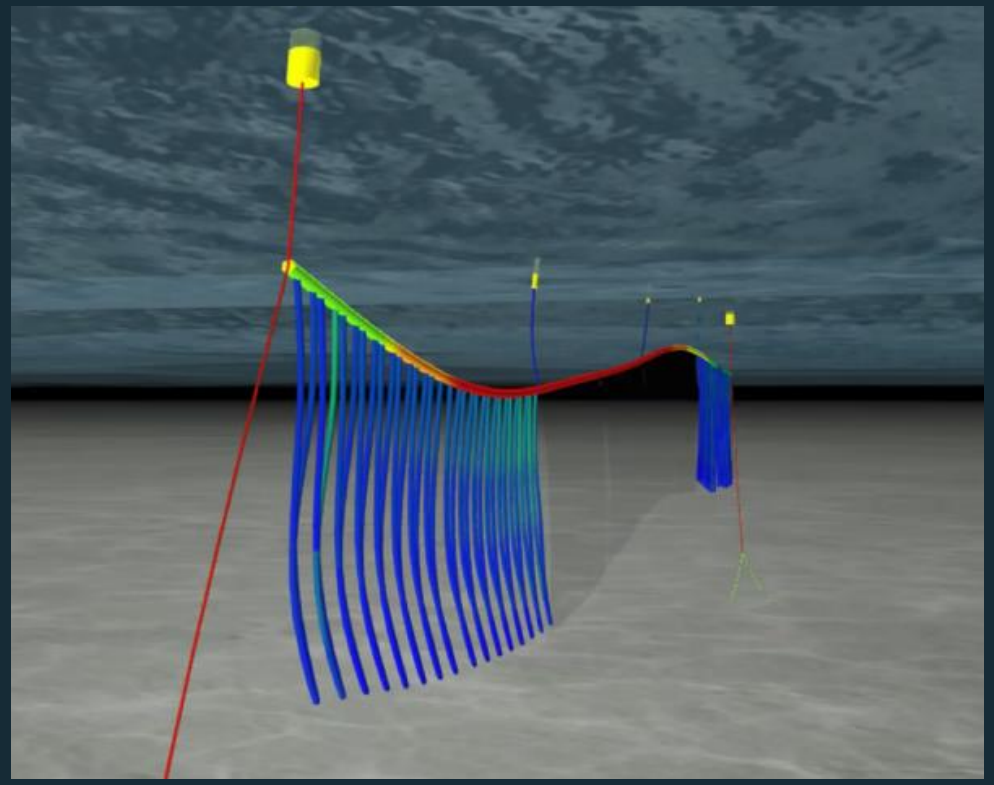
Testing and Analysis promising for submerged mussel longline flotation:



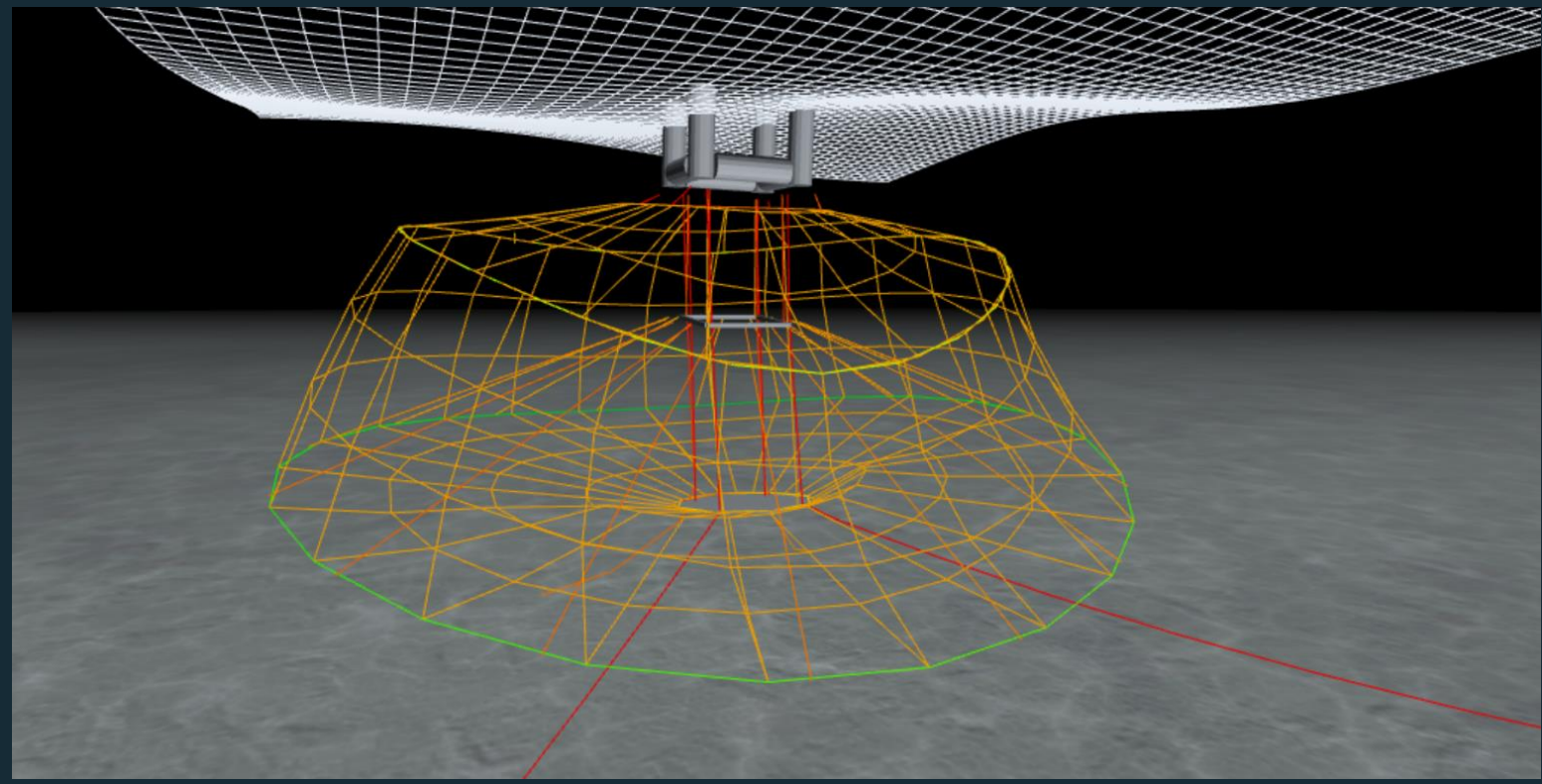
- Automatic Ballast Compensation
- Visual Impact
- Reduced Anchor loads
- Reduced Dynamics
- Collapsible for logistics and marine operations

Value-Added Services

Configuration of SeaStrut Modules for bespoke Customer Applications



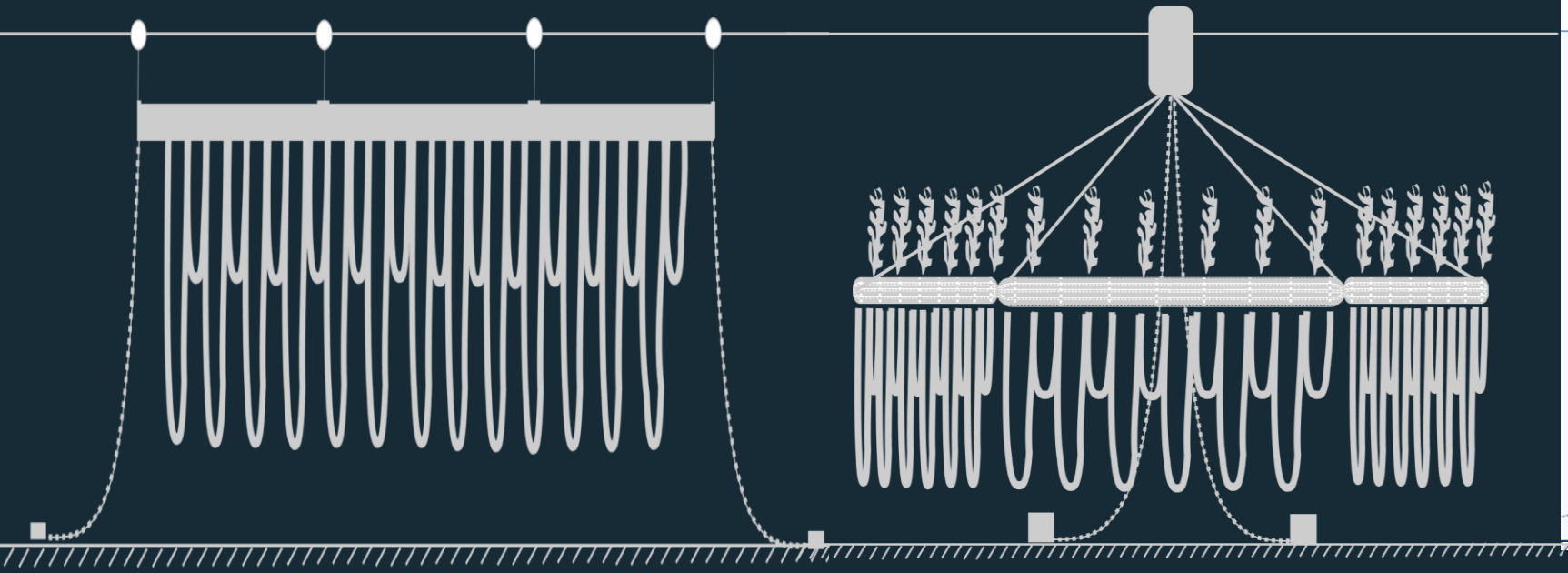
Minimum Viable Product



Ambitious and Market Disrupting Solutions

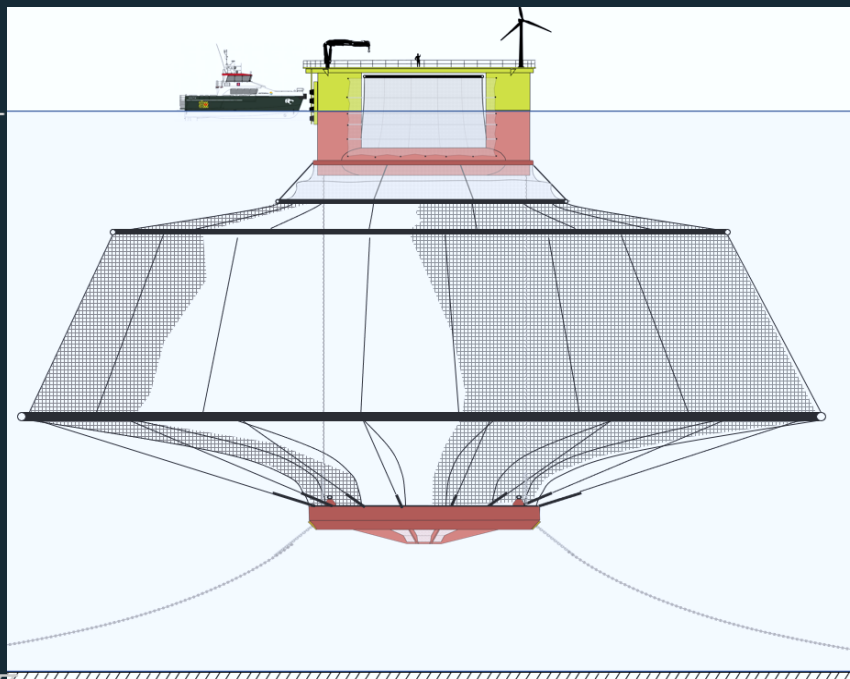
Versatility: Growing Market Applications

Strategy: - Use Low risk market applications for first revenue.
- Underpin developments in disruptive kelp and fin-fish farms.



Mussel Longlines

Offshore Kelp / Bivalve Systems / Depth Cycling / Oysters



Net9: Offshore Salmon Pen Concept

(Patent Pending)

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Competing Emergent Offshore Farm Systems

Havfarm1

€100m

>€200/m³

HATCH

Net9 Design Validation Update

Aquaculture Containment Technology
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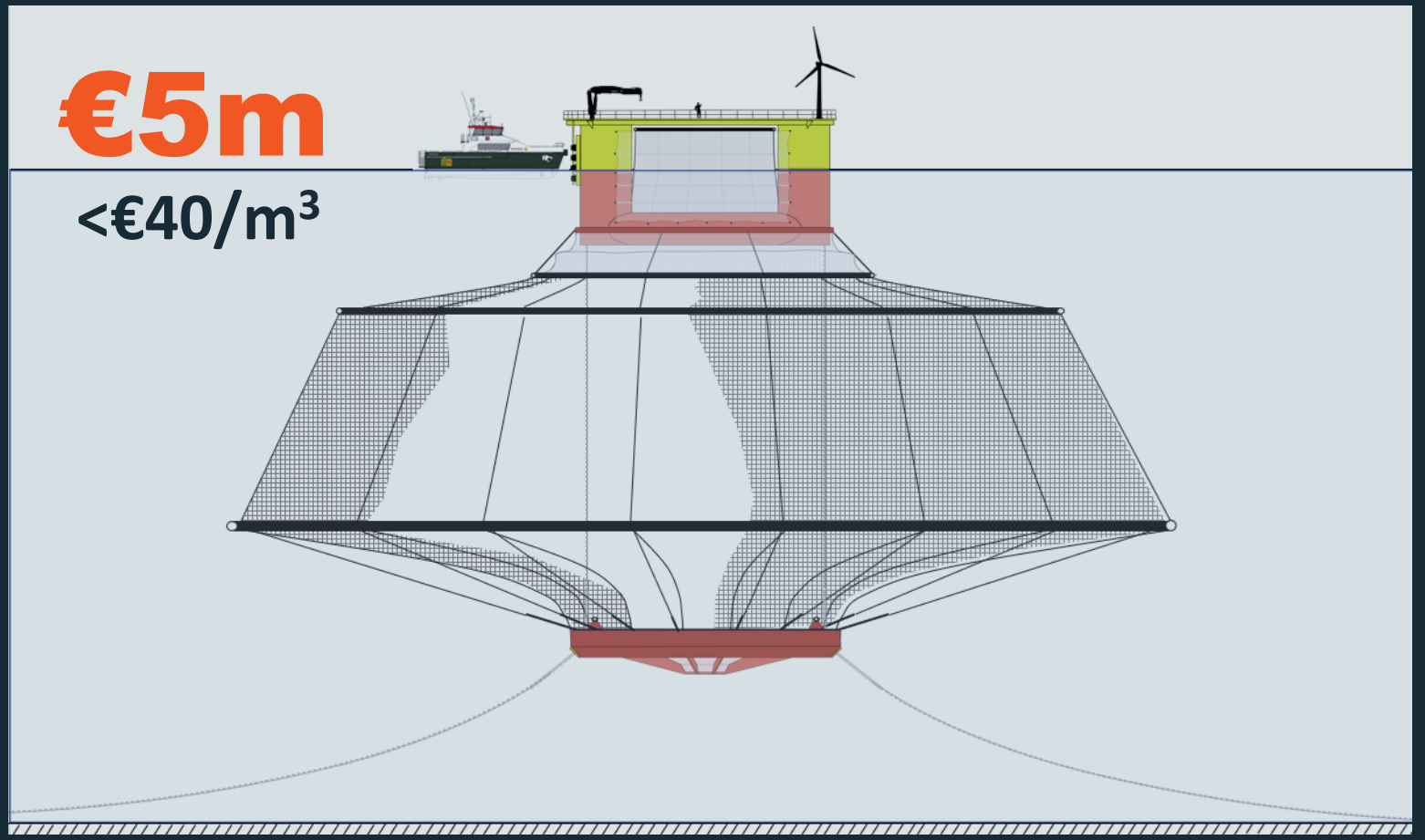
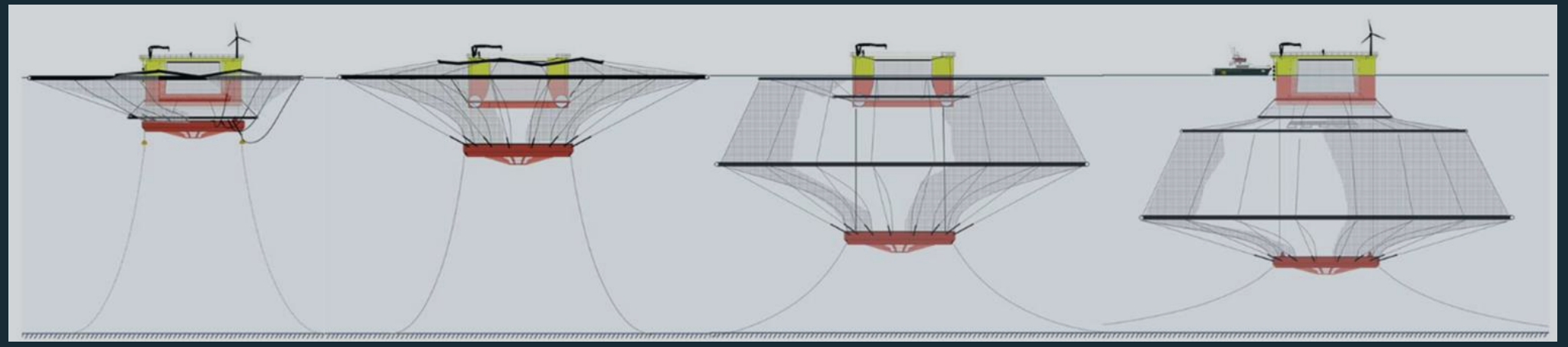
NET9 - SALMON PRODUCTION SYSTEM

Primary Collar (SeaStrut)	
Circumference	282 m
Diameter	90 m
Surface Structure	
Semisub Length	25 m
Displacement	800 tonne
Feed Capacity	200 tonne
Fish Containment	
Volume	125,000 m3
MTB @ 20kg/m3	2500 tonne
Installation Depths (LAT)	
Minimum Viable	60 m
Optimal Range	65 – 90 m
Class 1 Environmental Exposure Limits	
100-year storm waves, H_{s100}	7 m (H_{max} 13 m)
Maximum Viable Current	1.6 knot
Class 2 Environmental Exposure Limits	
100-year storm waves, H_{s100}	13 m (H_{max} 24 m)
Maximum Viable Current	1.4 knot

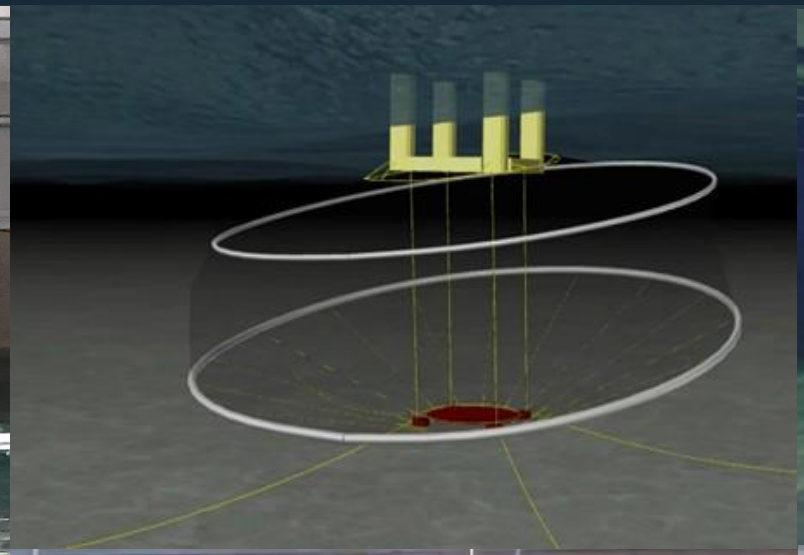


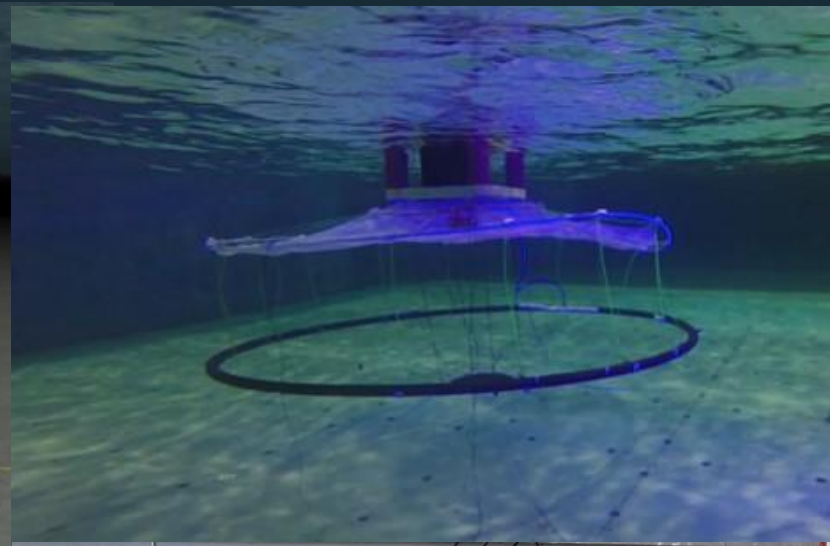
Cost Target: **€ 5.0m** total pen

NET9 - OPERATIONAL INNOVATIONS:

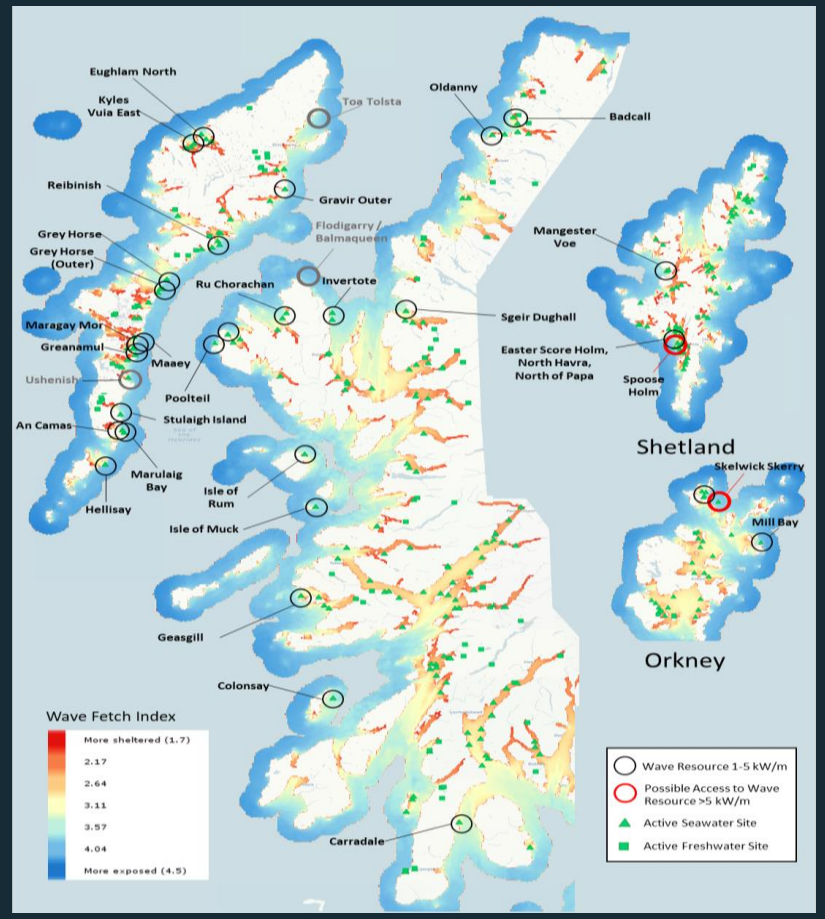


NET9 1:30 SCALE TESTS COMPLETED (TRL4)

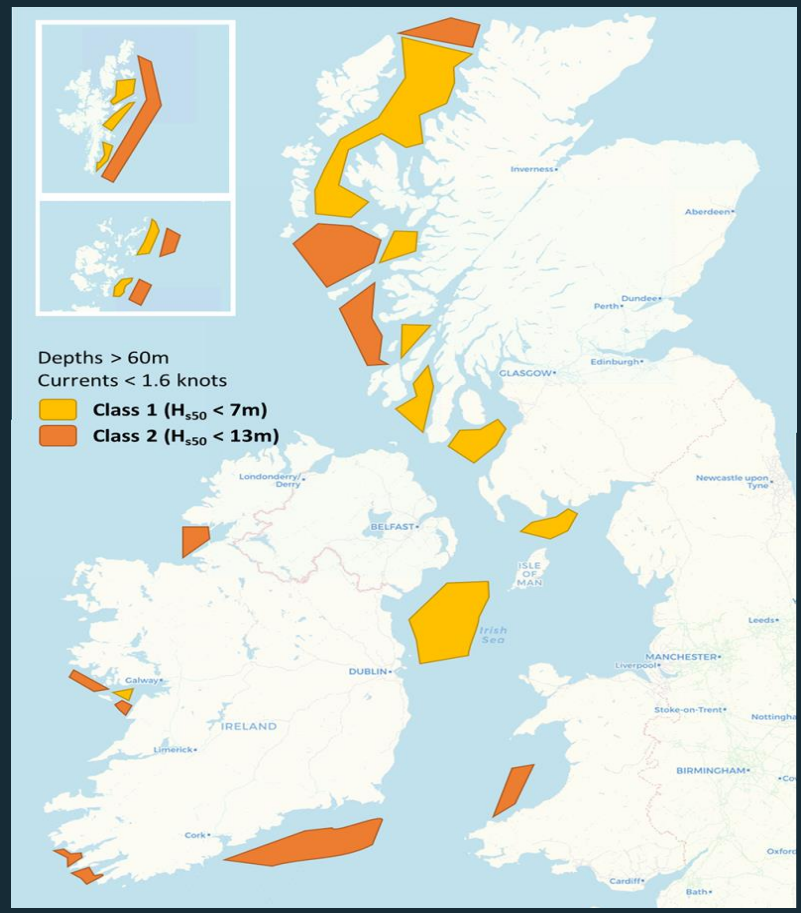




UK Market Potential



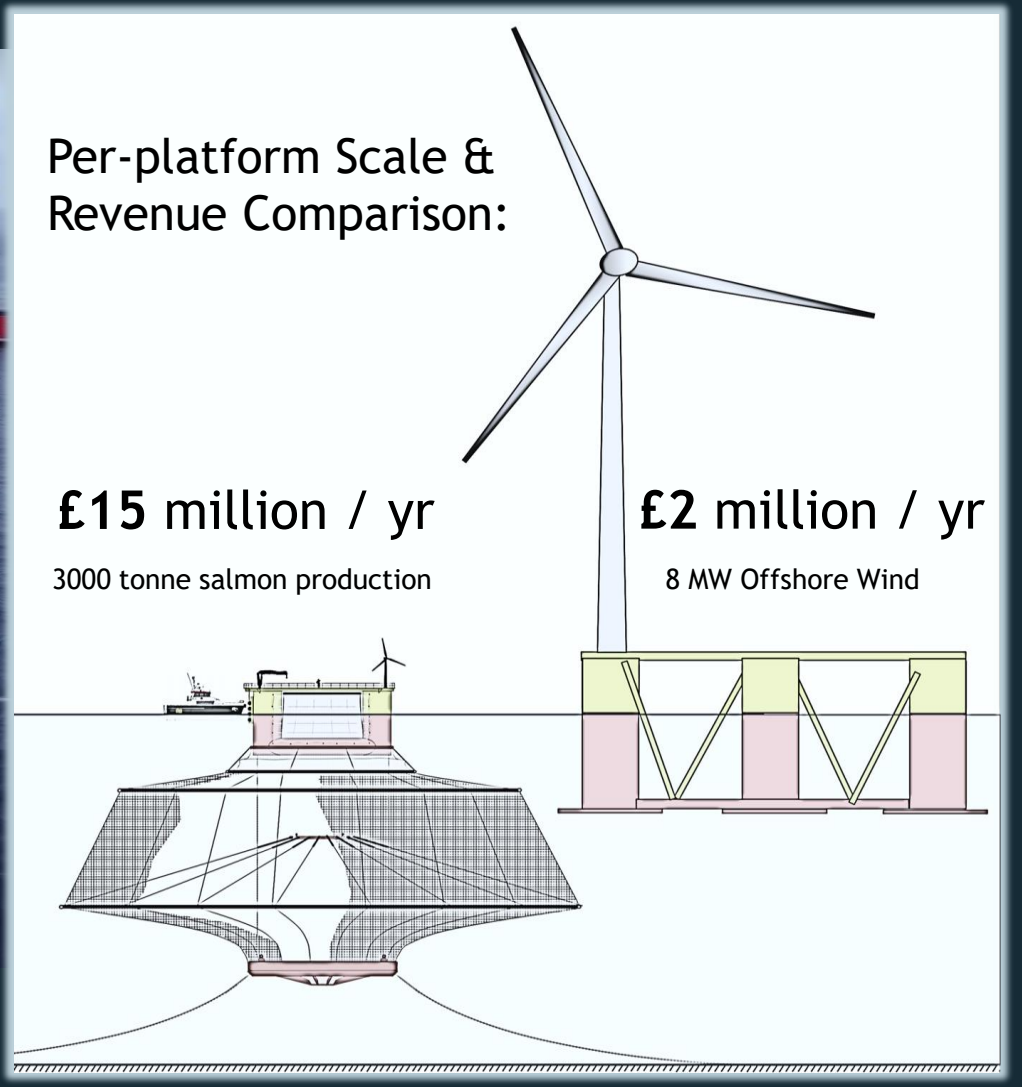
Current Market (250 farms producing 200,000 tonnes, £1 billion / year)



Class 1 and Class 2 Regions UK & Ireland
Potential? **@ 1 million tonnes = £5 billion / year**

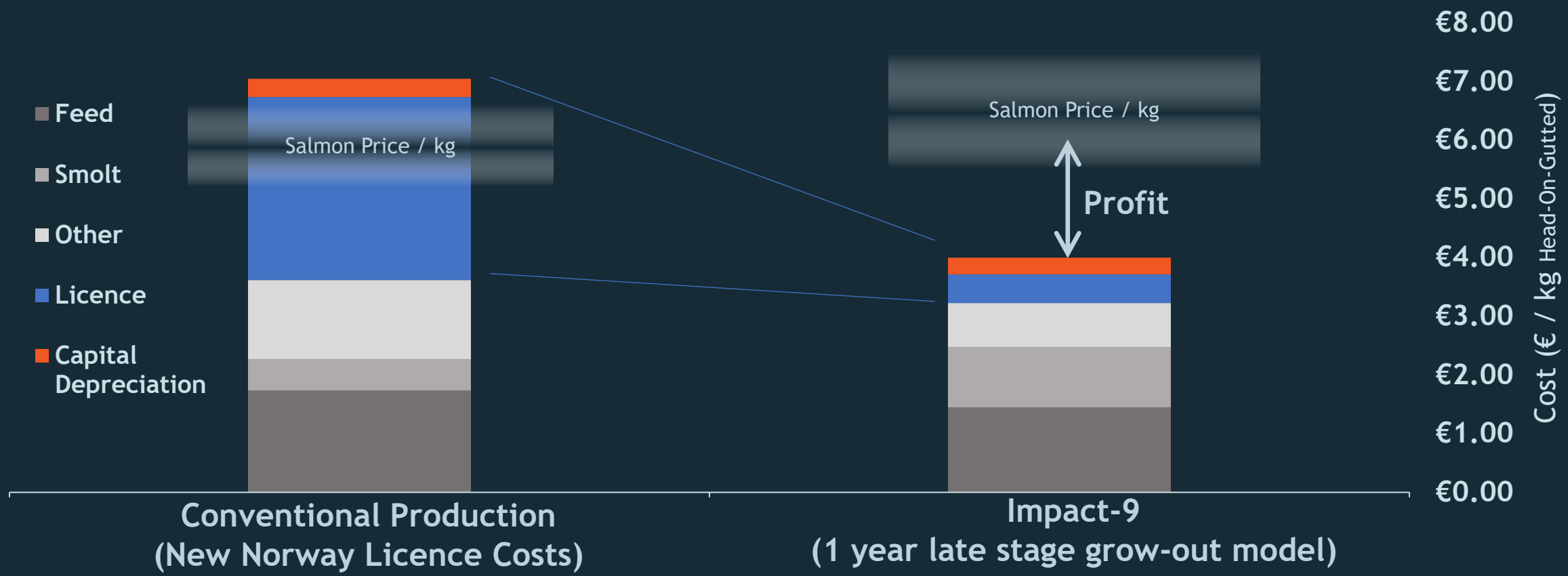
Blue Economy: Overlooked Potential?

Principal Power's Windfloat 3 Hook-up operations



NET9 – BREAKING GEOGRAPHIC MONOPOLIES

Capital Cost (per 250,000 m^3 capacity)	Conventional	Emerging Offshore	Impact-9
	<€5m	~ €100m	€10m



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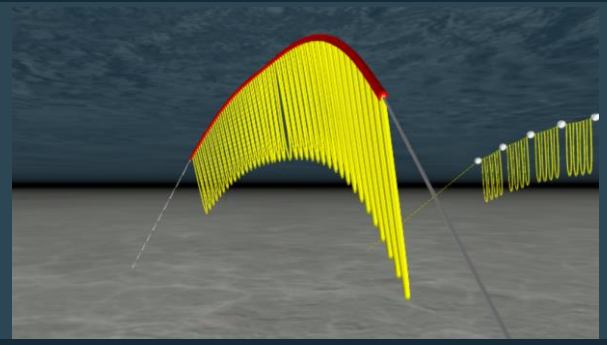
Entrepreneur-Led Innovation: Challenges and Opportunities

- Insider turned Outsider: Free to promote disruptive market change
- Disrupting your own customers is hard
- Leveraging State Resources: State-Aid dysfunction
- The Way Out?
  - **Find a Commercial "Bridge"** (Minimum Viable Product)
  - **Find "Active" State Agents:** Public Procurement, SBIR & Blended Equity

Next Steps: Two Linked Technology Projects

Commercial Bridge for investment:

SeaStrut™
Beam Technology



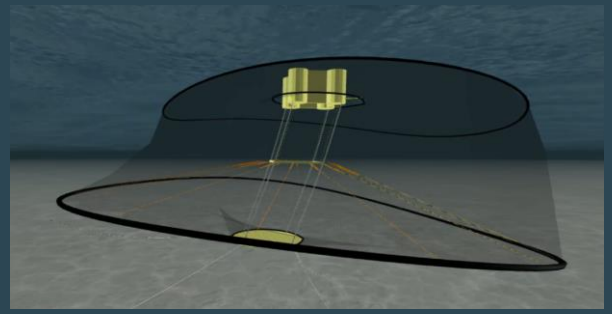
TRL 8-9

€400 k

- First series type-hardware design
- 80m long-line sea trial demonstration
- 2km production run and first sales
- Product Service Engineer employed

SBIR & Blended State Equity:

Net9™
for Salmon

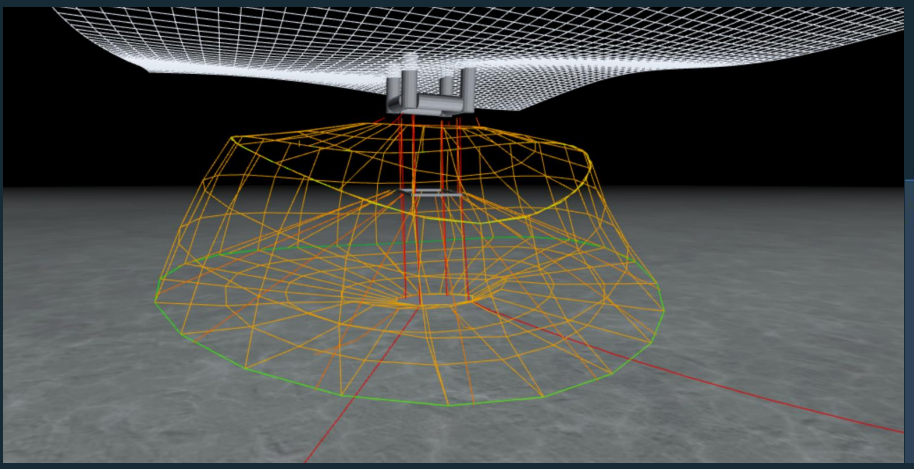


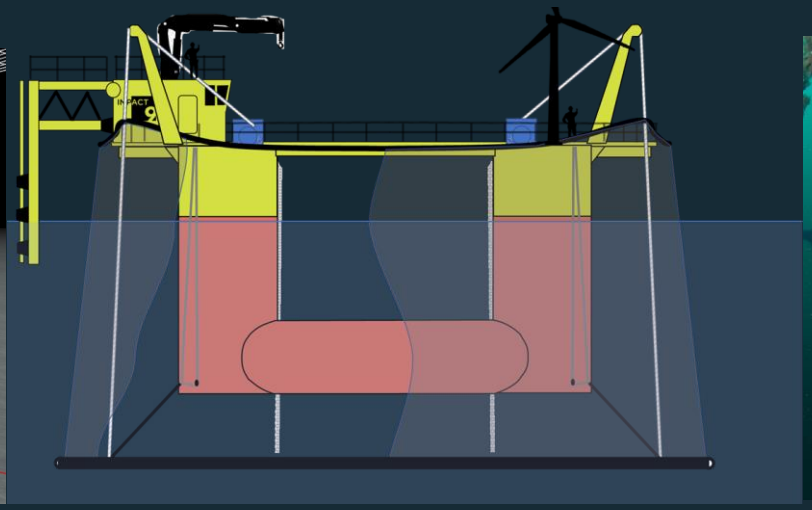
TRL 4-5

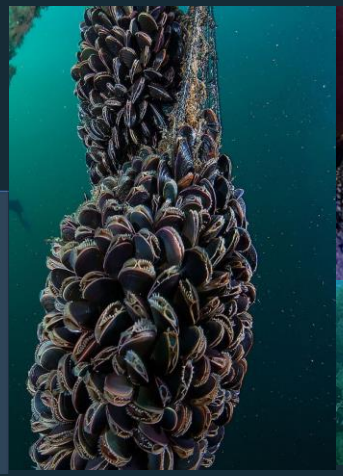
€250k

- Design of Sub-Scale pen: 30m diameter, 25m depth. Site consenting for UK Demonstration
- Subsystem Testing of Novel Flexible Components (linked to SeaStrut)

Strength in Flexibility







- Affordable Survivability
- Operational Innovations
- Renewed Production Growth

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