

Northwest National Marine Renewable Energy Center

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The Northwest National Marine Renewable Energy Center

- A partnership between Oregon State University, the University of Washington, & the National Renewable Energy Lab.
- Develop a full range of capabilities to support wave and tidal energy development.
- Center activities are structured to:
 - facilitate device commercialization,
 - inform regulatory and policy decisions,
 - close key gaps in understanding.



NNMREC is focused on research and testing in marine renewable energy

Technical

Testing/Demonstration
Wave Forecasting
Survivability/Reliability
Anti-fouling / Corrosion
Device/Array
Optimization

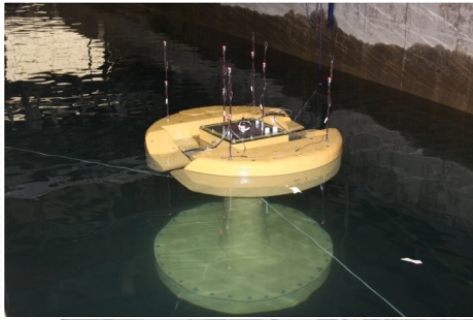
Environmental

Sediment Transport
Electromagnetic Fields
Benthic Ecosystems
Acoustics

Social

Fisheries/Crabbing
Outreach/Engagement
Existing Ocean Users
Local/Oregon Economy
Marine Spatial Planning

NNMREC Testing Plan



Courtesy Columbia
Power Technology



Hinsdale Wave Research Lab



Newport OR – 2008 test

Model Validation at OSU Facilities

- 20kW Wave Energy Linear Test Bed (WESRF), 2m stroke
- Tank Testing in Regular and Irregular Waves (HWRL)
Scale (λ); 1:35-100
TRL: 4 - 6 (Existing)

Small-scale Device Testing at OSU Facilities

- 2-D flume with regular waves: 0-1m in 3m water depth
- 3-D tank with irregular waves: 0-0.5m in 1.5m water depth
Scale (λ); 1:15-50
TRL: 4 - 6 (Existing)

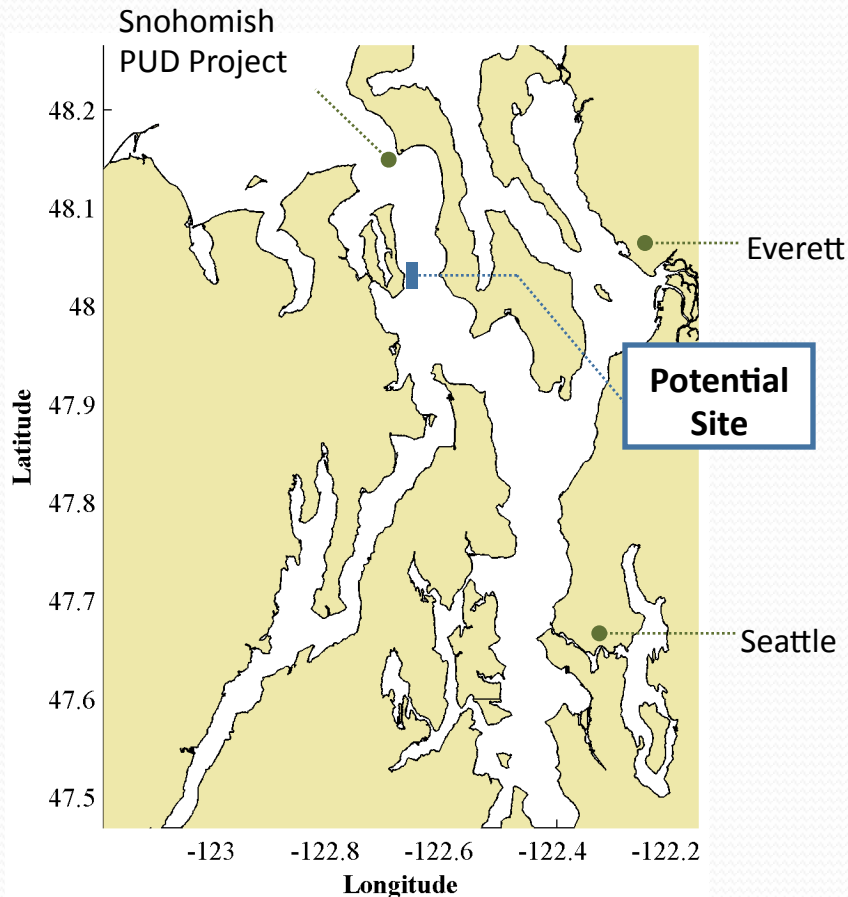
Field Testing (Intermediate Scale)

- Yaquina Bay, OR: Wind Waves: 0-0.2m in 7.6m water depth
- Puget Sound, WA: Wind Waves: 0-1m in 16m water depth
TRL: 6 - 7 (Existing)

Open Ocean Device Testing & Demonstration 1 MW Mobile Ocean Test Berth (MOTB)

Newport, Oregon: Water depth 40-50m
TRL: 7 - 9 (Proposed)

Proposed National Tidal Energy Test Facility



- Provide developers with a dedicated test site to support commercial projects
- Test facility takes on permitting and regulatory compliance, to the greatest extent possible
- Developers focus on technology innovation
- Three grid-connected berths, capable of testing a range of device scales and technical readiness levels
- Commercial-scale resource with a smooth transition from lab to field



Thank You

Come visit the Great Northwest

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