

# Marine Spatial Planning in Oregon for Marine Renewable Energy Development

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**OREGON**  
Department of  
Land Conservation  
& Development



# What is Marine Spatial Planning?

Coastal and marine spatial planning (**CMSP**)—or marine planning—is a science-based tool that regions can use to address specific ocean management challenges and advance their goals for economic development and conservation.

Just as federal agencies work with states, tribes, local governments, and others to manage forests, grasslands, and other areas, they also can use marine planning to **coordinate activities** among all coastal and ocean interests and **provide the opportunity to share information**.

This process is designed to decrease user conflict, improve planning and regulatory efficiencies, decrease associated costs and delays, engage affected communities and stakeholders, and preserve critical ecosystem functions and services.

Put simply, marine planning is a process developed from the bottom up to improve collaboration and coordination among all coastal and ocean interests, and to better inform and guide decision-making that affects their economic, environmental, security, and social and cultural interests.

# Oregon Coastal Management Program

One of the first in the country. Approved by NOAA in 1976 as a result of the Coastal Zone Management Act of 1972



## **Policies & Plans**

Coastal Goals, Territorial Sea Plan, Estuary Planning, Hazard Planning, etc.



## **Federal Consistency Authority**

Allows application of state policies to federal activities using enforceable policies.



## **Networked Program**

A network of state and local partners that help implement the Program. (11-8-32)

**Housed within the  
Department of Land Conservation and Development (DLCD)**



# State Ocean Planning Framework

## Statewide Planning Goal 19 - Ocean Resources

Mandates protection of important marine habitat; and

- areas important to fisheries.
- **Oregon Ocean Resources Management Act**  
(creates state-ocean governance structure)
- **Oregon Territorial Sea Plan**  
(contains specific policies for state ocean management)
- **State Agency Authorities and Programs**

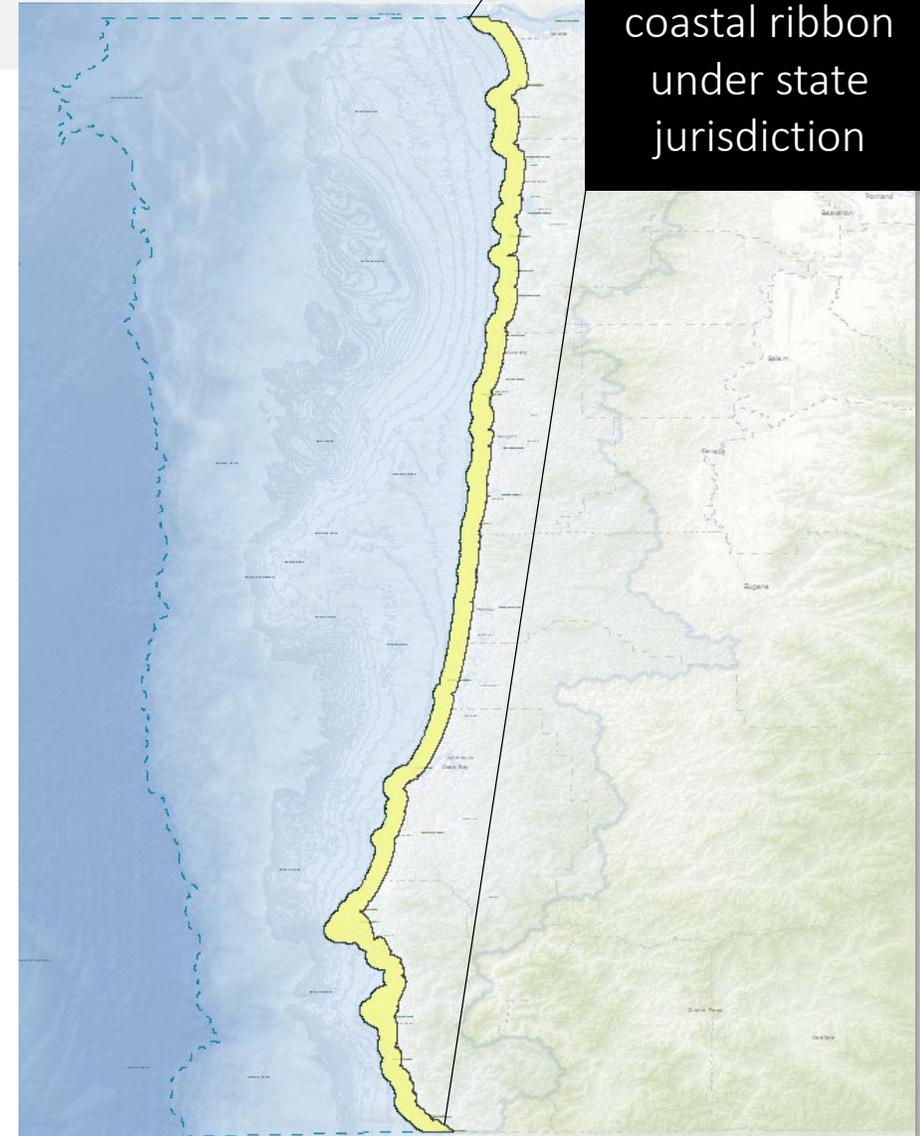


# Oregon's Territorial Sea Plan (TSP)

Originally Adopted in 1994

- Provides a coordinated framework for managing Oregon's ocean resources.
  - The Ocean Policy Advisory Council is the state's legislatively mandated advisory body charged with stewardship of the Territorial Sea Plan.
- Multiple parts (chapters)
  - Part 3 - Rocky Shore Management
  - Part 4 - Cable's across the territorial sea (2001)
  - Part 5 - Marine Renewable Energy (2009, 2019)

The TSP relies on a network of state authorities & programs to implement TSP policies and recommendations.



# Oregon Territorial Sea Plan

## Part One: Ocean Management Goals



The overall ocean management goal of the State of Oregon is to: Conserve the long-term values, benefits, and natural resources of the nearshore ocean and the continental shelf.

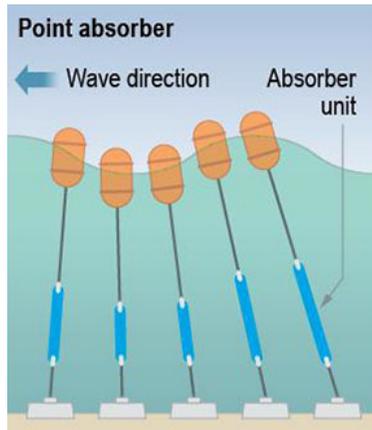
To achieve this goal, the State of Oregon will:

- 1. give **higher priority to the protection of renewable marine resources** than to the development of non-renewable ocean resources;
- 2. support development of ocean resources that is **environmentally sound and economically beneficial** to coastal communities and the state;
- 3. protect the **diversity of marine life**, the **functions** of the marine ecosystem, the diversity of marine and estuarine habitats, and the overall **health** of the **marine environment**; and
- 4. seek the conservation of ocean resources within the larger marine region that is of **ecologic and economic interest** to the State of Oregon.

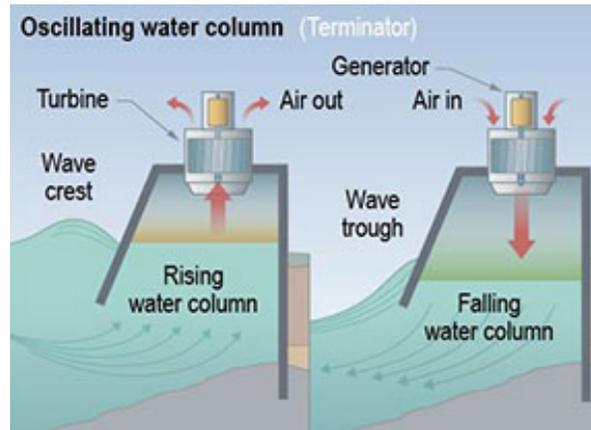
# Uncertainty is a challenge in Planning for Marine Renewable Energy

An example of the diversity of Marine Hydrokinetic Wave Energy Converter Types

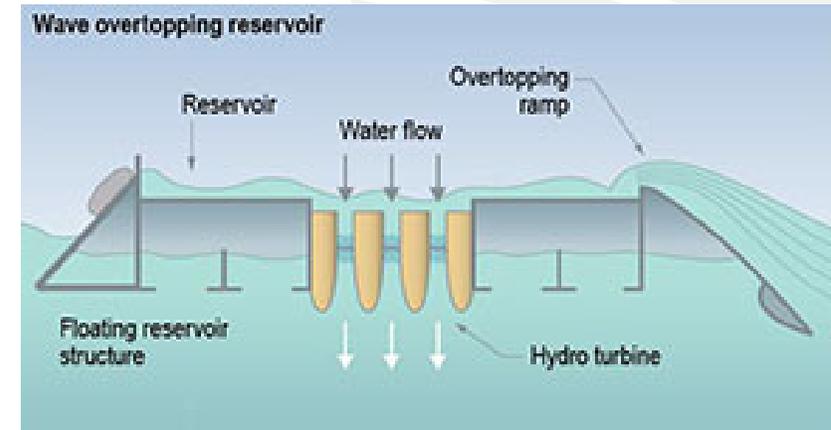
## Point Absorber



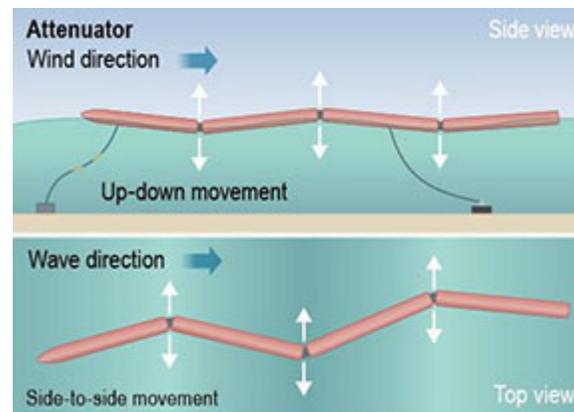
## Oscillating Water Column



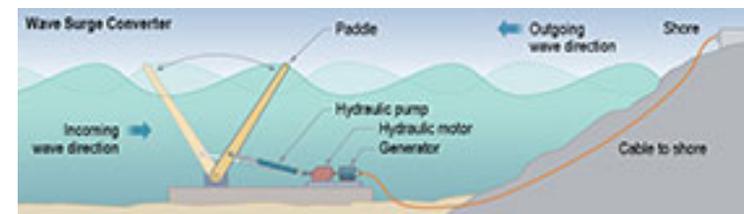
## Overtopping Device



## Attenuator



## Oscillating Wave Surge Converter



# The Territorial Sea Plan... A Plan for a Process.

## Proposed New Uses

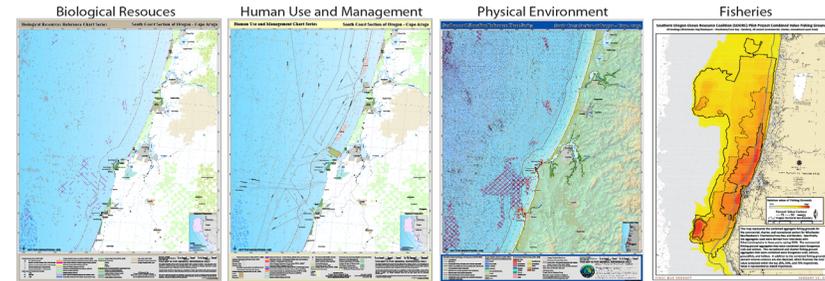


## 1. Resource Inventory

At a minimum, the following factors shall be considered for inclusion in the inventory as appropriate to the magnitude, likelihood of effects, and the significance of potentially affected resources and uses:

- 1.) The proposed action (i.e., method of power generation);
- 2.) Location and description of all affected areas, including areas for onshore support facilities;
- 3.) Physical and chemical oceanographic characteristics;
- 4.) Bathymetry (bottom topography);
- 5.) Geological structure and hazards;
- 6.) Biological features, including: critical marine habitats, Other habitats important to the marine ecology;
- 7.) Mineral deposits, including sand, gravel and hydrocarbon resources;
- 8.) Cultural, economic, and social uses (present and projected) associated with the affected resources, such as: (a) Commercial and sport fishing; (b) Aquaculture; (c) Scientific research; (d) Ports, navigation, and DMD sites; (e) Recreation; (f) Tourism; (g) Mineral extraction; and (h) Waste discharge;
- 9.) Significant historical or archeological sites.

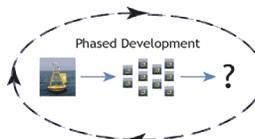
## 1b. Identify: Existing Uses



The charts above represent work recently completed in support of the Ocean Policy Advisory Council. The three on the left represent the database of GIS information gathered in support of the public marine reserves process in Oregon. The chart on the right was recently produced by SOORC, the Southern Oregon Ocean Resource Coalition, in support of the ongoing Territorial Sea Plan Amendment Process.

## 5. Implement Adaptive Management.

Incorporation of new findings and technologies into the operation and management of the project.



The adaptive management plan will explain processes for how adaptation measures will be applied to the operation and management of the project. The adaptive management plan should account for:

- 1) Variable conditions in the marine environment
- 2) Change in the status of resources
- 3) New information provided by monitoring of the project
- 4) Data and information provided by research and from other sources
- 5) New technologies that would provide for greater protection of ocean resources
- 6) Ocean fisheries
- 7) Other ocean uses to be protected from adverse effects and operational conflicts
- 8) Unanticipated cumulative effects

### Additional Resources:

Territorial Sea Plan. Available online at: [http://www.oregon.gov/LCD/OCMP/Ocean\\_TSP.shtml](http://www.oregon.gov/LCD/OCMP/Ocean_TSP.shtml)

Thematic Charts available online at: <http://www.OregonOcean.info/ThematicCharts>

Ecotrust Marine Spatial Planning Information: <http://www.ecotrust.org/tsp/>

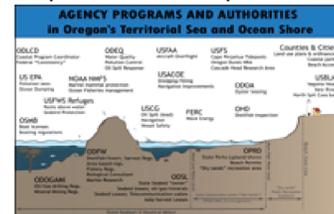
Alternative Energy Analysis Framework. Accessible online at the Oregon Wave Energy Trust: <http://www.oregonwave.org/>

## Statewide Planning Goal 19: Ocean Resources

To conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social value and benefits to future generations.

To carry out this goal, all actions by local, state, and federal agencies that are likely to affect the ocean resources and uses of Oregon's Territorial Sea shall be developed and conducted to conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social values and benefits and to give higher priority to the protection of renewable marine resources—i.e., living marine organisms—than to the development of non-renewable ocean resources.

## 4. Monitor: Compliance with Operation Plan



State and Federal Agencies with jurisdiction in the Territorial Sea will monitor the activities and effects of development as they occur.

Operation plans are required to include: contingency; inspection; monitoring; and adaptive management plans.

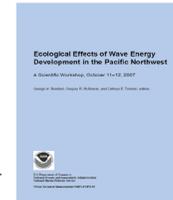
## 2. Effects Evaluation and Assessment

Requires a written evaluation of:

The potential short-term and long-term effects on resources and uses of the Territorial Sea, the continental shelf, the nearshore ocean, and onshore areas.

### Example of Work:

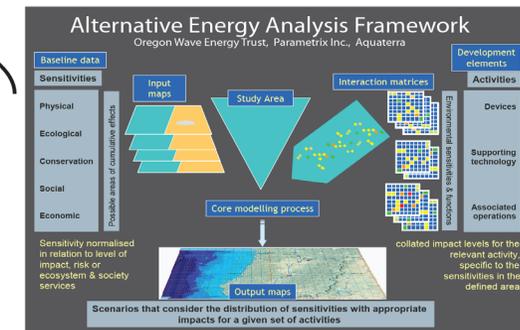
Ecological Effects of Wave Energy Development in the Pacific Northwest. A Scientific Workshop, October 11-12, 2007. George W. Boehlert, Gregory R. McMurray, and Cathryn E. Torrici, editors



## 3. Planning: Establish suitable locations.

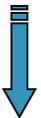
In its implementation of the TSP, the State is required to protect:

1. Living marine organisms i.e., renewable marine resources – from adverse effects of development of nonrenewable resources, uses of the ocean floor, or other actions;
2. The biological diversity of marine life and the functional integrity of the marine ecosystem;
3. Important marine habitats; and
4. Areas important to fisheries.



# Overview: Geospatial Analysis to derive Areas Protected by Goal 19

Data Layers Intersected with the Planning Grid

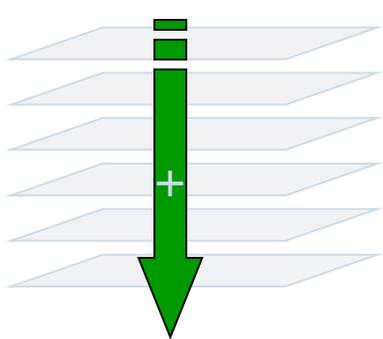


Areas of Opportunity (to be evaluated)



**Goal 19 Criteria**

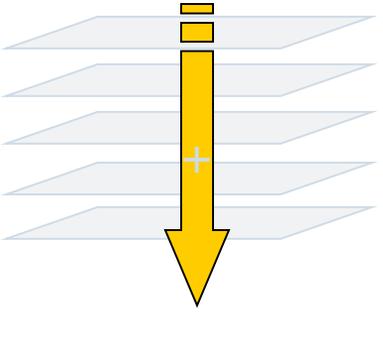
Areas of Biological or Ecological Importance.      Identify Areas of Importance to Fisheries      Existing Uses or Areas for special management.



B&E Resource Areas



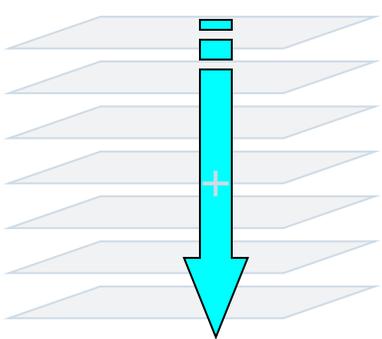
+



Fishery Resource Areas



+



Current Use Areas



+

=



Areas of Protection under Goal 19



# TSP PART FIVE:

## Use of the Territorial Sea for the Development of Renewable Energy Facilities or Other Related Structures, Equipment or Facilities

### Part Five Chapter

1 Oregon Territorial Sea Plan  
2  
3 **PART FIVE:**  
4 **Use of the Territorial Sea for the Development of**  
5 **Renewable Energy Facilities or Other Related**  
6 **Structures, Equipment or Facilities**  
7  
8 **PART FIVE** of the Oregon Territorial Sea Plan describes the process for making  
9 decisions concerning the development of renewable energy facilities (e.g. wind, wave,  
10 current, thermal, etc.) in the state territorial sea, and specifies the areas where such  
11 development may be sited. The requirements of Part Five are intended to protect areas  
12 important to renewable marine resources (i.e. living marine organisms), ecosystem  
13 integrity, marine habitat and areas important to fisheries from the potential adverse  
14 effects of renewable energy facility siting, development, operation, and decommissioning  
15 and to identify the appropriate locations for that development which minimize the  
16 potential adverse impacts to existing ocean resource users and coastal communities.  
17  
18 Oregon's renewable energy portfolio lists ocean energy as a renewable energy source with  
19 potential to reduce dependence on fossil fuels.<sup>1</sup> Renewable ocean energy facilities  
20 development may present opportunities to apply technologies that rely on wind, wave,  
21 wind-current or thermal energy, ~~thereby~~ which may potentially reduce the environmental  
22 impact of fossil fuels. Oregon prefers to develop renewable energy through a  
23 precautionary approach that supports the use of pilot projects and phased development in  
24 the initial stages of commercial development. If developed in a responsible and

<sup>1</sup> See Part One, section C for the Oregon Territorial Sea and Territorial Sea Plan description.

2 It is the goal of Oregon to develop permanently sustainable energy resources and the policy of the state to  
encourage the development and use of those resources. ORS 409.010(2) provides in part:

"It is the goal of Oregon to promote the efficient use of energy resources and to develop permanently  
sustainable energy resources. The need exists for comprehensive state leadership in energy production,  
distribution and utilization. It is, therefore, the policy of Oregon:

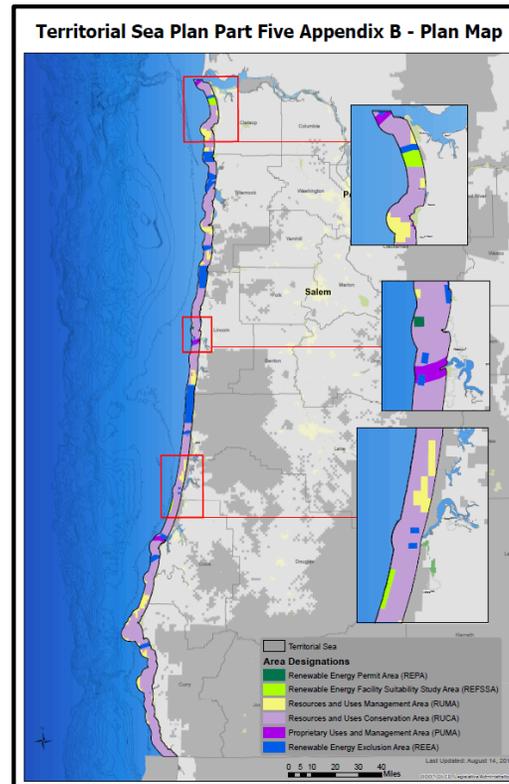
"(a) That development and use of a diverse array of permanently sustainable energy resources be  
encouraged utilizing to the highest degree possible the private sector of our free enterprise system.  
\*\*\*\*\*

"(g) That state government shall provide a source of impartial and objective information in order that this  
energy policy may be enhanced."

V.121413 (SS edit)

**OREGON TERRITORIAL SEA PLAN Part Five: Use of the Territorial Sea for the**  
**Development of Renewable Energy Facilities or Other Related Structures, Equipment or**  
**Facilities**  
Page 1 of 39

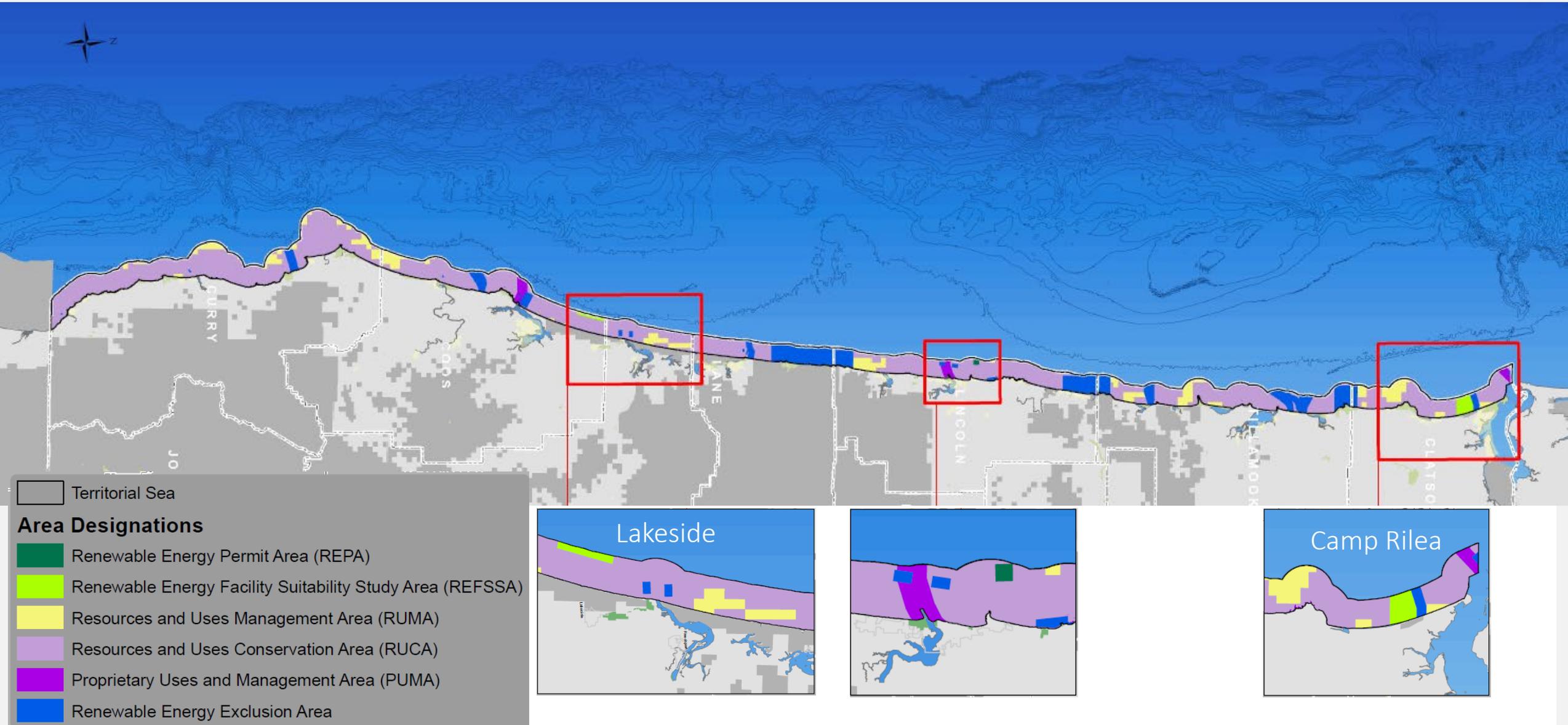
### Plan map & Area designations



### Resources & uses Inventory



# Part Five Plan Map - 2019



# TSP PART FIVE PLAN MAP AREAS

## Renewable Energy Exclusion Area (REEA)

- Special Management Areas designated by statute and OAR
- MRE applications will not be accepted within these areas

## Proprietary Use and Management Area (PUMA)

- Areas with authorized uses and special management designations under Goal 19
- MRE applications will not be accepted unless legally permissible, comply with the authorized use and area standards.

## Resources and Uses Conservation Area (RUCA)

- Areas with important, sensitive, or unique Goal 19 Resources and Uses
- MRE applications must demonstrate no reasonably foreseeable adverse effects on inventoried marine resources and uses.\*

## Resources and Uses Management Area (RUMA)

- Areas with important or significant Goal 19 Resources and Uses
- MRE applications must demonstrate no significant adverse effects on inventoried marine resources and uses.

## Renewable Energy Facility Suitability Study Area (REFSSA)

- Areas of least conflict with Goal 19 Resources and Uses
- MRE applications must comply with TSP Part Five Sections B and C, general standards, and the applicable regulatory and proprietary requirements of state and federal agencies.\*

## Renewable Energy Permit Area (REPA)

- Areas of existing MREC permits
- Delineated sites with existing authorization for the development of MRE testing, research or facilities.

Overarching Screening Standards: Visual Resource & Marine Recreation Overlays

Permit Review Standards

Higher ← ————— → Lower

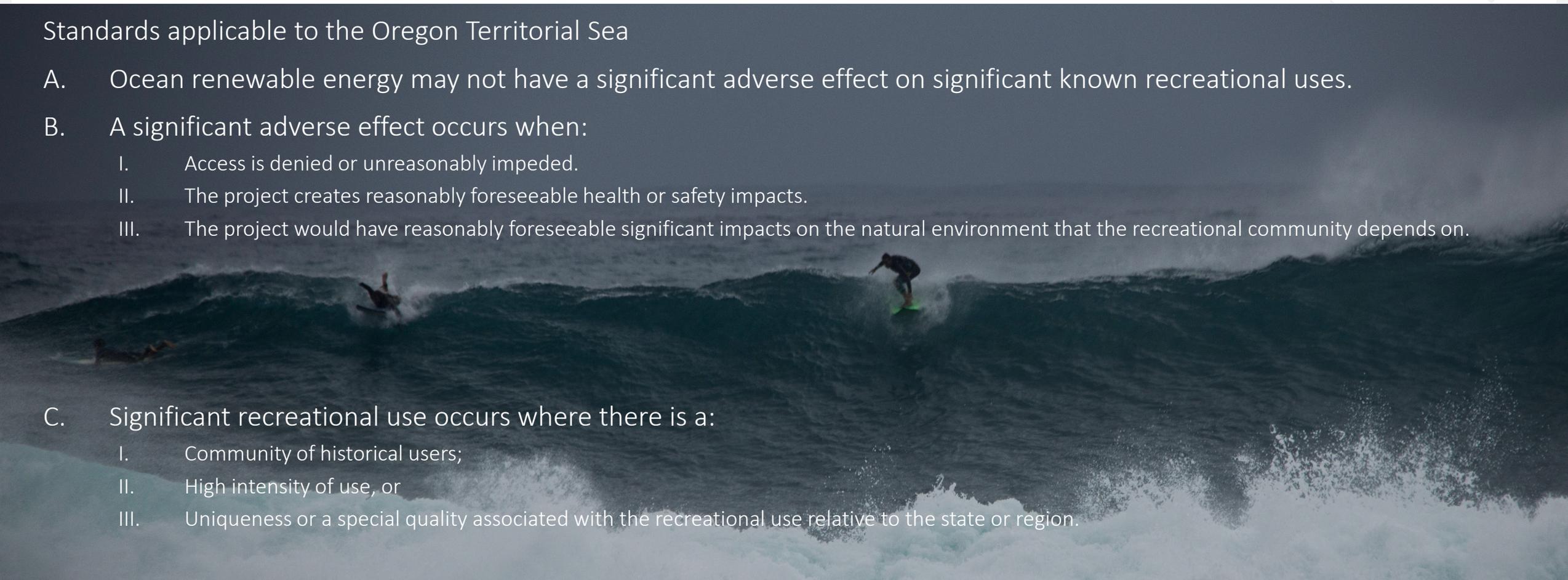
Already Permitted

# Marine Recreation Area Overlay



## Standards applicable to the Oregon Territorial Sea

- A. Ocean renewable energy may not have a significant adverse effect on significant known recreational uses.
- B. A significant adverse effect occurs when:
  - I. Access is denied or unreasonably impeded.
  - II. The project creates reasonably foreseeable health or safety impacts.
  - III. The project would have reasonably foreseeable significant impacts on the natural environment that the recreational community depends on.
- C. Significant recreational use occurs where there is a:
  - I. Community of historical users;
  - II. High intensity of use, or
  - III. Uniqueness or a special quality associated with the recreational use relative to the state or region.

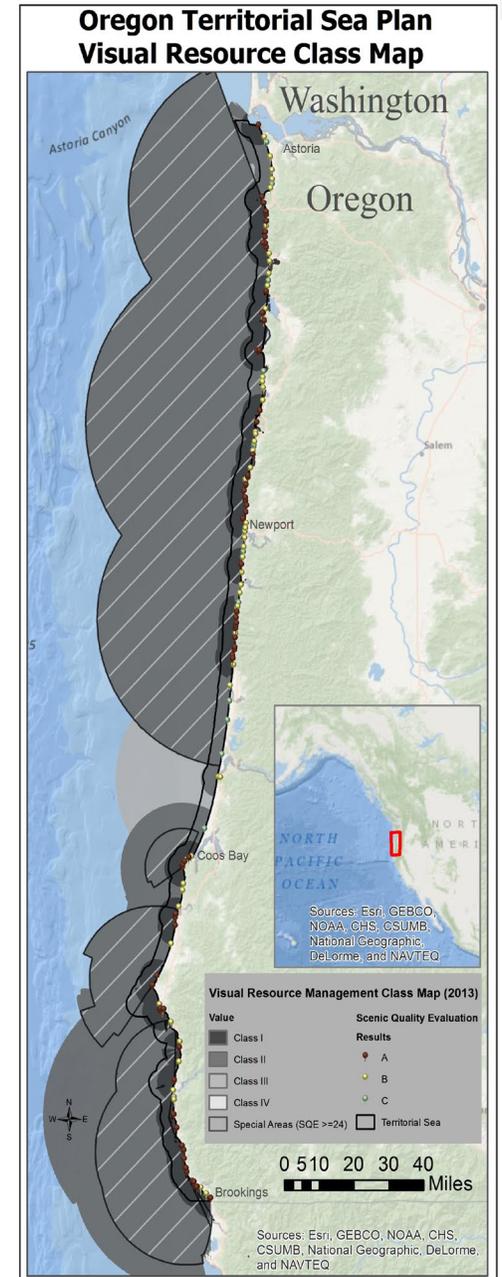


# Visual Resource Management Overlay



Visual Resource Management has 2 distinct phases:

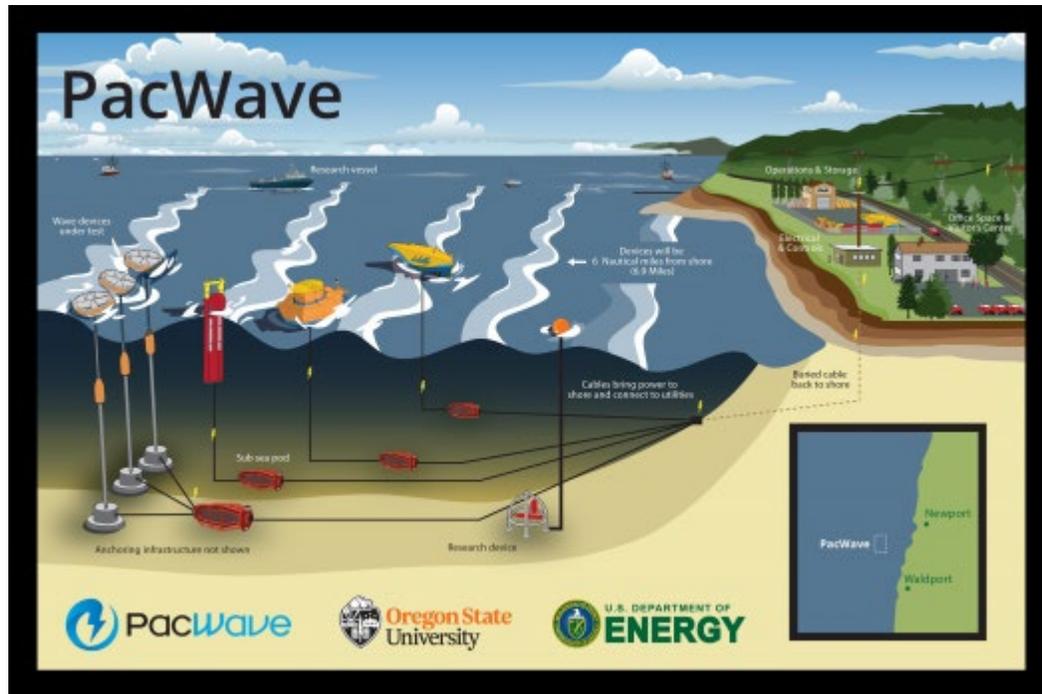
- ***Planning phase:*** A baseline of visual quality is used to model viewshed quality, and that is applied to the standards for visual resource impacts.
  - The visual resource management framework covers the full extent of the Territorial Sea.
- ***Regulatory phase:*** project applicant will be required to conduct an evaluation of potential impacts to visual resources, or a Visual Impact Analysis (VIA).



# On the Horizon for Oregon Marine Planning

Marine Hydrokinetic Energy Test Center

Oregon Outer Continental Shelf  
Intergovernmental Task Force for Marine  
Renewable Energy Planning



<https://www.boem.gov/renewable-energy/state-activities/oregon-activities>

# Questions?



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