Use Analysis Process Update

Washington Coastal Marine Advisory Council Meeting

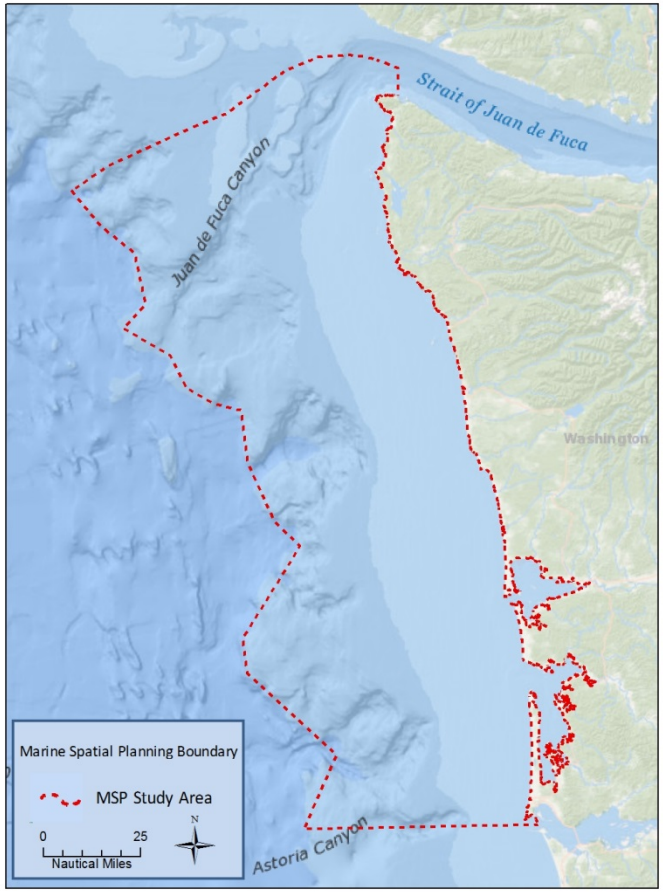
April 20, 2016

Port of Grays Harbor

Outline

1. Outline of MSP & Use Analysis project
2. Methods/Approach
3. Existing Use Maps
4. Next steps
5. Discussion

Scope of MSP



The study area is 700 fathoms offshore and includes federal waters and estuaries.

INTENT:
Address location of potential new marine uses.

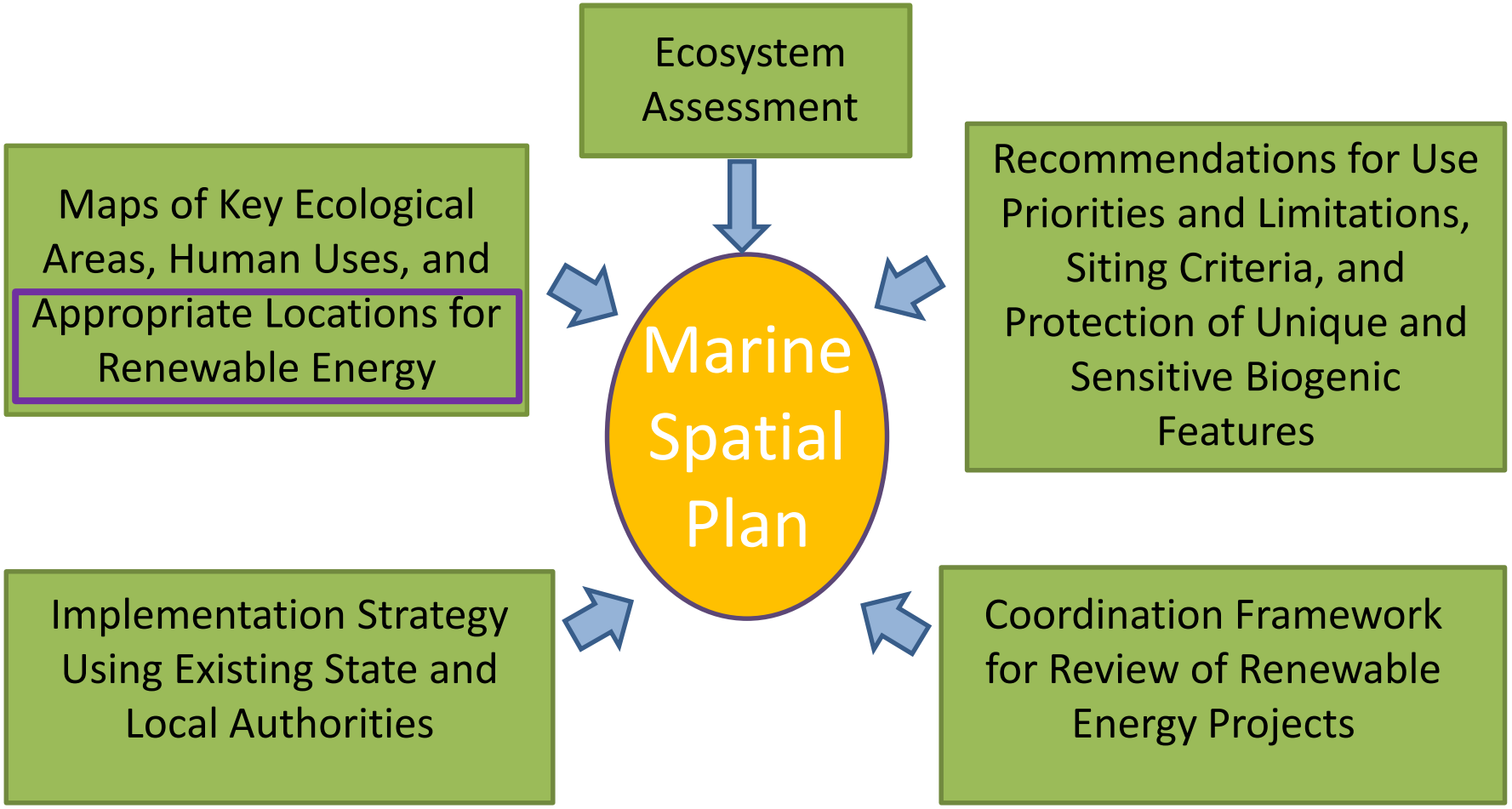
PLAN GOALS/OBJECTIVES:

- Protect existing uses
- Protect cultural uses/resources
- Preserve environment
- Integrate decision-making
- Provide new economic opportunities

NON-REGULATORY PLAN

MSP Context

The marine management plan must include but not be limited to…



RCW 43.372.040(6)

(6) The marine management plan must include but not be limited to:

. . .

(c) A series of maps that, at a minimum, summarize available data on: The key ecological aspects of the marine ecosystem, including physical and biological characteristics, as well as areas that are environmentally sensitive or contain unique or sensitive species or biological communities that must be conserved and warrant protective measures; human uses of marine waters, particularly areas with high value for fishing, shellfish aquaculture, recreation, and maritime commerce; and appropriate locations with high potential for renewable energy production with minimal potential for conflicts with other existing uses or sensitive environments;

-RCW 43.372.040

Use Analysis Process

Final Products:

1. Maps that provides general sense of where higher levels of conflict *may* occur with new uses

2. Recommendations for planning regarding new uses (space use)

Use Analysis Approach

1. Produce maps for existing uses by sector:
   - Intensity of uses
   - Number of uses present
2. Overlay all sector maps to produce map of all existing uses
   - Intensity of uses
   - Number of sectors
3. Overlay renewable energy maps for comparison
4. Develop recommendations

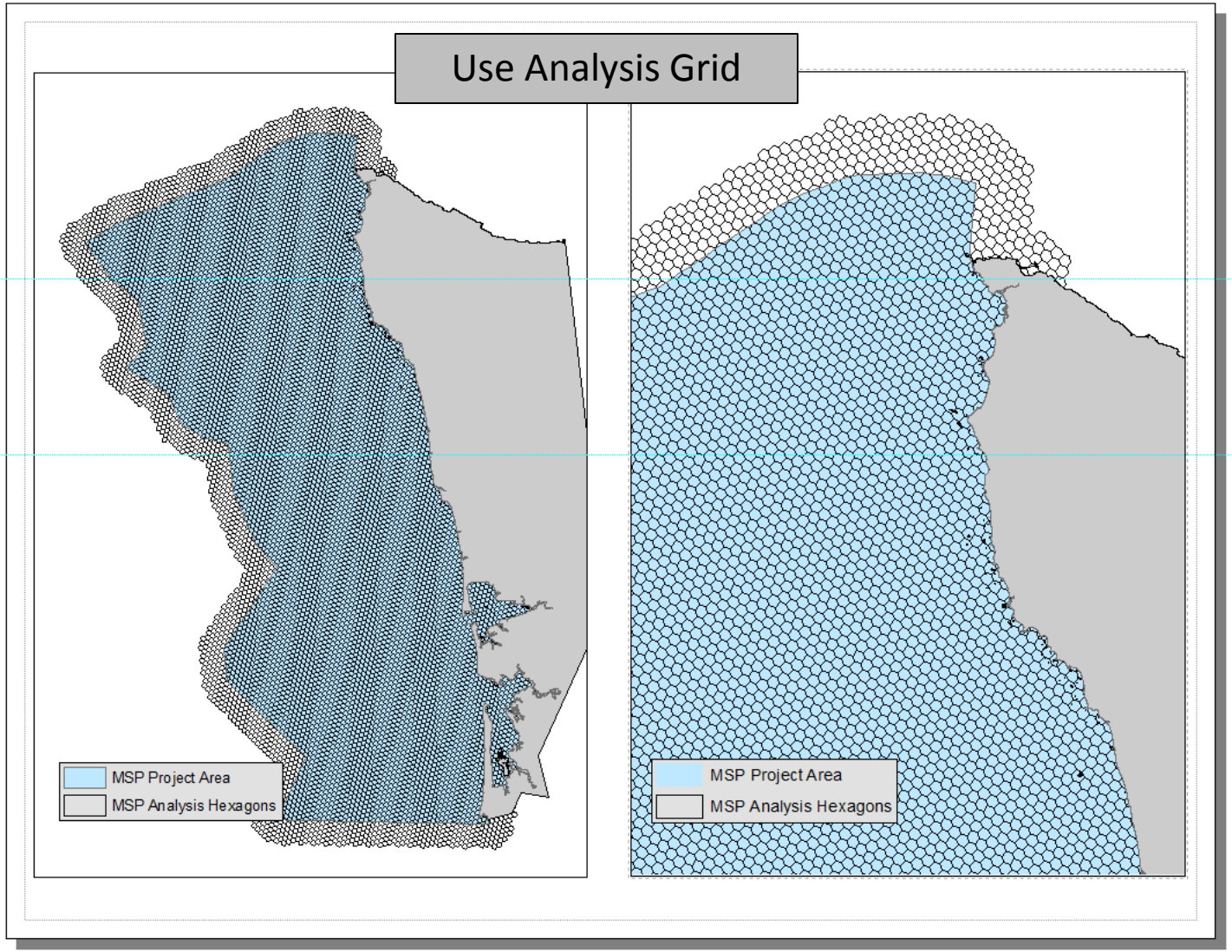
Process To Date

- Briefings to WCMAC on concept and process
- Meetings with marine use sectors regarding data sources and potential conflicts with new uses.
- GIS work (*ongoing*)
- Tribal briefing and input (*ongoing*)

Existing Use Scoring Criteria

- Use intensity data, where available.
- Convert data to footprints of where the use occurs (or not) for “number of uses” maps.

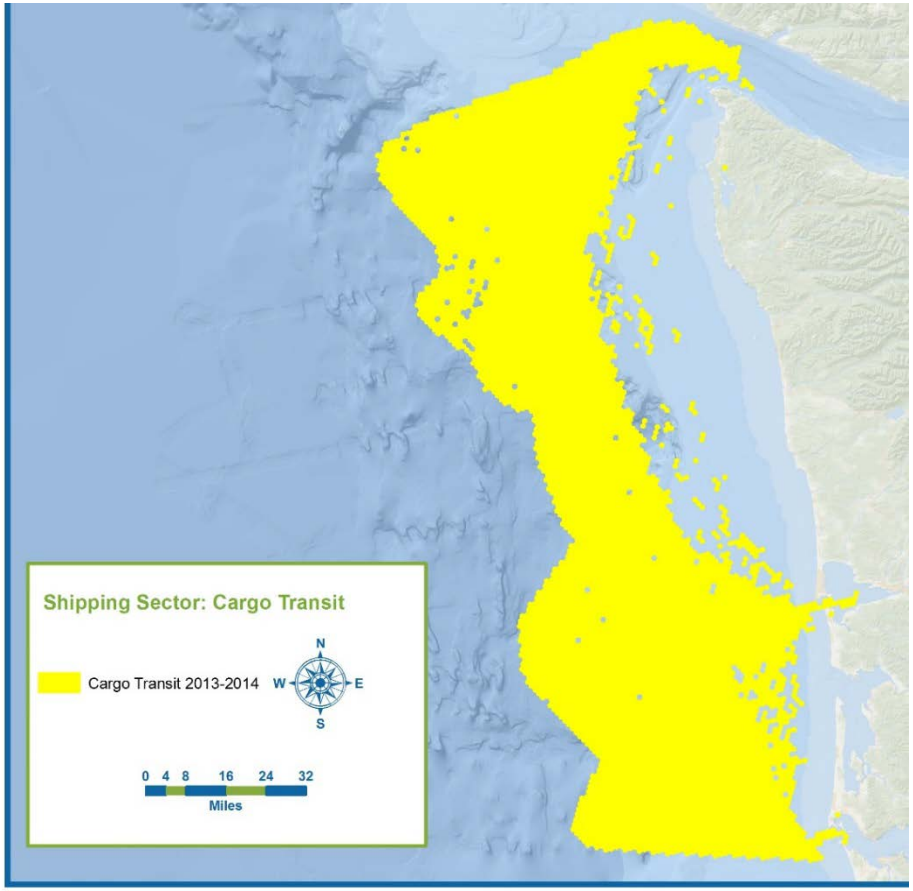
Analysis Unit = 1 Sq Mile Hexagons



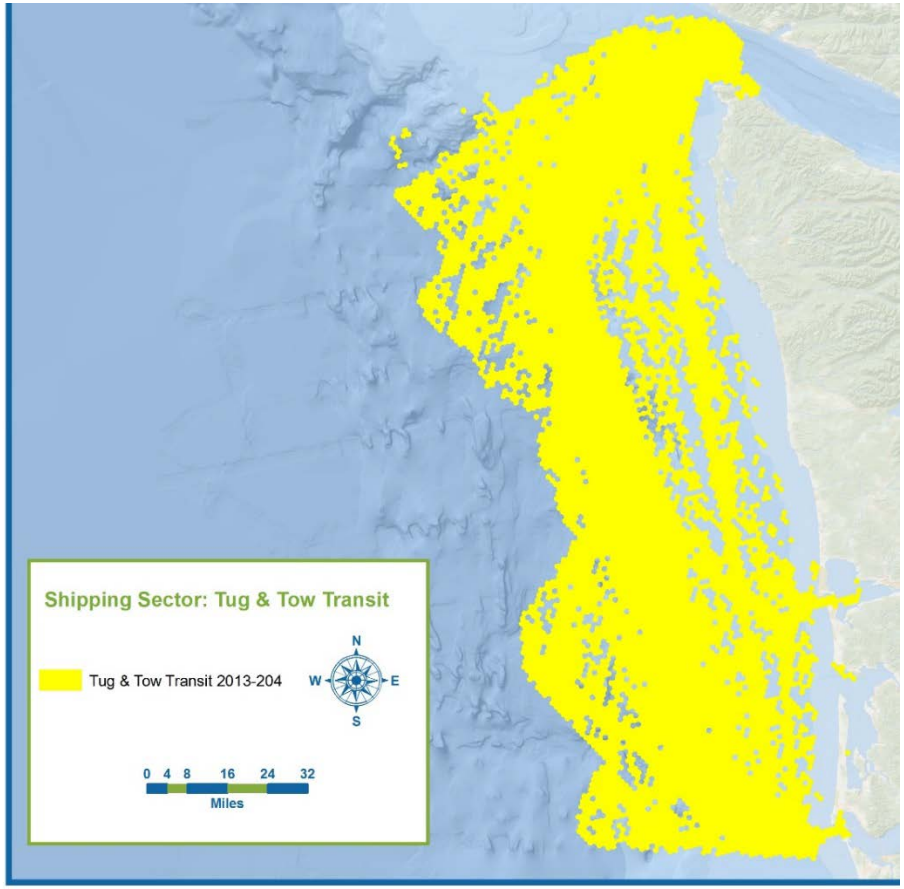
There are 8,272 hexagon cells in the grid within the boundaries of the planning area.

Shipping: footprint maps

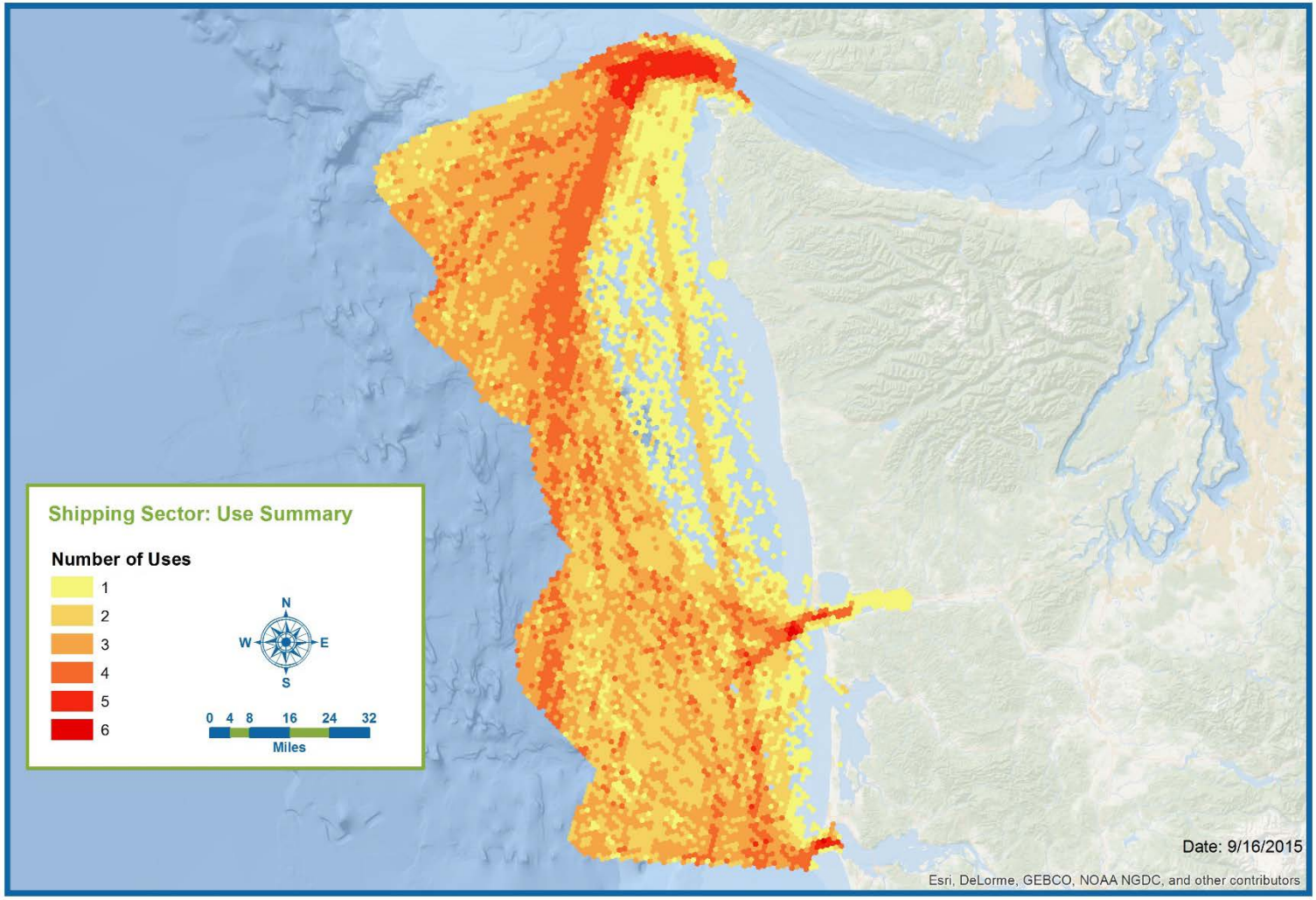
Footprint of use: Cargo



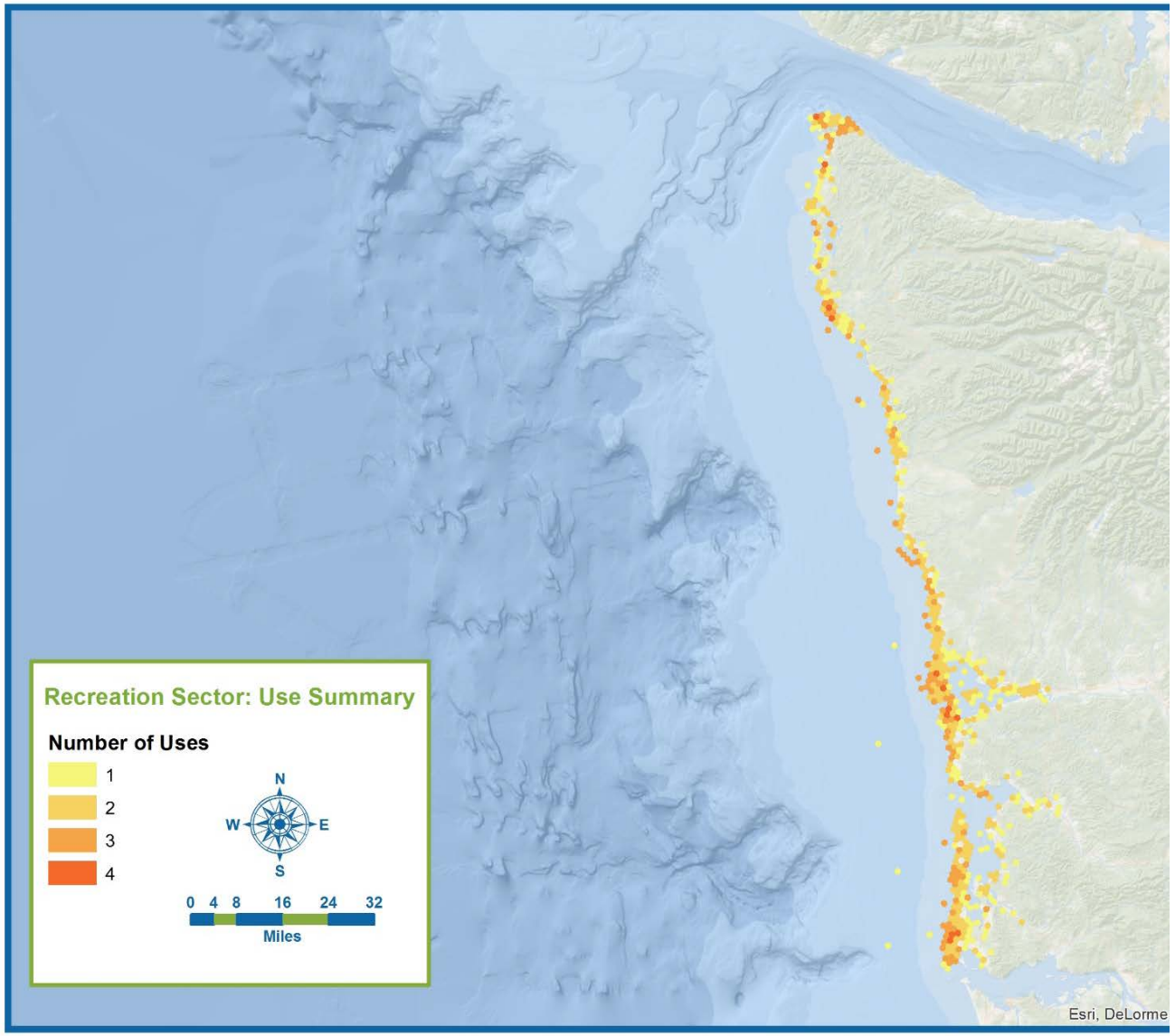
Footprint of Use: Tug and Tow



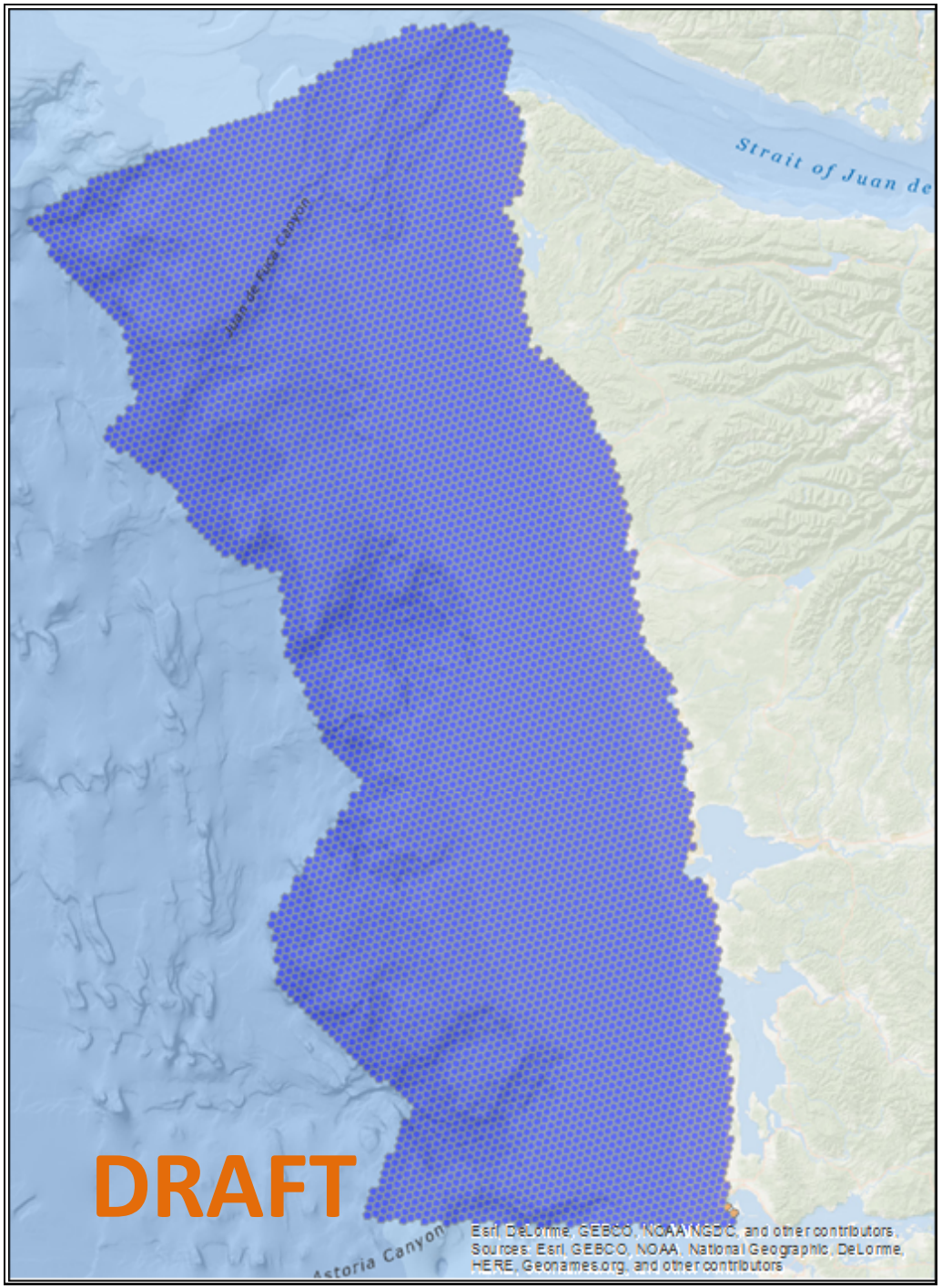
Shipping: draft footprints of types of vessels



Non-consumptive Recreation: draft footprint of types of recreation



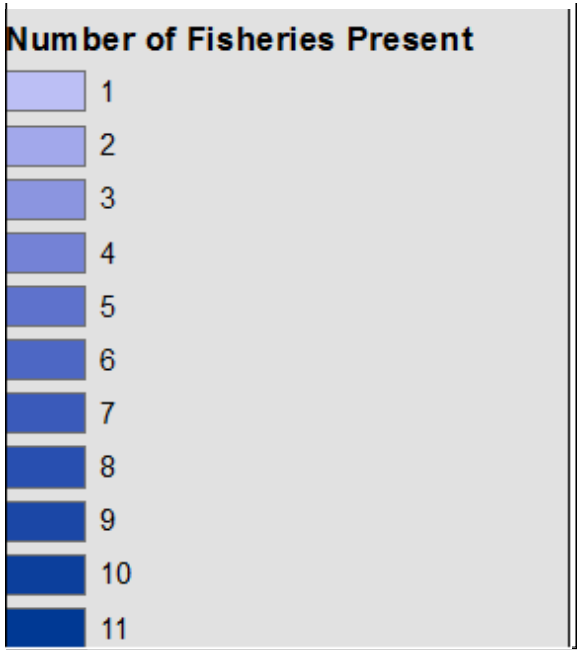
Footprint Map – The "Fisheries" Sector

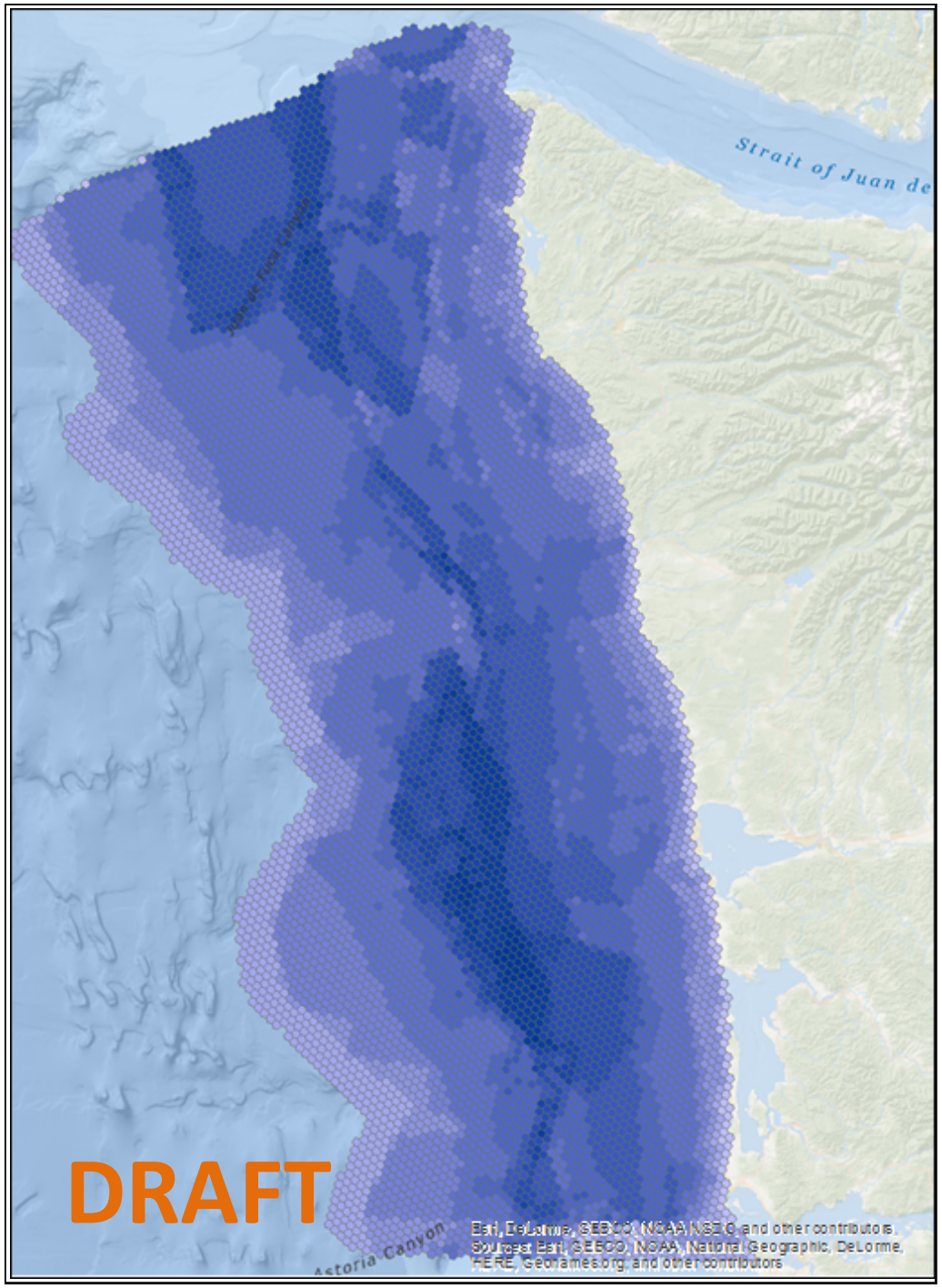


Fisheries Use Present?

- No
- Yes

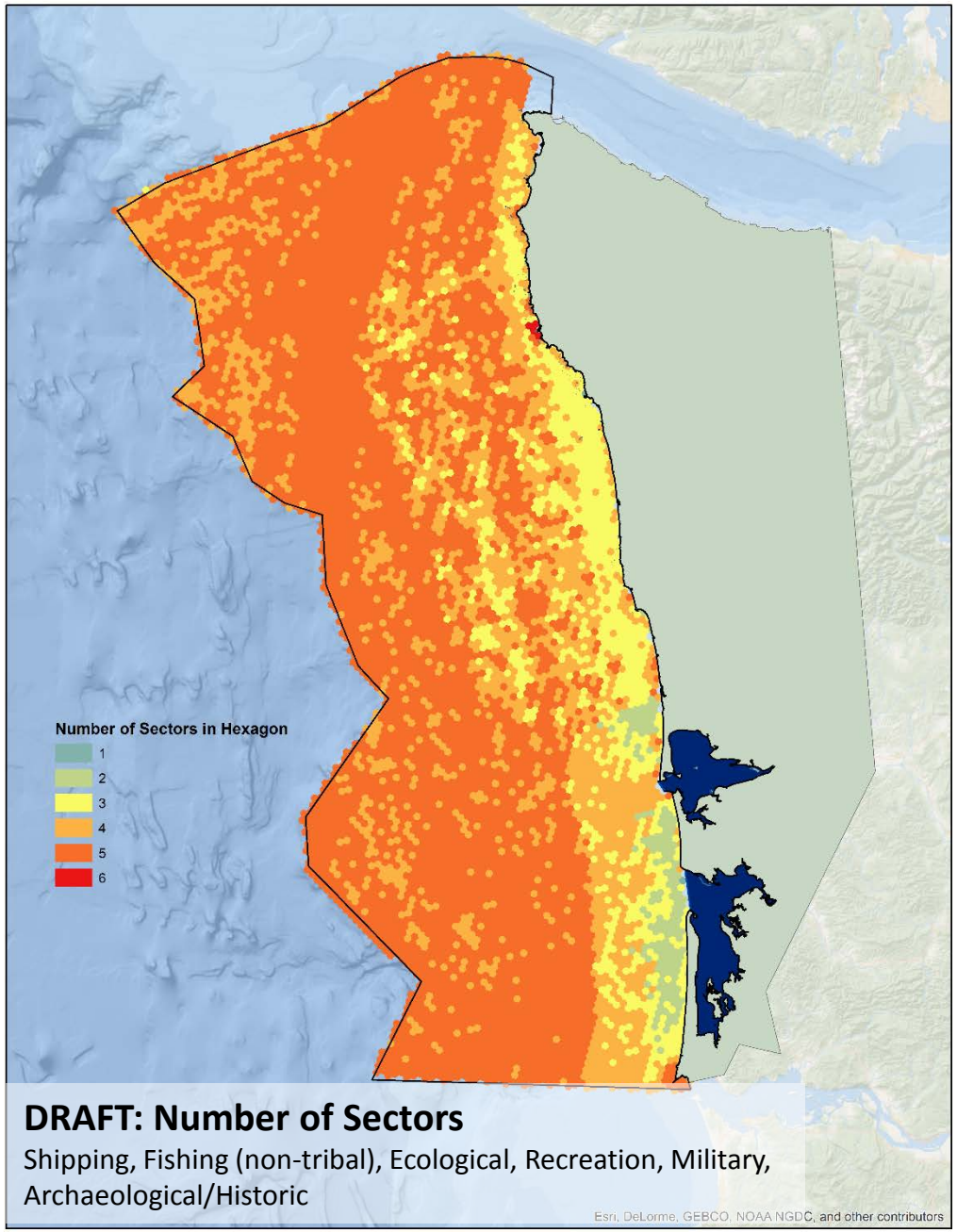
Footprint Map – Individual Non-tribal Fisheries





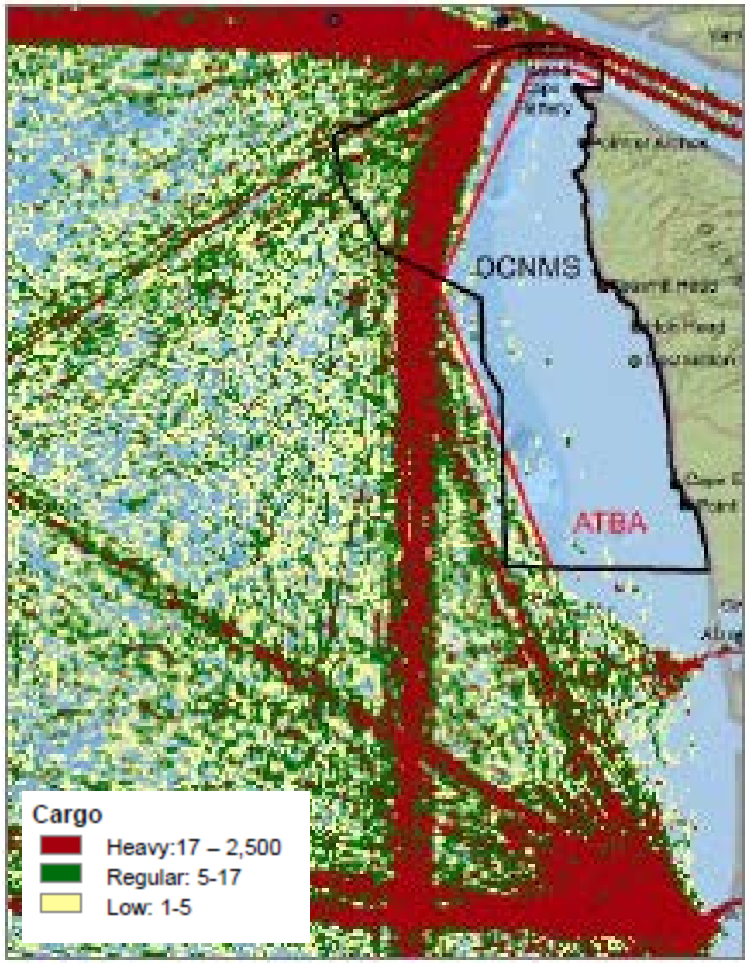
DRAFT: Number of Sectors

Combined Sector Footprints

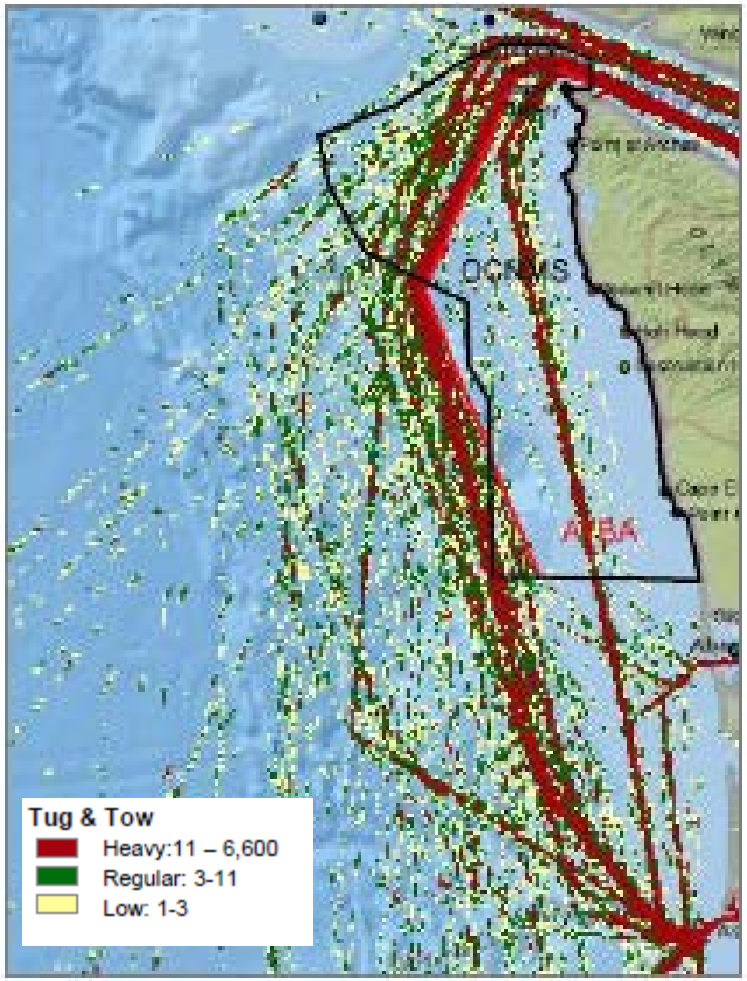


Shipping: draft use intensity data

Intensity data: Cargo

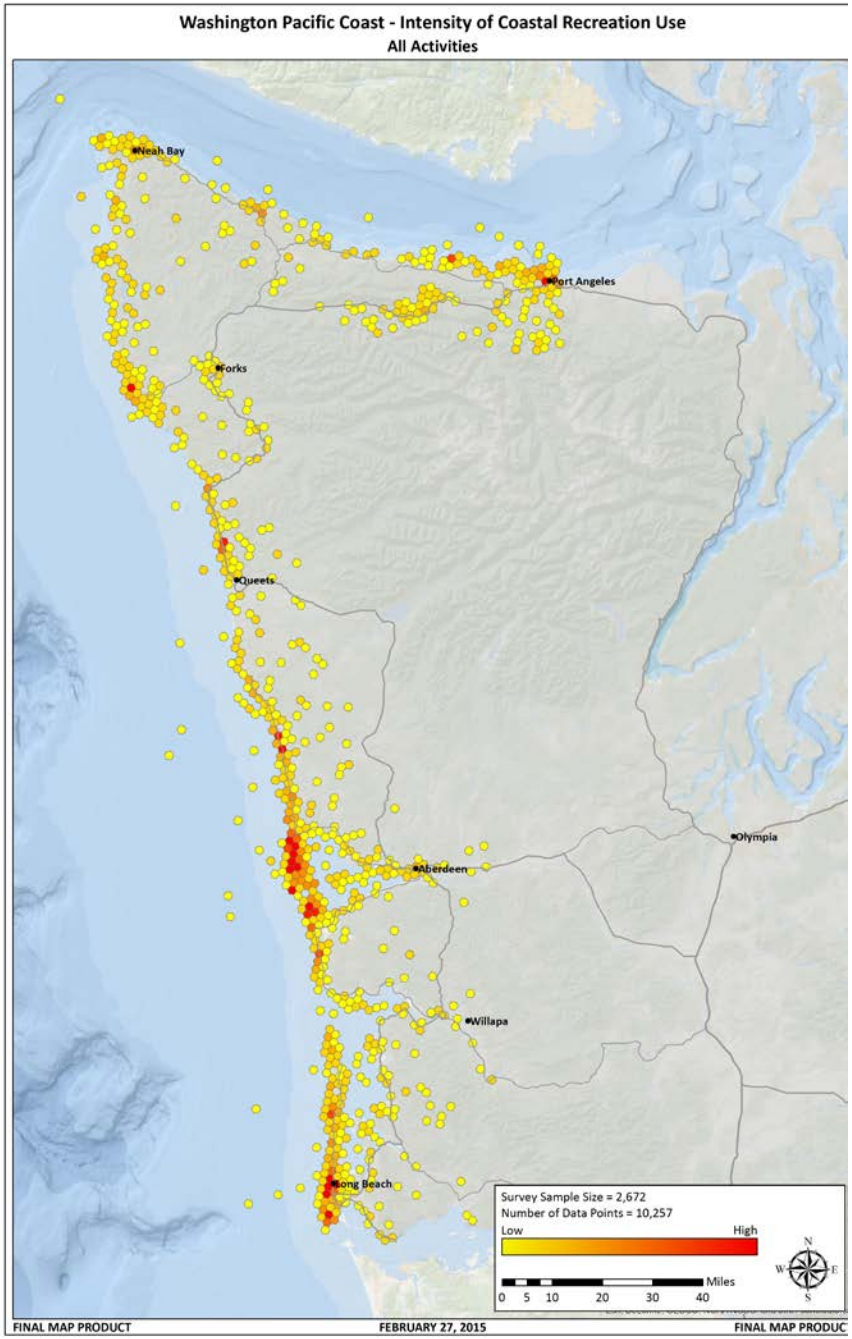


Intensity data: Tug and Tow



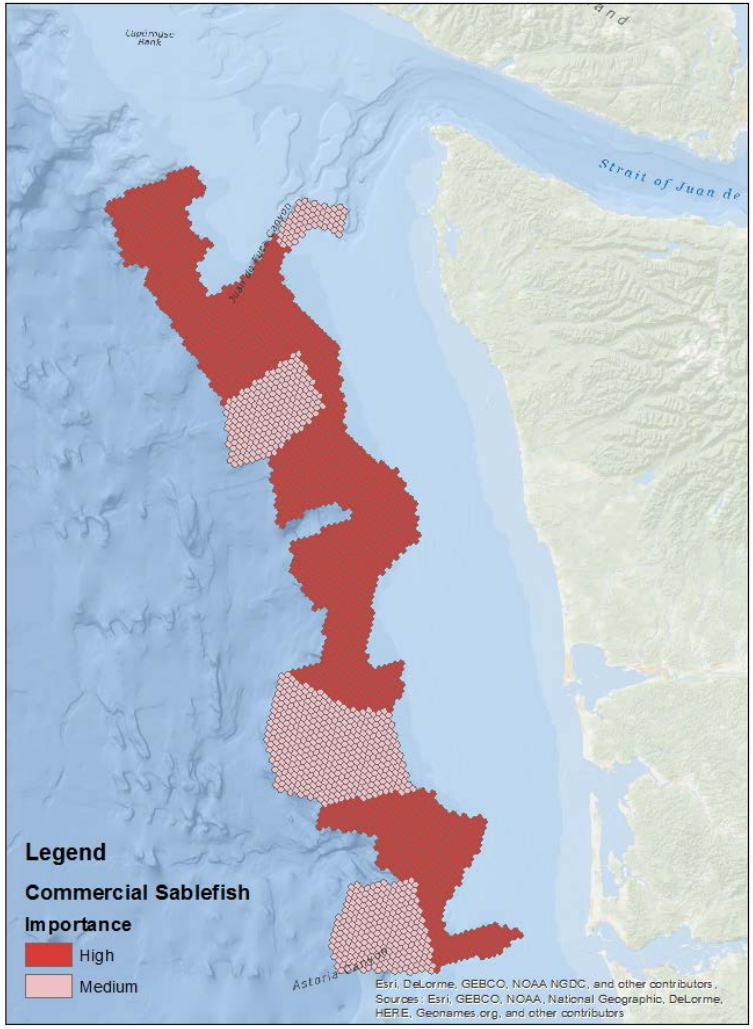
Non-consumptive Recreation Study:

Intensity of use data across all activities

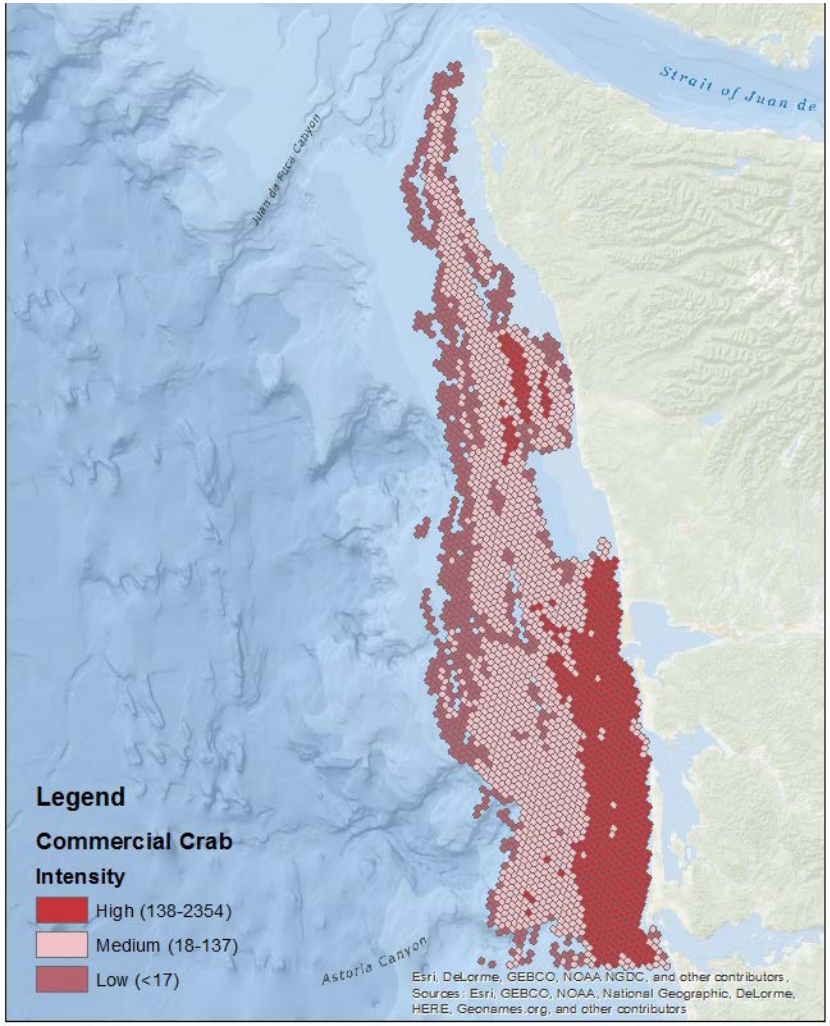


Non-tribal Commercial Fishing: Use Intensity data examples

Non-tribal commercial sablefish

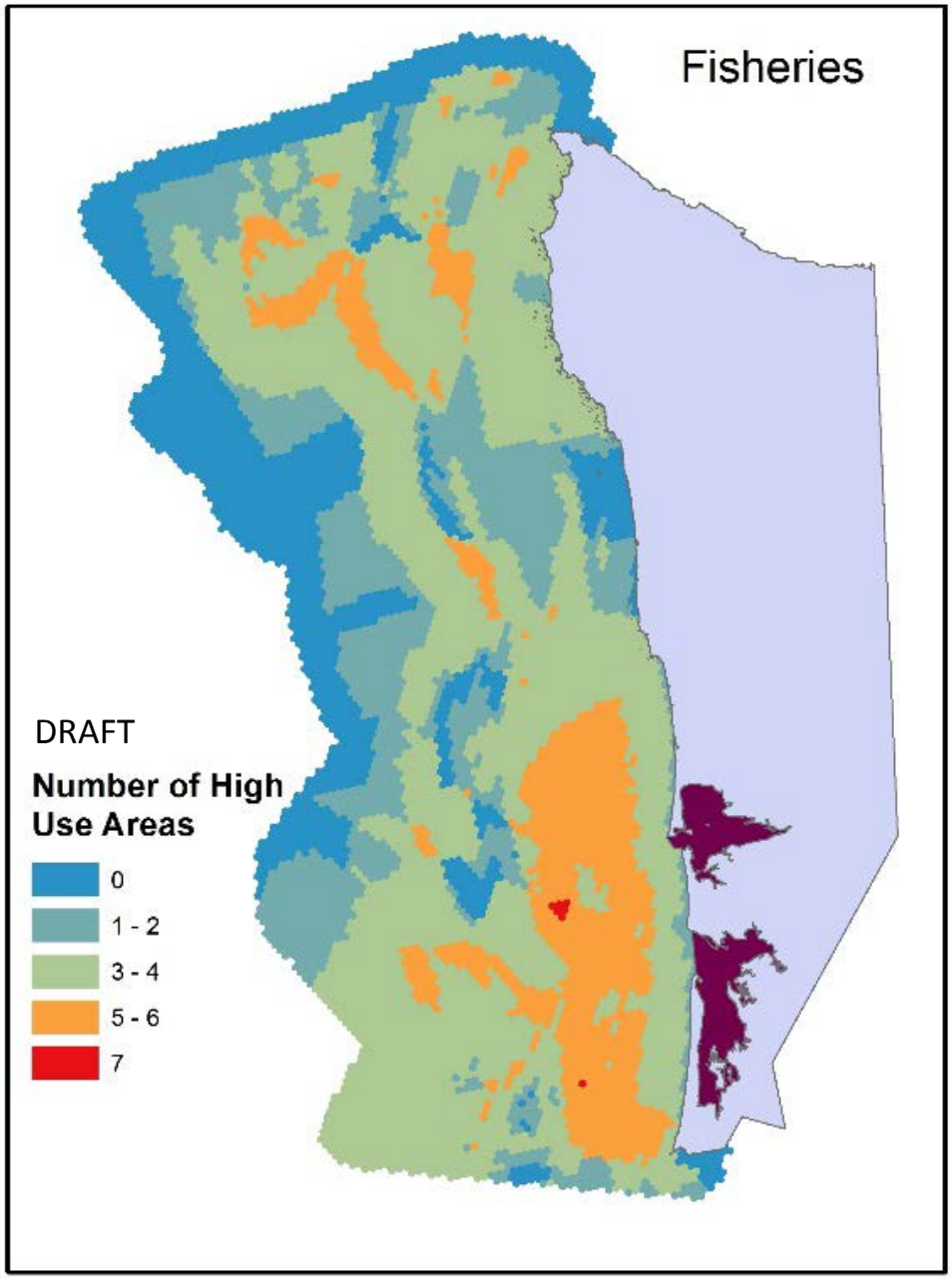


Non-tribal commercial crab fishing



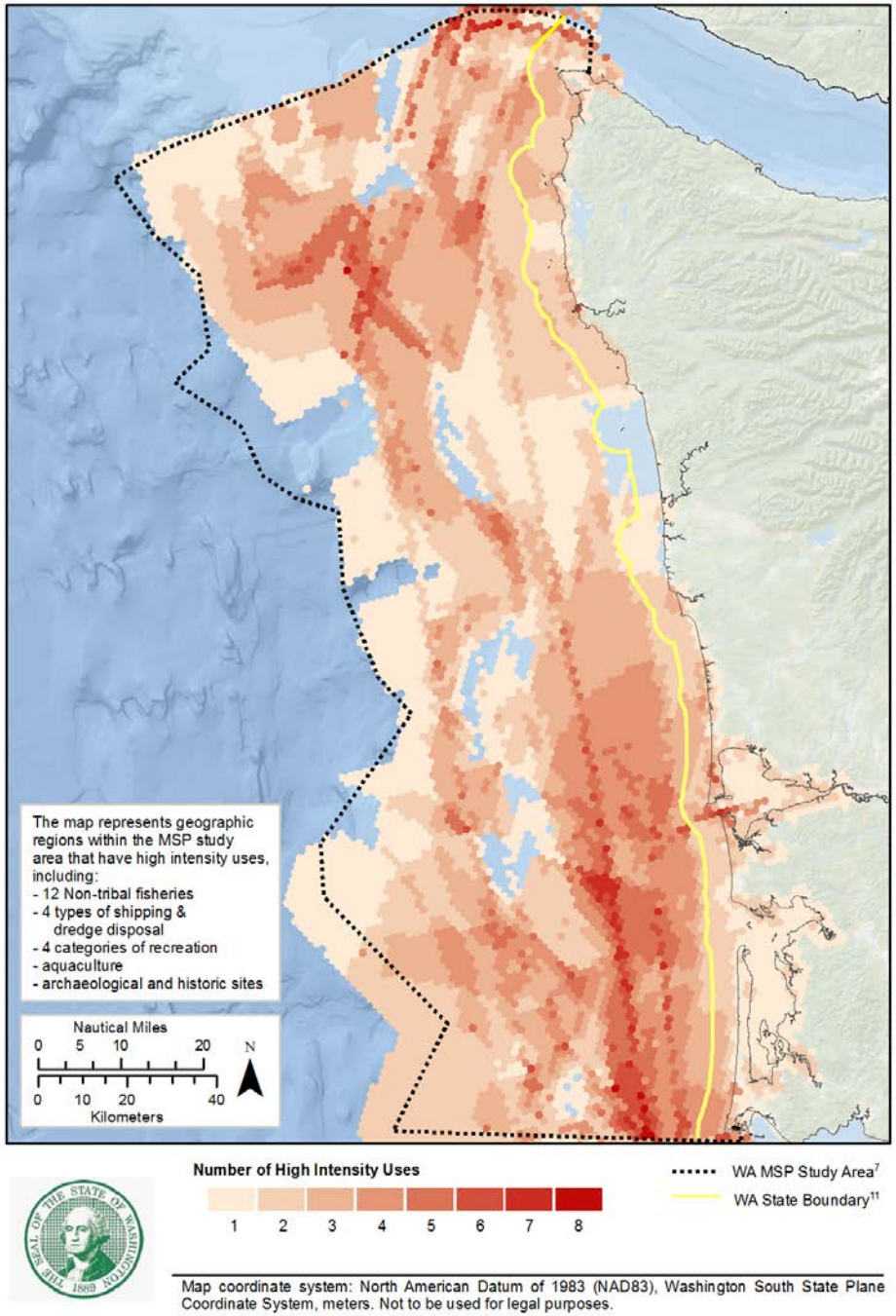
Non-tribal Commercial and Recreational Fisheries

Number of "High" intensity uses



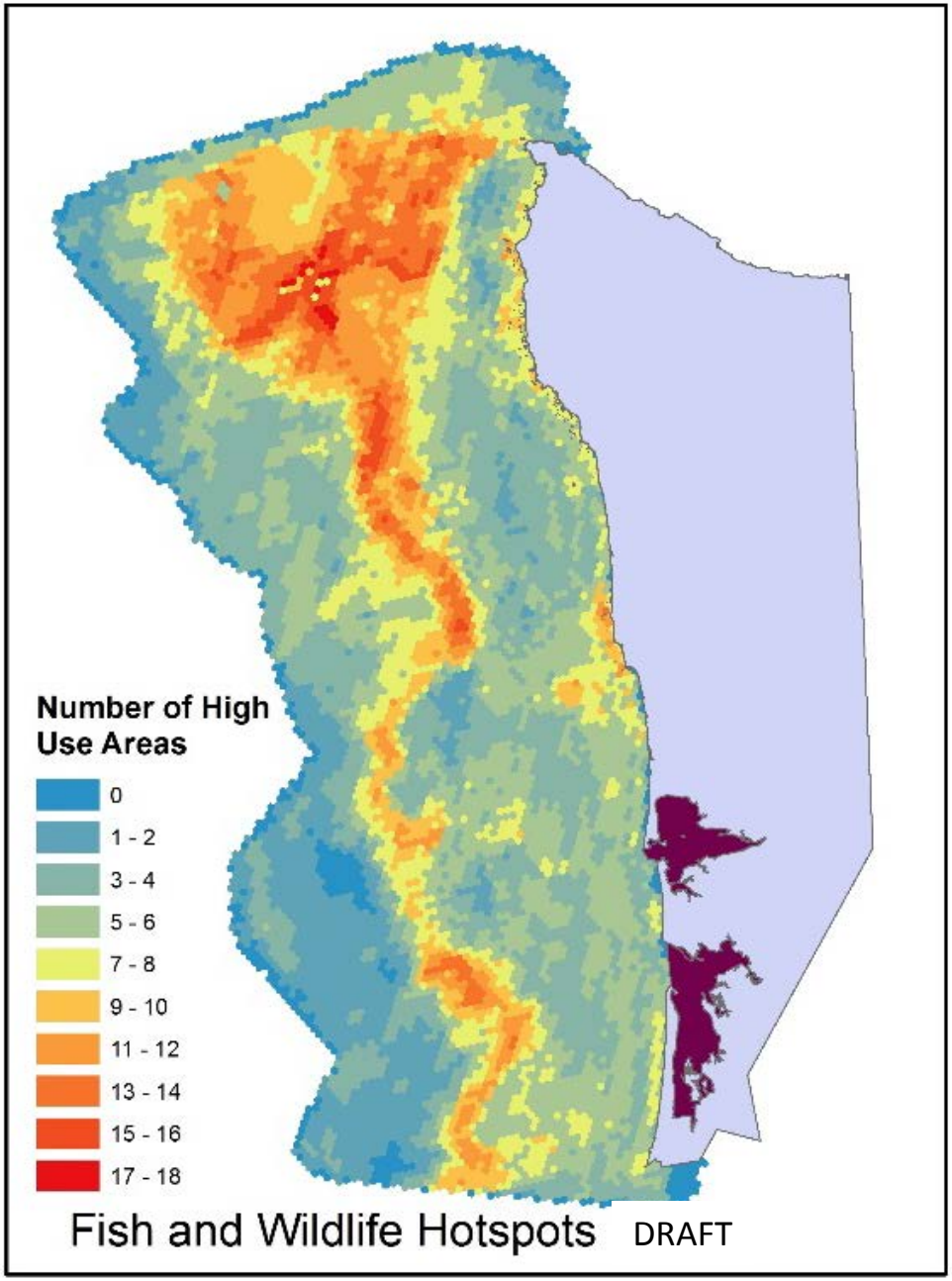
DRAFT: Combined High Intensity Use Areas

*without Ecologically Important Areas



DRAFT: Ecologically Important Areas "Hotspots"

*includes marine mammal data

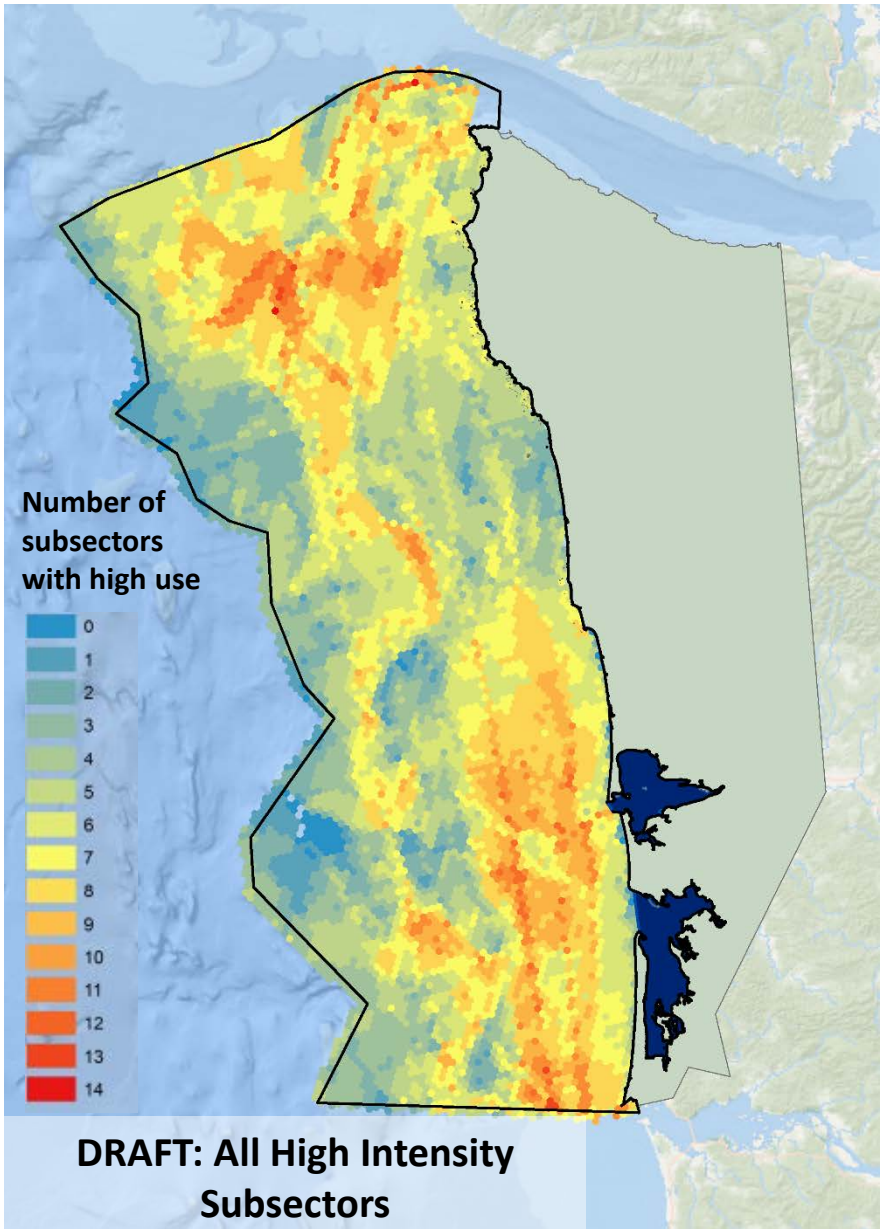


DRAFT: All High Intensity Use Areas

*includes Ecologically Important Areas "hotspots" with subsector groupings

&

estuaries of importance



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3. **Overlay renewable energy maps for comparison**
4. **Develop recommendations**

Next Steps & Timeline

Summer	Sector input on data & GIS work
June/Sept	**WCMAC – briefings for Advisory Council**
Nov. 9	WDFW fisheries maps workshop
Fall	GIS work
Dec. 4	**Tribal policy & technical review**
Dec. 9	**WCMAC - review draft use maps, input on next steps (i.e. renewable energy comparison)**
Winter	GIS work: incorporate Ecologically Important Areas, refine use maps, options for renewable energy comparison
Winter	**Tribal input and recommendations**
Feb 10	**WCMAC – update on maps and next steps**
March/April	**Tribal feedback**
April 20	**WCMAC – Update on maps & introduce renewable energy comparisons tool**
May/June	**WCMAC Spatial Analysis workshops**
Summer	Tribal policy and technical input
June 15	**WCMAC – discuss spatial recommendation options**
Sept 28	**WCMAC - finalize recommendations**

Questions/Discussion

Marine Spatial Planning Use Assessment

Renewable Energy Example

WCMAC Meeting April 20 2016

Purpose of Today's Presentation

- Illustrate Marxan as one possible tool for exploring ways to identify possible renewable energy development areas; while minimizing potential impacts to existing uses
- Consider different hypothetical scenarios (defined by Agency staff) related to minimizing impacts to selected use sectors
- Familiarize WCMAC with approach in preparation for upcoming Marxan WCMAC Workshop

Marxan History

- First Developed in Queensland Australia, 2000
- Used to create Great Barrier Reef marine protected area
- Other Marine Spatial Planning Projects include:

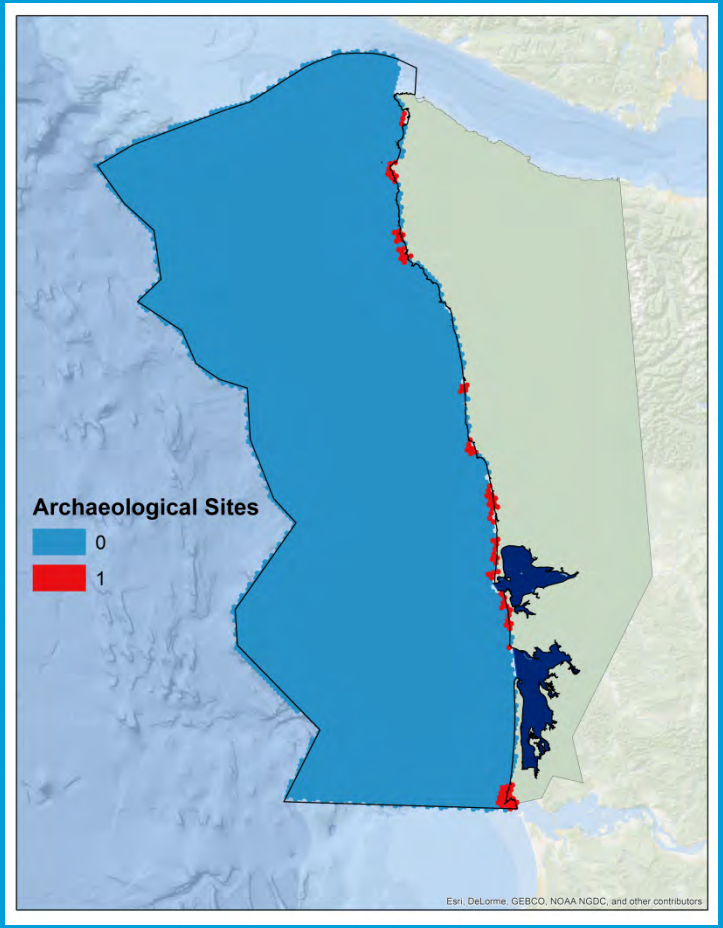
  Channel Islands of California , Gulf of Mexico, Galapagos Islands, South Australia , British Columbia, Connecticut/New York, Central Coast of California, Baltic Sea

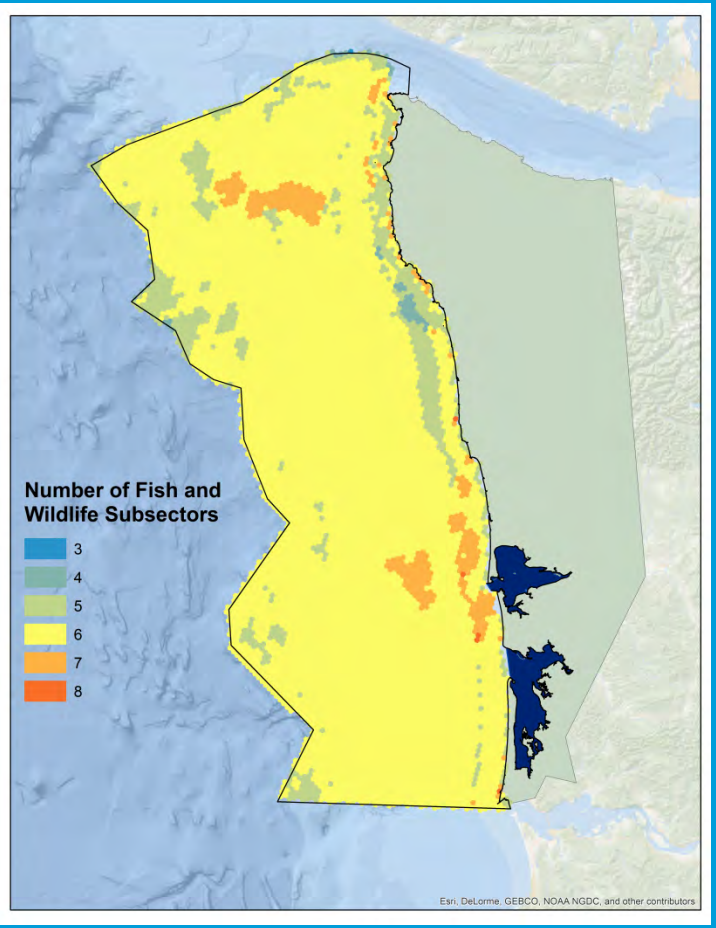
Human/Ecological Use Sectors**

- 1 subsector/sector for culture/archaeological site potential.
- 4 subsectors for shipping
- 4 subsectors for recreation,
- 1 subsector/sector for aquaculture,
- 11 subsectors for fisheries,
- 8 subsector for Fish and Wildlife ecologically important areas

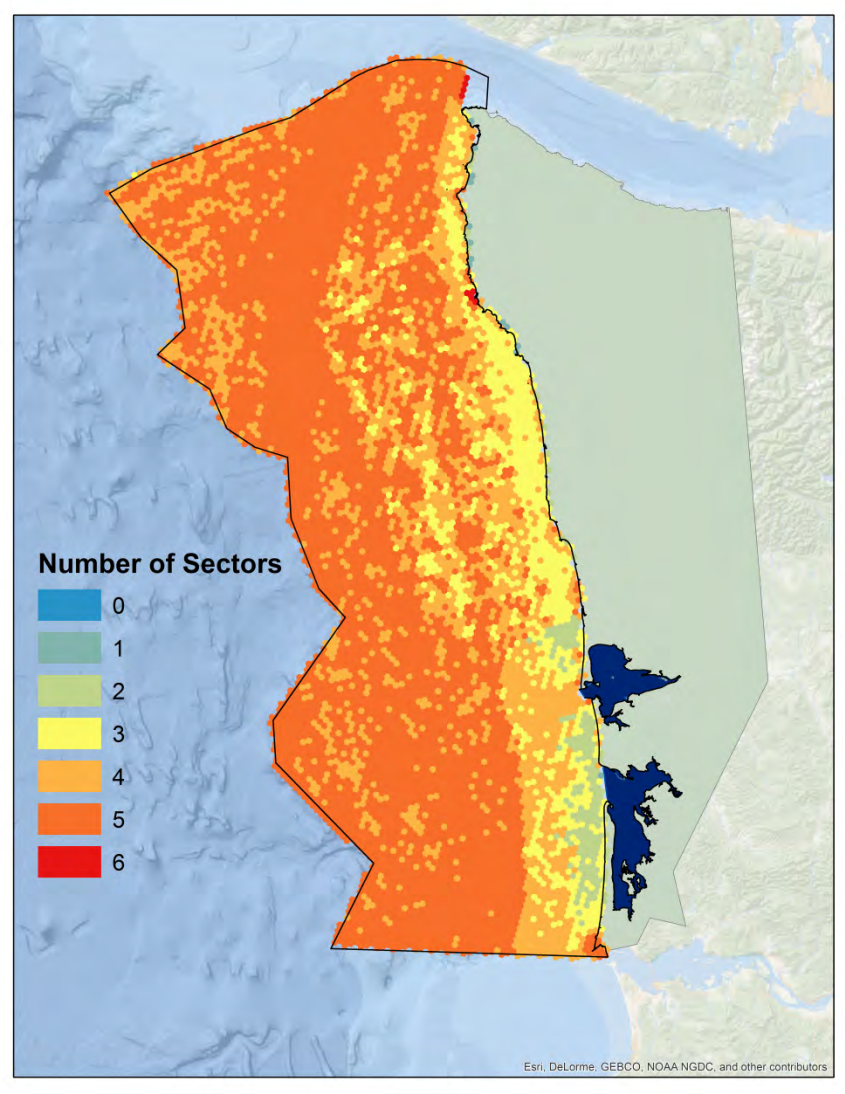
** Military and Dredge Use Sectors not considered in the Marxan Analysis

Use Sector Foot Print

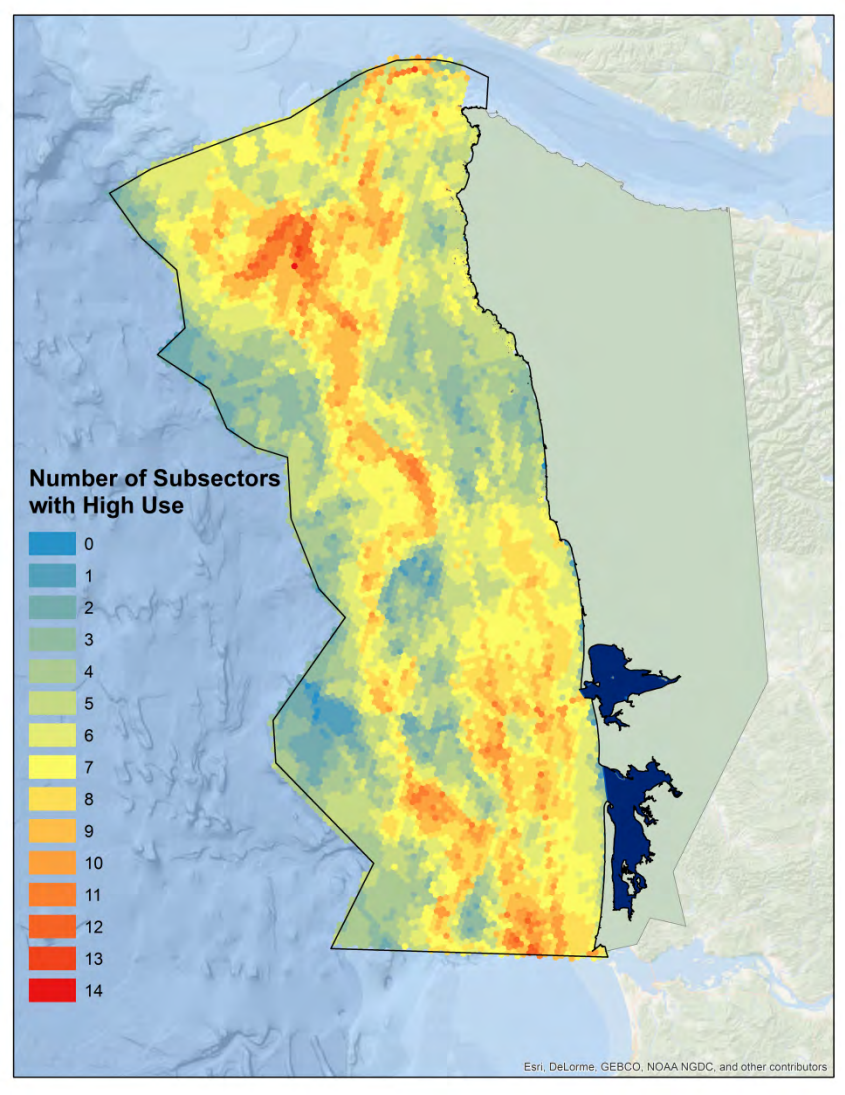




Use Sector Footprint



Use Subsector "Hot Spots"



Use Sector Scenarios

- All Subsectors High Use “Hot Spot” Areas
- Sensitive Ecologically Important Areas
- Important Crab Ecological Areas

U.S. DEPARTMENT OF ENERGY

PNNL-22554

Prepared for the U.S. Department of Energy
under Contract DE-AC05-76RL01830

Geospatial Analysis of Technical and Economic Suitability for Renewable Ocean Energy Development on Washington's Outer Coast

FB Van Cleve*
C Judd*
A Radil†
J Ahmann†
SH Geerlofs*

June 2013

* Pacific Northwest National Laboratory
† Parametrix

Pacific Northwest
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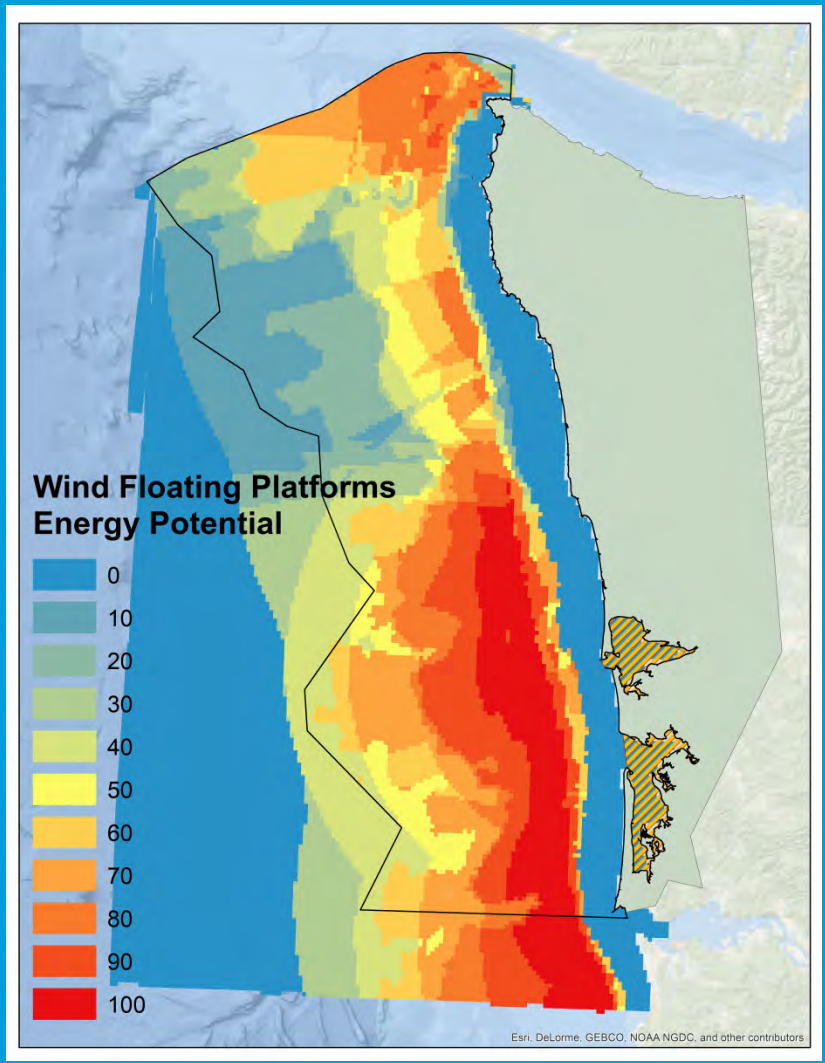
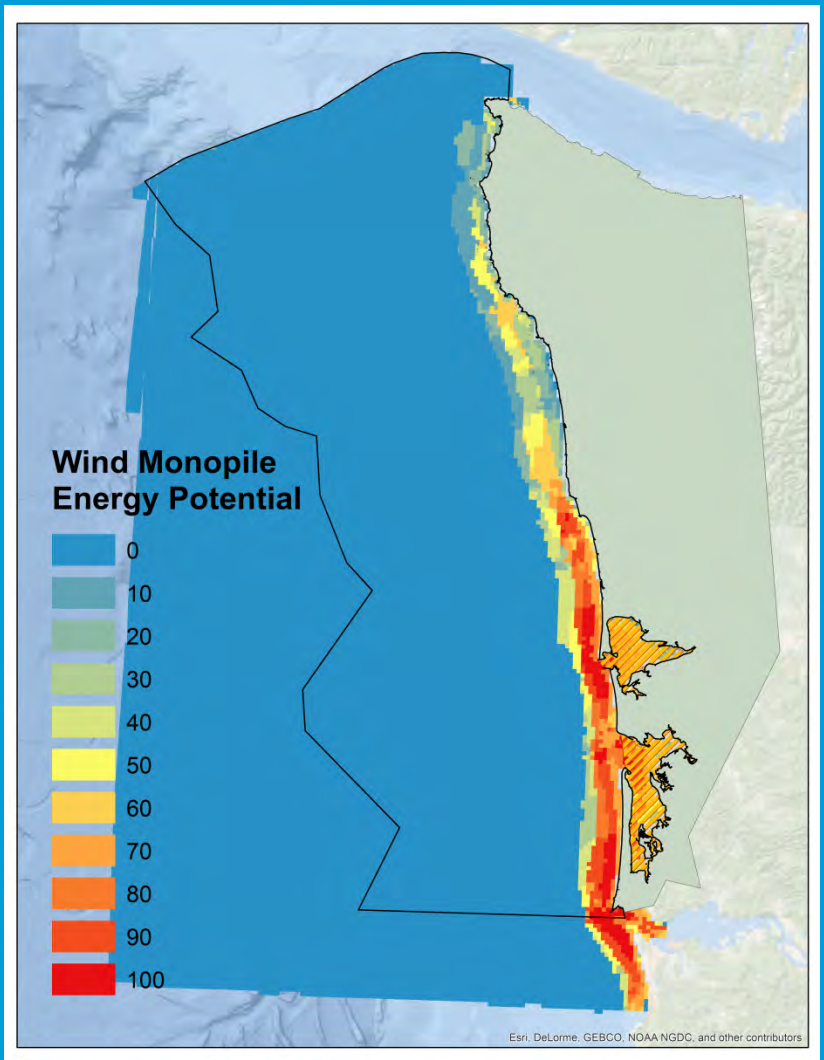
Energy Suitability

Suitability for fundamental economic and technical feasibility considerations included:

- energy potential
- water depth
- proximity to shore, ports, and transmission infrastructure

Energy Suitability

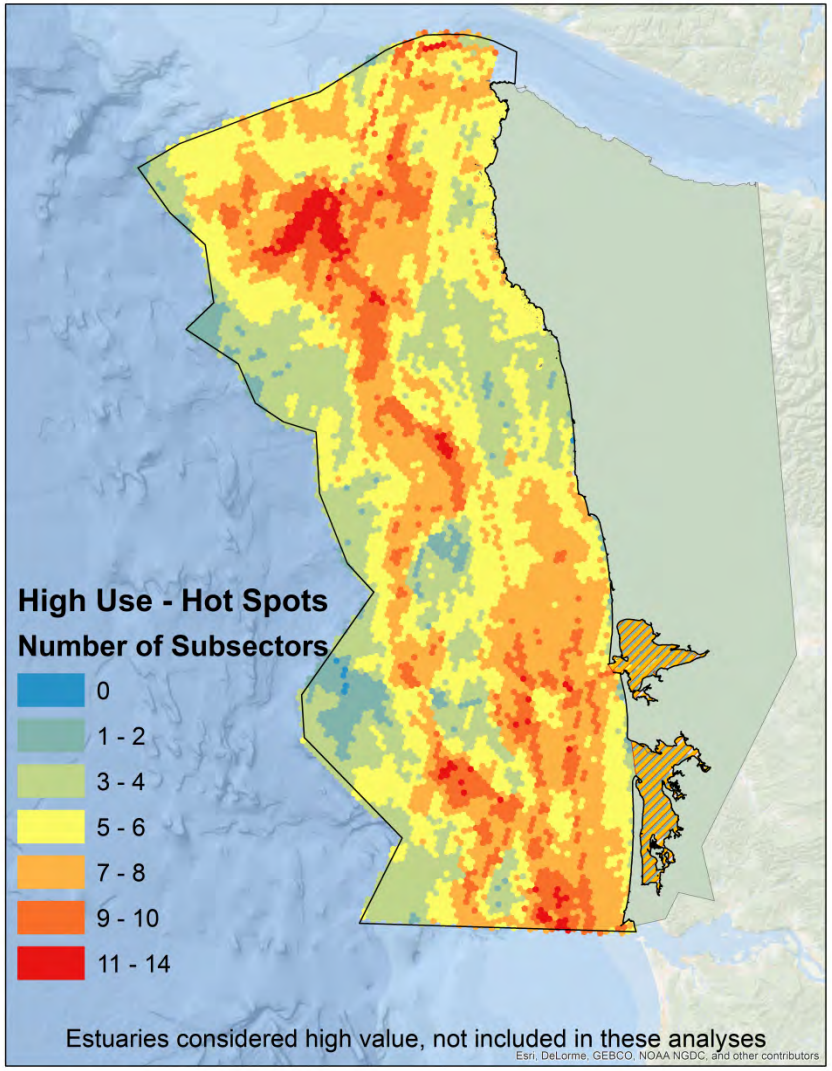


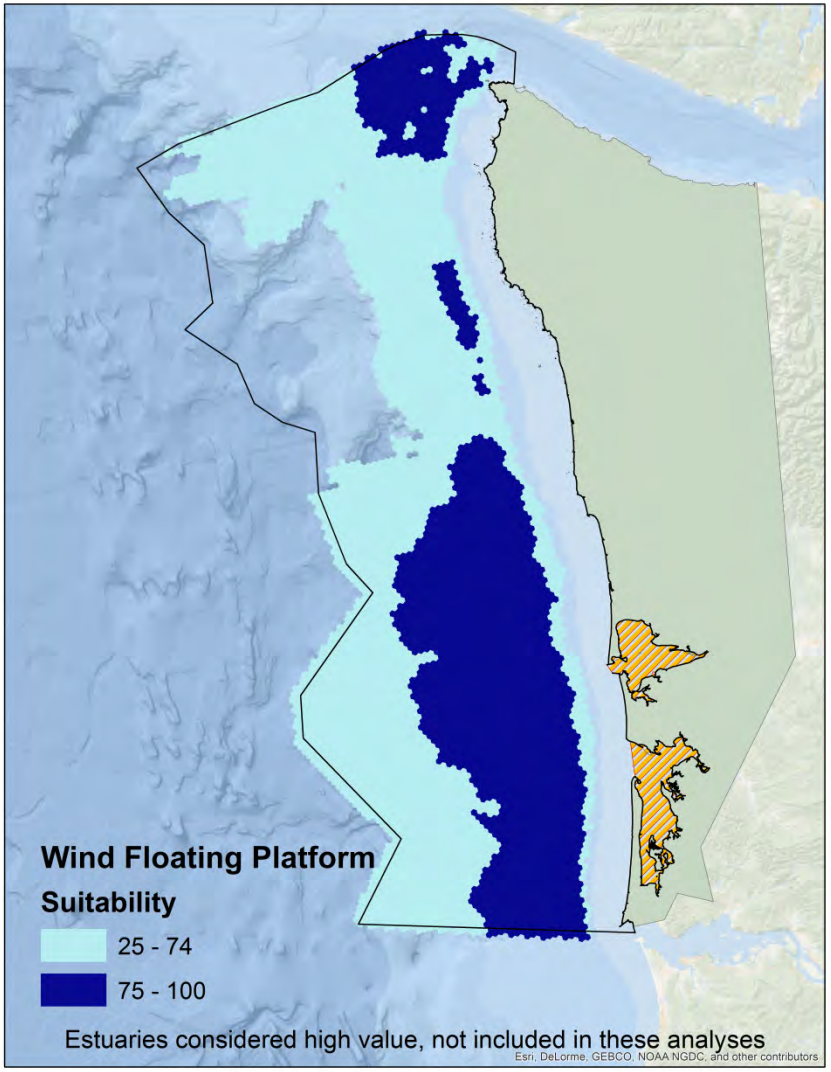


Potential Renewable Energy Scenarios

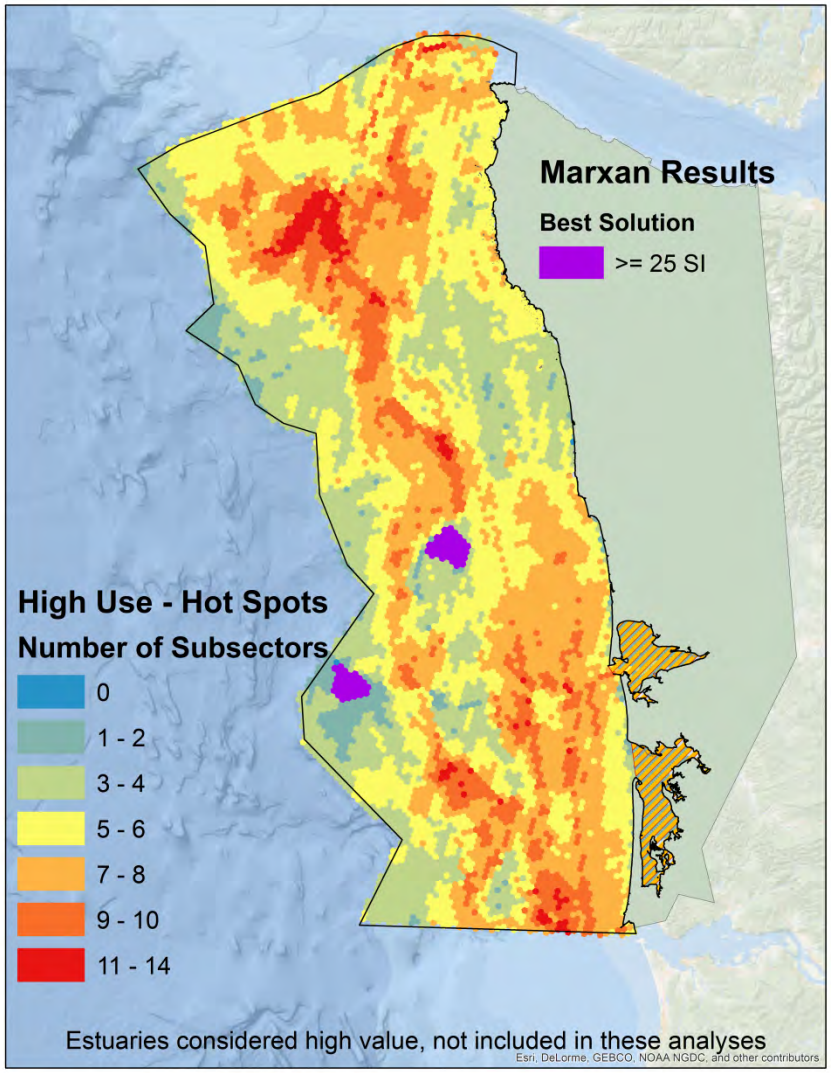
- Floating Platform Wind Turbines (Deep Water); > 25 and > 75 suitability
- Monopile Turbines (Nearshore); > 25 and > 75 suitability

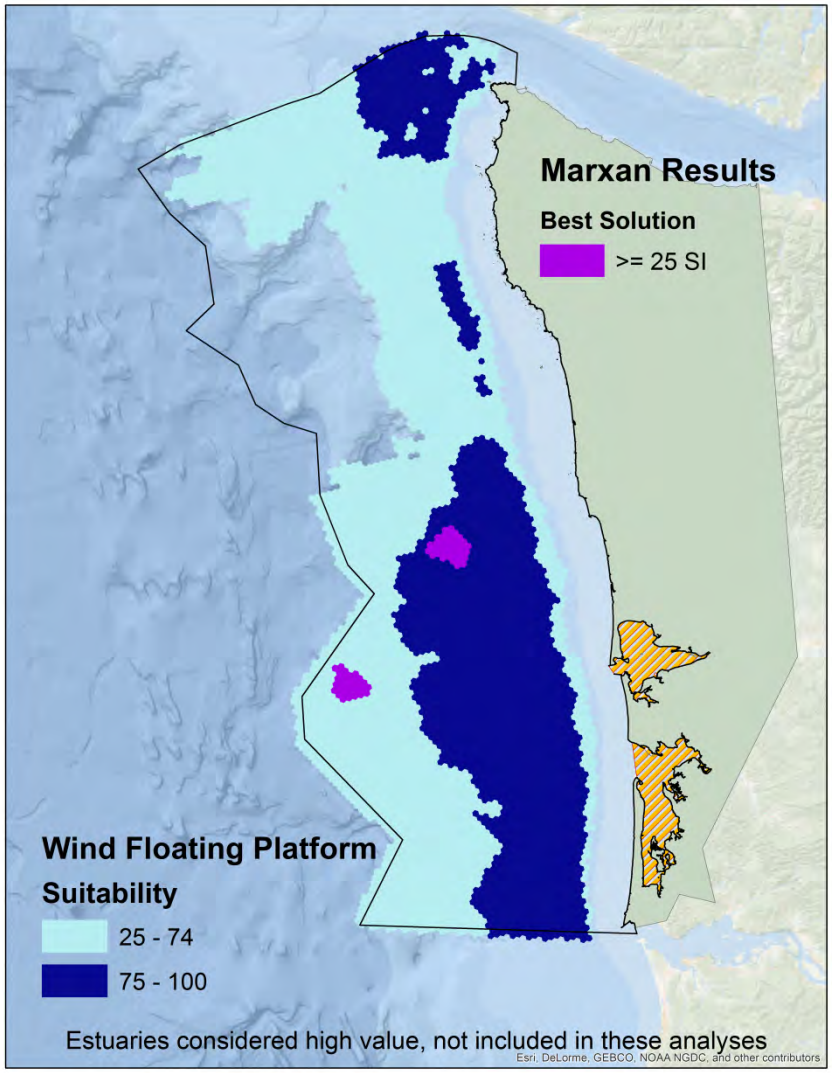
Subsector Hotspots – Wind Floating Platform Scenario (SI > 25)





Subsector Hotspots – Wind Floating Platform Scenario (SI > 25); N = 1000 Runs





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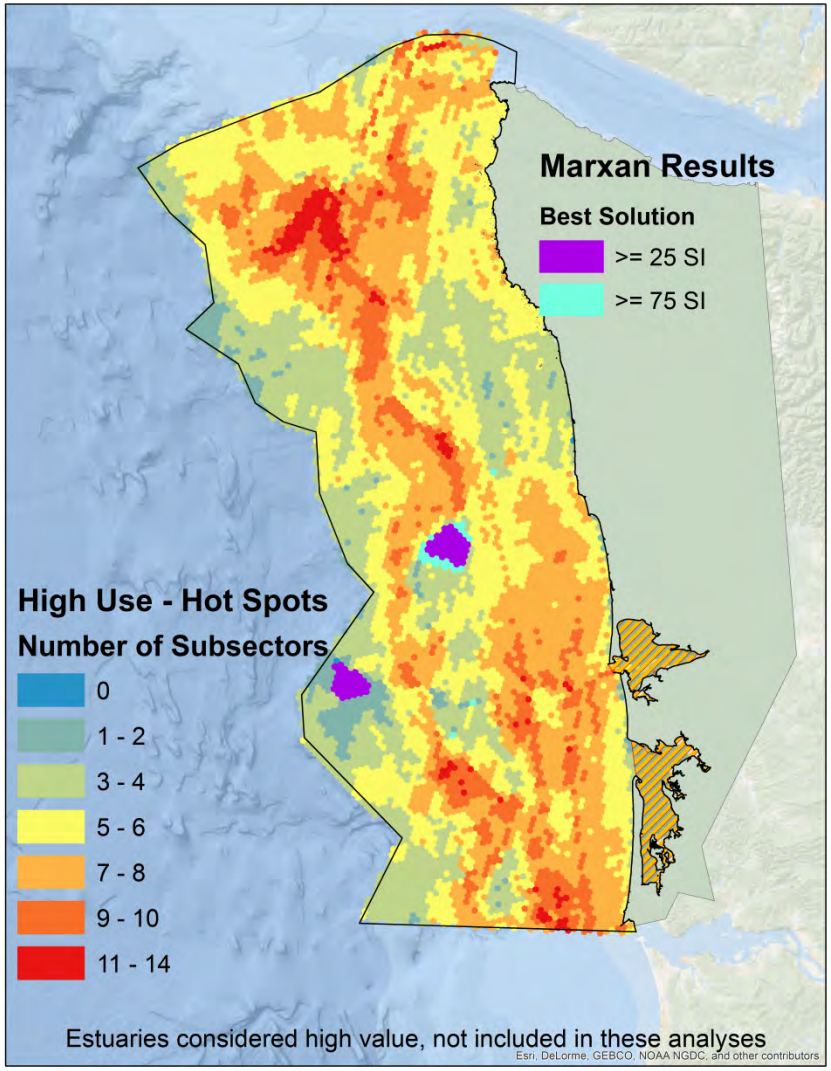
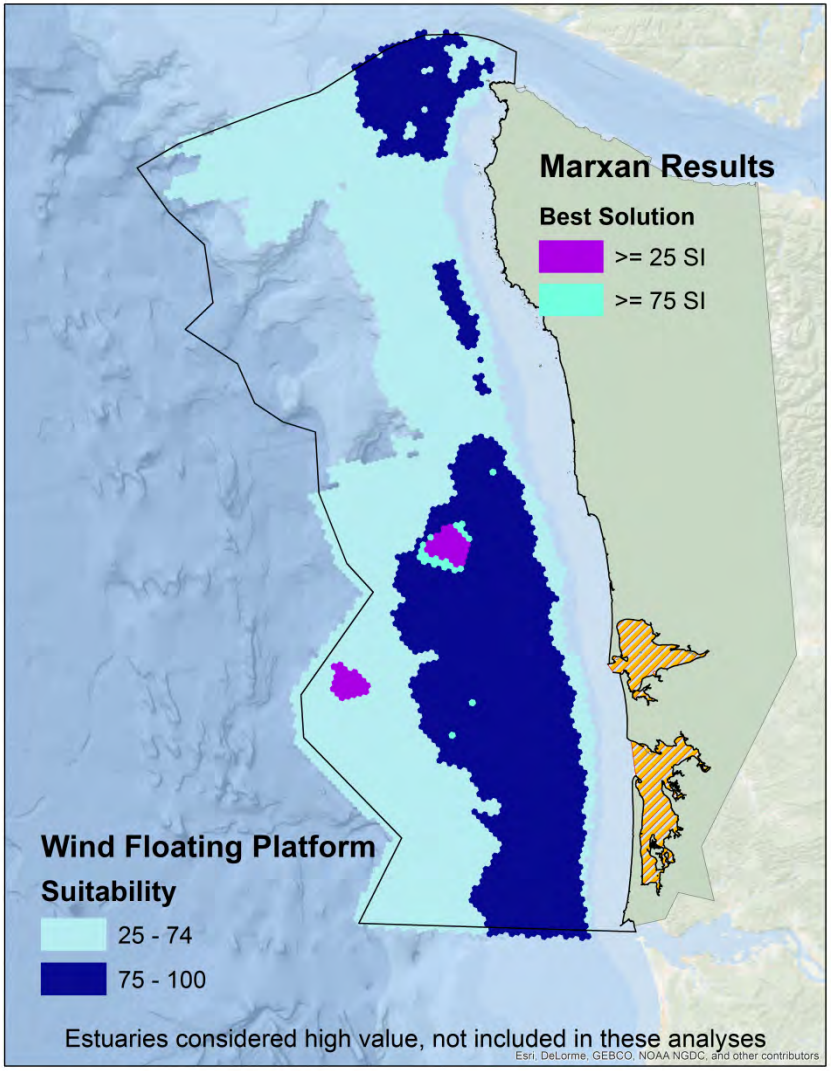
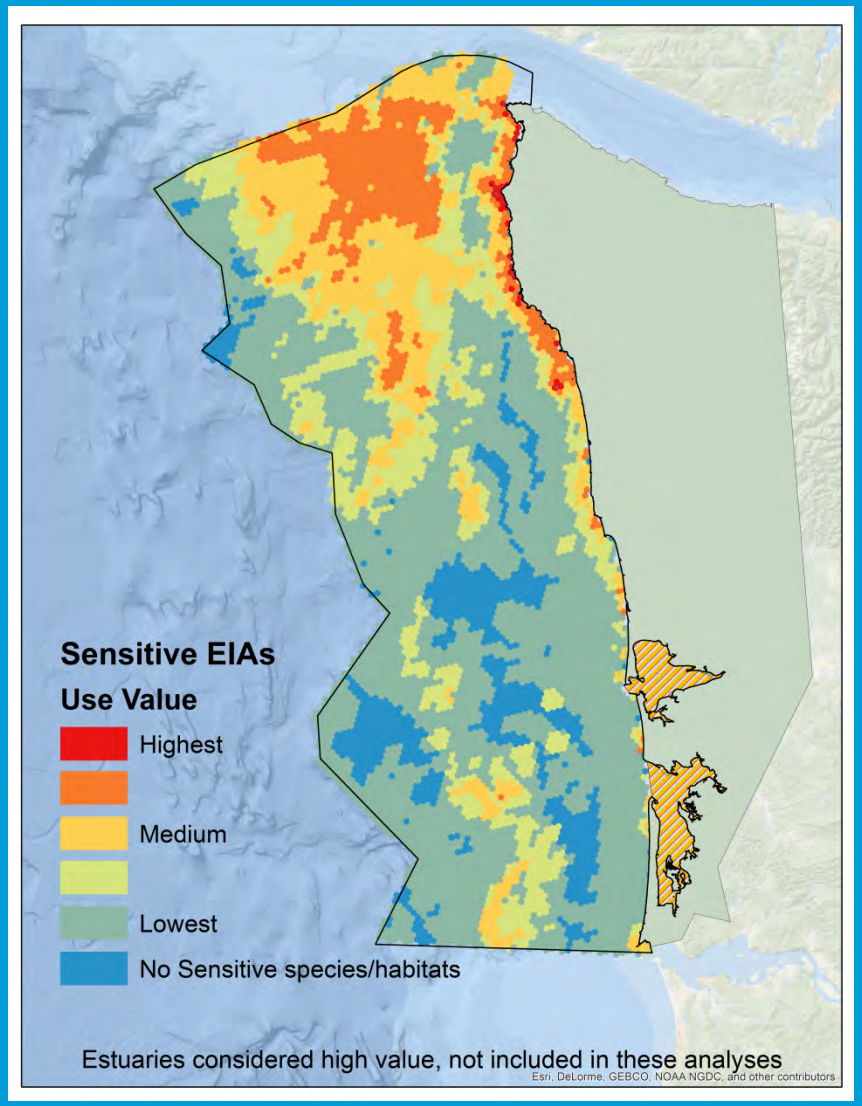
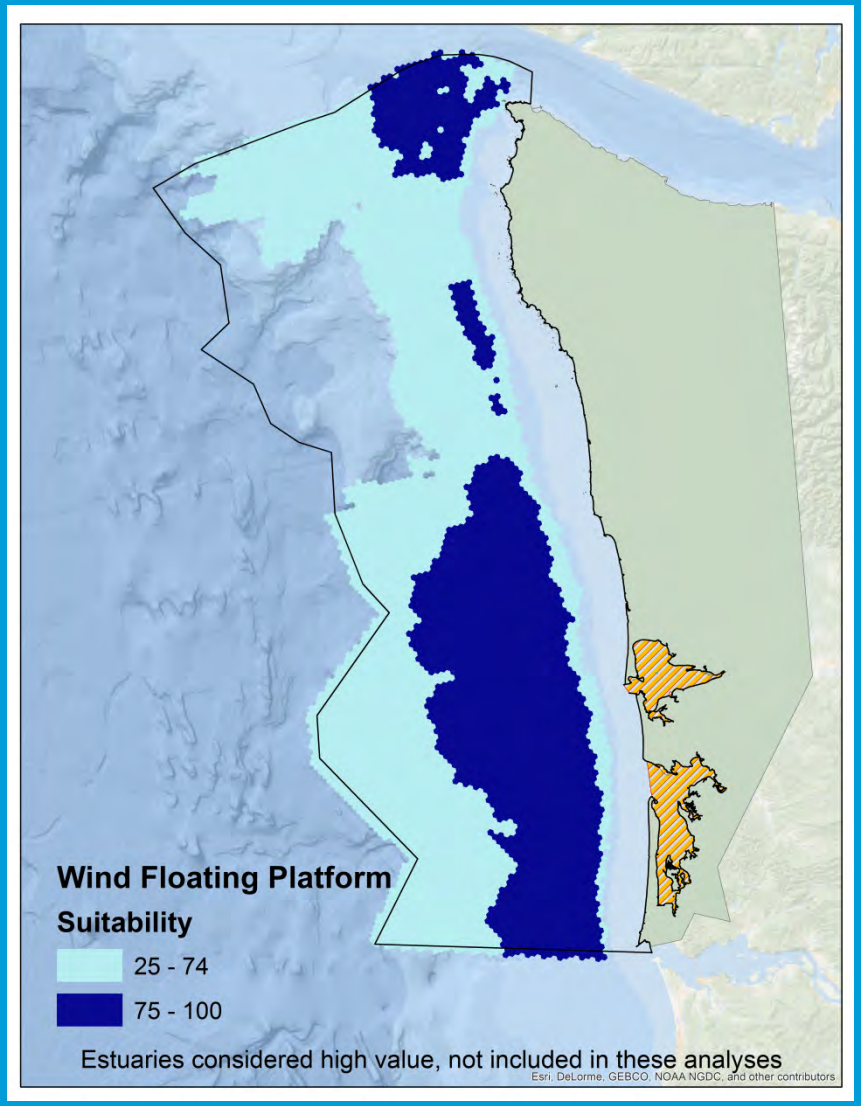




Sensitive EIA – Wind Floating Platform Scenario (SI > 25)





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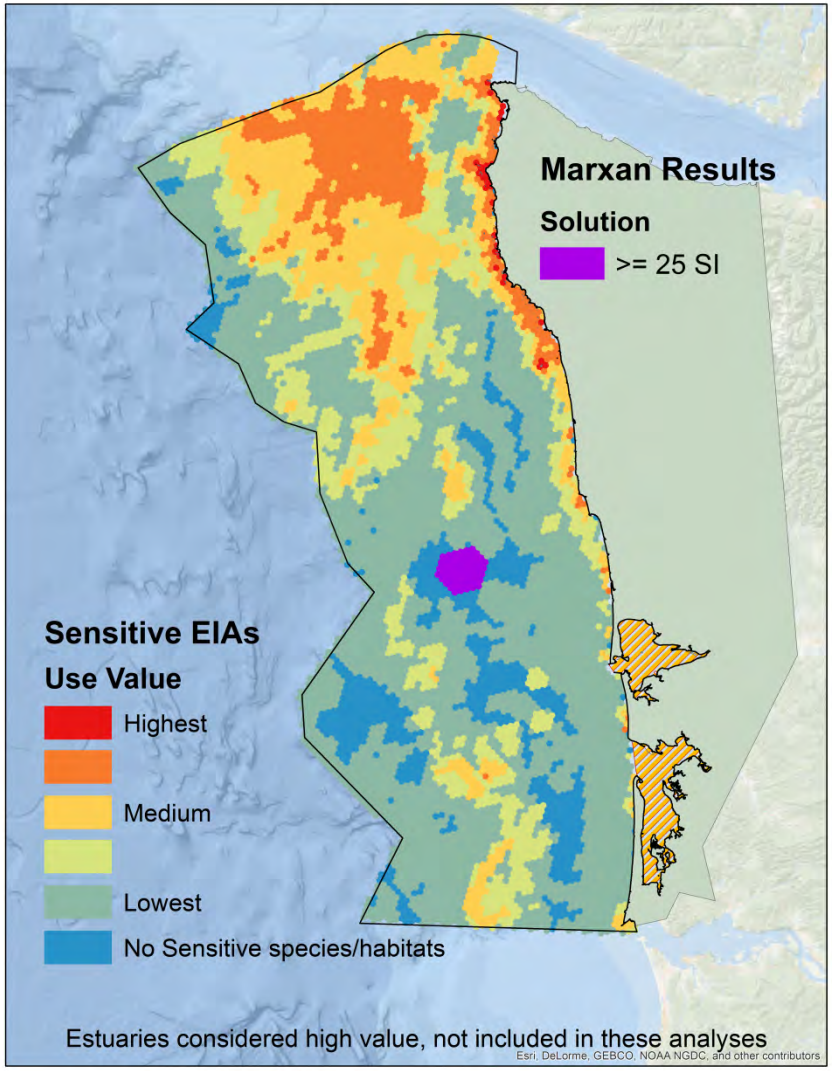

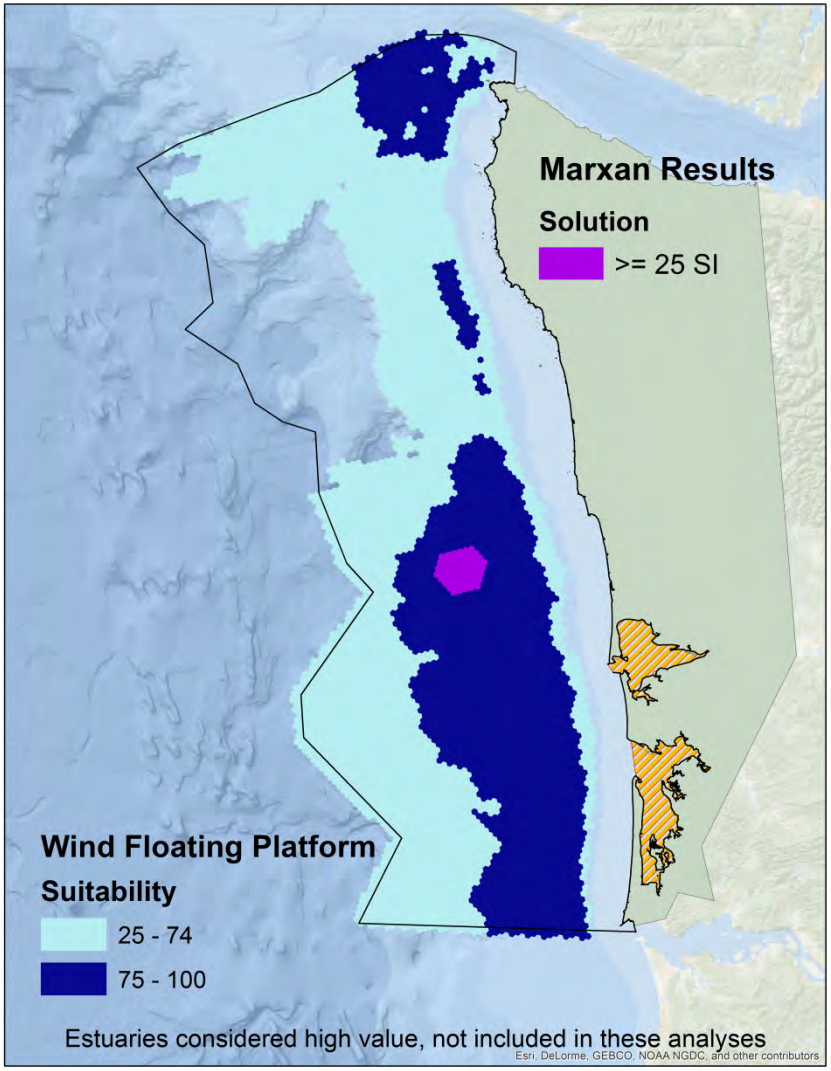

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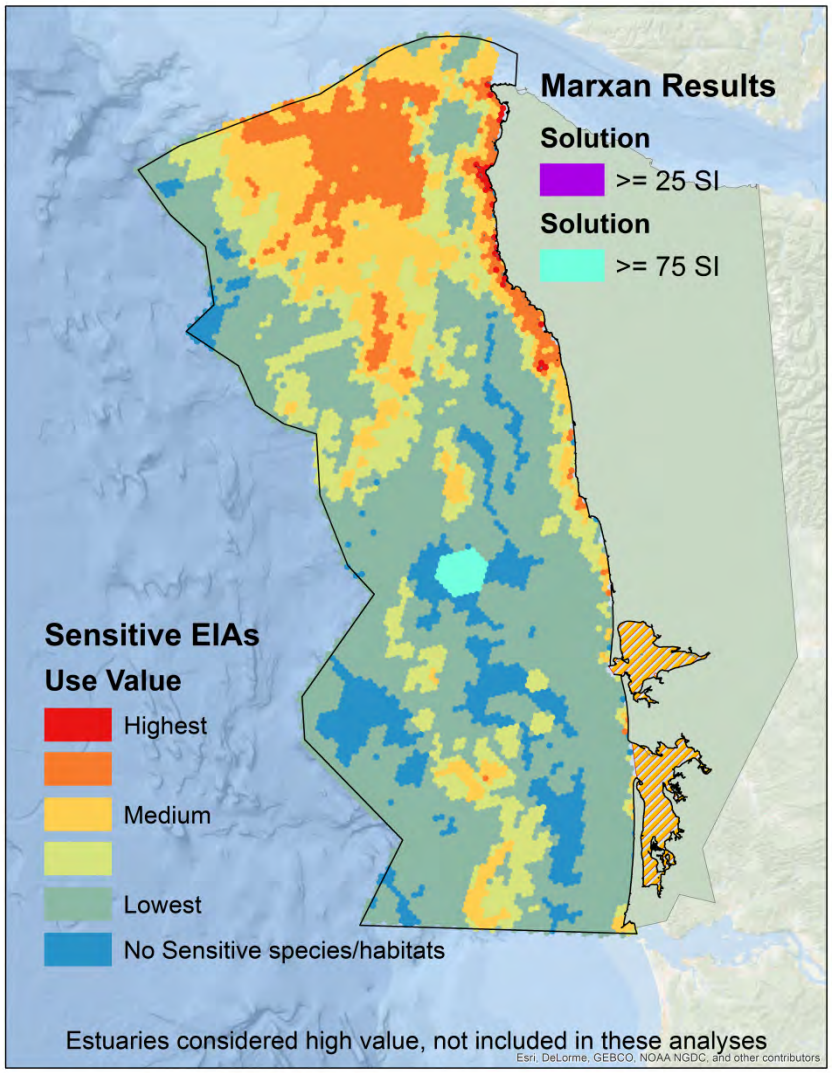
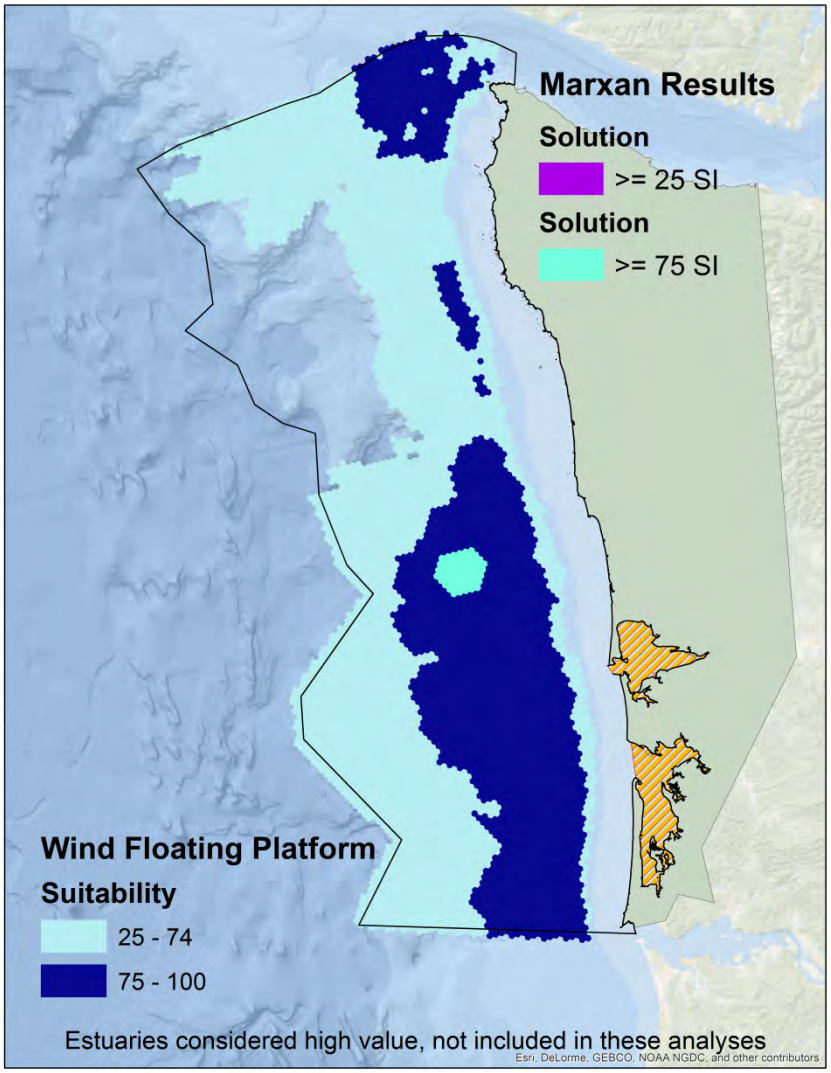
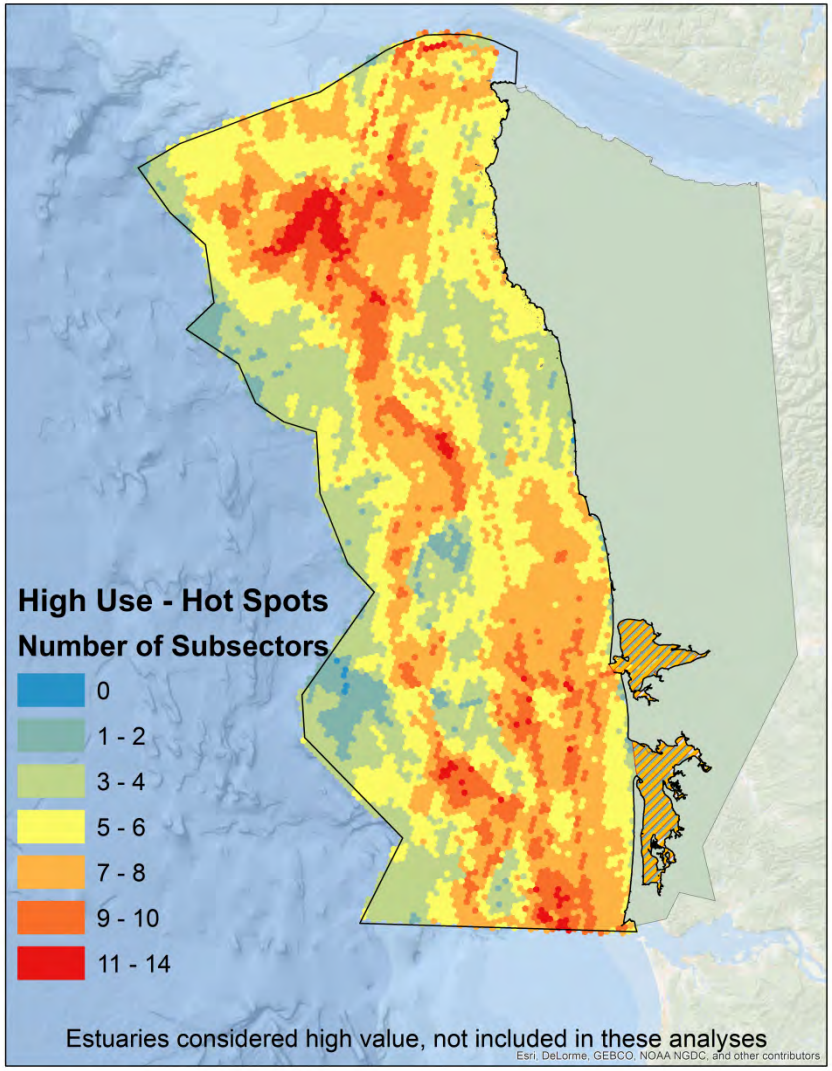
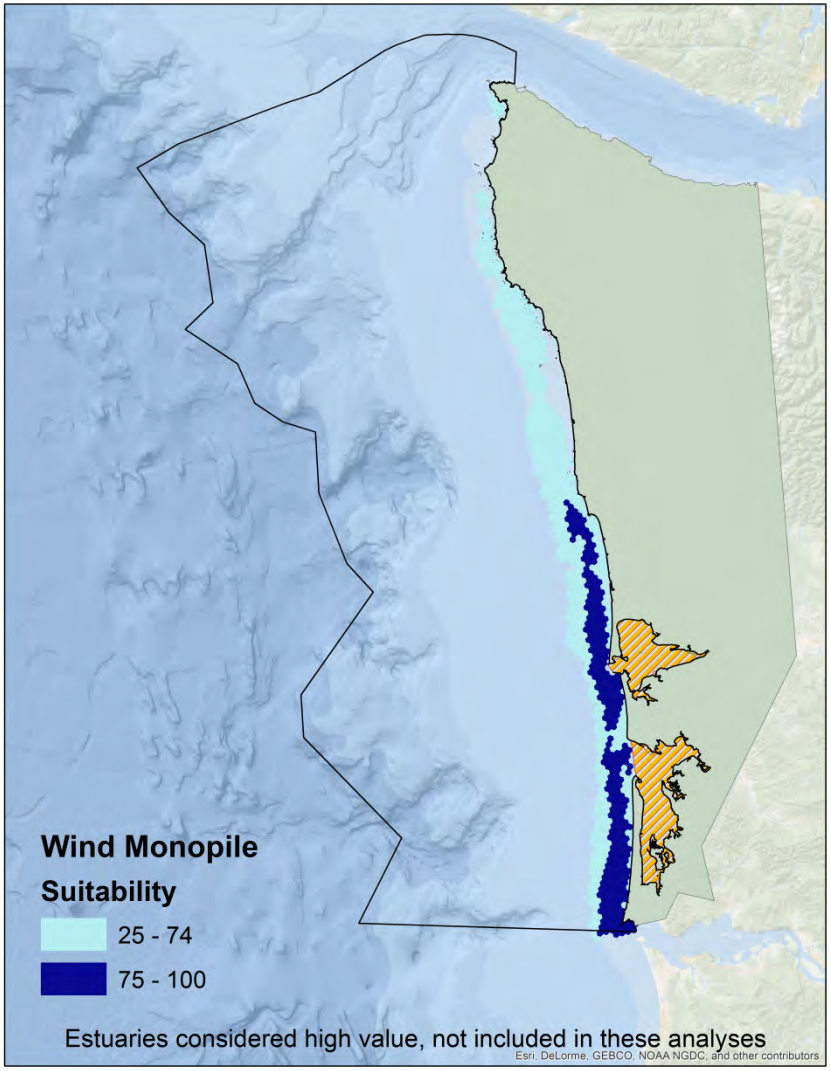




All Use Sectors – Wind Monopile Scenario (SI > 25)





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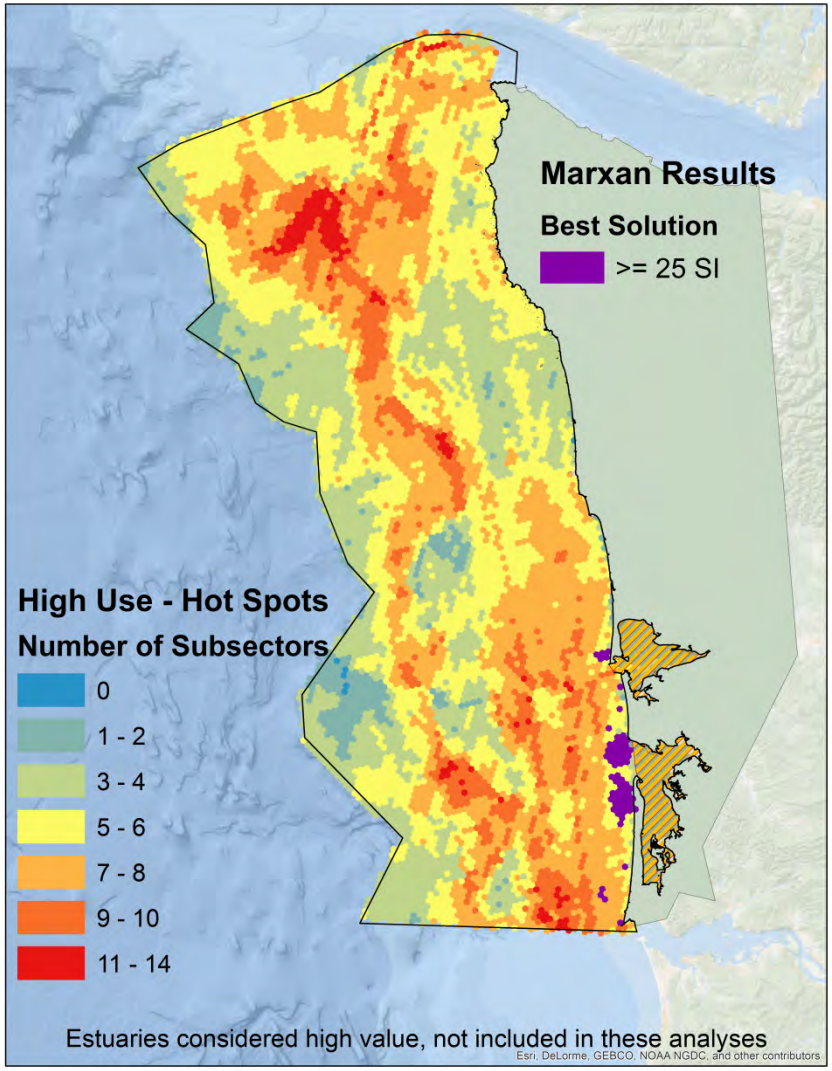

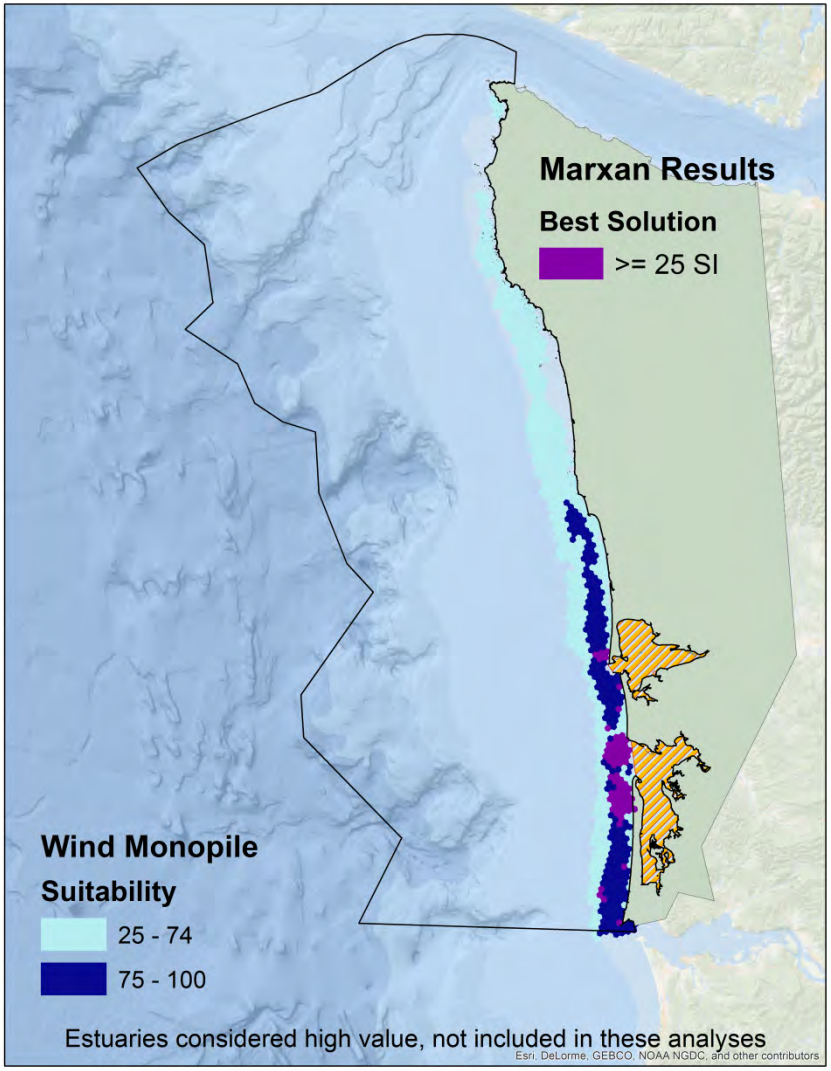

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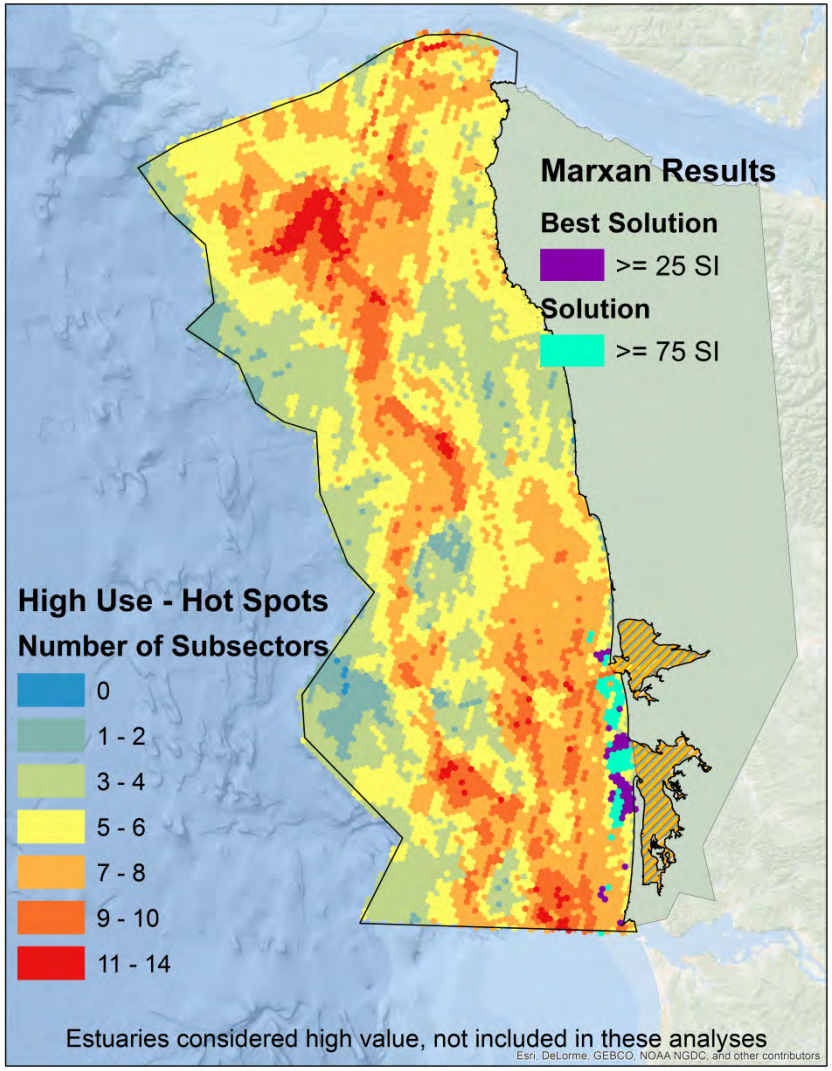
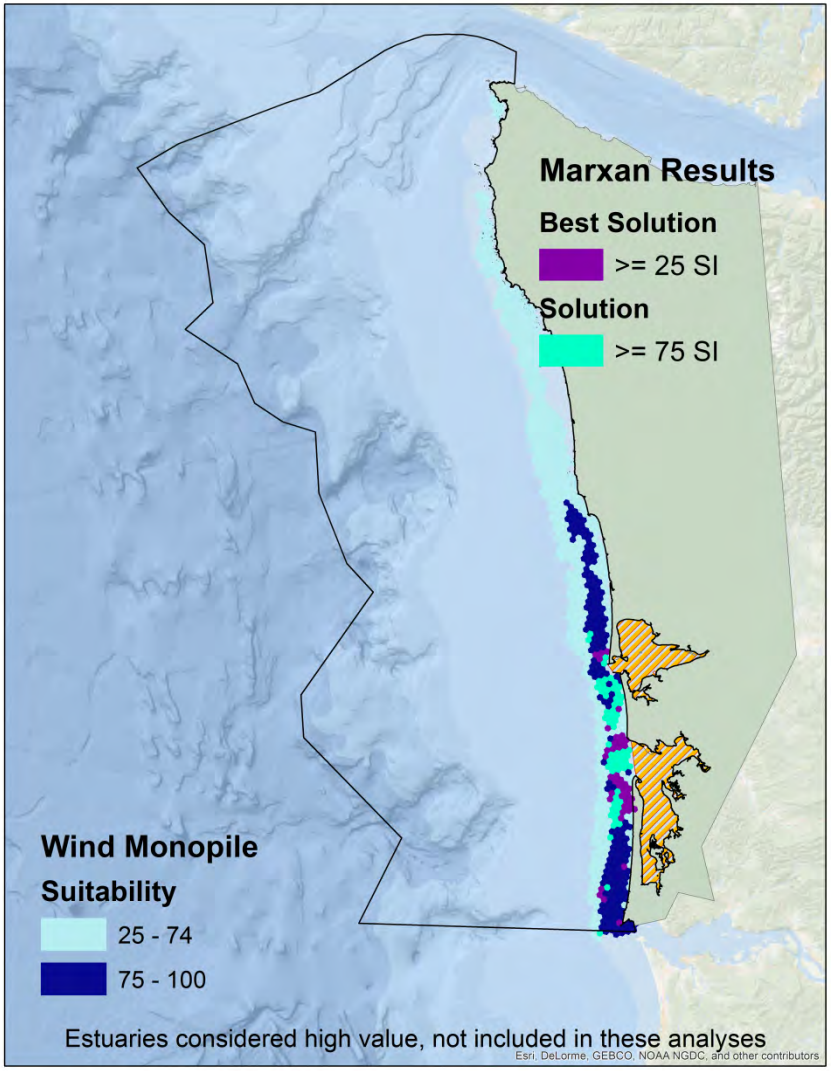
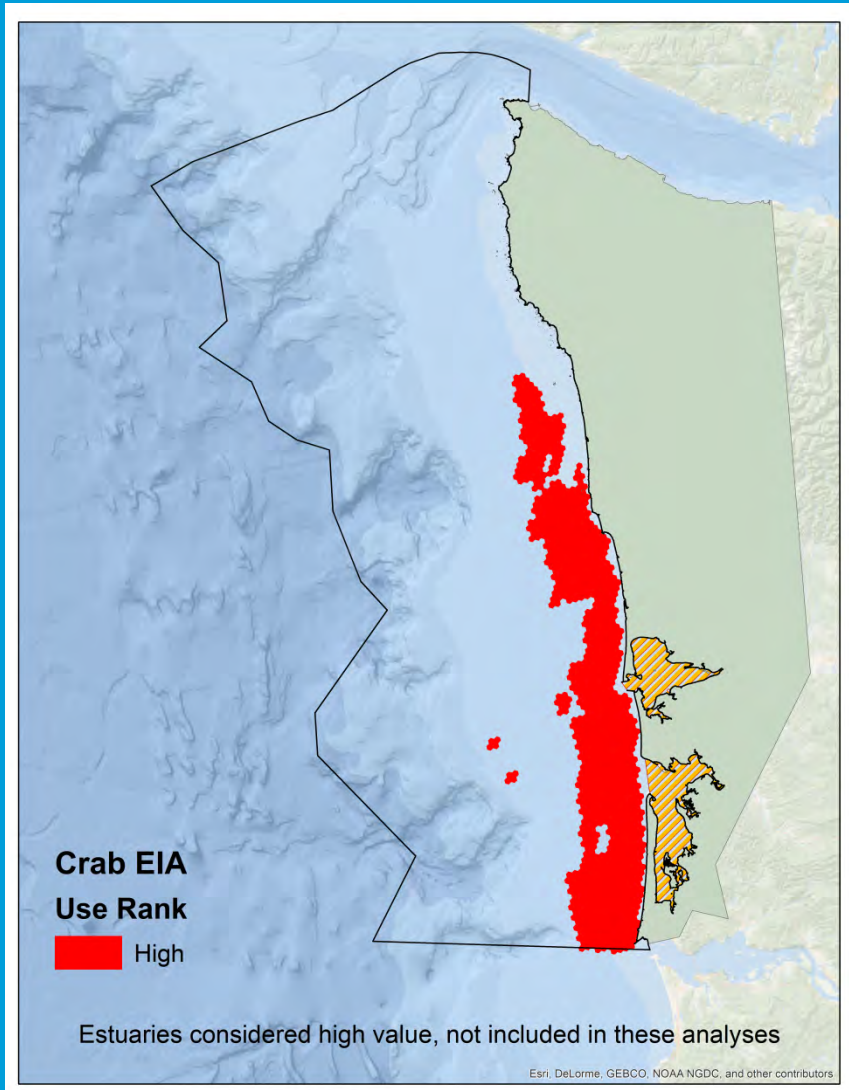
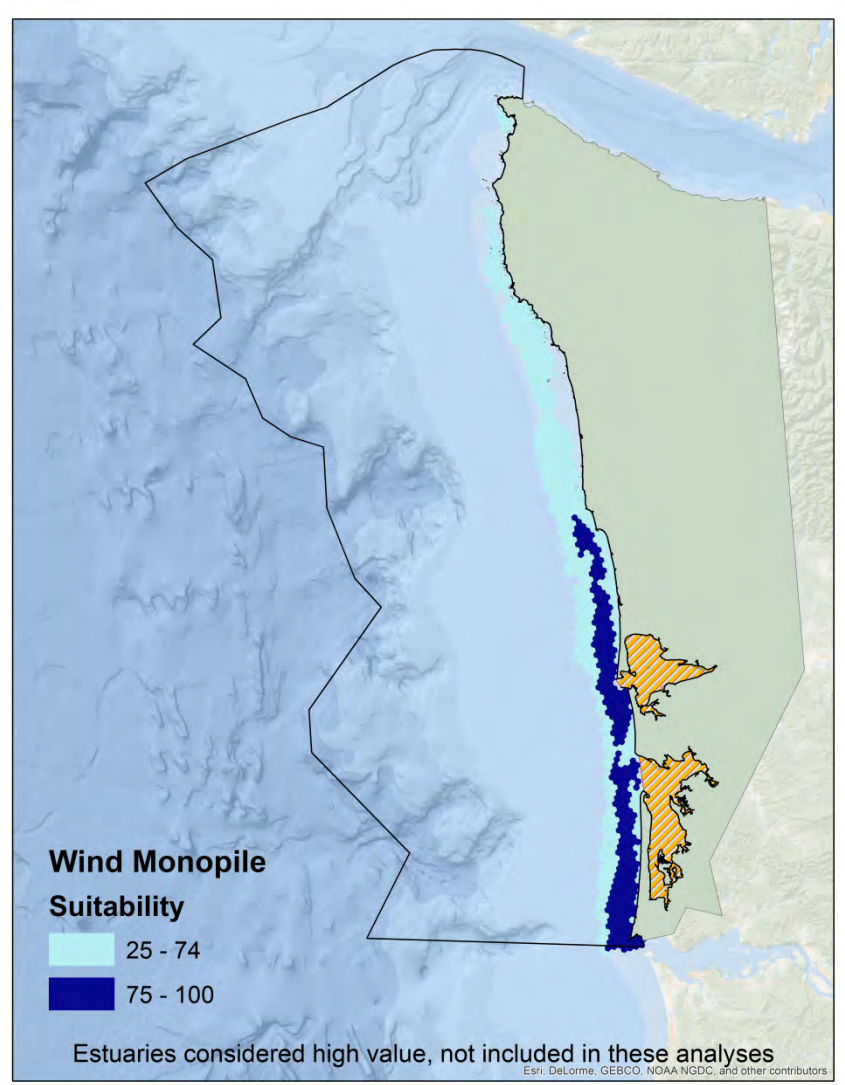


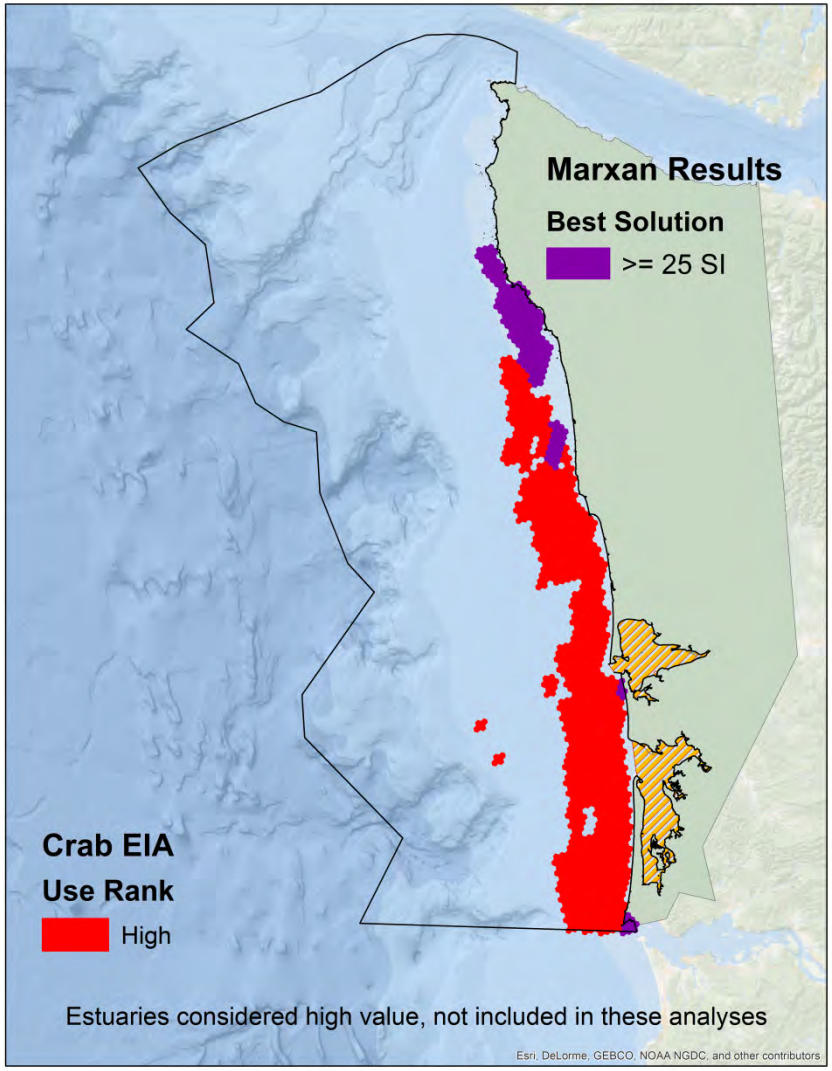


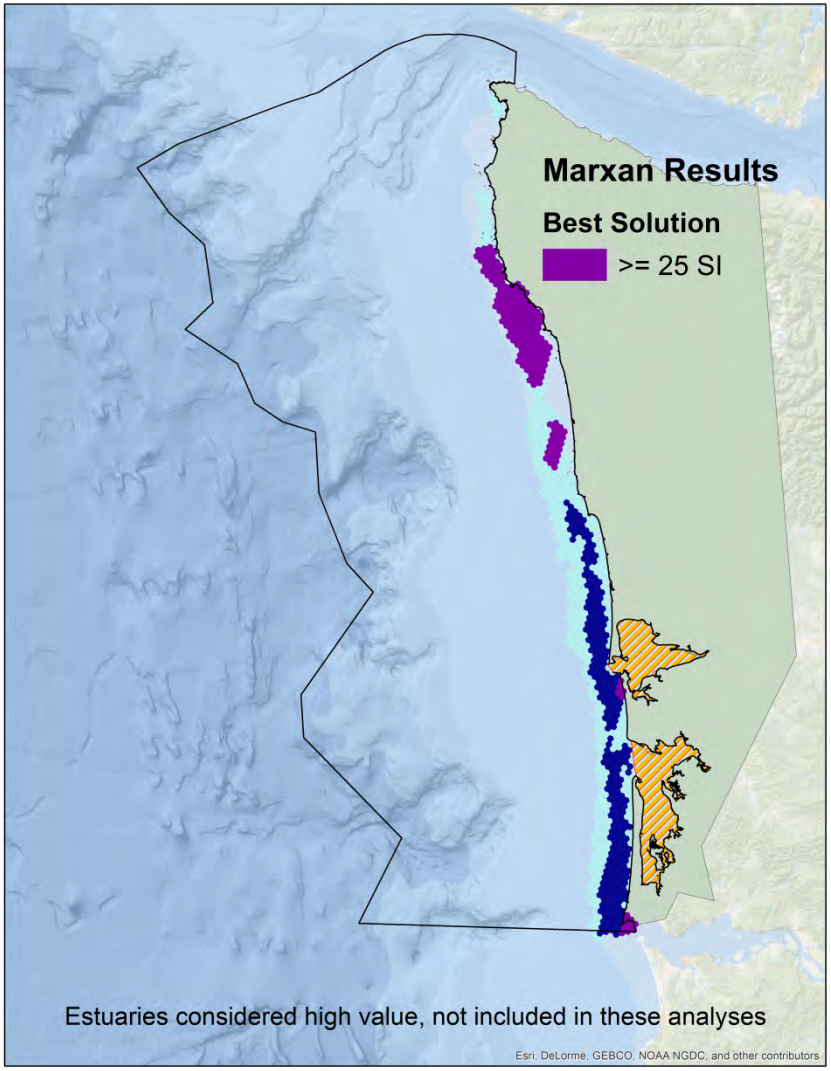
Crab EIA – Wind Monopile Scenario (SI > 25)



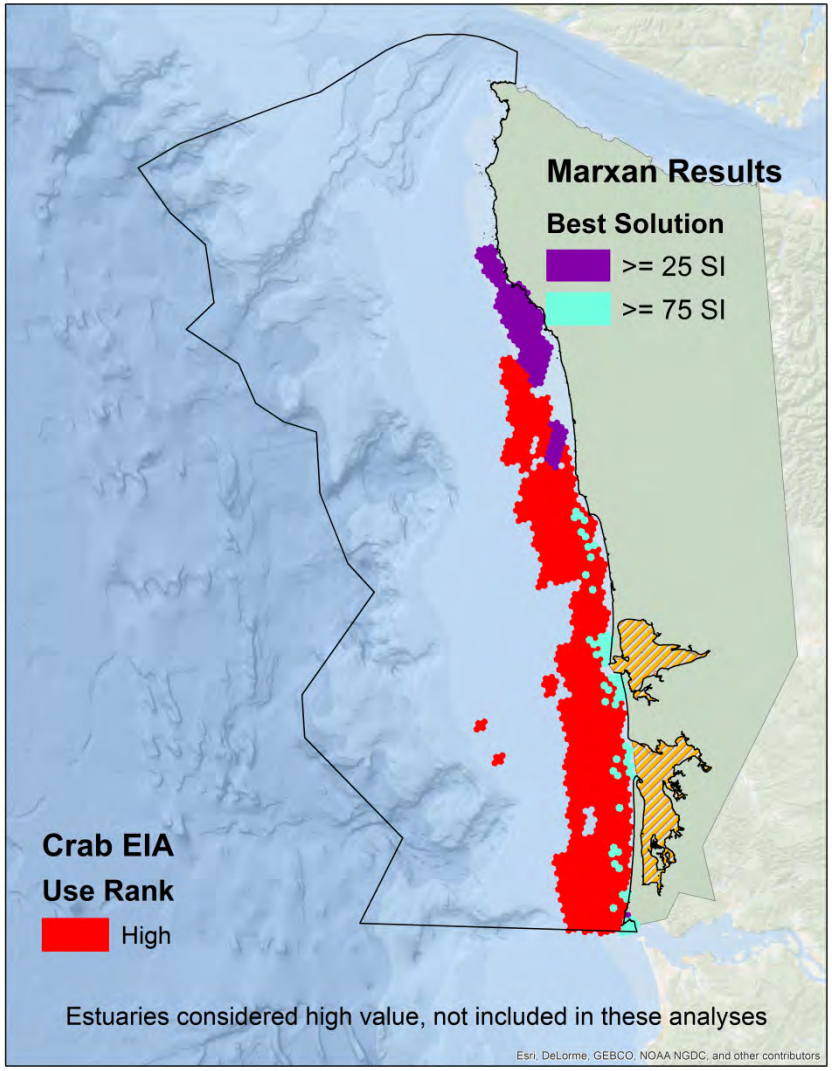


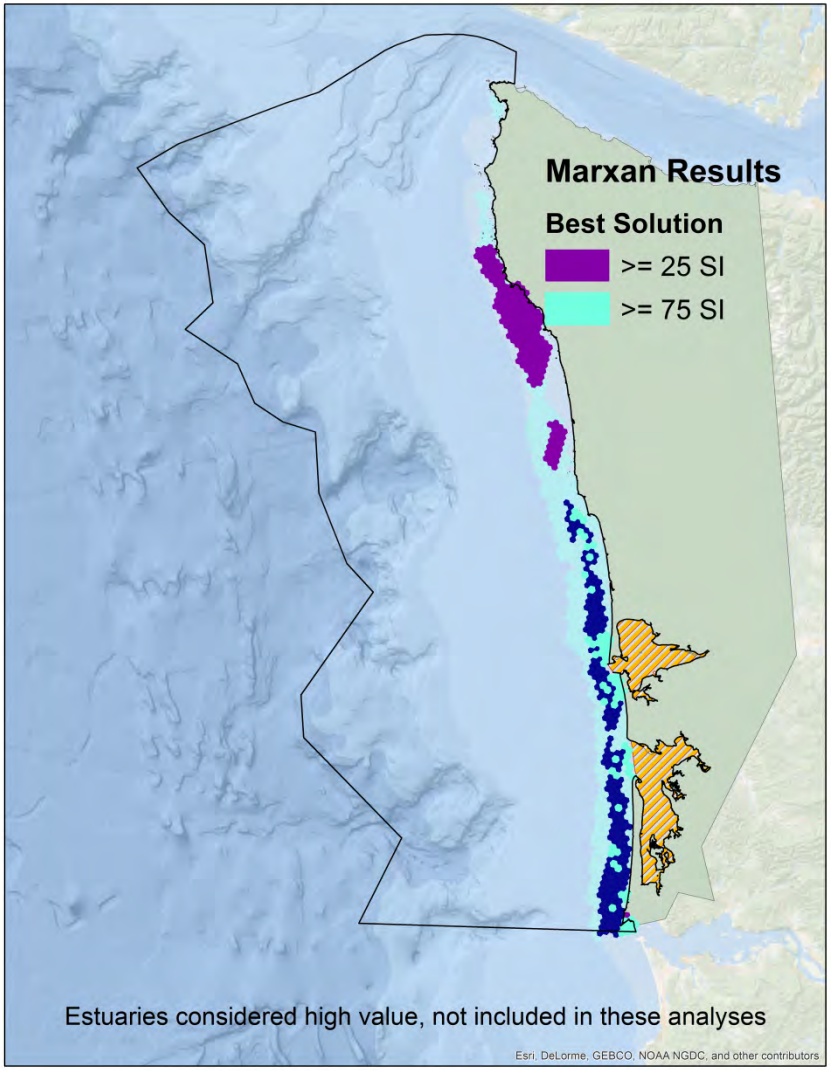
Crab EIA – Wind Monopile Scenario (SI > 25); N = 1000 Runs





Crab EIA – Wind Monopile Scenario (SI > 25); N = 1000 Runs





Use Assessment Summary

- Ability to run different scenarios: e.g. all uses equal, avoid Crab, seabird colonies, Federal-State listed, …
- Can identify finer scale marinescapes for potential development
- No one answer, depends on policy interests and scenario
- Additional discussions with WCMAC at upcoming workshop