

# Draft Potential Spatial Recommendations

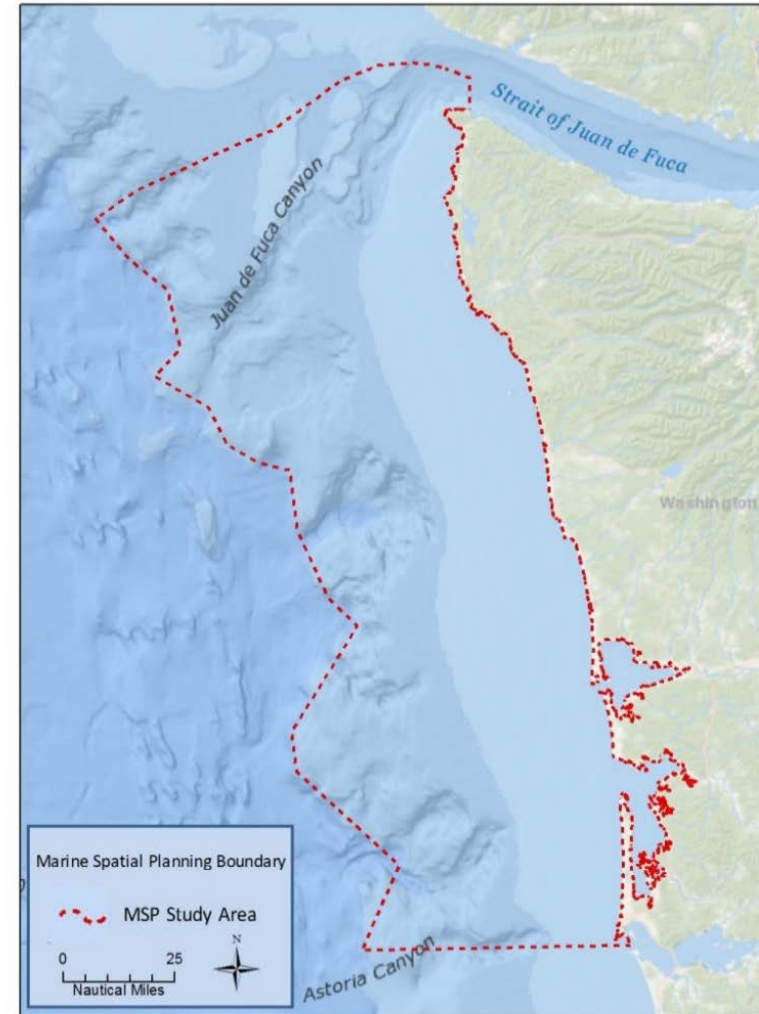
An introduction to potential components

# Potential Components of Spatial Recommendations

- Limitations and Background
- Important, Sensitive, and Unique areas (ISUs)
- Spatial recommendations: Renewable Energy, Existing Uses and Ecological Areas
- Other Uses

# Limitations and Background

- Spatial recommendations only apply to state waters.
- Information provides important context for state to review and influence projects in federal waters.



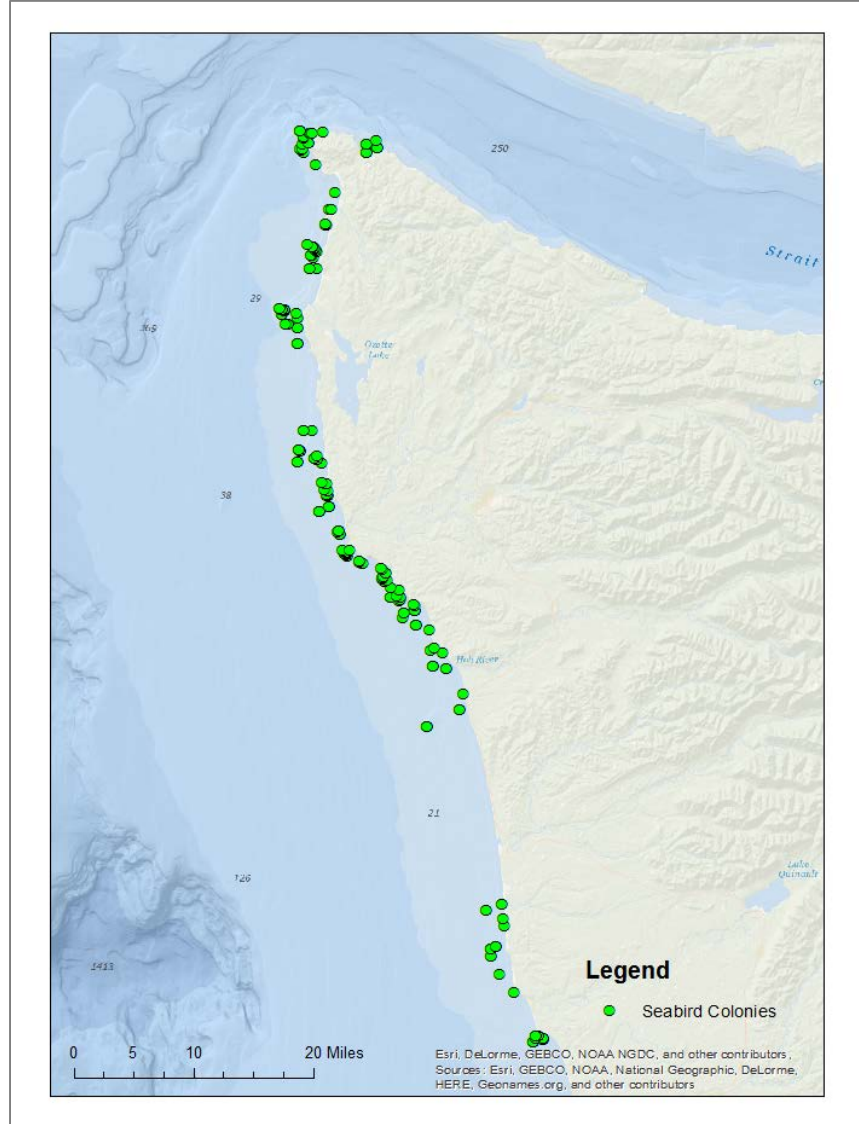
# Important, Sensitive and Unique (ISUs) Areas

## DRAFT Criteria

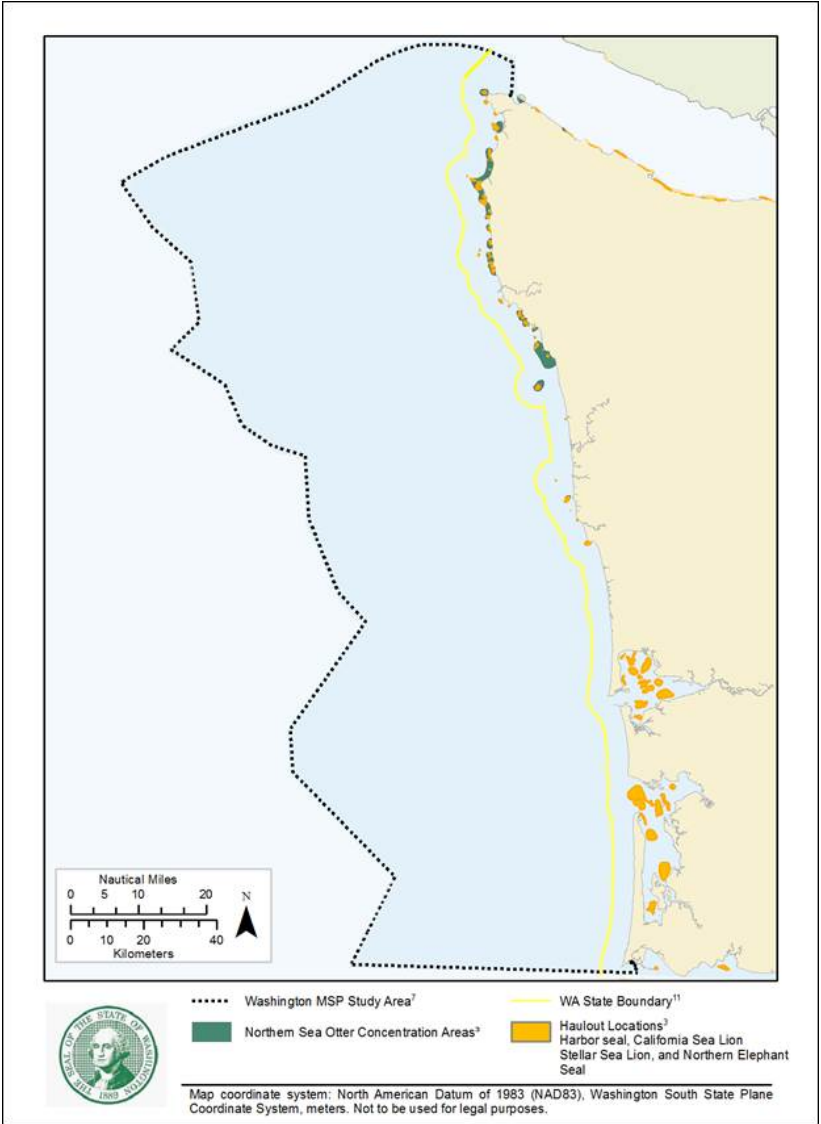
1. Areas that are environmentally sensitive or contain unique or sensitive species or biological communities that must be conserved and warrant protective measures [RCW 43.372.040(6)(c)].
2. Areas with known sensitivity to development and where scientific data indicates high certainty in and knowledge about the potential impacts.
3. Areas with features that have limited, fixed and known occurrence.
4. Areas with inherent risk or infrastructure incompatibilities (e.g. buoys or cables).

# Potential ISUs

## Seabird Colonies



## Pinniped Haulout Locations



# Potential ISUs



# Use Analysis

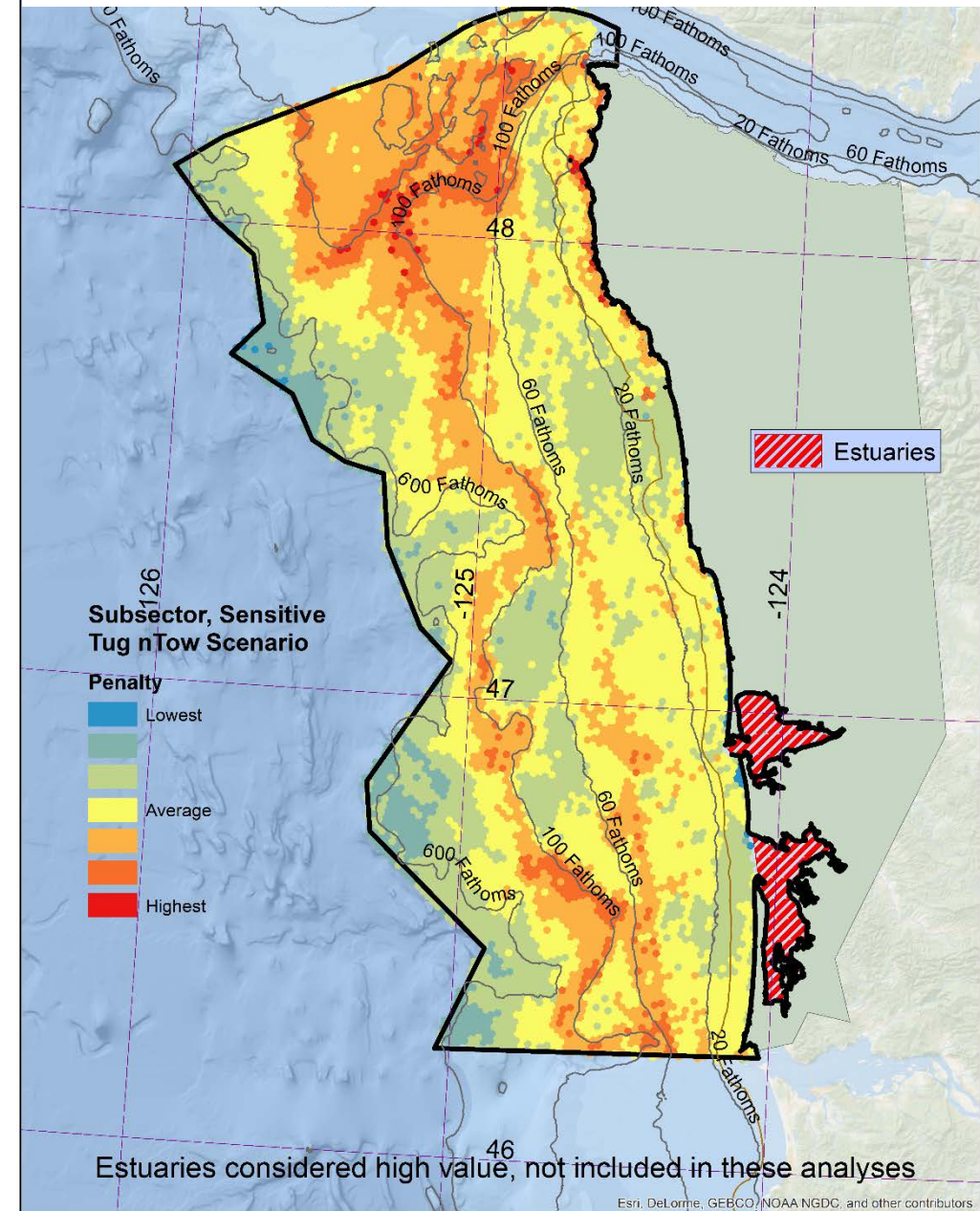
- Analysis compared renewable energy potential with available, mapped information on uses and ecologically important areas.
- Analysis structured to find areas for renewable energy at various scales and for different energy types and technologies.

# Use Analysis: Inputs

## Existing Uses and Ecologically Important Areas Input Map

- Sensitive species, habitats, archaeological/historic sites
  - Crab adjusted for sandy-bottoms
- All other use sectors:
  - Fishing
  - Aquaculture
  - Ecologically Important Areas
  - Recreation
  - Transportation
  - Tug/Tow
- All values included (High, Medium and Low intensities)
- Weighted proportional to their intensity/use score

## Existing Uses and Ecologically Important Areas: Penalty Input Map





# Use Analysis: Penalty Table

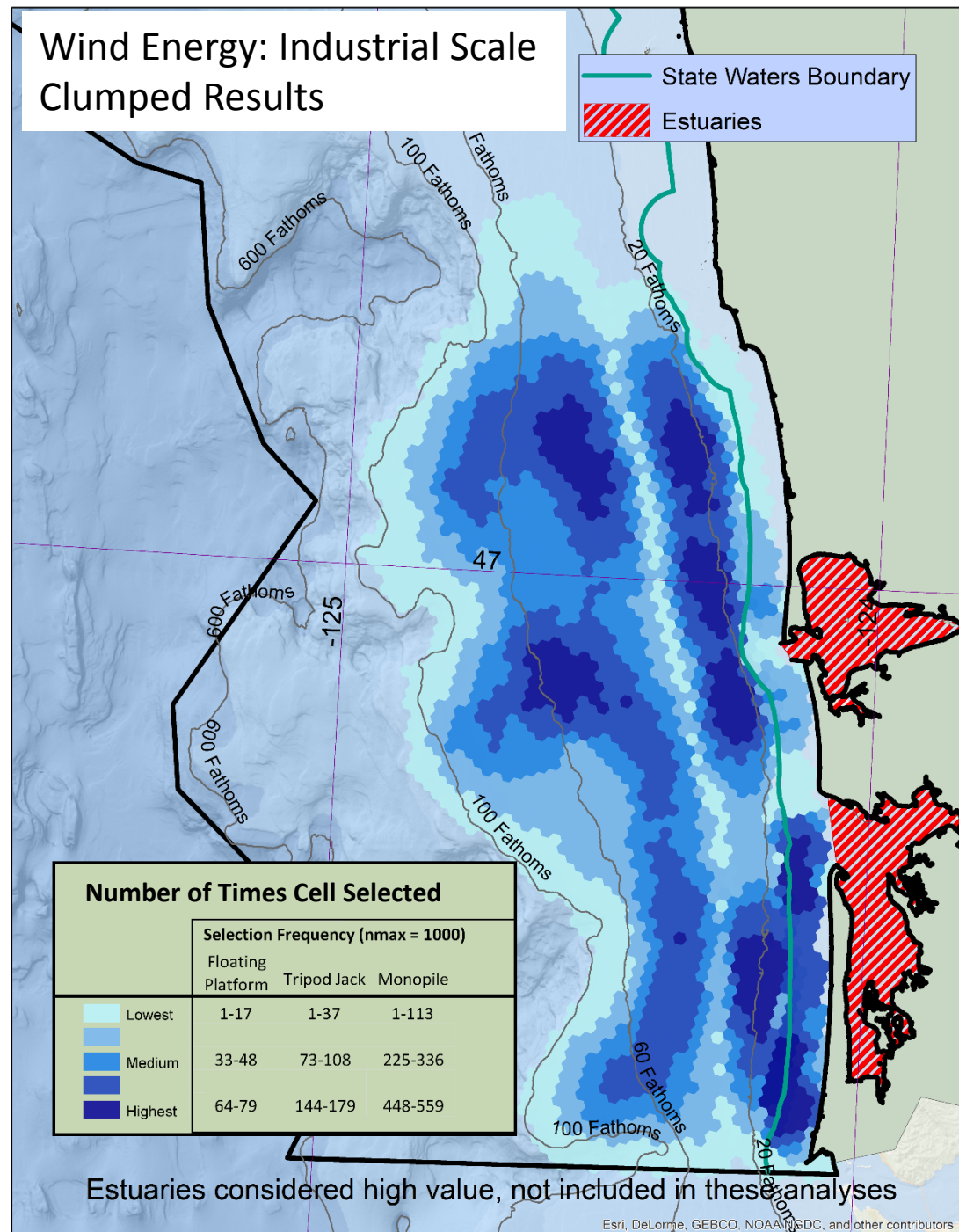
## Marxan Scenario Penalty Factor

Use Sector	Subject_sens_crab
<b>Sensitive</b>	
Archaeological Sites/Historic Resources	5000
Forage Fish Spawning Grounds (surf smelt, night smelt, pacific sand lance)	5000
Deep sea Coral	5000
Habitat - Kelp beds	5000
Habitat - Rocky Substrates	5000
Yelloweye Rockfish	5000
Crab_EIA	5000
Seabird Colonies	5000
Marbled Murrelet	5000
Snowy Plover	5000
Steller Sea Lion	1000
Streaked Horned Lark	5000
Tufted Puffin	5000
Marine Mammal Haulouts	1000
Humpback Whale	5000
Gray Whale	1000
Sea otter	5000
Harbor Porpoise	1000
Dall's Porpoise	1000
Harbor seal	1000

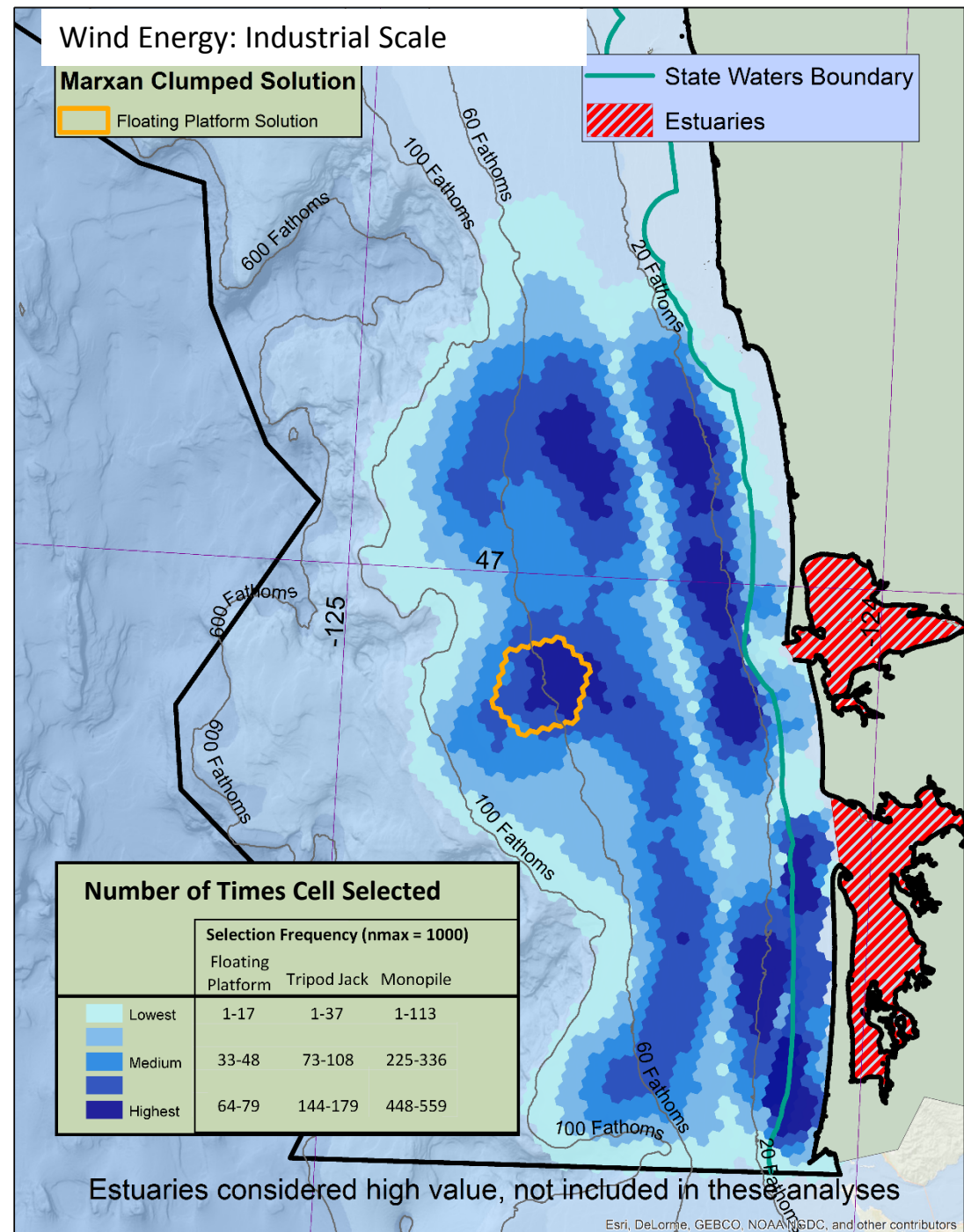
Subsector	
Aquaculture	2000
Shipping/Transportation	2000
Shipping/Transportation - Tug and Tow	2000
Recreation	2000
High Fisheries	2000
Med Fisheries	1000
Low Fisheries	200
Fish EIA 1	2000
Fish EIA 2	1500
Fish EIA 3	1000
Fish EIA 4	500
Fish EIA 5	200
Wildlife EIA 1	2000
Wildlife EIA 2	1500
Wildlife EIA 3	1000
Wildlife EIA 4	500
Wildlife EIA 5	200

# Wind Energy “Industrial Scale”

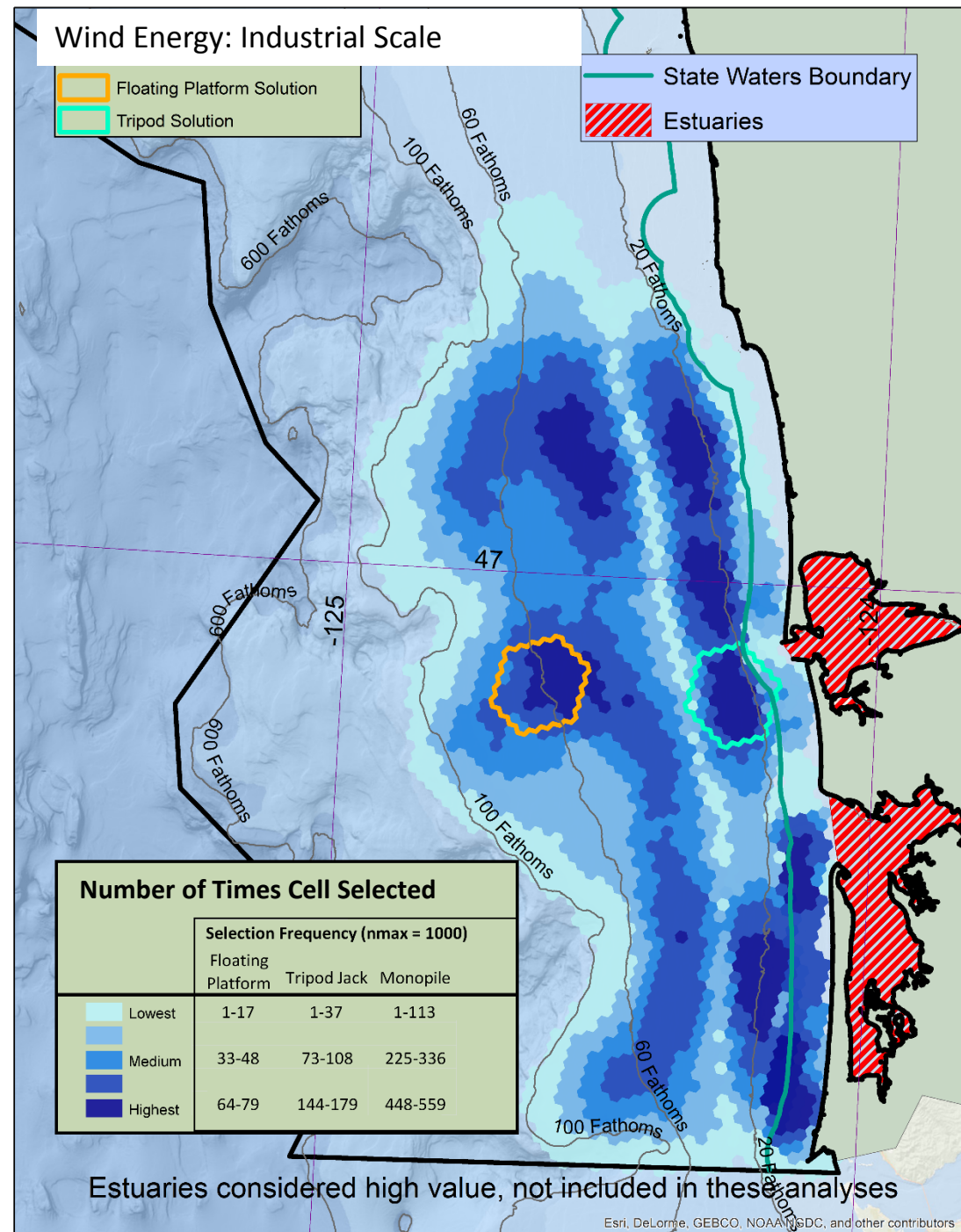
- Includes all three technology types:
  - Monopile
  - Jacket-mounted
  - Floating
- 300-400 MW scale = approximately 50 square miles.



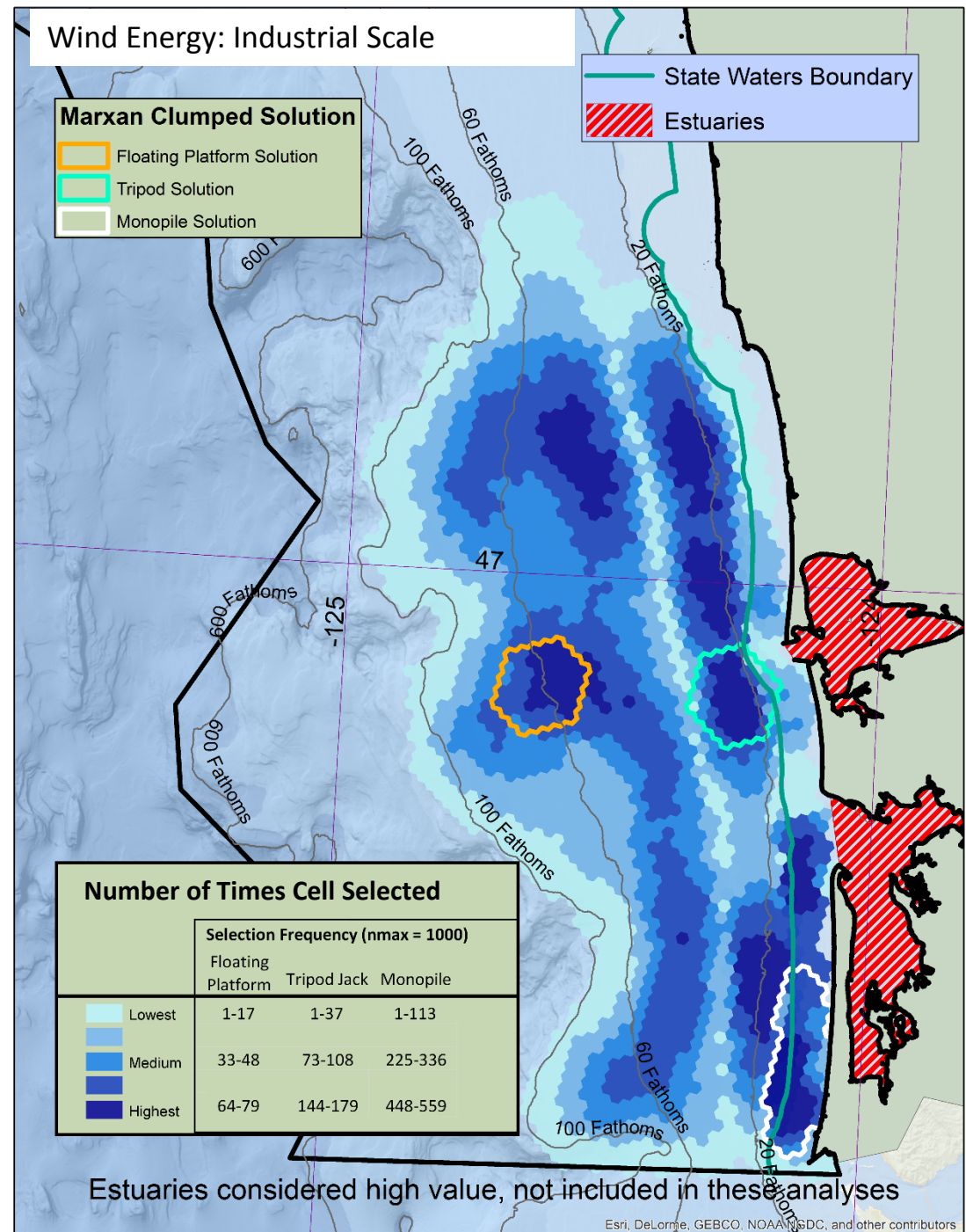
# Wind Energy “Industrial Scale”



# Wind Energy “Industrial Scale”



# Wind Energy “Industrial Scale”



# Floating Platform Results: still include some high use areas...

Energy		WFP						
Count of High Use			Hex_ID					
Category	Spp_Sector	Type	4895593	4896110	4898860	4901867	4908490	4908491
Human Use	AQCLTRCTR	Count	0	0	0	0	0	0
	Crabber Tug and Tow Lanes	Count	0	0				
	FISHERIESH	Count	4	4	3	4	3	3
	HUSE_CARGO	Count	1	1	1	0	0	0
	HUSEALLSHI	Count	2	2	0	0	0	0
	HUSECULTUR	Count	0	0	0	0	0	0
	HUSEDREDGE	Count	0	0	0	0	0	0
	HUSEPSSNGR	Count	0	0	0	0	0	0
	HUSETANKER	Count	0	0	0	0	0	0
	HUSETUGTOW	Count	1	1	0	0	0	0
	RECALLHUSE	Count	0	0	0	0	0	0
	RECHUSEDIV	Count	0	0	0	0	0	0
	RECHUSESHO	Count	0	0	0	0	0	0
	RECHUSESRF	Count	0	0	0	0	0	0
	RECHUSEWIL	Count	0	0	0	0	0	0
Human Use Max			4	4	3	4	3	3
Fish Composite	Fish Hotspots	Count	4	4	5	3	2	1
Fish Composite Max			4	4	5	3	2	1
Wildlife Compo	Wildlife Hotspots	Count	1	1	1	2	2	2
Wildlife Composite Max			1	1	1	2	2	2

# Monopile Results: still include some high use areas...

Energy		WMP							
Count of High Use			Hex_ID						
Category	Spp_Sector	Type	245611	250129	251634	253140	253141	254646	256152
Human Use	AQCLTRCTR	Count	0	0	0	0	0	0	0
	Crabber Tug and Tow Lanes	Count							
	FISHERIESH	Count	1	1	1	2	1	1	1
	HUSE_CARGO	Count	0	0	0	0	0	0	0
	HUSEALLSHI	Count	0	0	0	0	0	0	0
	HUSECULTUR	Count	0	0	0	0	0	0	0
	HUSEDREDGE	Count	0	0	0	0	0	0	0
	HUSEPSSNGR	Count	0	0	0	0	0	0	0
	HUSETANKER	Count	0	0	0	0	0	0	0
	HUSETUGTOW	Count	0	0	0	0	0	0	0
	RECALLHUSE	Count	0	0	0	0	0	0	3
	RECHUSEDIV	Count	0	0	0	0	0	0	0
	RECHUSESHO	Count	0	0	0	0	0	0	1
	RECHUSESFR	Count	0	0	0	0	0	0	1
	RECHUSEWIL	Count	0	0	0	0	0	0	1
Human Use Max			1	1	1	2	1	1	3
Fish Composite	Fish Hotspots	Count	3	1	3	2	0	1	1
Fish Composite Max			3	1	3	2	0	1	1
Wildlife Compo	Wildlife Hotspots	Count	5	5	5	5	0	5	5
Wildlife Composite Max			5	5	5	5	0	5	5

# Potential Spatial Recommendations

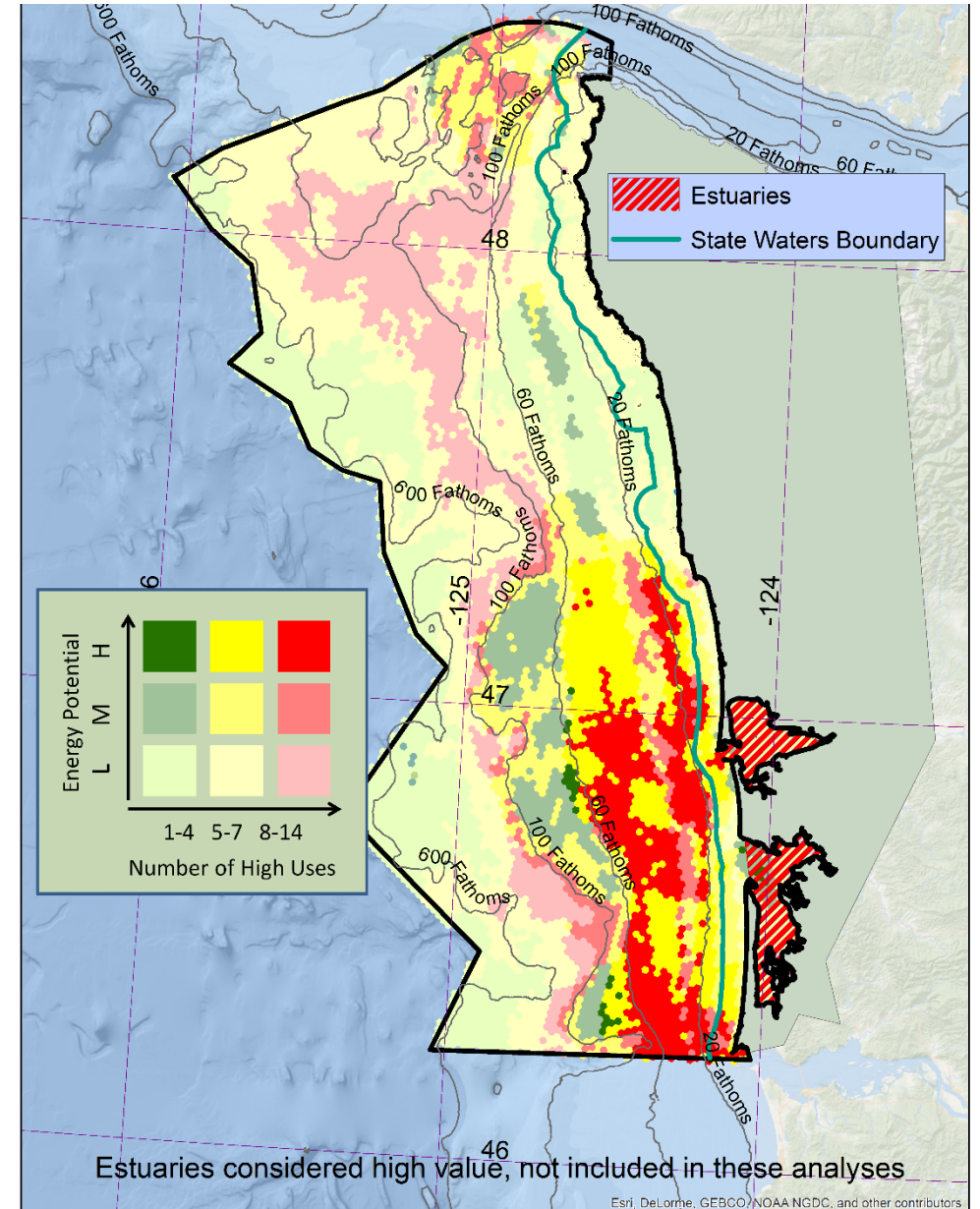
- Recommend no industrial-scale projects in state waters to minimize impacts to existing uses and resources.
  - Industrial scale – energy at scale for regional grid (larger production/more devices).
  - Community scale – energy at scale for local community/communities (smaller production/fewer devices) and with support of local community.



# Energy Potential (wind) and High Uses/Ecological Hotspots

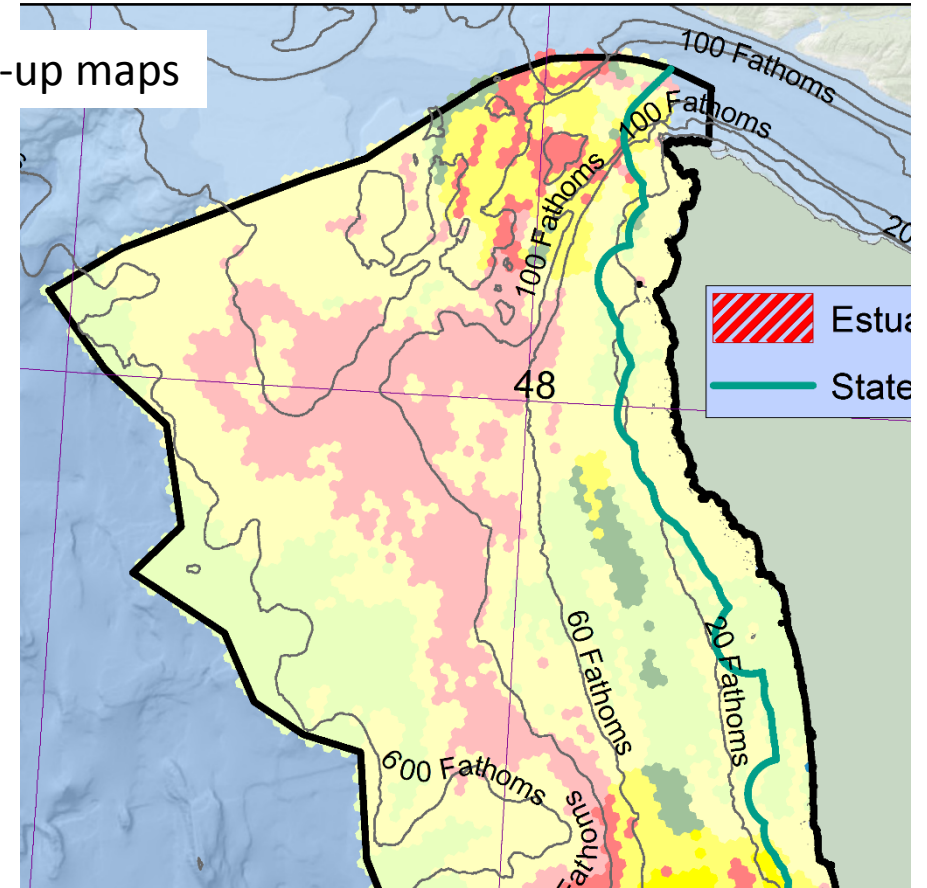
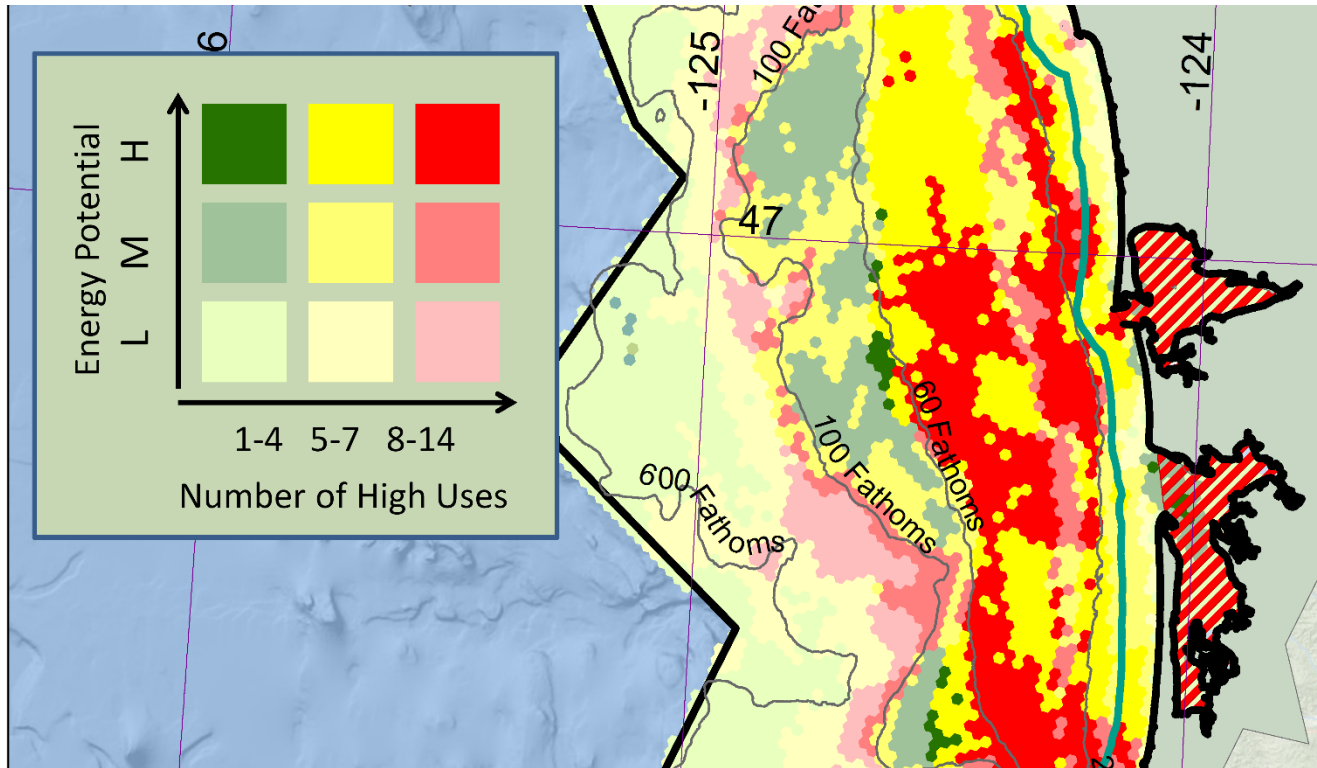
- Compares data as an overlay
- Not Marxan analysis

## Comparison of Wind Energy Potential and Existing High Uses/Ecological Hotspots



# Energy Potential (wind) and High Uses/Ecological Hotspots

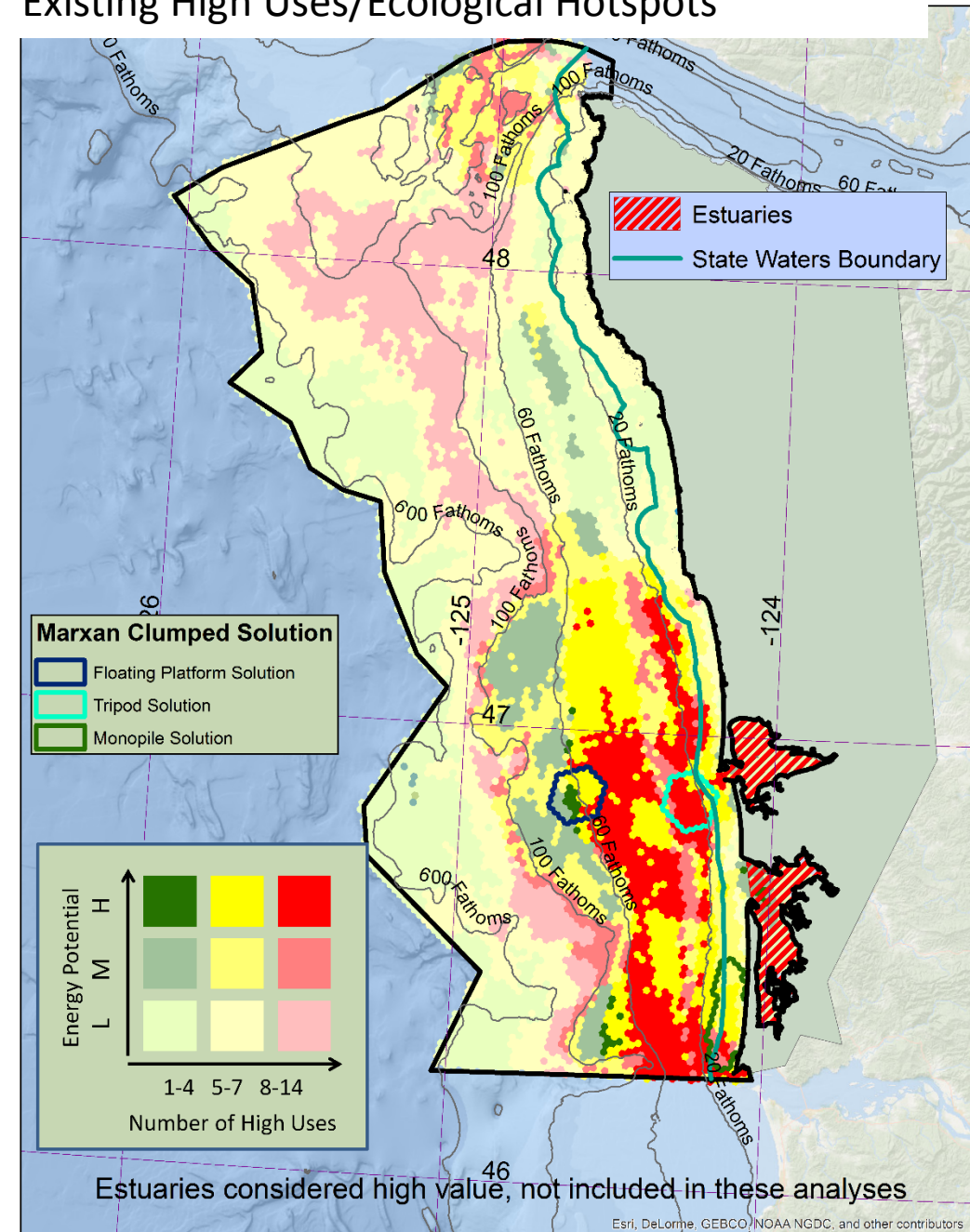
North and South close-up maps



# Energy Potential (wind) and High Uses/Ecological Hotspots

- Showing industrial scale clumped results for comparison

## Comparison of Wind Energy Potential and Existing High Uses/Ecological Hotspots



# Potential spatial recommendations

## In state waters:

- Recommend renewable energy projects avoid areas that are highly used by lots of existing uses (including ecologically important areas). These areas would be very difficult to permit.
- Recommend further evaluation of proposed projects in areas that have moderate or lower level of use by existing uses on a case-by-case basis.

# Other uses

- Recommend plan data and information be used to understand potential conflicts, resources and concerns.
- Where particular uses have similar effects (e.g. structures or cables), recommend applicants use the criteria, information and process described for renewable energy as a starting point.