

Marine Spatial Planning Use Assessment

Renewable Energy Example

WCMAC Meeting June 13 2016

Presentation Overview

- Summarize May 26 workshop
- Review results from new scenarios
- Look “Under the Hood”
- Interpret results

Use Areas Associated with Scenarios

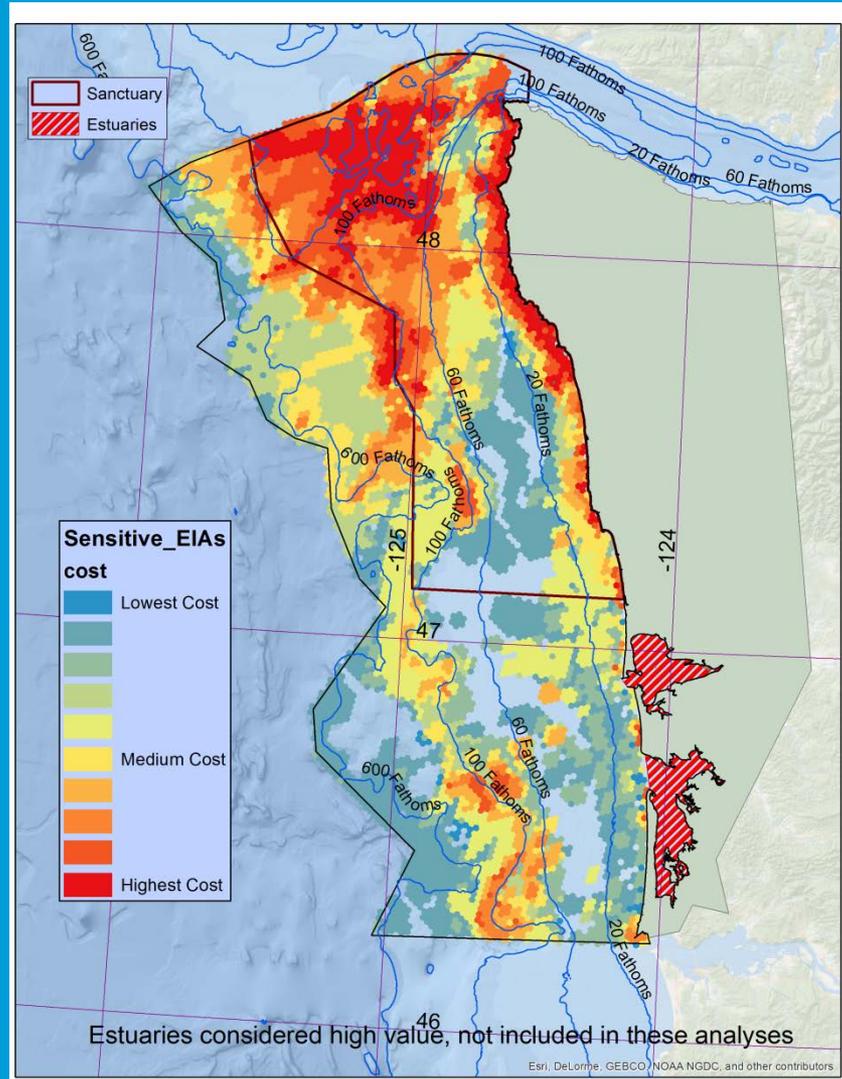
Subsector Scenario

Use
Nearshore seabird at sea surveys
Seabird Colonies
EIA
Marine Mammals
Shorebirds
Forage Fish (surf smelt, night smelt, pacific sand lance) Spawning Grounds
Pacific Hake
Chinook Salmon
Groundfish
Marine Inverts
Habitat
Archaeological Sites/Historic Resources
Recreation
Aquaculture
Fisheries
Shipping/Transportation - Tug and Tow

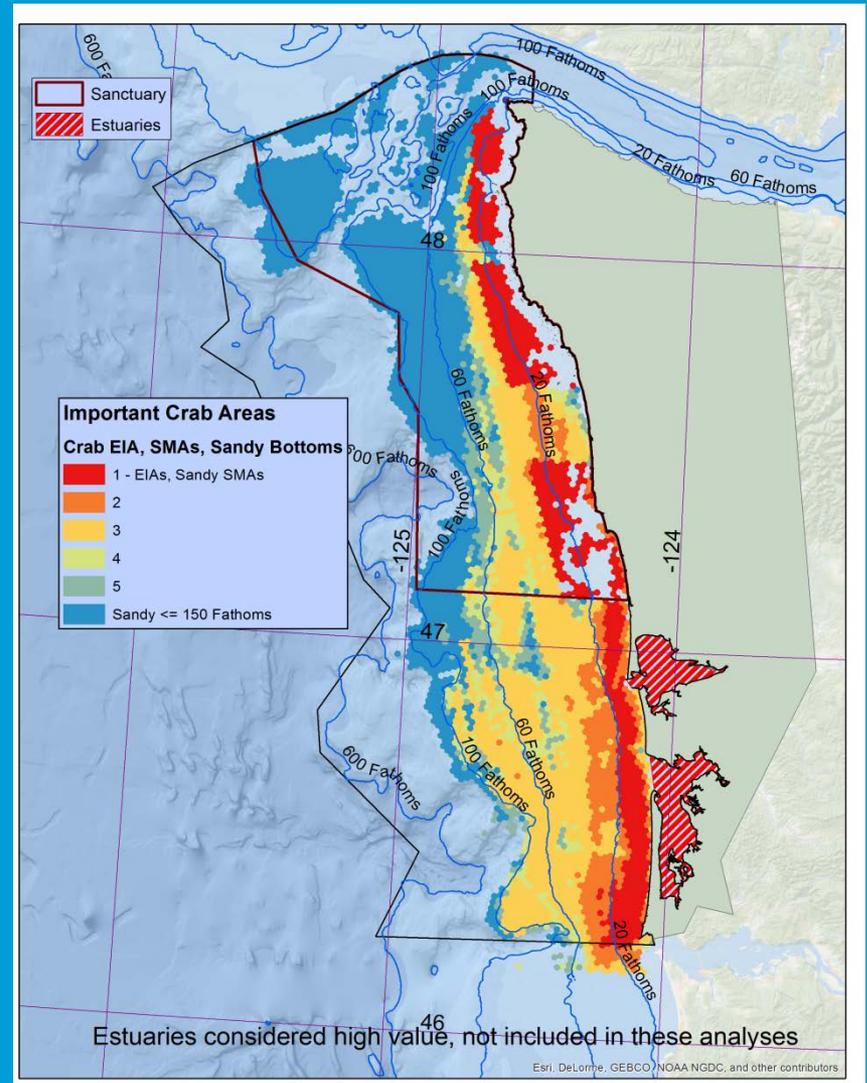
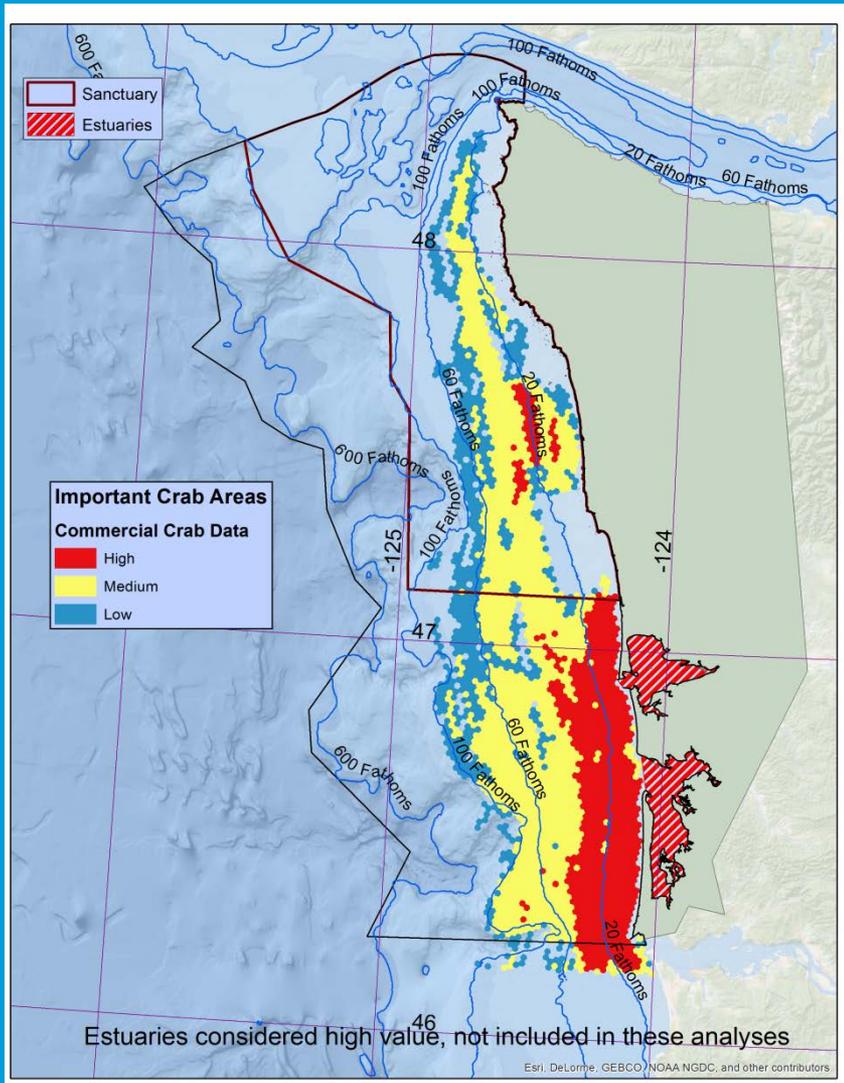
Sensitive Areas Scenario

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

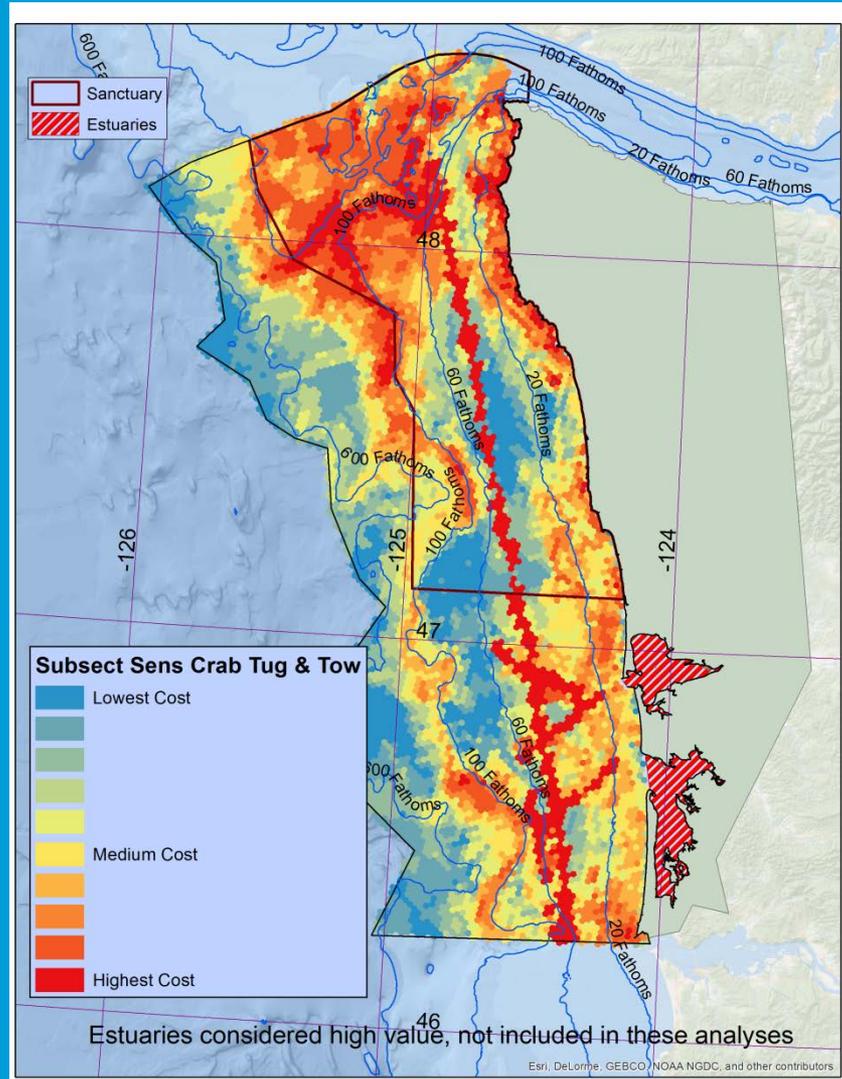
Sensitive Areas



Important Crab Areas



Subsector + Sensitive + Crab + Tug and Tow Areas

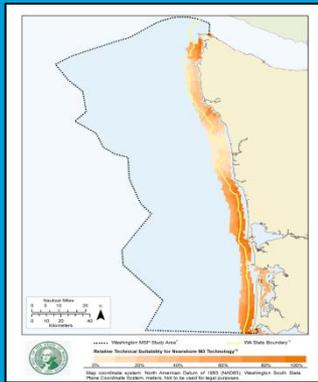


SCENARIO VARIABLES

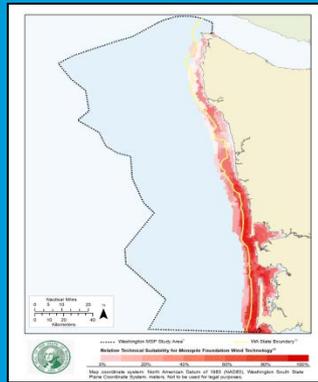
These data variables in the Marxan analysis can include a high percentage of potential suitability with potential future uses, or restrictions in specific marine boundaries.

Renewable Energy Potential

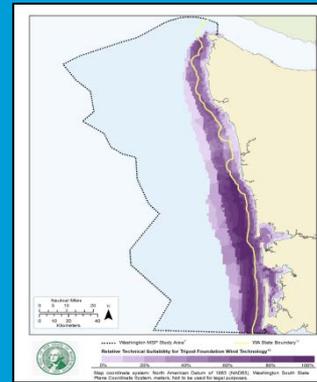
Nearshore Wave
M3 Device



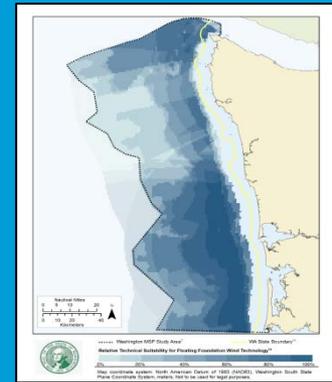
Nearshore Wind
Monopile



Mid-depth Wind

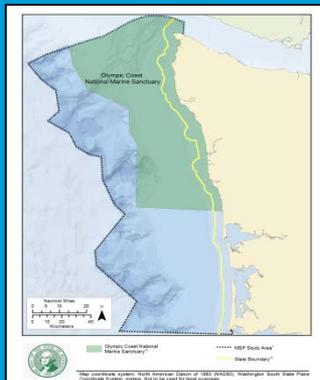


Deepwater Wind
Floating Platform

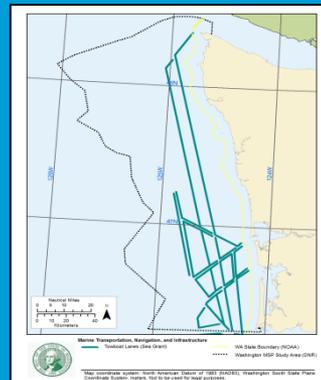


Potential Marine Boundaries to Include

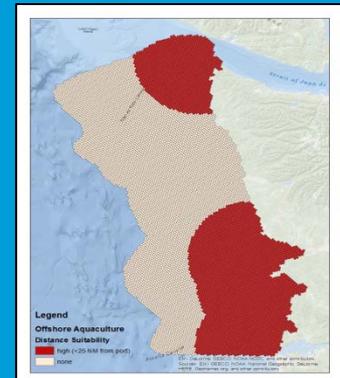
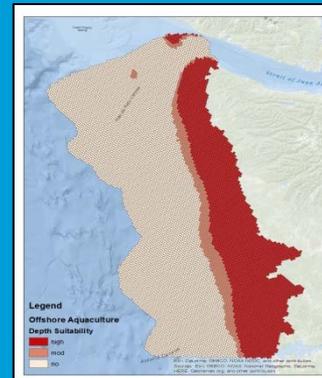
Olympic Coast National
Marine Sanctuary



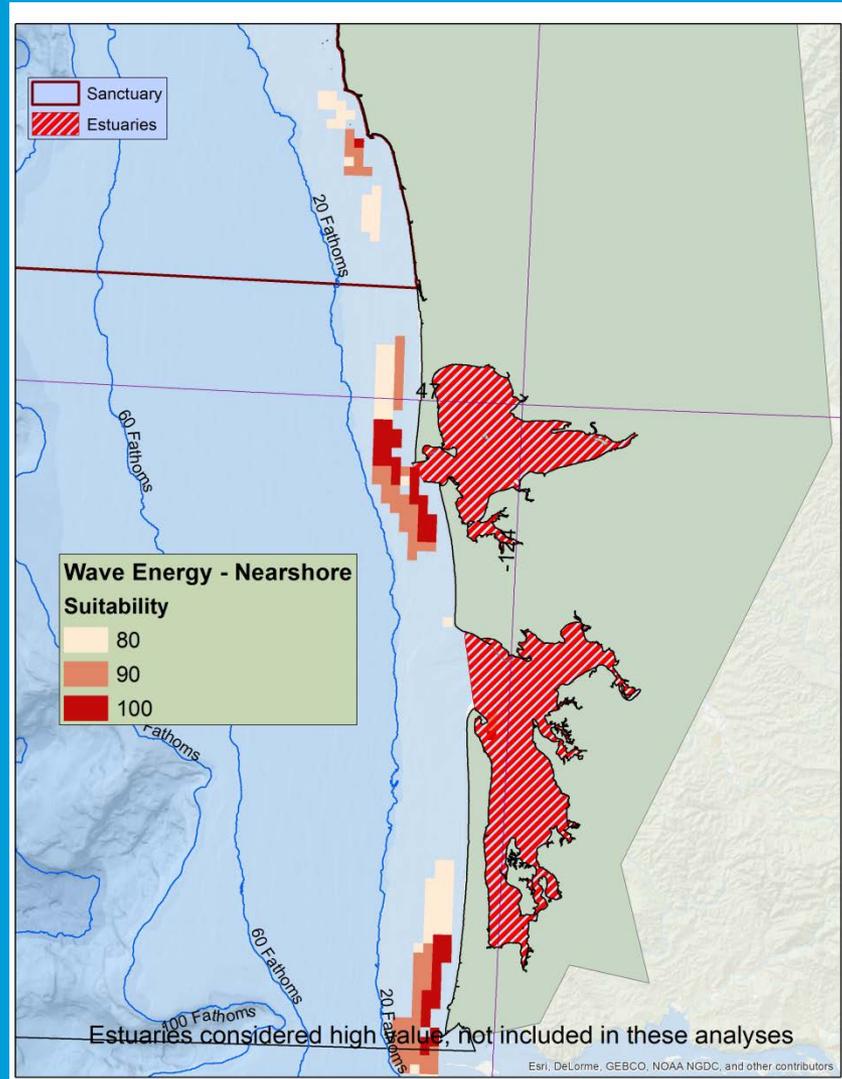
Tug/Towboat Crabber
Lanes



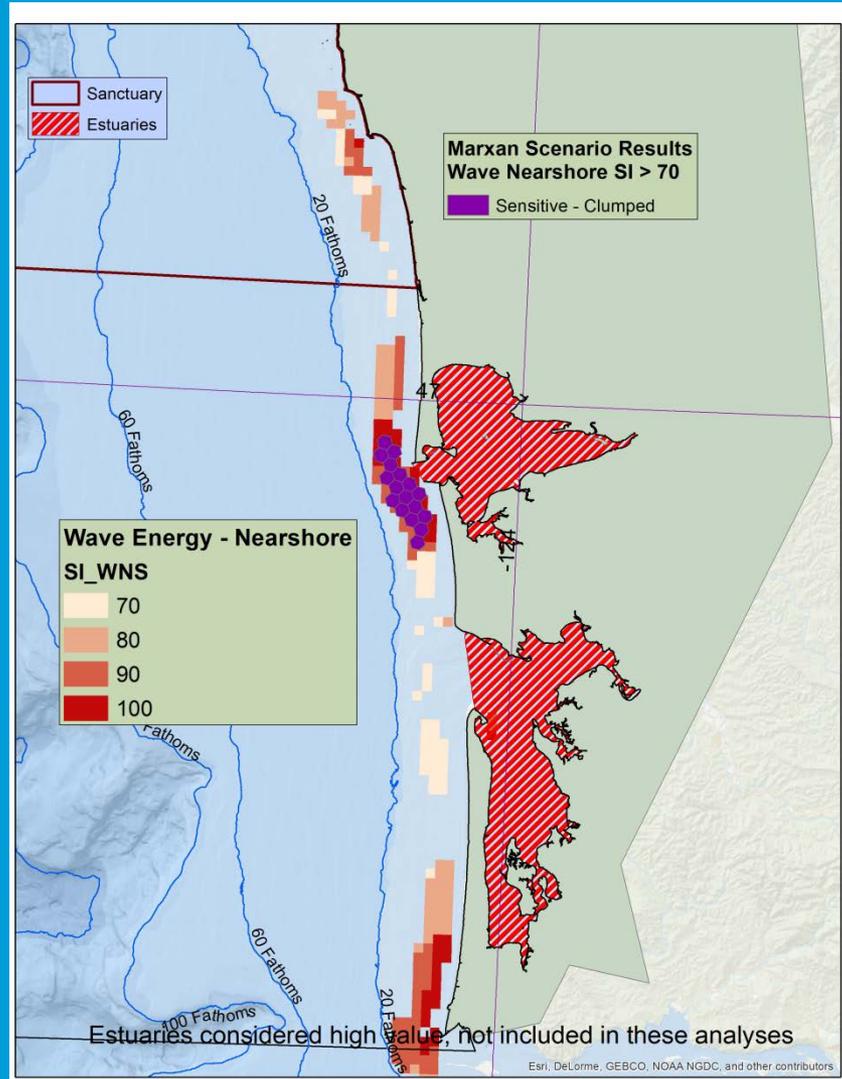
Offshore Aquaculture Depth and Distance from Ports



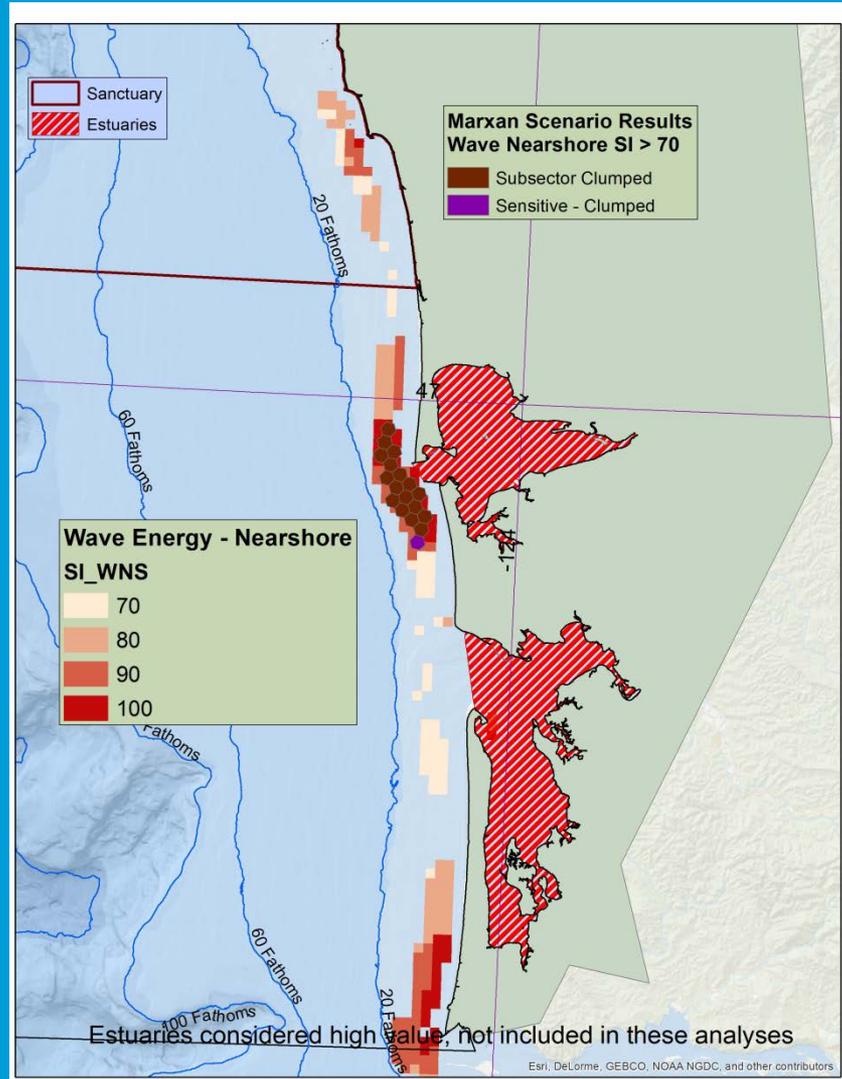
Wave Nearshore Suitability



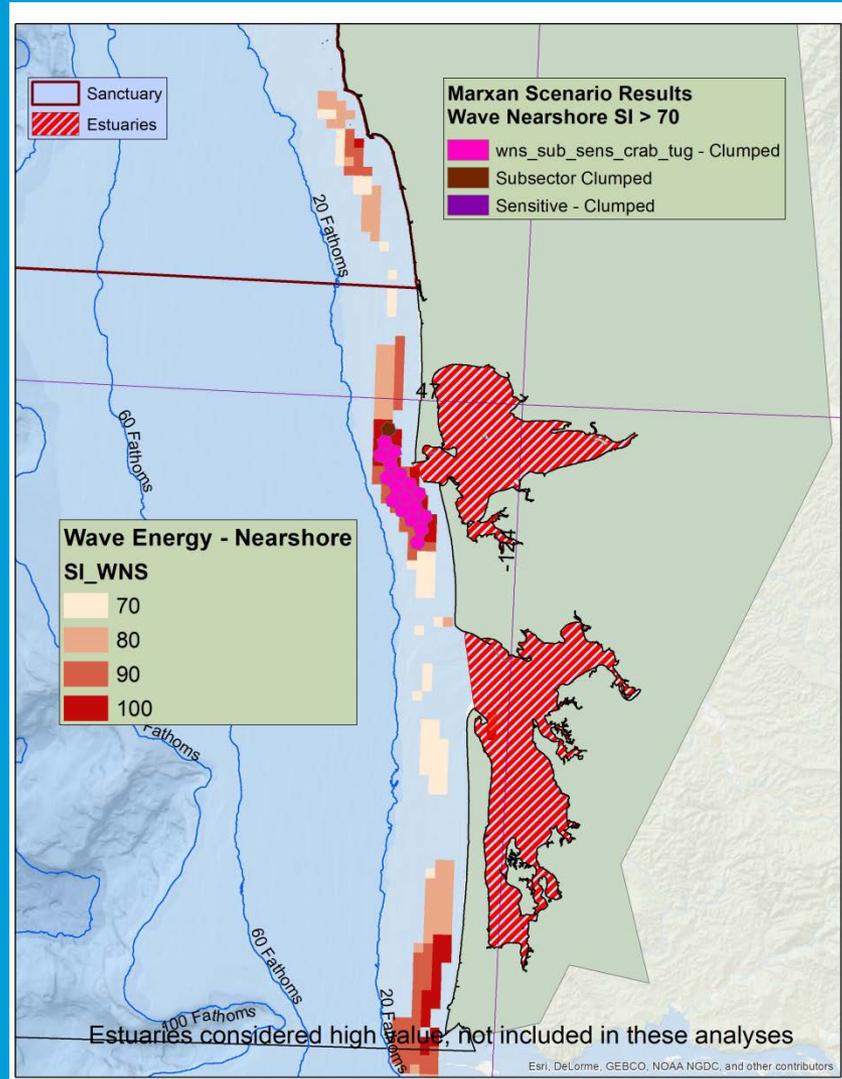
Wave Nearshore Suitability



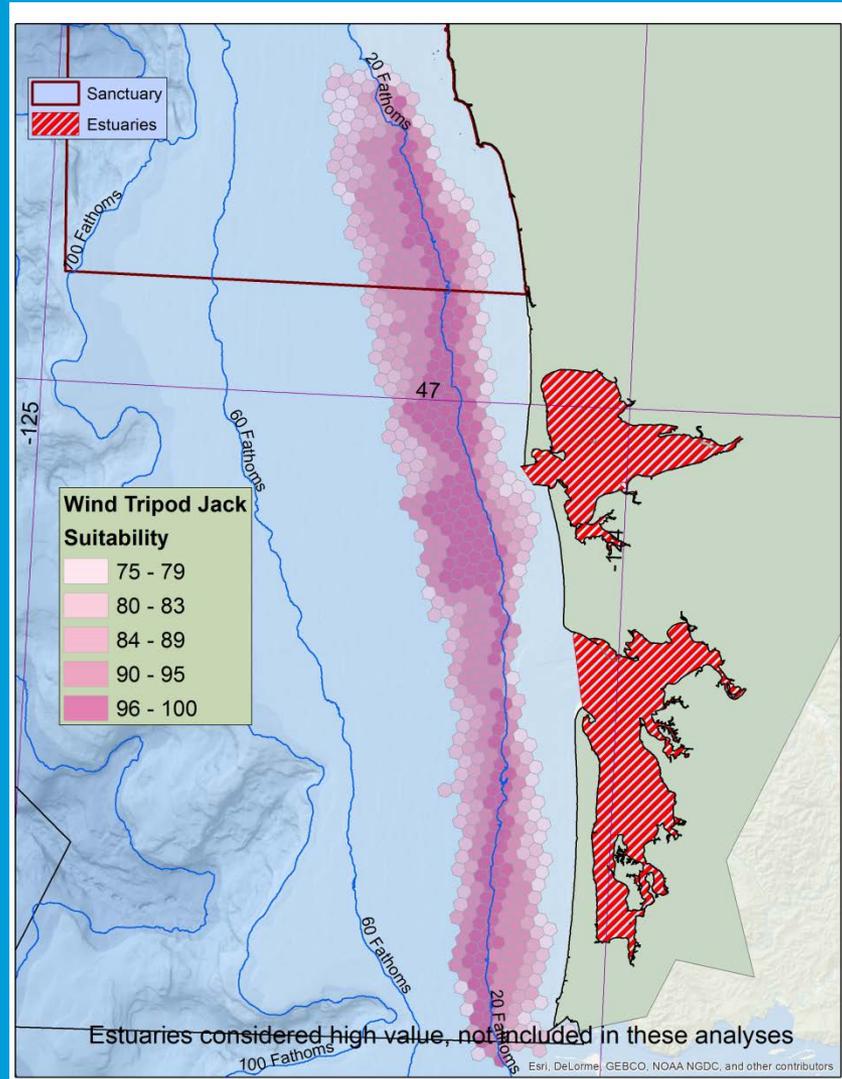
Wave Nearshore Suitability



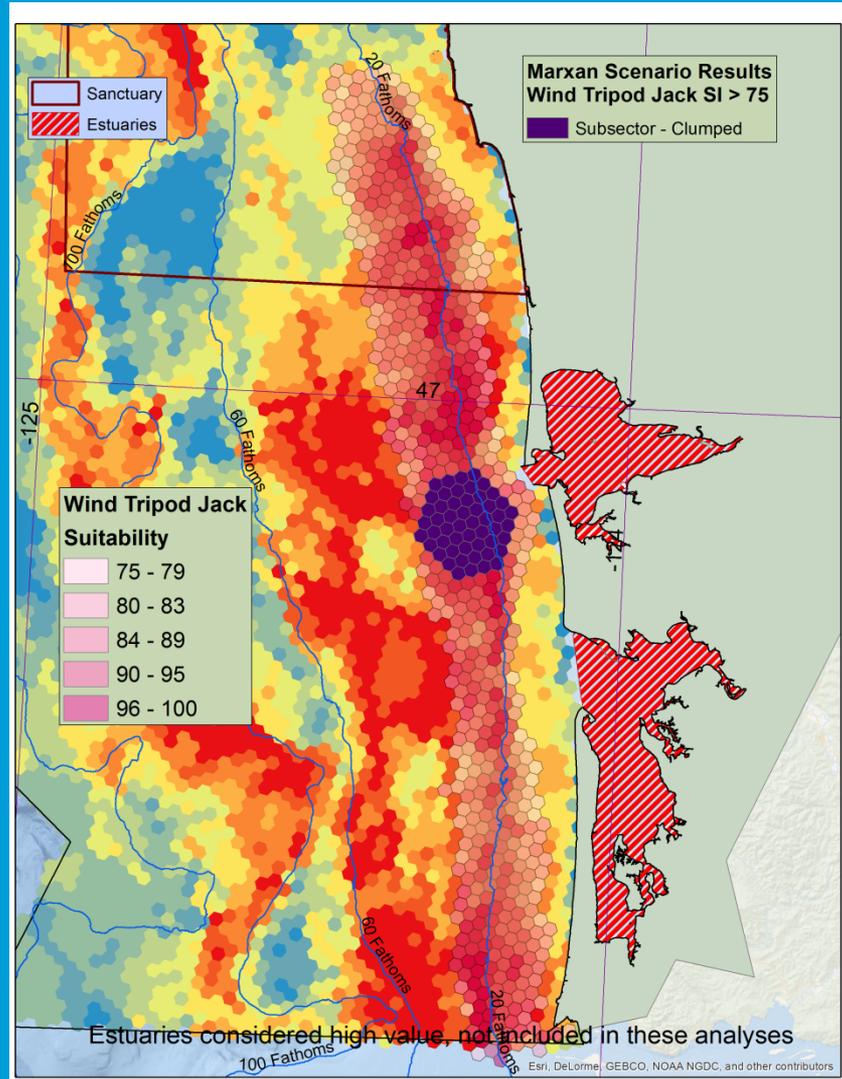
Wave Nearshore Suitability



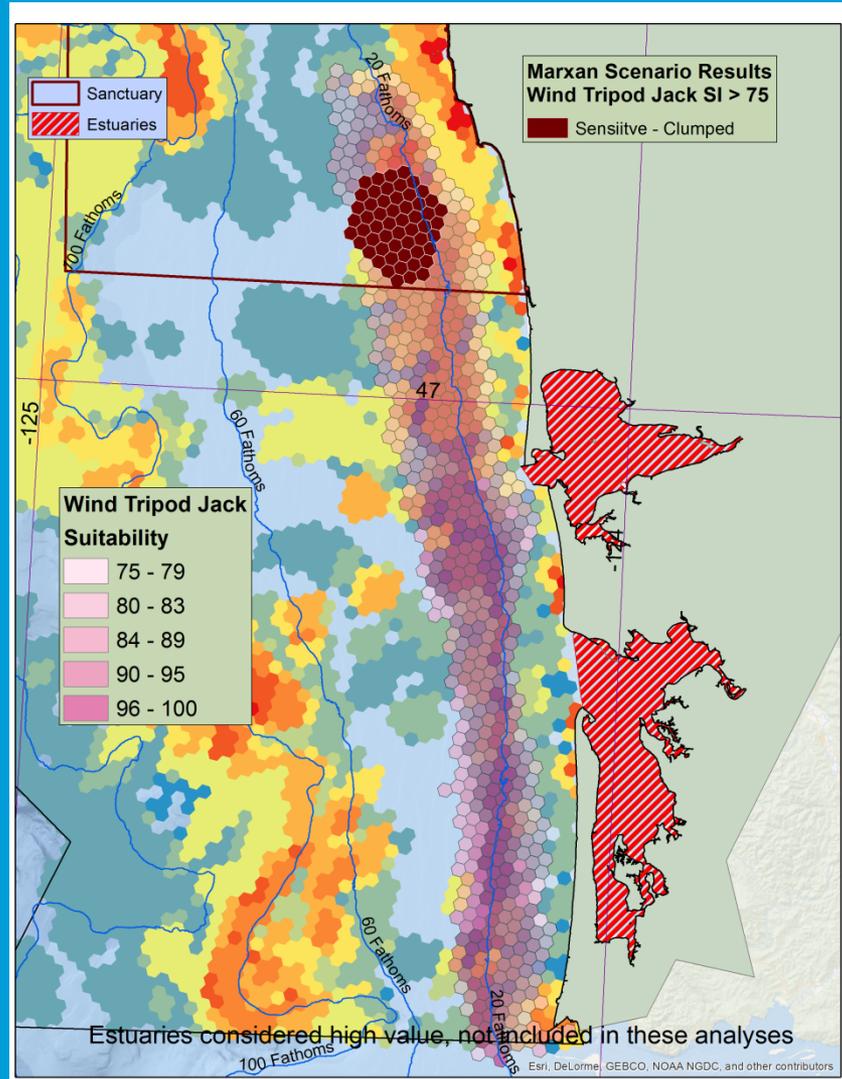
Wind Tripod Jack Suitability



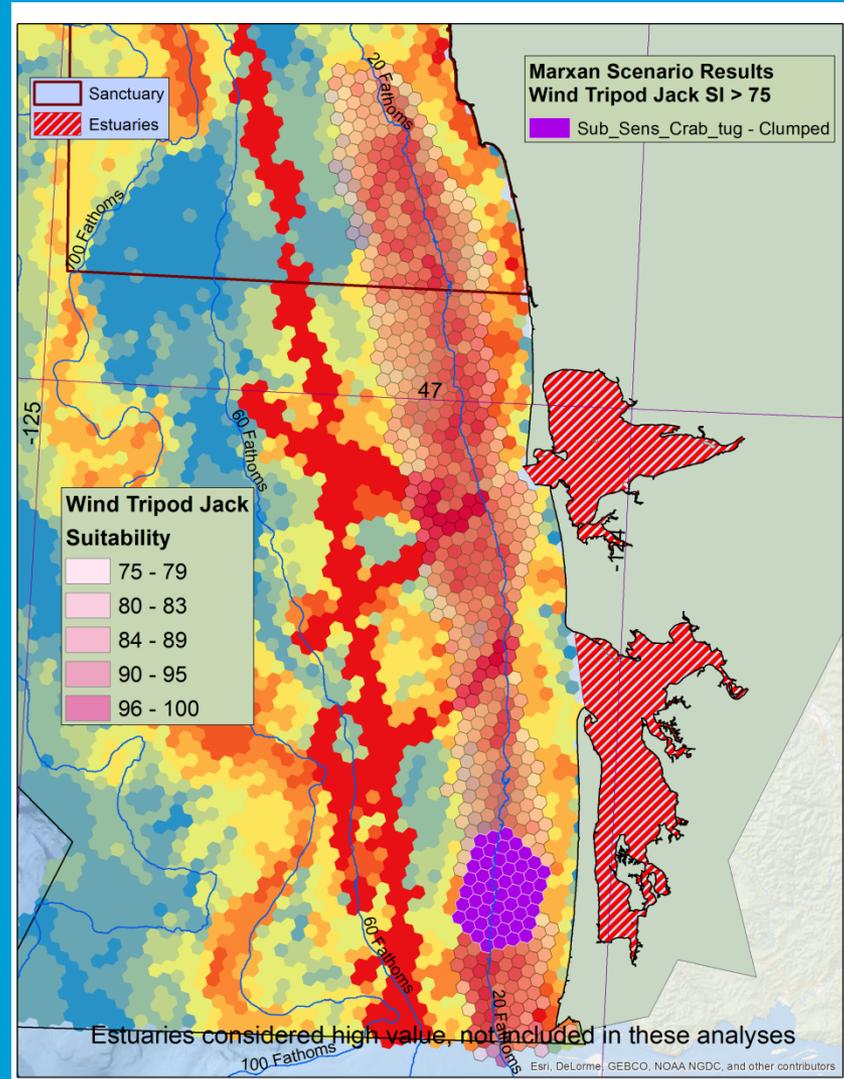
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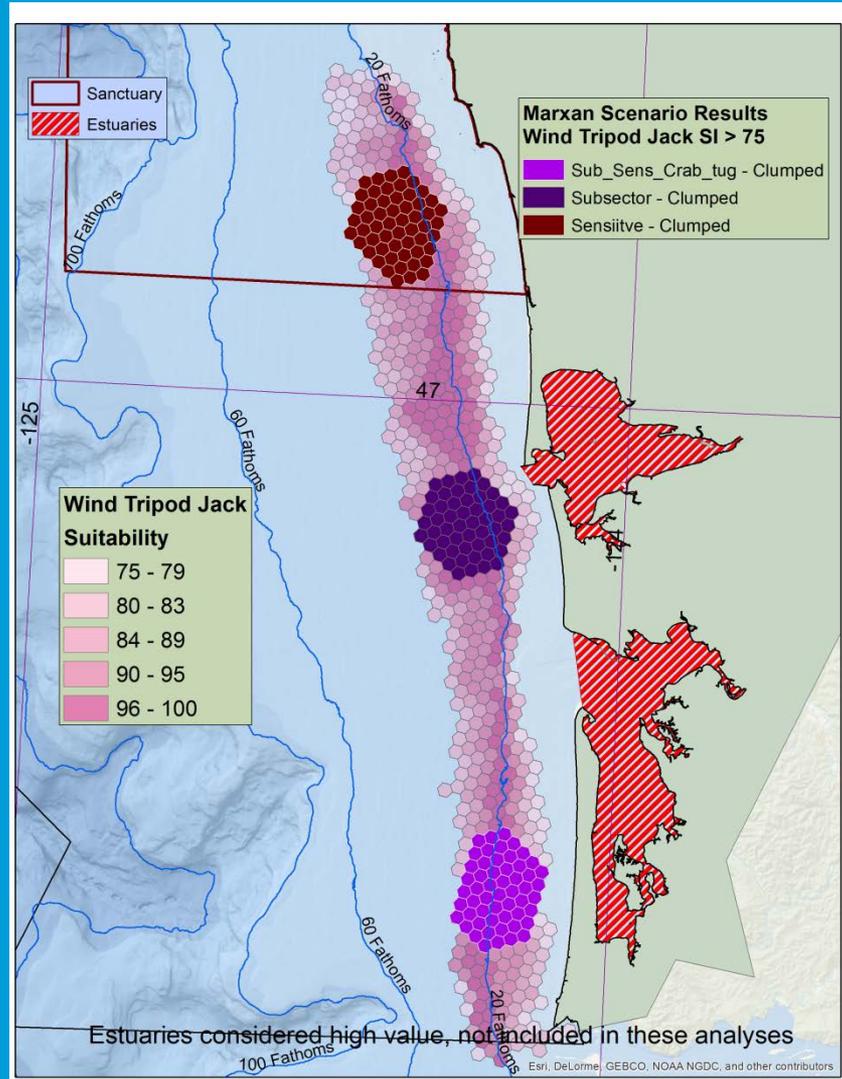
Wind Tripod Jack Suitability



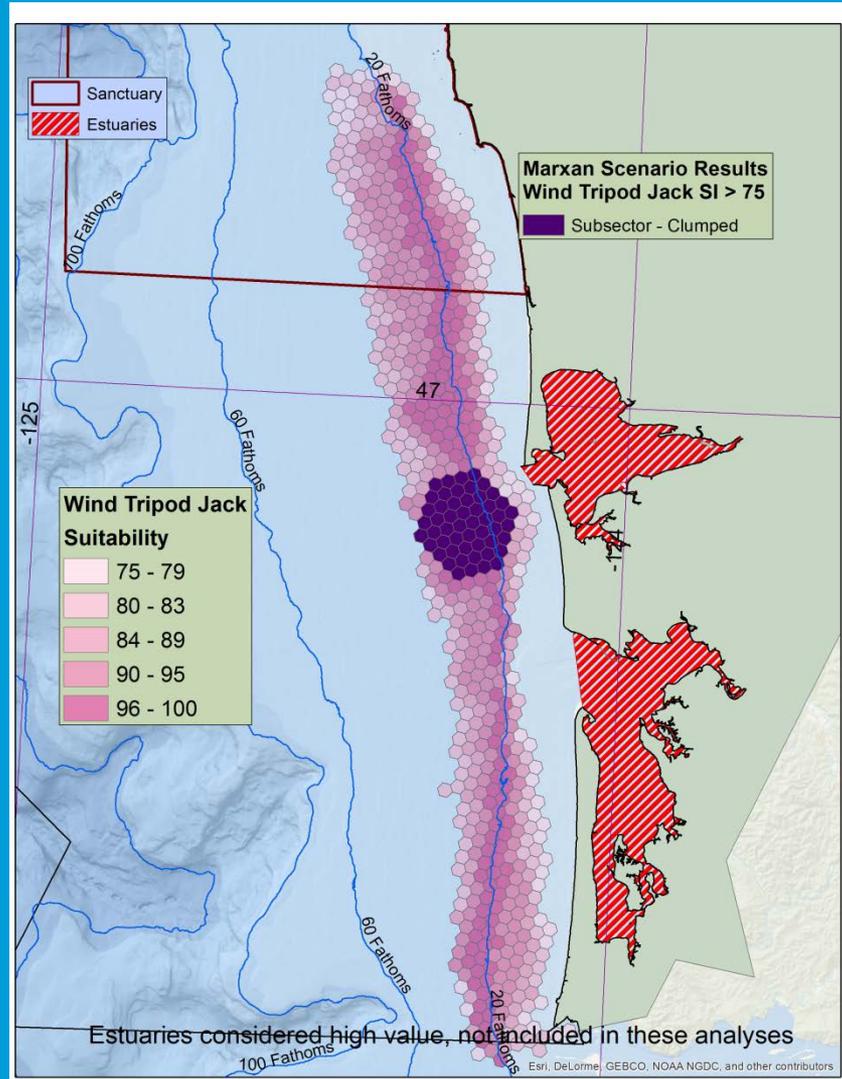
Wind Tripod Jack Suitability



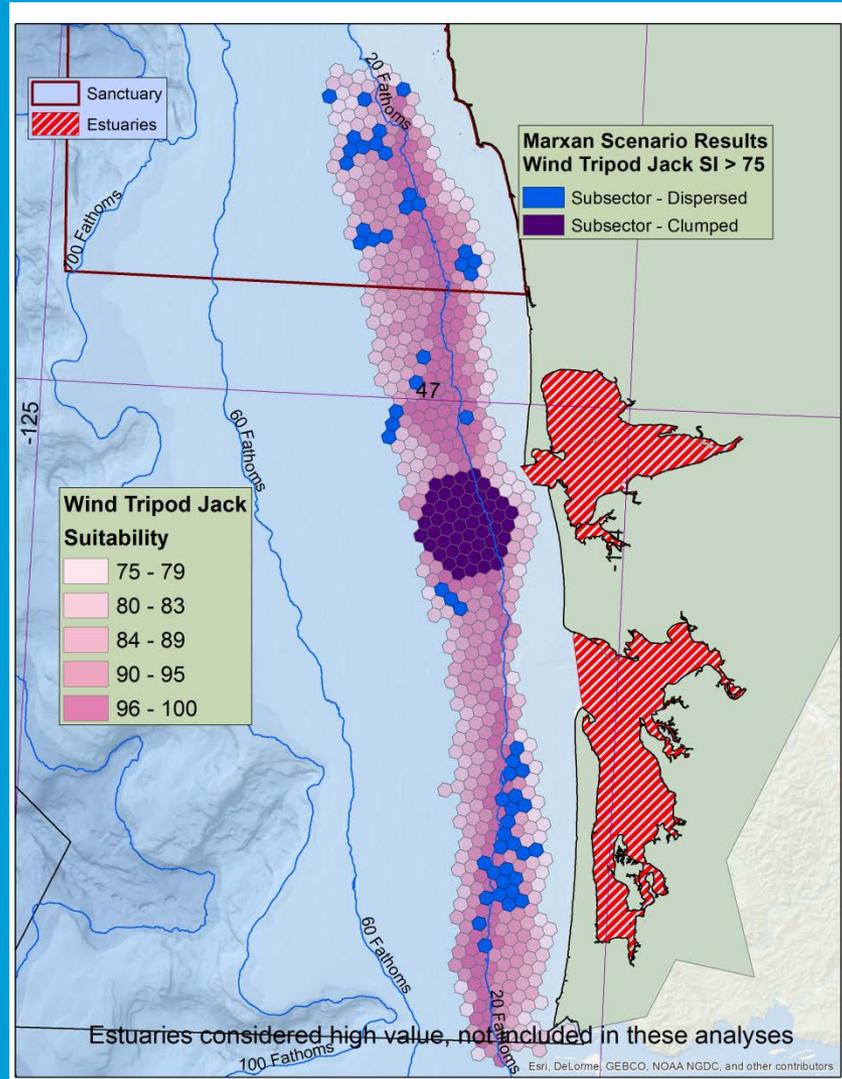
Wind Tripod Jack Suitability



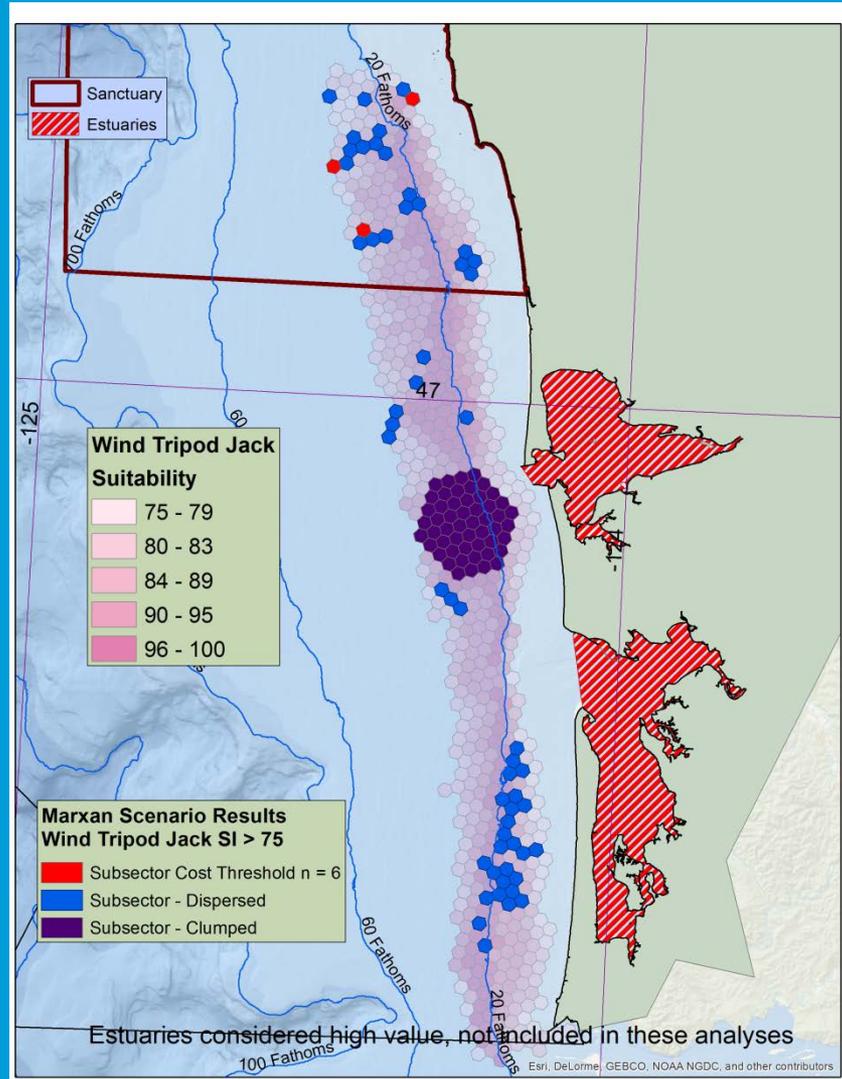
Wind Tripod Jack Suitability



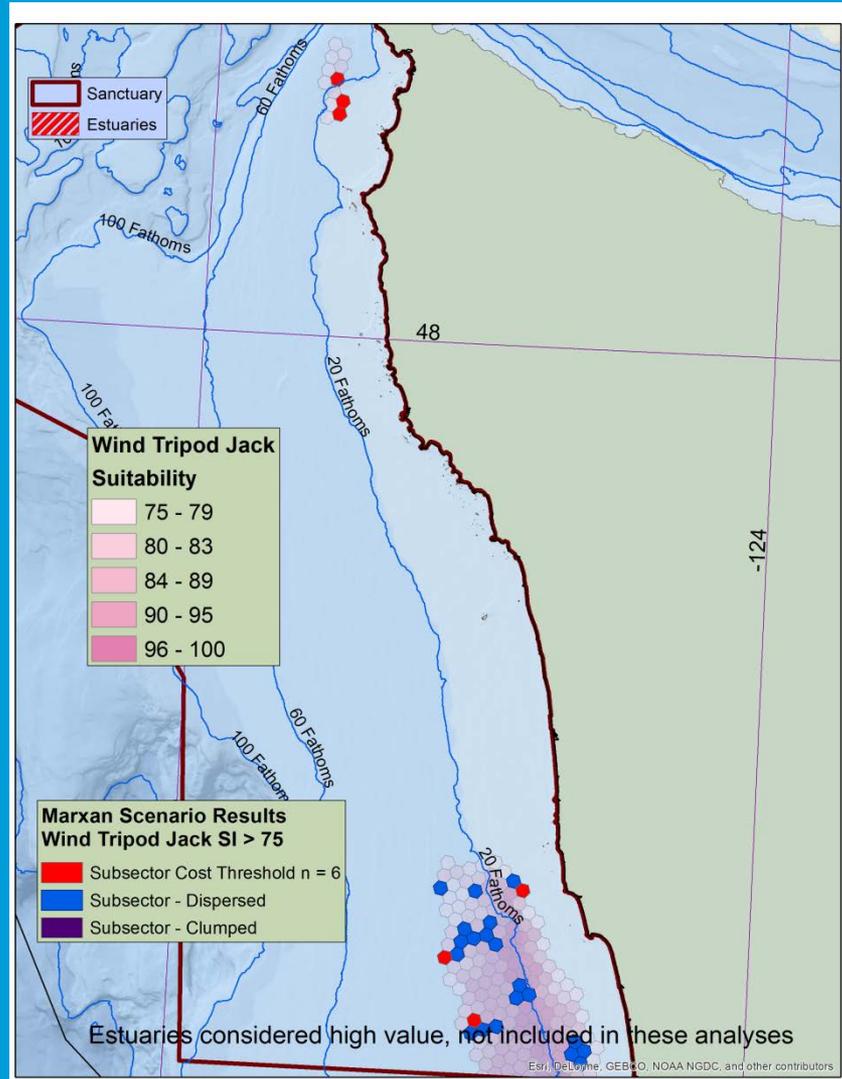
Wind Tripod Jack Suitability



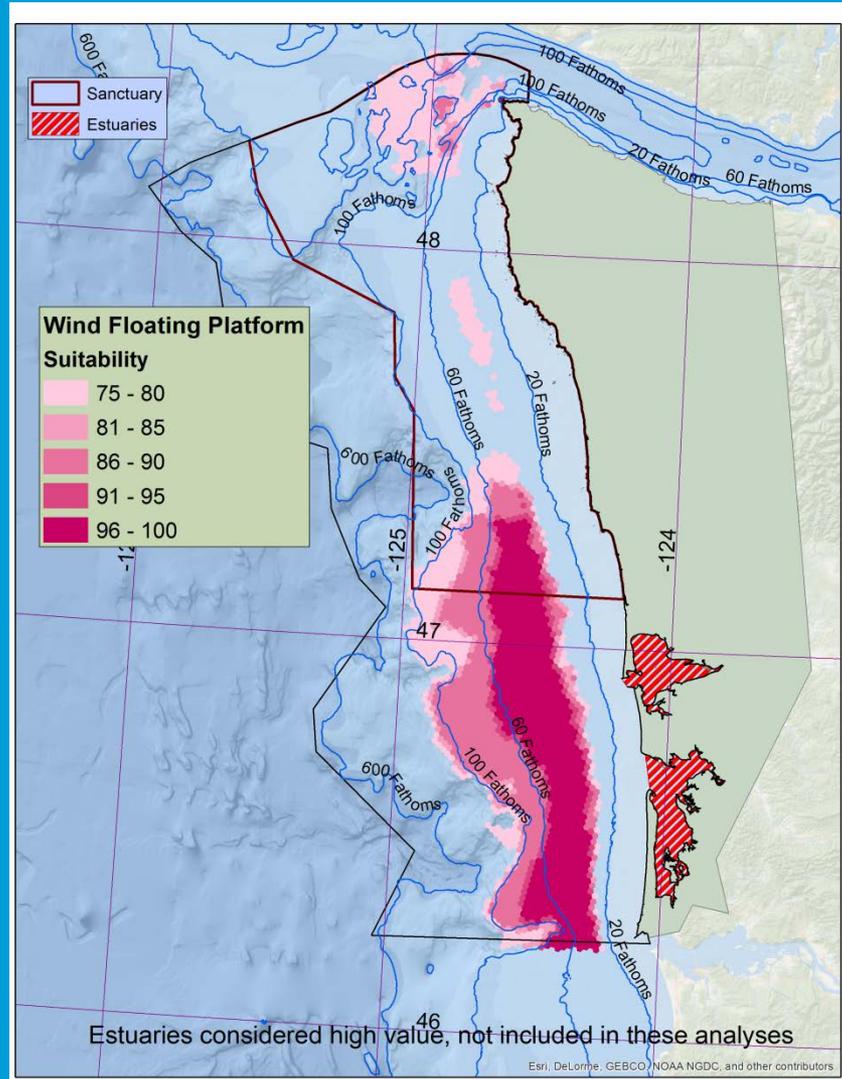
Wind Tripod Jack Suitability



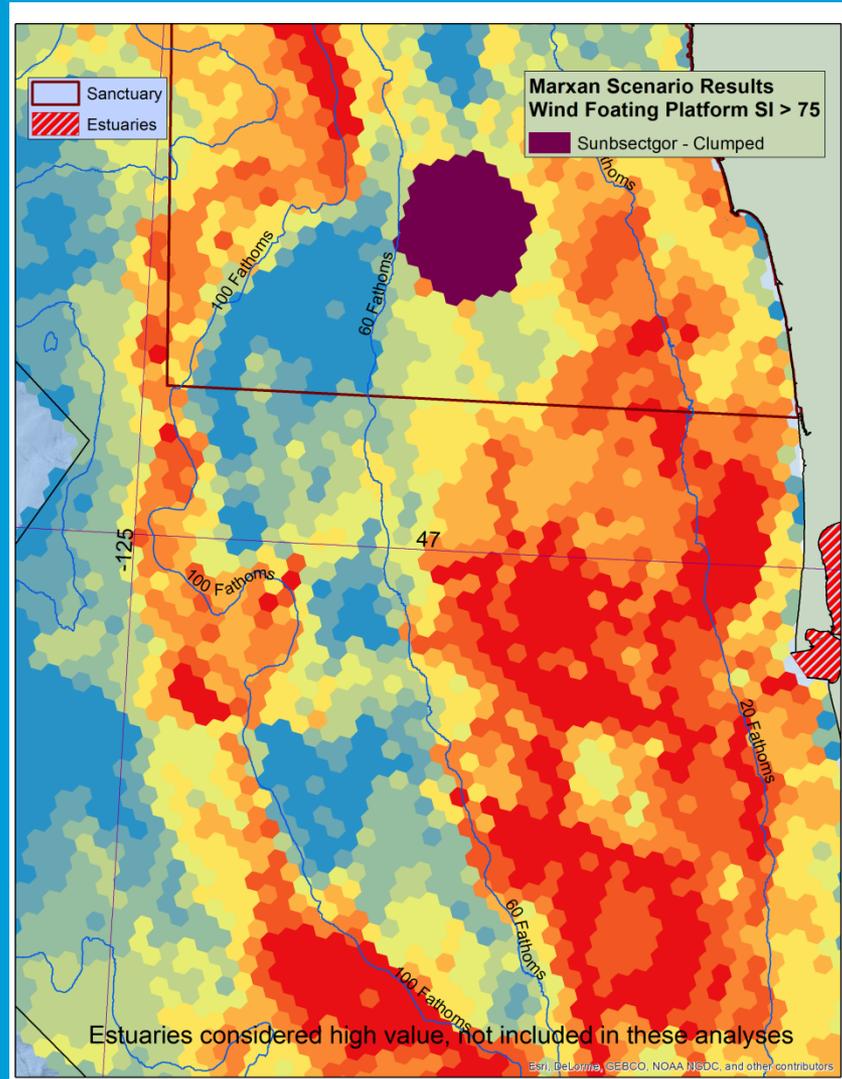
Wind Tripod Jack Suitability



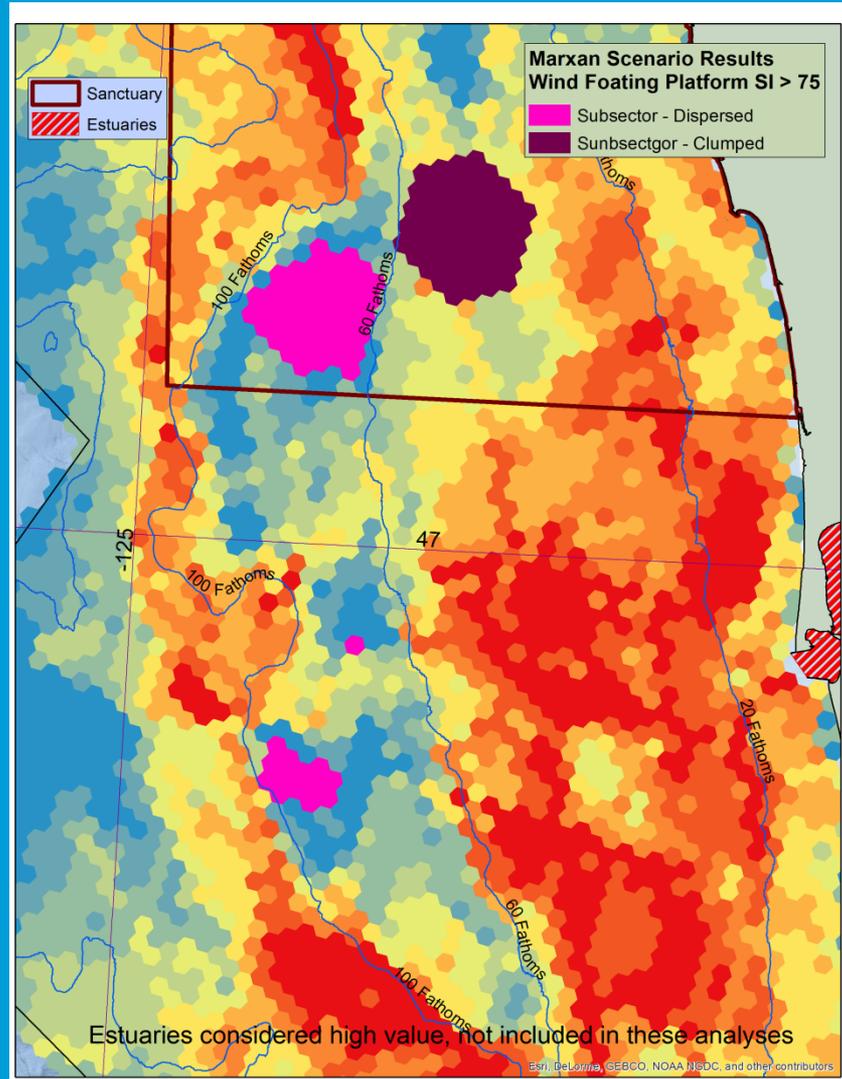
Wind Floating Platform Suitability



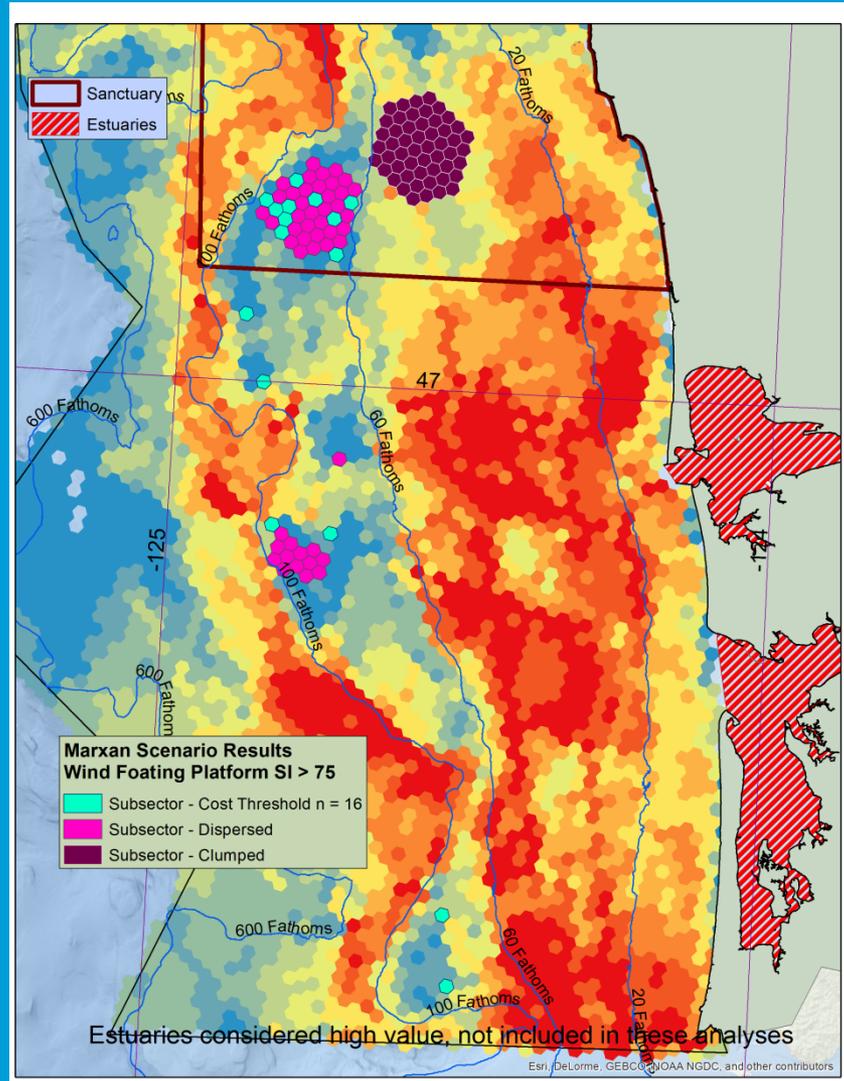
Wind Floating Platform Suitability



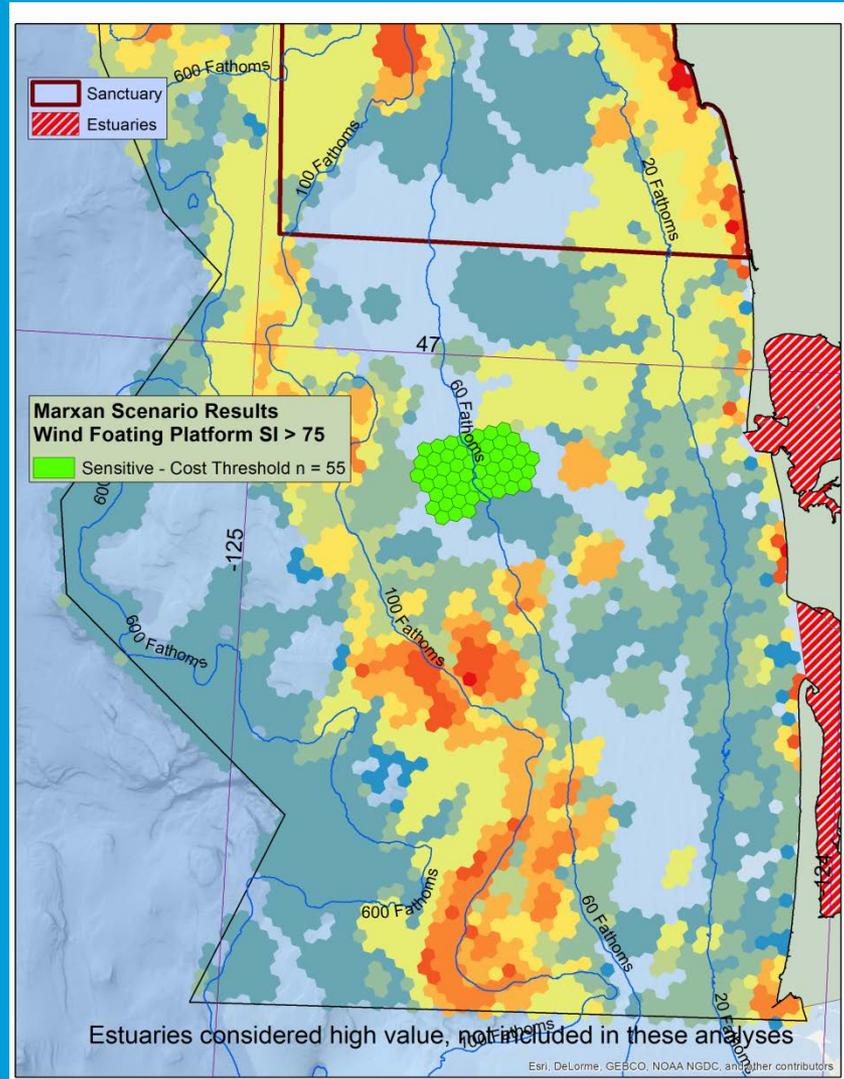
Wind Floating Platform Suitability



Wind Floating Platform Suitability



Wind Floating Platform Suitability



Wind Floating Platform Scenarios

Number of High Use Hexagons

Spp_Sector	WFP Clumped	WFP Dispersed	WFP Subsector Cost	WFP Sensitive cost
⊕ Coral		3		3
⊕ Crab EIA	7			
⊕ Darkblotched Rockfish	9	64	13	1
⊕ Dover Sole	80	12	2	3
⊕ Greenstriped Rockfish		49	8	11
⊕ Hake_Whiting EIA	28	8		34
⊕ Pacific Ocean Perch				2
⊕ Petrale Sole	46	32	3	44
⊕ Sablefish	2	14	2	3
⊕ Shrimp_EIA		34	4	28
⊕ SSPN_rank				2
⊕ Yelloweye Rockfish		21	4	1

Wind Floating Platform Scenarios

Number of High Use Hexagons

Scenario ▼				
Spp_Sector	WFP Clumped	WFP Dispersed	WFP Subsector Cost	WFP Sensitive cost
⊕ Black Footed Albatross		55	5	31
⊕ Blackfooted Albatross Winter				2
⊕ Common Murre Winter	80	15	2	22
⊕ Dalls Porpoise		17	1	11
⊕ Harbor Porpoise	1			
⊕ Humpback Whale				3
⊕ Northern Fulmar		10	1	3
⊕ Pinkfooted Shearwater	55	25	1	18
⊕ Sooty Shearwater	28			2
⊕ Tufted Puffin				3

Summary

- There is no one answer, (e.g. mid depth wind energy example)
- Model results do not account for real differences in potential impacts to uses from technologies
- No results were evaluated to determine long term sustainability of current use sectors at different development scenarios

Summary Continued

- Models can be run to range from minimal acceptable development up to maximum necessary to meet State energy Goals
- Focusing value on one use sector alone will undoubtedly have impacts to other use sectors

Summary Continued

- Some areas offer little opportunity to develop to maximum potential (i.e. nearshore wave or wind), although minimal development options may exist
- Deeper waters at the southern end of the project area offer the greatest opportunity to minimize impact to existing uses while offering access to potential renewable energy.

Questions? Discussion