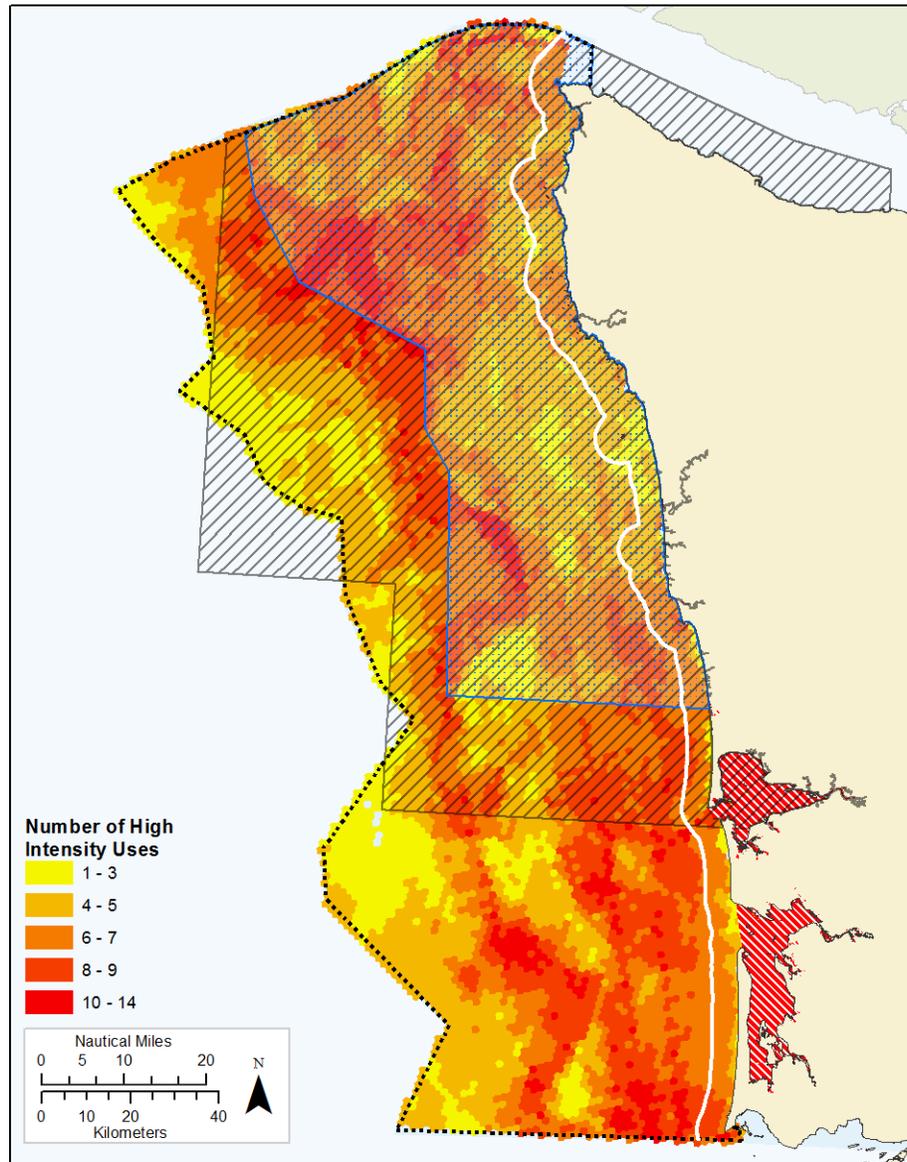# Revised maps:

Addressing comments on preliminary draft plan

Number of High Intensity Existing Uses in the MSP Study Area
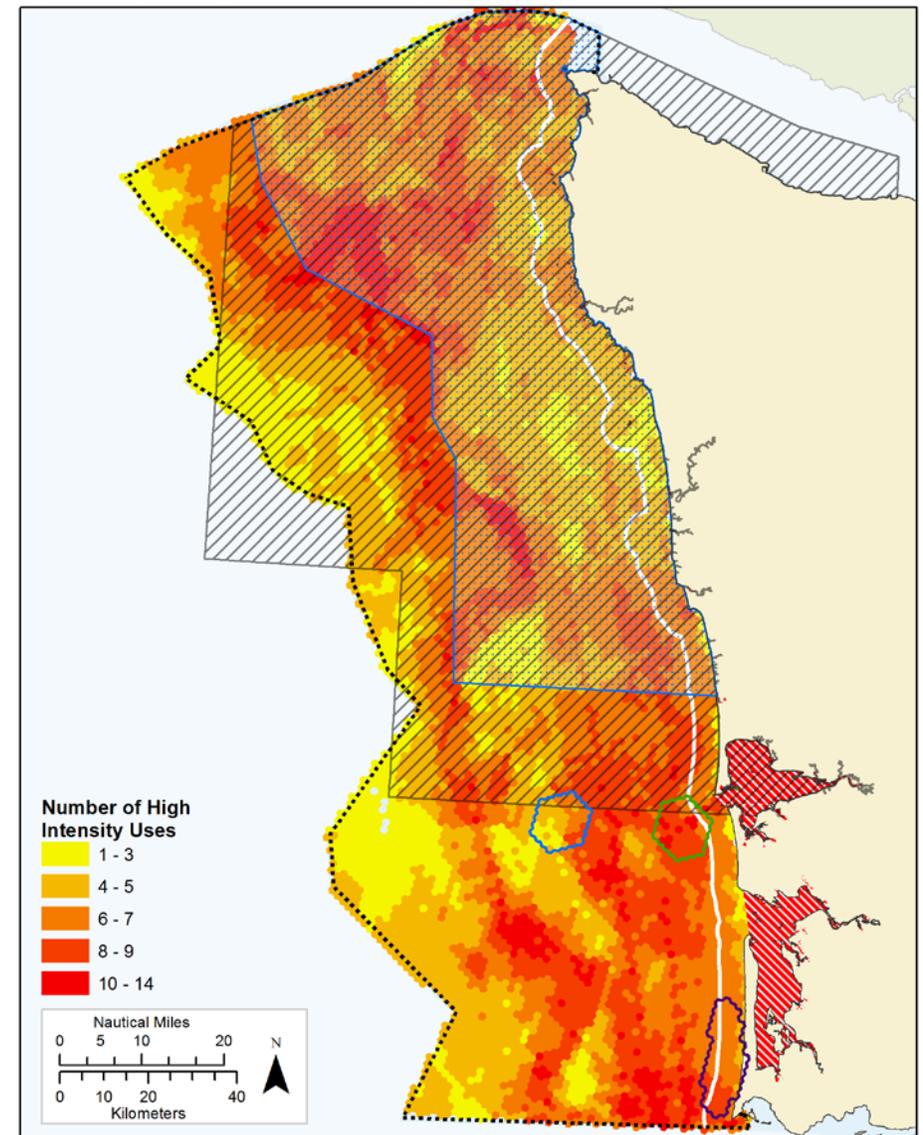

Number of High Intensity Uses
- 1 - 3
- 4 - 5
- 6 - 7
- 8 - 9
- 10 - 14

Nautical Miles
0 5 10 20

N

0 10 20 40
Kilometers

Washington MSP Study Area (State Ocean Caucus)

Combined Tribal Usual and Accustomed Areas (NOAA Fisheries, 2015)

Estuaries* (WDFW)

Olympic Coast National Marine Sanctuary (NOAA)

WA State Boundary (NOAA)

*Estuaries were not included in this map, due to inadequate comparable data across sectors. Estuaries are of high ecological importance and are heavily used by sectors such as aquaculture, which currently occurs only in these areas. Please consult other maps for available estuary data.

Map coordinate system: North American Datum of 1983 (NAD83), Washington South State Plane Coordinate System, meters. Not to be used for legal purposes.

High Intensity Existing Uses and Use Analysis Results

Number of High Intensity Uses
- 1 - 3
- 4 - 5
- 6 - 7
- 8 - 9
- 10 - 14

Nautical Miles
0 5 10 20

N

0 10 20 40
Kilometers

Washington MSP Study Area (State Ocean Caucus)

Combined Tribal Usual and Accustomed Areas (NOAA Fisheries, 2015)

WA State Boundary (NOAA)

Estuaries* (WDFW)

Olympic Coast National Marine Sanctuary (NOAA)

Use Analysis Results
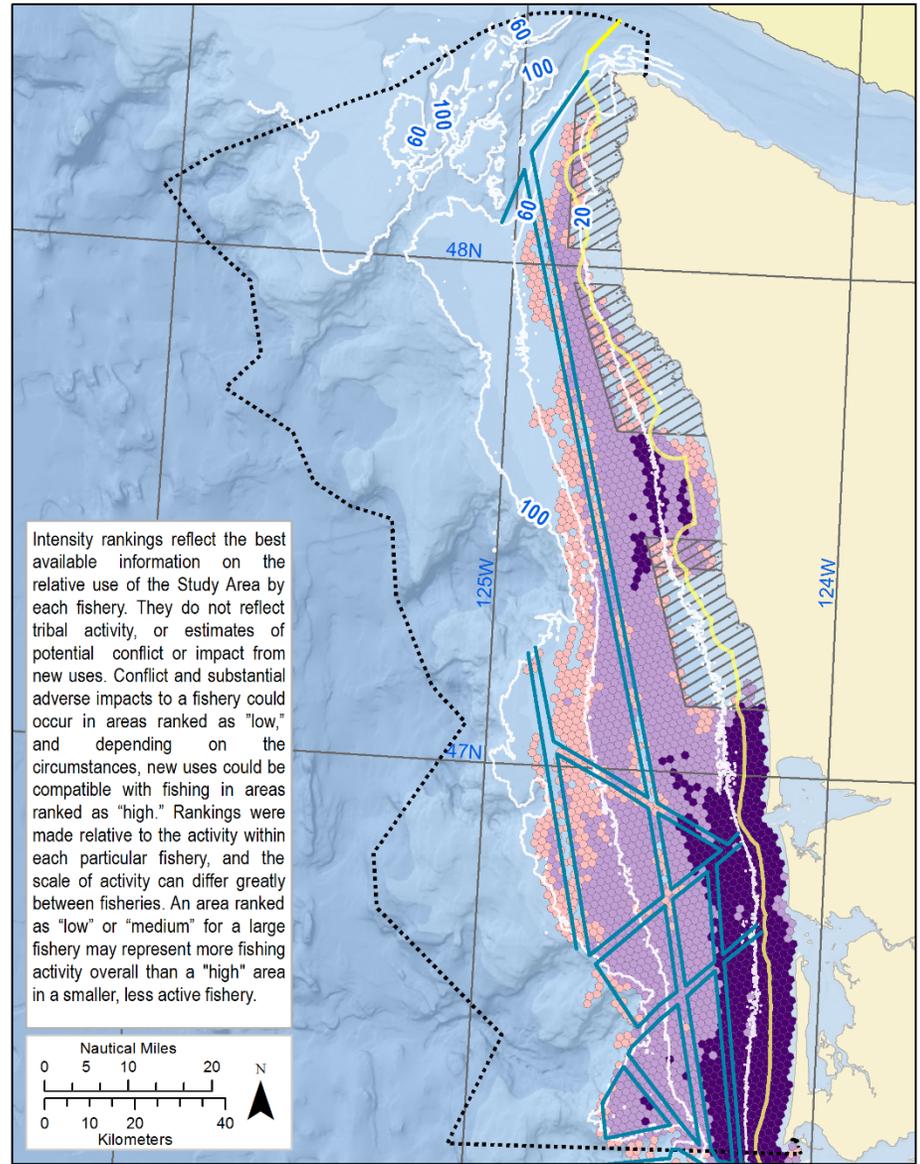- Floating Platform Wind
- Monopile Wind
- Tripod Wind

*Estuaries were not included in this map, due to inadequate comparable data across sectors. Estuaries are of high ecological importance and are heavily used by sectors such as aquaculture, which currently occurs only in these areas. Please consult other maps for available estuary data.

Map coordinate system: North American Datum of 1983 (NAD83), Washington South State Plane Coordinate System, meters. Not to be used for legal purposes.

Fishing map revisions:
- Intensity data description
- Years/source of data
- Fathom curves
- Latitude and Longitude

Map 23
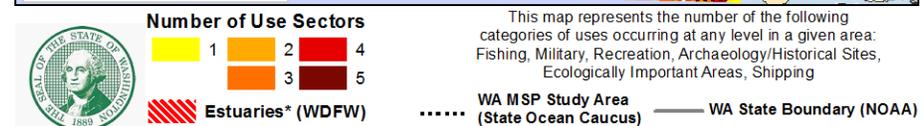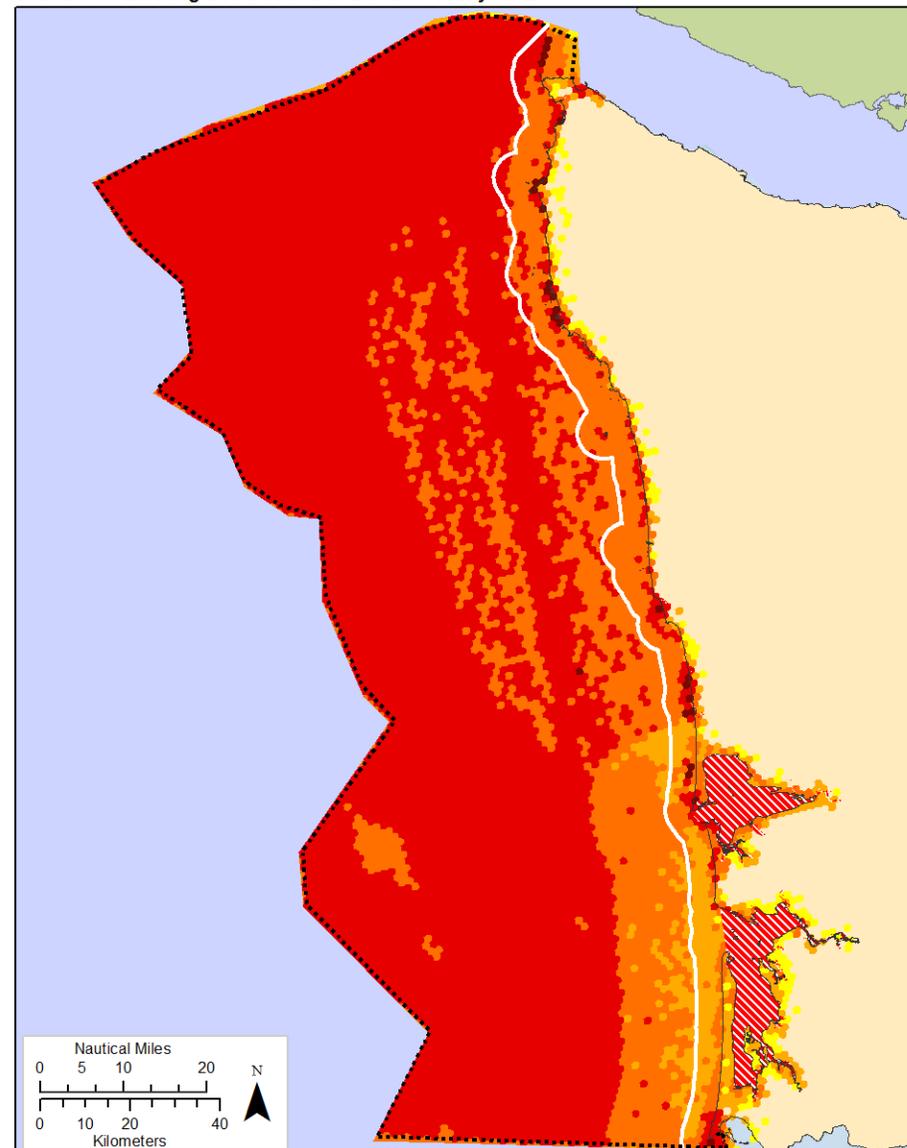**Commercial Fishing: Dungeness Crab**

Intensity rankings reflect the best available information on the relative use of the Study Area by each fishery. They do not reflect tribal activity, or estimates of potential conflict or impact from new uses. Conflict and substantial adverse impacts to a fishery could occur in areas ranked as "low," and depending on the circumstances, new uses could be compatible with fishing in areas ranked as "high." Rankings were made relative to the activity within each particular fishery, and the scale of activity can differ greatly between fisheries. An area ranked as "low" or "medium" for a large fishery may represent more fishing activity overall than a "high" area in a smaller, less active fishery.

Nautical Miles
0 5 10   20

0   10   20   40
Kilometers

N

Commercial Crabbing Intensity

Low	Medium	High

WDFW 2016, based on 5 seasons of logbook data (2009/2010 - 2013/2014 seasons).

Tribal Special Management Areas (WDFW, 2016)
Towboat Lanes (WSG)
WA State Boundary (NOAA)
Washington MSP Study Area (State Ocean Caucus)

Depth Contour in Fathoms (OSU)
Latitude and Longitude (ESRI)

Map coordinate system: North American Datum of 1983 (NAD83), Washington South State Plane Coordinate System, meters. Not to be used for legal purposes.

Number of Existing Use Sectors in the MSP Study Area

Number of Use Sectors

- 1 (yellow)
- 2 (orange)
- 3 (dark orange)
- 4 (red)
- 5 (dark red)

Estuaries* (WDFW)

WA MSP Study Area (State Ocean Caucus)

WA State Boundary (NOAA)

This map represents the number of the following categories of uses occurring at any level in a given area: Fishing, Military, Recreation, Archaeology/Historical Sites, Ecologically Important Areas, Shipping

Nautical Miles
0 5 10   20

Kilometers
0 10 20   40

N

*Estuaries were not included in this map, due to inadequate comparable data across sectors. Estuaries are of high ecological importance and are heavily used by sectors such as aquaculture, which currently occurs only in these areas. Please consult other maps for available estuary data.

Map coordinate system: North American Datum of 1983 (NAD83), Washington South State Plane Coordinate System, meters. Not to be used for legal purposes.

Understanding the Ecologically Important Areas off the Washington Coast: A Forthcoming Report

PRESENTED BY

Claire Dawson

'16-17 Hershman Marine Policy Fellow

May 10th, 2017 WCMAC Meeting Aberdeen, WA

The Nature Conservancy
Washington

PURPOSE OF THE COMPARISON REPORT

- EIAs by WDFW are intended as "one of several sources" used to inform the ecology off the Washington Coast.

- The ERA by TNC "This assessment is a spatially explicit, quantitative analysis of biological diversity on the west coast … and can be used to guide planning processes and inform conservation planners and decision-makers"

- TNC is building a contextualized knowledge base on MSP in various country and regional programs relating to EIAs and other aspects of habitat protection in MSP.

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- Understand the importance and distribution of Ecologically Important Areas (EIAs) in the Washington MSP

- Compare the Hotspot map to TNC's 2013 "Ecoregional Assessment of the California Current" Map 8: Irreplaceability Scenario

- Strengthen what we know, address what we don't

- Lay the foundation for potential grant applications for gathering new science

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- Areas are "ecologically or biologically important" because of the higher potential for, or more lasting consequences of, harm at that location, AND the greater potential for long-term benefits to be obtained by effective management. (DFO, Canada).

- EIAs ARE: representative of the natural component of the system (ecological uses and processes) that may affect existing/future human uses

- EIAs ARE NOT: a representation of current human uses.

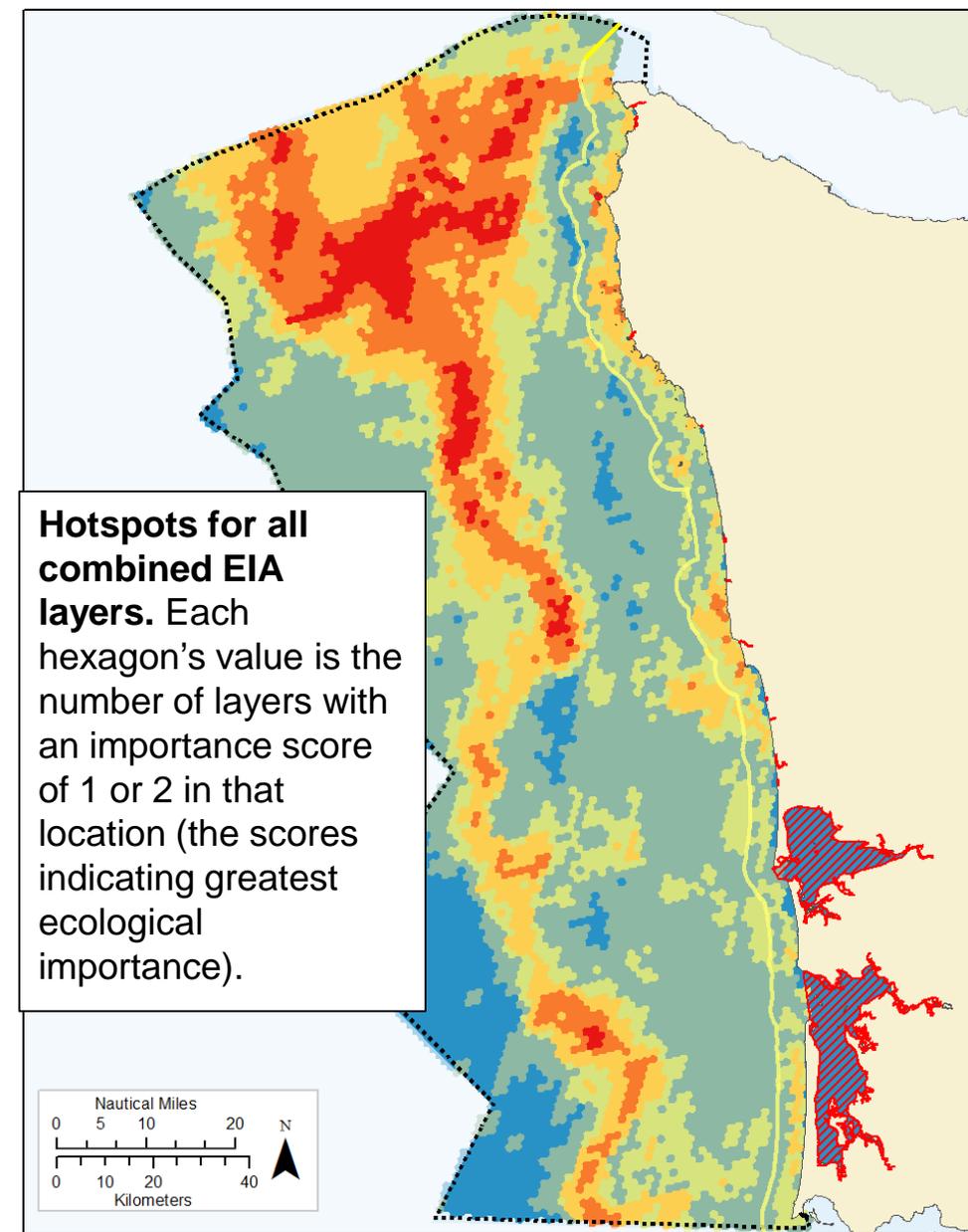- EIAs are the voice for ecological function in the Use Analysis

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- Maps must show "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" (RCW 43.372.040)

- Base all planning on **best available science**. This includes **identifying gaps** in existing information, recommend a **strategy for acquiring science needed** to strengthen marine spatial plans, and create a process to adjust plans once additional scientific information is available;" -RCW 43.372.005(3)(b)

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- Hexagons important across multiple individual layers may indicate higher ecological activity than those important to fewer (39 total layers shown here).

- Areas of importance are along the continental shelf break and at the heads of submarine canyons.

- Hotspot map shown here was boiled down to scores for subsectors (8) to be used in Use Analysis to ensure the # of layers in EIA does not outweigh other existing use data (while displaying similar patterns).


Hotspots for all combined EIA layers. Each hexagon's value is the number of layers with an importance score of 1 or 2 in that location (the scores indicating greatest ecological importance).

Nautical Miles
0 5 10 20
0 10 20 40
Kilometers
N

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Fish and Wildlife Hotspots
Number of Layers Ranked 1 or 2

| 0 - 2 | 6 - 7 | 11 - 13 |
| 3 - 5 | 8 - 10 | 14 - 18 |

······· Washington MSP Study Area[1]
——— WA State Boundary[2]
▨ Estuaries

Map coordinate system: North American Datum of 1983 (NAD83), Washington South State Plane Coordinate System, meters. Not to be used for legal purposes.

- Scores indicate the conservation or biodiversity value of a unit determined by the # of times Marxan selects that unit in the solution (equal suitability).

- Important areas include continental shelf break, heads of submarine canyons.

- Nearshore: seabird colonies, islands, kelp and marine mammals drove clumping

- Offshore: rocky reefs partially drove clumping as important habitat

- High degree of clumping may indicate where data exists over lack of data
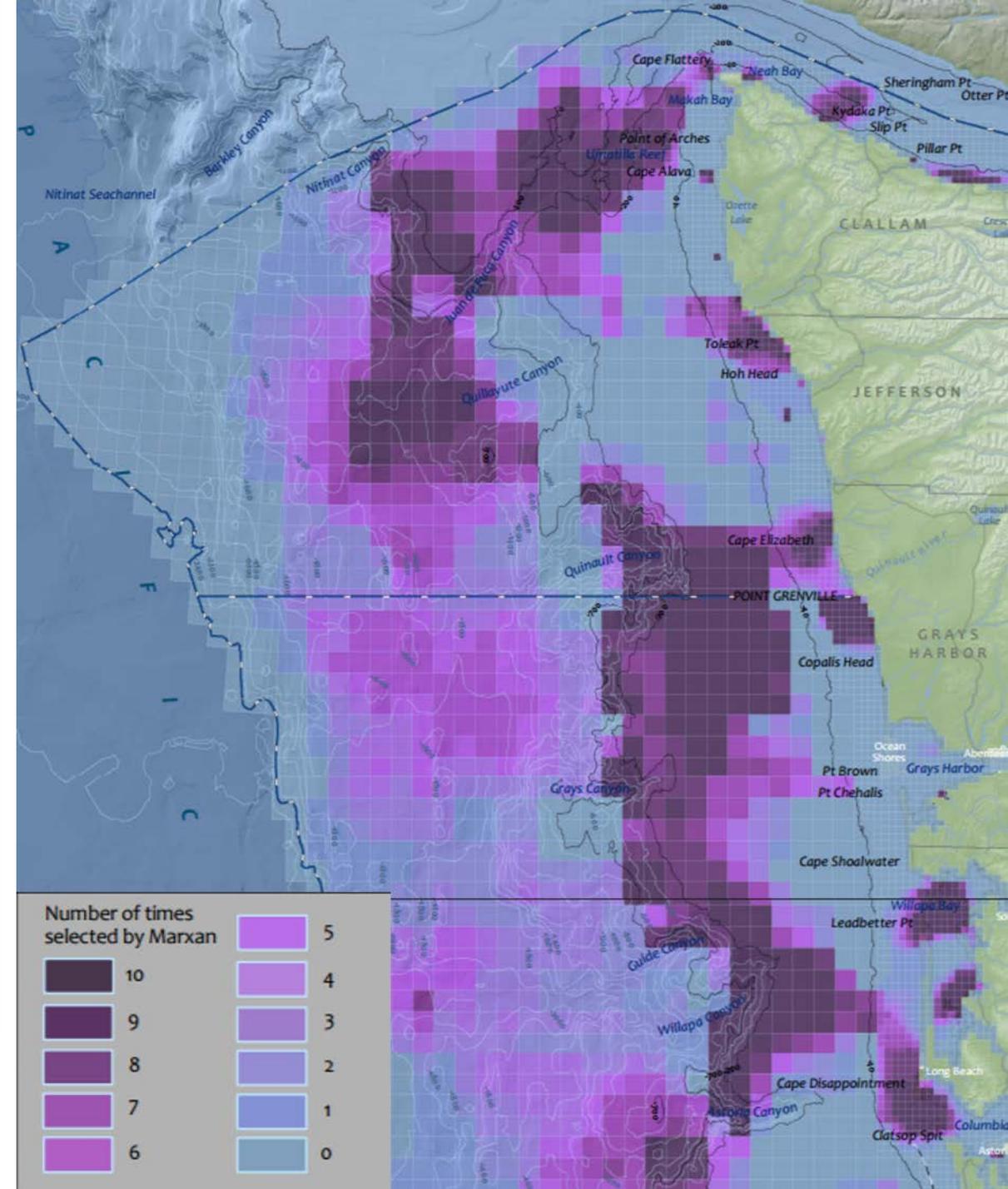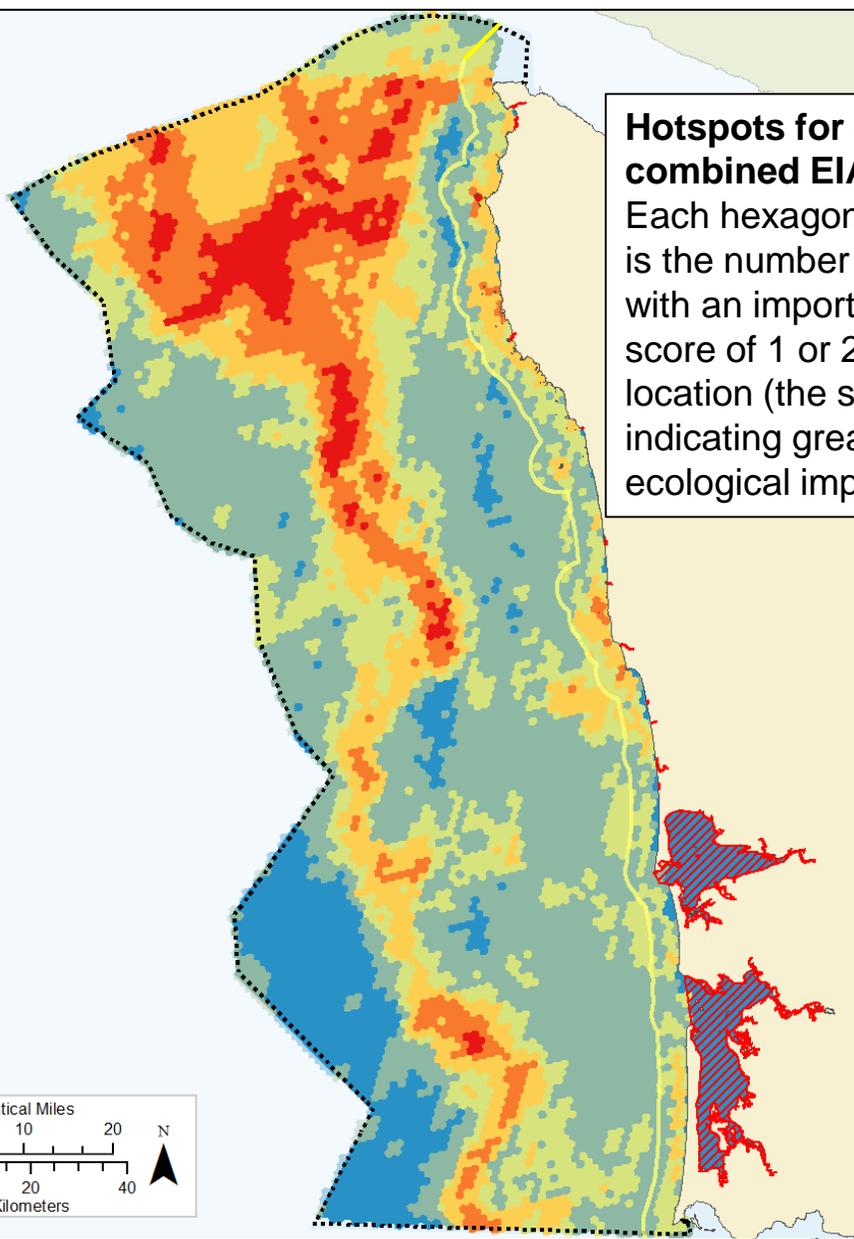
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Number of times selected by Marxan

10	5
9	4
8	3
7	2
6	1
	0

Hotspots for all combined EIA layers. Each hexagon's value is the number of layers with an importance score of 1 or 2 in that location (the scores indicating greatest ecological importance).
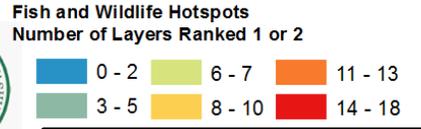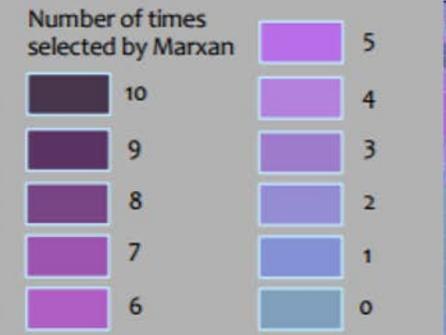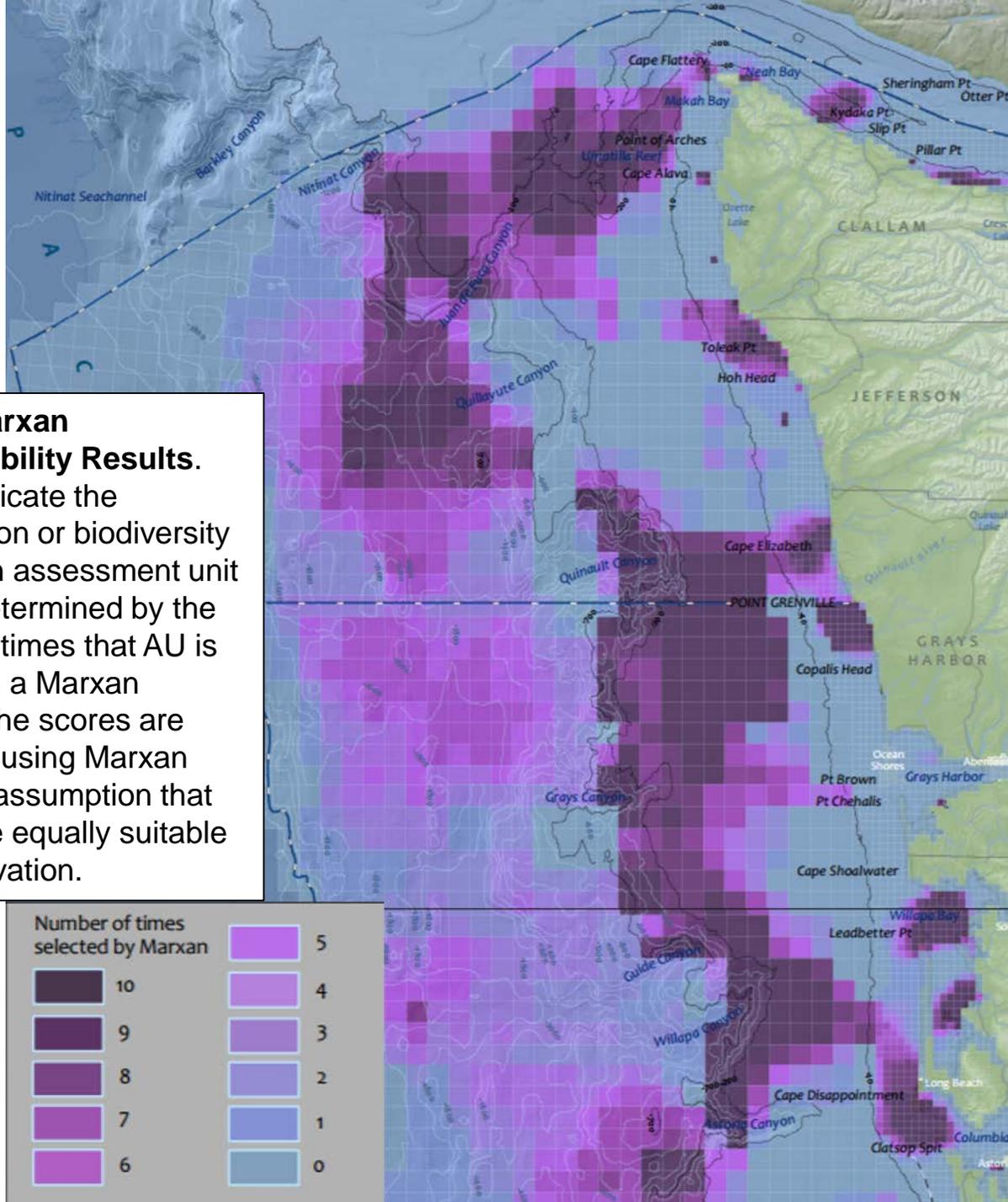
Map 8: Marxan Irreplaceability Results. Scores indicate the conservation or biodiversity value of an assessment unit (AU) as determined by the number of times that AU is selected in a Marxan solution. The scores are generated using Marxan under the assumption that all AUs are equally suitable for conservation.

Nautical Miles
0 5 10 20
N

0 10 20 40
Kilometers

Fish and Wildlife Hotspots
Number of Layers Ranked 1 or 2

0 - 2	6 - 7	11 - 13
3 - 5	8 - 10	14 - 18

········· Washington MSP Study Area¹
—— WA State Boundary²
▨ Estuaries

Map coordinate system: North American Datum of 1983 (NAD83), Washington South State Plane Coordinate System, meters. Not to be used for legal purposes.

Number of times selected by Marxan

10	5
9	4
8	3
7	2
6	1
	0

Data Gaps and Limitations to Explore

- Significant gaps exist in biological data available. Data availability is skewed towards species of commercial or conservation importance
  - E.g. fish data is biased as it was collected by people looking for fish, and not random sampling.
- "Time Budget" of several key species remains unknown.
  - Data collection during winter months is difficult, and any data collection off the coast is very expensive
- Impacts of climate change remain unknown on species abundance and distribution
- Connectivity between habitats is important and difficult to map, linked to the "Time Budget"

The Nature Conservancy
Washington

Thank You!

Questions? Comments?
Email me: claire.dawson@tnc.org
Important Links:
(1) WDFW. (2015). *An Approach for Mapping Ecologically Important Areas Off the Washington Coast.*
(2) TNC. (2013). *Pacific Northwest Marine Ecoregional Assessment.*

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