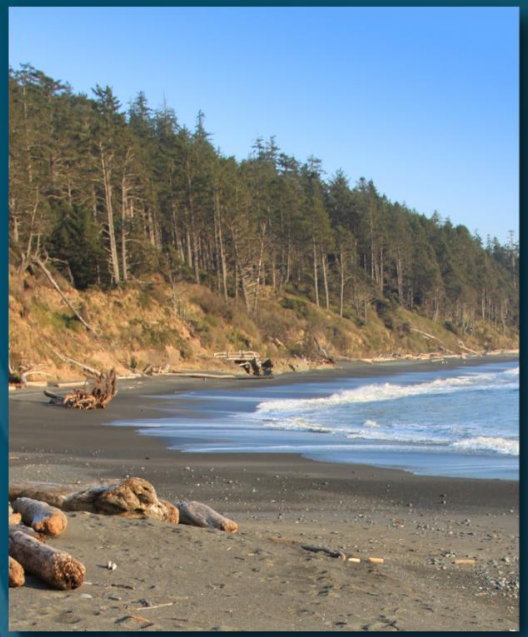
MARINE SPATIAL PLANNING
Economic Analysis Study Update



Prepared for:
Washington Coastal Marine Advisory Council

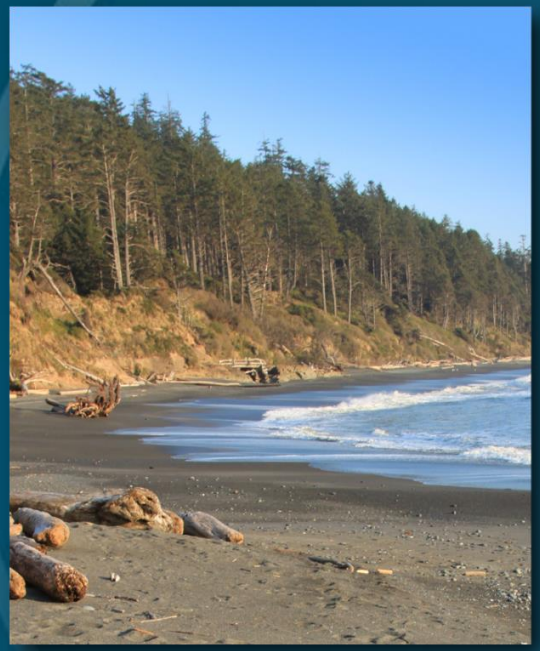
Presented by:
Cascade Economics LLC

Purpose

- The economic analysis should develop the tools and data to evaluate the economic consequences of proposals and planning options for "new uses."
  - The analysis is intended to "foster and encourage sustainable uses that provide economic opportunity without significant adverse environmental impacts." (RCW 43.372.040)

Overview of Study Schedule

- Public Scoping Workshop – Oct. 7, 2014
- Comments / Revised Scope of Work
- Study Initiated – Nov. 1, 2014
- Data Collection / Focus Group Meetings / Modeling / Analysis / Report Writing
- Draft Report – due May 15, 2015
- Review by WCMAC / Address Comments
- Presentation – June WCMAC Meeting
- Final Report – due by June 30, 2015



Summary of Component Investigations

Economic Profile of the Coast

- Compiled population, labor statistics, and wage & income characteristics for county profiles. Crosscheck with REIS, BEA, WA Employment Security.
- Reviewed industry studies to develop complete profile of industries in the MSP area: fishing, port/shipping studies, forest industry, other industry level studies.
- *In process:* Trends affecting coastal economy; near-term economic conditions for major sectors.

Economic Profile of Tribal Communities

- Compiled population, labor statistics, and wage & income characteristics for tribal profiles.
- Reviewed Comprehensive Economic Development Strategy (CEDS) reports and other studies for coast Tribes.
- Direct interviews with some Tribes.
- *In process:* Trends affecting coastal economy; near-term economic conditions for major sectors.
- Additional tribal interviews.

Commercial Fishery Profile of the Coast

- Obtained Washington commercial fisheries landings data from WDFW; developing profile of commercial fisheries by species, ports of landing, processors, market forms, and markets.
- Developed expenditure pattern worksheets based on data from NMFS NW Fisheries Science Center.
- Conducted meetings with salmon, crab, shrimp, and groundfish vessel operators.
- Conducted meetings with seafood processors.
- *In process:* Estimating economic contribution and quantitative impacts by location of proposed uses.

Shellfish Aquaculture on the Coast

- Developing profile of aquaculture production, processing, and markets, including future trends.
- Focus group with sector representatives to review results of PSI/NEI 2013 study.
- Conducted interviews in Willapa Bay with growers who also process and distribute product.
- *In process:* Waiting on remaining surveys, finalize profile

Ecosystem Services Values

- Collected concept studies, and site specific valuation studies for WA coast, elsewhere in WA, and other states
- *In process:* identify coastal sites that are providers of relatively high level of ecosystem services.

Recreational Fishing

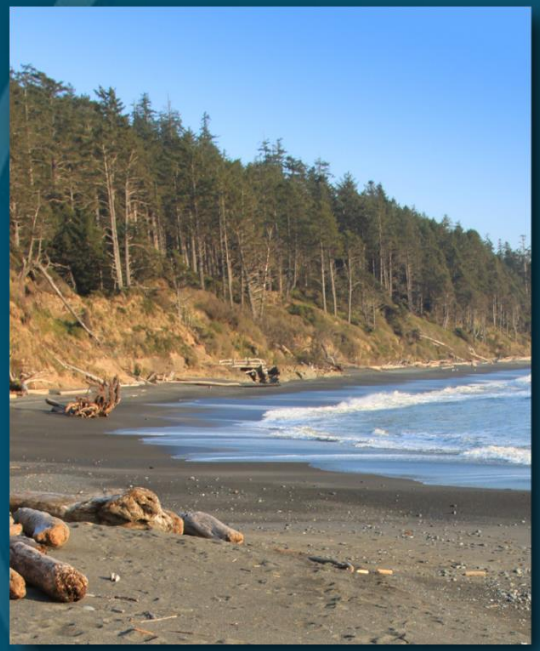
- Obtained Washington Coast recreational fisheries angler trip counts from WDFW.
- Compiled recreational fisheries catch and effort data by port area along the WA coast
- Interviewed six (6) charter boat operators in Westport and Ilwaco on expenditure patterns.
- *In process:* Incorporating participation rates, spending profiles by activity type, and trends.
- Estimating economic contribution.

Recreation and Tourism

- Conducted extensive research on recreational and tourism activities in 33 coast communities
- Compiled origin/destination information pertaining to recreation/tourism visits to the WA coast.
- Prepared GIS base maps for displaying origin/destination patterns.
- *In process:* Compiling/sorting data collected in the 2014 Surfrider Recreation Survey for purposes of developing recreation spending-related profiles.
- Research future trends, incorporating broader regional or national research on participation.

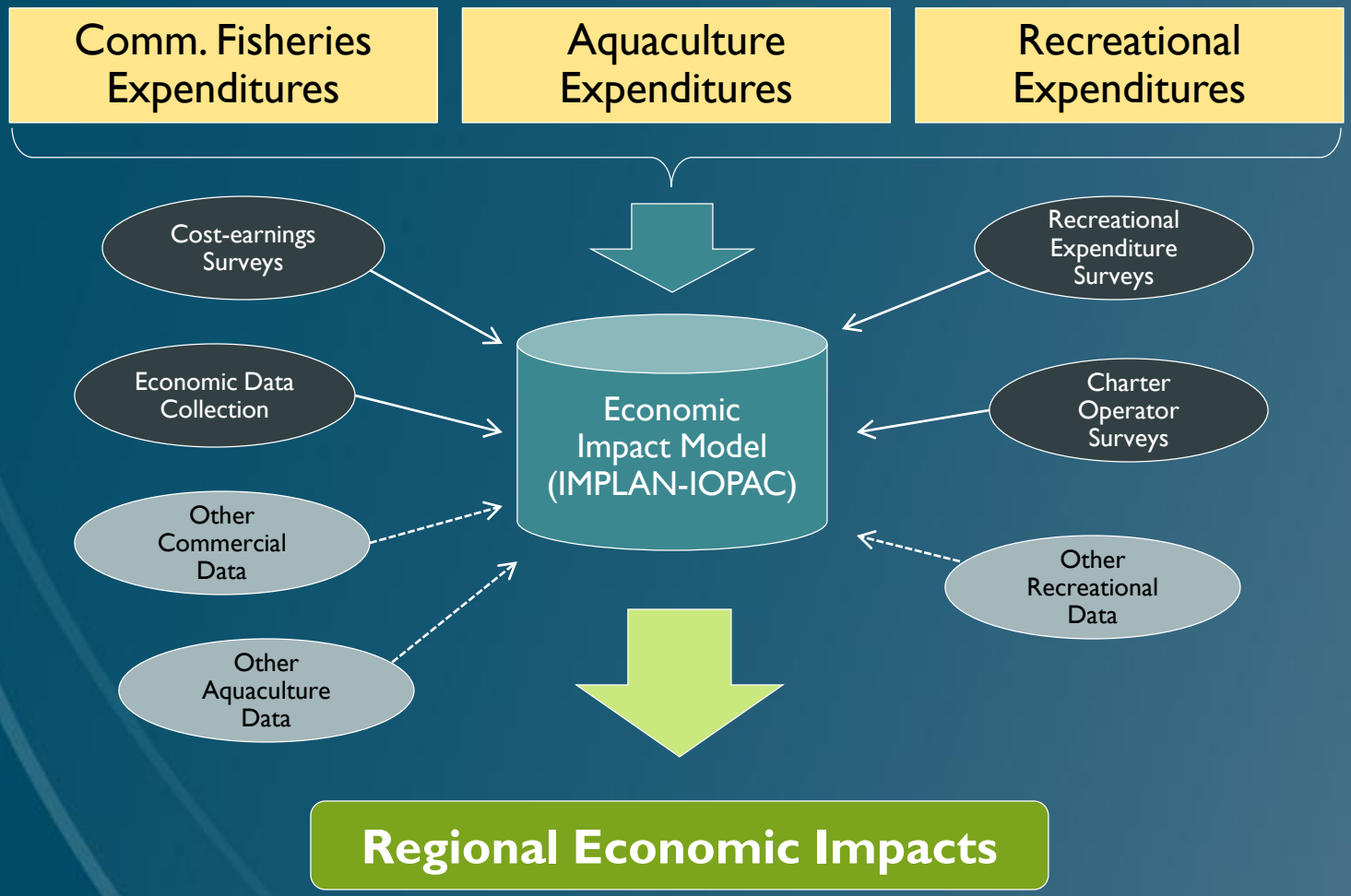
Social and Cultural Profiles

- Reviewed literature and on-going project work on coastal community indicators and impacts.
- Developed list of relevant indicators, in coordination with Social Indicators Development Process by WA Sea Grant.
- Developed survey of potential social/human well-being impacts from new potential "new uses."
- *In process:* Implementing on-line key informant survey.



Economic Impact Measurement

Data for Economic Impact Modeling

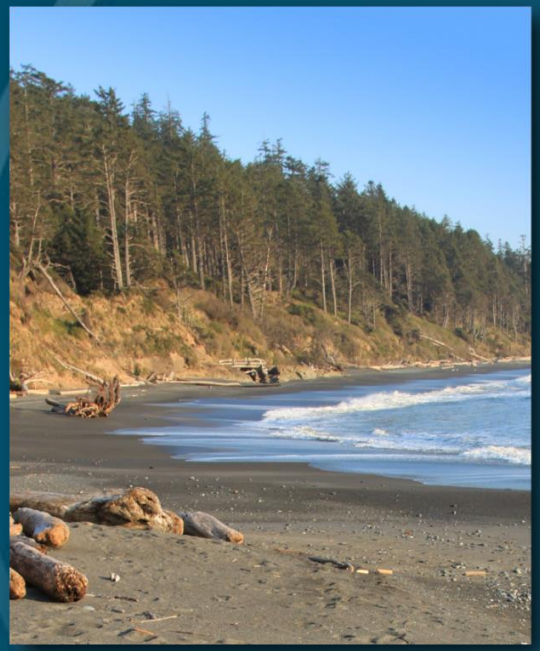


Regional Impact Models

- Constructed Coast-wide IMPLAN Model
  - Pacific, Grays Harbor, Jefferson, Clallam, Wahkiakum counties combined
- Constructed State-wide IMPLAN Model
  - Captures effects of coast activity within larger area
- *In process:* Validation and incorporating expenditure pattern data from fishing, aquaculture, recreation, and rec. fishing

Scenarios for Impact Analysis

- Scenarios refer to potential new uses of Washington's coastal waters
  - Marine Renewable Energy (Wind, Wave, Tidal)
  - Aquaculture (new types, locations)
  - Mining
  - Bioextraction
  - Dredge Disposal (in new locations)
- *In process:* Coordinating with key informants on project specifics for qualitative analysis



Wrap Up & Questions

"Total" Economic Impacts

- Direct Effects
  - Original round of expenditures
- Indirect Effects
  - Spending by businesses that sell to the directly-affected businesses (subsequent rounds)
- Induced Effects
  - Additional economic activity generated by local households' spending of wages and profits

Washington's Changing Energy Picture

David Byers
Response Manager, Spills Program

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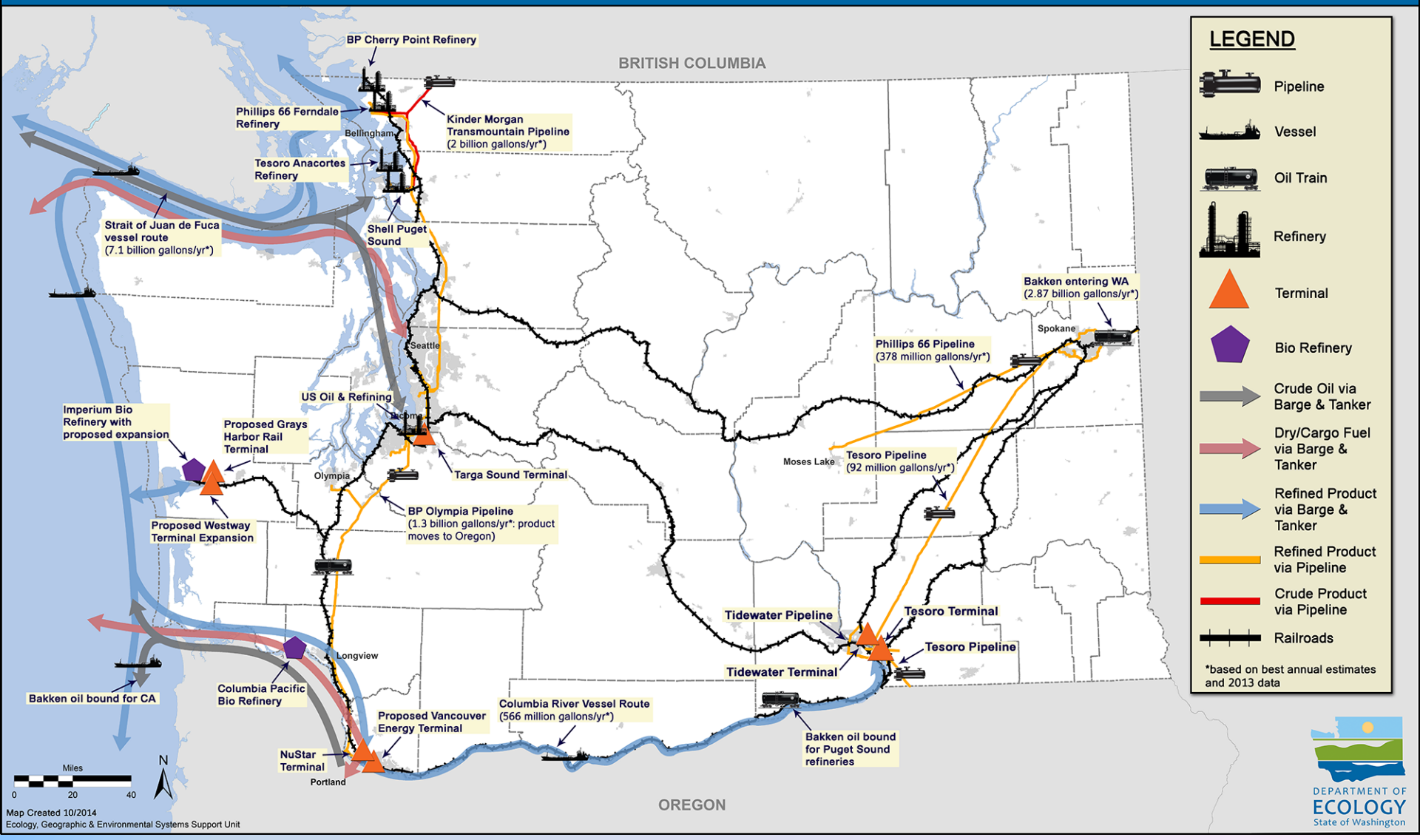
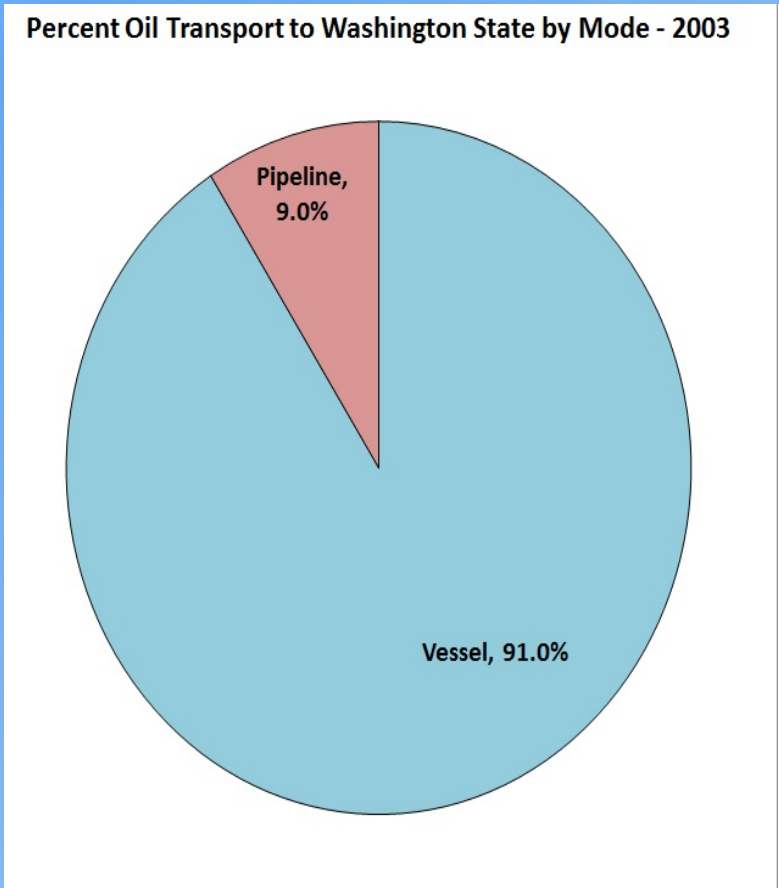
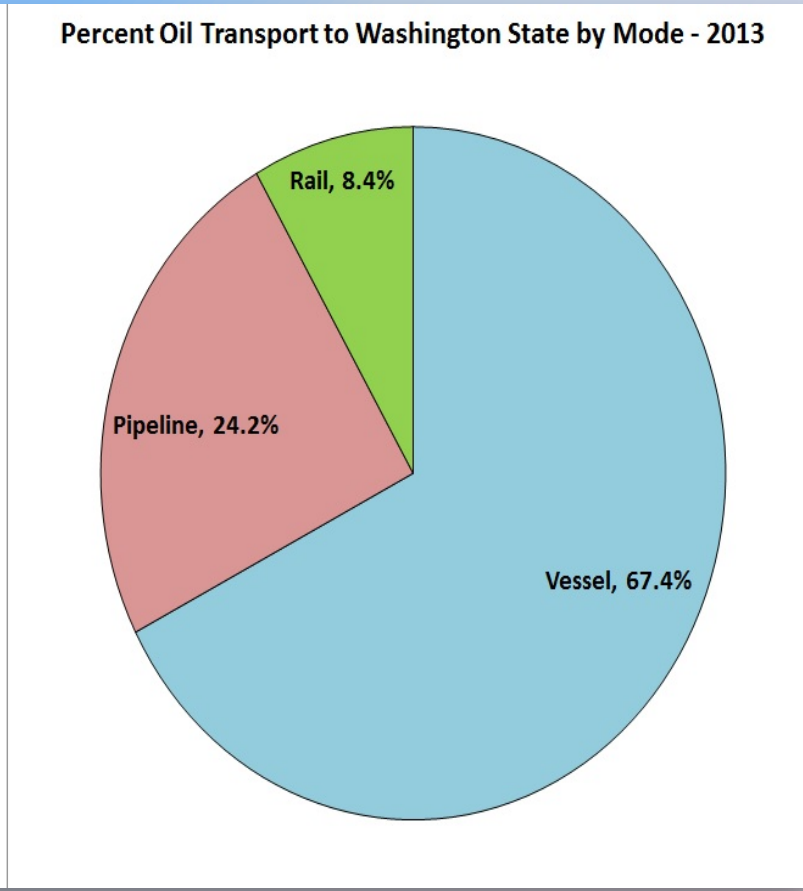
Oil Movement In & Out of Washington State

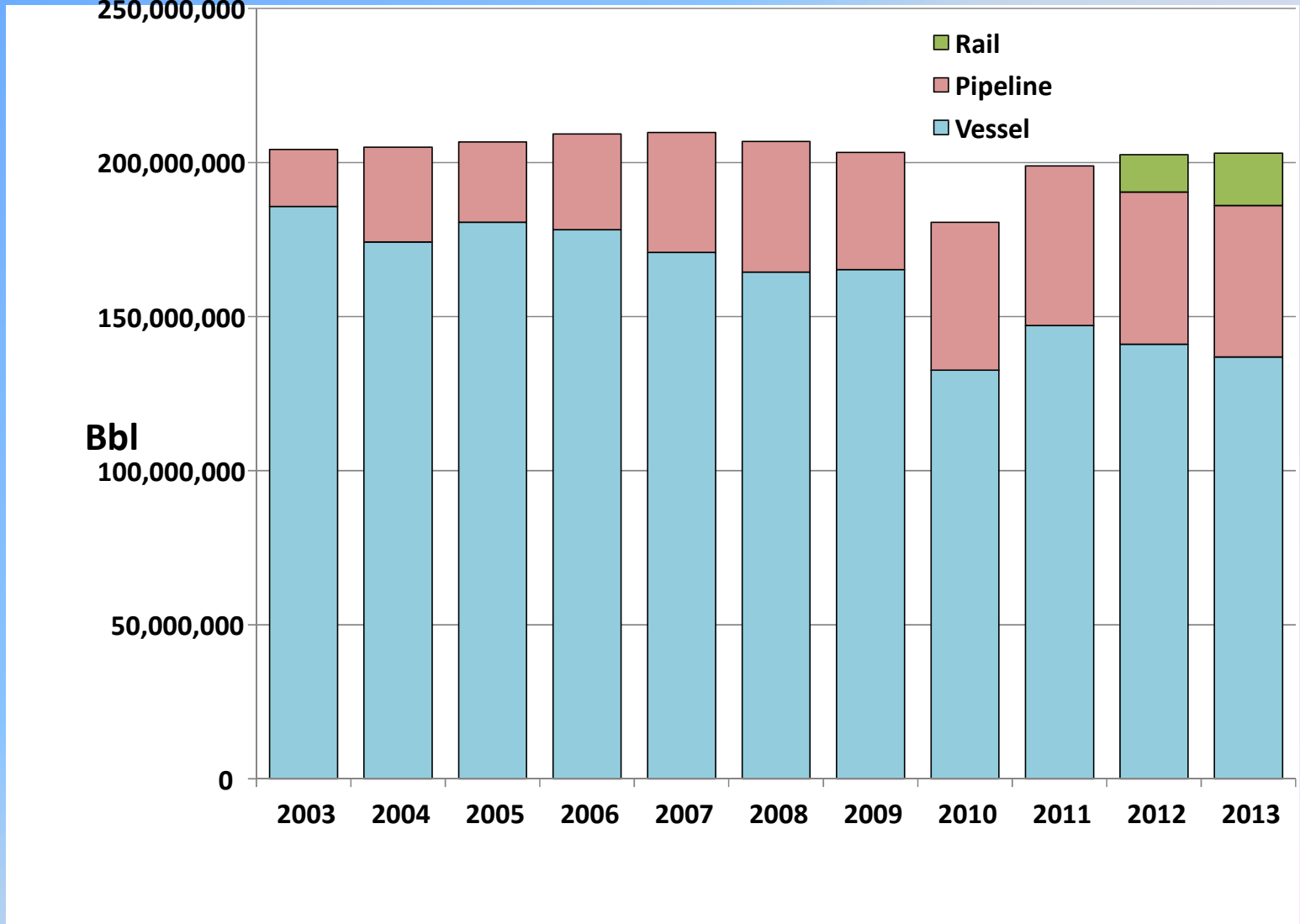


First Oil Train in WA 2012





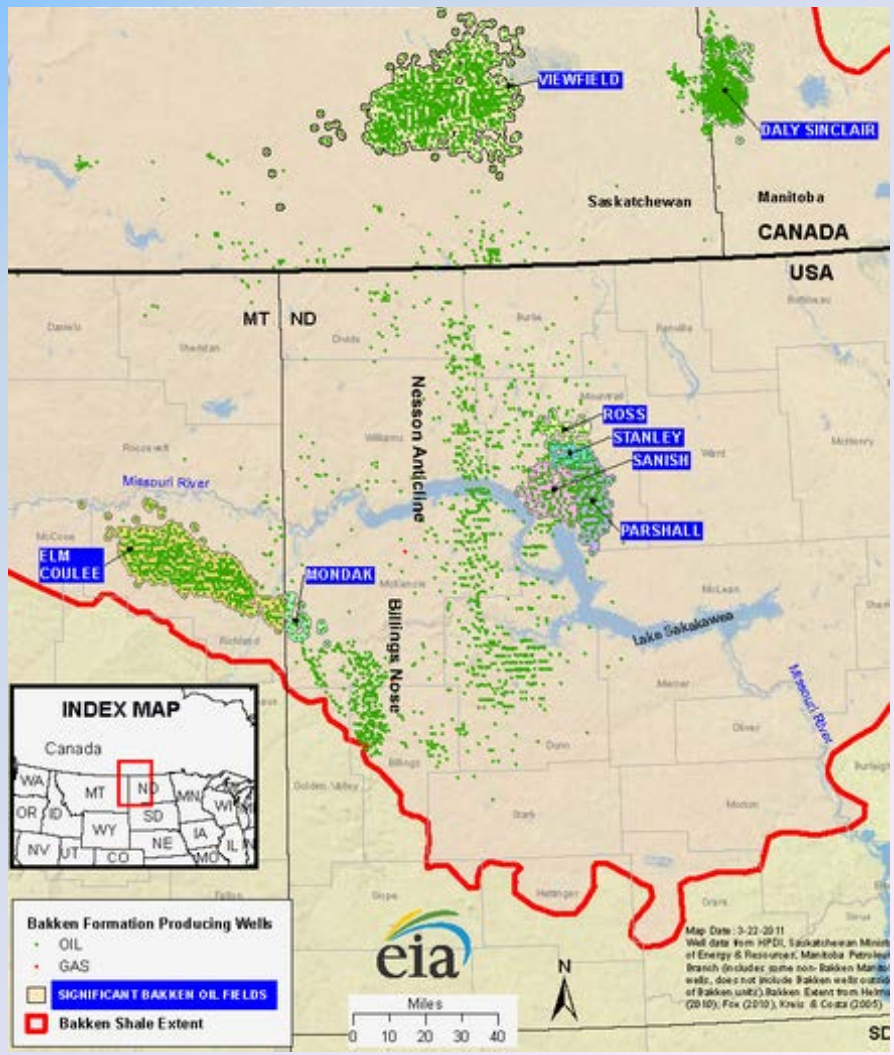
Oil imports to WA by mode '03-'13



Refineries & facilities (existing & proposed) for crude oil by rail – June 2014

Bakken Crude

- Very light sweet crude
- No pipeline infrastructure
- Unit trains
- Up to 3% benzene



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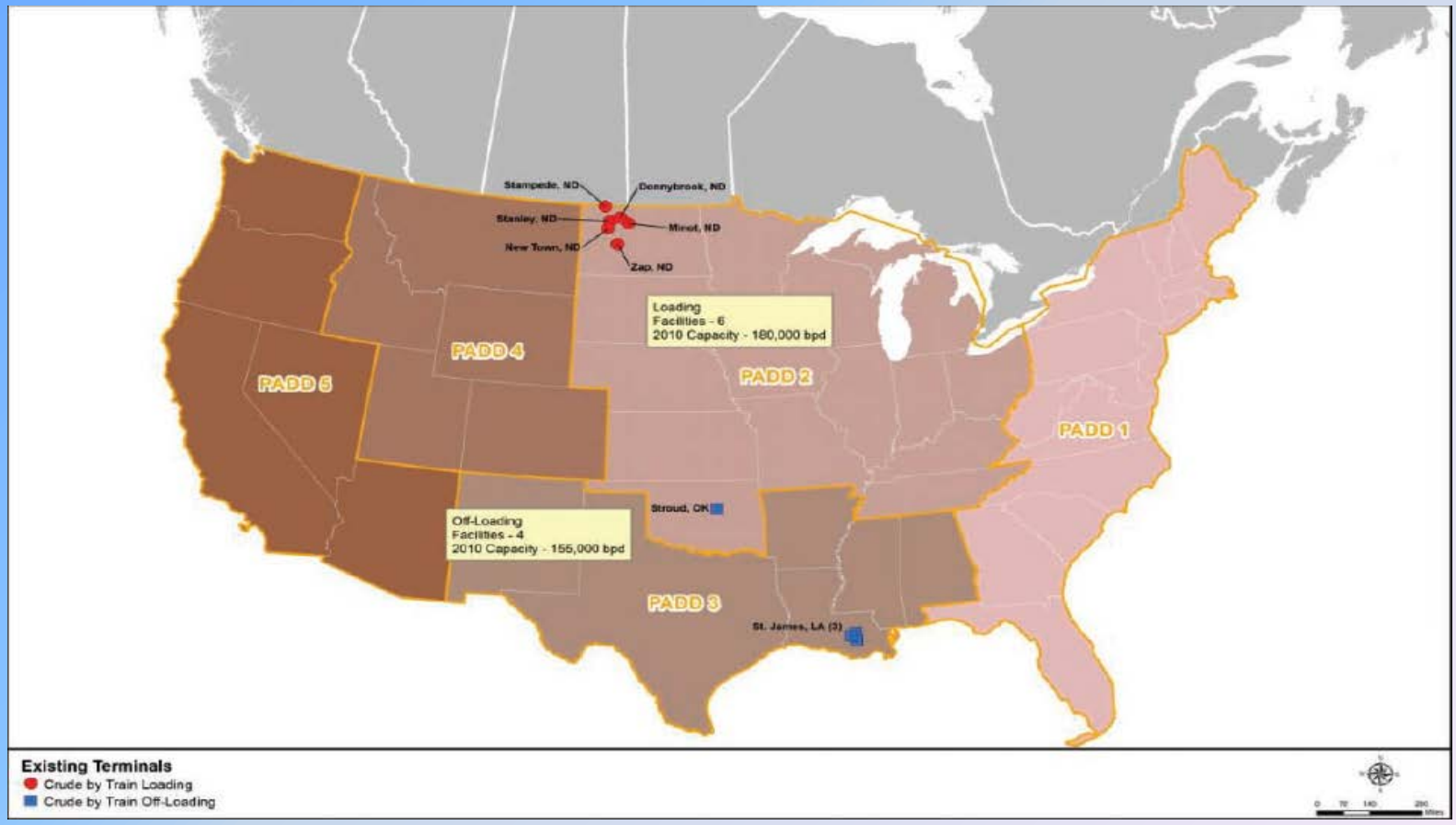
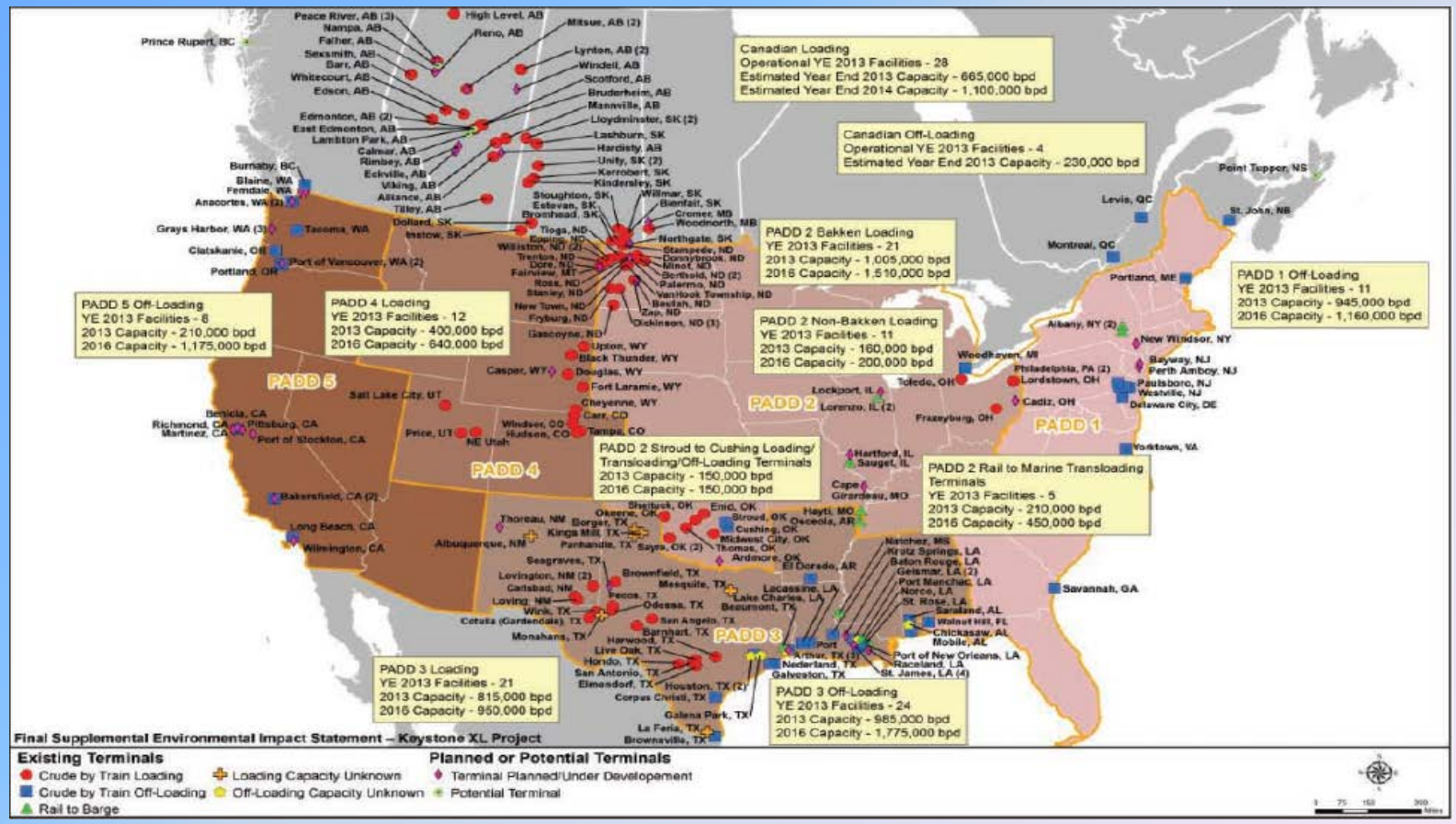
United States existing terminals 2010



US existing and proposed terminals - 2013



Regina
Winnipeg
Bakken
Bismarck
Fargo
Duluth
Rapid City
Minneapolis
St. Paul

Roy Luck

Public concerns over oil train safety

Emerging Energy Transportation Risks

Oil by Rail Incidents – Bakken Crude

June 30, 1992 - Superior, WI

July 6, 2013 - Lac-Mégantic, Quebec

October 19, 2013 - Gainford, Alberta

November8, 2013 - Aliceville, AL

December 30, 2013 - Casselton, ND

January 7, 2014 - Plaster Rock, New Brunswick

January 20, 2014 - Philadelphia, PA

April 30, 2014 - Lynchburg, VA

February 16 - Mt. Carbon, WV

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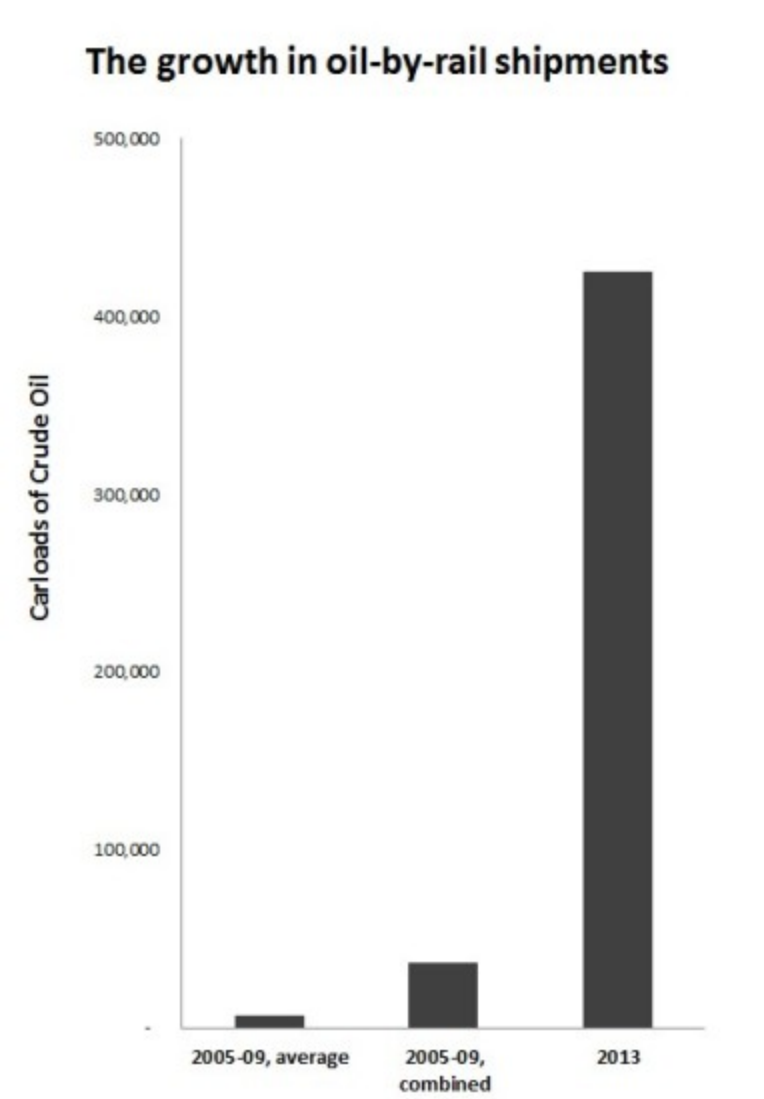
Emerging Energy Transportation Risks



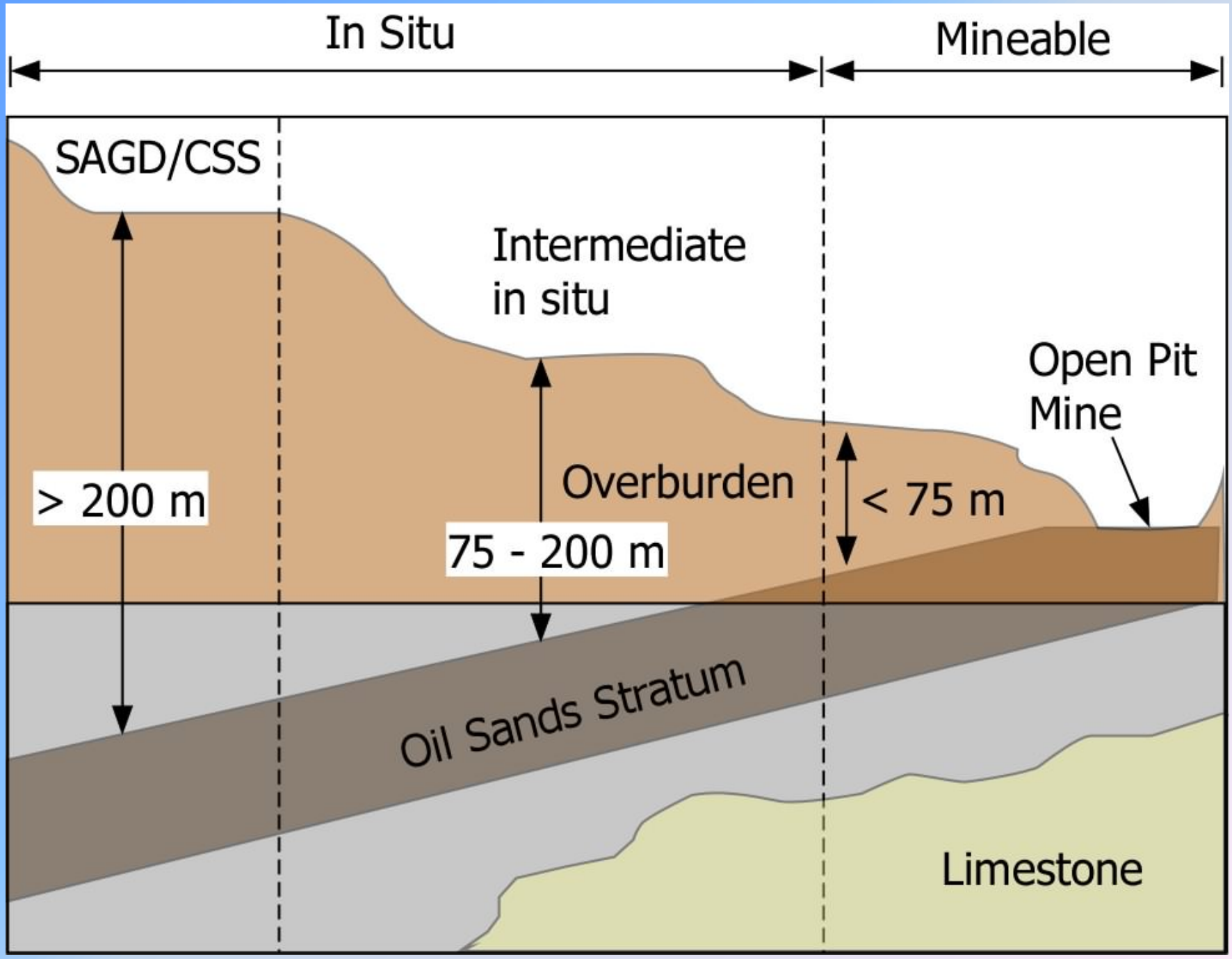
More crude oil was spilled in U.S. rail incidents in 2013 (1.15 million gallons) than was spilled in the previous four decades (0.8 M gallons).

This does not include the 1.5 million gallons spilled in Lac Megantic, Canada (July 2013) where 47 people died.

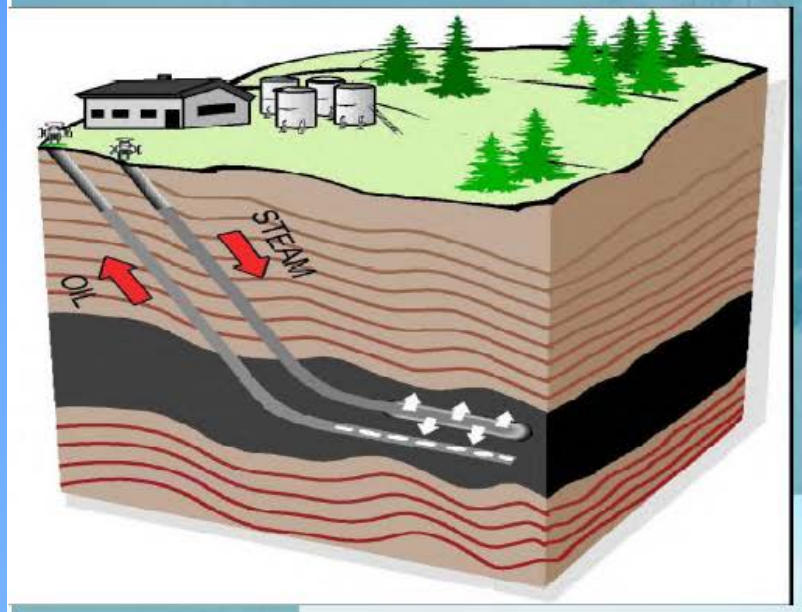
BNSF Bakken Crude Oil Derailment

Canadian Oil Sands Products

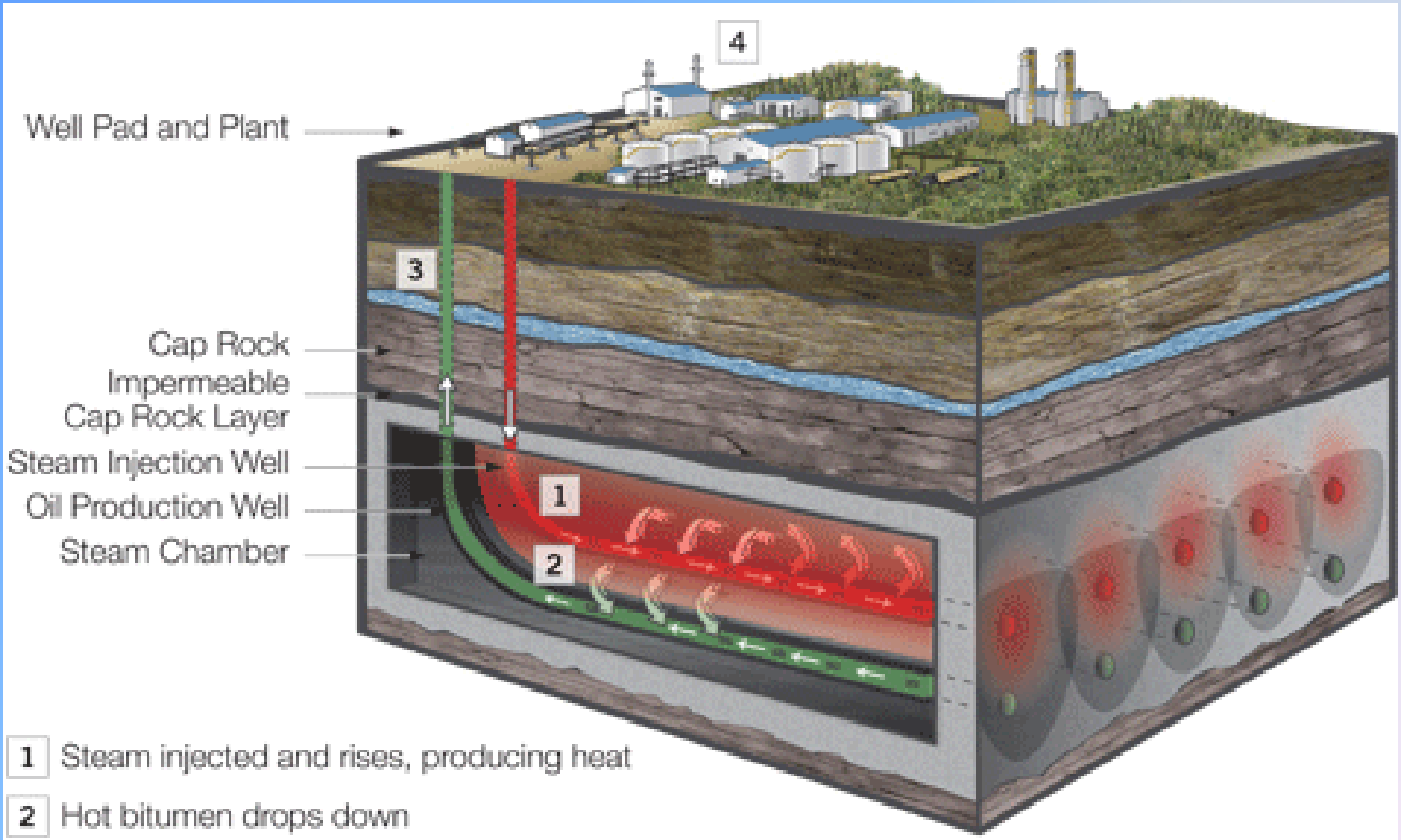
Glacial
Till
Oil Sands


In Situ
Mineable
SAGD/CSS
Intermediate
in situ
Open Pit
Mine
> 200 m
Overburden
< 75 m
75 - 200 m
Oil Sands Stratum
Limestone

Surface mining vs. in situ production



oilsands@shaw.ca



1 Steam injected and rises, producing heat

2 Hot bitumen drops down

3 Hot bitumen emulsion produced from lower well

4 Bitumen and hot water separated at surface; dilbit sold, water cleaned and recycled

Typical Ore	Range
• 73% sand	• 55-80% sand
• 10% fines	• 5-34% fines
• 12% bitumen	• 4-18% bitumen
• 5% water	• 2-15% water

Emerging Energy Transportation Risks

Oil Sands Products

Oil sands/(tar sands): Naturally-occurring combination of bitumen, clay, sand, and water

Bitumen: Viscous raw petroleum product resulting from in-situ partial biodegradation of crude oil reserve

Diluent: Any lighter viscosity petroleum product used to dilute bitumen for transportation. CRW, or crude naptha has been the most common diluent.

Dilbit: Diluted bitumen, bitumen mixed with any diluent for transport (30:70)

Syncrude: Synthetic crude "cracked" on site

Synbit: Bitumen combined with synthetic crude oil (50:50)

Dilsynbit: Synbit combined with a diluent

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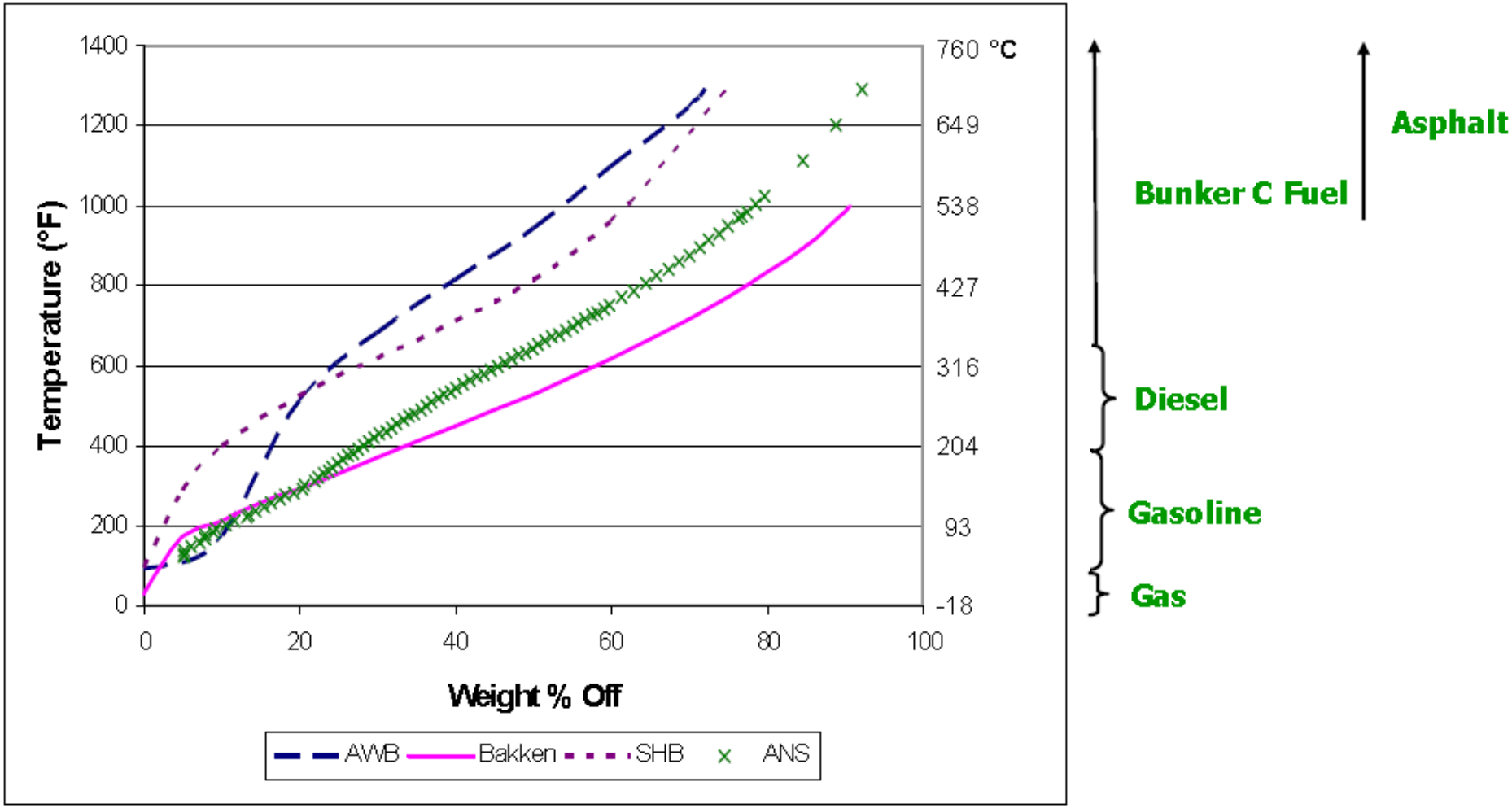
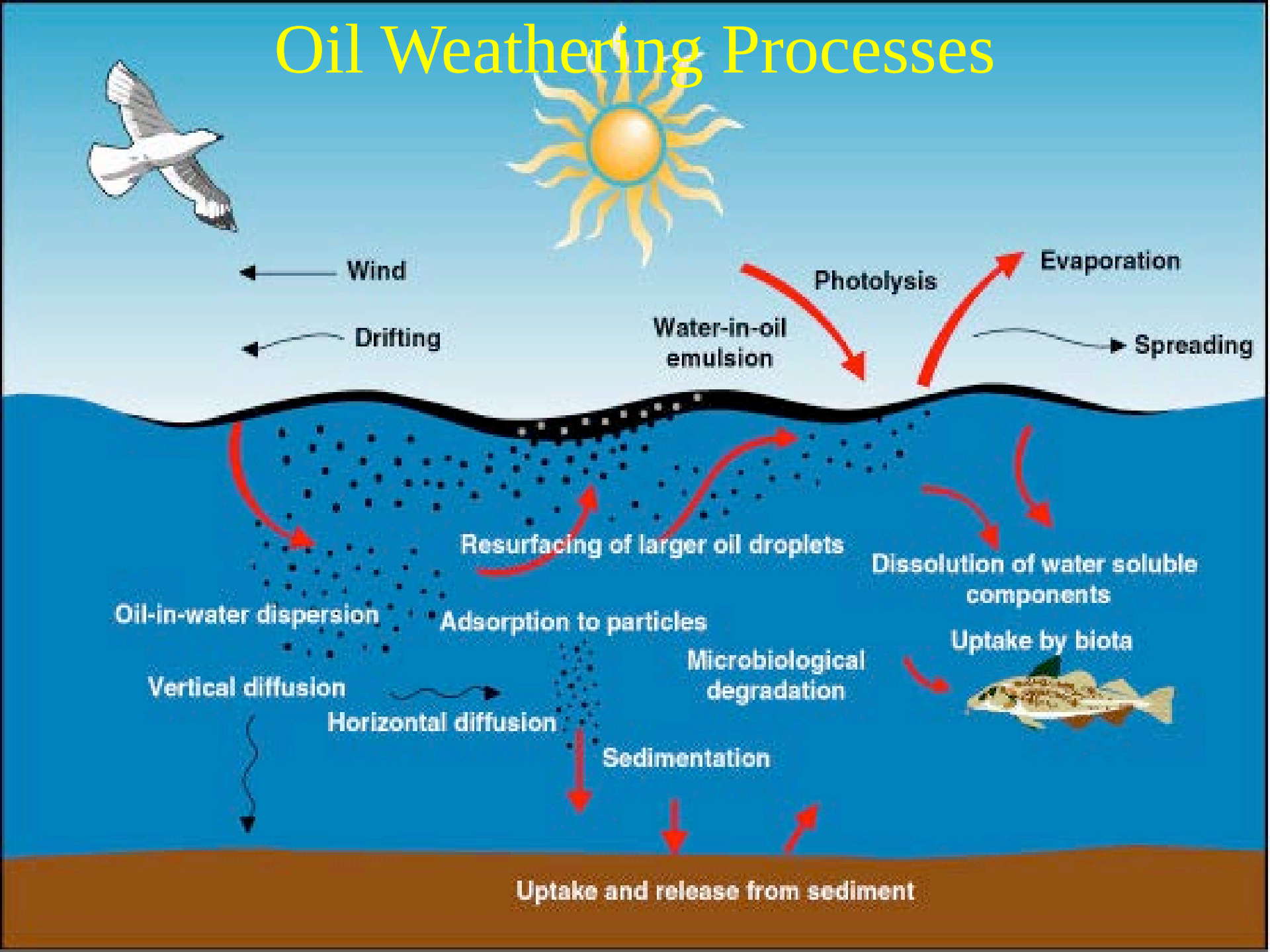
Boiling Ranges of Petroleum Products



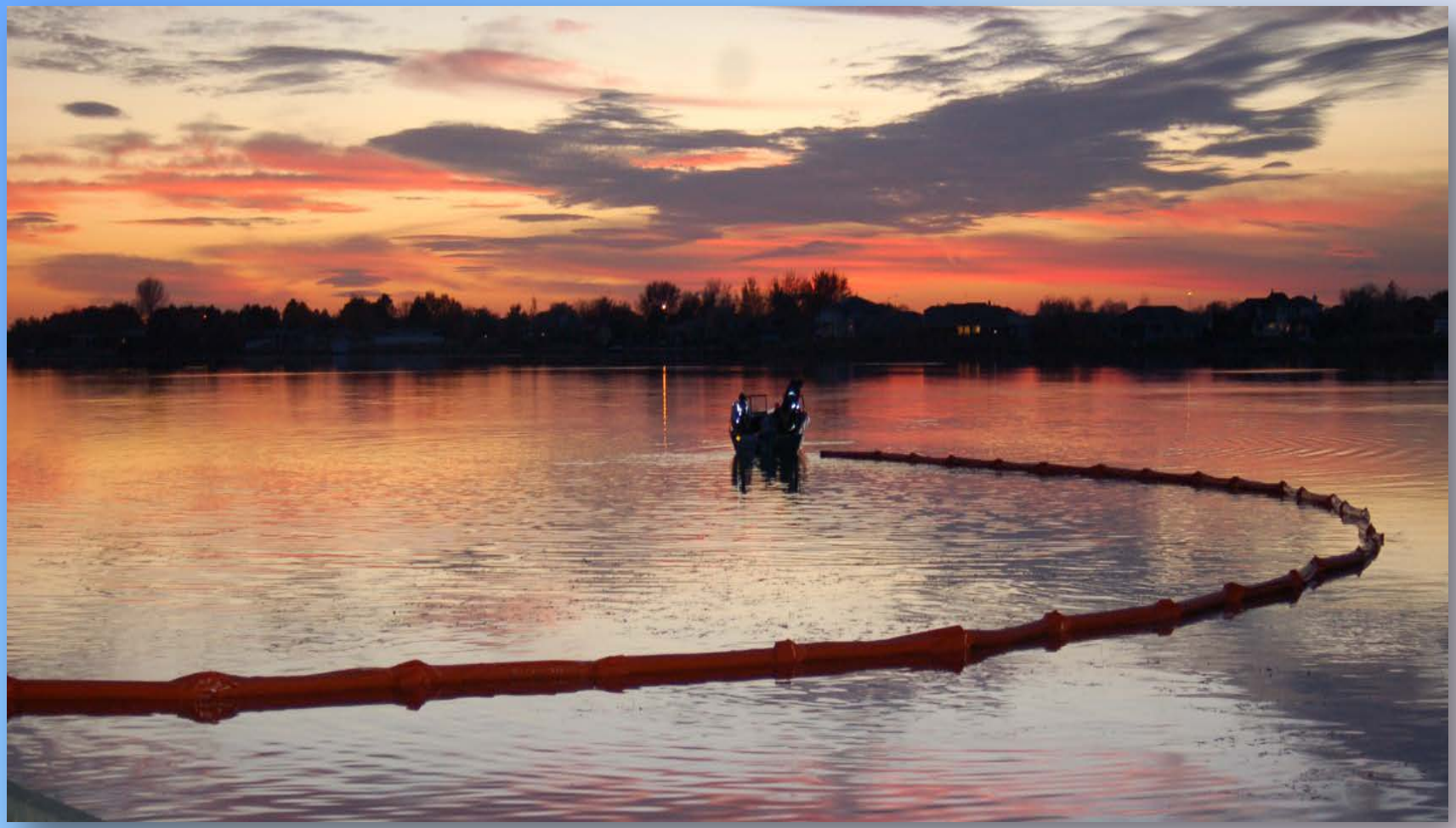
Access Western Blend Dilbit (AWB) Surmont Heavy Blend Synbit (SHB)
Bakken and Alaskan North Slope (ANS) are included for comparison

CanmetENERGY

Oil Weathering Processes



The Study!



2014 Gov's Supplemental Budget

$300,000 to conduct a study of oil shipment through the state.

Study purpose is **assess public health and safety , and environmental impacts.**

Study must provide data and analysis of statewide risks, gaps, and options for **increasing public safety and improving spill prevention and response readiness.**

3 one-year staff to work on Geographic Response Plans

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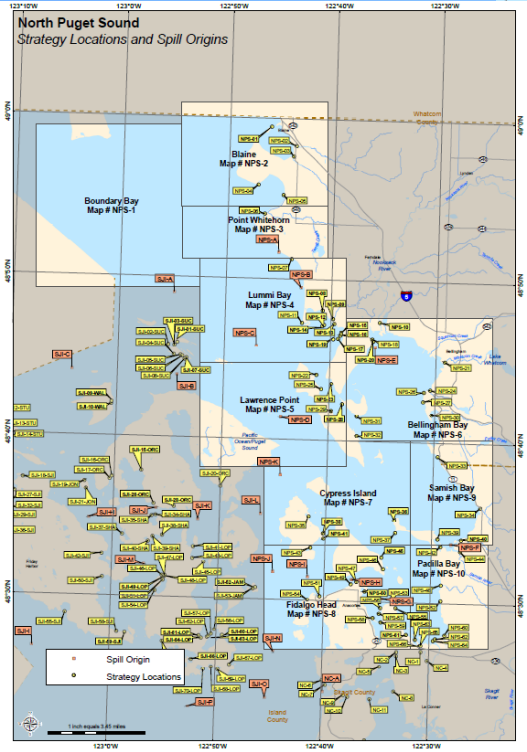
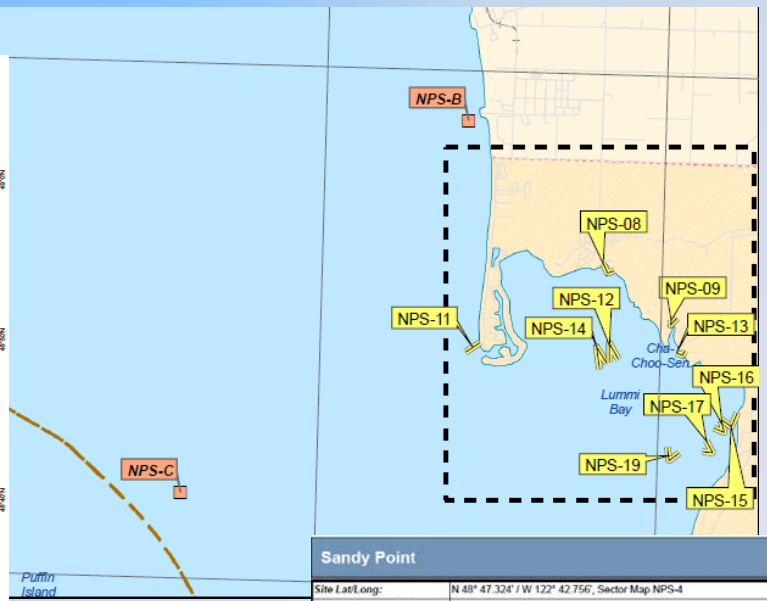
Emerging Energy Transportation Risks

Geographic Response Plans – Resources at Risk from Spills





Sandy Point — **NPS-11-Average** — 4-94

Site Lat/Long:	N 48° 47.324' / W 122° 42.756', Sector Map NPS-4
Strategy Objective:	Collection - Collect oil
Implementation:	Deploy boom from north shore of Sandy Point Shores Marina and anchor to shore for collection. Adjust angle based on real-time conditions. Depending on conditions may collect oil by boat or vac truck.
Site Safety Note:	Recreational boat traffic
Field Notes:	Site is vac truck accessible.
Resources Targeted:	resident fish, tribal lands/resources
Fixed Anchors:	181: N 48° 47.377' / W 122° 42.651', beach, adjust as needed
Watercourse Description:	Puget Sound, open area

Suggested Equipment	
Quantity	**Description**
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)
Suggested Personnel	
1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

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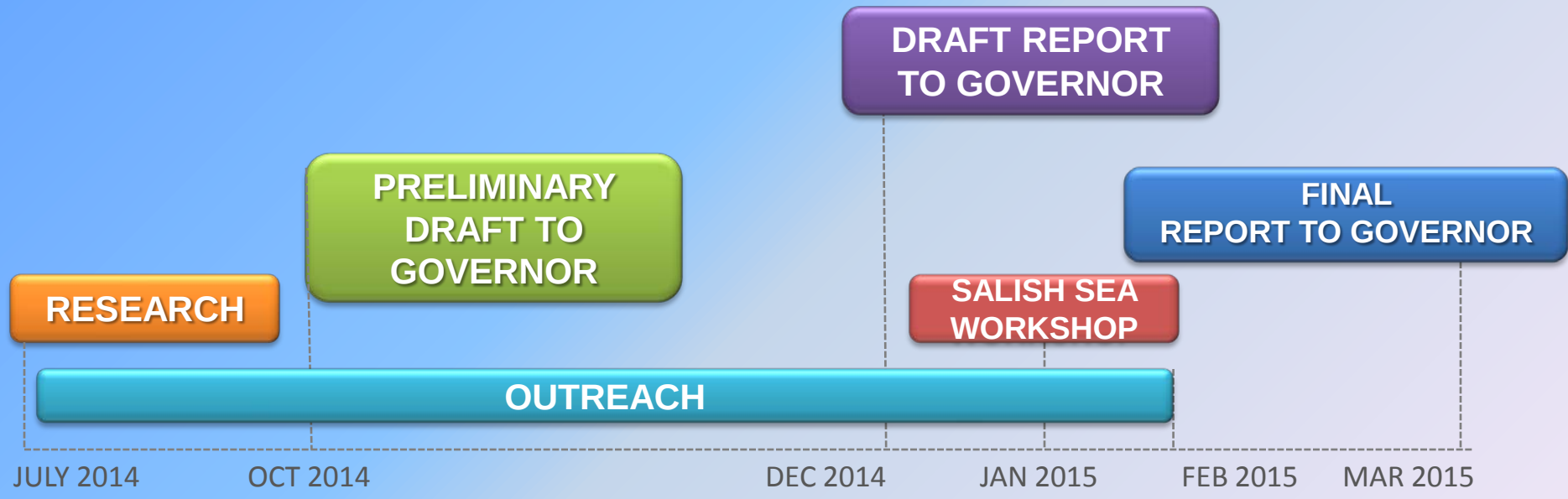
Oil Transportation Study



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Salish Sea Workshop

- Connects the recent Salish Sea traffic studies, including this Oil Transportation Study
- Report from the Workshop is an appendix in the Study
- Focus here is marine only: Only marine aspects from oil transported by rail

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Public Participation

Supporting recommendations from the study

Focus on New Oil Spill Risks

Spills Program

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September 2014

Marine & Rail Oil Transport Study: Reporting Oil Transport by Rail

The problem

Over the last decade significant changes have occurred in the way crude oil is transported in Washington State. In the past, 90% of the crude oil for Washington's refineries transited thru the Puget Sound by tanker, and the majority of this oil was Alaska North Slope Crude. Today an increasing amount of crude used by west coast refineries is being sourced from the Bakken formation and is moving thru Washington via pipeline and rail. The potential volatility and public hazards that Bakken crude possesses has come to light nationally with tragic rail

WHY IT MATTERS

Today Washington is faced with the challenges associated with moving crude oil by rail – a new dynamic.

Not only is the mode of transport new – the volume and type of product are too, and Washington isn't accustomed to dealing with crude oil on the inland side of our state.

And there's more to consider:

- We're facing the potential of a new methanol facility in our state

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Policy Recommendations HB 1449/SB 5057

- Definition of “Oil” and “Facility”
- Rail Spill Contingency Planning
- Advance Notice of Transfer
  - Public Disclosure
- Best Available Protection
- Financial Responsibility Certification
- Pilotage, Tug Escort, Safety Measures
  - Risk Assessment, Facility Pemitting, Rules

Policy Recommendations HB 1449/SB 5057

- Oil Spill Prevention Account
  - 4 cents/8 cents
  - Tank Ship, Rail, Pipeline
- Oil Spill Response Account Use
- EMD Planning and OSPA Use
  - Progress Reporting
- UTC Inspection Access
- Private Grade Crossing
- First Responder Equipment/Training

Funding Recommendations HB 1449/SB 5057

- Geographic Response Planning
- UTC Inspection Program Funding
- EMD Planners
- Marine Risk Assessment Study
  - Grays Harbor
  - Columbia River
- Regional All-Hazards Response Teams
- Grade Crossing Safety Review

Thank you.

David Byers, Response Manager
David.Byers@ecy.wa.gov
www.ecy.wa.gov/programs/spills/spills.html

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WDFW's Mapping Ecologically Important Areas Project Update

Washington Coastal Marine Advisory Council Meeting

April 22, 2015

Port of Grays Harbor Commissioners Chambers

Outline of Today's Presentation

1. Where we left off, timeline
2. Update of progress
3. Draft Integrated Fish and Wildlife EIAs
4. "Looking under the Hood"
5. F&W EIAs and Energy Suitability
6. Next Steps
7. Discussion

Timeline

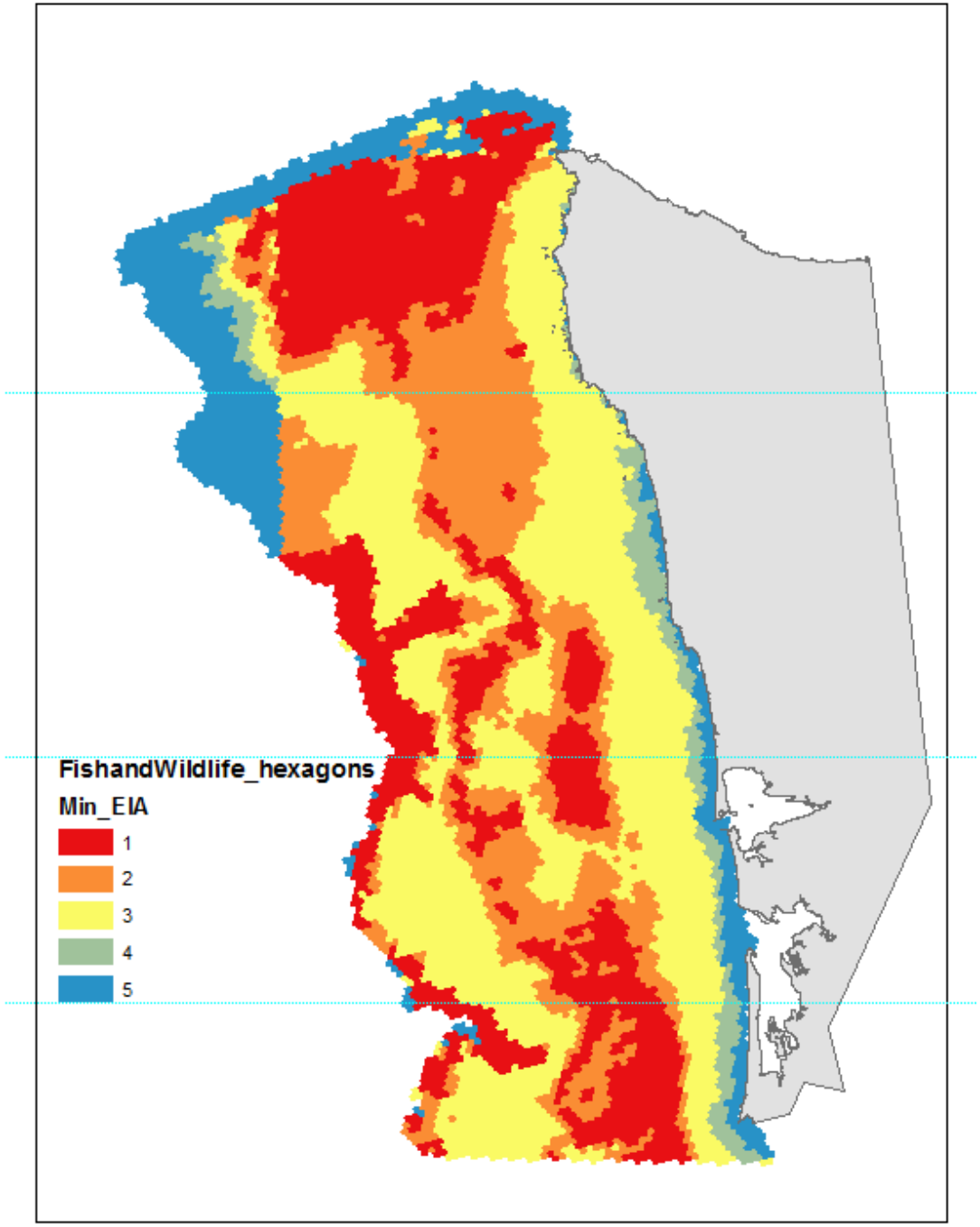
Feb 25	EIA Briefing at WCMAC Work Session
Apr 22	EIA Briefing at WCMAC Work Session
Early May	State/Tribal Policy Meeting; EIA Update
~ June 1	Preliminary Draft EIA Report for review
~ June 15	Comments Due to WDFW
June 30	Provide Preliminary EIA Report and Maps
July	Science Panel Review of Report
August 31	Provide Final Report to DNR

Ecologically Important Areas

For the purposes of this project, the EIA Science Team defined "Ecologically Important Areas" as:

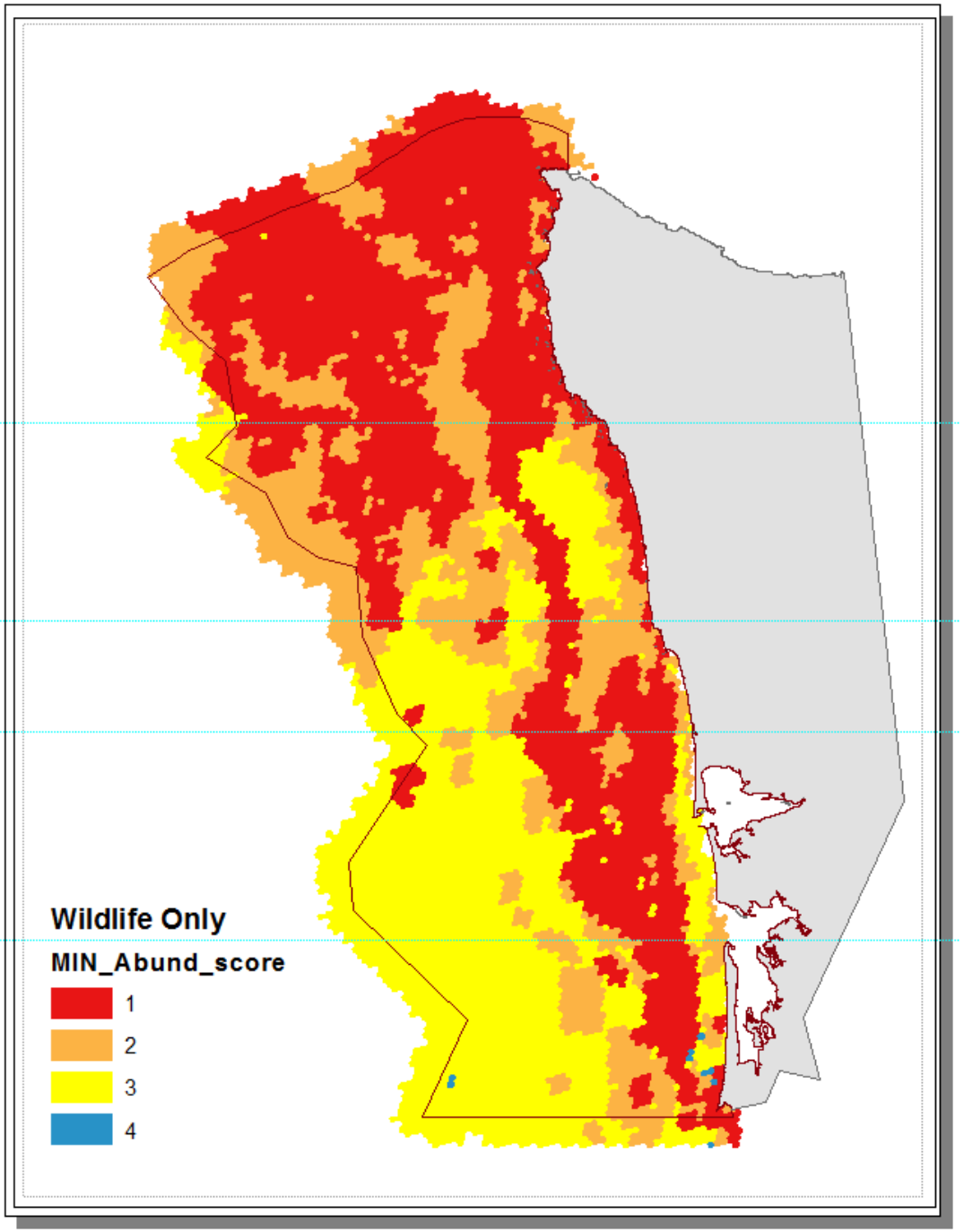
- Areas where wildlife or fish are known to inhabit or are consistently abundant as confirmed by surveys or fishing data; and

- For species for which abundance and occupancy is unknown, include areas of suitable habitat that those species of wildlife or fish are likely to inhabit.



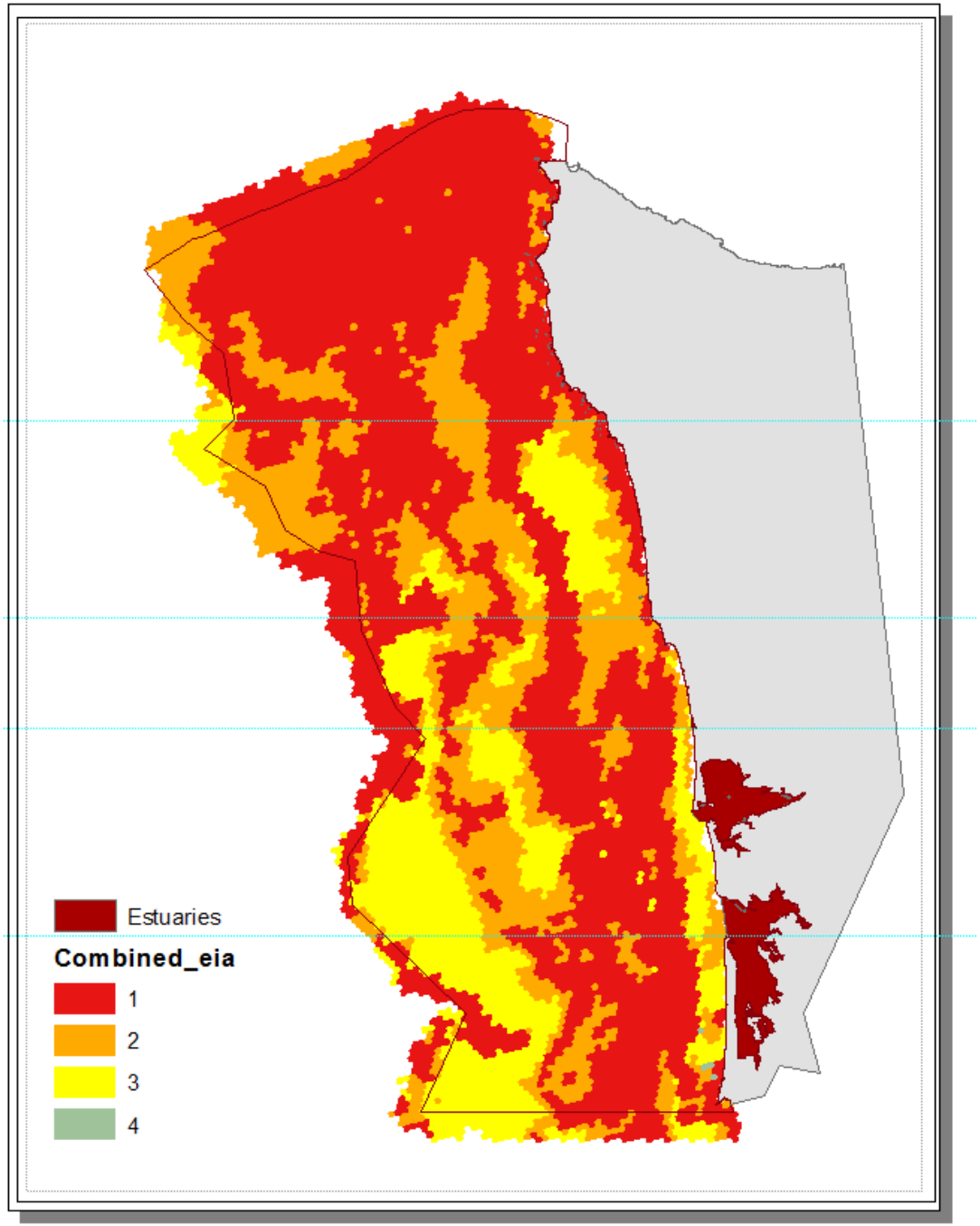
Draft Groundfish EIA

(does not include Whiting)



Draft Wildlife EIA

(does not include colonies, sea otters, etc)



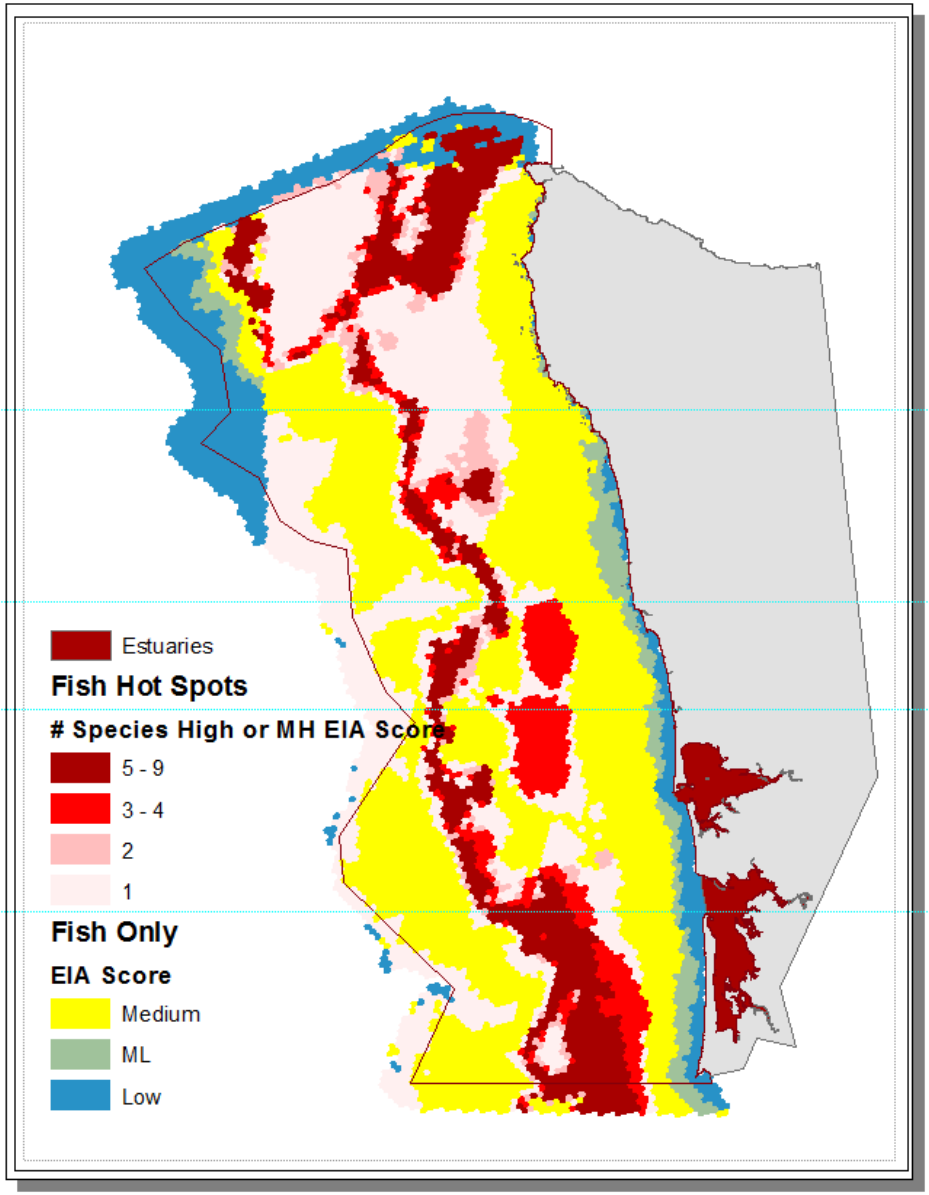
Combined Fish and Wildlife

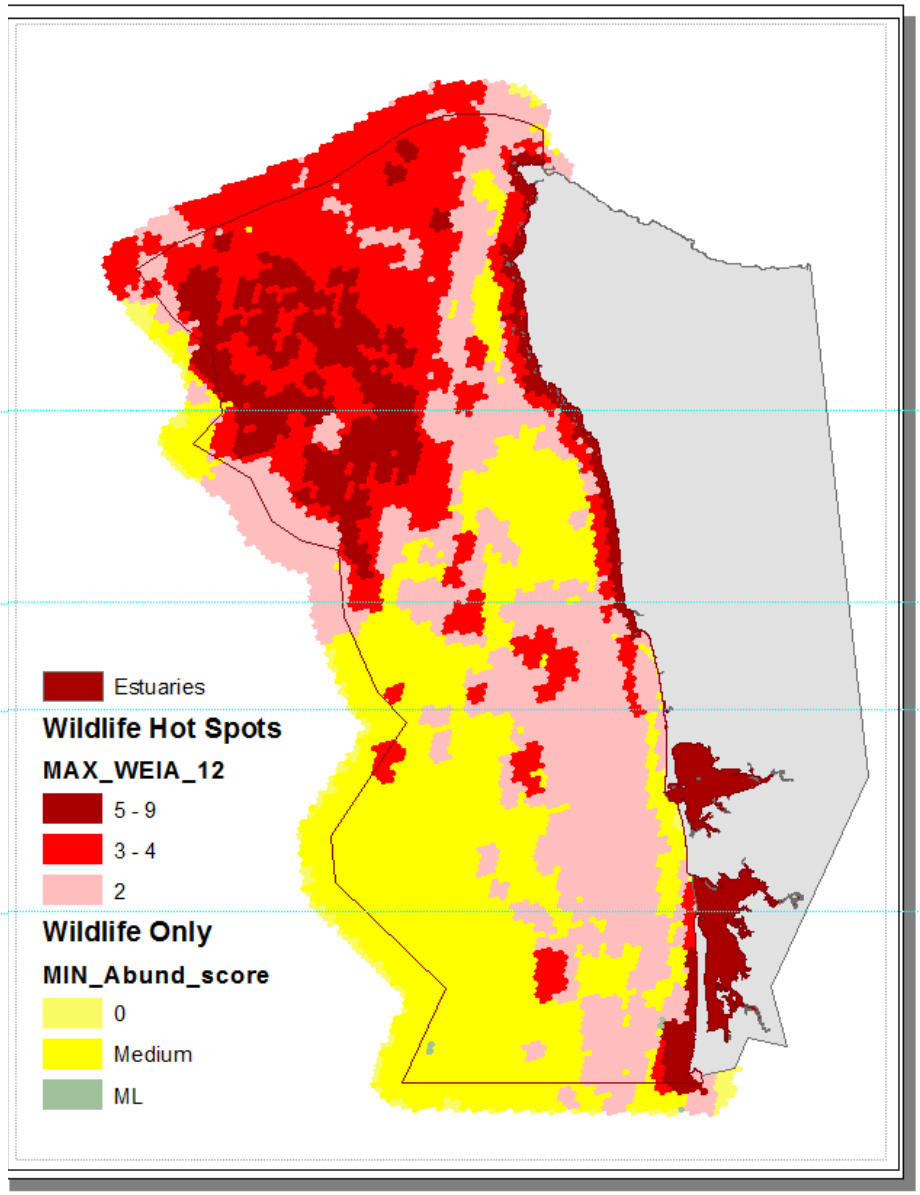
(does not include colonies, sea otters, crab, pink shrimp, coral, whiting, etc)

Fish and Wildlife Hotspots

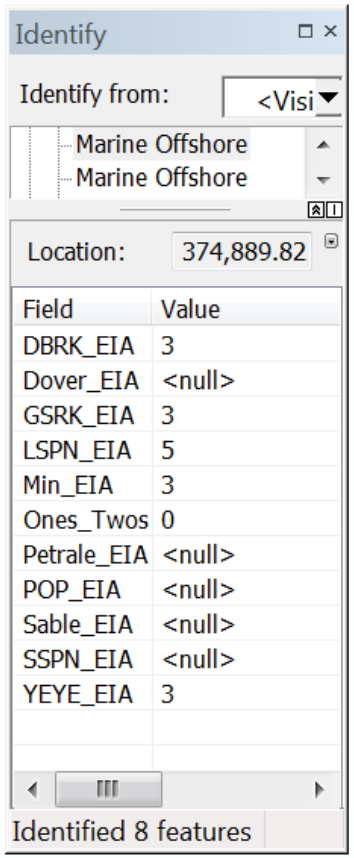
Areas that receive higher than average use by multiple species

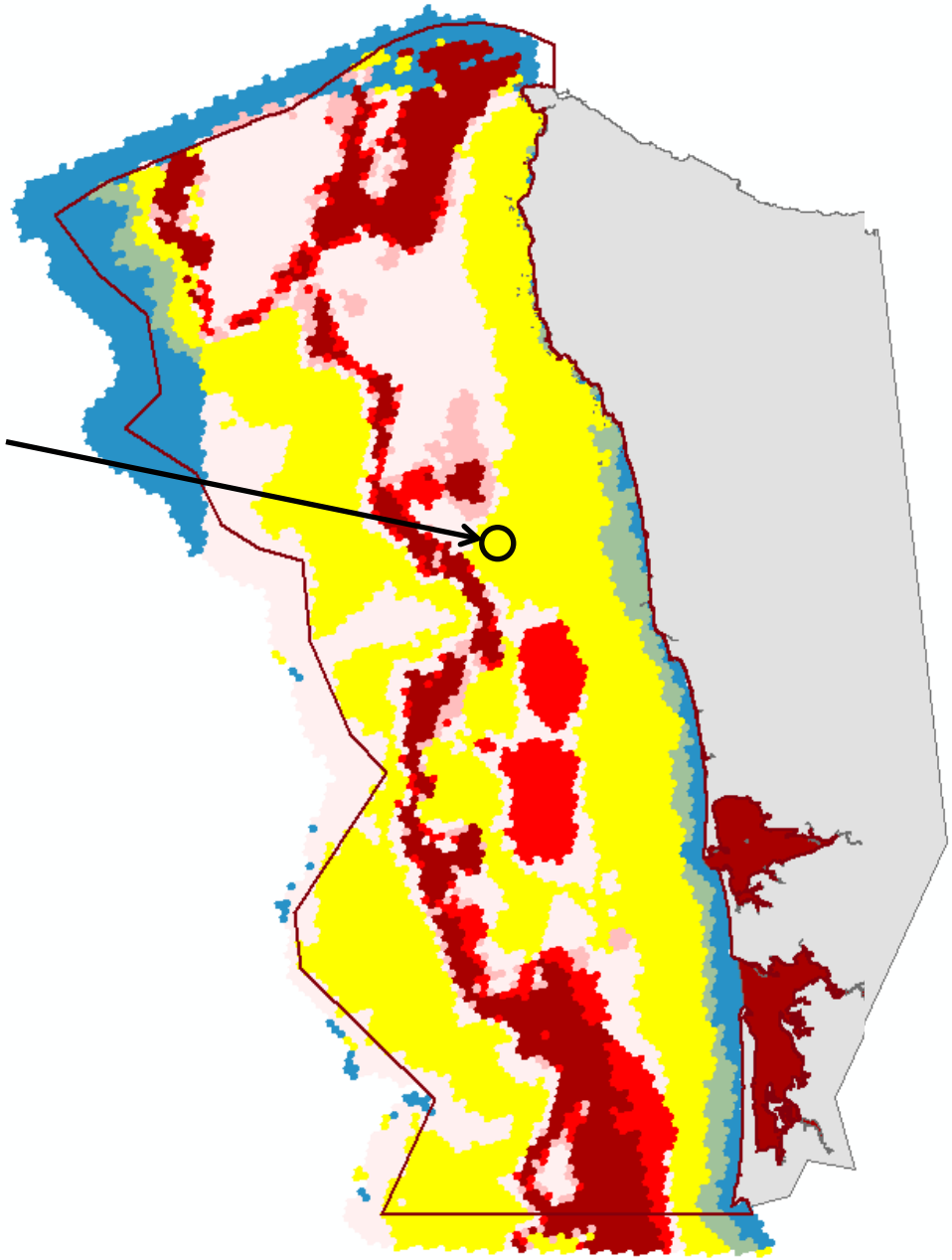
Fish and Wildlife EIA Hotspots





“Looking under the Hood”





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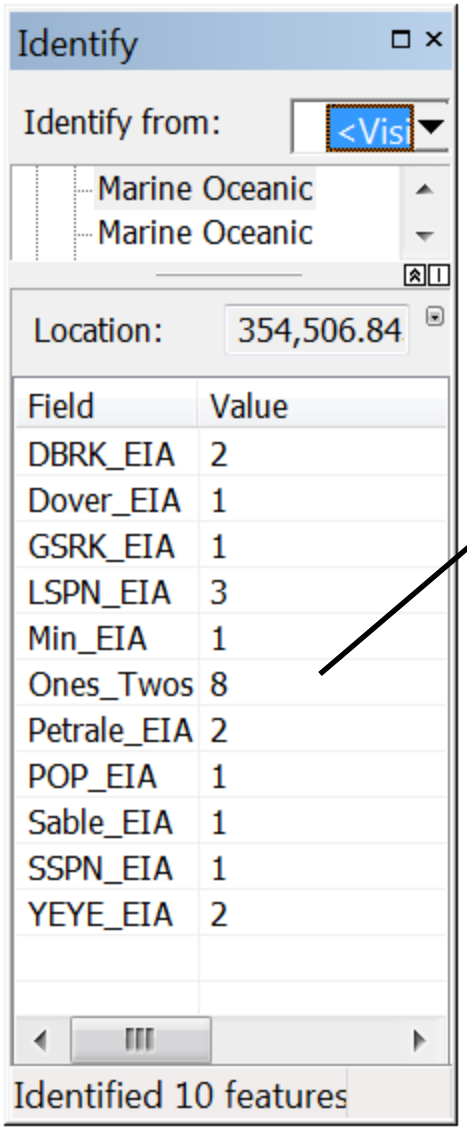
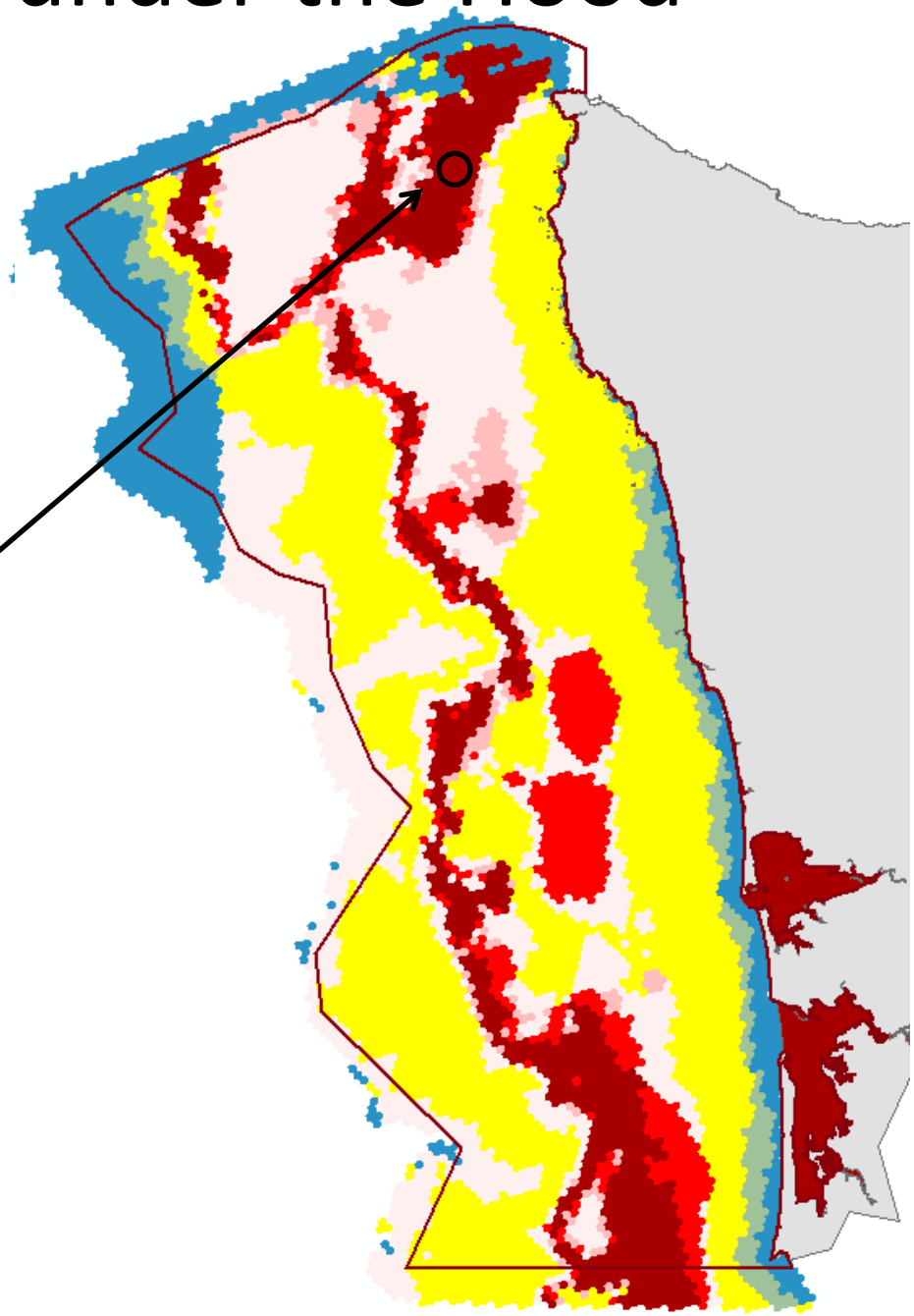




“Looking under the Hood”

Identify

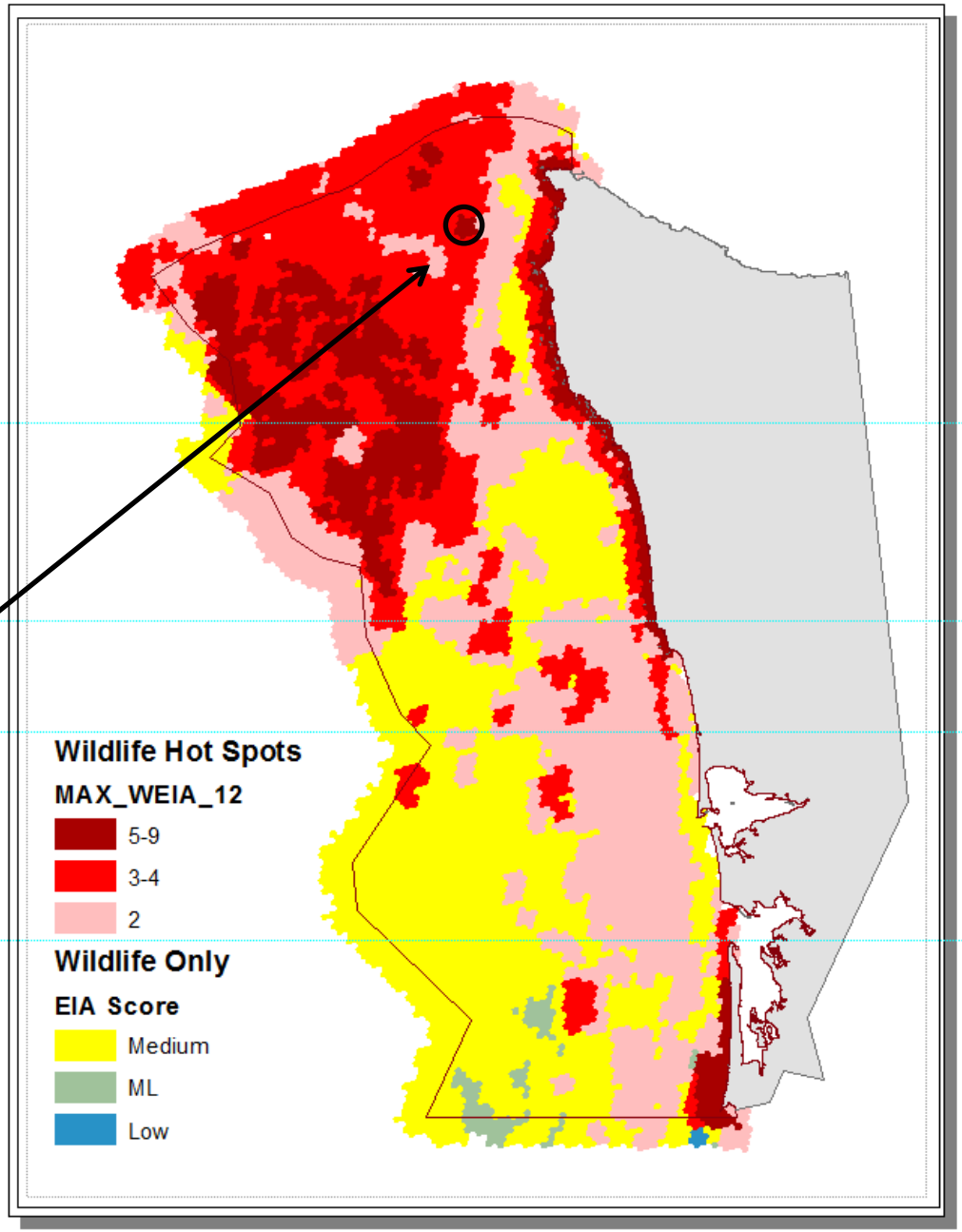
Identify from: <Visible layers>

Marine Oceanic

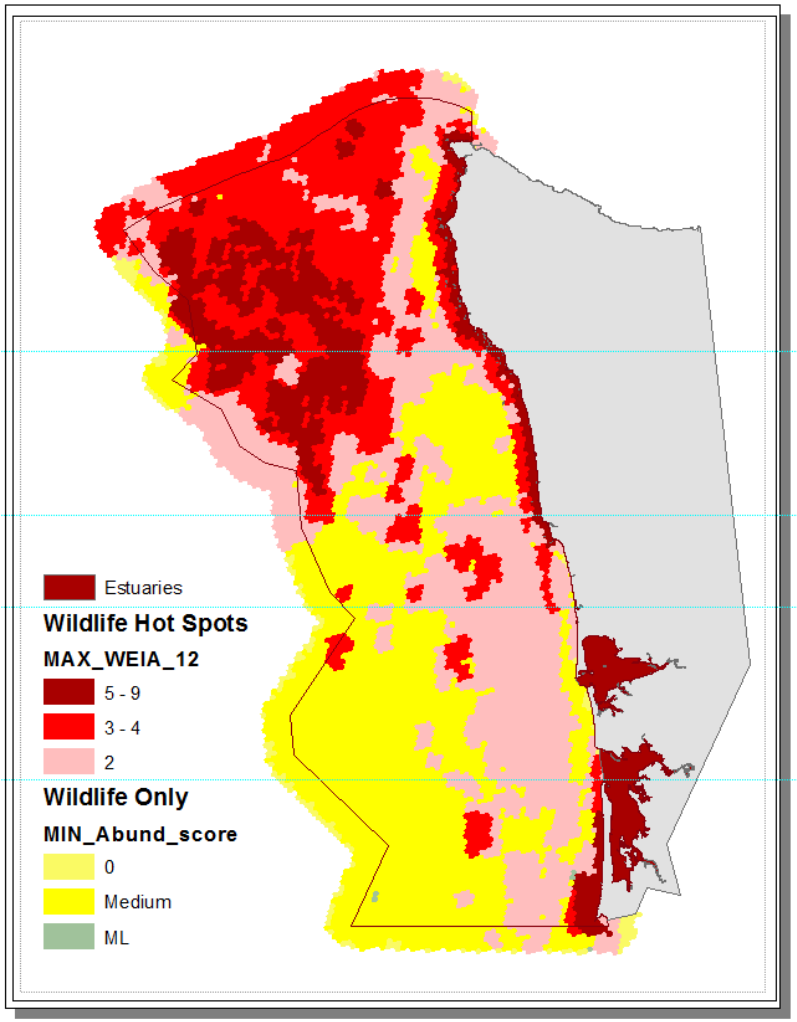
Location: 352,094.729 5,347,601.170 Meters

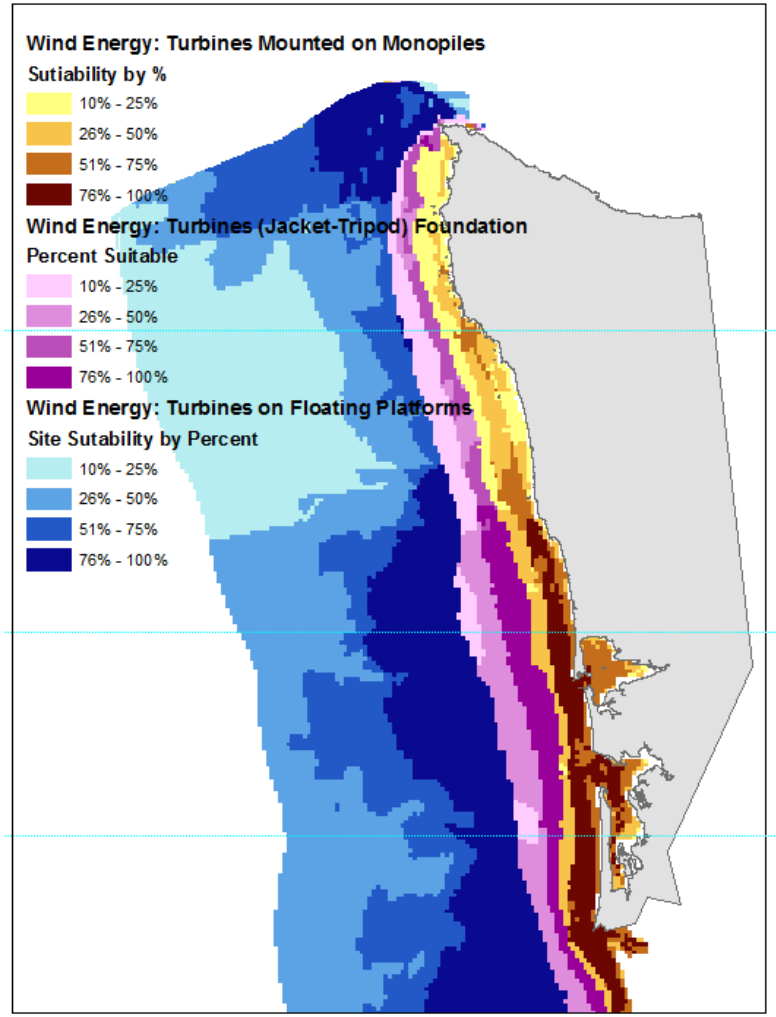
Field	Value
Ancient Murrelet	0
Blackfooted Albatros Summer	1
Blackfooted Albatros Winter	3
Brandt's Cormorant	0
Cassin's Auklet	0
Common Murre Summer	5
Common Murre Winter	3
Double Crested Cormorant	0
FREQUENCY	2
Harbor Porpoise	0
Harbor Seal	0
Marbled Murrelet	5
MAX_WEIA_1	2
MAX_WEIA_12	5
MAX_WEIA_2	3
MIN_Abund_score	1
Northern Fulmar	2
OBJECTID	8272
Pelagic Cormorant	0
Pigeon Guillemot	0
Pinkfooted Shearwater	1
Rhinoceros Auklet	0
Sooty Shearwater	2
Tufted Puffin	2

Identified 14 features



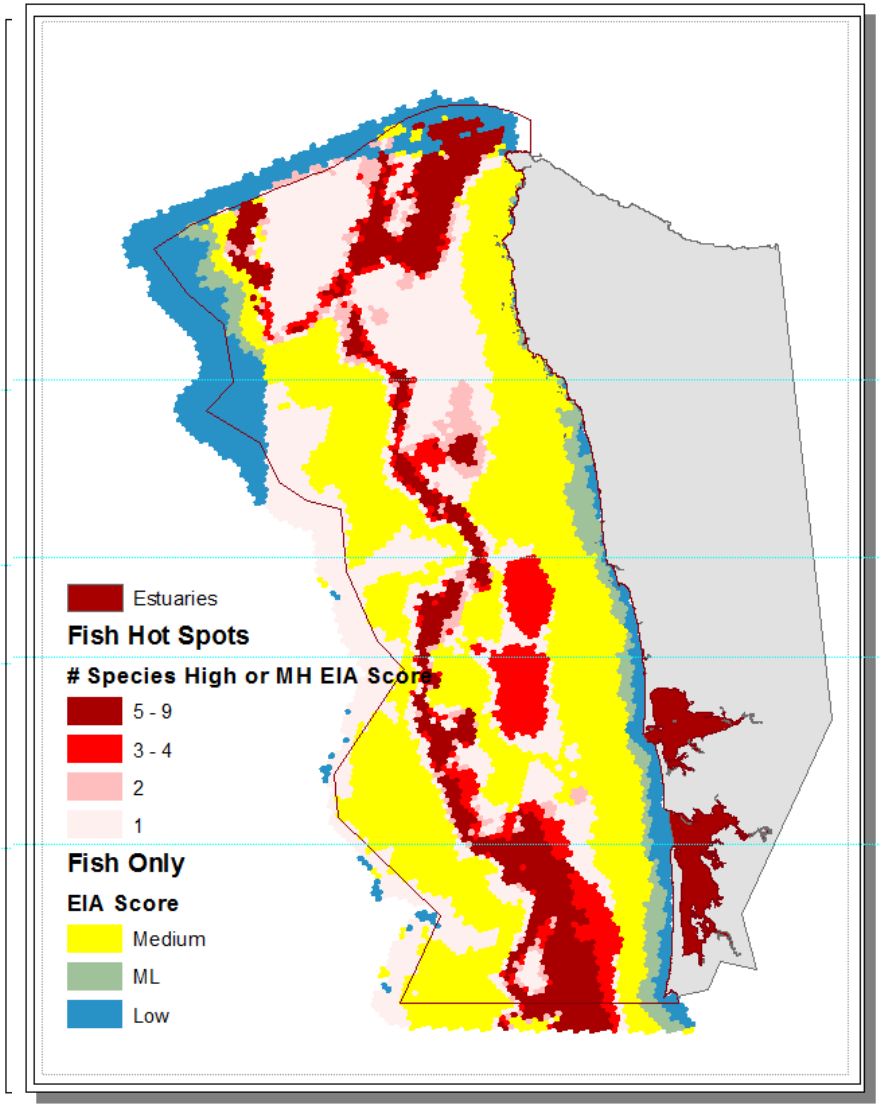
Hotspot Wildlife EIAs
Compared with Wind Energy Suitability Areas

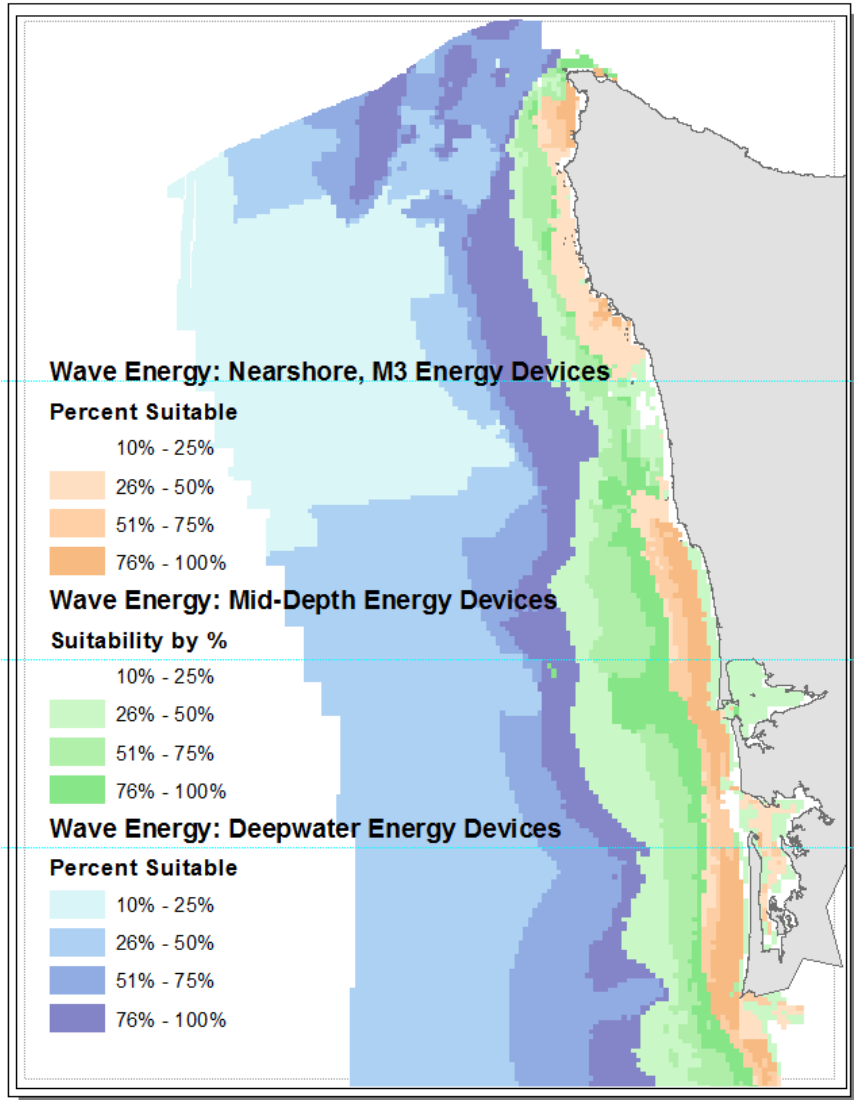




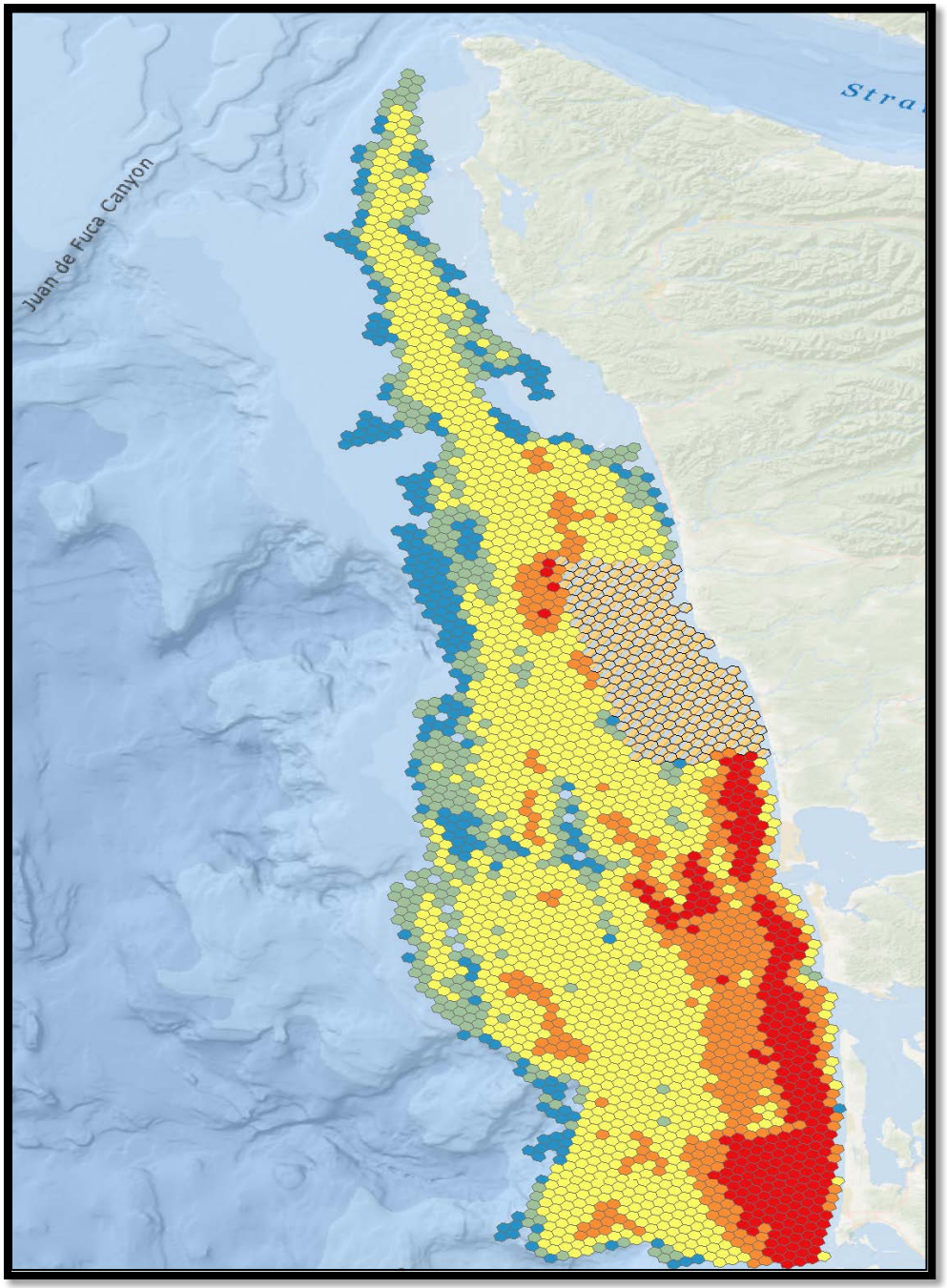
(does not include colonies, sea otters, etc)

Hotspot Fish EIAs
Compared with Wave Energy Suitability Areas

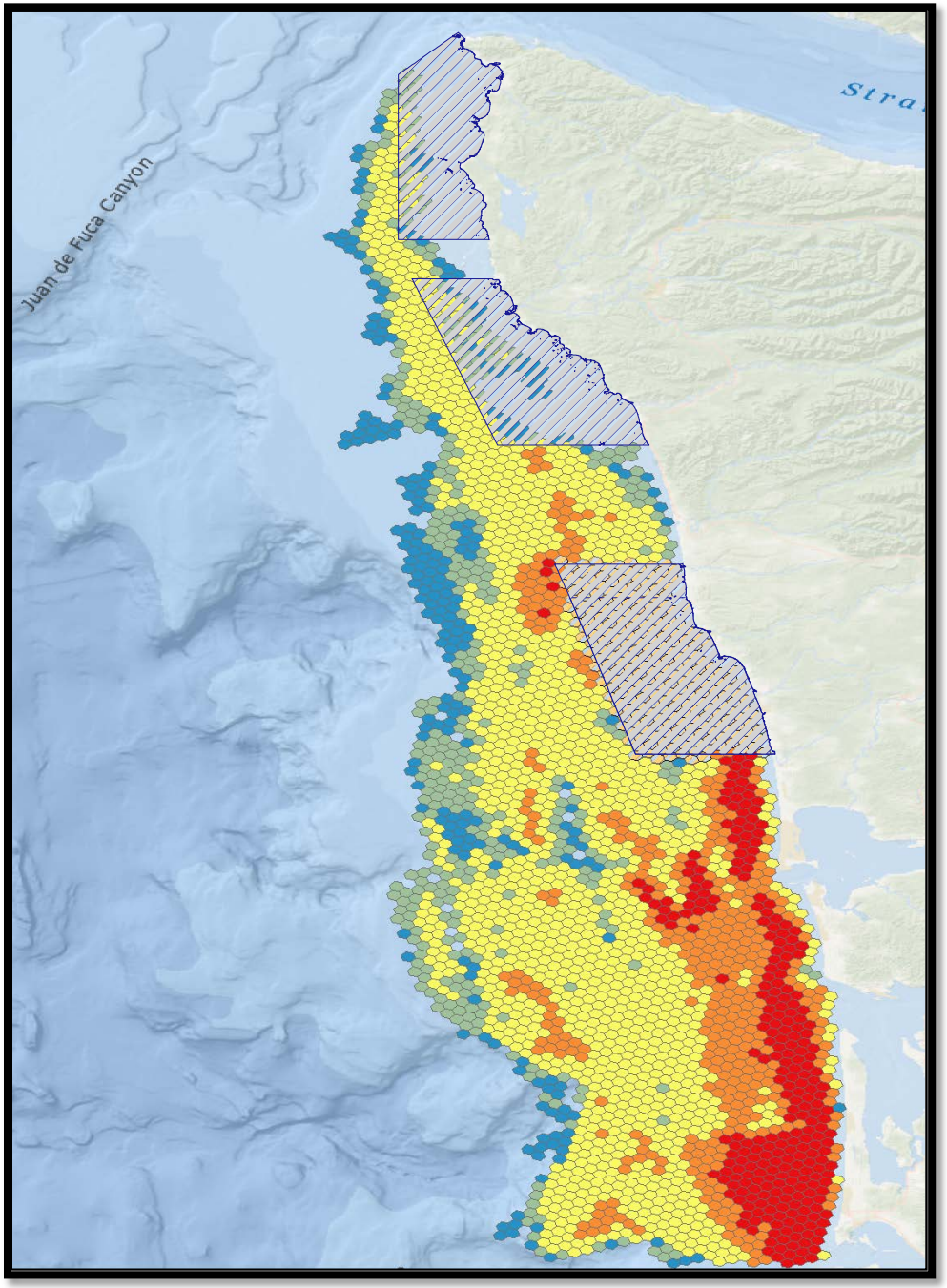




(does not include Crab, Whiting, etc)



Draft Dungeness Crab EIA



Draft Dungeness Crab EIA

Next Steps

- EIA mapping of remaining species and habitats
- Incorporating uncertainty into EIA maps
- Develop Preliminary Draft Report
- Submit Preliminary report to DNR at end of June
- Science Panel review in July
- Finalize report and submit to DNR by end of August

Questions / Discussion ?