



Socioeconomic Profile and Economic Value of Coastal Recreation Uses on the Outer Coast of Washington

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OCNMS Sanctuary Advisory Council Meeting

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Presentation Outline

1. Purpose of the Study
2. Study Background
3. Demographic Profiles
4. Activity Profiles and Maps
5. Expenditures and Economic Impact
6. Preferences and Values
7. Non-Market Valuation
8. Natural Resource Attribute Mapping
9. Uses of the Information

Purpose of the Study

- Provide information about the social and economic value of natural resources for recreational uses by residents of the State of Washington
- Possible extension to Olympic National Park and the Reservations of the Coastal Treaty Tribes

Study Background

- State of WA Marine Spatial Planning
 - Point97/Surfrider Foundation Survey using Knowledge Networks Internet Panel of Washington Households (Wave 1, N=3,017)
- NCCOS/ONMS Add-on to Point97/Surfrider
 - Survey (Wave 2, N=3,112)



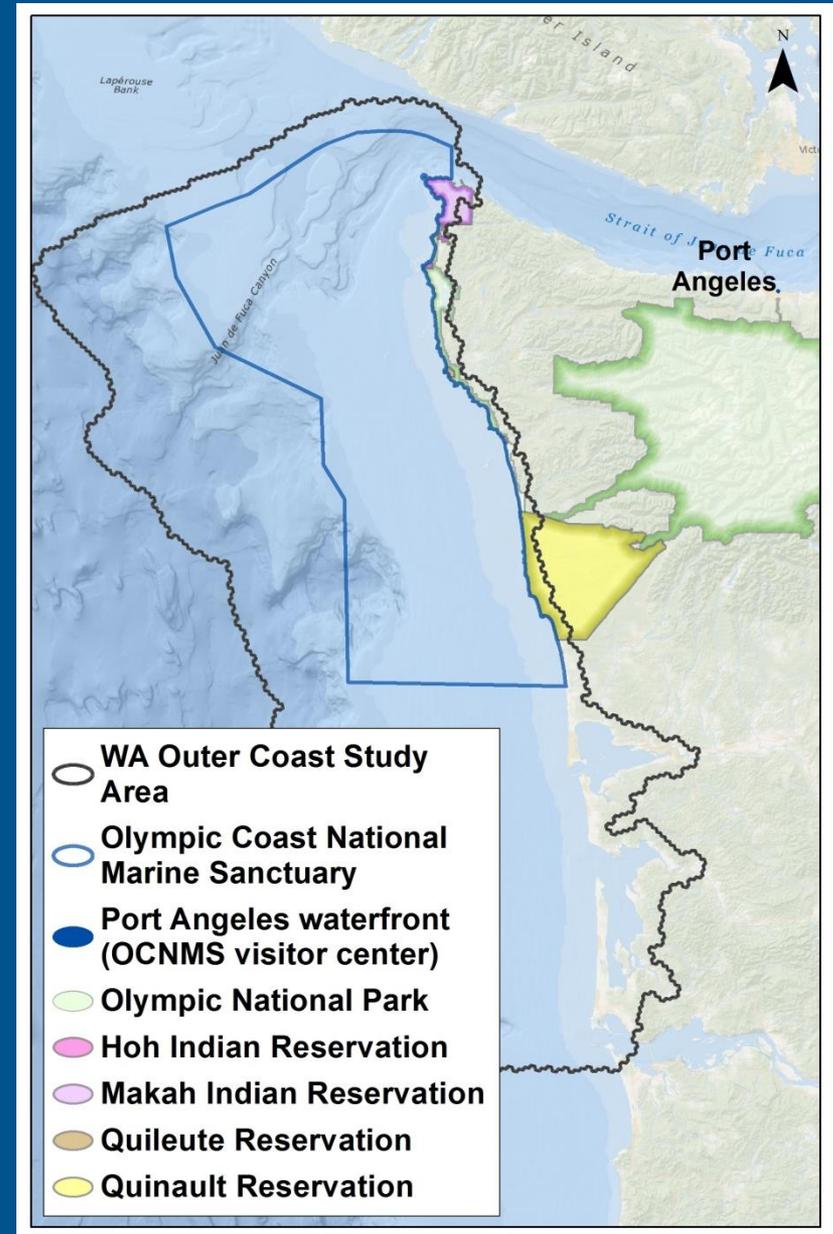
DEMOGRAPHIC PROFILES

Measurements

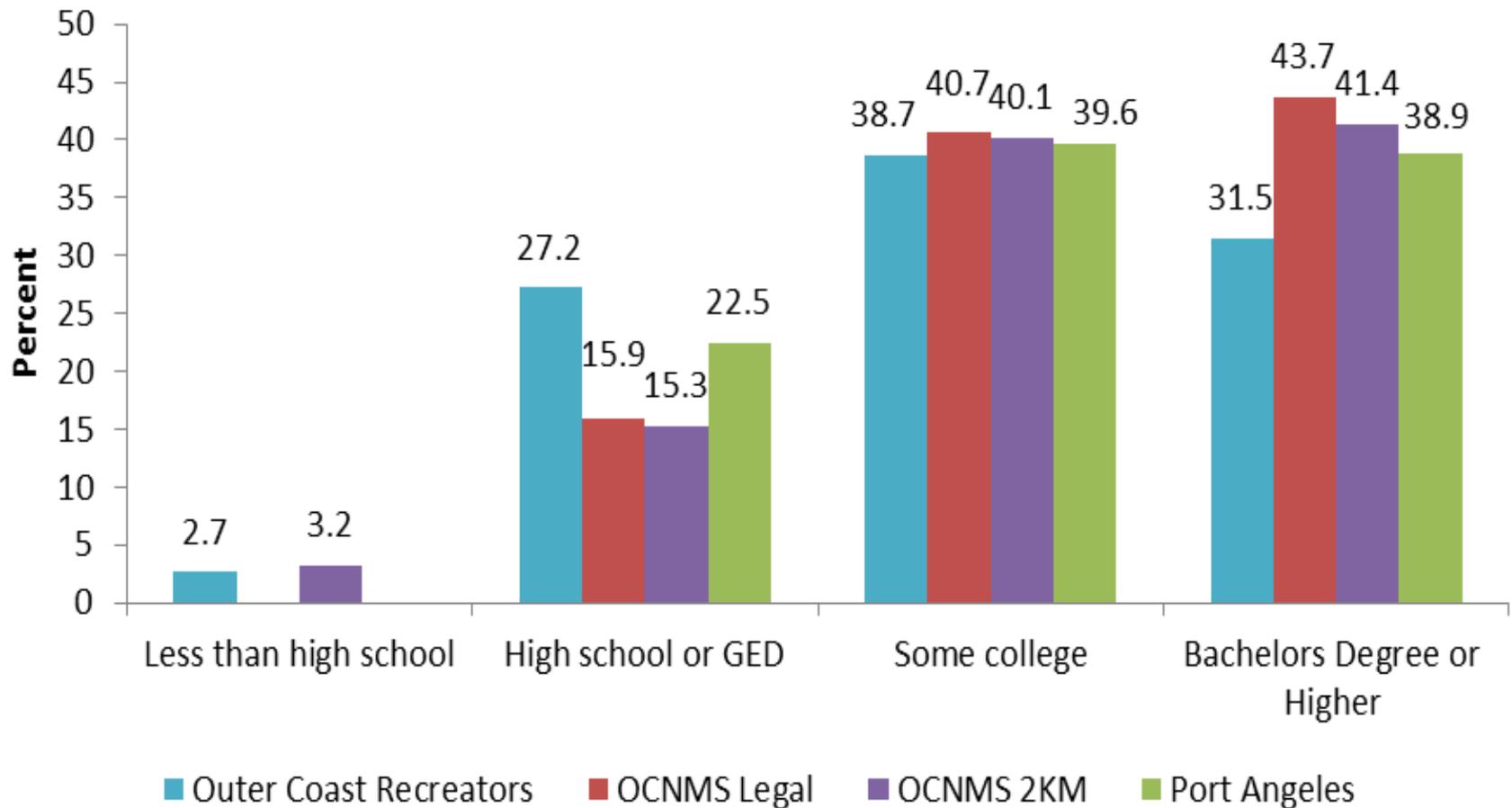
- Age
- Gender
- Race/Ethnicity
- Head of Household
- Marital Status
- Educational Level
- Employment Status
- Place of Residence
- Household Income
- Household Size
- Housing Type

Comparisons

1. Outer Coast of WA, OCNMS – Legal Definition, OCNMS 2 km Buffer, & Port Angeles
2. Outer Coast of WA, Olympic National Park-Coastal and Olympic National Park – Inland
3. Outer Coast of WA, Makah, including Neah Bay, Quileute, and Quinault Nation



Example: Education Level





Olympic Coast National Marine Sanctuary



ACTIVITY PROFILES AND MAPS

Measurements

1. Activity participation by activity type over last 12 months and last trip
2. Total person-trips and person-days over last 12 months and last trip
3. Person-trips and person-days by activity type over last 12 months and last trip
4. Maps of person-days by activity type over last 12 months

Measurements

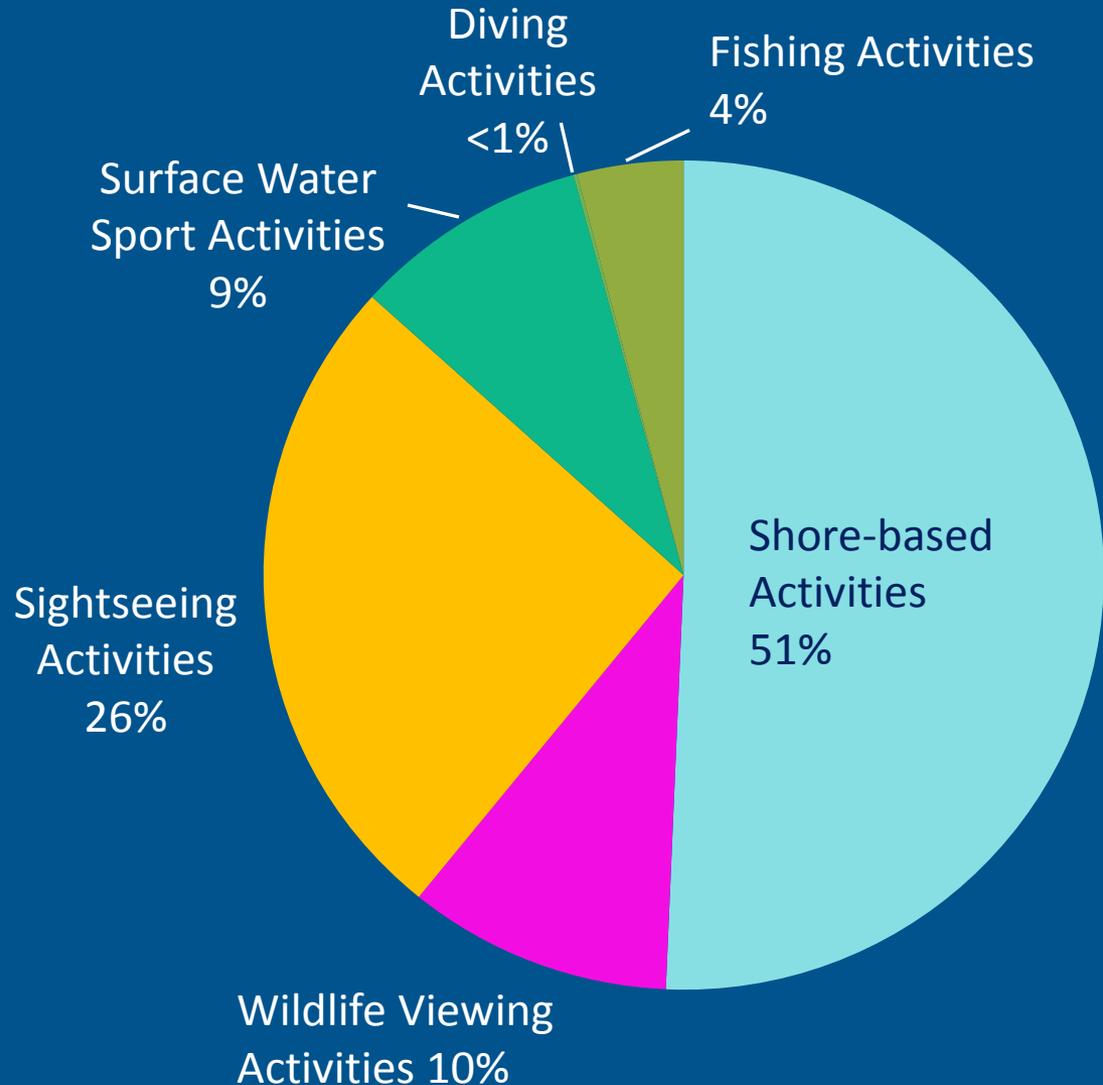
- Measures of use intensity
 - Person-trip = # of visits a household takes to a given destination * the number of people per trip
 - Person-day = person trips * the length of the stay

Annual Person-days

Region	Person-Days	%Outer Coast Person-Days
Outer Coast	13,122,070	
OCNMS Legal	662,079	5.0%
OCNMS 2 KM	2,098,375	15.99%
Port Angeles	149,386	1.1%

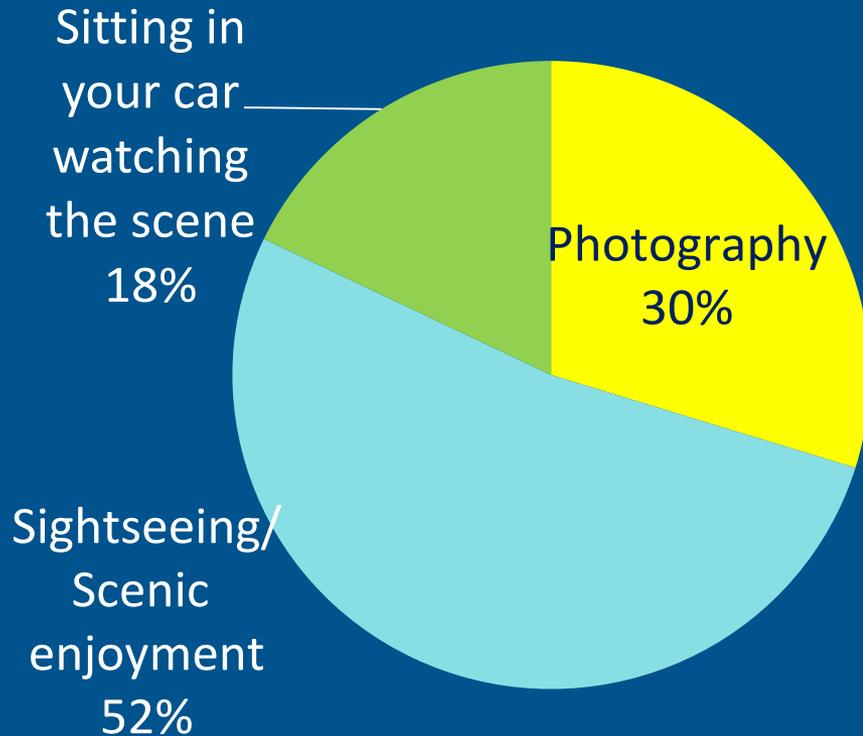
OCNMS Summary

Similar overall patterns when all points within Outer Coast were considered

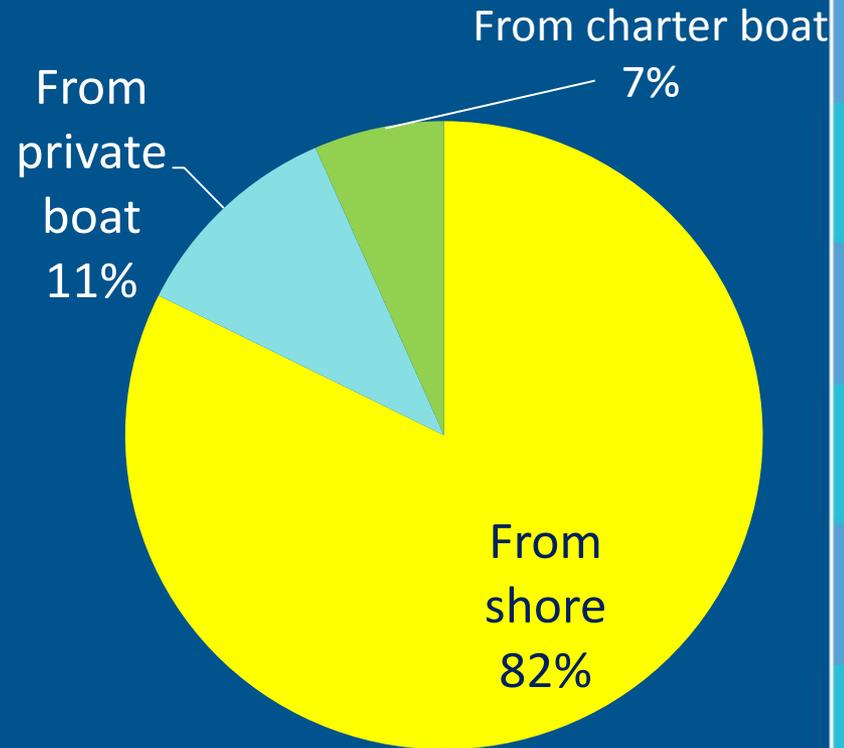


OCNMS Examples

Sightseeing activities

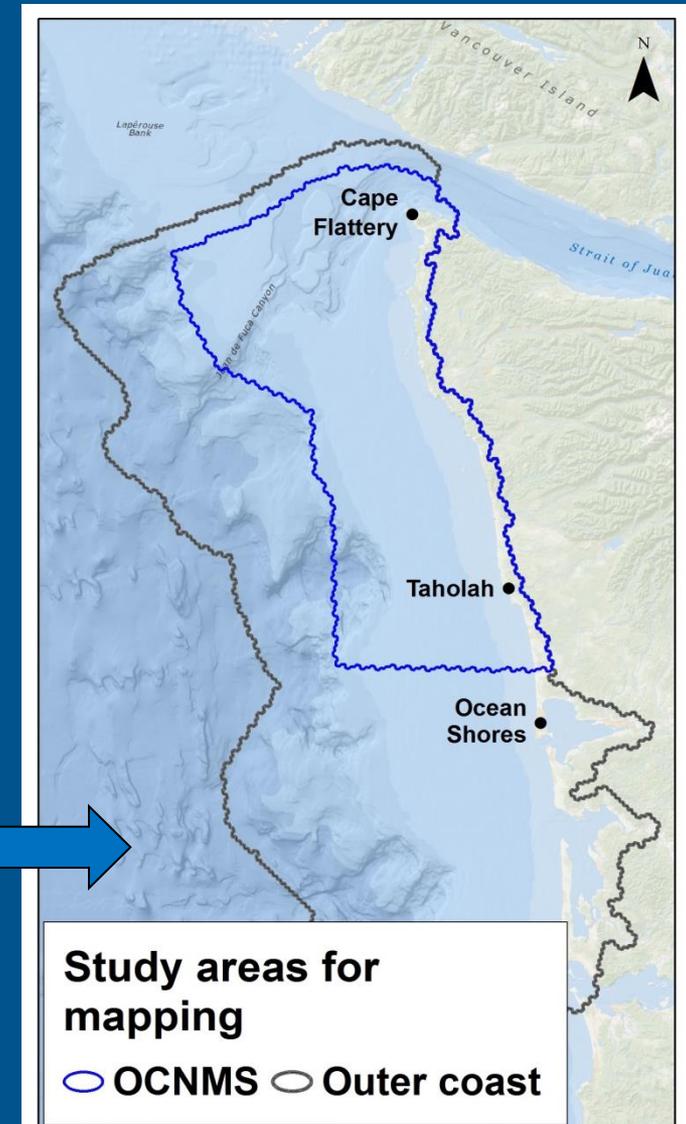


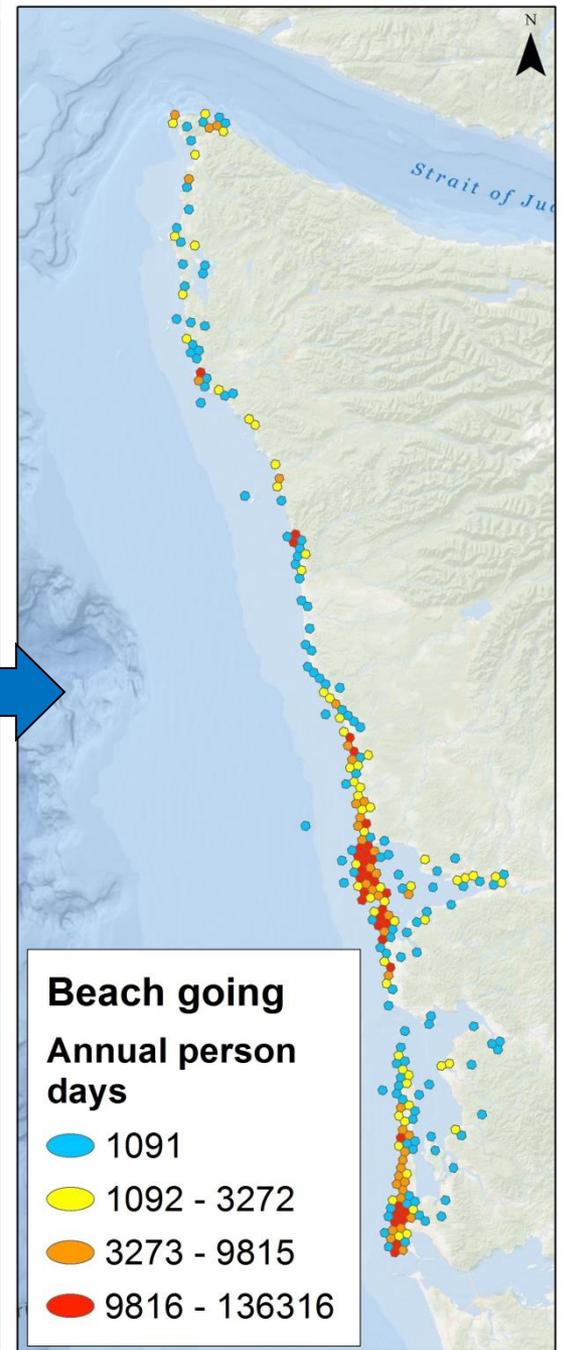
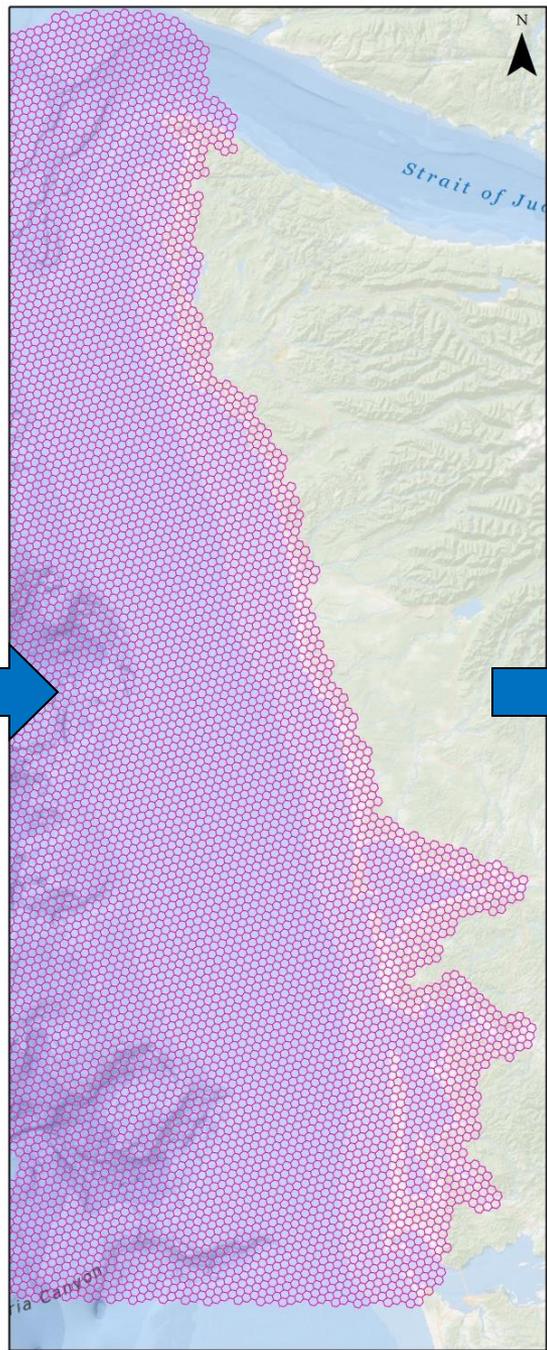
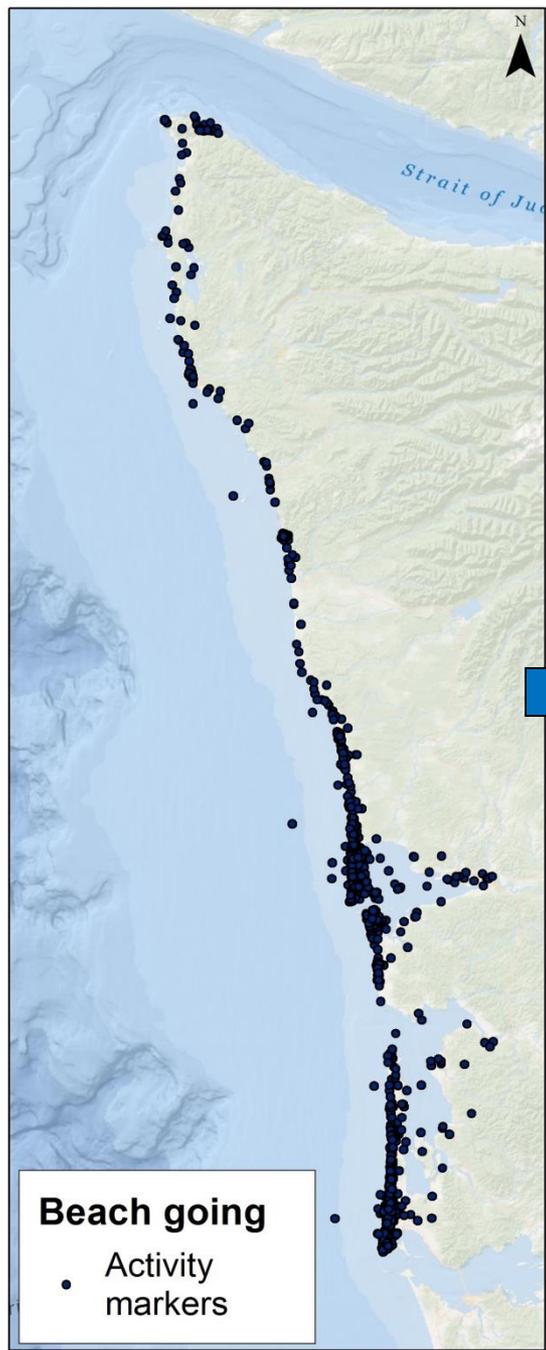
Wildlife Viewing activities



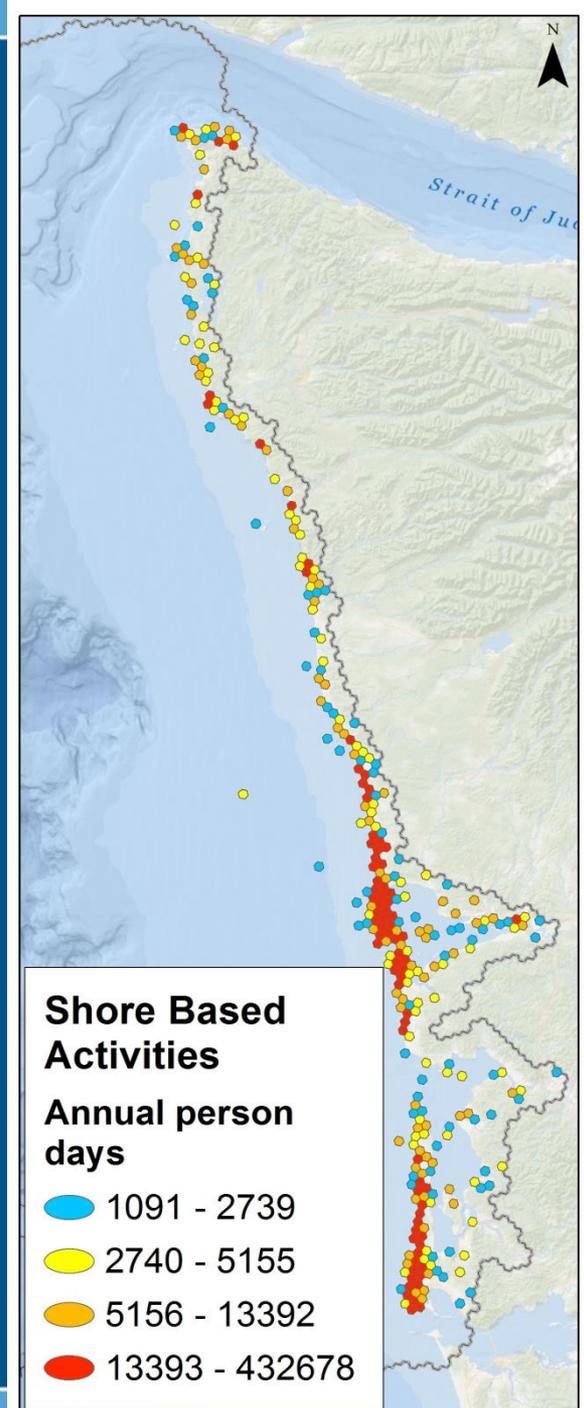
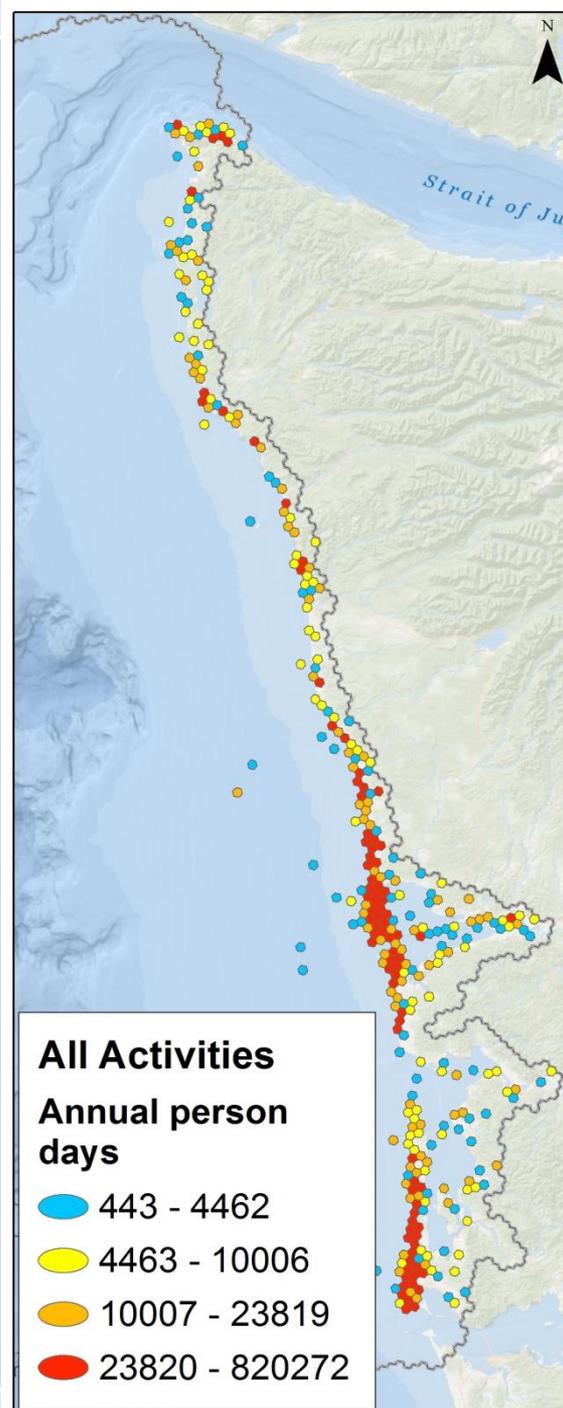
Recreational Use Mapping

- Recreational use maps
 - Annual person-days
 - All activities
 - 6 activity groups
 - 31 individual activities
- Person days summarized to state of WA hexagon layer for outer coast and OCNMS

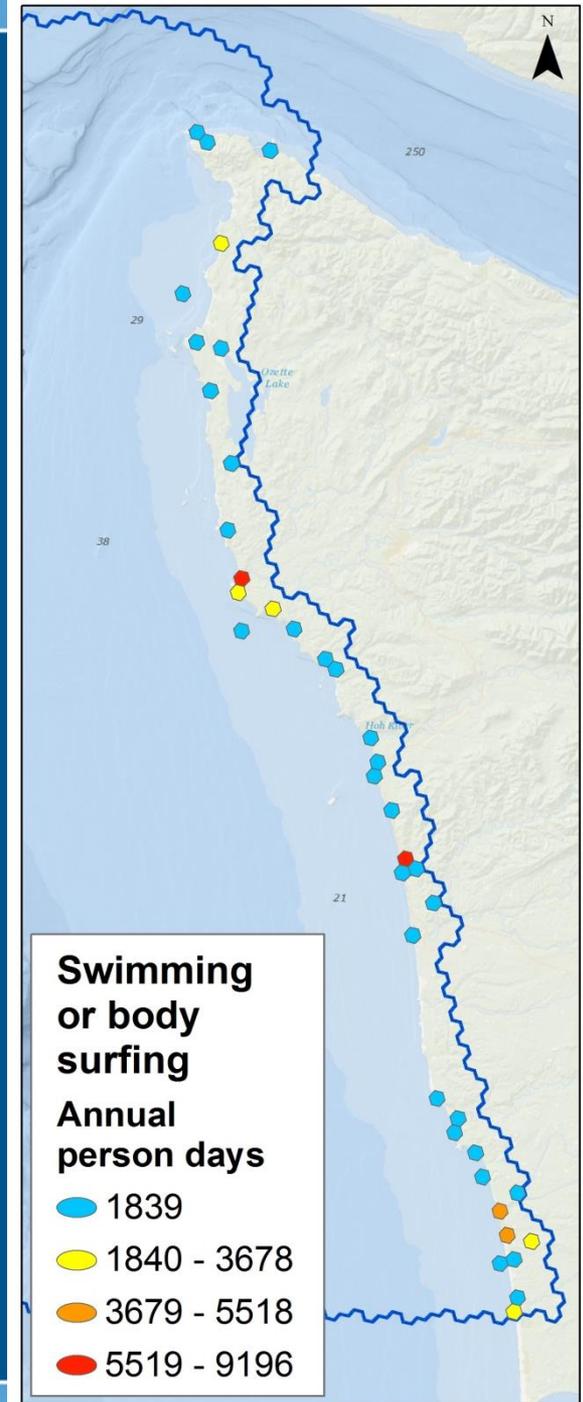
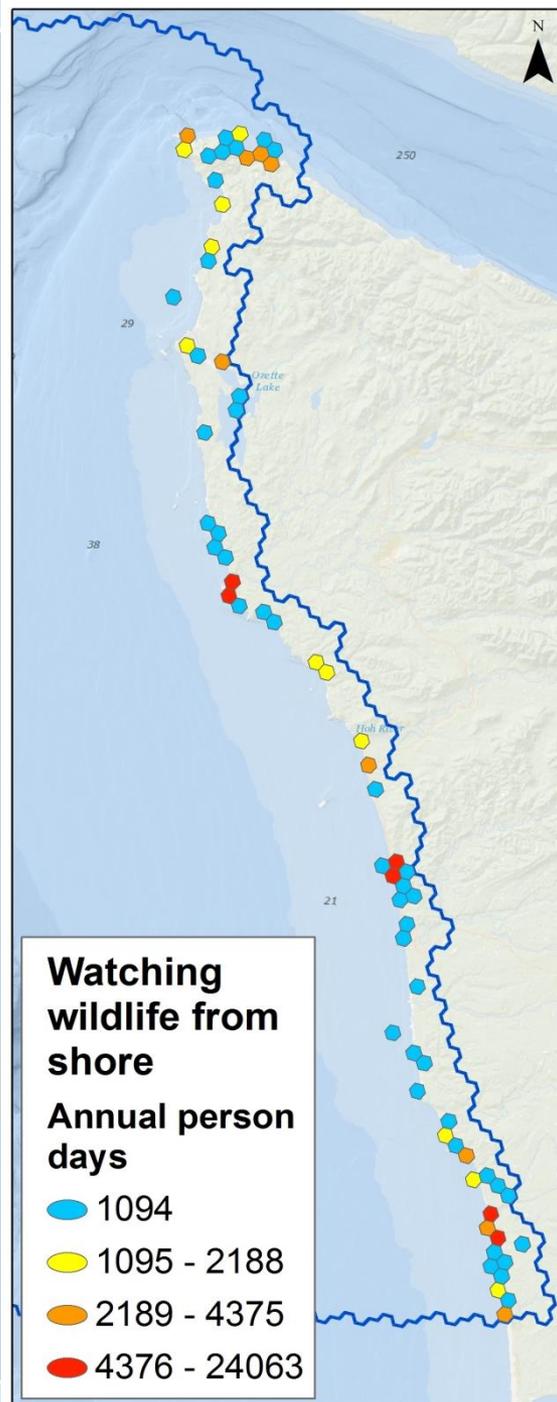




Example Maps: Outer Coast



Example Maps: OCNMS





Olympic Coast National Marine Sanctuary

EXPENDITURES AND ECONOMIC IMPACT

Measurements

1. Average expenditures per person-trip and person-day by category
2. Total annual expenditures by category

Total Annual Expenditures

Region	Annual Expenditures	% Outer Coast Expenditures
Outer Coast	\$551,559,477	
OCNMS Legal	\$30,849,975	5.6%
OCNMS 2 Km	\$101,584,675	18.4%
Port Angeles	\$8,703,467	1.6%

Impact on Local Area Economies

- Different study areas defined for each jurisdiction
 - *Primary Counties* – Counties along the coast
 - *Secondary Counties* – Counties where employees live who work in the primary counties (Census of Inter-county commuters)

Impact on Local Area Economies: OCNMS – 2 km

Visitor Spending
\$101,584,675

Total Output
\$128,214,947

Total Income
\$46,130,453

Total Employment
1,192 jobs



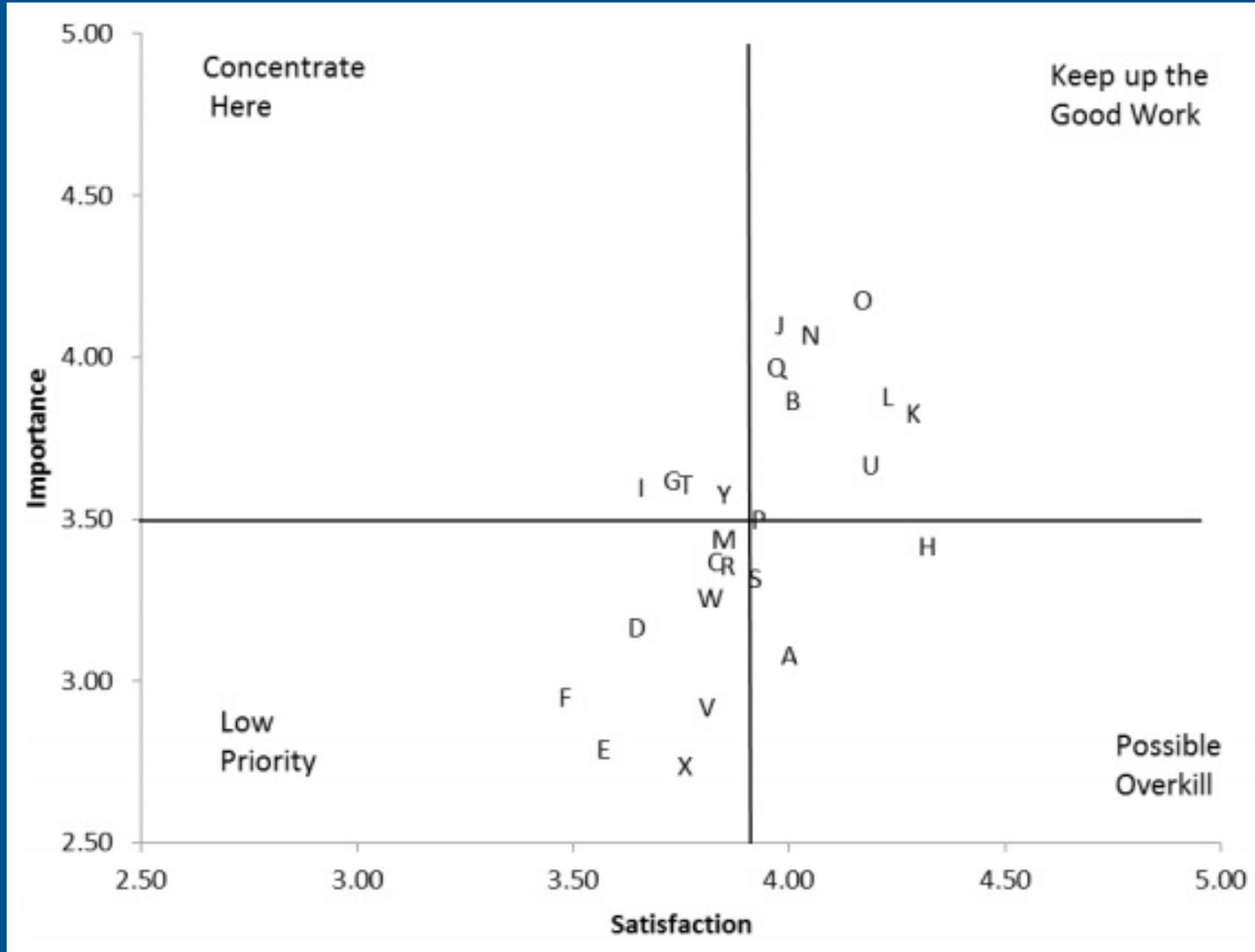
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Steve Fisher

PREFERENCES AND VALUES

Importance-Satisfaction Ratings



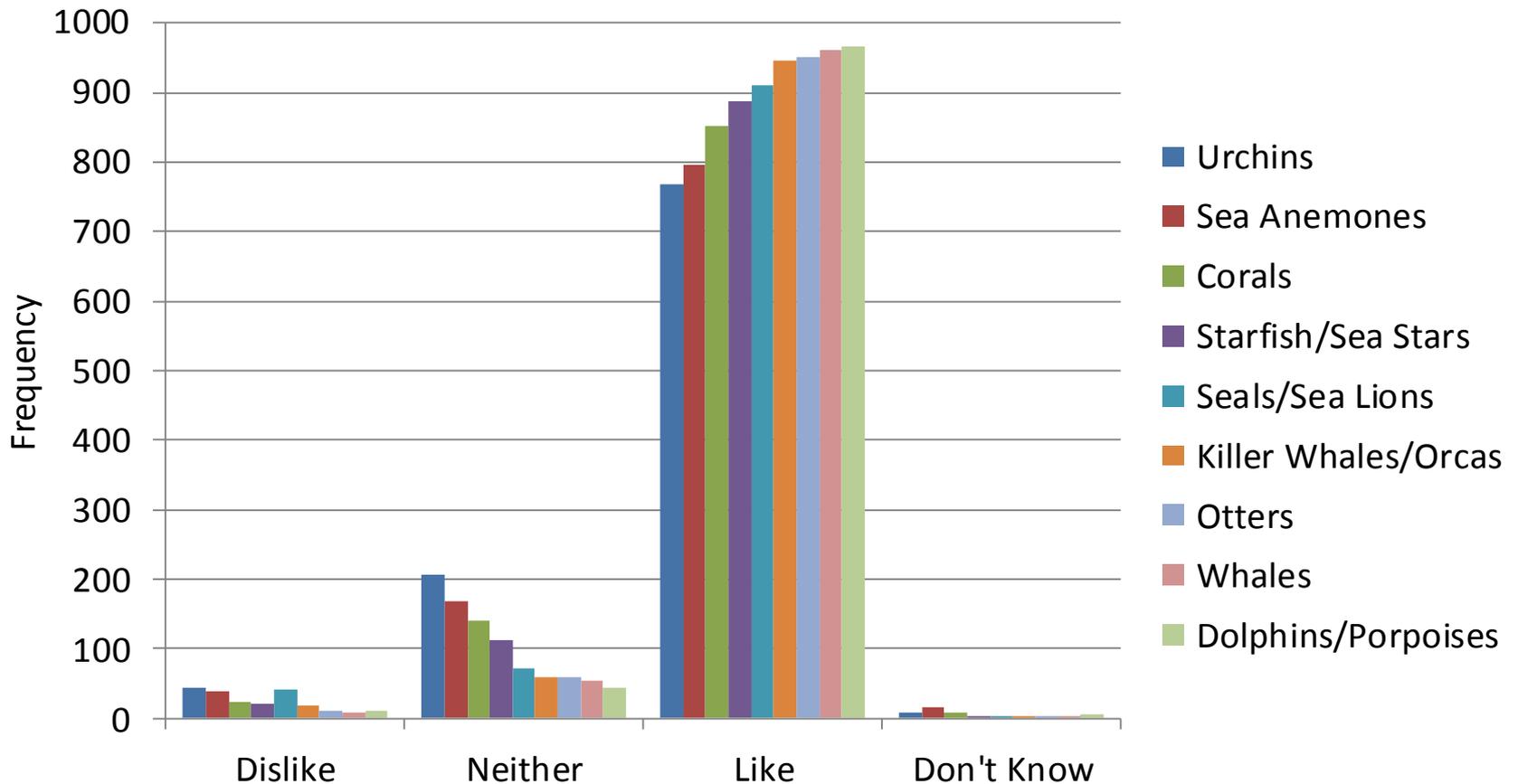
Importance-Satisfaction Ratings

- Concentrate Here
 - I. Control of invasive species
 - G. Abundance of fish and sea life
 - T. Public restrooms
- Keep up the Good Work
 - B. Clean water
 - J. Beach cleanliness
 - U. Uncrowded conditions

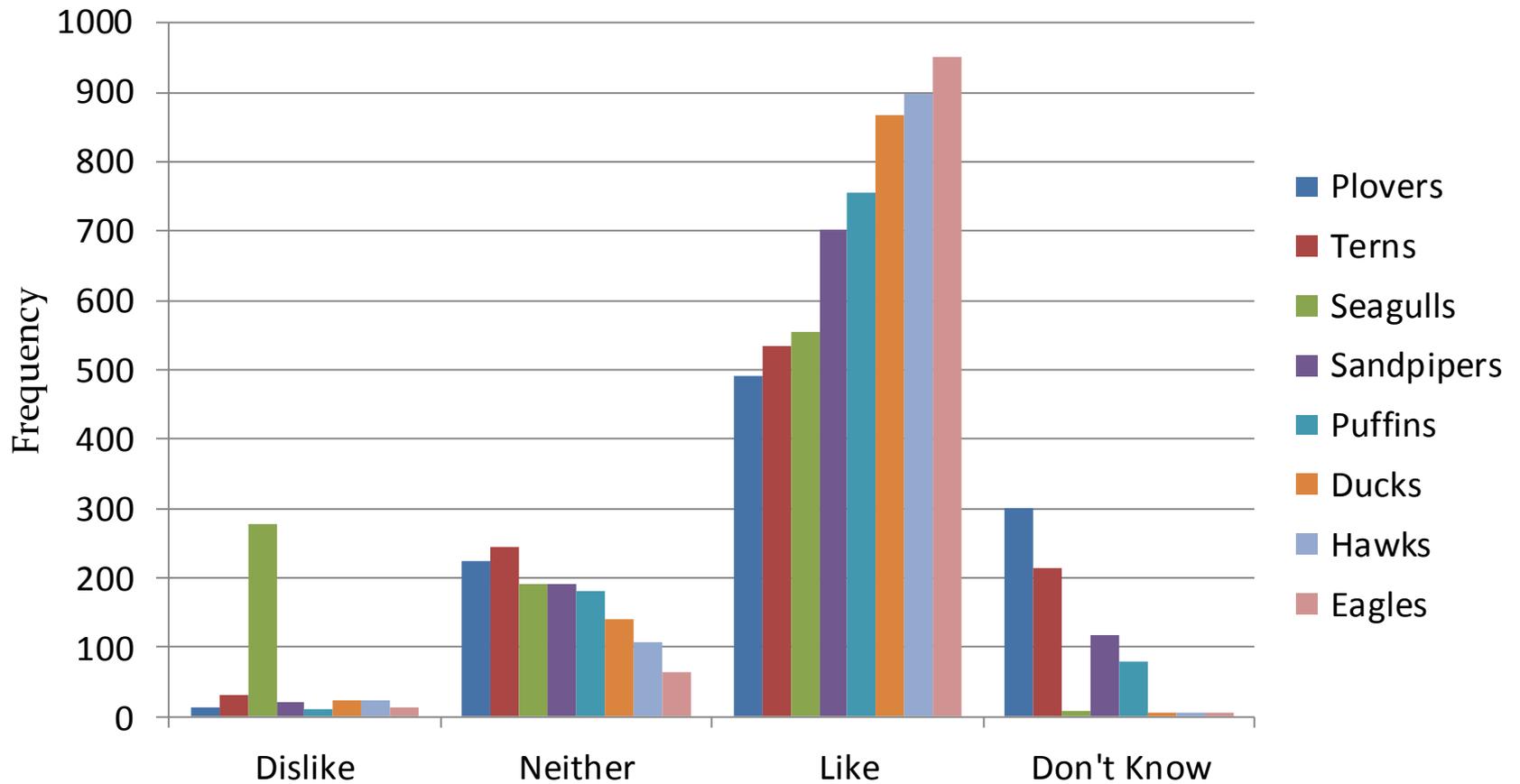
Importance-Satisfaction Ratings

- Possible Overkill
 - A. Clear water
 - H. Presence of sea stars to see in tidal pools
 - S. Parking
- Low Priority
 - M. Tidal pool organisms
 - X. Tourist information
 - W. Signage at access points

Marine Animal Preferences



Bird Preferences



Ecological Worldview

- New Ecological Paradigm (NEP) scale
 - Level of agreement or disagreement with 15 statements
- Ecological worldview groups
 - Strong ecological worldview
 - Moderate ecological worldview
 - Dominant social worldview

Crowding Preferences

Picture 1



Picture 2



Picture 3



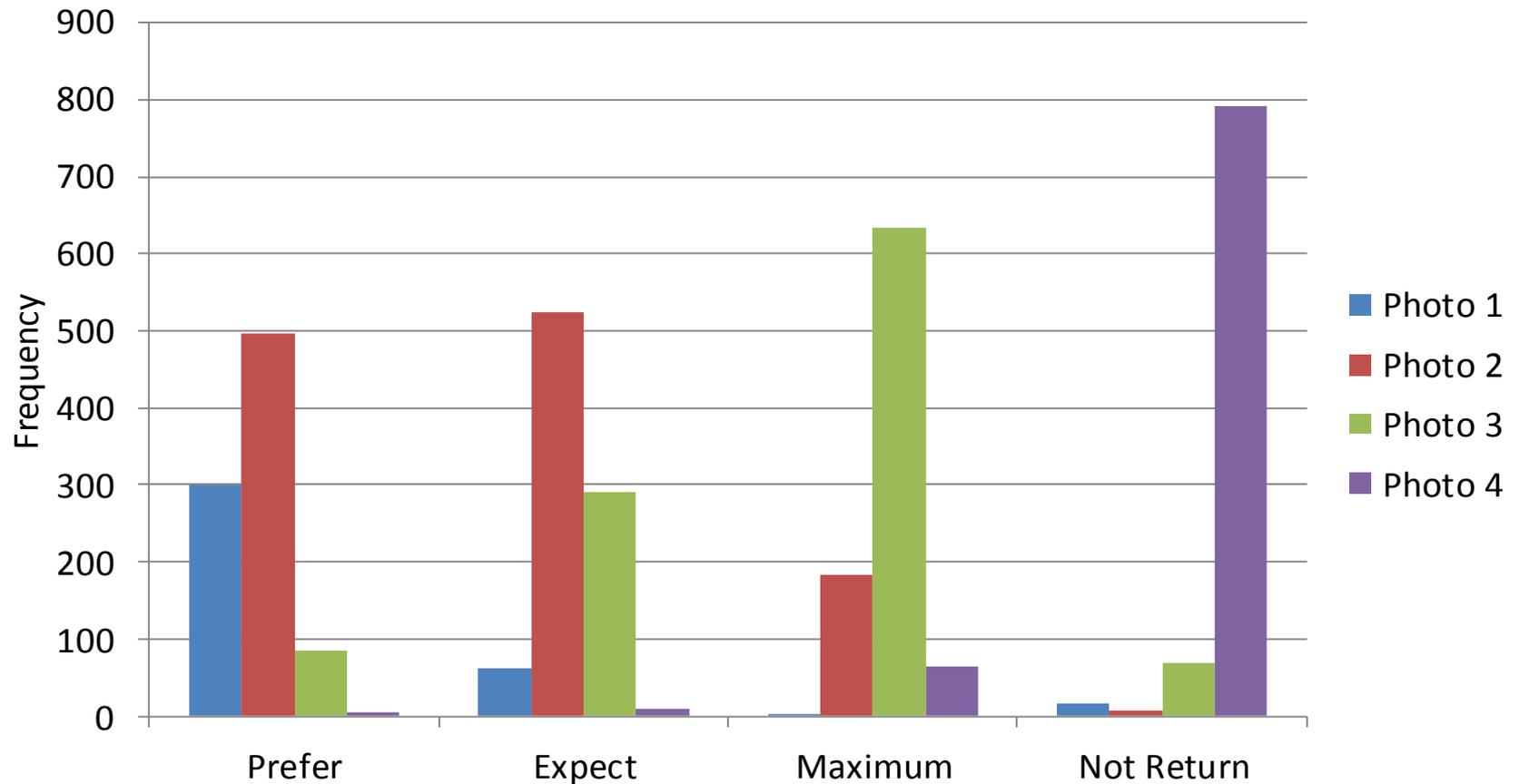
Picture 4



Crowding Preferences

1. Number of visitors they would expect to see
2. Number of visitors they would prefer to see
3. Maximum acceptable number of visitors
4. Number of visitors that would cause them to not return

Crowding Preferences





Fred Sharpe



Olympic Coast National Marine Sanctuary



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NON-MARKET VALUATION

Survey Design

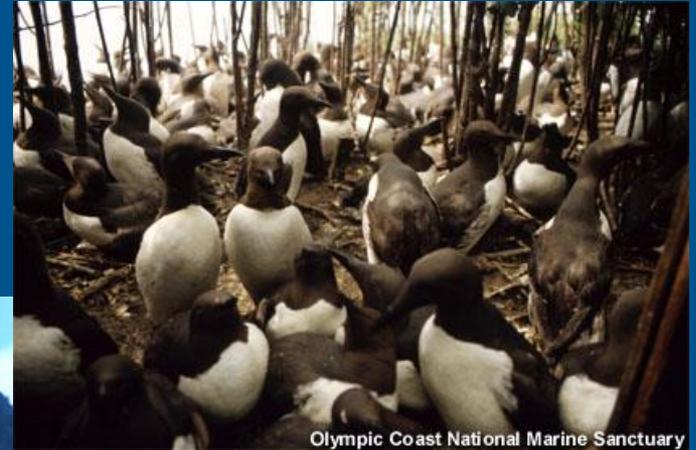
- Four choice sets with three options each
 - 10 natural resource attributes
 - Status Quo: low resource conditions and free
 - Options A and B: mixes of low, medium, and high resource conditions and randomly assigned price
- Costs would be paid by all residents and visitors through increased prices of goods and services

Natural Resource Attribute Values

Attribute	Low	Med	High
Clean Water	\$106.72	\$213.45	\$320.17
Marine Mammals	\$90.77	\$181.55	\$272.32
Development	\$74.55	\$149.09	\$223.64
HABS	\$70.84	\$141.68	\$212.52
Shoreline Quality	\$69.61	\$139.22	\$208.82
Predators	\$51.79	\$103.57	\$155.36
Seabirds	\$39.48	\$78.96	\$118.44
Tide Pool Access	-\$29.06	-\$58.11	-\$87.17



Nancy Sefton



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NATURAL RESOURCE ATTRIBUTE MAPPING

Key Attributes

- Water Quality
- Intertidal organisms
- Marine debris
- Seabirds
- Tourism points of interest

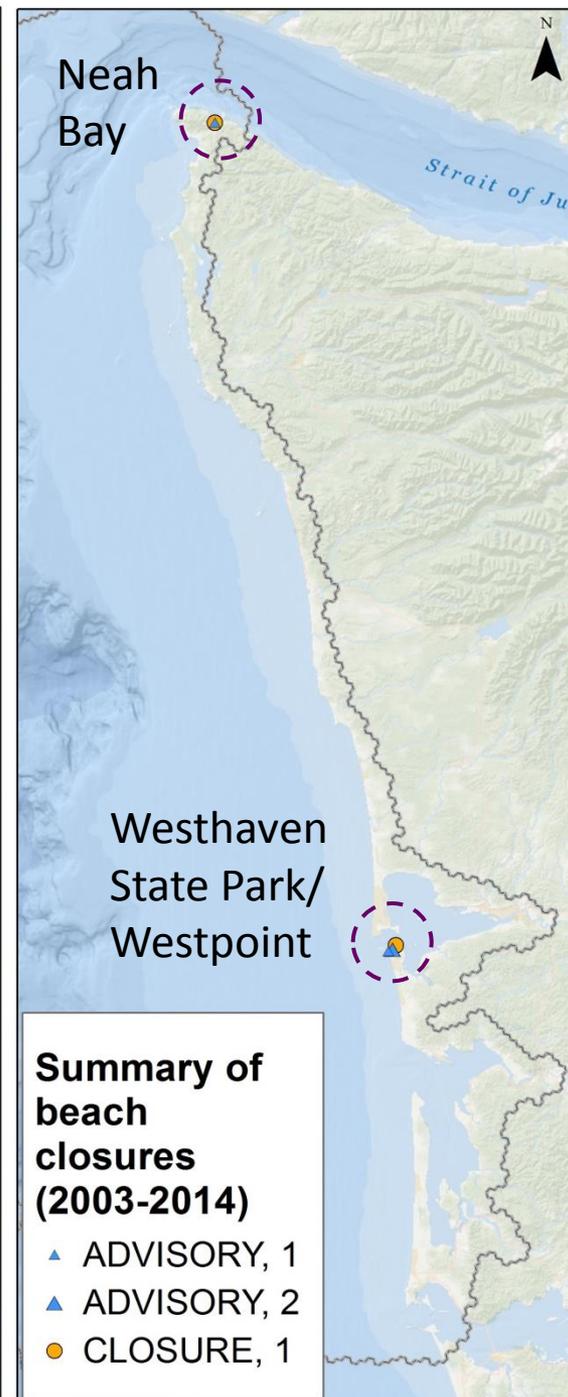
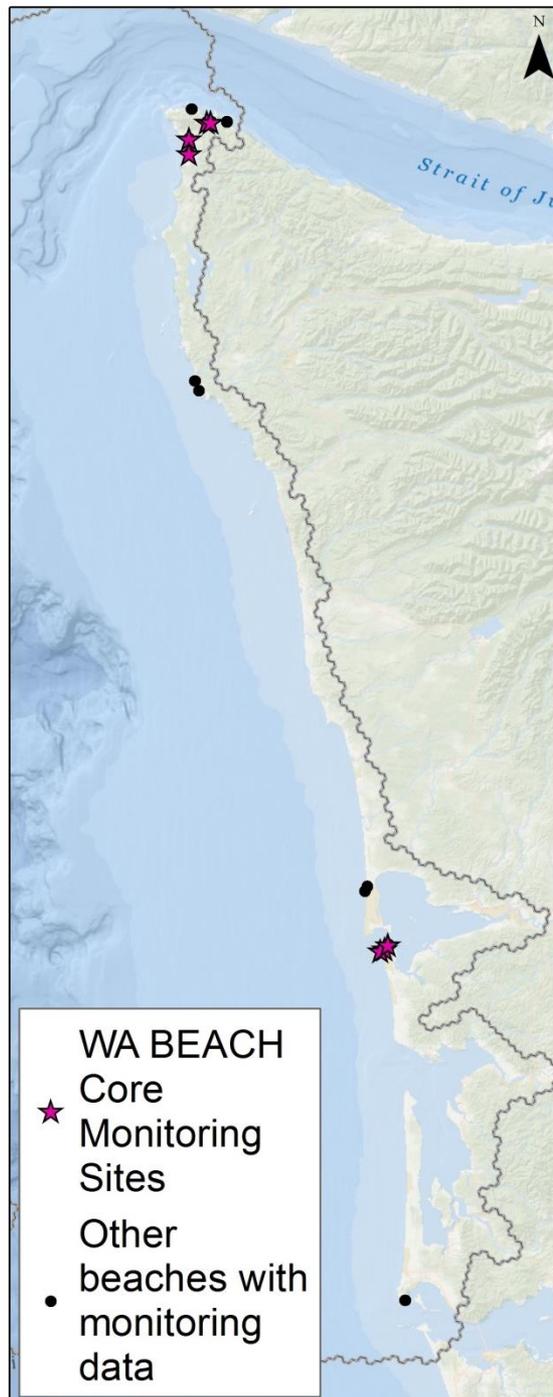


Data Collection and Assimilation

- Datasets acquired from several state, federal, and academic partners
 - e.g., NOAA; State of WA Depts of Ecology and Health; U.S. Census
- Maps produced of data as-is or analyzed to create summary layers
- Final Products:
 - PDF maps
 - ArcGIS Geodatabase

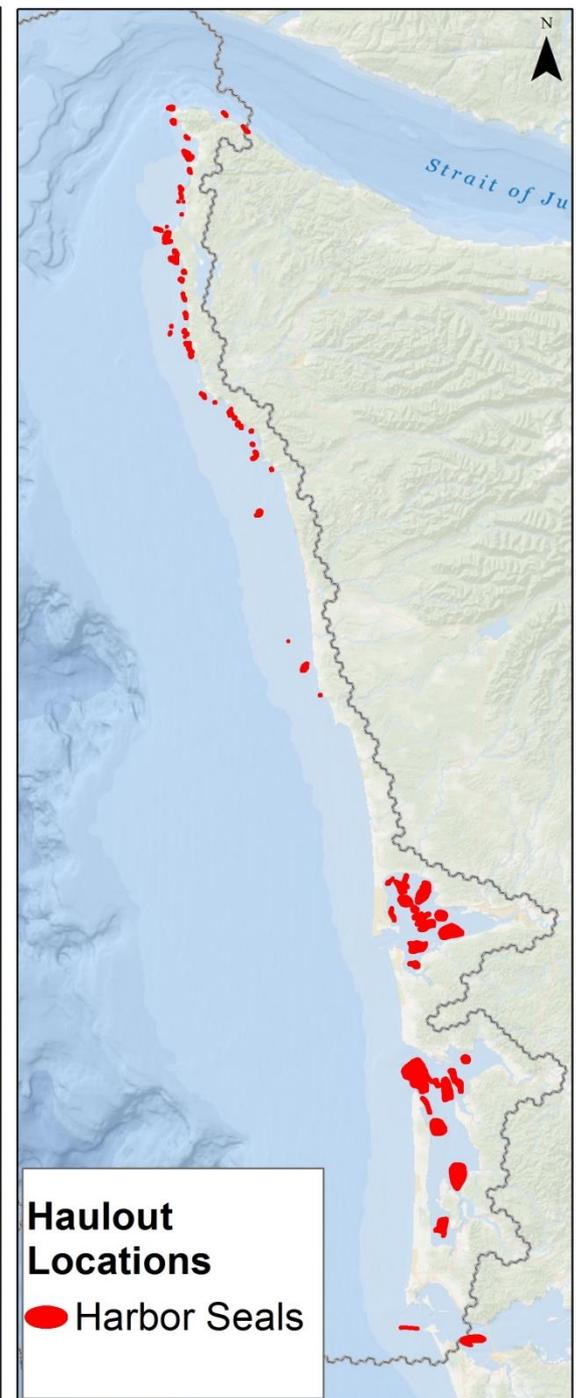
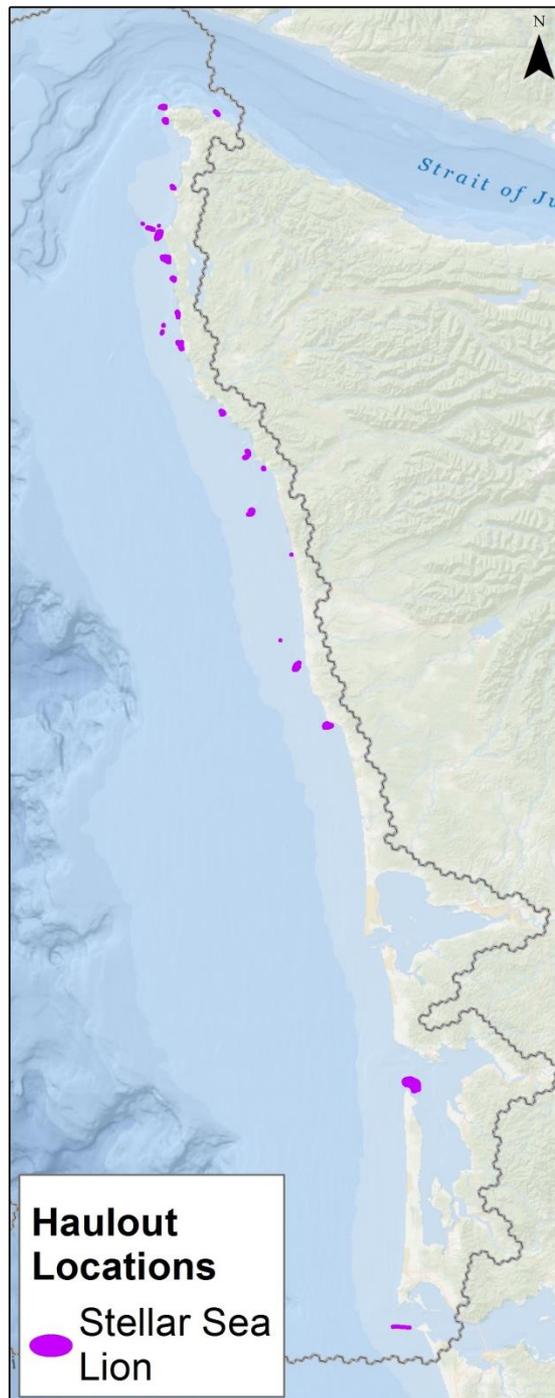
Example: Water quality

- WA BEACH monitoring for *Enterococci* bacteria (data from WA Dept. of Ecology)



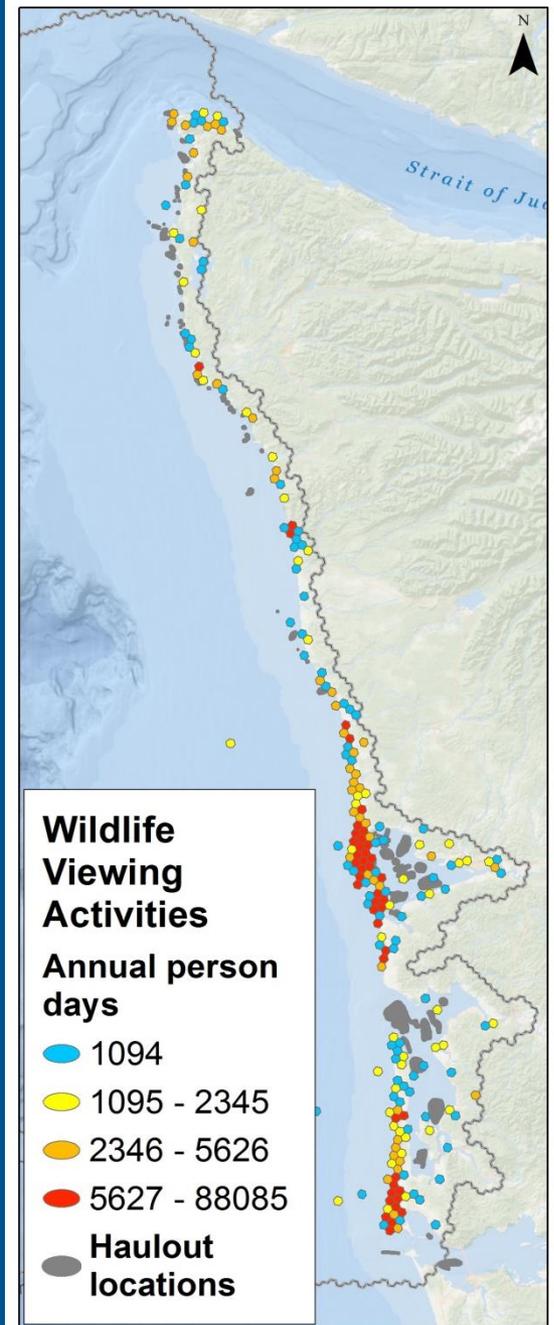
Example: Marine Mammals

- Known marine mammal haulout locations (data from WA DFW)



Attribute and Activity Linkages

- Example: Known marine mammal haulout sites (all species combined) and wildlife viewing activities



Uses of the Information

1. State of WA Marine Spatial Planning
2. OCNMS Management Plan
3. OCNMS Condition Reports – Evaluate Ecosystem Services
4. Damage Assessments
5. Evaluation of Investments in Environmental Protection & Restoration
6. Marketing – Understanding your users
7. Business Community – Business Plans

Planned Products

- Six Topical Reports
 1. Socioeconomic Profiles of Recreational Users
 2. Summary of Importance-Satisfaction Ratings
 3. Economic Impact/Contribution to Local Area Economies
 4. Technical Appendix: Socioeconomic Profiles and Economic Impact/Contribution
 5. Non-market Economic Value of Natural Resource Attributes
 6. Technical Appendix: Non-market Economic Value of Natural Resource Attributes
- Other Products: Fact sheets, tabular data/ documentation, maps, geodatabase, webpage

ONMS/NCCOS Project Team

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