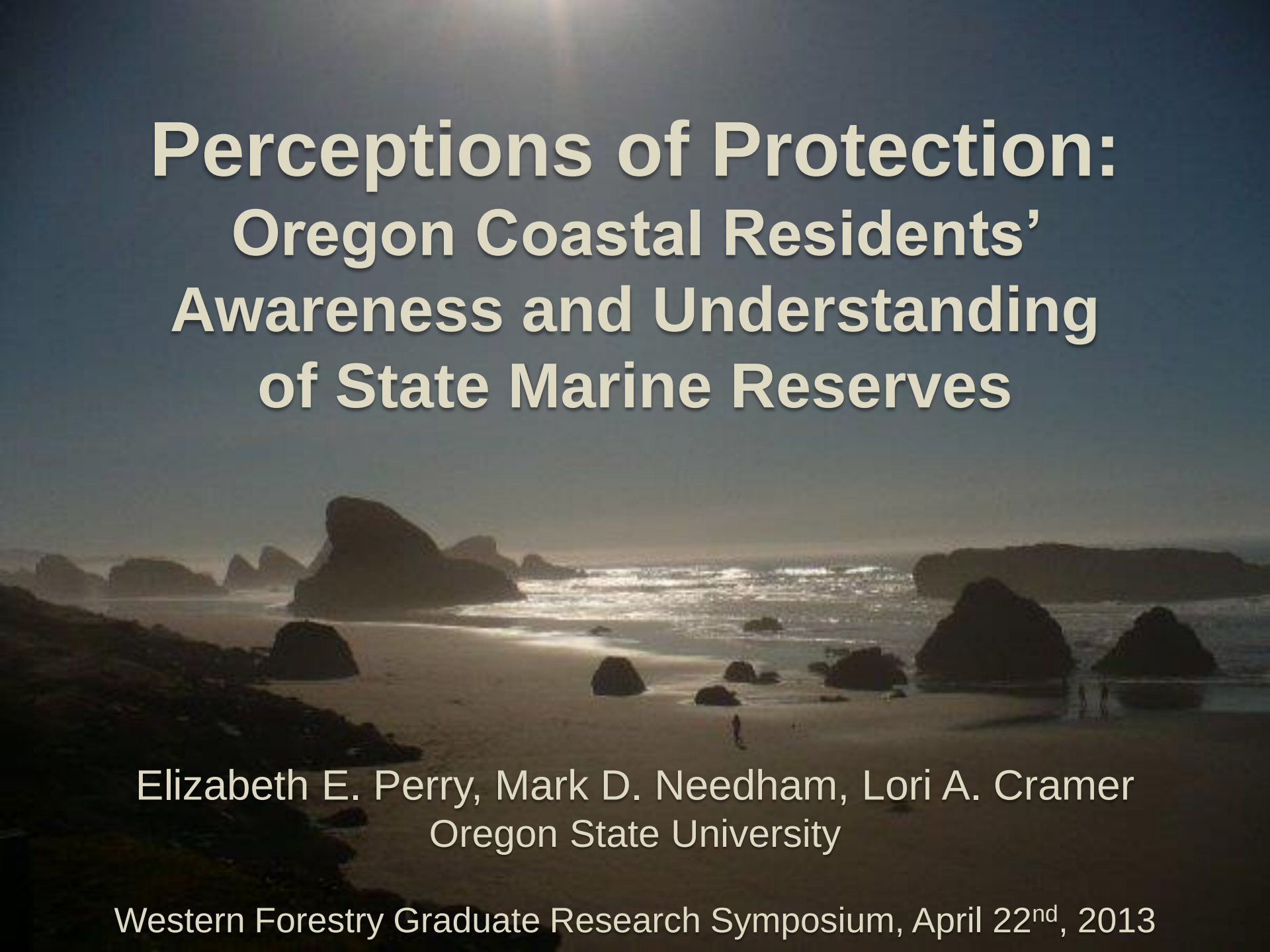

Perceptions of Protection: Oregon Coastal Residents' Awareness and Understanding of State Marine Reserves

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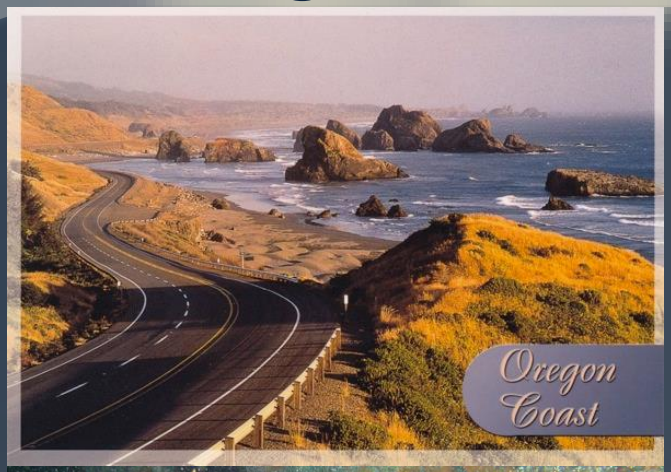
Western Forestry Graduate Research Symposium, April 22nd, 2013

Marine Protected Areas

- Emphasis on conserving marine environments
- Ecosystem based management
- Need data to inform implementation and management
- Need pre-establishment social data
  - Knowledge
  - Attitudes
  - Beliefs
  - Behaviors

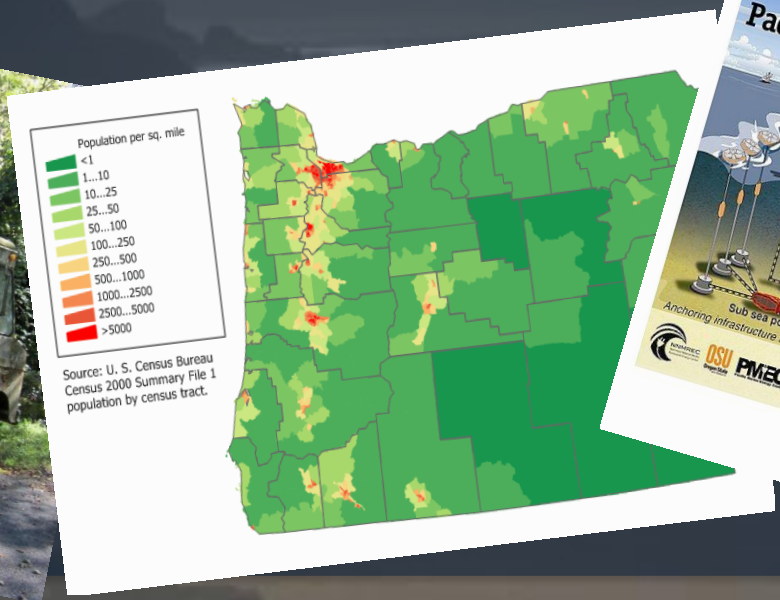
Oregon Marine Reserves - History

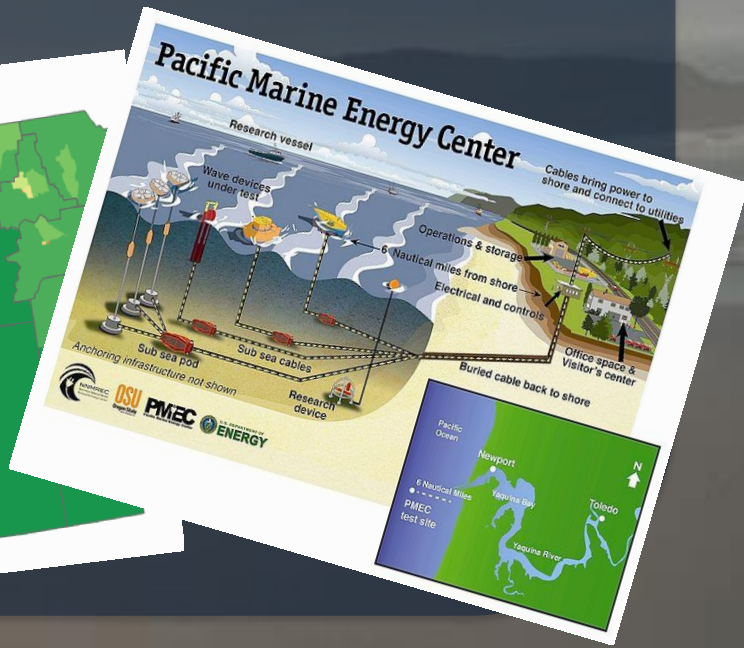


- Create system of <10 marine reserves
  - large enough for conservation benefits
  - small enough to avoid significant economic harm
- Informal process of direct stakeholder input and involvement
- Marine reserves, marine protected areas, seabird conservation areas…

Oregon Marine Reserves – Where are we now?

- Baseline biological site information collected
- Senate Bill 1510 in 2012 formalized approval
  - Two reserves fully implemented
  - Three more reserves established
- Localized concerns expressed in popular media

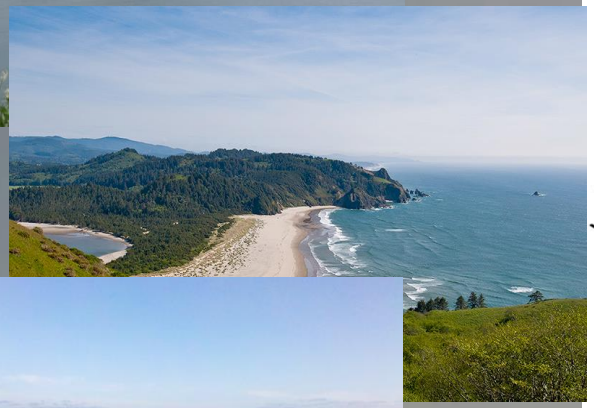




Research Questions

For Oregon coastal residents:

- How knowledgeable are they about the reserves?
- What are their attitudes toward the reserves?
- What are their beliefs about potential effects of the reserves?
- What is their potential voting behavior for/against reserves?
- Do these cognitions vary with resident distance from reserves?



Marine Reserves

Marine Protected Areas

Oregon's Territorial Sea

Pacific Ocean

Cape Falcon
(Site 1)

Cascade Head
(Site 2)

Otter Rock
(Site 3)

Cape Perpetua
(Site 4)

Redfish Rocks
(Site 5)

N

Washington

Astoria

Manzanita

Portland

Lincoln City

Newport

Yachats

Oregon

Coos Bay

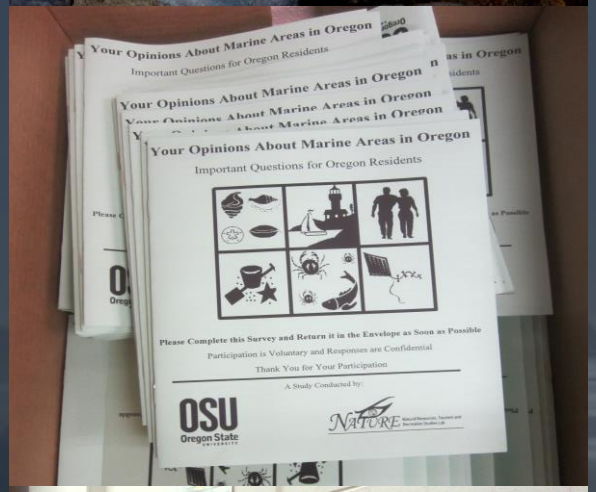
Port Orford

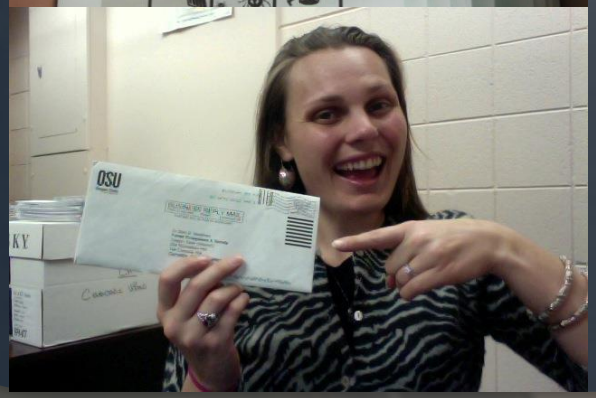
Medford

Brookings

California

Methods





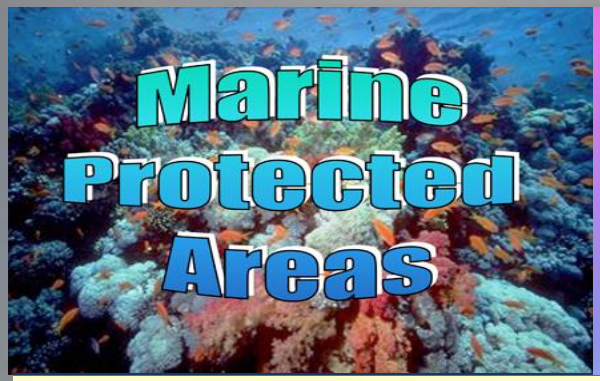
- Mail Survey
  - Three mailings
  - Fall/Winter 2012
- 594 completes
  - Response rate 26.5%
  - 55% Communities of Place
  - 45% Rest of Coast
- Large non-response bias check
  - 202 completes
  - No substantive differences

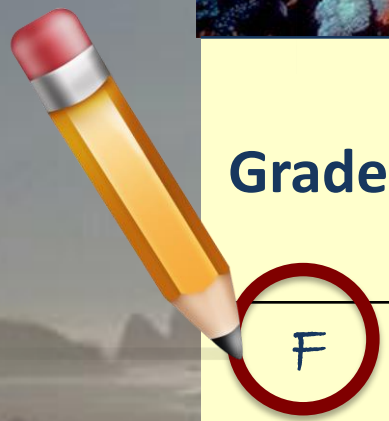
Results – Knowledge Test

Questions of Factual Knowledge	Site Location[1]: Communities of Place	Site Location[1]: Rest of Coast	Total	x^2 value	*p*-value	Phi effect size
The government has considered MRs for several years	71	72	71	.040	.841	.009
Commercial fishing would be allowed in all MRs	68	68	68	.025	.875	.007
There have been opportunities for public involvement in agency discussions about MRs	64	58	61	2.445	.118	.066
Keeping fish caught in MRs would be allowed in all MRs	62	57	60	1.143	.285	.045
Only scientists and no one else would be allowed in MRs	57	54	56	.471	.493	.029
The government has approved MRs for this state	48	47	48	.041	.839	.009
New developments such as wave energy or fish farms would be allowed in all MRs	41	36	39	1.766	.184	.056
All MRs would include coastal lands (e.g., coastlines)	42	34	38	4.366	.046	.088
Non-extractive recreation / tourism activities (e.g., swimming, diving) would be allowed in all MRs	35	35	35	.001	.977	.001
The government has established five MR sites	29	30	30	.087	.768	.013

[1]Cell entries are percentages (%) correctly answered

Results – Knowledge Report Card





Grade	Site Location[1]		Total
	Communities of Place	Rest of Coast	
F	44	52	48
D	14	14	14
C	16	15	16
B	16	12	14
A	11	7	9

[1] Cell values are percent (%) in each grade. $x^2 = 5.274$, $p = .260$, Cramer's V effect size = .099

Results – Attitudes toward Protection/Use of Oregon's Marine Areas

Utilization / Protection. "In Oregon, we should…"	Site Location[1] Communities of Place	Site Location[1] Rest of Coast	Total
Fully utilize marine areas with almost no protection	3	3	3
Mostly utilize marine areas with just a little protection	26	40	33
Mostly protect marine areas with just a little utilization	55	46	51
Fully protect marine areas with almost no utilization	17	11	14

65%

[1]Cell entries are percentages (%) that agreed with that statement.

x^2 value = 12.919, *p*-value = .005, Cramer's V effect size = .153.

Results – General and Specific Attitudes toward Marine Reserves

Attitude measure	Site Location[1]: Communities of Place (55%)	Site Location[1]: Rest of Coast (45%)	t-value	*p*-value	Effect size (r_{pb})
Attitudes toward marine reserves **in general**	4.10	3.71	3.240	.001	.142
Attitudes toward marine reserves **in Oregon**	4.01	3.60	3.479	.001	.153

[1]Cell entries are means on 5-point semantic differential scales of 1 being a negative association and 5 being a positive association (actual wording varies by question).

Positive overall attitudes to both
More positive in Communities of Place

Results – Belief Benefits

Belief statements. "On the Oregon coast, marine reserves would…"	Site Location[1]: Communities of Place	Site Location[1]: Rest of Coast	Total	x^2 value	*p*-value	Phi effect size
Allow scientists to monitor marine areas over time	86	79	83	4.702	.030	.093
Improve our understanding of marine areas	83	73	79	7.850	.005	.120
Allow depleted marine species populations to recover	82	74	78	4.526	.033	.091
Improve scientific understanding of marine areas	81	72	77	5.320	.021	.099
Protect marine species diversity	81	70	76	8.019	.005	.121
Benefit marine areas in general	79	68	74	8.909	.003	.127
Increase marine species populations	78	69	74	5.537	.019	.101
Improve the ability to manage marine areas	66	55	61	7.437	.006	.116
Benefit people in local communities	49	43	46	1.698	.193	.056
Increase tourism	44	38	41	1.866	.172	.058
Improve the economy	33	29	31	1.254	.263	.048

[1]Cell entries are percentages (%) answered "Agree."

Results – Belief Constraints

Belief statements. "On the Oregon coast, marine reserves would…"	Site Location[1]: Communities of Place	Site Location[1]: Rest of Coast	Total	x^2 value	*p*-value	Phi effect size
Reduce commercial fishing	65	59	63	2.001	.157	.064
Cost a lot to manage	48	56	52	3.662	.056	.082
Be difficult to enforce	51	53	52	.211	.646	.020
Prevent people from using the reserve areas	52	52	52	.043	.863	.009
Reduce recreational fishing	52	51	51	.041	.840	.009
Cause some species to become overpopulated	29	31	30	.331	.565	.025
Not be effective in conserving marine areas	16	18	17	.343	.558	.025

[1]Cell entries are percentages (%) answered "Agree."

Results – Voting Behavior

Voting intentions	Site Location[1]		
	Communities of Place	Rest of Coast	Total
I would vote **for** establishing marine reserves in Oregon	78	65	73
I would vote **against** establishing marine reserves in Oregon	22	35	27

[1]Cell entries are percentages (%) who marked that response. $x^2 = 11.772$, $p = .001$, Phi effect size = .146.

Summary

- Knowledge
  - Feel more knowledgeable than they factually are
  - Consistent with protected areas and ocean literacy research
- Attitudes
  - Generally positive
  - Some variation by location

Summary

- Beliefs
  - Heightened support for perceived benefits more than disagreement with constraints
- Behavior
  - Wide margin of support, especially in the potentially most affected communities

Discussion

- One of the first studies of marine protection areas capturing:
  - Pre-implementation phase
  - Information from the public

- Indicates overwhelming support for marine reserves overall

- Residents nearest the reserves expressed:
  - More favorable voting behavior
  - More positive attitudes
  - More agreement with potential positive aspects

Discussion

- Perceptions of benefits and constraints
  - Seem to understand and agree with potential benefits
  - Low agreement with potential constraints
- Critical to address these potential misperceptions
  - Very real constraints, not to be discounted
  - Education and engagement on realistic issues

Thank You

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Marine Resources Program

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