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Siting Aquaculture in Maine: Exploring Conflicts at Public Lease Hearings

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Selected Poster prepared for presentation at the 2016 Agricultural & Applied Economics Association
Annual Meeting, Boston, MA, July 31- Aug. 2

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RESEARCH QUESTION

PRELIMINARY RESULTS

- How do patterns of concerns raised at public aquaculture lease hearings vary by lease characteristics, lessee characteristics, community, and the lease process?

METHODS

- Public aquaculture lease hearing transcripts, from the Maine Department of Marine Resources (DMR), were coded to extract information related to the process and concerns raised
- Using GIS, localized environmental effects (Gopalakrishnan & Klaiber, 2014), community characteristics and lease site attributes were linked with the comments from the hearing
- The concerns were separated into five categories and the number of concerns were scaled based on the community population:

Let Y_{ij} denote the per capita number of concerns about topic category j raised at public aquaculture lease hearing i . We hypothesize that the expected per capita rate is affected by localized characteristics of the region, lease, lessee and community, captured in X_{ij} and an error term ϵ_{ij} . Stacking this data over the J categories,

$$Y_i = \beta X_i + \epsilon_i$$

where X_i is a block diagonal matrix, β is a $JK \times 1$ vector of stacked parameters and

$$\epsilon_i \sim MVN(0, \Sigma).$$

- This system of equations was jointly estimated using seeming unrelated regression (SUR)

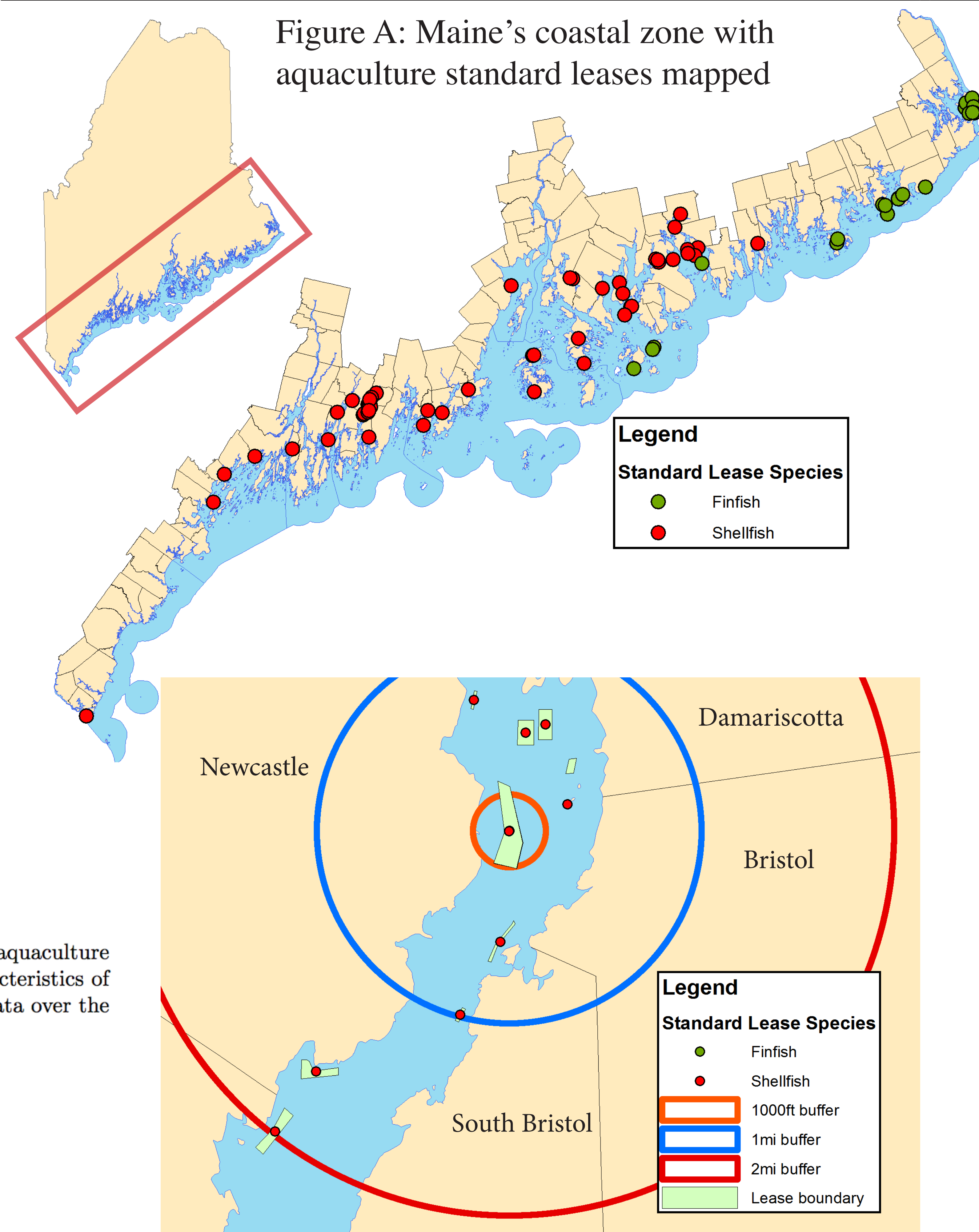


Figure A: Maine's coastal zone with aquaculture standard leases mapped

Figure B: Example of distance buffers centered on a lease site to link with public hearing data and community characteristics along Damariscotta River

Table C: System of equations results using seemingly unrelated regression (SUR), five concern categories as dependent variables

	Public Use	Env Quality	Fishing	Practical	Legal
log(acres)	-6.440* (0.073)	-1.851** (0.029)	-0.107 (0.936)	-1.164 (0.129)	-0.033 (0.484)
Shellfish	-22.682* (0.050)	-6.828** (0.017)	-0.756 (0.857)	-3.797 (0.121)	-0.218 (0.271)
Shellfish*log(acres)	6.519* (0.067)	1.774** (0.040)	0.109 (0.935)	1.132 (0.136)	0.069 (0.266)
Prior leases (#)	-0.203* (0.057)	-0.024 (0.632)	0.058 (0.313)	-0.020 (0.352)	-0.010 (0.257)
From region	-0.091 (0.950)	-0.669 (0.285)	0.018 (0.964)	-0.144 (0.649)	0.141 (0.179)
Company	1.745 (0.124)	0.290 (0.687)	0.153 (0.603)	-0.140 (0.187)	-0.065 (0.270)
Researcher	-0.470 (0.741)	-1.154* (0.081)	-0.299 (0.549)	-0.245 (0.452)	0.048 (0.502)
Intervenors	-0.539 (0.550)	0.391 (0.406)	-0.249 (0.410)	0.174 (0.276)	-0.021 (0.715)
2004 or later	0.766 (0.378)	0.232 (0.532)	0.033 (0.918)	0.334* (0.066)	-0.052 (0.386)
Median Age	-0.583** (0.018)	-0.266*** (0.000)	-0.001 (0.977)	-0.107** (0.039)	-0.008 (0.395)
HS grad (%)	32.213** (0.030)	15.940*** (0.000)	4.141 (0.157)	3.064 (0.326)	0.452 (0.278)
Income (\$k)	-0.087 (0.140)	0.001 (0.981)	-0.010 (0.579)	-0.013 (0.174)	-0.001 (0.873)
Midcoast	3.312** (0.019)	1.387*** (0.007)	0.344 (0.241)	0.310 (0.212)	0.018 (0.799)
MDI	2.698* (0.067)	1.458*** (0.005)	0.399 (0.258)	0.498* (0.073)	0.016 (0.864)
Downeast	1.739 (0.565)	1.152 (0.498)	1.082 (0.336)	-0.089 (0.876)	-0.012 (0.904)
Constant	19.893* (0.072)	4.937 (0.202)	-3.121 (0.509)	6.149*** (0.009)	0.096 (0.702)
N	65				

Significance levels: *** 0.01, ** 0.05, * 0.10

PRELIMINARY INSIGHTS

- Results suggest the efficacy of changes to the DMR's handling of public lease hearings or a reflection of individuals' changing attitudes toward aquaculture
- Contrary to expectations, community income was not a statistically significant predictor of concerns
- This provides a baseline for exploratory analysis that will contribute to broader future research

REFERENCES

Gopalakrishnan, S. & Klaiber, H. A. (2014). Is the shale energy boom a bust for nearby residents? Evidence from housing values in Pennsylvania. *American Journal of Agricultural Economics*, 96(1), 43-66.

ACKNOWLEDGMENTS

Acknowledgment to the Maine Department of Marine Resources and financially supported by NSF award number 1355457 to Maine EPSCoR at the University of Maine.