The ecosystem of governance in eastern Maine
How it shapes our relationships to the ecosystem and governance

Joshua Stoll, Assistant Research Professor of Marine Policy
School of Marine Sciences, University of Maine | Maine Center for Coastal Fisheries

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Institutions are established norms, rules, social networks, and practices that guide and constrain human behavior and action (North 1990, Ostrom 1990)
Rules-in-use (McGinnis and Ostrom 2014)
Governance system (GS)

GS1. Policy area
GS2. Geographic scale
GS3. Population
GS4. Regime type
GS5. Rule-making organization(s)
GS6. Rules-in-use
GS7. Property-rights
GS8. Repertoire of norms and strategies
GS9. Network structure
GS10. Historical continuity
GS5. Rule Making Organizations

Upland Zone

Coastal Zone

Intertidal Zone

Inshore Zone

Offshore Zone

Maine Department of Agriculture, Conservation and Forestry
- Many formal authorities
- Overlapping jurisdiction
- Different directives
Hague Line
Gray Zone
State waters (3 nm)
Superfund Sites
Aquaculture Leases
Gray Zone
State waters (3 nm)
Superfund Sites
Shellfish Closures
River Herring Avoidance Area
Habitat Management Area
Atlantic Salmon Habitat
CZMA Boundary
Scallop Rotational Areas
Stock Area
Hague Line
... and (many) more
### Trouble Determining Closure Status

In the past year, how often have you had trouble determining which areas are safe and legal to harvest shellfish?

<table>
<thead>
<tr>
<th></th>
<th>Pro harvester</th>
<th>Pro farmer</th>
<th>Rec/ subsist harvester</th>
<th>Local comm member</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Respondents</strong></td>
<td>170</td>
<td>45</td>
<td>28</td>
<td>40</td>
</tr>
<tr>
<td><strong>Every Time/ Most Times</strong></td>
<td>12%</td>
<td>11%</td>
<td>21%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Sometimes</strong></td>
<td>42%</td>
<td>38%</td>
<td>43%</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Total w/ Some Trouble</strong></td>
<td>54%</td>
<td>49%</td>
<td>64%</td>
<td>53%</td>
</tr>
</tbody>
</table>

Tora Johnson, Rory Morgan, Kate Pontbriand (2019)
ecosystem of governance

how does it shape our relationship to the natural environment and governance?
How do these changes to the ecosystem of governance impact the well-being of the lobster fleet and coastal communities?

Number of lobster licenses per town (2018)

- Vinalhaven (n = 369)
- Deer Isle (n = 217)
- Jonesport (n = 198)
• Multispecies
• Draw on available data
• Relate to governance
• Trigger questions
• Goal: Inspire critical thinking about social indicators
Cumulative fraction of population

Cumulative fraction of income

Gini coefficient

Lorenz curve

Cobscook Bay communities
e.g. Eastport
21% poverty
15% unemployment
US Census Bureau (2017)

DMR & NOAA (2016)
<table>
<thead>
<tr>
<th></th>
<th>Standard Lease</th>
<th>Experimental Lease</th>
<th>Limited Purpose Aquaculture (LPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size:</td>
<td>100 acres</td>
<td>4 acres</td>
<td>400 ft²</td>
</tr>
<tr>
<td>Total area:</td>
<td>1,000 acres</td>
<td>NA</td>
<td>1,600 ft²</td>
</tr>
<tr>
<td>Timeframe:</td>
<td>20 years (increased in 2017)</td>
<td>3 years</td>
<td>1 year</td>
</tr>
<tr>
<td>Application fee:</td>
<td>$1,500</td>
<td>$100</td>
<td>$50 ($300 non-resident)</td>
</tr>
<tr>
<td>Annual lease fee:</td>
<td>$100/acre</td>
<td>$100/acre</td>
<td>None</td>
</tr>
<tr>
<td>Renewable:</td>
<td>Yes (unless “higher use of the area”)</td>
<td>No (unless for scientific research)</td>
<td>Yes</td>
</tr>
<tr>
<td>Applicant:</td>
<td>Individual or corporation</td>
<td>Individual or corporation</td>
<td>Individual</td>
</tr>
<tr>
<td>Transferability:</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Escrow:</td>
<td>$5,000</td>
<td>$5,000</td>
<td>No</td>
</tr>
<tr>
<td>Training:</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Who benefits from the deployment of different property-rights?

How does resource inequality influence participation and voice in policy and management discussions?

What are the conservation implications of wealth disparities?

How is income inequality changing and why?
Local Port

Port of Regional Significance

Port “shed”
Who is responsible for managing and sustaining working waterfront infrastructure?

Who pays for the externalities of fishing businesses (e.g., trash)?

How does the out migration of fishing families change the ways they engage in fisheries?

How does it change the ways that they participate in local management and town planning?
THE STRUCTURE AND PROCESS OF FISHERY ECOSYSTEM PLANS

1. WHERE ARE WE NOW?
   • Develop a conceptual model
     • Select and calculate indicators
     • Inventory threats

5. DID WE MAKE IT?
   • Compare monitoring data with predictions

2. WHERE ARE WE GOING?
   • Articulate a vision
     • Develop strategic objectives
     • Analyze risks to meeting strategic objectives
     • Prioritize strategic objectives
     • Develop operational objectives

3. HOW WILL WE GET THERE?
   • Identify potential management strategies
     • Evaluate consequences of alternative management actions
     • Select management strategy

4. IMPLEMENT THE PLAN
   • Work plan
     • Resources
     • Outputs
     • Timeline

• Include human dimensions; beyond single species; emphasis on human well-being
• Requires being able to articulate a vision
• Requires being able to imagine alternative management strategies are possible

Levin et al. (2018)

• Requires capacity and resources
Generous support from:


Joshua Stoll, Assistant Research Professor of Marine Policy
joshua.stoll@maine.edu | (207) 581-4307