Economic, political, and sociological barriers and solutions for adaptation planning

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Identifying barriers and solutions to adaptation planning
Adaptation as a process

Moser and Ekstrom. 2010. PNAS 107(51):22026-22031

Multiple actors
Different scales
(Psychological, sociological, and organizational context)

Fig. 2. Phases and subprocesses throughout the adaptation process.
What are the psychological barriers to behavior change?

Gifford. 2011. The Dragons of Inaction
*Psychological Barriers That Limit Climate Change Mitigation and Adaptation.* American Psychologist. Vol. 66, No. 4, 290–302

Seven categories

1) Limited cognition
2) Ideologies
3) Comparison with others
4) Sunk costs
5) Discredence
6) Perceived risk
7) Limited behavior

Identify barriers → Develop interventions → Evaluate
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Ask questions
• Is there uncertainty around climate change impacts?
• Are managers’ perceiving climate change as a problem?
• Do managers’ feel they have the capacity to make changes?
• Do managers’ feel their networks (other managers/supervisors) support adaptation planning?
• Are there other goals for the property that conflict with adaptation planning?
Barriers and opportunities to climate adaptation on public lands


*Funding/project through UMGL LCC, WI DNR; Knoot et al. 2014, LCC report

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Survey of managers (Census = 348; 69% response) & 29 in-depth interviews

Manager Adaptation

Experiences

Familiarity with projections

Climate change beliefs

Personal and agency priority

Perceived barriers
Barriers and opportunities to climate adaptation on public lands

*Knoot et al. 2014, LCC report

<table>
<thead>
<tr>
<th>Potential factors</th>
<th>Those managing for climate change</th>
<th>Those not managing for climate change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Climate change beliefs</td>
<td>Greater % very certain</td>
<td>Greater % unsure</td>
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<tr>
<td>Climate change projections</td>
<td>Greater % somewhat or very (familiar) important</td>
<td></td>
</tr>
<tr>
<td>Frequency of climate change discussions</td>
<td>Greater % of regular discussions</td>
<td>Greater % rare discussions</td>
</tr>
<tr>
<td>Personal &amp; agency priority</td>
<td>Greater % high priority</td>
<td>Greater % not a priority</td>
</tr>
<tr>
<td>Supervisor support limitation</td>
<td>Greater % not limiting</td>
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</tbody>
</table>
Barriers and opportunities to climate adaptation on public lands

Feedback: Short-term experiences and redefinition of the problem

Figure from Anhalt-Depies et al. 2016; *Funding/project through UMGL LCC, WI DNR; Knoot et al. 2014, LCC report
Take home points

• Barriers can occur throughout the process and at different scales
• Identify barriers, and align solutions to remove those barriers:
  ➢ Uncertainty
  ➢ Knowledge/ familiarity
  ➢ Social support
  ➢ Emphasis on personal experience - stories can be shared with others
Adaptation Readiness
How organizational and policy characteristics shape climate adaptation responses

• Enhance organizational readiness for adaptation
  ~ Just because we can adapt doesn’t mean we do
• Create legal structures and administrative processes that promote principled adaptation
• Build learning organizations
Adaptation Readiness

Adaptive Capacity into Action

Legal & administrative process
Hemlock vs nonnative conifers for climate adaptation: who decides?

Eastern hemlock
*Tsuga canadensis*

Rissman et al. 2015
Adapting conservation easements to climate change.
*Conservation Letters*
Conservation easements in Wisconsin

34 conservation easements in Wisconsin
1 federal agency (NRCS); 3 DNR branches: Forestry, ER/Natural Heritage Conservation, Fisheries; 4 nonprofit land trusts

Legal structure:
• Do easements provide helpful mechanisms for principled adaptation?
• Do terms restrict action in ways that are not helpful now such as “no herbicides”?

Mechanisms for change:
• Management plan (74%), discretionary consent (65%), amendment clause (53%), org has active mgmt. rights (50%), compliance with outside policy (47%), permits to modify (12%)
• DNR-ER (now NHC) easements prohibited amendment
• NRCS, DNR, and some land trusts say the holder can manage actively

Lack of consistency on what adaptation means:
• Managing for species persistence or for natural habitat/open space?

Limited capacity for monitoring, stewardship
• DNR-ER and Fisheries monitored less than DNR-Forestry and land trusts, based on 2012 interviews

Barriers to learning

1) Low resources, reactive coping
2) Incomplete, invalid info, not available to right people at right time
3) Defensive social norms
4) Taboo subjects
5) Mismatch between knowledge & authority
6) Ambiguous vision and goals

Conditions that foster learning

1) Capacity for specialized, proactive efforts
2) Collect & diffuse relevant information to target users
3) Organizational openness, use data for solving problems not blaming
4) Willingness to entertain others’ views
5) Empowering employees to make decisions
6) Shared vision and goals
Take home points: organizational adaptation

- In divided governance system, we all have an important but constrained role
- To increase readiness and learning:
  - Avoid legal structures that constrain principled adaptation
  - Expect increased stewardship demands
  - Collect & diffuse usable information
  - Promote openness to ideas
  - Develop learning forums where it’s ok to disagree (comfortable being uncomfortable)
  - Build toward shared vision and goals
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