

Information ecosystems: exploring the connection between reserve science and coastal resilience decision-making

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“If only decision-makers had more scientific information, they would make better decisions...”

Is this true? What shapes the translation of science into policy?

Overview

- **Key Question:** What barriers shape the translation of resilience science into resilience policy?
- **Framework:** Knowledge utilization model
- **Methods:** Scientist and decision-maker surveys, interviews (forthcoming)
- **Preliminary Results:** different problem definition, deficit model of science, engagement → trust



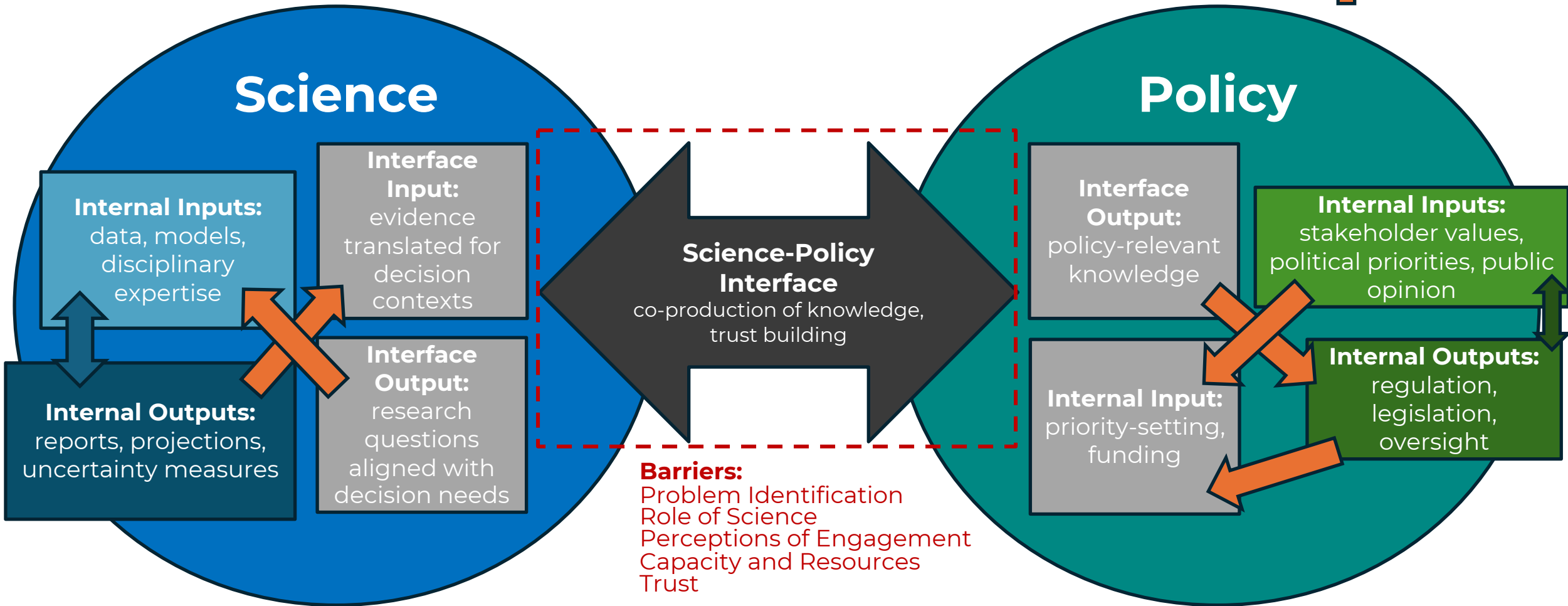
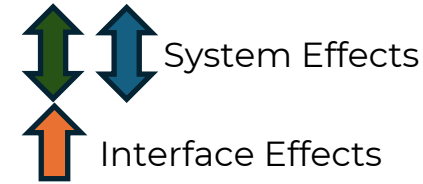
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Imagine two systems:

Legend:



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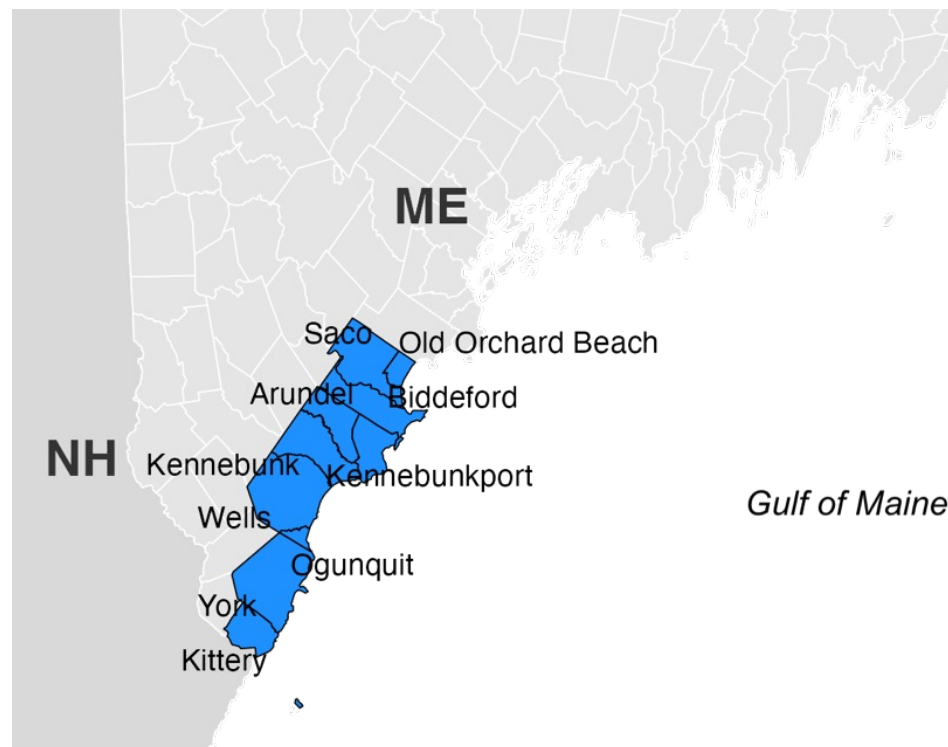


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To assess barriers, we survey two groups:

- Wells Reserve staff (n=22, 91% response rate)
- NGO, local, state, federal decision-makers (n = 92, 35% response rate)

Figure 1. Study Area



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Research Questions

1. **Problem Framing:** How do reserve staff and decision-makers define and frame coastal resilience?
2. **Role of Science:** How scientist envision their role in informing and shaping decision-making?
3. **Perceptions of Engagement:** How do staff and decision-makers differ in their perceptions of engagement and knowledge exchange?
4. **Trust Dynamics:** How does trust shape engagement with reserve science, and how does engagement, in turn, influence trust?



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Preliminary Results

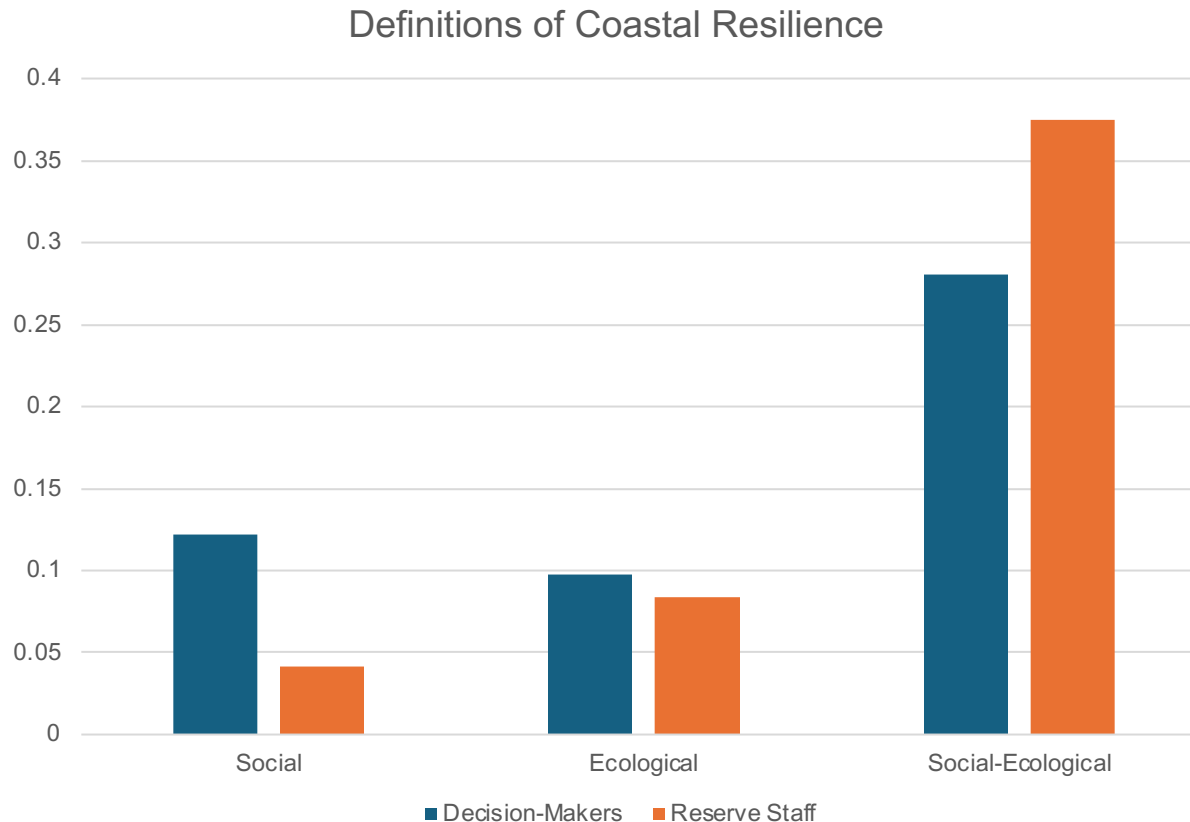


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Definitions of Coastal Resilience



- **Social:** “ability of coastal communities to persist or rebound in a healthy state...”
- **Ecological:** “maintaining a healthy ecosystem that can absorb the impacts of extreme weather events...”
- **Social-Ecological:** “ability of coupled human and natural systems to respond, recover and adapt...”

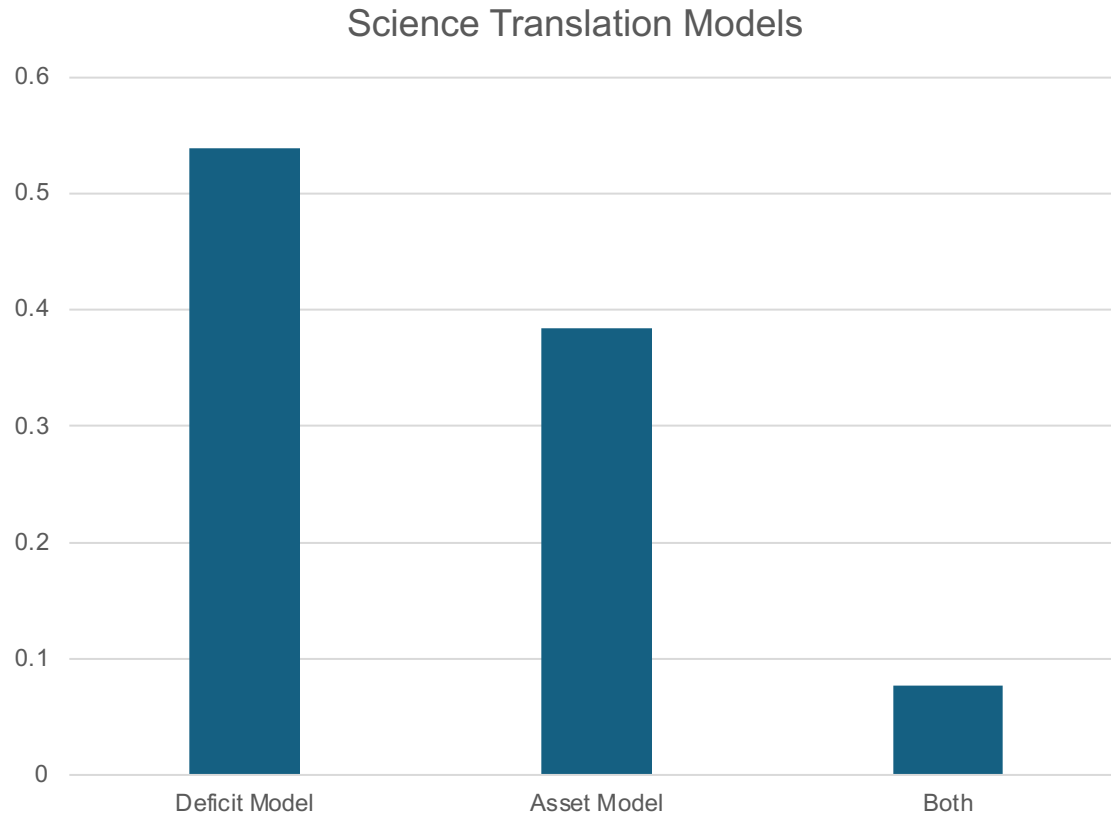


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Role of Science (Reserve Staff)



- **Asset Model:** “providing information and tools to facilitate knowledge exchange, prioritization, and collaborative problem solving...”
- **Deficit Model:** “when people are educated about coastal resilience, they are more likely to take action...”



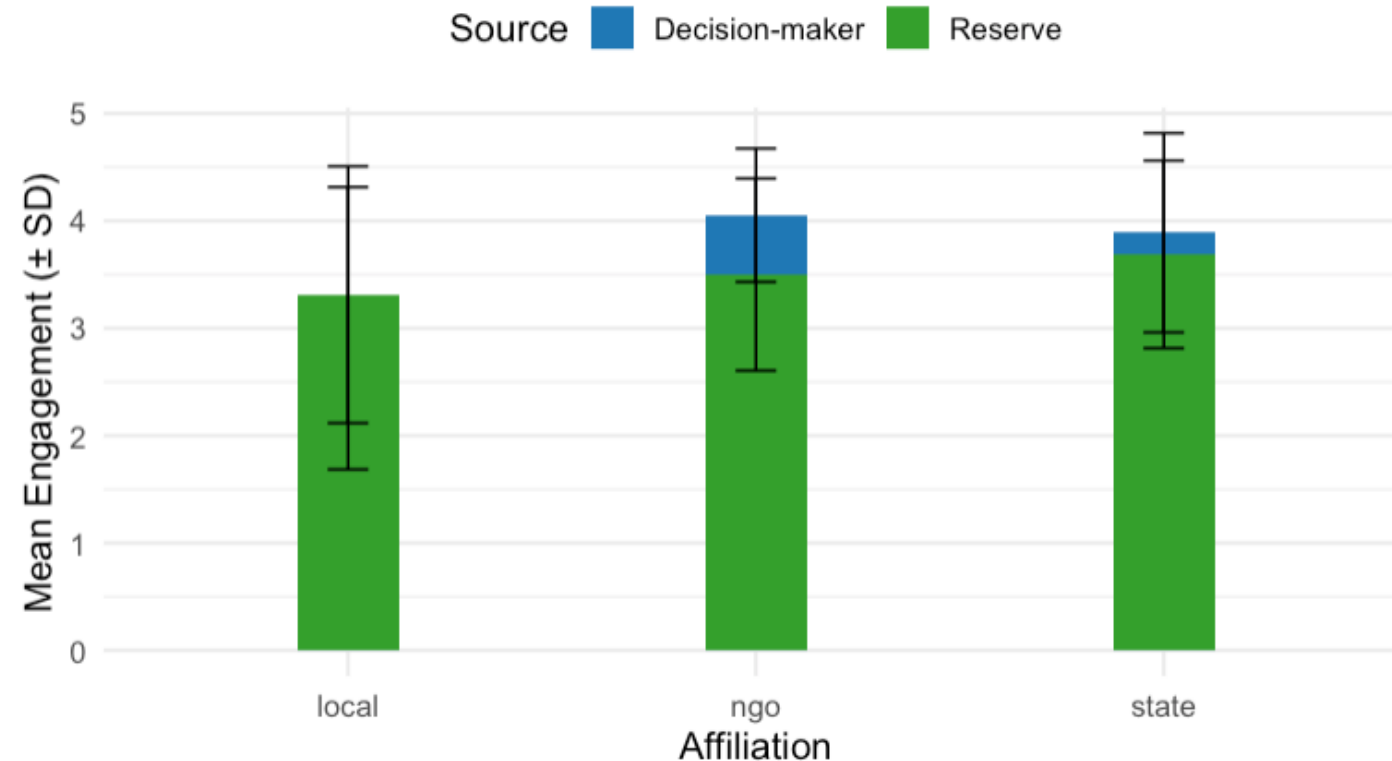
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Perceptions of Engagement

Perceived vs. Reported Reserve Engagement by Sector



- No significant differences in perceptions of engagement

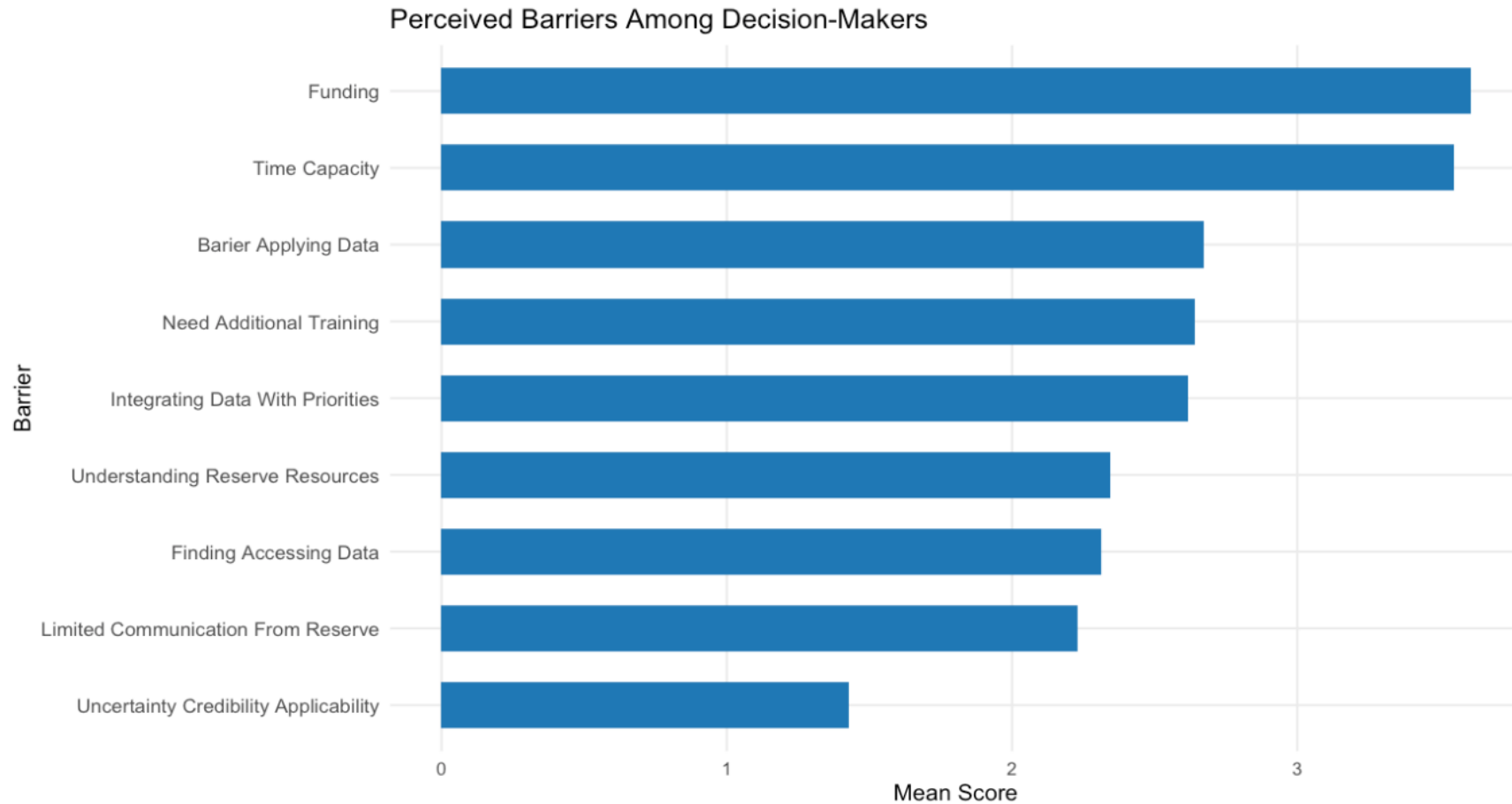


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Capacity Barriers (Decision-Makers)



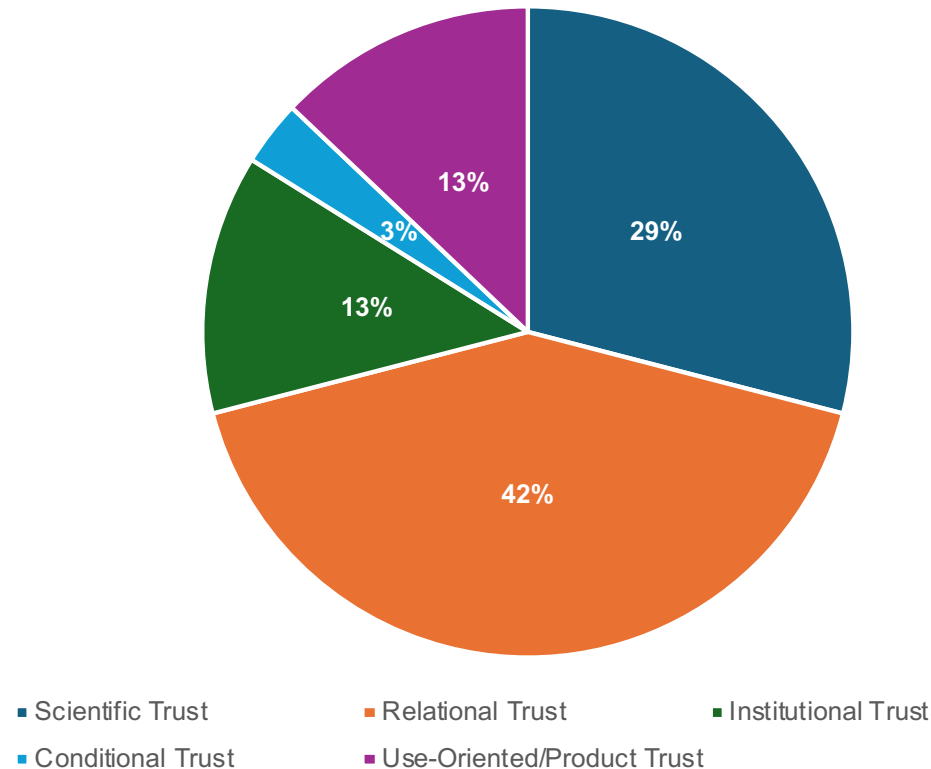
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Trust in Reserve (Decision-Makers)

Types of Trust



- **Scientific:** “scientific data is crucial in making decisions”
- **Relational:** “very knowledgeable staff”
- **Institutional:** “the reserve fulfills their mission well...”
- **Use Oriented:** “all of the tools... have been high quality”
- **Conditional:** “I trust... the data... a great deal of it may not have as much applicability to me...”

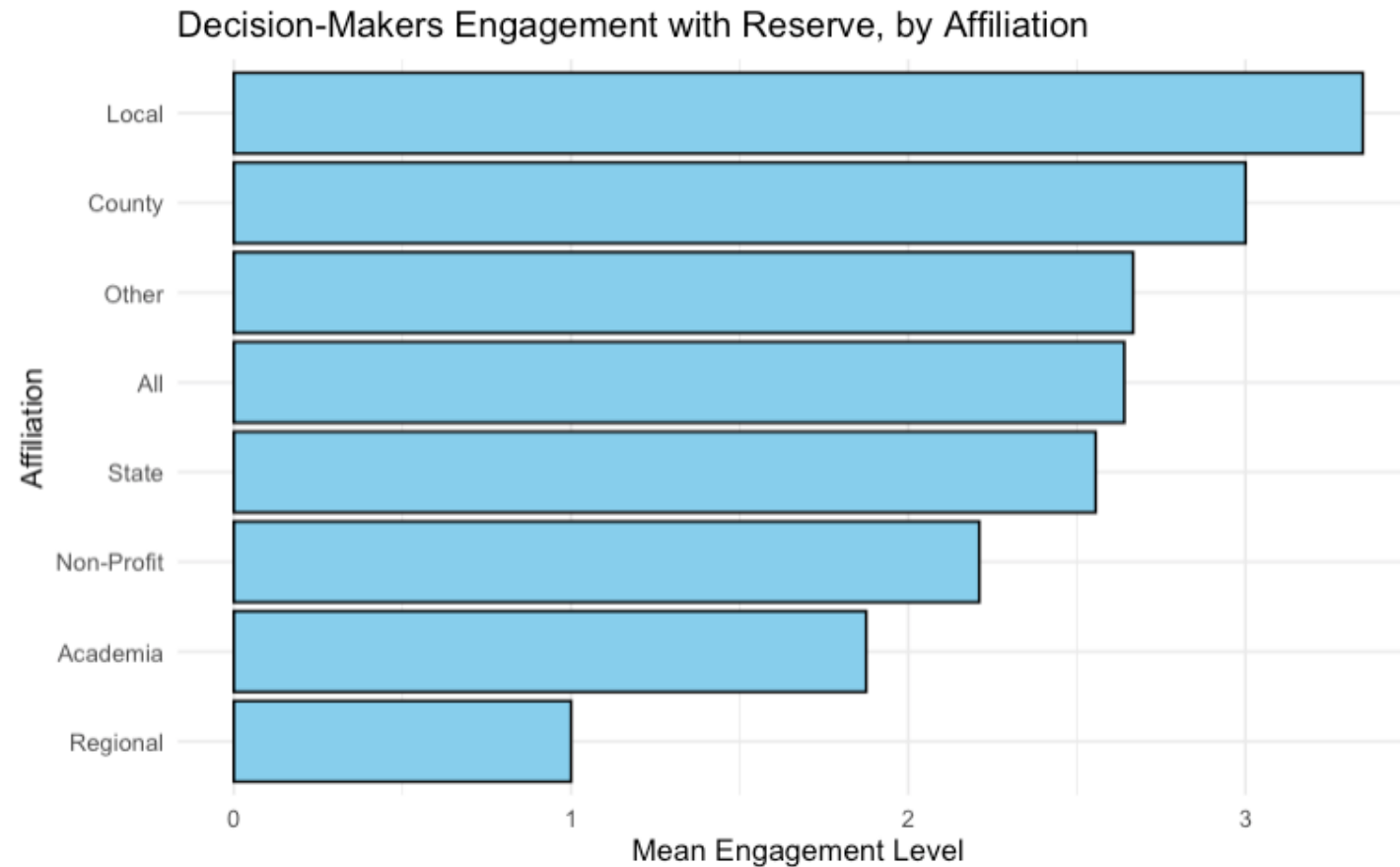


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Engagement (Decision-Makers)



- Engagement with reserve varies drastically by type of decision-maker



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Trust ↔ Engagement

- **More Engagement → More Trust**
 - Moderate engagement has significant effect ($p \approx 0.047$)
 - High engagement has marginal effect ($p \approx 0.06$)
- **More Trust → More Engagement?**
 - General positive trend, but effects are not statistically significant



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Conclusions

- **Problem Framing:** different definitions and dimension assessments
- **Role of Science:** scientist continue to come from deficit-model more often than asset-based
- **Perceptions of Engagement:** no significant differences in perception of engagement
- **Trust Dynamics:** more engagement, more trust



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Implications

- Shared problem framing is an important foundation for climate adaptation collaboration—differences are thus important to assess
- Persistent use of deficit-oriented framings may hamper efforts
- Evidence that greater engagement builds trust underscores engagement as a critical mechanism for strengthening science-policy relationships



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“If only decision-makers had more scientific information, they would make better decisions...”

In reality, it's complicated!

Thank you!

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