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Uncovering Stakeholder Perspectives on Belize's Managed Access Program: Implications for Sustainable Fisheries Management

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Abstract

Small-scale fisheries worldwide face mounting pressures from overexploitation, resulting in depleted fish stocks, biodiversity loss, and marine ecosystem degradation. Unregulated open access conditions have emerged as a key driver, prompting a growing need for fisheries reform. Recently, Belize introduced the Managed Access Program (MAP), a rights-based fisheries territorial system aimed at incentivizing fisher ownership and stewardship to promote sustainability. However, implementing managed access involves complex interactions among local and regional actors and issues, raising questions about program feasibility and success.

This study combines literature review and semi-structured interviews with 54 fishers and 25 policymakers in Belize's fisheries sector to analyze the MAP and assess initial responses. Findings reveal that the new system primarily repackages traditional fishing areas with weak enforcement of regulations. Stakeholders' responses varied, with the majority expressing negative views. At the same time, policymakers and fishers hold different conceptualizations of the policy and its expected benefits. These variations suggest that stakeholders' experiences shape unique policy interpretations, affecting compliance and adaptation. Despite addressing fisheries challenges, concerns remain about the MAP's ability to achieve its objectives. Neglecting diverse perspectives may hinder policy acceptance. To address this, innovative and robust approaches should capture these perspectives, enabling a holistic approach to policy creation and implementation.

KEYWORDS: small-scale fisheries, Managed Access Program, stakeholder responses, fisheries reform, Belize

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1. INTRODUCTION

In natural resource management, the definition of 'expert' has traditionally favored formally trained managers and scientists, while resource users are often considered novices (Berkes, 2015). However, recognizing the importance of local and traditional knowledge challenges this perspective, as collaborative approaches can lead to more realistic policies. In small-scale fisheries, diverse values and beliefs of stakeholders complicate management. Market failures, poor management, resource exploitation, and limited institutional capacity contribute to challenges (Allison & Ellis, 2001; Andrew et al., 2007; Cohen et al., 2019). Decision-making in fisheries policies is influenced by psychological biases of policymakers, often resulting in policies that may not align with the understanding and needs of resource users (Cvitanovic & Hobday, 2018; Kahneman, 2011). To understand these dynamics, psychological factors, particularly mental models, play a crucial role. Mental models represent people's assumptions and beliefs, influencing their behaviors (Jones et al., 2011, 2014). In the context of a recently introduced fisheries management policy in Belize, this paper explores how different stakeholder experiences shape their mental models. The study hypothesizes that policymakers' mental models will use fewer concepts compared to fishers, and fishers who participated in a pilot program will have mental models more similar to policymakers. The study area is Belize, with a focus on artisanal fisheries and the recently implemented Managed Access policy. The paper emphasizes the need to consider diverse experiences in policy creation and execution for effective and inclusive natural resource management.

Belize's Managed Access Program (MAP) was instituted in 2011 to address challenges in the open-access fisheries system (Foley, 2012). The MAP, functioning as a Territorial User Rights for Fisheries (TURFs), aims to curb issues such as increasing fisher numbers, illegal fishing, and non-compliance with regulations (Chávez et al., 2018). The program was initially piloted in two southern marine reserves in 2011, and its success led to nationwide expansion in 2016, establishing nine TURF zones with exclusive access granted to fishers. Committees, inclusive of fisher representatives, oversee access approvals.

2. METHODS

The study classified participants into three groups based on MAP experience: policymakers involved in MAP development, fishers from pilot sites since 2011, and fishers post-full implementation since 2016. Using Conceptual Content Cognitive Mapping (3CM) (Kearney & Kaplan, 1997), the study explored mental models by employing interviews and card-sorting with a diverse sample of 79 participants. The methodology aimed to provide insights into stakeholders' perspectives on fisheries management policy, considering both northern and southern regions.

3. FINDINGS

Contrary to our hypothesis, policymakers exhibited more compact mental models but employed the same concepts as fishers, suggesting a nuanced understanding among fishers. The study challenged the notion that additional items in fishers' mental models imply inexperience, proposing that these additions reflect more nuanced insights developed through policy implementation. Pilot program fishers and non-pilot fishers exhibited more similarities than differences in their mental models, emphasizing the pivotal role of prior fisher experiences in interpreting the MAP. The content analysis of mental models revealed divergent foci. Fishers prioritized logistical aspects of MAP implementation, emphasizing *education, good fishing practices, zones, home, and licenses*. In contrast, policymakers centered their concepts on the

program's benefits, such as *good fishing practices, fisher participation, and future generations*. The disparities in concept selection reflected varied cognitive frameworks, with fishers concentrating on practicalities and execution, while policymakers were more concerned with perceived benefits and temporal achievements.

4. DISCUSSION

The findings of this study carry significant implications for the reevaluation of traditional approaches in natural resource management. The acknowledgment of local and traditional knowledge challenges the established dichotomy of expertise, urging policymakers to embrace collaborative approaches that integrate the insights of resource users (Davis & Wagner, 2003; Farr et al., 2018). In the context of small-scale fisheries, where diverse stakeholder values and beliefs complicate management, policymakers should prioritize understanding and incorporating this diversity into decision-making processes (Freed et al., 2016). Addressing systemic challenges such as market failures, poor management, and limited institutional capacity requires comprehensive interventions to fortify governance and institutions. Moreover, recognizing the influence of psychological biases on decision-making emphasizes the need for mechanisms that mitigate biases and foster transparency in policymaking.

The study's spotlight on mental models underscores the importance of incorporating psychological factors into policy development. Policymakers should consider methodologies like Conceptual Content Cognitive Mapping (3CM) to understand how stakeholder experiences shape mental models, thereby informing more effective policies. The unexpected similarities between policymakers and fishers in their mental models challenge assumptions and underscore the nuanced understanding among resource users. This challenges policymakers to consider a broader range of perspectives and prioritize local knowledge in crafting policies. The disparities in concept selection between fishers and policymakers highlight the need for tailored and context-specific policy development. Fishers' emphasis on practicalities and execution, as opposed to policymakers' focus on benefits and future considerations, reveals divergent cognitive frameworks. Policymakers are encouraged to bridge this gap by recognizing and integrating the practical insights of resource users, fostering a collaborative approach that considers the day-to-day experiences of those directly impacted.

5. CONCLUSION

In conclusion, these policy implications advocate for a paradigm shift towards more inclusive, collaborative, and informed decision-making in natural resource management. By recognizing diverse perspectives, mitigating biases, incorporating local knowledge, and understanding mental models, policymakers can develop more effective, sustainable, and socially accepted policies. This approach ensures the well-being of ecosystems and the communities reliant on them, fostering a harmonious and equitable coexistence between resource users and managers.

LITERATURE CITED

Allison, E. H., & Ellis, F. 2001. The livelihoods approach and management of small-scale fisheries. *Marine Policy*, *25*(5), 377–388. https://doi.org/10.1016/S0308-597X(01)00023-9

Andrew, N. L., Béné, C., Hall, S. J., Allison, E. H., Heck, S., & Ratner, B. D. 2007. Diagnosis and management of small-scale fisheries in developing countries. *Fish and Fisheries*, *8*(3), 227–240. https://doi.org/10.1111/j.1467-2679.2007.00252.x

Berkes, F. 2015. *Coasts for people: Interdisciplinary approaches to coastal and marine resource management*. Routledge.

Chávez, C. A., Murphy, J. J., & Stranlund, J. K. 2018. Managing and defending the commons: Experimental evidence from TURFs in Chile. *Journal of Environmental Economics and Management*, *91*, 229–246. https://doi.org/10.1016/j.jeem.2018.07.004

Cohen, P. J., Allison, E. H., Andrew, N. L., Cinner, J., Evans, L. S., Fabinyi, M., Garces, L. R., Hall, S. J., Hicks, C. C., Hughes, T. P., Jentoft, S., Mills, D. J., Masu, R., Mbaru, E. K., & Ratner, B. D. 2019. Securing a Just Space for Small-Scale Fisheries in the Blue Economy. *Frontiers in Marine Science*, *6*. https://doi.org/10.3389/fmars.2019.00171

Cvitanovic, C., & Hobday, A. J. 2018. Building optimism at the environmental science-policy-practice interface through the study of bright spots. *Nature Communications*, *9*(1), Article 1. https://doi.org/10.1038/s41467-018-05977-w

Davis, A., & Wagner, J. R. 2003. Who Knows? On the Importance of Identifying "Experts" When Researching Local Ecological Knowledge. *Human Ecology*, 27.

Farr, E. R., Stoll, J. S., & Beitl, C. M. 2018. Effects of fisheries management on local ecological knowledge. *Ecology and Society*, *23*(3). https://www.jstor.org/stable/26799138

Foley, J. R. 2012. *Managed Access: Moving Towards Collaborative Fisheries Sustainability in Belize*.

Freed, S., Dujon, V., Granek, E. F., & Mouhhidine, J. 2016. Enhancing small-scale fisheries management through community engagement and multi-community partnerships: Comoros case study. *Marine Policy*, *63*, 81–91. https://doi.org/10.1016/j.marpol.2015.10.004

Jones, N. A., Ross, H., Lynam, T., & Perez, P. 2014. Eliciting Mental Models: A Comparison of Interview Procedures in the Context of Natural Resource Management. *Ecology and Society*, *19*(1), art13. https://doi.org/10.5751/ES-06248-190113

Jones, N. A., Ross, H., Lynam, T., Perez, P., & Leitch, A. 2011. Mental Models: An Interdisciplinary Synthesis of Theory and Methods. *Ecology and Society*, *16*(1), art46. https://doi.org/10.5751/ES-03802-160146

Kahneman, D. 2011. *Thinking, fast and slow* (1st ed.). New York : Farrar, Straus and Giroux.
Kearney, A. R., & Kaplan, S. 1997. Toward a methodology for the measurement of knowledge structures o ordinary people: The conceptual content cognitive map (3CM). *Environment and Behavior*, *29*(5), 39.