

Integrating Property Rights into Fisheries Management: The Case of the Managed Access Program in Belize

Integración de los Derechos de Propiedad en la Gestión de la Pesca: El Caso del Programa de Acceso Administrado en Belice

Intégration des Droits de Propriété dans la Gestion des Pêches: Le Cas du Programme d'Accès Géré au Belize

ERIC WADE^{1*} and ANA SPALDING²

¹*Department of Fisheries & Wildlife, Oregon State University, 2820 SW Campus Way, Corvallis, Oregon 97331 USA.*

²*School of Public Policy, Oregon State University, 2251 SW Campus Way, Corvallis, Oregon 97331 USA.*

Smithsonian Tropical Research Institute, Panama.

**eric.wade@oregonstate.edu*

EXTENDED ABSTRACT

Introduction

Decreases in fish stocks, biodiversity loss, and destruction of marine ecosystems have contributed to the calls for fisheries reform over the past decade (Caddy 1999). With the ultimate goal of supporting the sustainability of the fisheries sector, fisheries reforms have adopted a variety of approaches, including the promotion of community co-management of the resources, changing social norms and behaviors, revising outdated fisheries regulations, as well as fostering incentives for sustainable behaviors through the implementation of rights-based fisheries systems (Caddy 1999, Lubchenco et al. 2016). These reforms all have in common that they recognize the complexities and multiple dimensions of the fisheries socio-ecological system, and take into account concerns beyond the resource itself. Indeed, fisheries managers and policy-makers around the globe are increasingly looking for effective solutions to address social, economic, and ecological challenges within the industry. Belize is no exception to this trend and has recently been focusing on developing new mechanisms for supporting fisheries sustainability through the implementation of a Managed Access Program (MAP), based on a Territorial User Rights for Fishing (TURF) approach (Nguyen Thi Quynh, et al. 2017). TURFs operate as a spatial form of property rights which grants individuals access and fishing rights to harvest resources within a specified area (Nguyen Thi Quynh et al. 2017). The TURF approach is heavily debated in the literature about property rights in fisheries (Aburto et al. 2013, Arnason 2007, Atapattu 1987, Criddle et al. 2001, Mansfield 2001, Osherenko 2006) and focuses on overcoming the challenges experienced in open access fisheries. Evidence has shown that the implementation of TURFs reduces the 'race to fish' or competition for resources (Hilborn et al. 2005). In turn, TURF systems have received recognition for increasing economic value for catch, incentivizing sustainable behavior and reducing overfishing (Aburto et al. 2013).

Property rights represents a new discourse in ocean governance as States look to introduce new management strategies to protect and restore fish stocks (Arnason 2007, Osherenko 2006). Previous management approaches which have included time and area closures, fishing gear limitations as well as restrictions on fishing time has had very little effect on slowing down the decline of fish stocks or restoring catch profitability (Arnason 2007). This led to the realization that the allocation of individual fishing rights may be the best approach to alleviate the fisheries problem. Since this realization, property rights in fisheries has expanded to include the most popular regimes such as TURFs, ITQs and community fishing rights - the applicability of these regimes varies across systems. While TURFs appear to be most effective on sedentary species, ITQs have achieved broad applicability and profitability while the efficiency of community managed fisheries are dependent on the quality of the community rights and the community decision process.

While the creation of rights-based systems has aided in the sustainability of some States (Aburto et al. 2013, Mansfield 2001), and they are generally recognized as extremely effective and flexible tools for generating economic efficiency, their introduction into a system does not guarantee sustainability (Atapattu 1987, Criddle et al. 2001). The recent changes in property rights in fisheries means that there still remains a long road in realizing the full benefits, and as such it has been met with some controversies. These controversies lie not only in the allocation and creation of quotas and TURFs designation but also with the reaction of actors – both fishers and managers (Lubchenco et al. 2016, Mansfield 2001).

In developing and implementing the MAP, Belize utilized the TURF approach to improve fisheries management, anticipating there would be a recovery of fisheries and associated habitats by providing fishers with secured tenure and well-defined property rights. The creation of a well-designed, secure-access program that is aligned with economic and conservation incentives and gives fishers a predictable access to a portion of the harvest has the ability to motivate fishers to act as stewards of the resource (Lubchenco et al. 2016).

Given the complexities of introducing property rights into the fisheries sector, including the benefits and drawbacks of promoting the sustainability of the resources as well as the socio-economic development of fishers, we seek to explore the ways in which the recent introduction of the MAP in Belize will affect the sustainability of its fisheries sector. To answer

this question, we discuss the initial responses to the MAP by stakeholders followed by an analysis of the MAP as a system of property rights.

This work was conducted within the guiding principles of small scale fisheries in Central America and the Caribbean as well as property rights in the oceans. We start by introducing the role of property rights in the oceans, followed by describing our methodologies and then move into presenting our findings. We conclude our paper by summarizing our findings and the potential implications of our research.

Methodologies

Our research was conducted through a combination of a review of literature on TURFs and property rights as well as open-ended interviews with fishers and stakeholders in Belize carried out in spring and summer 2017. Interviews were conducted with approximately 90 persons representing both fishers and stakeholders in Belize and were semi-structured and focused on fishers' current perceptions of the MAP. These interviews were a part of a larger research project focused on assessing fishers' perceptions of the MAP using cognitive mapping. Using Web of Science, Google Scholar and library reference, the following key words were used: *rights-based fisheries management, TURFs, property rights, small-scale fisheries, fisheries management in Latin America and Caribbean*. We utilize these key-words in part because they form a part of existing research focused on property rights, fisheries management and sustainability – the main components of our research question.

Findings

The response to a change in the fisheries sector — Prior to 2011, Belize's fisheries sector was managed under an open access regime which saw a steady increase of persons entering the system both legally and illegally – which has been credited as one of the main reasons for the exploitation of the country's resources (Foley 2012).

In 2011, the State introduced MAP in two pilot sites in Port Honduras and Glover's Reef Marine Reserves. These sites saw the introduction of a new application process based on traditionalism, formation of managed access committees and submission of detailed catch data by the fishers. Within these pilot sites, the State saw improvements in fishers compliance to regulations, reduced fishing pressure, and higher catches (Fujita et al. 2017). Given the success of the pilot sites, the State moved to expand MAP to its territorial and exclusive economic zone in 2016 by creating 7 additional TURFs in addition to the 2 pilot sites. Despite positive outcomes noted in the pilot sites, the expansion of MAP highlighted concerns from both fishers and non-State actors. These concerns includes the ability of the program to actually limit persons entering the fishery (Foley 2012), the use of traditionalism as the main criteria for granting license, the data reporting requirements – which fishers have cited as an added responsibility to an already busy work life and the ability of the State and it's co-managers to properly enforce the new TURF zones. Enforcement remains one of the biggest concerns for fishers given that they have maintained prior to MAP;

enforcement was one of the central reasons behind the overexploitation of the resources. Co-managers have cited the lack of necessary resources, both financial and human to fulfill the components of MAP including enforcement, fishers' sensitization and building the capacity of its employees.

Managed access as a system of property rights — While the introduction of property rights should not be seen as an answer to all fisheries related problems, its incorporation into Belize's system should be used complimentary to already existing regulations. Schlager and Ostrom (1992) outlines five constituent rights in property: *access, withdrawal, management, exclusion, and alienation*. Analyzing MAP using these constituent rights, we have found that the State still retains the control of the majority of the rights in the sector. While fishers are involved in managed access committees, there needs to be a better balance in the management of the resource to not only ensure sustainability but to ensure that fishers have a vested interest in the management of the resource. Given the current arrangement of management rights granted to fishers, our study found that fishers do not have the essential management rights compared to before MAP that will foster sustainable behavior. Specifically, the *right of alienation and exclusion* provides the main incentives for individuals to undertake long-term investment in the resource (Schlager and Ostrom 1992) – provided by the ability to control access to the resources and sell or lease their rights. We have found that while fishers are able to participate in managed access communities, they only provide recommendations and the final decision remains with the State. Our findings show that the limited role in the management rights granted to fishers does not meet the objective of MAP of increasing the sense of ownership and stewardship to aid in the protection of their resource.

Conclusion

The incorporation of property rights into Belize fisheries sector through MAP brings with it windows of opportunity that could lead to the sustainable development of the State's marine resources. In order to capitalize on these opportunities, the State must be able to concretize its objectives to address the concerns of its stakeholders. Our findings have highlighted that despite positive outcomes reported in the pilot studies, the expansion of managed access has brought with it some concerns by stakeholders. Similarly, we have found that despite an objective of empowering fishers and fostering stewardship, the majority of the constituent management rights have remained with the State. While the introduction of property rights will not solve all the problems in the sector, the State must work to ensure that the newly introduced rights are clear and provides fishers with the necessary incentives to promote sustainable activities.

KEYWORDS: Managed access, Belize, property rights, TURFs, small-scale fisheries

LITERATURE CITED

- Aburto, J., G. Gallardo, W. Stotz, C. Cerda, C. Mondaca-Schachermayer, and K. Vera. 2013. Territorial user rights for artisanal fisheries in Chile – intended and unintended outcomes. *Ocean & Coastal Management* **71**:284-295. doi:10.1016/j.ocecoaman.2012.09.015
- Arnason, R. 2007. Advances in Property Rights Based Fisheries Management: An Introduction. *Marine Resource Economics* **22** (4):335-346.
- Atapattu, A. 1987. Territorial use rights in fisheries (TURFs) in Sri Lanka: Case studies on Jakottu fisheries in the Madu Ganga estuary and Kattudel fishery in the Negombo Lagoon. *RAPA Report (FAO)*.
- Caddy, J.F. 1999. Fisheries management in the twenty-first century: will new paradigms apply? *Reviews in Fish Biology and Fisheries* **9**(1):1-43. doi:10.1023/a:1008829909601
- Criddle, K.R., M. Herrmann, J.A. Greenberg. 2001. *Territorial Use Rights: A Rights Based Approach to Spatial Management*. Paper presented at the Spatial processes and management of marine populations. Edited by GH Kruse, N. Bez, A. Booth, M.W. Dorn, S. Hills, R.N. Lipcius, D. Pelletier, C. Roy, S.J. Smith, and D. Withrell. University of Alaska Sea Grant, Fairbanks, Alaska. AK-SG-01-02.
- Foley, J.R. 2012. Managed access: moving towards collaborative fisheries sustainability in Belize. *Proceedings of the 12th International Coral Reef Symposium*.
- Fujita, R., L. Epstein, W. Battista, K. Karr, P. Higgins, J. Landman, and R. Carcamo. 2017. Scaling territorial use rights in fisheries (TURFs) in Belize. *Bulletin of Marine Science* **93**(1):137-153. doi:10.5343/bms.2016.1002
- Hilborn, R., J.M. Orensanz, and A.M. Parma. 2005. Institutions, incentives and the future of fisheries. *Philosophical Transactions of the Royal Society B-Biological Sciences* **360**(1453):47-57. doi:10.1098/rstb.2004.1569
- Lubchenco, J., E.B. Cerny-Chipman, J.N. Reimer, and S.A. Levin. 2016. The right incentives enable ocean sustainability successes and provide hope for the future. *Proceedings of the National Academy of Science U S A* **113**(51):14507-14514. doi:10.1073/pnas.1604982113
- Mansfield, B. 2001. Property regime or development policy? Explaining growth in the US Pacific groundfish fishery. *The Professional Geographer* **53**(3):384-397.
- Nguyen Thi Quynh, C., S. Schilizzi, A. Hailu, and S. Iftekhhar. 2017. Territorial Use Rights for Fisheries (TURFs): State of the art and the road ahead. *Marine Policy* **75**:41-52. doi:10.1016/j.marpol.2016.10.004
- Osherenko, G. 2006. New discourses on ocean governance: understanding property rights and the public trust. *Journal of Environmental Law and Litigation* **21**(2):317-381.
- Schlager, E. and E. Ostrom, E. (1992). Property-Rights Regimes and Natural Resources: A Conceptual Analysis. *Land Economics* **68** (3):249-262. doi:10.2307/3146375