

Provided for non-commercial research and education use.  
Not for reproduction, distribution or commercial use.

**Tanya Heikkila**  
Columbia University

## Fishing for an Adaptive Governance Framework

**Tanya Heikkila** is an associate professor in the School of Public Affairs at the University of Colorado-Denver. Her research examines institutions for managing natural resources across political and geographic scales, namely water. Outside of the water arena, her research has addressed questions related to the role of institutions in decision making and innovation in diverse public organizations, and the participation of citizens in these processes.

**E-mail:** [tanya.heikkila@ucdenver.edu](mailto:tanya.heikkila@ucdenver.edu)

*D. G. Webster*, *Adaptive Governance: The Dynamics of Atlantic Fisheries Management* (Cambridge, MA: MIT Press, 2009). 391 pp. ISBN: 9780262232708, \$67.00 (cloth); ISBN: 9780272731928, \$27.00 (paper).

**A**daptive governance is a concept of growing interest in the environmental policy and management literature (e.g., see Brunner and Steelman et al. 2005; Olsson et al. 2006; Scholz and Stiftel 2005). In general, adaptive governance refers to institutional change processes that are responsive to emerging problems or knowledge surrounding complex ecological systems. While some studies have provided evidence of the benefits of adaptive governance and considered the institutional design features that might support adaptation, few have sought to explain the variance or patterns that emerge as adaptive governance processes unfold. D. G. Webster's

book, *Adaptive Governance: The Dynamics of Atlantic Fisheries Management*, helps fill this void through its analysis of changes in fisheries management policies under an international regime.

At first glance, Webster's study of the International Convention for the Conservation of Atlantic Tunas (ICCAT) might not seem to have broad appeal to scholars of public administration and policy, sushi lovers aside. However, this book casts a surprisingly wide net; it touches on questions around the governance of international regimes, the management of global common pool resources, the influence of industry on regulatory decisions, patterns of policy change, and the role of science in policy processes. The book offers insights on these topics through comparative longitudinal case studies of the management of eight different stocks of fish, through the lens of an original analytical framework.

*Adaptive Governance* begins with an overview of the significance of international fisheries management for highly migratory fish stocks and the types of regulatory and management policies that have emerged under ICCAT, which governs the most depleted of the highly migratory fish stocks in the Atlantic. Chapter 2 then develops a framework for understanding how regulatory and management decisions change under the ICCAT regime. The key assumption underlying the framework is that the degree of economic vulnerability facing regime members' fishing industries will be the key driver of policy change. As the author notes, the framework is based on "the economics of comparative advantage and common-pool resource dynamics with domestic interest-based politics and a general set of international negotiating tactics" (228). The expectation that emerges from the integration of this literature is that "those states that are most vulnerable to the economics of overexploitation will be the first to search for alternatives to open access" (20).

Webster operationalizes the concept of vulnerability around two key indicators: (1) *competitiveness*, or the costs of production for a member state's fishing industry, and (2) *flexibility*, or the opportunity costs of alternative revenue sources for a member state's fishing industry. Using these variables, the framework draws out four possible levels of vulnerability to categorize members of the regime: (1) highly vulnerable (low flexibility and low competitiveness), (2) gradually vulnerable (high flexibility and low competitiveness), (3) moderately vulnerable (high competitiveness and low flexibility), and (4) mildly vulnerable (high competitiveness and high flexibility). Within each level of vulnerability, the framework posits expected changes in policy positions by ICCAT members. The main hypothesis from the framework is that countries with fishing fleets that are highly vulnerable will be more likely to push other member countries to collectively regulate the fishery, and that these countries will be willing to use threats or side payments to reach their policy position. Gradually vulnerable countries will be more likely to oppose increased regulation initially, propose countermeasures, and then become more open to limits as competition increases. Moderately vulnerable countries will be expected to have more delayed responses and often require payoffs. Mildly vulnerable countries will be more likely to delay their responses to increased competitive pressures and will often block restrictive management policies proposed by other countries.

The case studies in chapters 3–10 then test the framework by documenting the history of regime negotiations and regulatory decisions for eight different stocks of fish managed under ICCAT. These outcomes are considered within the context of changing scientific knowledge, available from ICCAT's scientific advisory body. In exploring the changing management

decisions by the ICCAT regime over time and across different settings, Webster demonstrates the value of this relatively simple framework for analyzing rather complex, messy cases. Overall, she finds that "the actual policy positions of many countries were in line with the vulnerability response expectations" (230). At the same time, she makes a concerted effort to explore where the framework requires modifications to its underlying theoretical assumptions, or where it needs to be expanded to accommodate alternative drivers of policy change.

The southern swordfish case in chapter 7 is a nice example. Webster notes that "the dogged demands of moderately vulnerable countries could have been generated by learning rather than by competitive pressures" (149) because of their experiences losing out to highly vulnerable countries in the management of other species. Similarly, in chapter 8's discussion about marlins, the author discusses why the case diverged from the framework's expectations. She notes that, contrary to expectations, the United States, as a mildly vulnerable country, sought to establish relatively strict international management measures for marlin fishing—an outcome that pointed the author to acknowledge the role of noncommercial (e.g., recreational) interests in the policy process. The conclusion chapter provides an excellent synthesis of these and other exceptions to the framework, including geopolitical and geospatial characteristics that are context specific, the problems with the chosen measures of flexibility and competitiveness, and unexpected physical and economic factors that limited competition for some species of fish.

In addition to explaining the international policy positions of the different members of the ICCAT regime, the framework offers a tool for describing the patterns of institutional changes at the regime level. One of Webster's key findings from the cases is that "the commission was only able to reach agreement on strong, well-enforced management when more vulnerable countries were willing and able to meet the political demands of less vulnerable countries while remaining within the confines of scientific advice" (228). She refers to this as a "transformative" pattern. Yet some cases never reach this "transformative" phase, either where fishing stocks have not yet become heavily overexploited or where conflicts over the problems and solutions hampered agreement. Some cases, she finds, get mired in conflict while others have been able to jump into agreements right after periods of concern.

In sum, she finds that the paths of institutional change that the regime followed include "a period of inactivity, a period of concern, a period of conflict, a period of accord, and a period of reversion" (237). Each period is associated with particular levels

of aggregate governmental concern over resource conditions and the relative effectiveness of the regime's management measures in addressing those conditions. For example, periods of conflict generally arise when government concern is heightened around mild or moderate resource depletion, combined with insufficient management. Periods of accord are characterized by high levels of aggregate concern around moderate to severe fisheries depletion, alongside strong management. In some cases, the rebuilding of stocks from these measures may lead to periods of reversion. Only two of the cases passed through all periods of change and notable diversity in the cases is found in the patterns of change.

One of the laudable features of *Adaptive Governance* is its explicit attention to the limitations of the framework, which provides avenues for further developing the framework and future research. For scholars of environmental governance, one area that appears ripe for exploration is the role of science in the adaptive governance process. As Webster acknowledges, the scientific assessments that are widely used in managing fisheries, by ICCAT and other resource management institutions, may be highly uncertain and are often politicized (235). This begs the question, how do varying degrees of uncertainty underlying the scientific advice on fishery stocks influence the types of policy responses made under the regime? The case studies, in fact, show that the recommendations from the scientific advisory body change over time as more information is collected and previous estimates of stock health are updated. Those changing recommendations are simultaneously a justification for adaptive governance and a source of inaction and conflict.

How the management choices emerge in response to different sources and types of information, and under differing degrees of uncertainty, would be a valuable extension of this research. Webster does offer some speculation in the conclusion chapter that the nature of ICCAT's scientific advisory body—one that is not independent from the regime's commission—could factor into the willingness of the policy-making body to heed their advice. She recognizes that a more independent body could shape decisions differently and that comparisons between those regimes with dependent versus independent scientific advisory bodies would be useful.

Another theme of the book that could be explored in more depth is the role of cross-scale institutional linkages in the adaptive governance process—an important issue in the management of large-scale commons (Dietz, Ostrom, and Stern 2003). The framework does underscore the connections between individual resource “users,” or fishers in this case, and the management choices by the international

regime's commission. As Webster notes, “when fishers themselves are convinced of the importance of sustainable management, decision makers find it much easier to push for an early, strong response to biological depletion” (248). What is less evident from the cases is whether different types of connections between commissioners and fishing communities, both across countries and across different fishing stocks, shape management outcomes. Indeed, the book briefly considers how the inclusion of noncommercial interests among the United States' commissioners played a role in the United States' position on marlin fisheries. It would help to further uncover the extent of these linkages within the ICCAT regime (or other regimes) through the types of commissioners appointed, the composition of the scientific advisory body, and the participation of fishers in commission choices. Beyond the commission, it would be valuable to explore the congruence between domestic and international regulations, another issue that is briefly raised in the book.

Overall, Webster's effort to explain the drivers and patterns of policy change within an international fisheries management institution is a valuable contribution to the literature on environmental governance, particularly international regimes. Beyond the international arena, Webster's vulnerability response framework might also shed light on policy change processes in certain domestic settings. Various regional institutions, such as interstate compacts for water allocation, or regional greenhouse gas trading schemes, govern resource extraction and industries at the domestic level. Webster's framework could aid in assessing the positions that members of these institutions take in managing resources and the types of policy change outcomes that result. As new policy and management challenges continue to emerge around complex natural resource systems, understanding how we adapt and learn to sustain those resources, as Webster underscores in *Adaptive Governance*, is an important research agenda.

## References

- Brunner, Ronald D., Todd A. Steelman, Lindy Coe-Juell, Christina M. Cromley, Christine M. Edwards, and Donna W. Tucker. 2005. *Adaptive Governance: Integrating Science, Policy, and Decision Making*. New York: Columbia University Press.
- Dietz, Thomas, Elinor Ostrom, and Paul C. Stern. 2003. The Struggle to Govern the Commons. *Science* 302: 1907–10.
- Olsson, P., L. H. Gunderson, S. R. Carpenter, P. Ryan, L. Lebel, C. Folke, and C. S. Holling. 2006. Shooting the Rapids: Navigating Transitions to Adaptive Governance of Social-Ecological Systems. *Ecology and Society* 11(1). <http://www.ecologyandsociety.org/vol11/iss1/art18/> [accessed August 14, 2010].
- Scholz, John T., and Bruce Stiftel, eds. 2005. *Adaptive Governance and Water Conflict: New Institutions for Collaborative Planning*. Washington, DC: Resources for the Future.

Copyright of Public Administration Review is the property of Wiley-Blackwell and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.