Reconciling the Rule of Law with Adaptive Governance of Marine Ecosystems

Challenges and Opportunities for the Arctic and Beyond

Oslo, 15.06.2018
Adaptive Governance and the Rule of Law in the Arctic

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The Arctic Ecosystem – Regulatory complexity
The Ecosystem Approach
Ecosystem-based governance

Holistic
Manage beyond administrative and jurisdictional boundaries

Integrative
Facilitate public participation and cross-sectoral cooperation

Adaptive
Enable being responsive to changes in social-ecological systems
The ecosystem approach requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning.

Ecosystem processes are often non-linear, and the outcome of such processes often show time-lags. The result is discontinuities, leading to surprise and uncertainty. Management must be adaptive in order to be able to respond to such uncertainties and contain elements of “learning by doing” or research feedback.

*Decision V/6, CBD-COP (2004)*
Table 2. Selected definitions of adaptive management extracted from the literature sample.

<table>
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<th>Definition</th>
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<td>“Adaptive management, a product of the nonequilibrium paradigm, is a theory of ecological oversight and administration that recognizes the utility and necessity of experimentation and flexibility in identifying how complex ecosystems respond to disturbances. Through its continuing evaluation of the repercussions of a preceding action, adaptive management permits action and reaction in the absence of complete information. This affords the decision maker the opportunity to adapt and change tactics to maximize the environmental benefits of a course of action.”</td>
<td>Thrower (2006:873)</td>
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<td>“The adaptive management model envisages an initial regulatory approval based on initially available information (perhaps guess-work, estimation or ‘regulatory science’) followed by a period of monitoring and reporting with reassessment of the appropriateness of the initial regulatory action and adjustment or amendment as required in light of new information, and presumably the resolution of previously identified uncertainties.”</td>
<td>Jones (2007:361)</td>
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<td>“Although the definitions of adaptive management differ, the term generally includes four elements: (1) the articulation of clear goals and measurable indicators of progress toward achieving those goals; (2) an iterative approach to making decisions and the opportunity to adjust strategies; (3) the continual monitoring of outcomes and impacts; and (4) the explicit acknowledgement and characterization of risks and uncertainties.”</td>
<td>Huang et al. (2011:309)</td>
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<td>“Adaptive management at its core is applied understanding about ecosystems drawn from resilience theory. This entails an iterative process of decision making that integrates uncertainty and the inevitability of “surprise” (i.e., non-linear change) into the management process via a learning infrastructure (Benson and Garmestani 2011). Monitoring is an essential aspect of adaptive management, as information from the system (e.g., monitoring data) feeds back into the management process in an iterative manner that allows managers to adapt to changing circumstances associated with managing ecosystems. Thus, management actions are hypotheses to be put “at risk” in an adaptive management framework, and information that allows for learning is generated to improve management decisions (Benson and Garmestani 2011).”</td>
<td>Green and Garmestani (2012:165)</td>
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<td>“The term ‘adaptive management’ has been used to describe a process of learning through monitoring ecosystem response to a particular action, followed by incremental change in the action based on what is learned (Lee 1999, Folke et al. 2005, Huitema et al. 2009) and generally applies to management action by a single entity.”</td>
<td>Cosens (2013)</td>
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<td>“Adaptive management is an environmental management strategy that is an iterative process of decision making and attempts to reduce the inherent uncertainty in ecological systems via system monitoring (Holling 1978). Adaptive management is proactive, rather than reactive, which makes it a very attractive option for sound environmental management (Garmestani et al. 2008). Adaptive management uses models based upon current information to develop management interventions. The system is then monitored at a rate appropriate to the system of interest, and the results evaluated. From this information, models are improved and management of the system is adapted to the new information in an iterative process.”</td>
<td>Garmestani (2014:735)</td>
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<td>“Adaptive management means a decisionmaking process based on the structured and iterative implementation of management measures, with comprehensive monitoring of relevant system indicators, in the attempt to achieve specific management goals or objectives, reduce uncertainty, or increase knowledge about the system that an agency is charged with managing.”</td>
<td>Craig and Ruhl (2014:63)</td>
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<td>“Adaptive management is designed to address uncertainty, and is a structured, iterative approach to management that involves hypothesis testing through management action(s), monitoring, and feedback (ie adjusting management parameters).”</td>
<td>Green et al. (2015:334)</td>
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<td>“In ideal conception, adaptive management uses an experimental approach in which actions are taken on the landscape followed by monitoring to determine whether the strategy achieved desired results. Through such experimental means, adaptive management seeks to improve the management process iteratively.”</td>
<td>Butler et al. (2015:565)</td>
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“Change – even rapid change – is the norm in the Arctic”

Arctic Resilience Report 2016
Adaptive governance – triple learning

Arctic resilience report 2016, p.156
“Law should be a careful combination of adaptivity and certainty, rule of science and the rule of law”

*Soininen and Platjouw 2018*
Resilient environmental law

Facilitating adaptive governance without loosing its core rule of law characteristics
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