

Growth and collapse of a resource system: an adaptive cycle of change in public lands governance and forest management in Alaska

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Large-scale government efforts to develop resources for societal benefit have often experienced cycles of growth and decline that leave behind difficult social and ecological legacies. To understand the origins and outcomes of these failures of resource governance, scholars have applied the framework of the adaptive cycle. In this study, we used the adaptive cycle as a diagnostic approach to trace the drivers and dynamics of forest governance surrounding a boom-bust sequence of industrial forest management in the Tongass National Forest in southeastern Alaska. Our application of the adaptive cycle combined a historical narrative tracing dynamics in political, institutional and economic subsystems and a longitudinal analysis of an indicator of overall system behavior (timber harvests). We found that federal policies in concert with global market changes drove transformative change in both forest governance (policy-making) and forest management (practices), through creation and dissolution of subsidized long-term lease contracts - in other words, large-scale changes occurred only when the nested economic and policy cycles were in coherence. Evidence of the systemic resilience provided by these leases was found in the analysis of industry responses to market volatility before and after Tongass-specific federal reforms. Although the lease contracts stabilized the Tongass system for a period of time, they fostered a growing degree of rigidity that contributed to a severe industrial collapse and the subsequent emergence of complex social traps. Broader lessons from the Tongass suggest that a systemic effort to minimize social and ecological variability ultimately results in catastrophic collapse of governance and a pervasive and challenging legacy that inhibits renewal and constrains the adaptive capacity of the larger social-ecological system. Although this legacy has inhibited system renewal for two decades, recent trends indicate the emergence of new opportunities for progress towards sustainable governance of the Tongass National Forest.