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Knowledge Co-Production and Enhanced Governance Fit in Rebuilding Canada's Coastal Fisheries

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Recovering the abundance, structure, and function of marine life is a “global grand challenge” (Duarte et al. 2020). Rebuilding fisheries reflects efforts to halt overfishing, reverse stock decline, and restore marine habitats to a state that supports population stability (Garcia et al. 2018). In Canada, interest in coastal fisheries rebuilding is gaining momentum. For example, Baum and Fuller’s report (2016, 54) on the status of marine resources indicated that approximately 80% of fish stocks on the east coast and 90% of fish stocks on the West Coast are overfished or depleted. Meanwhile, a report of the Office of the Auditor General of Canada (2016), *Sustaining Canada’s Major Fish Stocks*, identifies 15 fish stocks that fall within the critical zone of the Fisheries and Oceans Canada (DFO) Sustainable Fisheries Framework, which requires the development of rebuilding plans (DFO 2019b). Now, DFO is beginning to write and implement rebuilding plans that are meant to address gaps identified in the report of the Office of the Auditor General of Canada (2016) (see DFO 2020b).

Recent legislative change also has implications for fisheries rebuilding (see the text box “The policy context for fisheries rebuilding in Canada”). In 2019, the federal *Fisheries Act* was updated when Bill C-68 was passed and received royal assent.¹ This was not the first time that the *Fisheries Act* had been modified, but the latest amendments broaden the Fisheries Minister’s discretion to integrate consideration of Indigenous rights, social and cultural dimensions, and stock rebuilding into decision making. It will take time for DFO to develop policy

frameworks and implement the *Fisheries Act* amendments (DFO 2020b). Expanded governance objectives have led to novel and modified policy frameworks that, in turn, require new knowledge and analytical capacities (Howlett 2009).

This chapter examines the links among coastal fisheries rebuilding, knowledge, and governance fit – defined here as the extent to which rules for the use and management of fisheries are adjusted to local social and ecological conditions (see Epstein et al. 2015). Specifically, we assess how diverse knowledge types and knowledge co-production processes can catalyze governance arrangements that better fit the challenges of fisheries rebuilding, with a particular emphasis on Atlantic and Pacific contexts. We define knowledge co-production as a process in which researchers, other knowledge holders, and knowledge users collaborate to co-create information that is “actionable in decision-making” (Mach et al. 2020, 30).

We draw upon case studies from selected Canadian coastal fisheries to identify three critical roles for knowledge in improving governance fit and addressing challenges associated with fisheries rebuilding. First, different forms of evidence (e.g., from Indigenous and local knowledge, natural and social sciences) are needed to assess and anticipate changes to fish stocks and ecosystems, and to understand their implications for sustainable livelihoods and coastal communities. Second, diverse knowledge systems and associated viewpoints can generate a greater range of “alternative futures” or scenarios that may facilitate adaptive governance in a context of change and