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Science Advisory Report 2013/067

A Science-Based Framework for Assessing the Response of Fisheries Productivity to State of Species or Habitats

Summary

- This SAR provides examples of productivity-state (P-S) response relationships which describe the likely response of fisheries productivity to various common types of habitat changes. Pathways of Effect (PoE) are used to link classes of development activities (stressors) to the types of habitat changes they are likely to cause.
- The operational examples provided within this SAR demonstrate that the productivity responses to changes in state can be described and quantified. For some habitat features affected by stressors, it is possible to identify thresholds based on the scientific literature (e.g., change in temperature; effects of noise and vibration, relationship between flow and fish community response). For other features it may not be possible to identify thresholds given the state of current knowledge (e.g., effects of electromagnetic fields).
- Not all P-S response curves exhibit the same shape. For the PoE endpoints examined here, the identifiable shapes mostly exhibit a curvilinear or linear response of decreasing productivity, though other shapes are possible.
- Most often these P-S response relationships (response curves) are described based on metrics or surrogates of productivity.
- The appendices to this report provide operational guidance to Departmental officials, stakeholders and developers on the likely shape of the response of fisheries productivity to changes in state of species and/or habitats.

This Science Advisory Report is from the March 12-14, 2013 National Peer Review on Additional Science Guidance for Fisheries Protection Policy: Science-based Operational tools for Implementation. Additional publications from this meeting will be posted on the [Fisheries and Oceans Canada \(DFO\) Science Advisory Schedule](#) as they become available.

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