Assessing Biophysical Factors That Support Ecosystem Function in IAs

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#EAO

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BC Environmental Assessment Office

- Neutral regulatory agency
- Assesses major projects in British Columbia
- *Environmental Assessment Act* and supporting legislation and policy

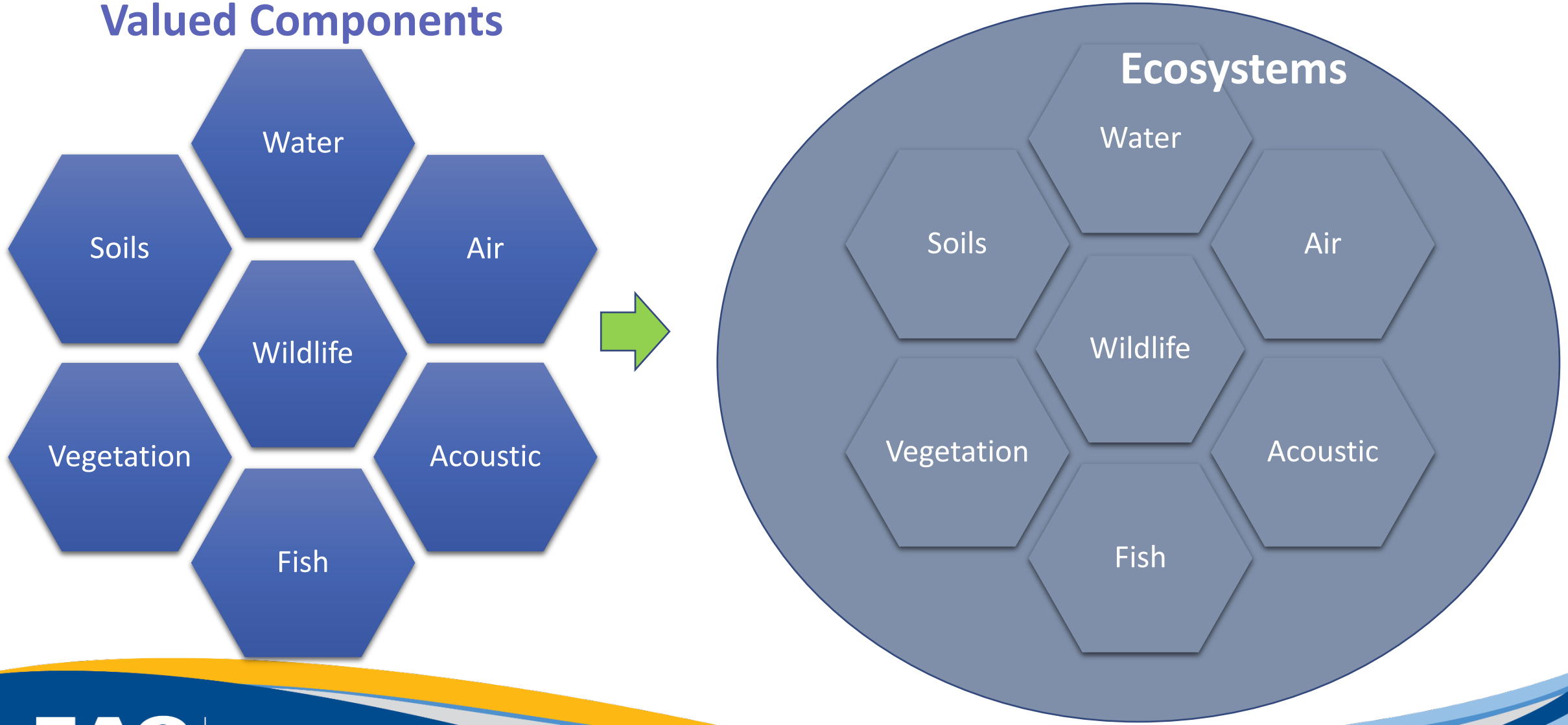
BC Environmental Assessment Act

Every assessment needs to consider the effects of a project on biophysical factors that support ecosystem function

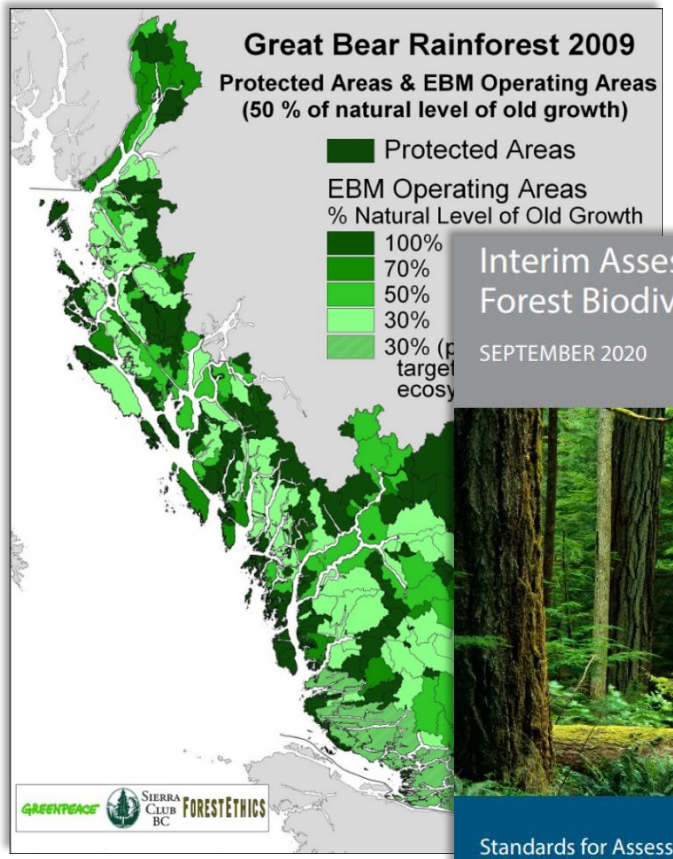
- 2018 - EAO began process for revitalizing the Act
- 2019 - new Act was brought into force
- New Act sets out what must be considered in every assessment

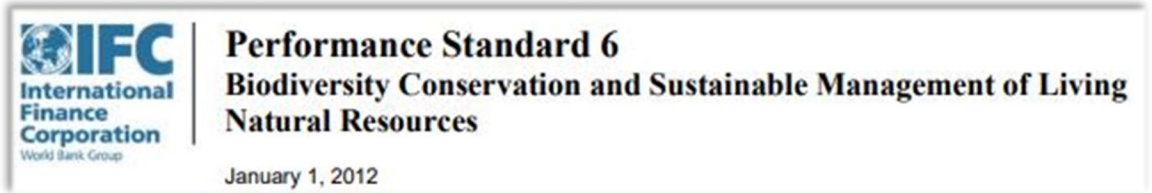
Assessment Approach

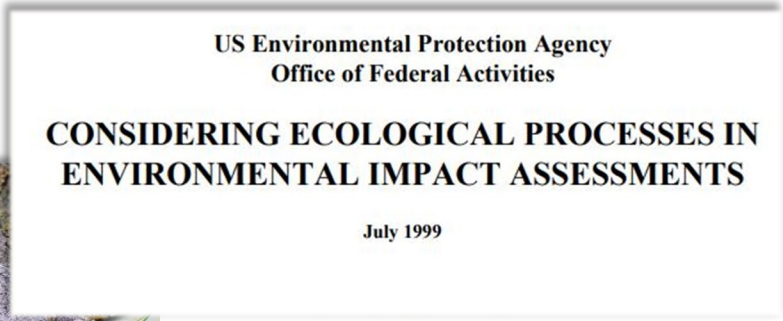
Valued Components



Background On Approach







Components of Approach

1. **Categories of Ecosystem Function -** creates foundational structure of assessment

2. **Scoping Tool -** potential interactions of a project to ecosystem function

3. **Standard List of Valued Components - shows relationship of ecosystem function and Valued Components**

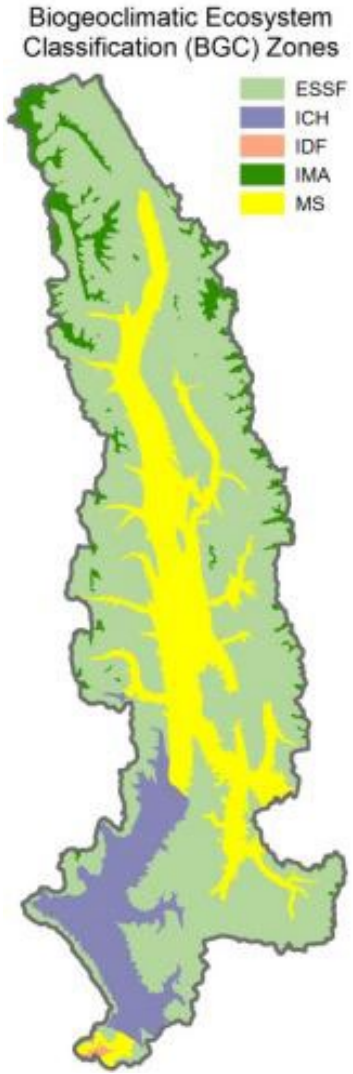
4. **Procedures -** how to assess biophysical factors that support ecosystem function

Categories of Ecosystem Function

1. Habitats Supporting Ecosystem Function
2. Habitat Patches
3. Natural Disturbance Regime
4. Structural Complexity
5. Hydrologic or Oceanographic Patterns
6. Nutrient Cycling
7. Purification Services
8. Biotic Interactions
9. Population Dynamics
10. Genetic Diversity

Different Scales of Effects

1. Landscape Level
   - Landscape
   - Watershed
2. Ecosystem Level
   - Terrestrial
   - Aquatic
3. Ecological Communities Level



Ecosystem Function Scoping Tool Example

Possible Interaction	Key Considerations	Examples of VCs and Indicators	Interaction Description	VCs and Indicators
Habitat Patches				
☐	Could the project result in barriers to species movement?	**Vegetation** • Areal extent and distribution • Fragmentation **Wildlife** • Habitat		

Ecosystem Function Scoping Tool Example

Possible Interaction	Key Considerations	Examples of VCs and Indicators	Interaction Description	VCs and Indicators
Natural Disturbance Regime				
☐	Could natural disturbance regimes be altered as a result of the project?	**Surface Water** • Quantity **Vegetation** • Ecosystem condition		
Biotic Interactions				
☐	Could the project have effects to keystone or foundation species that have the potential to alter ecosystems?	**Vegetation** • Ecosystem indicator species **Wildlife** • Wildlife population, health and behaviour		

Standard List of Valued Components

- Valued Components
  - Subcomponents
    - Topics to be Captured by the Assessment
      - Anticipated Linkages to other Valued Components or Sections

Examples of Valued Components from Standard List

Valued Components	Subcomponents	Topics to be Captured by the Assessment	Anticipated Linkages to other Valued Components or Sections
Surface Water	Surface water quality	• Acidification and eutrophication • Metals • Acid Rock Drainage • Nutrients • Sedimentation	Freshwater Fish Human Health Wildlife Summary of Biophysical Factors that Support Ecosystem Function
	Surface water quantity (Hydrology)	• In-stream flow • Runoff dynamics and pattern	
Vegetation	Plant species of interest	• Rare plants • Traditional use species • Species of conservation concern • Invasive species	Land and Resource Use Wildlife Summary of Biophysical Factors that Support Ecosystem Function
	Plant communities of interest	• Ecological communities of conservation concern	
	Wetland functions	• Wetland ecosystems	
	Ecosystems	• Old forest • Grasslands • Alpine/subalpine • Riparian	

Assessment Procedures

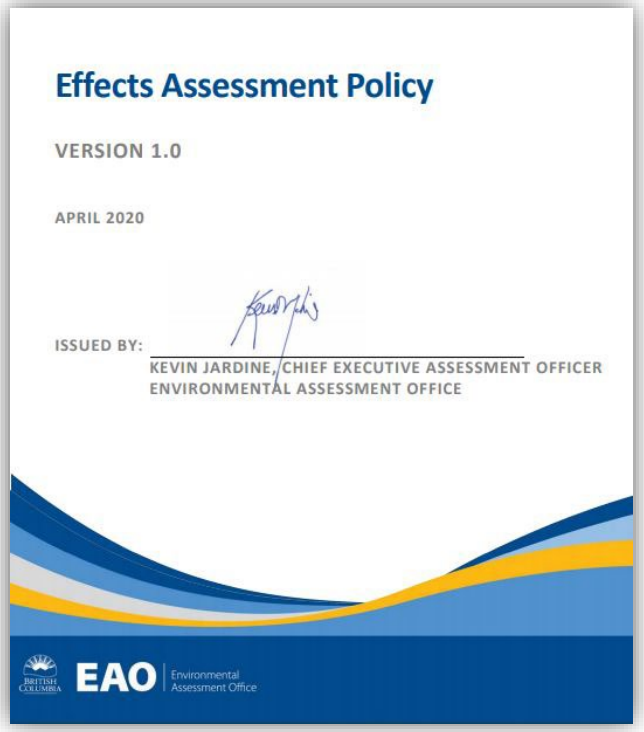
1. Through scoping tool, determine interactions
2. Consider relevant biophysical factors in the selection of VCs and indicators
3. Assess identified biophysical factors under relevant VC
4. Develop a separate chapter that assesses biophysical factors that support ecosystem function

Lessons Learned to Date

- Assessments on biophysical factors that ecosystem function can be completed by IA practitioners
- The 10 categories of ecosystem function seem to be broad enough to cover effects that are encountered at a project level
- Scoping tool is key to ensure full consideration of biophysical factors that support ecosystem function
- Assessments show clear narrative of project effects related to ecosystem function
- Assessment of ecosystem function helps inform sustainability recommendation to decision makers

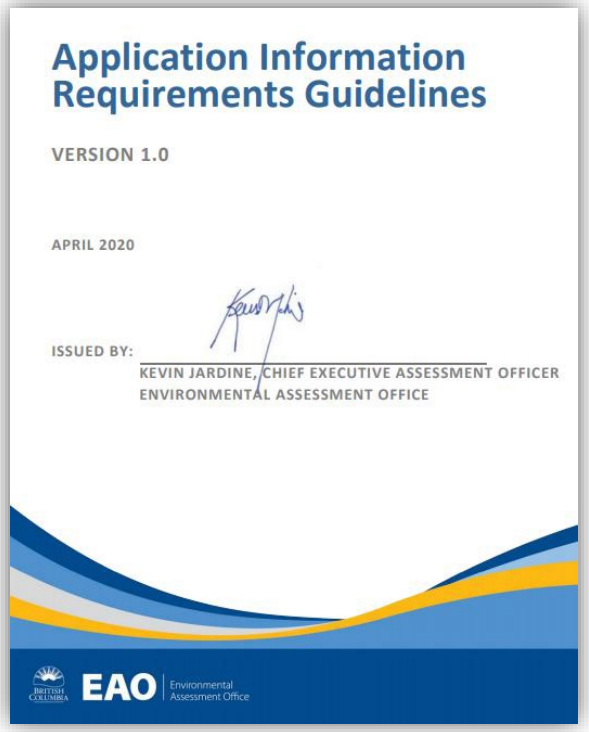
EAO Policy

The policy on assessing biophysical factors that support ecosystem function is captured in EAO's Effects Assessment Policy



https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/guidance-documents/2018-act/effects_assessment_policy_v1_-_april_2020.pdf

The standard list of valued components are captured in EAO's Application Information Requirements Guidelines



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Let’s continue the conversation!

Post questions and comments via chat in the IAIA22 platform.

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