



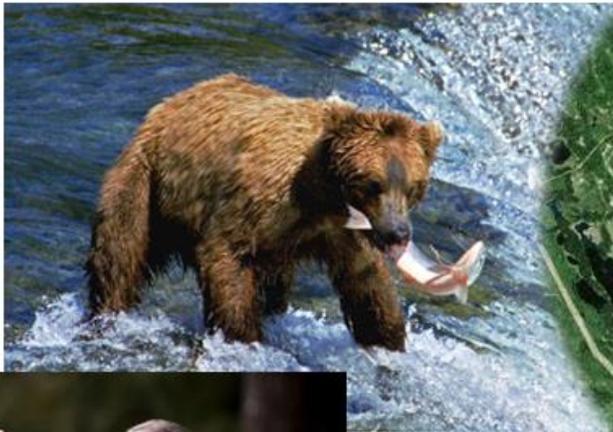
Cumulative Effects Framework

Assessing and Managing Cumulative Effects in British Columbia

CUMULATIVE EFFECTS FRAMEWORK

Phase 2 Engagement Summary

(April - July 2016)



15 December 2016

Acknowledgements

The government of British Columbia would like to thank all of those individuals and organizations who spent the time, energy and effort to participate in the Cumulative Effects Framework Phase 2 Engagement. From attending meetings and workshops to forwarding emails and written submissions, your comments and feedback have helped improve British Columbia's Cumulative Effects Framework.

Executive Summary

In 2010, British Columbia embarked on a process to develop and implement the Cumulative Effects Framework (CEF) across the natural resource sector; it is part of British Columbia's overall integrated approach to managing natural resources. The CEF consists of policy, procedures, and tools to support decision-makers in the assessment and management of cumulative effects.

Phase 1 Engagement (March to October 2015) with internal and external stakeholders helped improve the initial draft CEF policy and develop standard assessment approaches for a priority set of environmental values.

The goal of Phase 2 Engagement (April to July 2016) was to raise awareness and seek feedback on the updated draft policy and assessment approaches for the first three cumulative effects values: Aquatic Ecosystems, Grizzly Bear, and Old Growth Forest.

Phase 2 Engagement activities included:

1. Posting draft policy and value assessment documents on the CEF Internet and Intranet websites for review by interested individuals;
2. Hosting meetings, workshops, and discussion groups with stakeholders and First Nations; and
3. Inviting stakeholders and First Nations to provide feedback via written submissions and email.

Engagement activities focused on the following audiences:

- Natural resource sector stakeholders and associations;
- First Nations;
- Professionals and practitioners;
- Environmental non-governmental organizations and academia; and
- Internal natural resource sector staff.

Engagement initiatives resulted in the gathering of the following generalized feedback messages on the CEF policy and overall framework, as well as value summaries and protocols.

Ten Generalized Feedback Messages for the Draft CEF Policy and Overall Framework

1. Overall, the CEF is a useful communication and information tool for decision-making in the natural resource sector.
2. Provide ongoing engagement with all interested stakeholders and ensure that interested First Nations are involved and supportive of the assessment and management process.
3. Align the CEF with existing federal and provincial initiatives to ensure consistency in values, assessments, and coordination among government agencies.
4. Include socio-economic values and additional environmental values, and allow interested stakeholders to be involved in the values selection process.
5. Ensure the quality of assessment data by considering third-party data, regularly updating the data, and having data readily accessible to the public.
6. Perform future condition modeling that takes into account the effects of climate change.

7. Validate assessment results through peer-review and track outcomes and mitigation through regular monitoring and subsequent updates.
8. Improve the management class model to find the right balance in prescriptiveness to avoid unintended outcomes.
9. Clarify how CEF policy and assessments will influence current government policy and decision-making in each of the natural resource sectors as well as over the lifespan of a project.
10. Provide adequate resourcing for engagement, training, data collection, regular assessment updates, and subsequent monitoring.

Ten Generalized Feedback Messages for Value Summaries and Protocols

1. Overall, there is broad support for the draft value assessments, the continuous improvement of the protocols, and their prompt completion and release.
2. Ensure assessment protocols achieve the right balance between complexity and simplicity.
3. Ensure consistent assessment approaches, reporting, roll-ups, and map products across values.
4. Ensure protocols focus on creating cumulative effects assessments and not threat assessments.
5. Consider having benchmarks that are reflective of a value baseline condition.
6. Clarify the scale of the assessments and attempt to have the scale consistent across values.
7. Clarify the use of supplemental indicators and ensure they do not double-count impacts.
8. Consider assessing future condition and future impacts on values, including climate change.
9. Ensure regional teams review assessment results to assure quality of data and interpretation.
10. Ensure that values are not unintentionally driven down to their lowest acceptable condition or objective by policy provisions.

This engagement feedback will serve as a critical foundation for the further development and implementation of the CEF policy, value summaries and protocols, and other supporting CEF procedures. The provincial CEF team staff will continue to update and improve these products and tools through ongoing engagement with interested stakeholders. The adaptive nature of the CEF allows for a continuous improvement of all CEF products over time as we learn more through stakeholder engagement and enhance our experience implementing the framework. This process will help make the CEF effective in addressing cumulative effects.

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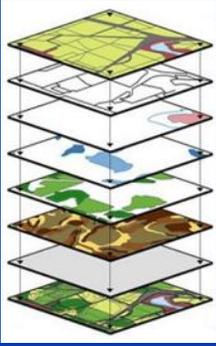
1. Introduction

1.1 The Framework

British Columbia is committed to addressing cumulative effects as an integral component of integrated decision-making in the province. Cumulative effects are defined as changes to environmental, social and economic values caused by the combined effect of past, present and potential future activities and natural processes.

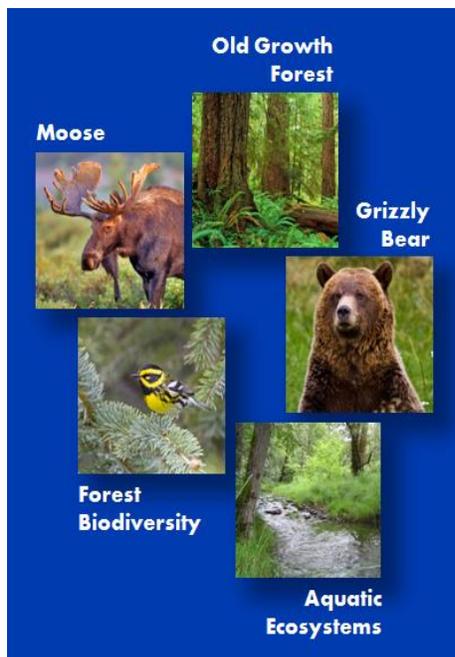
The Province is already managing cumulative effects using a number of existing stewardship tools, including:

- strategic land use planning;
- parks and protected areas;
- monitoring, research and inventory;
- management designations, including wildlife habitat areas, ungulate winter ranges, and conservation lands – to name a few; and
- various regulatory frameworks.



Cumulative effects are changes to environmental, social and economic values caused by the combined effect of past, present and potential future activities and natural processes.

The Cumulative Effects Framework (CEF) provides cumulative effects assessment information for the Province’s priority values at a broad, strategic scale enabling a more coordinated, consistent management of cumulative effects across the natural resource sector (NRS). Further, the CEF provides information to support consultation and the consideration of impacts to Aboriginal rights and interests.



Moose

Old Growth Forest

Grizzly Bear

Forest Biodiversity

Aquatic Ecosystems

Assessments of both current condition and cumulative effects will be periodically updated to ensure they accurately reflect our current knowledge of the effects of resource use on these values. The initial set of CEF values for the framework include:

- Aquatic Ecosystems,
- Grizzly Bear,
- Old Growth Forest,
- Forest Biodiversity, and
- Moose.

Based on assessments, the framework provides guidance for provincial government staff and decision-makers for managing cumulative effects on values across the natural resource sector. The framework defines direction for a new regional business process necessary for identifying consistent and coordinated management to mitigate cumulative effects.

Figure 1 illustrates the optimal workflow for the assessment and management of cumulative effects.

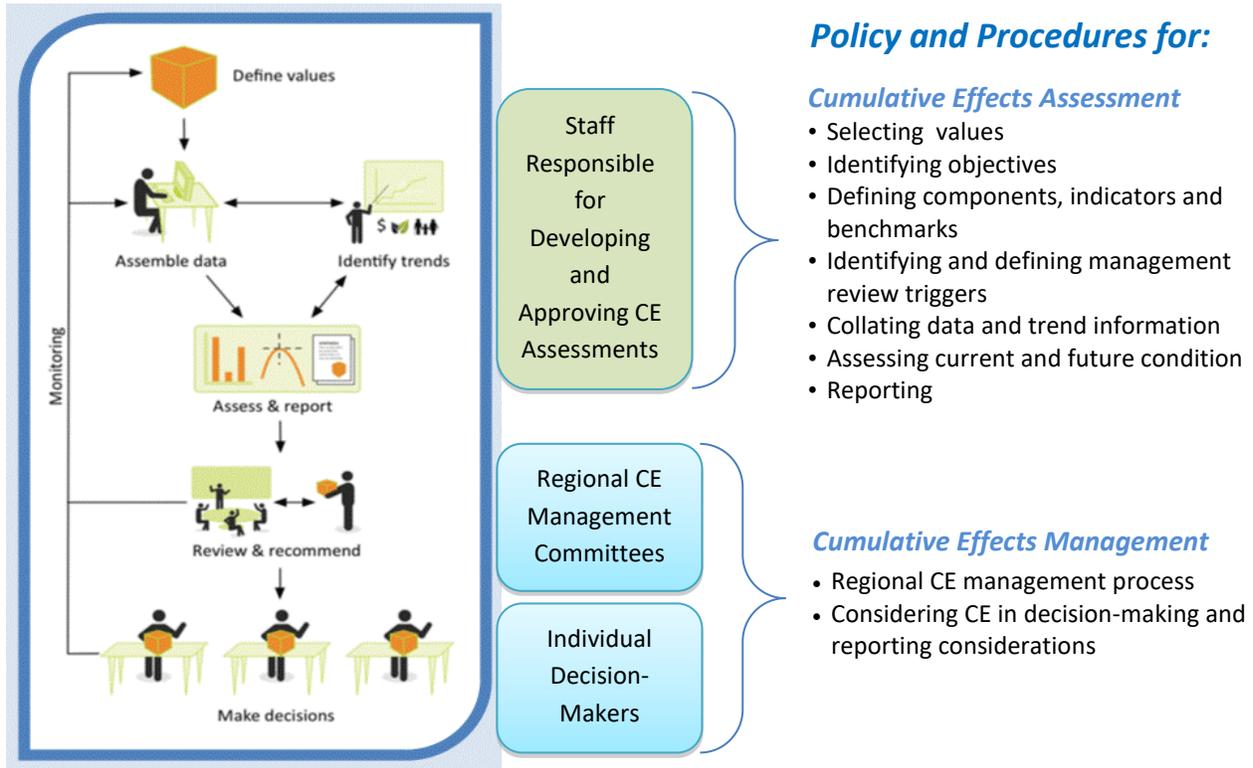


Figure 1: Elements of the Cumulative Effects Framework workflow.

Engagement is an important process that supports various elements of the framework. The overall governance and approval of CEF products is based on collaboration among the Province's natural resource sector ministries. While the development of draft value assessments, policy, and procedures of the framework is a joint effort between the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) and the Ministry of Environment (MoE).

1.2 Framework Benefits

The primary goal of the framework is to provide a consistent and transparent approach for assessing and managing cumulative effects of resource use on the values that are important to British Columbians. Once the framework is implemented, there will be numerous and wide-ranging benefits for the natural resource sector, including:

1. Government Benefits

- Information and tools that will lead to better applications being submitted and reduced time to prepare decision support material.
- Strategic information that identifies and supports implementation of management options for values.

- Support for assessing resource activity proposals that yield socio-economic benefits while ensuring environmental impacts are minimized.
- Transparent, durable decisions, reduced government staff time and legal risk.
- Better information to support First Nations engagement and the Crown's duty to consider potential impacts of resource development on Aboriginal interests and treaty rights.

2. First Nations Benefits

- Better information on the condition of values important to First Nations and increased opportunity to collaborate on management recommendations.
- Ongoing monitoring of the condition of values that are important First Nations' interests and treaty rights.
- Opportunities to collaborate in assessment and monitoring.

3. Proponent Benefits

- Accessible and current information to support project applications.
- Better information for more robust project applications that will result in shorter review times, lower project costs, and more efficient project management.
- Opportunities to collaborate in assessment and monitoring.

4. Values Benefits

- Value condition assessed and monitored to ensure that legal and policy objectives are being met.
- Management recommendations for values can help mitigate unintended outcomes.

1.3 Past Engagement

Meaningful engagement with both external and internal audiences is vital for the successful development and implementation of the CEF. The framework is a complex natural resource sector initiative that requires focused communication and engagement efforts to ensure that concerns can be addressed and the diverse interests of all stakeholders can be balanced. Engagement will continue to be ongoing, but past engagement has already helped to form and improve the framework.

Initiated in 2010, the conceptual framework was developed in collaboration with internal government stakeholders and targeted external parties. In 2011 and 2012, government implemented a demonstration phase of the CEF with demonstration projects of regionally-based cumulative effects assessments in selected areas of the province.

Drawing from the lessons learned from the regional demonstration projects, the Province initiated a phased approach to implementing the framework, in alignment with the Natural Resource Permitting Project (NRPP; formally NRS Transformation). The implementation phases build on an adaptive management approach to incorporate new information and refined assessment methodologies, allowing for the continuous improvement of the framework.

Phase 1 Engagement (March to October 2015) was a period of with key internal and external stakeholders to receive feedback on the [Policy for Addressing Cumulative Effects in Natural Resource Decision-Making](#). The views heard were focused primarily on the accountability for decision-making, governance structure, selection of values, development of assessment procedures, consideration of risk in the management process, and ultimate decision-making. A summary of this feedback can be found in the [Cumulative Effects Framework Engagement Overview](#). This feedback helped to improve the initial draft policy and value assessment approaches with substantial revisions that better reflect and address the suggestions provided during the Phase 1 Engagement initiative.

2. Phase 2 Engagement

2.1 Objectives

Phase 2 Engagement (April to July 2016) was the Province's second major engagement initiative to review and solicit feedback on the draft CEF policy, draft value assessment procedures, and preliminary assessment results for Aquatic Ecosystems, Grizzly Bear, and Old Growth Forest (hereafter referred to as “draft value summaries and protocols”). The specific objectives of Phase 2 Engagement were to:

1. Raise awareness of the revised draft CEF policy and draft value summaries and protocols;
2. Ensure the revised draft CEF policy had captured the meaning and intent of feedback received previously during Phase 1 Engagement;
3. Solicit review and comment on draft CEF policy and draft value summaries and protocols; and
4. Continue to improve the framework based on the obtained suggestions of external and internal stakeholders.

External engagement included natural resource sector industry stakeholders, environmental non-governmental organizations, sector professionals and practitioners, academics, and First Nations. Internal engagement targeted natural resource sector government staff from the Ministry of Forests, Lands and Natural Resource Development (MFLNRO), Ministry of Aboriginal Relations and Reconciliation (MARR), Ministry of Energy and Mines (MEM), Ministry of Environment (MoE), Ministry of Natural Gas Development (MNGD), Environmental Assessment Office (EAO), and BC Oil and Gas Commission (OGC). Some of the consulted staff were members of Regional Management Teams and regional Cumulative Effects Management Committees.

2.2 Engagement Resources

The primary engagement resources provided to stakeholders during Phase 2 Engagement included:

- The draft CEF policy that was divided into two parts: [Part 1: Policy for Assessing Cumulative Effects](#) and [Part 2: Policy for Cumulative Effects Management](#);
- The draft values summaries and protocols for Aquatic Ecosystems, [Grizzly Bear](#), and Old Growth Forest; and

- The discussion paper [Towards the Development of Cumulative Effects Management Procedures for Cumulative Effect Values](#) that builds upon the broad direction for cumulative effects management detailed in the draft policy.

These engagement resources were distributed to external stakeholders by email and during engagement sessions. Most of these resources were also available on the CEF Internet webpage, [Get Involved](#), and to internal audiences on the CEF Intranet webpage, [Engagement](#). Other general engagement resources were used during workshops, meetings and other engagement sessions, including case studies, focus questions, feedback forms, “user journeys,” slide decks, and brochures.

2.3 External Engagement

2.3.1 Website

Engagement documents were posted on the [CEF Internet](#) website along with suggestions for how visitors to the website could participate and contribute to the review of the draft CEF policy and protocol documents. An email invitation to review and comment on these draft documents was sent on April 29, 2016 to various stakeholders and First Nations community members.

During the engagement period (April 4 to July 15, 2016) the CEF Internet website and its subpages were viewed 4,750 times, with the "Get Involved" page being viewed most frequently, at 2,411 times (Figure 2). The average amount of time spent on each page per page view was: 2.2 minutes (Homepage), 3.5 minutes (Get Involved) and 3.0 minutes (FAQs).



Figure 2. Number of page views to the CEF Internet website during April 4 - July 15, 2016.

The CEF assessment policy document was downloaded 444 times during the engagement period, while the CEF management policy document was downloaded 295 times (Figure 3). In total, 1,904 CEF documents were downloaded, while the top five documents downloaded accounted for 63% of all downloads, or 1211 downloads. The next top three downloads were the 2014 CEF overview document,

the discussion paper on the broad direction of CEF management procedures, and the grizzly bear value summary.

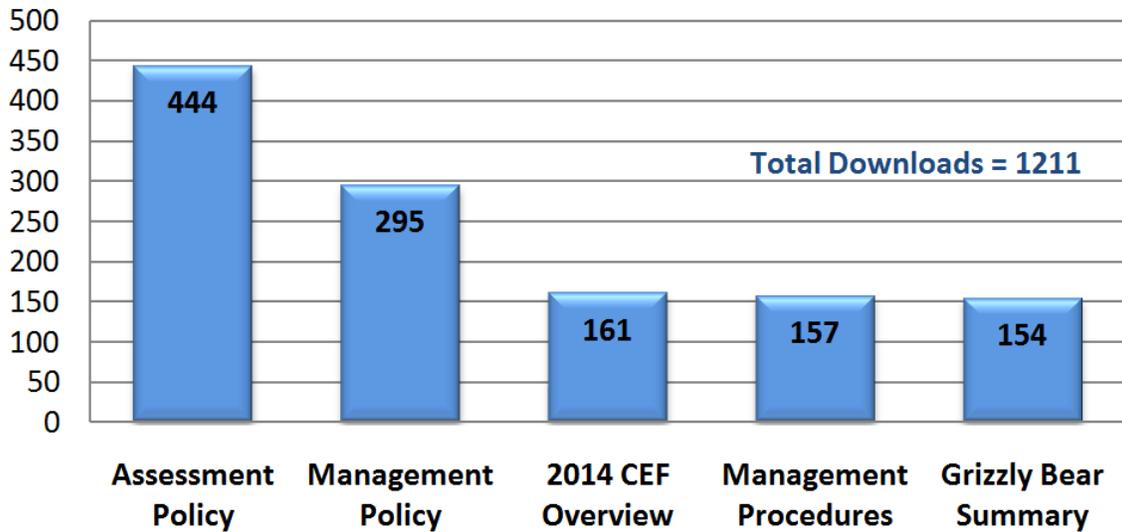


Figure 3. Top five document downloads on the CEF Internet website during April 4 - July 15, 2016.

2.3.2 Meetings

Eleven meetings occurred with key stakeholder groups that were either involved in past CEF engagement activities or were new additional organizations. Meetings varied from brief information updates to detailed overviews of engagement material. Attendees were provided information for follow-up and invited to submit comments. The following meetings were held during the engagement period:

- May 10, 2016 - Association of BC Forest Professionals;
- May 17, 2016 - BC Business Council Environment Committee;
- June 6, 2016 - Canadian Association of Petroleum Producers, Canadian Energy Pipeline Association, Canadian Association of Geophysical Contractors, and member companies of each organization;
- June 14, 2016 - University of Northern BC Cumulative Effects Research Group;
- June 16, 2016 - North Coast Environmental Stewardship Initiative;
- June 17, 2016 - Marine Plan Partnership for the North Pacific Coast and North Coast Skeena First Nations Stewardship Society;
- June 21, 2016 - Coast Operational Issues Forum;
- June 23, 2016 - Provincial Forestry Forum;
- July 6, 2016 - Council of Forest Industries and Coast Forest Products Association; and
- July 13 and August 10, 2016 - Mining Association of British Columbia and member companies and the Association for Mineral Exploration BC.

2.3.3 Workshops

Three workshops were held during the engagement period, with a total of 80 participants attending. Each workshop was designed to provide specific CEF information that would be of value to the different stakeholder groups. An email invitation was sent on May 31, 2016 to various stakeholders inviting them to register and attend any of the three CEF engagement workshops.

Workshop 1 was held on June 16, 2016 in Richmond and was designed to build CEF knowledge and solicit policy and protocols feedback from the natural resource sector, including sector stakeholders, land managers, environmental non-governmental organizations (ENGOS) and professional associations. The workshop had 21 participants.

Workshop 2 was held on June 17, 2016 in Richmond and was designed to provide CEF information and solicit comment on how it relates to conducting environmental impact assessments for environmental assessment practitioners. The workshop had 23 participants.

Workshop 3 was held on June 27 and 28, 2016 in Vancouver and provided an opportunity for provincial technical and scientific experts from government, industry, ENGOS and academia to peer-review and critique the draft value summaries, protocols, and policy. The workshop had 36 participants.

2.4 First Nations Engagement

Building on First Nations engagement activities that were first initiated in 2011, letters of invitation to participate in the development and review of the draft CEF policy and protocols were sent to provincial First Nations leadership committees (i.e., Union of BC Indian Chiefs, BC Assembly of First Nations, and First Nations Forestry Council) on May 10, 2016.

An email invitation to review and comment on draft policy and protocols posted on the CEF Internet website was sent on April 29, 2016 to various stakeholders and First Nations community members (by request). An email was also sent on May 31, 2016 to several First Nations community members (by request) extending an invitation to register and attend any of the three CEF engagement workshops. First Nations representatives participated in both Workshop 1 and Workshop 2.

An engagement session was held with the North Coast Skeena First Nations Stewardship Society on June 17, 2016. The objective of the session was to build knowledge of the draft CEF policy and its relation to the Marine Plan Partnership (MaPP) Cumulative Effects initiative, as well as to encourage participants to provide any relevant feedback or comment on draft CEF policy and protocols.

Four written submissions on the draft CEF policy and protocols were received, representing the views of multiple First Nation communities, including:

- Metlakatla Stewardship Society;
- Blueberry River First Nations;
- North Coast Skeena First Nations Stewardship Society consisting of the Gitga'at Nation, Kitsumkalum Nation, Gitxa'ala Nation, Kitselas Nation, Haisla Nation, and Metlakatla Stewardship Society; and

- Central Coast Indigenous Resource Alliance consisting of the Kitasoo/Xai'Xais Nation, Heiltsuk Nation, Wuikinuxv Nation, and Nuxalk Nation.

2.5 Internal Engagement

2.5.1 NRS Staff

Engagement background information and documents were posted on the [CEF Intranet](#) website for internal staff to access. The website also directed users to the [CEF Internet](#) site to provide feedback and comment on the draft CEF policy and protocol documents. During the engagement period, the top 5 CEF Intranet website subpages were viewed 647 times with the "Engagement" page being viewed 97 times (Figure 4). The average amount of time spent on each page per page view was: 1.3 minutes (Homepage), 1.1 minutes (Engagement), 0.6 minutes (Policy and Procedures), 0.4 minutes (Regional Implementation) and 0.5 minutes (Updates).

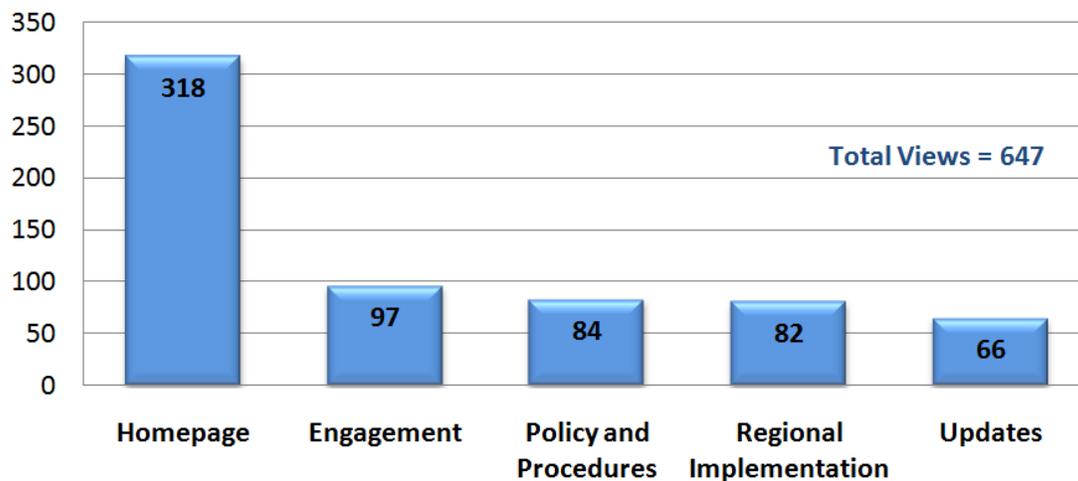


Figure 4. Number of views for the top five CEF intranet webpages during April 4 - July 15, 2016.

Provincial natural resource sector staff were also invited to participate in a Live Meeting held on June 23, 2016. The Live Meeting consisted of a CEF policy and protocols presentation followed by a question and answer session and an invitation to submit feedback and comments. The Live Meeting had approximately 250 participant viewers.

2.5.2 Regional Management Teams and Cumulative Effects Management Committees

Meetings with Regional Management Teams (RMTs) and Cumulative Effects Management Committees (CEMCs) were focused on updating and building knowledge on the CEF policy and protocols as well as discussions with managers on the potential resourcing requirements and training options for regional staff needed for the CEF implementation. In most cases, these meetings included inter-agency participation. A total of seven RMTs and CEMCs meetings occurred, including:

- April 22, 2016 - Thompson Okanagan Region Cumulative Effects Management Committee;
- May 10, 2016 - South Coast Regional Management Team;

- May 31, 2016 - North East Regional Management Team (FLNRO) and Regional CE Management Committee;
- June 14, 2016 - Omineca Regional Management Team (FLNRO) and Regional Managers Committee;
- June 22, 2016 - Cariboo Region Managers Committee;
- June 22, 2016 - Skeena Region Managers Committee; and
- July 12, 2016 - Kootenay Region Managers Committee.

3. Feedback on CEF Policy

Stakeholder feedback was compiled from comments gathered at three workshops, 16 meetings and several information sessions as well as from written submissions. In total, 19 written submissions were received during the engagement period: 13 from external stakeholders, four from First Nations, and two from internal staff.

Several broad feedback messages on the CEF policy and protocols were heard during the engagement process. These messages represent high-level comments received from the various external and internal stakeholder groups and do not attempt to represent all of the 1112 detailed comments that were catalogued during engagement. Of those 1112 comments catalogued, 807 (73%) came from 45 external stakeholders and 4 First Nations communities and groups (see Appendix A for a summary), and 305 (27%) came from various internal stakeholders (see Appendix B for a summary).

3.1 Generalized Feedback Messages for CEF Policy and Overall Framework

Most stakeholders showed broad support for the development and implementation of the CEF and perceived it as a useful information and communication tool to support decision-making. There were ten generalized feedback messages that were representative of the primary, and most consistently heard, comments on the draft CEF policy and the overall framework across stakeholder groups. These messages include policy-related feedback as well as broader feedback pertaining to other aspects of the CEF, including data management, expansion of values, engagement, and alignment with other initiatives. These are high-level messages that summarize general themes and do not necessarily represent precise wording received from any one particular stakeholder. The generalized feedback messages are not listed in any particular order of importance.

Ten Generalized Feedback Messages for the Draft CEF Policy and Overall Framework

1. Overall, the CEF is a useful communication and information tool for decision-making in the natural resource sector.
2. Provide ongoing engagement with all interested stakeholders and ensure that interested First Nations are involved and supportive of the assessment and management process.
3. Align the CEF with existing federal and provincial initiatives to ensure consistency in values, assessments, and coordination among government agencies.

4. Include socio-economic values and additional environmental values, and allow interested stakeholders to be involved in the values selection process.
5. Ensure the quality of assessment data by considering third-party data, regularly updating the data, and having data readily accessible to the public.
6. Perform future condition modeling that takes into account the effects of climate change.
7. Validate assessment results through peer-review and track outcomes and mitigation through regular monitoring and subsequent updates.
8. Improve the management class model to find the right balance in prescriptiveness to avoid unintended outcomes.
9. Clarify how CEF policy and assessments will influence current government policy and decision-making in each of the natural resource sectors as well as over the lifespan of a project.
10. Provide adequate resourcing for engagement, training, data collection, regular assessment updates, and subsequent monitoring.

3.2 Feedback Messages for CEF Policy by Stakeholder Group

Stakeholders provided a diverse array of feedback comments on the draft CEF policy (see Appendices A and B). Several of the comments received were unique to the particular interests and concerns of the individual stakeholder group. However, many of the stakeholder groups provided similar comments on topic themes. In such cases, these related comments were assigned to the stakeholder group for which the comment was most often mentioned, to minimize repetition in the summary below. Thus, specific comment themes are only listed once in the summary and have been assigned to a single stakeholder group, even though the comments may have also been mentioned by other stakeholders.

3.2.1 Natural Resource Sector (276 comments catalogued)

Three main industry sectors provided feedback on the draft CEF policy: energy, forestry and mining. A total of 276 separate comments were catalogued, including 79 from the energy sector (from four stakeholders), 60 from the forestry sector (from five stakeholders), 115 from the mining sector (from two stakeholders), and 22 from a multi-sector business council. Comments from the business council have been incorporated in their appropriate sector section below.

Energy Sector (79 comments catalogued)

1. Clarify potential policy impacts on the referral process and timing to help identify upfront costs for proponents and provide investment certainty.
2. Ensure the fair treatment of assessment implications across sectors and between past and future projects so that no particular sector or project is unduly disadvantaged.

“We are supportive of the BC Government and its efforts to develop a Cumulative Effects Framework (CEF) and associated policies and protocols to inform decision-making... The implementation of a comprehensive policy framework for CEA and management is a positive step to building public trust and assurance that the development of the LNG sector and other opportunities for economic growth consider changes to the environment.”
Canadian Energy Pipeline Association

3. Align policy with the Area-Based Analysis tool and similar energy sector initiatives.
4. Document and report on data quality, uncertainty, assumptions, validation process, management interpretation and management limits to avoid assessment data being misused.
5. Regularly update future condition modelling to reflect that some approved projects will not be completed due to changes in the market place that no longer make projects feasible.

Forestry Sector (60 comments catalogued)

1. Ensure the enhanced management class does not trigger incremental requirements beyond the current accountabilities under the *Forest and Range Practices Act* (FRPA).
2. Clarify the scale for which assessments will be produced, and weigh different indicators in different regions or population units.
3. Clarify if CEF assessments will be applicable in areas with current and comprehensive land use plans (e.g., Great Bear Rainforest).
4. Ensure assessments are consistent with Forest Stewardship Plans.
5. Consider having timber as a value.

“We support the development of a Cumulative Effects Framework for BC. Such a framework will ensure an effective, consistent, and streamlined process to manage for cumulative effects across the province.” **Council of Forest Industries and Coast Forest Products Association**

Mining Sector (115 comments catalogued)

1. Ensure the policy identifies and addresses the primary causes of cumulative effects so that it is not at risk of becoming another regulatory layer.
2. Analyze and explicitly identify what existing government legislation, regulation, policy, and decisions will be influenced or affected by assessments.
3. Enable consistent policy application to all land-use decisions to ensure that the policy does not pose an undue and ineffective layer of regulatory burden onto the mining sector.
4. Consider adopting the goal of halting negative trends for values unless the slowing of a trend could be reversed at some future date.
5. Eliminate any bias in the policy towards major projects contributing disproportionately to cumulative effects instead of the more numerous smaller projects.

“The assessment of social and economic values in the context of cumulative effects is extremely important to responsible resource management in B.C.” **The Mining Association of BC.**

3.2.2 First Nations (107 comments catalogued)

Comments were received from groups representing eleven First Nations from various areas of the province, including the Northeast, North Coast, Central Coast, and South Coast areas. Some of the comments received were specific to the individual First Nation communities, but others were more general and are summarized below.

1. Clarify the government-to-government process to consult and accommodate Aboriginal peoples so they may determine how the policy might address cumulative effects on their constitutionally protected treaty rights.
2. Ensure that policy engagement and involvement with First Nations meet the procedural or substantive consultation requirements consistent with the honour of the Crown.
3. Identify resourcing and funding for completing regional assessments as well as for implementation, consultation, or accommodation of affected Aboriginal peoples.
4. Identify the process for First Nations involvement with selecting values, verifying data, monitoring, providing data, traditional knowledge and management recommendations.
5. Ensure that the inclusion of "economic values" in the policy does not weaken the CEF and potentially introduce a bias towards development that may be harmful to treaty rights.
6. Clarify whether a proponent's cumulative effects mitigation plan will be incorporated as an enforceable condition of the development permit.
7. Ensure the policy does not alter or derogate from BC's commitments and obligations to collaboratively develop and implement cumulative effects initiatives under the Marine Planning Partnership (MaPP).
8. Ensure the lack of data does not preclude a value from being considered for assessment.
9. Clarify if the policy is legally enforceable and which legal mechanisms, such as judicial review, might be used to enforce the "expectations", "guidance", and "support" set out in the policy.
10. Consider having undisturbed areas and the exercise of Aboriginal rights as values.

3.2.3 Professionals and Practitioners (191 comments catalogued)

Comments from professionals and practitioners were primarily provided by independent consultants and professionals from 14 environmental consulting firms involved in the natural resource sector. Though their backgrounds varied, many of these individuals were involved in conducting environmental impact assessments for proposed large development projects. Their common concerns are summarized below.

1. Ensure policy fairness regarding mitigation obligations considering that earlier proponents may incur fewer mitigative costs than successive proponents as cumulative effects accumulate.
2. Clarify if management classes can change between the time of application and the actual start date of the project, and how this might affect the proponent.
3. Ensure the policy does not unintentionally drive and concentrate development from enhanced and intensive management areas to standard management areas.
4. Clarify how CEF values and assessments interplay and overlap with the *Canadian Environmental Assessment Act's* valued components and assessments.

"Good work on the CEF policies and the framework. Using statistically sound inventory data for key values, that is incorporated and continually updated over the longevity of the program, will increase the effectiveness of the framework."
ABCFP Stewardship Committee

5. Consider having non-declining stores of carbon in terrestrial ecosystems (soils and biomass) and ecological resilience to climate change as values.

3.2.4 ENGOs and Academia (233 comments catalogued)

Comments from ENGOs and academia were from organizations that are based across the province. Many of the eight ENGOs that provided 217 catalogued comments are provincial organizations that have large geographically-based memberships. Sixteen catalogued comments were also received from three academic universities or their affiliates.

1. Adopt the policy goals of preventing, not just mitigating, cumulative effects and managing values at low risk benchmarks to maintain and restore conditions for net environmental gains.
2. Consider having policy legislated so there is a legal requirement to implement assessment outcomes in operational, tactical and strategic decision-making.
3. Clarify how assessments will address future condition and how small activities that do not require a permit are included in assessments.
4. Ensure the policy accounts for uncertainty and adopts the precautionary principle where data are lacking or unknown.
5. Consider having regional communities and local governments involved in the process of selecting values, such as salmonids, ecosystem services, and First Nations values.

3.2.5 Internal Staff (305 comments catalogued)

Comments were received from all regions of the province and from various levels of administrative and operational staff members of the Ministry of Forests, Lands and Natural Resource Development (FLNRO), Ministry of Aboriginal Relations and Reconciliation (MARR), Ministry of Energy and Mines (MEM), Ministry of Environment (MoE), Ministry of Natural Gas Development (MNGD), Environmental Assessment Office (EAO), and BC Oil and Gas Commission (OGC).

1. Clarify government staff roles and responsibilities for implementing the policy, including roles of regional cumulative effects management teams and interagency committees.
2. Provide training for all levels of staff involved with policy implementation and secure resourcing for any additional associated workload.
3. Ensure provincial consistency in the assessment approach while allowing for regional flexibility.
4. Clarify expectations for when Cumulative Effects Assessment Management (CEAM) reports are required.
5. Consider a strategic set of provincial values including recreation, coastal/ foreshore, cultural and industry values, species-at-risk, and migratory birds.

4. Feedback on Value Summaries and Protocols

There was broad support for the value summaries and their protocols as a useful information tool for value management. Several feedback messages emerged on the CEF value summaries and protocols during engagement. Most of these messages represent high-level comments received from invited external and internal topic experts from across the province during the dedicated two-day workshop for peer-reviewing the value summaries and protocols. A total of 254 catalogued comments were gathered during workshop proceedings, group discussions, subsequent feedback forms, and other sources (see Appendix C for a summary).

4.1 Generalized Feedback Messages for Value Summaries and Protocols

There are ten generalized feedback messages that are representative of the main comments heard on value summaries and protocols. These are high-level messages that summarize general themes and do not necessarily represent precise comment wording. The generalized feedback messages are not listed in any particular order of importance.

Ten Generalized Feedback Messages for Value Summaries and Protocols

1. Overall, there is broad support for the draft value assessments, the continuous improvement of the protocols, and their prompt completion and release.
2. Ensure assessment protocols achieve the right balance between complexity and simplicity.
3. Ensure consistent assessment approaches, reporting, roll-ups, and map products across values.
4. Ensure protocols focus on creating cumulative effects assessments and not threat assessments.
5. Consider having benchmarks that are reflective of a value baseline condition.
6. Clarify the scale of the assessments and attempt to have the scale consistent across values.
7. Clarify the use of supplemental indicators and ensure they do not double-count impacts.
8. Consider assessing future condition and future impacts on values, including climate change.
9. Ensure regional teams review assessment results to assure quality of data and interpretation.
10. Ensure that values are not unintentionally driven down to their lowest acceptable condition and objectives by policy provisions.

4.2 Feedback Messages for Value Summaries and Protocols

Three draft value summaries and protocols for aquatic ecosystems, grizzly bear and old growth forest were reviewed during the two-day workshop on June 27 and 28, 2016. Workshop participants provided the following feedback on each of these value summaries and protocols:

4.2.1 Aquatic Ecosystems

1. Align the assessment approach and benchmarks with existing initiatives, such as Forest and Range Evaluation Program, Watershed Assessment Procedures, and *Water Sustainability Act*.
2. Combine the three separate component models into a single comprehensive model to clearly demonstrate how each identified pressure indicator impacts the value.

3. Consider incorporating condition-based indicators into the assessment, such as dams, mines, groundwater resources used for fracking, point source effluent, and other water withdrawals.
4. Consider including peak flow index and fish presence/diversity in assessments and aligning assessments with the Watershed Assessment Procedure Guidebook.
5. Consider incorporating marine/estuary ecosystems in the assessments or have as a separate value.

4.2.2 Grizzly Bear

1. Consider simplifying the model by reducing the number of measured variables and associated indicators; create a simpler, summary model for proponents.
2. Clarify if assessments may consider population objectives and objectives in Land and Resource Management Plans.
3. Consider including connectivity across population units in assessments.
4. Consider including socio-economic factors, such as the bear hunt and bear viewing into the assessment.
5. Clarify the rationale for not completing assessments for areas where grizzly bears are extirpated.

4.2.3 Old Growth Forest

1. Consider having the old growth forest value as a component of the forest biodiversity value to better reflect the inherent overlap between the two values.
2. Consider revising the old growth forest definition to confirm that the conceptual basis for the value comes from the Biodiversity Guidebook and natural disturbance types.
3. Ensure the value is assessed from an ecological perspective rather than a purely legislative and regulatory perspective.
4. Consider including connectivity and structural diversity in the assessment.
5. Clarify how assessments are integrated with the Timber Supply Review analysis and allocations.

5. Next Steps

Engagement feedback will be reviewed and considered in the development and implementation of the CEF policy, value summaries and protocols, and other supporting CEF procedures. These products will continue to be updated and improved through ongoing engagement. The adaptive nature of the CEF allows for a continuous improvement of all CEF products over time as we learn more through stakeholder engagement and enhance our experience implementing the framework. This process will help make the CEF more effective in addressing cumulative effects and better reflects the concerns and interests of the people of British Columbia. Once revisions are made to the policy and three value protocols (aquatic ecosystems, grizzly bear and old growth forest), endorsement for policy documents will be sought from senior government officials.

Further engagement activities will be scheduled for the remaining provincial cumulative effects values, Forest Biodiversity and Moose, and any additional values as they become adopted and endorsed.

Management and implementation procedures as well as Cumulative Effects Assessment and Management (CEAM) Reports will also need to be reviewed through the consultation process.

Interested parties who have already contributed to the CEF public engagement process will be contacted and updated on upcoming engagement opportunities. Other interested parties, who have not been previously involved in CEF engagement, will be outreached and encouraged to participate in helping make the Cumulative Effects Framework better and more reflective of the concerns and interests of the people of British Columbia.

Appendix A: Summary of External Stakeholders and First Nations' Feedback on the CEF Policy and Overall Framework¹

Primary Sources of Feedback

Natural Resource Sector stakeholders and associations, environmental non-governmental organizations, sector practitioners and professionals, academics, First Nations, and both federal and municipal government.

Overall Perceptions of the Draft CEF Policies

Most stakeholders believe that the draft CEF policies are a good starting point and the framework can ultimately become a useful information and communication tool for land use planning and decision-making. There were several feedback themes identified by external stakeholders where improvements to the draft policies could be considered by Government, and they are summarized below.

Governance and Program Alignment

1. Ensure that the CEF initiative is aligned with other initiatives, including CEA¹ Act, ABA, ESI, EA process, OGC, SARA, FSCS, co-location, THLB stabilizations, threats-based analysis, and land use plans and objectives. Confirm and commit that while the CEF and LNG-ESI initiatives will help to inform the MaPP Cumulative Effects Framework, and vice versa, they do not alter or derogate from BC's commitments and obligations under the NCMP to collaboratively develop and implement with First Nations the MaPP Cumulative Effects Assessment Framework within the MaPP study area.
2. Ensure coordination between different government agencies (i.e., how assessment, management and training is carried out between different working groups, committees, and regional experts) and sectors. Consider developing internal guidance, training, and decision support for SDMs early on.
3. Clarify roles of EA proponents in considering/ addressing CEAs. Clarify if there is a CE working group in the EA process.
4. Describe by position and Ministry who is represented on various cumulative effects governance boards, including: the NRS Board, NRS ADM's Committee, CEF Strategic Leadership Team and the CE Assessment Team.
5. Include CE as part of the FSP working group work plan.

Value Selection

1. Include and assess socio-economic values, including social fairness, quality of life, health implications, and timber, early in the process to manage expectations up front and to lend to

¹ Please see the end of the appendix for a list of acronym definitions.

CEF credibility. Clarify how these values will be considered prior to policy implementation and what is meant by “a standard approach to assessing social and economic values”.

2. Consider climate change by adding two additional values to the CEF: (1) non-declining stores of carbon in terrestrial ecosystems (soils and biomass) at local, regional and provincial scale, and (2) ecological resilience to the effects of climate change. Perception that district managers are “hiding behind” the concept of climate change.
3. Include additional values or indicators, such as species-at-risk, fish (e.g., salmon, bull trout, eulachon), ecological systems, resilience to climate change, sensitivity to development, Aboriginal rights and traditional/ spiritual knowledge and non-timber attributes of the forest inventory, including carbon value, fuel loads/ characteristics, and wildlife habitat attributes. Consider additional values faster.
4. The initial set of values identified from the First Nations engaged in the process to date, favour inland terrestrial areas – they do not adequately capture key coastal or socioeconomic First Nations values and interests.
5. Develop a set of over-arching provincial-level values derived from principles (not necessarily defined objectives) of stewardship and sustainability that reflect a precautionary approach.
6. Clarify the implementation timeframe for other values, including what the time lag means for proponents in pre-application.
7. Clarify how regional values can differ from provincial values.
8. Do not exclude values because of a lack of data. Instead, identify opportunities for research.
9. Clarify how CEF values are different from FRPA values.
10. Clarify how integration across values will happen/ need to tell the whole story rather than address values one by one. Need to have values that are common across all of B.C. including coastal areas. Need a balance of provincial/regional value selections.
11. The current set of “core values” is incomplete because of the focus on: (a) existing objectives, (b) available data, (c) environmental (i.e., terrestrial areas), and (d) absence of socio-economic values.

CE Assessment

1. Develop monitoring procedures, including:
 - process for tracking mitigation/ restoration activities, including clear responsibilities and opportunities for the Crown, proponents, and First Nations to be involved in monitoring;
 - process for incorporating mitigation/ restoration activities in CEAs, including discounting existing mitigation measures to accurately account for mitigation measures, and considering future mitigation measures in future condition analysis;
 - process for validating CEA model results, especially if model uncertainty may lead to excessive conservatism and requests for actions that are not needed or not useful; and
 - process for assessing the overall performance of the CEF in terms of expected benefits, such as streamlined decision-making.
2. Concerns about objectives:

- Clarify objectives for values and the process for identifying them. Ensure transparency of any agreements that set policy objectives for a value;
 - Have broad objectives at the provincial level, but more specific/ community-based objectives at the regional level; and
 - Keep objectives current, sector-relevant, place-based, and clear. Consider adding temporal components to the objectives.
3. Develop procedures for using third party data from industry (EA applications), ENGOs, First Nations, and academics for conducting assessments, including future condition scenarios.
 4. Concern about the adequacy and quality of existing data and the credibility of proponent-supplied data. The quality of the CEF products might be undermined by the quality of data. Suggestion to flag values and value components where data are not available and/ or outdated.
 5. Consider climate change effects, including how it affects management classes and triggers.
 6. Develop procedures for future condition modelling taking into account various development scenarios (uncertainties in future activities) and relying on cutting-edge independent research.
 7. Include resilience/ tolerance to risk and ecosystem services/ environmental flows in CEAs.
 8. Consider analyzing the primary causes of cumulative effects and directed actions to deal with those effects.
 9. Concern about regional boundaries for CEAs: spatial boundaries might trigger disagreements between First Nations and communities; scope of project-specific EA should consider residual impacts, range of VCs, temporal boundaries, and transboundary effects instead.
 10. Reconsider the definition of 'benchmark:' clarify if "scientific understanding" includes traditional and community knowledge.
 11. Clarify how historic-to-present impacts will be translated into the current condition assessment.
 12. Clarify how the CEF overcomes the "shifting baseline" problem.
 13. Clarify how follow-up data can replace predictive data.
 14. Clarify whether a proponent is required to complete a CEF assessment or if government CEF assessments already exist for an area of interest.
 15. Improve communications pertaining to the quality of data, uncertainty, assumptions, validation process, management interpretation, and management limits to avoid data being misused.
 16. Consider regional growth plans in CEAs.
 17. Clarify how CEAs will be made publicly available.
 18. Clarify how/ if the effects of projects on private land are considered.
 19. For EA, clarify if CEA takes a priority if the proponent's data and conclusions are different from the CEA.
 20. Clearly define scale of assessment.

CE Management

1. Concerns about management classes:
 - Management classes are designed around responding to impacts rather than preventing/ avoiding impacts, and thus lacks a precautionary principle. Management goal should be to

restore the value to the “green” zone. Clarify if there is a response that would advise against a project to prevent harm/ clearly message if impacts are not acceptable;

- Integrate mitigation hierarchy throughout CE management classes so that the objective of each category is to bring the value back to a “standard” management class. As currently stated, values can be driven from the “standard” class to “enhanced” or “intensive” management classes;
- The issue of fairness (“first in/ last out”) can arise because early proponents will not have to do a lot of mitigation whereas later proponents will face substantial mitigation requirements;
- “Green” class: does not enable management responses to prevent damage;
- “Enhanced” and “intensive” classes: may lead to unintended consequences/ encourage management towards triggers, instead of improvement of the value condition, and/ or may drive harmful development to “green” zone management places. The “enhanced” class needs to include the option of voluntary actions that result in positive impacts. The “intensive” class and the mitigation hierarchy need to expand consideration of offsetting, including private offsets and fee-simple land purchases;
- Add adaptive management to classes;
- Add temporal considerations to classes/ how often management classes and triggers will be updated;
- Clarify the criteria for management triggers: if they are scientifically-based, management-goals-based, and if they consider concerns raised by First Nations;
- Clarify how management classes will be operationalized and how the process will be different from current practice; and
- Clarify for large, linear projects, if separate CEAs need be conducted depending on the different management class boundaries they cross, or if a single CEA can be conducted for the entire project footprint.

2. Concerns about management responses:

- Include three classes of criteria in management responses: (1) broad criteria at the provincial level, (2) specific decision-making criteria based on CEAs, and (3) value-specific criteria for each region. Outline trade-off rules and legislate the criteria;
- Clarify/ develop procedures for how low likelihood, high impact events, such as fires and floods, will be addressed in CE responses;
- Clarify that management responses approved in a CEAM Report would not be retroactively imposed on any previously approved projects or existing operating projects (except requirements may change when approvals are renewed);
- Consider temporary measures in high risk situations, if it will take a long time to implement new objectives; and
- Clarify what is meant by management responses that include “measures,” “processes,” and “strategic direction.”

3. Concerns about government decisions:

- Clarify what types of government decisions will be influenced by CE information sector-by-sector, by lifecycle of a project (including current vs. future projects), and by legislation/

- regulation/ policy. Develop operational guidance/ bulletin for considering CE in each sector and decision type, and explain how the new process will differ from the previous practices;
- Clarify if CEAs may result in two types of government decisions, including (1) project approval, or (2) the project is stopped, at least on a temporal basis;
 - Clarify that CEAs should be considered in all new (not past) decision-making, including for small projects;
 - Both RPFs and SDMs need to be transparent about decisions and criteria for decision-making; and
 - Provide better guidance to SDMs for expectation letters to consider CE, and for foresters for how to address those expectations.
4. Concerns about reporting:
 - Relate reporting to objectives and metrics, i.e., discuss results at the provincial level in terms of broad/ qualitative objectives, but have more specific management responses at the regional scale;
 - Reporting should indicate the quality of data and where more objectives need to be identified; and
 - The Auditor General's Report on cumulative effects (May 2015) recommended annual cumulative effects reporting to the Legislature; clarify how this will be addressed in the policy.
 5. In the absence of CEA, a precautionary and sustainability-based approach should apply to the identification of potential cumulative effects and management objectives, using the following criteria:
 - Whether biophysical systems are adequately protected;
 - Whether existing impacts are unfairly distributed among individuals, communities, regions and interests, and in particular, whether disadvantaged groups bear a disproportionate burden of impacts;
 - Whether potential impacts will be disproportionately born by future generations, without equal future benefits to those generations; and
 - Whether current decision-making trends indicate an increased risk to the sustainability of biophysical or social values.
 6. Clarify how the NRPP tool will be helpful in providing CE info prior to applications and will replace Front Counter BC.
 7. Provide better guidance to help frame management plans and FSPs.
 8. Integrated silviculture strategies, that are TSA wide, are good place to consider, explore, understand CE for forest management planning.
 9. Ensure that CE management responses and decision-making are equally applied across sectors so no single sector is placed at a competitive disadvantage.

Engagement

1. Ensure early-on, regular engagement and collaboration with First Nations (including government-to-government co-management), local communities, and industry on the selection of values, data collection, and CEF reports, including assessment reports, management responses, and monitoring.
 - The absence of sufficiently early engagement could undermine the buy-in of certain interests, especially First Nations and local communities, of the CEF products.
 - Formalize First Nations participation in key decision-making/approval and technical tables to support the assessment and management of cumulative effects, including First Nations representation on the NRS Board, the Regional Cumulative Effects Management Committees, and the CE Assessment Teams.
 - Develop a collaborative process with First Nations to understand the importance of those values that do not have existing legislation, policy and/or agreements, and to determine an objective for that value.
 - Align CEF engagement with the new MARR consultation document and align CEF approach and content.
2. Engage with local governments and the general public in the selection of values (particularly when resource development is happening in close proximity to populations of people) and CEF policy development.
3. Include academics and technical experts in CEAs to provide independent oversight.
4. Consider establishing regional multi-stakeholder standing committees or round tables to provide local input, review reports, and prioritize action.
5. Develop a consensus/ interactive model to ensure effective engagement on reporting.
6. Define the scope of necessary engagement on CEF reporting and communicate these expectations early on.
7. Seek feedback on the draft policies from all provincial ministries and federal departments to ensure full government endorsement of the document and to avoid competing expectations.
8. Public and First Nations engagement should not be part of FSP. Government should lead engagement.
9. Engage with the Federal Government on BC's CEF and the federal CEA Act to ensure that they have full appreciation of the provincial work and the two initiatives are aligned.

Addendum/ Higher Level Comments

1. Reconsider the purpose of CEA in policy from helping decision-makers to ensuring we do not irreparably harm the biodiversity of a region, and to shape an overall strategy for natural resource development pro-actively.
2. Clearly convey expectations and procedures for adaptive management/ improvement over time for the CE policy, protocols, and assessments.
3. Aim to legislate the framework so that it has triggering mechanisms to influence decision-making.

4. Suggest assessing regulations that incentivize CEs and revise them to neutralize their impact on the environment.
5. If available, include CEA information in land dispositions.

List of External Engagement Activities

Date	Stakeholder Group
April 2016	Teck Resources Ltd.
May 10, 2016	Association of BC Forest Professionals
May 17, 2016	BC Business Council Environment Committee
June 6, 2016	Canadian Association of Petroleum Producers, Canadian Energy Pipeline Association, Canadian Association of Geophysical Contractors, and member companies of each organization
June 14, 2016	University of Northern BC Cumulative Effects Research Group
June 16, 2016	Natural Resource Sector Stakeholder workshop
June 16, 2016	North Coast Environmental Stewardship Initiative
June 17, 2016	Environmental Assessment Practitioners workshop
June 17, 2016	Marine Plan Partnership and North Coast Skeena First Nations Stewardship Society
June 21, 2016	Coast Operational Issues Forum
June 23, 2016	Provincial Forestry Forum
June 27/28, 2016	Technical Peer-Review Value Assessments workshop
July 6, 2016	Council of Forest Industries and Coast Forest Products Association
July 13, 2016	Mining Association of British Columbia
Aug 10, 2016	Mining Association of British Columbia and member companies and Association of Mineral Exploration BC
April-July 2016	19 written submissions

List of External Stakeholders and First Nations

Association of BC Forest Professionals Stewardship Council	Haisla National Council
Association of Mineral Exploration BC	Hemmera Environmental Consulting Ltd.
BC Business Council Environmental Committee	Interfor Corp.
BC Timber Sales	Kerr Wood Leidal Associates Ltd.
BC Wildlife Federation	KGHM International Ltd.
Blueberry River First Nation	Marine Plan Partnership
C3 Alliance Corp.	Metlakatla Stewardship Society
Canadian Association of Geophysical Contractors	Mining Association of BC
Canadian Association of Petroleum Producers	Musqueam Indian Band
Canadian Energy Pipeline Association	New Gold Inc.
Canadian Forest Service	North Coast Environmental Stewardship Initiative
Canadian Wildlife Service	North Coast Skeena First Nations Stewardship Society

Central Coast Indigenous Resource Alliance	PGL Environmental Consultants Ltd.
Clean Energy BC	POLIS Project on Ecological Governance
Coast Forest Products Association	Saik'uz First Nation
Compass Resource Management Ltd.	SNC Lavalin Group Inc.
Council of Forest Industries	Stantec Ltd.
Eclipse Environmental Consulting Ltd.	Sunshine Coast Regional District
Ecofish Research Ltd.	Teck Resources Ltd.
Encana Corp.	University of BC
Environmental Resources Management Ltd.	University of Northern BC Cumulative Effects Research Group
ESSA Technologies Ltd.	Watershed Watch Salmon Society
Fraser Basin Council	West Coast Environmental Law
Future of Howe Sound Society	WSP Global Inc.
Golder Associates Ltd.	World Wildlife Fund

List of Acronyms

Acronym	Full Name
ABA	Area-based Analysis
ADM	Assistant Deputy Minister
CE	Cumulative Effects
CEA	Cumulative Effects Assessment
CEA Act	<i>Canadian Environmental Assessment Act</i>
CEAM	Cumulative Effects Assessment Management
CEF	Cumulative Effects Framework
EA	Environmental Assessment
ENGO	Environmental Non-Governmental Organization
ESI	Environmental Stewardship Initiative
FRPA	<i>Forest and Range Practices Act</i>
FSCS	Forest Sector Competitiveness Strategy
FSP	Forest Stewardship Plan
LNG	Liquid Natural Gas
MaPP	Marine Plan Partnership
MARR	Ministry of Aboriginal Relations and Reconciliation
NCMP	North Coast Management Plan
NRPP	Natural Resource Permitting Plan
NRS	Natural Resource Sector
OGC	Oil and Gas Commission
RPF	Registered Professional Forester
SARA	<i>Species At Risk Act</i>
SDM	Statutory Decision Maker
THLB	Timber Harvest Land Base
TSA	Timber Supply Area
VC	Valued Component

Appendix B: Summary of Internal Stakeholders Feedback on the CEF Policy and Overall Framework¹

Primary Sources of Feedback

Regional Management Teams; Cumulative Effects Management Committees; and staff from the Ministry of Forests, Lands and Natural Resource Development; Ministry of Aboriginal Relations and Reconciliation; Ministry of Energy and Mines; Ministry of Environment; Ministry of Natural Gas Development; Environmental Assessment Office and 250 staff participants of a Natural Resource Sector Live Meeting.

Governance and Program Alignment

1. Clarify and ensure that the CEF initiative is aligned with other provincial initiatives, such as ABA¹, ESI, FREP-MRVA tool, TSR, MaPP, EAO's reviews, MoE's work, Forest Enhancement Program, and the First Nations consultation tracking system.
2. Confirm roles and responsibilities for CE assessment. Collaborative model for conducting CEAs is preferred if it allows for provincial consistency with regional ground-truthing; but the centralized approach might have a greater chance of receiving funding.
3. Clarify roles and responsibilities for operationalizing the CEF, including roles of regional CE management teams and interagency committees. Explain if CE management teams can decide on appropriate management responses and if those responses are more suitable at the tactical/ strategic level given that operational responses can be based on other regulatory frameworks.
4. Consider including First Nations in interagency committees.
5. Clarify the role of the Regional Accountable Official.
6. Provide training for CE management teams and all staff to get a better understanding of management responses and decision support.
7. Concerns about the ADM level of approval for technical documents, such as protocols and CEAM reporting.
8. Concern that the Elk Lake Assessment might create a precedent for doing the same level of work in CEAs.
9. Concern that CEF might result in additional workload at the regional level to determine a process of integrated decision-making that informs land allocation, forest timber supply, mineral dispositions, and EAO reviews.

Values Selection

1. Clarify how social, cultural, and economic values will be incorporated in the CEF, including recreation, coastal/ foreshore, and industry values (e.g., mining, energy).

¹ Please see the end of the appendix for a list of acronym definitions.

2. Need to complete regional 'value gap analyses' to identify the most common values considered across decision-making and to support the identification of regional CEF values.
3. Explain how water quality and sediment quality are being incorporated into the CEF process.
4. Approved CE value list in CEA policy should just be the five first values per ADM direction – additional values should be 'potential'.
5. Clarify the linkage between CEF and FRPA values.
6. Aquatic ecosystems is currently only limited to abiotic aquatic ecosystems.

CE Assessment and Reporting

1. Develop a process for incorporating the effects of mitigation/ compensation, restoration and prevention activities in cumulative effects assessments.
2. Define expectations and procedures for validating CEA results, including who is responsible. Consider involvement of proponents/ licensees in validating assessments.
3. Determine an approach to considering climate change effects.
4. Clarify how assessments of potential future condition should be carried out and who is responsible for this task.
5. Indicator assessment/ reporting should be more predominant than management classes as most assessments will be the former.
6. Clarify how benchmarks are determined when there are no legal objectives.
7. Ensure provincial consistency in the assessment approach, with allowance for some regional flexibility. Clarify expectations for when CEAM reports are required – only occasionally when clear need for management responses.
8. Interim operational guidance:
 - There is value in a centralized database that the region can feed into and access, but need to ensure consistency in how data is recorded;
 - Consult regions prior to its information being posted publicly on a provincial site; and
 - Provincial team should consider various tools being used within regions (e.g., ALCES model).
9. CE Policy and approach focuses on value by value assessment and management, but does not address interactions across multiple values, or incorporate a 'systems' approach.
10. Ensure consistency with GeoBC datasets.
11. Ensure adequacy of high quality data for conducting regional CEAs; optimize data sharing opportunity.
12. Illustrate the process of 'assessment,' including how the development footprint is included in assessments.
13. 'Current mitigation' should be renamed 'current management direction and practices'; clarify expectations for CEAM reporting (i.e., only where substantive issues).
14. Concern with reference to 'historic' in current condition definition – careful description will be required to avoid engaging in debate over picking historic timeframe to assess.
15. Consider changing traditional knowledge to community knowledge.
16. Move any references to management terminology in Part 1 of the policy to Part 2 of the policy, since Part 1 is to solely focus on CE assessment and Part 2 is to solely focus on CE management.

1. Clarify (in Policy and / or Interim Guidance document) the expectation for decision-makers to consider CE in some or all decisions and by what timeframe.
2. Provide further examples and/or guidance for regional authorization staff on how CEAs can affect different authorizations and/or should be used to identify management responses.
3. Develop one tool for internal and external stakeholders to access CEA results.
4. Comments on management classes:
 - Revise class names, remove current terms and triggers, and show gradual colouring. Current names imply some level of work, which is not necessarily appropriate in each class;
 - “green” class does not enable management responses;
 - “enhanced” class signals non-compliance/ has no legal basis, and thus should be interpreted as additional information or precautionary approach (in forestry, this class does not have meaning and can be seen in a negative light);
 - “enhanced management trigger” – need to define expectations or guidance for how this is defined;
 - timeframe for updating management classes should be defined; and
 - management classes should be applied to broad objectives as well as specific.
5. Comments about management responses:
 - CE management responses should be developed at the regional level;
 - CE management responses should largely be provincially consistent;
 - CE management responses should be defined based on the results of ‘broad objective assessments’ as well as management classes; and
 - Clarify where the EMP might be used to consider management responses.
6. A primary value of CEAs are to support landscape level planning and mitigation, including mechanisms for environmental offsetting.
7. Update Guidance for Consultation Staff to emphasize how it is different from the Interim Guidance, and ensure it meets the specific needs for considering CE in the context of First Nations consultation and accommodation.
8. Clarify the need for a separate rationale for considering CE in the context of First Nations consultation and Accommodation specifically.
9. Leverage technology for Interim Guidance through NRPP where CEAM reports are built as a layer in the database.
10. Ensure that CEAM reports are concise and user-friendly for staff.
11. Ensure that the CEF tool is long-lasting within any underlying agenda to develop more “no’s” or “yes’s”.
12. Strategic/ tactical recommendations that would flow from information on CEAM report via subject matter experts needs to be easily interpreted for operational decisions.
13. Question the value of further pilot areas, recognizing also that expansion of the CE process within the region needs to be gradually progressive based upon available resources.

Engagement

1. Ensure early on and ongoing engagement and collaboration with First Nations to manage their expectations.
2. The CEF has value in engaging First Nations and industry, but should not be driven by First Nations' or industry's issues.

List of Internal Engagement Sessions (April-July 2016)

Date	Stakeholder Group
April 22, 2016	Thompson Okanagan Region CE Management Committee
May 10, 2016	South Coast Regional Management Team (FLNR)
May 31, 2016	North East Regional Management Team (FLNR) and Regional CE Management Committee
June 14, 2016	Omineca Regional Management Team (FLNR) / Regional Managers Committee
June 22, 2016	Cariboo Region Managers Committee
June 22, 2016	Skeena Region Managers Committee
June 23, 2016	Natural Resource Sector Live Meeting (250 staff participants)
July 12, 2016	Kootenay Region Managers Committee

List of Internal Stakeholders

BC Oil and Gas Commission staff
Cariboo Region Managers Committee
Environmental Assessment Office staff
Kootenay Region Managers Committee
Ministry of Aboriginal Relations and Reconciliation staff
Ministry of Energy and Mines staff
Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) staff
- MFLNRO Forest Analysis and Inventory Branch staff
- MFLNRO North Regional Managers Committee
- MFLNRO Resource Management Objectives Branch staff
- MFLNRO Resource Practices Branch staff
Ministry of Environment staff
Ministry of Natural Gas Development staff
Natural Resource Sector Live Meeting (approximately 250 internal staff)
North East Regional Management Team (FLNR) and Regional CE Management Committee
Omineca Regional Management Team (FLNR) and Regional Managers Committee
Skeena Region Managers Committee
South Coast Regional Management Team
Thompson Okanagan Region CE Management Committee

List of Acronyms

Acronym	Full Name
ABA	Area-based Analysis
ADM	Assistant Deputy Minister
ALCES	A Landscape Cumulative Effects Simulator
CE	Cumulative Effects
CEA	Cumulative Effects Assessment
CEAM	Cumulative Effects Assessment Management
CEF	Cumulative Effects Framework
EAO	Environmental Assessment Office
EMP	Environmental Management Plan
ESI	Environmental Stewardship Initiative
FLNR	Ministry of Forests, Lands and Natural Resource Operations
FREP	Forest and Range Evaluation Program
FRPA	<i>Forest and Range Practices Act</i>
GeoBC	Geospatial British Columbia
MaPP	Marine Plan Partnership
MoE	Ministry of Environment
MRVA	Multiple Resource Value Assessments
TSR	Timber Supply Review

Appendix C: Summary of Feedback on Value Summaries and Protocols for Aquatic Ecosystems, Grizzly Bear, and Old Growth Forest

Primary Sources of Feedback

1. Technical peer-review workshop on June 27/28, 2016, with environmental non-government organizations, environmental assessment consultants, academics, and government officials,
2. One written submission, and
3. Internal government feedback.

Overall Perceptions of the Draft Value Summaries and Protocols

Most stakeholders believe that the draft value assessment summaries and protocols provide useful information to support land use planning and decision-making.

Common Suggestions for All Values

1. Include 'state-level'/condition indicators to help future planning processes.
2. Assess future impacts on values.
3. Consider effects of climate change and natural disturbances in assessments.
4. Flag issues in the conceptual models (i.e., identify indicators, factors, processes, components in the model that are impacted as per assessment, identify policy gaps) as well as maps.
5. Ensure consistency across values, including using similar colouring scheme in roll-up maps for all values and consider value impacts on each other.
6. Ensure consistency in data inputs and contingency for assessments with low or poor data.
7. Consider grizzly bear metrics and data for other species (e.g., roadedness and seral state).
8. Include multiple stakeholders (e.g., First Nations, ranchers) in determining future condition.
9. Caution to take 'results' at face value versus using local expertise, review, and interpretation.
10. Science-based benchmarks/thresholds are important for answering the question of how much development is enough. Keep science benchmarks separate from the objectives that have incorporated socio-economic factors.
11. Consider using an overarching value of ecosystem function or ecosystem services that include current values as indicators (rather than as separate values). If the existing values were treated as indicators, then trade-offs would become easier to consider because each will be context specific.

Aquatic Ecosystems

Weaknesses of the Procedure

1. Simplistic, conservative and will be difficult to use in a decision making context.

2. It is not a cumulative impact assessment, it is a hazard assessment. Cumulative Effects Assessment needs to happen at a more local level.
3. Does not have interactions with marine environment.
4. Danger that thresholds/benchmarks can become the "goal" for early proponents - need long term plan.
5. Shifting baseline issue.
6. Uses only stressor indicators.
7. No context to the landscape.
8. Road density specifically requires a data set that is more comprehensible.
9. The assessment/ range of indicators is too broad – may not be useful in an environmental assessment process or for specific decisions.
10. Number of mines/ water withdrawals are not good indicators and not useful.
11. Does not mention shifting/reducing development, just mitigation.
12. Not clear how benchmarks were established, link to the questions (Forest and Range Evaluation Program's function).
13. Descriptive of current condition but not predictive (no future).
14. Does not include baseline (pre-contact) condition (past).
15. Assessments may be valid where forestry is the main stressor, but may not capture multiple stressors.
16. Indicator roll up is not clear – not clear how many indicators are considered.
17. Temporal aspect is not included.
18. Any assessment will be an unsatisfactory compromise between the desire to have an accurate assessment verses more limited assessment based on the limited data available.
19. Three classes of high are not very useful.

Recommendations

1. Integrate the three conceptual models into one conceptual model to describe the overall picture.
2. Clarify how physical properties for watersheds (i.e., assimilation capacity) will be considered in indicators such as fish and water quality.
3. Need to assess biotic state. Need current conditions on hydrology and fish presence/ diversity.
4. Incorporate marine/estuarine ecosystems.
5. Clarify the scale of value, watershed values, and the objectives for the watersheds.
6. Map the established benchmarks from the watershed assessment procedure (current policy).
7. Simplify the overlap and correlation of indicator stressors.
8. Consider *Water Sustainability Act* work with the Ministry of Environment's objectives for the land base, cumulative withdrawal by watershed as a tool to capture climate change. Clarify how *Water Sustainability Act* objectives have/ or not been incorporated for quality, quantity, and riparian.
9. Clarify how impacts from the mining/ energy sector are being included. Put water quality indicators in the context of current Mines Guidelines (i.e., how many mines have been above

current guidelines on any metric) and figure out a way to roll-up this information to a watershed level. Classify the mines into categories and give greater weight to the higher risk categories. At very least, area and volume of the tailing impoundments need to be part of this spatial layer. In addition, a data layer on historic mines needs to be developed for this factor with information on known levels of Acid Mine Drainage or total volume of rock exposed. This would allow the indicator to be more representative of actual conditions, while still taking into account the number of mines within a given area.

10. Similarly to the recommendations for mines above, classify the dams into categories and give greater weight to the categories which are the larger barriers.
11. Narrow/ focused look at level of minerals/ discharge would be meaningful indicators for fish.
12. The value needs to be put into place-based context (i.e., what is important regionally vs. what is important at a local, site level). Clarify where the specific site report comes in.
13. Compare smaller scale assessment to larger scale assessment.
14. Consider climate change effects on water quantity, timing of peak flows, snowpack, snowmelt, precipitation, and temperature. Use hydrometric data and climate data to facilitate modeled assessment.
15. It would be best if you benchmark against where you want to be/ best case and not the current case.
16. Incorporate ground water sources relative to fracking.
17. Clarify where monitoring takes place. Include as a flag, or use to calibrate.
18. Assemble all data for the province on fish passage, riparian, sediment, and the Environmental Monitoring System.
19. Explain why risks are lower in urban areas.
20. Clarify correlations among indicators - both obvious, not obvious (e.g., road density and topography).
21. Clarify if the resource is used to a medium benchmark in cases where a benchmark is set without a land plan in place.
22. Clarify how upstream habitat will be affected by marine shoreline disturbance, estuary and marine environment.
23. Consider point source effluent.
24. Clarify the linkage to the fish value as part of Forest and Range Evaluation Program's resource values.
25. Look broader than just the forestry context (i.e., roads – though forestry is still the most active industry on the land); look at other sectors' guidelines.
26. Introduce two layers of nested conceptual models under the Stream and Riparian Systems Component is a scale specific system. Maintain the existing 1:20,000 assessment unit scale and develop a second conceptual model for the large basins of BC.
27. Include state indicators as part of the factors considered in the conceptual models, such as: measures of pollution, alteration of flow, biological communities, habitat heterogeneity, water temperature and substrate distribution.
28. The Aquatic Ecosystems Value Summary document provides an interpretation of risk to aquatic ecosystems deriving from the stressors identified. Need to apply the vulnerability approach to

identifying risk when assessing cumulative effects both province-wide to marine habitats and at a watershed scale to salmon and eulachon. The approach as applied to the coastal assessment is described in Ban et al. (2010) and Clarke-Murray et al. (2015). The vulnerability criteria applied to habitats is described in Teck (2010).

29. Restructure the conceptual model for Aquatic Ecosystems to include the five elements of riverine ecology identified in Instream Flows for Riverine Resource Stewardship Revised Edition. The five factors to include are: water quality, hydrology, connectivity, biology and geomorphology. Hydrology is already partially captured under the Component Water Quantity, but this component should be renamed to hydrology to reflect the fact there is more than quantity that needs to be considered.
30. Include floodplain complexity in the factors to consider related to Aquatic Habitat Structure when analysing and reporting at basin wide scales. Fortunately for BC, the majority of BC rivers have already been assessed and described in Whited et al. (2013).
31. Under the Component of Hydrology include the Functions and Processes of magnitude, frequency, duration, timing and rate of change that are foundational hydrologic metrics used in environmental flow studies.
32. Water use permits for small scale domestic use should not be treated the same as an industrial use permit. The volumes granted on water use permits should be used to determine volume of water allocated vs. volume available unless more accurate reporting data exist for a region.
33. Develop a more precise assessment of wastewater discharge by taking quantity and material being discharged. The publicly accessible National Pollutant Release Inventory (NPRI) housed by Environment and Climate Change Canada is an inventory of pollutant releases (to air, water and land) from across Canada and gives information such as the quantity released, the substance released, the responsible body, the date and location of the release. By using this inventory to create a more precise indicator, the water quality component as a whole will be more representative of the conditions on the ground.
34. There are many ways to incorporate other types and sources of pollution in the water quality component. There are a variety of databases that can be used. Agriculture Canada has separate datasets with information on risk of contamination for nitrogen, phosphorus, and pesticides. The dataset has information on the relative risk of agricultural runoff based on polygons from Soil Landscapes Canada. By using these three datasets to create a more informed indicator based on the risk of contamination from agricultural runoff, the water quality component as a whole will be more representative of the conditions on the ground.
35. Under the Function and Process Channel, sediment dynamics include substrate as a Factor in the conceptual models. Identify substrate as a state Factor with data gaps in the conceptual models. Include a Factor related to soil erosion and length of stream under the same Function with percentages of stream length in unstable or erodible soil as the indicator.
36. Include biodiversity as a Component. Review elements of biodiversity such community structure, productivity, abundance, gene flow, diversity and invasive species for inclusion as Functions and Processes under the Biodiversity Component. As a Factor under community structure it is recommended the province use the Hilsenhoff Biotic Index for Benthic Macro-Invertebrates.

37. Identify data gaps both in the conceptual model and spatially in the final maps. For Factors for which there is no data this could be represented by including grayed out Factor boxes in the conceptual model. For Factors that have partial data this should be reported in map format with grayed out watersheds representing watersheds where there is no data.

Grizzly Bear

Weaknesses of the Procedure

1. Core security does not relate to a large scale in terms of keeping populations viable.
2. Unclear why this is a single species value/ cannot manage one species in isolation of others (contrast this with aquatic ecosystems). Value centric approach is problematic - managing for one will be a problem for another.
3. A lot of correlations among indicators, magnifiers, or distorts, hazards. Model might perform better than reality (if you are managing mortality, then hunter density/access is probably doing ok for bears).
4. Too complex to implement, mandate, and understand. Need 1) food, 2) security, 3) isolation from humans.
5. Unclear if supplemental or context indicators are these useful for non-domain experts. Concern that they may 'muddy the water' or not be useful for decision-makers.
6. Lacks population objectives and is disconnected from Land and Resource Management Plan-type objectives. Seems to be missing a large-scale approach (i.e., Yukon to Yellowstone connectivity; Y to Y views the Pine Pass area as critical to grizzly bear's biodiversity).
7. Not meant to look at interconnection of bear populations.
8. Something missing between viability map and the flag map.
9. Unclear consideration of objectives related to the hunt (mortality indicator does relate to the hunt) or bear viewing. Clarify how the concept of social carrying capacity can be incorporated.

Recommendations

1. Create a generalized/ simplified model for proponents as a communication tool at a high level and then link to mechanistic and data models that show more detail.
2. Include current government objectives into the grizzly bear values.
3. Conduct an integrative assessment for multiple species (not just grizzly bear).
4. Add a metric for core security habitat at a larger scale to include large areas of virgin forest in the metrics proposed for grizzly bear.
5. If requiring proponents to share data, habitat suitability modelling must be done not only to local benchmarks, but to the provincial benchmarks as well, so that it is comparable across regions (same for predictive ecosystem mapping conducted for major projects). Habitat capability does not describe the current state of the component.

6. Need to assess (map) and manage landscape for grizzly bears in areas where they are extirpated. Clarify if there has been a decision not to repopulate these areas.
7. At species level, determine the ecological resiliency - what the system is capable of, determine ecological thresholds and what society wants as future condition.
8. Categorical variables need to directly link to population status.
9. Clarify how easy it is to change the model, and if the quality of food is linked into increasing encroachment of habitat.
10. Look at changes in assessments not only because of changes in data, but also changes in our understanding of structure.
11. Clarify what components you would like to measure that you are not currently measured and clarify if those are critical.
12. Clarify how modelling is done in terms of what you want to be modelled vs. data availability.
13. For habitat suitability use satellite info to get at productivity.
14. Clarify how the mine/oil and gas impacts influence the decision to let Fort St. John be extirpated.
15. Phase implementation.
16. Multi-scale approach may help guide provincial assessments, but information at regional level maybe more relevant and refined for application to a particular decision.
17. Clarify what the habitat should look like into the future for Grizzly Bear, including distribution and abundance.
18. Caution with using population as a management lever (may or may not be effective in the short-term); investigate other jurisdictions' work.
19. Clarify if Grizzly Bear was selected as an umbrella species, intended to capture other values, or only as Grizzly Bear.

Old Growth Forest

Weaknesses of the Procedure

1. "Old growth" is not the right level. Communities are concerned with forest biodiversity.
2. The usefulness of the value seems limited because these areas are not valuable from a timber perspective.
3. This assessment is less relevant than the other assessments. Need to consider the biological and ecological needs for key species Old Growth supports, which is a political vs. ecological question. Connectivity, structural diversity are the things that people care about Old Growth forests.
4. Connectivity between old forest is a measure of fragmentation.
5. The conceptual model does not address the ecological/scientific threshold (unlike other values), but accounts for the government willingness to protect Old Growth Management Areas.

Recommendations

1. Old growth forest should be considered as part of the forest biodiversity value as its indicator or component. Forest structure and/or diversity can have more meaning (species related needs).
2. Monitor old forests for their effectiveness in providing value (effectiveness monitoring).
3. Ensure that the government meets legal and non-legal objectives (compliance monitoring).
4. Revise the definition of 'forest.' The current definition is too narrowly scoped. The issue is that some grassland/parkland habitats are classified as forest, but some subalpine parkland forests are not.
5. Harvest rate should influence where the enhanced trigger is set (close to town has a higher cut rate).
6. Consider shifting terminology - old forest vs. old growth vs. old and mature.
7. Reflect in the value summary that the conceptual basis for the Old Forest value is the Biodiversity Guidebook and natural disturbance types (reflect as a broad objective).
8. Old Growth Management Areas are usually already located in inoperable areas (e.g., Parks and Ungulate Winter Ranges). They are the tools that were intended to represent Old Growth and the values in Old Growth Forests. Need to look ecologically at Old Growth to describe its intended nature as a value and identify risks to meeting the ecological components of Old Growth. Old Growth Management Areas are a management response to the management of old forest, rather than reflecting the condition of the value. In fact, some Old Growth Management Areas are currently young forest and are expected to recruit old forest over time. This needs to be accommodated in the analysis.
9. Clarify how this information is integrated with Timber Supply Analyses. Timber Supply Review identifies how much can be cut according to legal requirements but does not direct the location of the cut. This might be an opportunity that the cumulative effects assessment can provide. Lack of recent information in tree farm licences creates a significant data gap.