

CONFERENCE PROCEEDINGS

These Proceedings consist of the following information:

- *an introduction and conclusion;*
- *each individual presenter's biography and abstract (as provided by presenters prior to the conference);*
- *links to each presenter's PowerPoint presentation (PDF) if provided;*
- *links to audio files of each presenter's presentation (MP3) if permission was given;*
- *other relevant conference information.*

You can also access the Proceedings on an interactive website:

- *Adding It All Up – Conference Proceedings.*

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TOPIC	PRESENTERS	PAGE
INTRODUCTION		5
Welcome and Opening Remarks	<i>Don Morgan, Sybille Haeussler</i>	10
Wet'suwet'en Welcome	<i>Timberwolf (Mabel Forsythe)</i>	11
Importance of Collaboration	<i>David de Wit</i>	11
Welcome from the Town of Smithers	<i>Taylor Bachrach</i>	11
Welcome from Stikine MLA	<i>Doug Donaldson</i>	12
THE CONTEXT		12
An History of Resource Development in Northwest BC (in 15 minutes or less)	<i>Kelly Giesbrecht</i>	12
Overview of new projects underway in Northwest BC and what could come	<i>James Cuell</i>	13
What's at risk? What are the research needs?	<i>Jim Pojar</i>	13
Questions and Answers - The Context		14
COMMUNITY PERSPECTIVES ON RESOURCE DEVELOPMENT		14
Introduction to Community Perspectives	<i>Nathan Cullen</i>	14
First Nations community perspectives	<i>Gerald Amos</i>	15
Municipal Perspectives	<i>Taylor Bachrach</i>	15
Questions and Answers - Community Perspectives on Resource Development		15
BENEFITS AND EFFECTS FOR THE NORTHWEST		16
Smithers - Mining's Jewel of the North	<i>Daryl Hanson, Andrea Kosalko</i>	16
The Port of Prince Rupert: Opportunities and Challenges for Small Business in B.C.'s Northern Corridor	<i>Kelly McCormack</i>	17
Balancing the benefits and effects of resource development: Collaborative approaches to education in the Northwest	<i>Danielle Smyth, Regina Saimoto, Phil Burton, Michael McDiarmid</i>	17
Cultural Impact Assessments: Integrating culture with standard resource management perspectives	<i>Rick Budhwa, Karl Sturmanis</i>	19
Taking matters into your own hands: Community based planning for development impacts and benefits	<i>Ginger Gibson, David Thompson</i>	20

River Diversion Hydropower in BC: Impacts, Assessment, and Planning	<i>Aaron Hill</i>	21
Reaching consensus: Province-wide trade-offs between Run-of-River development and environmental conservation	<i>Viorel Popescu</i>	22
Adopting a Cumulative Effects Mindset	<i>Lorne Greig</i>	23
CUMULATIVE EFFECTS: SOCIAL PERSPECTIVES		24
Managing Variability for Resiliency: constructing sustainable development (opportunities)	<i>Harry Nelson</i>	24
Making good decisions: Social values and science in decision-making	<i>Dave Daust</i>	24
Incorporating Social and Economic Values for Cumulative Effects Management: Lessons Learned	<i>Terry Antoniuk</i>	25
CUMULATIVE EFFECTS: REGULATORY AND PRACTICAL FRAMEWORKS		26
Keeping Land Use Plans Relevant: Incorporating Cumulative Effects Assessment into the Resource Management Framework	<i>Leah Malkinson</i>	26
Who Owns Regional Cumulative Effects Management?	<i>Jessica Clogg</i>	26
Practical perspectives: Cumulative effects on wildlife	<i>David Hatler</i>	27
The Anatomy of Integral Leadership	<i>Servaas Mes</i>	28
Imperial Metals' experience with the environmental assessment process	<i>Byng Giraud</i>	29
Perspectives on resource development from northeast BC	<i>Mike Bernier</i>	29
Gitanyow Lax'Yip Land Use Plan & Cumulative Impacts	<i>Tara Marsden, Fred Philpot</i>	30
Cumulative Effects Management: Alberta's Institutional Framework	<i>Stephanie Clarke</i>	30
Cumulative effects: From assessment towards management	<i>Marvin Eng</i>	31
EVENING - Thursday	<i>Rick Budhwa, Greg Knox</i>	32
Terry Glavin, Journalist	<i>Terry Glavin</i>	32



Adding It All Up

Balancing Benefits and Effects of Resource Development

NOVEMBER 14-16, 2012 | SMITHERS, B.C.

PRACTICAL APPLICATIONS		33
Assessing the cumulative impacts of forestry activities in a forested landscape	<i>James Casey</i>	33
Building a Cumulative Effects Assessment Framework in BC Examples from the Northwest & Okanagan Demo Pilot Projects	<i>Ben Heemskerk</i>	33
Collaborative Salmon Habitat Monitoring: A Tool to Assist Cumulative Effects Assessment in the Skeena Watershed	<i>Greg Knox</i>	34
Cumulative Effects and Oceans: The Story of Ocean Noise	<i>Mike Amback</i>	34
PANEL DISCUSSIONS		36
PANEL # 1 - HOW DO WE COLLECT, STORE, AND MAKE RESOURCE DATA ACCESSIBLE FOR THE LONG TERM?	<i>Johanna Pfalz, Blair Ells, David de Wit, Greg Knox, Barry Watson</i>	36
PANEL # 2 - HOW DO WE INCORPORATE CUMULATIVE EFFECTS RESULTS INTO DECISION MAKING?	<i>Ben Heemskerk, Lorne Grieg, Tara Marsden, Marvin Eng, Fred Philpot, Andrew Thrift</i>	37
CLOSING REMARKS	<i>Don Morgan, Rick Budhwa</i>	38
CONCLUSIONS - WHERE TO FROM HERE?		38
ALL FIVE MINUTE FORUMS		39
<i>Five Minute Forum - Ray Chipeniuk</i>		39
<i>Five Minute Forum - Yvonne Lattie</i>		39
<i>Five Minute Forum - Deborah Wellwood</i>		39
<i>Five Minute Forum - Cristina Soto</i>		39
<i>Five Minute Forum - Emily McGiffin</i>		39
<i>Five Minute Forum - Tlell Glover</i>		39
<i>Five Minute Forum - Shannon McPhail</i>		39
EXHIBITORS		40
POSTERS		41
THANK YOU TO THE FOLLOWING PEOPLE		42
SPONSORS		43

INTRODUCTION / SUMMARY

The Bulkley Valley Research Centre hosted a conference on the cumulative effects of development in northwest British Columbia in mid-November 2012. The conference's title "Adding It All Up" refers to studying the combined effects of development on communities and the landscape. Don Morgan, conference chair, said researchers, government, and industry are beginning to understand the importance of a cumulative effects approach. With an economic boom projected for the region, the conference provided an opportunity to discuss how to balance industrial development with social, economic and environmental wellbeing. "This conference creates a much-needed dialogue between diverse perspectives," said Bulkley Valley Research Centre research program manager Rick Budhwa. Representatives from First Nations, community groups, government, industry and the research community attended.

Three overarching questions provided a framework for the conference:

- How can our communities plan for growth, maximize social and economic benefits, and minimize negative effects?
- How can we assess the cumulative environmental and socio-economic effects of multiple development projects across the regional landscape?
- How should socio-economic and environmental data be best collected, managed, and made accessible?

The conference program included individual and group presentations, poster sessions, panel discussions, and two evening sessions with keynote speakers. Five-minute forums allowed conference participants to share their ideas between sessions.

Although the presentations were divided into thematic sessions, discussion and themes that emerged from the conference were cross-cutting. As a result, the structure of this summary places the conference in context, then elaborates on themes and discussion in a way that reflects their content rather than following strict chronological order. Given the number of presentations and speakers, it was not possible to mention all presentations in this brief summary.

The conference was opened by conference chair Don Morgan of the Bulkley Valley Research Centre and Sybille Haeussler, president of the Bulkley Valley Research Centre. Timber Wolf (Mabel Forsythe), Wet'suwet'en House Chief, welcomed the participants onto Gitumden (Bear) traditional territory. Brief welcoming remarks by the mayor of Smithers, Taylor Bachrach, and Stikine MLA Doug Donaldson followed. Donaldson said the pace and scale of development is key, citing "the dynamic tension between return on investment for industry and First Nations and others' aspirations." David de Wit from the Office of the Wet'suwet'en emphasized the importance of collaboration in the assessment of effects of development.

The first morning's sessions provided the context for the conference. Kelly Giesbrecht of KAGE Consulting gave a historical overview of resource development in the region. James Cuell, Director for Major Projects, Forest, Lands and Natural Resource Operations (FLNRO), took participants on a virtual map-based tour of a large number of projects under development, valued at \$4.8 billion, and in the advanced feasibility stage, worth \$10 billion. These include mines for a range of metals, run-of-the-river hydro projects, liquid natural gas and oil pipelines, and the Alcan modernization project in Kitimat.

Jim Pojar, an ecologist and forester, reviewed a range of impacts of current developments in the region, noting the global significance of landscapes in the northwest. He said that roads and other linear developments are the main threats to ecological integrity since they provide access to humans and result in habitat fragmentation. Recommendations included full life cycle analyses of major development proposals, metered fees for industrial water consumption and "limited entry" industrial development.

In the session *Community Perspectives on Resource Development*, Nathan Cullen, Skeena-Bulkley Valley MP, said northwest B.C. is the perfect place to pilot and export innovative ideas of relationship building with First Nations, stewardship, and a forward looking economy. He said, "We are open for business ... [but] not under all conditions and under all circumstances. ... Consultation is a conversation."

Gerald Amos, director of community relations for Headwaters Initiative and a member of the Haisla Nation, challenged conference participants to act to protect ecosystems. He said First Nations communities must bridge two polarized worldviews — that all development is good and that "humans are a blight" since First Nations "literally have to balance economic development and our problem with Third World poverty levels and all the grief that entails with protecting the intactness of the landscape that defines us and feeds us."

Smithers mayor Taylor Bachrach said that the provincial government had severed the social contract between northern communities and forest companies that linked access to timber with locally based saw mills and their related community economic benefits. The province said inefficiency was the reason. Bachrach, tongue-in-cheek, wondered whether the most "efficient arrangement" might be the disappearance of northern communities. He asked:

- How do companies give back to the region where the resources come from?
- Do we take the limited resources we have as communities and invest in our strongest economic sectors or do we try to enhance the economic diversity that we know is going to lead to resilience?

Furthermore, Bachrach said that property taxes are a limited mechanism of funding ever-growing infrastructure needs.

The session *Benefits and Effects for the Northwest* spanned a range of topics including challenges and opportunities of the Port of Prince Rupert (Kelly McCormack of McCormack Management) to impacts of river diversion or "run of the river" hydro projects (Aaron Hill of Watershed Watch Salmon Society) and a decision support tool to assist in making tradeoffs for planning these projects (Viorel Popescu, Simon Fraser University). The positive economic impacts of mining to the area were highlighted by Daryl Hanson and Andrea Kosalko of Smithers Exploration Group. For example, Huckleberry and Kemess mines had an estimated total economic impact of \$160 million and 1000 people employed in 2010.

Social aspects of resource development and planning were discussed in a number of sessions. Specifically, presentations addressed education, cultural impact assessment, and community-based planning. In a shared presentation by Regina Saimoto, Danielle Smyth, Phil Burton, and Michael McDiarmid, participants learned that a range of innovative approaches to education, including the trades, is being applied by Northwest Community College, University of Northern B.C. and School District 54, respectively. These include personalized and collaborative approaches to learning and decolonizing the curriculum.

Ginger Gibson and David Thompson of Firelight Group shared the "Impact Benefit Agreement Community Toolkit." They said that community-based planning allows indigenous communities to identify areas core to the nation: "Instead of responding to industry, how does industry fit into a nation's plan?" Tara Marsden and Fred Philpot shared Gitanyow First Nation's practical experience with land use planning as a way to ensure sustainability, maintain ecosystem function and manage cumulative impacts in accordance with Gitanyow Ayookw (law). This plan is part of a recently signed Recognition and Reconciliation agreement with the province and results from eight years of negotiations and three court cases' legal imperatives. Regarding free, prior and informed consent (UN Declaration of the Rights of Indigenous Peoples to which Canada is signatory) Marsden said, "We need data and information beforehand so we can make [appropriate decisions]. ... I heard Byng [Giraud of Imperial Metals] loud and clear about wasting time. The onus is on First Nations and government to do shared decision-making through land use plans. Having that in place gives a clear sign to industry of where not to place projects."

The importance of local involvement in making decisions about land and resource planning and in assessing potential impacts of proposed development was stressed by many speakers. Karl Sturmanis and Rick Budhwa noted the need for cultural impact assessments since environmental assessments tend to lack culturally appropriate opportunities for First Nations to raise their concerns. They stressed that mitigation may not be enough — not everything can be traded off given First Nations' strong connection to place and governance structure. The desire for the option for communities to say no to certain projects was echoed by non-First Nations community members.

Terry Antoniuk of Salmo Consulting, speaking about community-based land-use planning in the far north, paraphrased Voltaire saying, "The perfect is the enemy of the good." He recommended starting with "a few of the most important indicators and management tools and to build from there." He also said that a political champion is necessary. Antoniuk contrasted the "perfect" framework built in the Northwest Territories that remains unimplemented with the North Yukon Land Use Plan (NYLUP), which is very simple with targets and thresholds, and is being implemented.

Speakers and participants conveyed the tension between the desire to separate the collection and analysis of scientific information from the decision-making process and the need to have everyone around the table bringing their knowledge and values forward. Issues were raised including whether it is possible to separate knowledge and values, how decisions are made regarding the composition of an "experts" panel, the inclusion of traditional and local knowledge, and the choice of indicators. In the NYLUP, the community perceived biological indicators as social indicators, but there was consensus about which indicators were important. Jessica Clogg, executive director of West Coast Environmental Law, asked, "is there a plan for how people here in this room and First Nations in the region can be engaged in co-creating that vision of what could be done?... How can we together decide on the information we need?"

Evening sessions, a banquet on Wednesday and a wine and cheese reception on Thursday, allowed participants to enjoy delicious food caught or raised in the region. The former was prepared by Wet'suwet'en hereditary chief Skit'den, Andrew George, while the smoked salmon at the latter was caught by Lake Babine Nation.

Keynote speaker Lorne Grieg of ESSA Technologies addressed the Wednesday evening banquet. Grieg is a systems ecologist with extensive experience in cumulative effects assessments. He contrasted project-centric thinking, which looks at one proposed project at

a time, with Valued Ecosystem Component (VEC)-centric thinking. The latter examines various projects' impacts, impacts of activities that are not subject to environmental assessment (EA), and natural drivers that affect the VEC. A cumulative effects mindset also focuses on the sustainability of VECs and recognizes that social, cultural and economic wellbeing depends on sustaining ecosystems and the goods and services they provide. He referred to the need for collaborative governance to address the challenges of cumulative effects assessment (CEA) and management, given its analytical complexity and the breadth of consideration required for decision-making.

On the second evening, award-winning journalist Terry Glavin spoke. Author of *A Death Feast in Dimlahamid*, a book about resource issues and First Nations rights in the northwest, he offered an optimistic perspective on the conference: "You have no idea how 20 years later you're once again at the vortex of these conversations that people around the world are trying to figure out, and you're doing a damn good job of it."

In the session addressing regulatory and practical frameworks, Marvin Eng of the Forest Practices Board said the board prepared a special report on CEA. The report prioritizes the need for a comprehensive land management framework that does not currently exist, one which requires mechanisms for: 1) articulating society's values for the land and natural resources; 2) making decisions about the kinds and amounts of human activities that should take place on the land; 3) issuing private rights to public land and resources, within limits imposed by objectives; 4) assessing some proposed activities to ensure they will have minimum negative effect and maximum positive effect on values; and 5) using regular monitoring of actual activities and effects to improve the framework.

Speakers from the governments of British Columbia and Alberta shared their governments' frameworks, plans and projects related to cumulative effects management and assessment. Stephanie Clarke, Director of Strategy Development and Foresight of the Alberta Ministry of the Environment, explained Alberta's institutional framework for cumulative effects management (CEM). The CEM approach is being incorporated into the various provincial strategies (policy) on water, air, energy, etc. and a Land Use Framework is part of the Alberta Stewardship Act. The first regional plan is for the Lower Athabasca and Clarke said it has regulatory teeth; it provides certainty for oil sands development and incorporates a range of values and interests through conservation areas and the establishment of a regional advisory council. Environmental management frameworks have quantitative triggers and limits, for example for nitrous oxide.

Leah Malkinson from FLNRO spoke about integrated decision-making for the natural resources sector, the province's Environmental Mitigation Policy and the Cumulative Effects Assessment Framework, which encompasses three levels of assessments: broadscale, project level, and values screening. Ben Heemskerck from FLNRO in Smithers reviewed the phased project approach that will see cumulative effects assessment projects in three areas: the northwest, the northeast (Dawson Creek area) and the West Okanagan. Steps include defining a set of values for all sectors; spatial and temporal monitoring of all values; "expert" workshops that will produce a "risk map," spatial and temporal monitoring of values; and periodic, broad-scale, forward-looking assessments.

Questions and discussion following these presentations reflected the tension between the positive intention of governments to manage and assess cumulative effects and a) realities on the ground (e.g., social and environmental impacts of oil sands development on First

Nations) and b) adding one more program area to already over burdened natural resource management agencies. Participants mentioned the lack of:

- data for many species/indicators/values,
- funds to collect the necessary data,
- monitoring of past land use plans, and
- higher level political commitment to the goal of sustainability as reflected by increased cutbacks to natural resource management agencies' budgets and changes in environmental legislation.

Jim Pojar pointed out that the lack of data for environmental baselines results in agency amnesia or a "shifting baseline" regarding perceived health of ecosystems and fish or wildlife populations. Two different speakers mentioned strategies that may help to address some of these constraints. Greg Knox of SkeenaWild, in his presentation on collaborative salmon habitat monitoring, suggested increased participation of local and regional non-governmental and First Nations organizations.

The mayor of Dawson Creek, Mike Bernier, highlighted the rapid changes that have occurred in Dawson Creek in the last eight years with the oil and gas boom, mentioning the current level of full employment, \$150 million invested in housing (no worker camps), the swimming pool, multiplex and arts centre, innovative energy programs (wind mills), and the college with curricula on various types of energy. He said currently six companies each operate 40-50 wells per year and that if the LNG lines go through this is predicted to increase to 150-190 wells. Northeast B.C. will provide a particularly important and timely cumulative effects project for the Province of B.C. to implement given this rate of development.

An additional constraint to the implementation of cumulative effects assessment and management is the potential costs to industry. Byng Giraud of Imperial Metals questioned the incremental value of current complex and long EA processes and whether outcomes in terms of reduced risk for the environment reflect the level of financial investments. He said EAs are seen as hurdles by industry and the opportunity to stop a project by opponents. "A perfect process with insincere actors will fail. ... If you're fundamentally opposed to something, why would you participate in a process if you're just there to sabotage it?" Giraud called for "some way of reconciling equal but different voices – respect for [both] qualified experts and public opinion" and for a shift in the culture of participants in EAs: "We need to develop people who are outcome driven, consensus driven, risk taking decision-makers, not process stewards." He contrasted his company, which is B.C.-based and "not going anywhere" with other kinds of industrial operators that do one-off projects: "The message I take to my board is we have to develop relationships."

WEDNESDAY, NOVEMBER 14

WELCOME

Welcome and Opening Remarks

- [Download Audio of Remarks \(MP3\)](#)

Conference Chair - Opening Remarks

Don Morgan, Ministry of Environment



Don Morgan is a natural resource management and systems researcher with the Ministry of Environment. His main research area focuses on methods for describing and analyzing socio-ecological systems with an emphasis on wildlife habitat supply. He applies innovative methods to explore uncertainty, particularly the impact of climate change on ecological processes and its interaction with resource management decisions. He is a Registered Professional Biologist in British Columbia, and has a BSc in wildlife biology and computational mathematics from Trent University, Peterborough, Ontario (1984), a BSc (honours) from Carleton University, Ottawa, Ontario in Quantitative Ecology and Computer Science (1991), and an MSc in Natural Resources and Environmental Studies – Biology at the University of Northern British Columbia (2011). Email [Don Morgan](#)

Bulkley Valley Research Centre Welcome

Sybille Haeussler, Bulkley Valley Research Centre



Sybille Haeussler is a Bulkley Valley Research Centre founding board member and currently serves as board president and chair. She is a professional forester and research scientist who has made her home in the Bulkley Valley since 1979. Sybille's work addresses the dynamics, diversity and restoration of terrestrial ecosystems in northern B.C. and the application of complex systems science to improve ecosystem management. She is an adjunct professor at the University of Northern B.C. and recently helped to coordinate climate change adaptation research for B.C.'s Future Forest Ecosystem Scientific Council. Email [Sybille Haeussler](#)

Wet'suwet'en Welcome

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Timberwolf, (Mabel Forsythe), Wet'suwet'en House Chief



Importance of Collaboration

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David de Wit, Office of the Wet'suwet'en



David de Wit is a Wet'suwet'en member of the Laksilyu Clan, belonging to the House on Top of Flat Rock (Tsekalbaiyex). David is the Natural Resources Department Manager for the Office of the Wet'suwet'en, representing the Wet'suwet'en Hereditary Chiefs' vision for their territories, working as one for the betterment of all. He studied Integrated Resource Management in British Columbia and completed a biology degree at the University of Calgary. His background involves wildlife habitat assessment, sensitive ecosystem preservation and wildlife corridor design. The Natural Resources Department is currently developing an ecosystem-based management tool that will enable the Wet'suwet'en to manage cultural and natural resources effectively with community, industry and government parties.
Email [David de Wit](mailto:David.deWit@wetsuweten.ca)

Welcome from the Town of Smithers

Taylor Bachrach, Town of Smithers Mayor



Taylor Bachrach was elected Mayor of Smithers in November 2011 and prior to that served for three years as a municipal councillor with the Village of Telkwa. He owns and runs Bachrach Communications, a small full-service communications business based in Smithers that specializes in helping small businesses and social profit organizations deliver their messages using a wide range of traditional and digital media, including websites, social media and email marketing. Taylor has served as the previous chair of the Bulkley Valley Community Resources Board and as a member of the Bulkley Valley Credit Union's Community Support Committee. He holds an honours degree in geography and environmental studies from the University of Victoria. Taylor lives in Smithers with his wife Michelle and their two young daughters.
Email [Taylor Bachrach](mailto:Taylor.Bachrach@smithers.ca)



Welcome from Stikine MLA

[Download Audio of Presentation \(MP3\)](#)

Doug Donaldson, MLA for Stikine



Doug Donaldson was elected MLA for Stikine in 2009. In the Official Opposition caucus he holds the portfolios of mining critic and deputy critic for energy and natural gas. He also chairs one of two policy committees within caucus, the Sustainable Economic Policy Committee. Prior to being elected as an MLA, Doug most recently worked in the community economic development sector. His formal education includes an undergraduate degree in biology and a graduate degree in journalism. Email [Doug Donaldson](mailto:Doug.Donaldson)

THE CONTEXT

*Moderator - Don Morgan, Ministry of Environment
See bio above.*

An History of Resource Development in Northwest BC (in 15 minutes or less)

Using place, people and politics as the foundation, this presentation outlines some historical milestones regarding resource development in the Northwest. From the fur trade to free trade, it will illustrate how some local and global influences have shaped economic, industrial and settlement activities in the region.

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Kelly Giesbrecht, KAGE Consulting



Born and raised in Smithers, B.C., Kelly Giesbrecht moved to Prince George in 1996 to attend the University of Northern B.C. She has a BA in Political Science (2001) and an MA in Human Geography (2003) and owns KAGE consulting, research and communications firm. Kelly is interested in rural political geography—where place, people and policy intersect. Email [Kelly Giesbrecht](mailto:Kelly.Giesbrecht)



Overview of new projects underway in Northwest BC and what could come

Significant new investment is occurring in the Northwest as a many companies proceed to develop a number of major projects. Approximately \$4.8 billion in projects are under development with a further \$10 billion in projects in the advanced feasibility stage. These projects range from hydroelectric projects, to new mines to new LNG facilities.

- [Download Audio of Presentation \(MP3\)](#)

James Cuell, FLNRO



James Cuell works for Forest, Lands and Natural Resource Operations and is the Director for Major Projects. As the director for major projects, James works with the companies that are seeking the permitting to develop resources in the Northwest. James has worked for the provincial government for over 15 years in a variety of capacities ranging from biologist to land use planner. James lives in Smithers, enjoying many of the outdoor recreational opportunities the area provides.

Email [James Cuell](mailto:James.Cuell@flnro.gov.bc.ca)

What's at risk? What are the research needs?

Jim Pojar will outline environmental concerns about the potential tsunami of industrial development in northwestern British Columbia, with some historical, ecological and research context.

- [Download Presentation](#)
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Jim Pojar



Jim is an ecologist and forester who has lived and worked in British Columbia for over 40 years. He came to B.C. in 1970 for a PhD in botany from the University of British Columbia, graduating in 1974. He is a professional biologist, certified senior ecologist (ESA), and was until recently a registered professional forester. From 1975-78, he worked with B.C. Ecological Reserves Programme, in Victoria.

Then he and his wife Rosamund settled in the Bulkley Valley, where from 1978 to 2004 he was employed as a Forest Ecologist and Research Manager for the B.C. Forest Service. They moved to Whitehorse, Yukon in 2004, where Jim was the Executive Director, Yukon Chapter, of Canadian Parks & Wilderness Society. Having retired, they returned in 2008 to B.C. and the Bulkley Valley. Jim and Rosamund continue to take particular pleasure in natural history, gardening, their cats, and exploring the Northwest Cordillera. Email [Jim Pojar](mailto:Jim.Pojar@flnro.gov.bc.ca)



Questions and Answers - The Context

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COFFEE BREAK - Wednesday Morning



Sponsored by [Crossroads Cultural Resource Management Ltd.](#)

COMMUNITY PERSPECTIVES ON RESOURCE DEVELOPMENT

Moderator - *Nathan Cullen, Skeena Bulkley Valley MP*
See bio below.

Introduction to Community Perspectives

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Nathan Cullen, Skeena Bulkley Valley MP



Nathan Cullen was first elected as MP for Skeena-Bulkley Valley in 2004 and has since been elected three times, with support surpassing fifty-five percent of votes cast. He is currently the Official Opposition House Leader. Nathan's past critic portfolios include Energy and Natural Resources, Environment, National Parks, and Youth. He has chaired the NDP's Green Economy Caucus that works on ways to help create employment while meeting our responsibilities to the planet's future generations. Most recently, Nathan served as Chair of the House of Commons Standing Committee on Privacy, Access to Information and Ethics and was also the Associate Critic for Natural Resources – Western Canada. Before elected life, Nathan was a small business owner and community organizer in northwestern B.C. Nathan will be moderating Community Perspectives on Resource Development. Email [Nathan Cullen](mailto:Nathan.Cullen)



First Nations community perspectives

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Gerald Amos, Director of Community Relations, Headwaters Initiative



Email [Gerald Amos](#)

Municipal Perspectives

Taylor Bachrach, Town of Smithers Mayor

See bio above.

Email [Taylor Bachrach](#)

Questions and Answers - Community Perspectives on Resource Development

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-

LUNCH - Wednesday



Sponsored by [BC Hydro](#)

BENEFITS AND EFFECTS FOR THE NORTHWEST

Moderator - Cristina Soto, Environmental Consultant



Cristina Soto is a marine biologist and social scientist with a PhD in Resource and Environmental Management from Simon Fraser University. She works as an environmental consultant, facilitator, and project manager. She is currently writing a book on Local Knowledge in Natural Resource Management. Cristina has been on the Board of West Coast Environmental Law since 2008.

Email [Cristina Soto](mailto:Cristina.Soto@bvcentre.ca)

Smithers - Mining's Jewel of the North

Drive into Smithers along Highway 16 and you will often encounter a claim to fame that statistics bear out: Smithers - Mining's Jewel of the North. It's a claim that has historic, current and future relevance. The names of historic mines reverberate across the years—Duthie, Dome, Cronin. More recently Smithers was a business centre for Granisle and Bell Copper, Equity Silver, Eskay Creek and Kemess Mines. It is still the home for workers at Huckleberry Mine and the base for many dozens of exploration and mine development projects. Smithers can boast of a mineral exploration cluster second to none in the north. Local companies and individuals provide expertise, camps, transportation, food, etc. to projects such as Imperial Metals' Red Chris Project hundreds of kilometres away. More specifically in 2010 Huckleberry and Kemess mines injected \$53 million in payroll and purchase of goods and services into the immediate area with a total economic impact of \$160 million. Industry and suppliers employ almost 1,000 people in the immediate Smithers region. All the people who work at these companies are members of the community who are on sports teams, belong to local clubs and service organizations, and raise their families here. With those statistics as a conservative base, it's no wonder that Smithers proudly bills itself as Mining's Jewel of the North.

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Daryl Hanson, Smithers Exploration Group



Daryl Hanson is a project manager for Metal Mountain Resources and a director of the Smithers Exploration Group. He is a registered professional engineer with a degree in Geological Engineering from University of British Columbia and over 40 years of experience with industry and government. In addition to his professional experience, Daryl has taught at NWCC and trained a group of successful First Nation prospectors. Email [Daryl Hanson](mailto:Daryl.Hanson@bvcentre.ca)

Andrea Kosalko, Smithers Exploration Group



Andrea Kosalko is a community relations and workforce development consultant and the Principal of Bluewood Consulting. She currently works with the Smithers Exploration Group as their Outreach Administrator and with Muldoe and Associates conducting community engagement work with First Nations communities. Andrea's work history recently includes managing the multi-award winning School of Exploration & Mining at Northwest Community College for its first

seven years and running a successful employment program for Community Futures Development Corporation of Nadina. Andrea completed a business based, bachelor's degree in the UK, where she grew up. She has lived with her husband and children in the Bulkley Valley for 14 years. Email [Andrea Kosalko](mailto:Andrea.Kosalko@bluewoodconsulting.ca)

The Port of Prince Rupert: Opportunities and Challenges for Small Business in BC's Northern Corridor

The Port of Prince Rupert development (the port) has stimulated great promise for economic prosperity for BC's Northern Corridor. This presentation highlights the importance of small business to the economic health of the region; the opportunities and barriers for small business and communities in relation to the port; and the critical support resources identified that will enhance economic opportunities.

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Kelly McCormack, McCormack Management



Kelly McCormack is a 35-year resident of the beautiful Bulkley Valley where she spent most of her career in management in the retail automotive industry. She holds an MBA from the University of Northern British Columbia; owns McCormack Management, a business consulting firm; and is an active board member of B.C.'s Small Business Roundtable and the Smithers Chamber of Commerce. Kelly and her husband are avid skiers; they currently share their

time between beautiful Francois Lake and stunning Smithers, B.C. Email [Kelly McCormack](mailto:Kelly.McCormack@mcormackmanagement.com)

Balancing the benefits and effects of resource development: Collaborative approaches to education in the Northwest

Northwest British Columbia is poised to undergo a period of increased resource development and economic growth. Expanded development of our natural resources will make significant contributions to local economies and at the same time pose challenges to the natural environment and our communities. Educational institutions have a critical role and responsibility to assist communities in planning for the socio-economic benefits and impacts



that local resource development could bring. There is a strong need for local post-secondary and secondary institutions to bridge gaps and build upon existing collaborations in order to provide a seamless, non-linear approach to education for citizens of northwest BC. This presentation will highlight existing case studies of collaboration between three local educational institutions, Northwest Community College, the University of Northern British Columbia and School District 54, and explore the following questions: What are the opportunities for further collaboration and integration amongst educational institutions for the purpose of providing equitable access to education for communities in the Northwest? What steps need to be taken to plan for the educational and skills training needs of the resource development projects in the Northwest? What challenges exist and what further collaborations are needed?

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Danielle Smyth, Northwest Community College



Danielle Smyth (BSc, MNRES) is the Regional Director for Northwest Community College's (NWCC) Eastern Region. She obtained a Bachelor's Degree (Environmental Science) from the University of Guelph in 2005, and a Masters degree (Natural Resources and Environmental Studies) from University of Northern British Columbia in 2009. Danielle has had diverse employment experiences with government, industry and public sector organizations including UNBC where she led sustainability projects and the development of the "Green University Centre." She has particularly enjoyed working with NWCC's award winning School of Exploration and Mining, which helps build community capacity and skills in the northwest.
Email [Danielle Smyth](mailto:Danielle.Smyth@nwcc.ca)

Regina Saimoto, Northwest Community College



Regina Saimoto (BSc, MSc, RPBio) is the Campus Principal for the Northwest Community College Houston and Smithers campuses. She obtained a Bachelor's degree (Biology) from the University of Winnipeg in 1989, and a Masters degree (Zoology) from UBC in 1993. She has worked as a consultant, educator, and manager in the Bulkley Valley since, and has been in her position as Campus Principal since 2009. The Northwest Community Colleges' role in providing equal opportunities to education has provided a rewarding experience for Regina in her efforts of furthering local, timely and relevant training in the Bulkley Valley.
Email [Regina Saimoto](mailto:Regina.Saimoto@nwcc.ca)



Phil Burton, UNBC



Phil Burton is a forest ecologist with more than 20 years of research experience in northern B.C., having expertise in the areas of sustainable forest management and ecosystem restoration. Formerly of Smithers and Prince George, Phil and his wife Carla now live in Terrace where he is an Associate Professor of Ecosystem Science & Management with UNBC, and Chair of their Northwest Regional Operations. He also sits on the Board of

Directors for the Northwest Institute for Bioregional Research and the Bulkley Valley Research Centre. Email [Phil Burton](mailto:Phil.Burton@unbc.ca)

Michael McDiarmid, School District 54



Mike McDiarmid is the Assistant Superintendent for School District No. 54. He holds a BEd From University of Victoria and an MEd from University of British Columbia and originally from the Yukon. During the last 17 years in education, he has worked for three northern districts as a teacher, District Principal and Principal. Throughout his career, he has focused on change in education and supporting vulnerable learners. He strongly believes that a key to transforming education is personalization - which links directly to collaboration with outside agencies and institutions. Email [Michael McDiarmid](mailto:Michael.McDiarmid@sd54.bc.ca)

Cultural Impact Assessments: Integrating culture with standard resource management perspectives

Consideration of cumulative effects must meaningfully involve anthropologists and First Nations, and embed analysis and interpretations within a cultural umbrella. While current resource management is able to effectively measure impacts to many different values on the land base, the impact to First Nations culture is more challenging. Regulatory processes are inadequate in recognizing the linkages between natural and cultural resources, and First Nations "sense of place" on their landscape. Regulatory processes simply do not emphasize the importance of intangible cultural resources. This presentation will demonstrate the necessity to perform Cultural Impact Assessments (CIAs). CIAs can manage for important shortcomings within the environmental assessment process. CIA allows for a culturally appropriate expression of concerns from First Nations to resource management entities (i.e. industry and government) that their worldview is not easily compartmentalized into micro-manageable components (such as wildlife, fisheries, water quality, economic, social, etc). Each of these components is intimately and intrinsically linked to one another, occupying integral positions within a greater context. To understand one element, one must understand others within its cultural context. Current examples of Cultural Impact Assessment theory and practice from north central B.C. will also be highlighted.

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Rick Budhwa, Crossroads Cultural Resource Management Ltd.



Rick Budhwa is principal of Crossroads Cultural Resource Management and has been involved in indigenous cultural resource issues for 18 years. He has been formally adopted into the Gitumden Clan of the Wet'suwet'en. His research includes First Nations oral traditions and oral histories, British Columbia legal proceedings legislation regarding oral traditions and First Nations cultural heritage and land management. Rick has a Bachelor of Arts degree in anthropology from the University of Western Ontario, a post-baccalaureate diploma in archaeology and a master's degree in anthropology/First Nations studies/archaeology at Simon Fraser University. He lives in Smithers, B.C. where he is kept very busy by his wife and two young boys. Email [Rick Budhwa](mailto:Rick.Budhwa)

Karl Sturmanis, Chignecto Consulting Group Inc.



In September 2012, Karl Sturmanis started Chignecto Consulting Group's new West Coast office based in Prince George, B.C. With a master's in Community and Regional Planning, he is a land use planner and negotiator who draws on 30 years of experience working with First Nations and governments in B.C. and the NWT. Email [Karl Sturmanis](mailto:Karl.Sturmanis)

COFFEE BREAK - Wednesday Afternoon



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Taking matters into your own hands: Community based planning for development impacts and benefits

First Nations communities, as other communities, are often profoundly affected by resource development. They are generally consulted with by the Crown or development proponents. Less often have they proactively developed their own vision of how the land should be used, or negotiated adequate compensation for their losses. Community-driven processes can be used to create tools for managing impacts, including land use plans and effective negotiation strategies.

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Ginger Gibson, Firelight Group



*Ginger Gibson is a negotiator and implementation coordinator for First Nations on mining and land use issues. She works as the Technical Coordinator for Kwe Beh Working Group for the Tlicho Government. She co-authored *The Community Toolkit for Negotiation of Impact and Benefit Agreements*. She completed a PhD in Mining Engineering at UBC and is now an Adjunct Professor there. Email [Ginger Gibson](mailto:Ginger.Gibson@bvcentre.ca)*

David Thompson, Firelight Group



David Thompson has 20 years' experience in environmental and energy issues. He has a master's degree in law and environmental economics. He has worked for aboriginal organizations, research institutes, non-profits, businesses, labour organizations and governments, and has led projects on land use planning, policy development, organizational governance, and traditional knowledge and use. Email [David Thompson](mailto:David.Thompson@bvcentre.ca)

River Diversion Hydropower in BC: Impacts, Assessment, and Planning

River diversion hydropower—also known as “run of river”—is the predominant form of new renewable electricity development in northwest British Columbia. This controversial technology avoids some of the environmental impacts associated with traditional hydropower facilities involving large dams and impoundments. However, river diversion projects impact aquatic ecosystems in many ways, including dramatically reducing stream flows, and altering sedimentation regimes and flow patterns, sometimes resulting in fish kills. Terrestrial ecosystems are affected by the loss of spray zones along the diverted stream sections, and by extensive intrusion of linear infrastructure (roads, transmission lines, and water pipelines), among other things. Federal and provincial environmental assessment processes do not adequately address the cumulative impacts of multiple river diversion projects in the same watershed or region, along with other land uses such as forestry, mining, and urbanization. Moreover, no regional or provincial-scale planning has been done by government or industry to ensure that any new development provides the highest quantity and quality of renewable electricity for the least amount of environmental impact. Examples of such planning from other jurisdictions could be helpful in B.C., and new assessment and planning initiatives that are underway here have the potential to support an improved, more careful approach to future hydropower development.

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Aaron Hill, Watershed Watch Salmon Society



Aaron Hill has been an ecologist with Watershed Watch Salmon Society for the past five years. He holds a master's degree from the University of Montana, where he studied rivers, lakes and salmon populations in northwest B.C. Among other things, Aaron's work at Watershed Watch focuses on improving the sustainability of hydropower development in B.C.

Email [Aaron Hill](mailto:Aaron.Hill@watsoc.org)

Reaching consensus: Province-wide trade-offs between Run-of-River development and environmental conservation

Small, distributed sources of renewable energy are increasingly being used to meet future energy demand, while being viewed as a minimum-impact alternative to large energy projects. River diversion hydropower (run-of-river) is one such source that has a high potential for development in British Columbia. For example, BC Hydro's Resource Options Report identified >7000 suitable run-of-river locations in B.C. However, the adoption of this energy resource has not been adequately addressed in the land use planning and environmental assessment process, which currently ignores the potential for cumulative effects of multiple projects, as well as synergies with past and future land development. Our goal is to examine the trade-offs between run-of-river development and conservation of B.C.'s unique terrestrial and aquatic systems in an effort to highlight watersheds with high energy potential and least environmental impact. We are developing alternative scenarios using (1) the economic attributes and footprint of potential run-of-river locations (including new roads and powerlines), and (2) distributions of intact old growth forest, iconic species such as grizzly and salmonids, and other province-wide environmental layers. This is a transparent process that can easily accommodate input from all stakeholders at all stages of scenario development. The key outputs will consist of alternative sets of watersheds that achieve both power production and conservation goals, based on the weights that stakeholders assign to economic and environmental attributes. These outputs can be used proactively to inform land use planning, thus alleviating potential conflicts between energy and environment.

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Viorel Popescu, Simon Fraser University, Biological Sciences



Viorel Popescu has a PhD in Wildlife Ecology from the University of Maine. He is currently a postdoctoral fellow at Simon Fraser University examining the trade-offs between species conservation and small hydropower development in B.C. Viorel has expertise in amphibian and carnivore ecology, biostatistical and spatial modelling, and conservation planning. Email [Viorel Popescu](mailto:Viorel.Popescu@sfu.ca)



Adding It All Up

Balancing Benefits and Effects of Resource Development

NOVEMBER 14-16, 2012 | SMITHERS, B.C.

EVENING PROGRAM - WEDNESDAY

DINNER



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Chief Andrew George, Chef



The Bulkley Valley Research Centre welcomed back to Smithers chef Andrew George Jr., who catered our evening banquet. Andrew is an international culinary arts instructor and chef. He is also Chief Skit'den, Gitumden and Wet'suwet'en Hereditary Chief. Andrew has catered past BVRC conferences and we were pleased to have him back!

Adopting a Cumulative Effects Mindset

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Lorne Greig, ESSA Technologies Ltd.



Lorne Greig holds an MSc in biology, and is a Senior Systems Ecologist / Managing Partner in ESSA Technologies Ltd. Lorne has 37 years of experience in environmental management, including eight years in government and 29 years consulting for government and industry clients throughout North America and internationally for bi-lateral and multi-lateral development banks. Lorne's consulting experience includes conceptual and simulation modelling of ecological systems, facilitation and stakeholder / community engagement, teaching and supporting implementation of adaptive management, leading decision analysis, development of risk management frameworks, cumulative effects assessment (CEA) approaches and frameworks, environmental management policy advice to government and environmental conflict resolution. This mix of assignments reflects his continuing interest in enabling sustainable human-environment interactions. Lorne's work with cumulative effects is rooted in his background in AM in which he employs a systems analytical approach to the analysis of how valued ecosystem components interact with their environment and are influenced by environmental forces and human developments. In this way, he neither views nor practices CEA as a distinct discipline (i.e., something additive or supplementary to EA) but rather approaches it as a naturally integrated feature of EA. Email [Lorne Greig](#)

THURSDAY, NOVEMBER 15

CUMULATIVE EFFECTS: SOCIAL PERSPECTIVES

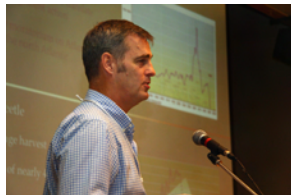
*Moderator - David Hatler, Wildeor Wildlife Research & Consulting
See bio below.*

Managing Variability for Resiliency: constructing sustainable development (opportunities)

We evaluate the concept of resiliency in the context of resource development where historically there has been little appreciation or consideration of the broader effects that resource development can have beyond simply environmental impacts. We review existing assessment and evaluation processes and their limitations, and then identify salient characteristics of resiliency to build a framework that could help us better assess these impacts. Finally, we discuss in more detail some methods by which one could start to evaluate the impact of multiple activities in the context of that framework.

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Harry Nelson, Faculty of Forestry, UBC



Harry Nelson is an Assistant Professor in the Faculty of Forestry at University of British Columbia. His area of research is in resource economics and policy analysis, specializing in forestry. His main area of research in the past three years has been on how climate change will potentially impact forests in Canada, and ways we can adapt our management and policy framework to address those impacts.

Email [Harry Nelson](mailto:Harry.Nelson@ubc.ca)

Making good decisions: Social values and science in decision-making

Sustainable decision-making for public lands and resources requires clearly articulating and separating values and knowledge. Values and objectives included in existing public plans need to be summarized, organized and periodically updated. Then, knowledge for each value must be synthesized and translated into a format suitable for decision-making, following some basic steps: consider all variables, estimate risk for key variables, estimate uncertainty and document assumptions. Promoting debate among experts helps to clarify areas of certainty and uncertainty. Structured decision-making compares estimated risk to acceptable risk for all publically-defined values in order to identify socially-acceptable development pathways. Acceptable risk must be defined a priori and a clear decision rationale must be presented for public scrutiny. Decision-making processes include technical complexities and system-scale pressures that can subvert public interest. Managers (serving

the public) need to be more than technically competent cogs in a flawed system—they need to be advocates for continued system improvement.

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Dave Daust, Consultant



Dave works at the interface of science and management, exploring the ecological and social consequences of land use policies and, more recently, climate change. Tools of his trade include GIS, landscape simulation and expert workshops. He and his wife Karen Price have developed frameworks to guide monitoring, adaptive management and cumulative effects assessment. Email Dave Daust

Incorporating Social and Economic Values for Cumulative Effects Management: Lessons Learned

To be socially and politically acceptable, cumulative effect management requires an understanding of desired outcomes for social, economic, and environmental values. With this knowledge, decision-support indicators, tools, and processes can be established to minimize risk of undesirable or unintended outcomes. We share lessons learned while working on cumulative effects initiatives in Alberta, British Columbia, Northwest Territories, and Yukon, focusing on key concepts, challenges, and approaches to define social and economic values and management objectives.

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Terry Antoniuk, Salmo Consulting Inc.



Terry Antoniuk has spent much of the last decade developing systems to manage cumulative social and environmental effects by integrating social and economic values into decision-support tools. The Adding It Up Lessons Learned presentation reflects input from Dr. Marian Weber, a resource economist with Alberta Innovates Technology Futures, and Steve Kennett, a policy and regulatory specialist, and our joint work on cumulative effects initiatives in western and northern Canada. Email Terry Antoniuk

COFFEE BREAK - Thursday Morning



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CUMULATIVE EFFECTS: REGULATORY AND PRACTICAL FRAMEWORKS

Moderator - *Alison Beal, Wildeor Wildlife Research & Consulting*



Alison Beal has a background in strategic communications with expertise in the fur trade, wildlife conservation, and wildlife conflict. She is co-author of Carnivores of British Columbia, trapper education manuals for British Columbia and Alberta, and of B.C.'s Furbearer Management Guidelines. Alison is a consultant and occasional field assistant, living near Telkwa. Email [Alison Beal](#)

Keeping Land Use Plans Relevant: Incorporating Cumulative Effects Assessment into the Resource Management Framework

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Leah Malkinson, FLNRO



Leah Malkinson is a Senior Resource Planning Specialist with the Ministry of Forests, Lands and Natural Resource Operations. Leah's work for the province has included strategic land and resource planning, tactical and operational forest planning, and policy analysis and development. She is currently managing an interagency initiative to develop a Cumulative Effects Assessment Framework for B.C. Email [Leah Malkinson](#)

Who Owns Regional Cumulative Effects Management?

Existing and projected industrial growth in northwest B.C., coupled with existing and projected climate change, has resulted in a heightened and growing need to consider the cumulative environmental, social and economic outcomes of developments. Efforts to take a more integrated approach to assessing, managing and monitoring cumulative effects raise not just scientific, but important governance and institutional questions. As part of an ongoing research project on cumulative effects, the West Coast Environmental Law Research Foundation is building on our long experience with B.C.'s regulatory framework for

environmental assessment, land use planning and resource use, as well as legal research about best practices from around the world in collaborative decision-making, to generate options for new institutional arrangements that address issues such as how to best structure collaboration between provincial and First Nations governments/technical staff, and between governmental and non-governmental actors; integrate best available information, including independent science and Indigenous knowledge, into decision-making; and take into account the diverse legal and policy regimes that are relevant to assessing and monitoring cumulative effects (i.e., which by definition cross-cut multiple resource specific legal frameworks). This presentation will summarize preliminary research findings and explore options for new institutional arrangements to structure collaboration in regional cumulative effects management.

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Jessica Clogg, West Coast Environmental Law



Senior Counsel of West Coast Environmental Law, where her legal practice focuses on natural resource and Aboriginal law. West Coast is involved in a multi-year law reform project to enable better assessment, management and monitoring of cumulative effects in B.C. Email [Jessica Clogg](mailto:Jessica.Clogg@wcelaw.com)

Practical perspectives: Cumulative effects on wildlife

This is an opinion piece, starting with a description of my background, leading from that to some thoughts on why the subject of cumulative effects is of interest, followed by a brief review of where we appear to be with that for wildlife in B.C., and why. I then move on to consider the path forward, with opinions on subjects such as who should be responsible, what form should that responsibility take, who should be involved, and what should be the short-term focus and plan.

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David Hatler, Wildeor Wildlife Research & Consulting



David F. Hatler (PhD, RPBio) is a wildlife biologist with 35+ years of working experience in B.C. He resides near Smithers and operates a small consulting firm that, since 1980, has provided wildlife research and inventory information and management advice to a variety of government, industry, and NGO clients. Email [David Hatler](mailto:David.Hatler@wildeor.com)



LUNCH - Thursday



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The Anatomy of Integral Leadership

Take for instance the operation of an existing business that is now adding an environmental perspective to its operations. Many businesses or other individual projects these days mitigate toward a higher common goal that is easily attainable within their own mandate. This shift usually happens after being exposed to a higher level of leadership. This rise in consciousness—that has been experienced within the Bulkley Valley in the past 20 years—has significantly advanced our current understandings of resources and behaviour. We can say that the intention for this conference is bigger, broader and more multi-dimensional. This conference can be seen as an invitation to your consciousness to reach new levels: are you ready to embrace a transmutation of the mandate of projects and leadership into present time? Transmutational leadership requires an unconditional presence of all participants (industry leaders, governments, scientists and researchers). It is when all participants reach the same time zone that we can see a bigger picture than the moment before and we can begin to create the birth and embodiment of higher social-, economic-, environmental- and health & wellness programs that benefit northern B.C. In “The Anatomy of Integral Leadership” Servaas will explain an evolutionary model of how you become a teacher, a healer, a visionary and a leader within your own socio-economic environment. Experiential exercises can be practiced to learn what it means to embody the space around you, when to be a leader that speaks and when to be a leader that listens. How can you upgrade your primitive streak, your drive to move forward, to a level of transmutational consciousness that is fundamental to embody before integrating new resource planning? How can you become a player that understands, participates and facilitates the future recalibration of our society?

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Servaas Mes, The Human Health Project



Servaas Mes is the founding director of The Human Health Project, an initiative to help individuals and organizations develop more efficient patterns of health from a philosophical, intellectual, practical and experiential point of view. He presents workshops worldwide, is a frequent guest-lecturer at San Francisco State University and provides post-graduate education programs to health professionals in Europe. He is the founder of Mobilizing Awareness® Somatic Rehabilitation as well as Somatic Conditioning™ fitness programs. Email [Servaas Mes](#)

Imperial Metals' experience with the environmental assessment process

This presentation examines where the environmental assessment process' strengths and weaknesses lay from a corporate perspective and touches on cumulative effects from the point of view from an individual project.

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Byng Giraud, Imperial Metals



Byng Giraud is Vice President, Corporate Affairs for Imperial Metals Corporation. He is also chair of Ridley Terminals, a coal port in Prince Rupert. Previously he was a vice-president with both the Association for Mineral Exploration B.C. and the Mining Association of British Columbia. Prior to that Byng worked for a number of top Canadian public affairs agencies and in positions with the provincial government. Byng has also worked as an assistant to provincial MLAs, federal MPs, senators and cabinet ministers. Byng currently sits on the advisory board for NWCC's School of Exploration & Mining and is a director of Bayside Mini Rugby. He has formerly served on the boards of Canada Place, Initiatives Prince George and Geoscience B.C. He has post graduate degrees from the University of Cambridge and the University of Wales (Aberystwyth). On weekends Byng collects bruises playing old boys rugby. He is married with two young children. Email [Byng Giraud](mailto:Byng.Giraud)

Perspectives on resource development from northeast BC

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Mike Bernier, Mayor of Dawson Creek



Mike Bernier was born and raised in North Vancouver and moved to Dawson Creek with his wife Valerie and their five children to work for Pacific Northern Gas in 1993. He has been the manager for PNG in the South Peace since 2002. Mike served as councillor in the city of Dawson Creek from 2005 to 2008 prior to being elected mayor in November of 2008 and re-elected in 2011. Mayor Bernier has been working to build a positive economic climate, working closely with industry and community members to create a balanced, sustainable future for the City of Dawson Creek. With 20 years of experience in the natural gas industry, he is able to bring this knowledge to the table when dealing with industry and business. Mayor Bernier is a member of many committees and boards, including the Peace River Regional District, the B.C. Mayors Climate Leadership Council, the Community Energy Association and the Council of Resource Community Mayors. Email [Mike Bernier](mailto:Mike.Bernier)

Gitanyow Lax'Yip Land Use Plan & Cumulative Impacts

The Gitanyow Hereditary Chiefs and the British Columbia provincial government formally adopted the Gitanyow Lax'yip Land Use Plan in March 2012. The plan is a result of eight years of negotiations and three court cases regarding consultation on forestry activities. The plan's goal is to ensure Wilp (House) sustainability and maintenance of ecosystem function, primarily in relation to forestry activity. Gitanyow is currently faced with unprecedented development proposals within the territory and adjacent to it, from the mining and energy sectors. Gitanyow Hereditary Chiefs seek to advance and further develop the plan to address increased development pressures, and ensure that cumulative impacts are managed in accordance with Gitanyow Ayookxw (Law).

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Tara Marsden, Gitanyow Huwilp Lax'yip (Land Use) Implementation Coordinator



Tara Marsden's traditional name is Naxginkw, from the House of Gamlakyeltxw, Ganada (Frog) Clan. Tara holds a Master's of Arts in Political Science, and a Bachelor's of Arts in First Nations Studies. Tara is currently responsible for coordinating the implementation of the Gitanyow Lax'yip Land Use Plan for the Gitanyow Hereditary Chiefs Office. Tara has worked on consultation and natural resource management issues for First Nations, ENGOs, the University of

Northern British Columbia, and the provincial government. Tara lives in Hagwilget with her husband and two-year-old daughter. Email [Tara Marsden](mailto:Tara.Marsden)

Fred Philpot, Consultant



Fred Philpot graduated from University of British Columbia in 1962 with a BSc in forestry. Fred worked for Columbia Cellulose Co. in Terrace from 1962-68 as a Timbercruiser, Forestry Engineer, Assistant Logging Foreman, and Contract Supervisor. From 1969 to present day Fred has worked as a Forestry Consultant for Philpot Forestry Services with clients from the forestry industry, First Nations, and government. Fred's consulting services include forest engineering, silviculture, timber appraisals, and land use planning. Fred's interests include sports fishing, hunting, photography, hiking, and canoeing.

Cumulative Effects Management: Alberta's Institutional Framework

Alberta's operating context continues to evolve. Renewed population and economic growth, shifting public expectations of governments, and an expanded global audience are placing new demands on the province's natural ecosystems and resource management programs. These demands generate complex challenges that must be addressed; but they also present key opportunities to mature our natural resource and environmental management approach, to embrace a greater level of management transparency and to champion environmental stewardship on the world stage. It is within this context that Alberta is advancing a



cumulative effects management framework. This framework reflects a “plan-do-check” approach to setting, meeting and evaluating place-based outcomes. It employs a range of tools, resources and relationships to manage activities that affect the environment, economy and society across the province. In collaboration with its stakeholder community, the Government of Alberta has adopted an integrated approach to land use planning that considers the cumulative impacts of all activity at multiple spatial and temporal scales. Likewise, the province is actively transforming its policy and regulatory programs to adopt an outcomes-focused delivery model, one that promotes effective and efficient place-based management. These developments are complimented by the institution of a robust knowledge and performance management system designed to inform the assessment and management of cumulative effects. An open and scientifically credible monitoring, evaluation and reporting program is a key component of this system and serves as the foundation of Alberta’s institutional framework for cumulative effects management.

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Stephanie Clarke, Alberta Environment & Sustainable Resource Development



Stephanie Clarke is responsible for formulating strategic intelligence, developing the department’s strategic roadmap and provincial environmental strategies, and leading transformational initiatives intended to evolve Alberta’s environmental management approach. Stephanie has a master’s degree in Political Science from Memorial University of Newfoundland. She has been with Alberta Environment and Sustainable Resource Development since 2005 and has held several positions since then, including a leadership role in the development and implementation of the Cumulative Effects Management System. Email [Stephanie Clarke](#)

COFFEE BREAK - Thursday Afternoon

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Cumulative effects: From assessment towards management

The Forest Practices Board has growing concerns about the cumulative effects of resource use. In our work examining forest and range practices, it is often apparent that other activities are impacting the land base; activities not regulated under the Forest and Range Practices Act. The board prepared a special report on cumulative effect assessment (CEA) and concluded that, while there are institutional and technical issues with CEA, the problems are not primarily about the methods of assessment; they are about the need for a comprehensive land management framework in which those methods could be used. It is clear to many that “making marginal improvements in a seriously flawed [CEA] system is unwarranted.” The Forest Practices Board believes that progress can be made if CEA is embedded in a land management framework designed to meet the objectives society has



for values on the land. Such a framework requires mechanisms for: 1) articulating society's values for the land and natural resources; 2) making decisions about the kinds and amounts of human activities that should take place on the land; 3) issuing private rights to public land and resources, within limits imposed by objectives; 4) assessing some proposed activities to ensure they will have minimum negative effect and maximum positive effect on values; and 5) using regular monitoring of actual activities and effects to improve the framework.

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Marvin Eng, Forest Practices Board



Following an MSc at University of Regina, Marvin Eng was an environmental consultant in Alberta for 10 years. In 1989 he joined the B.C. Forest Service, Research Branch, to work on habitat supply modelling, decision support for land use planning and landscape ecology, focussing on natural disturbances. In 2006 Marvin joined the Forest Practices Board. Email [Marvin Eng](mailto:Marvin.Eng@fb.ca)

EVENING PROGRAM - THURSDAY

Opening Remarks: Rick Budhwa and Greg Knox

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WINE & CHEESE

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Terry Glavin, Journalist

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*Terry Glavin is an award-winning journalist, author and columnist for the Ottawa Citizen whose essays and books traverse anthropology, natural history, globalization and politics. His first book, *A Death Feast in Dimlahamid*, was set in the Skeena-Bulkeley country. His current focus is on the rise of China, the oil industry, and foreign policy.*

FRIDAY, NOVEMBER 16

PRACTICAL APPLICATIONS

Moderator - Don Morgan, Ministry of Environment
See bio above.

Assessing the cumulative impacts of forestry activities in a forested landscape

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James Casey, World Wildlife Fund



James Casey began his post-secondary education at the Northwest Community College (Prince Rupert campus) before moving to Montreal, Québec, where he completed his degree in Political Science. He is currently completing a master's degree at the University of Northern British Columbia, with a concentration on the environmental protection of international rivers. Once James has graduated and has some free time, his dream is to take a long vacation through India with his beautiful wife. Email [James Casey](#)

Building a Cumulative Effects Assessment Framework in BC: Examples from the Northwest & Okanagan Demo Pilot Projects

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Ben Heemskerk, FLNRO



Ben Heemskerk recently started as the cumulative effects project manager in the Skeena Region for the Ministry of Forests, Lands and Natural Resource Operations. He is currently co-leading the NW pilot for the Cumulative Effects Assessment Framework with Don Morgan, Ministry of Environment. Ben completed his degree in Natural Resource Management with a focus on Fish and Wildlife at the University of Northern British Columbia and is a Registered Professional Agrologist (PAg) and Biologist (RPBio). Ben has been involved in the natural resource community since 1994 including forest engineering, forest health, fish & wildlife management, forest ecology research, recreation and land use planning. When Ben is not working he is usually out recreating with his partner Leanne in B.C.'s beautiful backyard. His outdoor pursuits include running, cross-country skiing, backcountry skiing, rock climbing, mountaineering and mountain biking. Email [Ben Heemskerk](#)

Collaborative Salmon Habitat Monitoring: A Tool to Assist Cumulative Effects Assessment in the Skeena Watershed

This presentation will explore how the implementation of a collaborative salmon habitat monitoring program can increase our understanding and effectiveness at managing cumulative effects in the Skeena watershed. Such a program would use a suite of salmon habitat indicators to produce ongoing baseline status and trend monitoring data and analyses. Ideas on how such a program can be implemented, touching on data collection, analyses and storage, monitoring prioritization and expansion, and governance, and management integration will also be discussed.

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Greg Knox, SkeenaWild Conservation Trust



Greg Knox has worked as the Executive Director of SkeenaWild Conservation Trust since 2007, focusing on fisheries management and salmon habitat protection work in the Skeena. He has also been a board member with the Bulkley Valley Research Centre since 2010. Greg earned a BSc in Geography from the University of Northern British Columbia in 2000, after which he worked as a certified fisheries technician and co-owned an ecotourism business. Greg recently completed a Masters in Environmental Management at Royal Roads University. Email [Greg Knox](mailto:Greg.Knox)

COFFEE BREAK - Friday Morning



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Cumulative Effects and Oceans: The Story of Ocean Noise

Ocean (underwater) noise is an emerging area of relevance to the broader study of cumulative effects and an emerging conservation issue for northwest B.C. Whales and other marine mammals, and even some fish, rely on the acoustic environment in a way that is analogous to their reliance on other habitat features. While the acute effects of noise in the marine environment from sources such as seismic, pile driving and construction are frequently featured within environmental assessments, less attention has been given to the cumulative levels of underwater noise from multiple and chronic sources and their resulting effects on habitats and the acoustic requirements of species. This presentation summarizes progress made in characterizing acoustic habitat in B.C. and identifies trends in



anthropogenic noise. Regulatory and policy trends will be touched on, as well as solutions being explored in other jurisdictions, to better deal with issue of ocean noise pollution and its regulation.

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Mike Ambach, World Wildlife Fund



Mike Ambach is from the B.C. interior and has a background ranging from arts and language teaching to international development and youth work. Experience in community development and education abroad led Mike to appreciate how communities' social, environmental, and economic aspects are interdependent. Mike has an MA in Adult Education (Concordia University, 2001) and an MA in Environmental Studies (York University, 2006). Email [Mike Ambach](mailto:Mike.Ambach@wwf.ca)



PANEL DISCUSSIONS

PANEL # 1 - HOW DO WE COLLECT, STORE, AND MAKE RESOURCE DATA ACCESSIBLE FOR THE LONG TERM?

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Moderator - Johanna Pfalz, Eclipse GIS

Johanna Pfalz, BSc, is currently an independent consultant with Eclipse GIS in Smithers, providing GIS services to the natural resource sector within northwest B.C. Prior to working as a consultant for the past six years, Johanna spent 10 years working with the provincial government in GIS. Prior to moving to Smithers, Johanna worked as a database administrator for a biomedical research and development company. Over the past 15 years Johanna has worked extensively in land use planning and monitoring in northwest B.C. Her recent work has focused extensively on cumulative effects and land use plan monitoring related to the Skeena Watershed. Email [Johanna Pfalz](mailto:Johanna.Pfalz@eclipsegis.com)

Blair Ells, FLNRO

Blair Ells is a geospatial coordinator with the Ministry of Forests, Lands and Natural Resource Operations. He has been employed in geospatial technology for 10 years in federal, provincial and consulting capacities. He became interested in cartography and ecological systems during university and believes one of the biggest challenges facing resource management today is how to effectively translate research and knowledge into informed decision making. Blair is an avid reader of natural and ethno-history of B.C., especially early exploration. Email [Blair Ells](mailto:Blair.Ells@flnro.gov.bc.ca)

David de Wit, Office of the Wet'suw'eten

See bio above.

Greg Knox, Skeena Wild Conservation Trust

See bio above.

Barry Watson, FLNRO

Barry Watson sees cumulative effects as a mechanism for sustainable development. He is a multidisciplinary integrator that sees social, economic and ecosystem values as a means to deal with "wicked problems." Establishing a "Data and Knowledge Ethic" is fundamental to an organization's ability to effectively leverage its collective knowledge experience to influence resource management decision makers. Barry is actively working on the "how" of cumulative effects and is particularly interested in applying ecological economic principles. Email [Barry Watson](mailto:Barry.Watson@flnro.gov.bc.ca)

PANEL # 2 - HOW DO WE INCORPORATE CUMULATIVE EFFECTS RESULTS INTO DECISION MAKING?

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Moderator - Ben Heemskerck, FLNRO

See bio above.

Lorne Grieg, ESSA Technologies

See bio above.

Tara Marsden, Gitanyow Huwilp Lax'yip (Land Use) Implementation Coordinator

See bio above.

Marvin Eng, Forest Practices Board

See bio above.

Fred Philpot, Consultant

See bio above.

Andrew Thrift, Galore Creek Mining Corporation

Andrew is Manager, Environment & Community Affairs with Galore Creek Mining Corporation. Prior to joining GCMC Andrew worked for Terrane Metals where he led the permitting and environmental management of the Mt. Milligan copper-gold mine in north-central BC, from feasibility into early construction. His previous experience also includes working as a Senior Policy Advisor for the federal government with Natural Resources Canada (NRCan) and as a consultant with Golder Associates and Klohn Crippen Berger, in rock mechanics and mine waste management, then environmental and social assessment and stakeholder engagement. Andrew holds bachelors and masters degrees in mining engineering from the University of British Columbia. He is actively involved with the Mining Association of BC, serving on the aboriginal affairs and environment committees. Email [Andrew Thrift](mailto:Andrew.Thrift)

CLOSING REMARKS

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CONCLUSIONS – WHERE TO FROM HERE?

In looking forward, two common themes raised throughout the conference are relevant. Participants conveyed a sense of urgency and the desire to be pragmatic in designing and implementing cumulative effects assessment and management. “The perfect is the enemy of the good” was shared by Terry Antoniuk and picked up by several other speakers. Efforts to translate cumulative effects policy and approaches onto the ground and to evaluate these efforts in terms of sustaining a range of societal values are particularly timely given resource development examined by conference participants: the projected increase in gas wells in the northeast, ongoing development of the oil sands, and the pace of development facing the northwest.

Second, the importance of collaboration was reiterated throughout. Two particular references to collaboration stand out: Lorne Grieg’s “extraordinary collaboration” and Jessica Clogg’s “collaborative governance in the face of unpredictable complexity.”

This conference was organized as the first step in a conversation about how to address cumulative effects. It spoke to the need for creating a place where assessment and science can be done independent of decision-making. In closing, Rick Budhwa said that in thinking about what’s next several participants had approached the organizers with ideas on a range of topics that were discussed including data and governance. He said the Bulkley Valley Research Centre would like to “offer to receive [these ideas], help organize them, and help plan them forward – some of them may be workshops, conferences or even research proposals. We invite you to keep that dialogue going with the Bulkley Valley Research Centre.”

ALL FIVE MINUTE FORUMS

Five Minute Forum - Ray Chipeniuk

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Five Minute Forum - Yvonne Lattie

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Five Minute Forum - Deborah Wellwood

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Five Minute Forum - Cristina Soto

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Five Minute Forum - Emily McGiffin

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Five Minute Forum - Tlell Glover

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Five Minute Forum - Shannon McPhail

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Email [Shannon McPhail](#)

EXHIBITORS

Curtis Cunningham



McElhanney



Smithers Exploration Group



SkeenaWild Conservation Trust



World Wildlife Fund





POSTERS

Are Grizzly Bears in the Skeena Region Better Off Now Than They Were 25 Years Ago?: Let's Talk Problem Solving

[Deborah Wellwood](#), Raven Ecological

Data Management Strategies

[Johanna Pfalz](#), Eclipse GIS

Development of a Watershed-level Fish Values Monitoring Protocol

[Lars Reese-Hanson](#), Ecosystems Planning Biologist, FLNRO



THANK YOU TO THE FOLLOWING PEOPLE

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Conference Coordinator

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Adding It All Up

Balancing Benefits and Effects of Resource Development

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