"The People of the Lakes Speak"
CEPI Sustainability Practices Conference 2016

Day One – Morning Session

09:00 Morning session convened.

**Opening Prayer, Welcome and Plenary Session Part 1 – The Youth Speak**

- **Conference Emcee:** Ian MacNeil

The Conference Emcee opened the session with words of welcome and introduction to those attending. Mr. MacNeil noted that CEPI's focus since 2003 has been on stabilizing the environment of the Bras d'Or Lakes and building partnerships among the organizations and communities around the Bras d'Or. Now the priority is to consider sustainable development in the area.

Questions to be considered during the Conference:

- What industry can be done around the Bras d'Or Lakes?
- What can be done to keep people living and working around the Bras d'Or Lakes?
- How can we attract new people to the Bras d'Or Lakes?

- **Opening prayer:** John (Tiny) Cremo, Wekoqmaq First Nation

- **The Mi'kmaq Honour Song:** Indian Bay Singers, Wagmatcook First Nation

Ian MacNeil acknowledged the Funding Partners who helped make the Conference possible:

- The Atlantic Canada Opportunities Agency
- Victoria County
- Indigenous and Northern Affairs Canada
- The Province of Nova Scotia
- Eskasoni First Nation
- Membertou First Nation
- Potlotek First Nation
- Wekoqmaq First Nation
- Wagmatcook First Nation

- **Welcome:** Chief Norman Bernard, Wagmatcook First Nation

Chief Bernard welcomed everyone to Wagmatcook First Nation and the Conference. He said the discussions over the next three days would be about how to build a future for those who live and work around the Bras d'Or Lakes, and he pointed out that the Lakes and watershed have taken care
of the Mi'kmaq people for centuries and would continue to do so if treated properly. Chief Bernard also highlighted that the Conference builds on seeds planted as far back as 2003.

Chief Bernard also took the opportunity to congratulate CEPI Chairperson Dan Christmas on his appointment by Prime Minister Justin Trudeau to the Senate of Canada.

- **Welcome:** Bruce Morrison, Warden, Victoria County

Mr. Morrison welcomed to Victoria County all those attending the Conference. He said that the Bras d'Or Lakes have been the heart of our communities for many generations.

- **CEPI Overview:** Dan Christmas, CEPI Chairperson

Mr. Christmas said that when Charlie Dennis first conceived of CEPI, he organized two conferences in 2003 and 2004. The vision of Charlie Dennis was to bring people together to care for the Bras d'Or Lakes. CEPI was formed in 2005 from the seeds sown during those two conferences. Mr. Christmas said it was remarkable that Charlie Dennis brought together Federal, Provincial and Municipal governments with the five First Nations communities on Cape Breton Island to sign the Bras d'Or Lakes Charter, one of the most unique documents in the world. In that document, four levels of government agree to take care of the unique ecosystem of the Bras d'Or Lakes. Since the signing of that Charter, CEPI and its sister organizations (The Bras d'Or Stewardship Society, The Bras d'Or Lakes Biosphere Reserve Association and the Unama'ki Institute of Natural Resources) have worked side by side to preserve the integrity of the Bras d'Or Lakes.

Of all the work accomplished by CEPI over the last decade, Mr. Christmas said that one of the highlights was in 2011 when the Bras d'Or Lakes were designated as a UNESCO Biosphere Reserve.

To answer the question of what was the next step for CEPI, Dan Christmas noted that Charlie Dennis had not only been concerned for the Lakes, but also the youth who lived around the Lakes. Mr. Dennis would pose questions such as: What do we do with all the young people who have their degrees? What is next for them? How do we provide an opportunity or a future for them?

In considering these questions and the work that Charlie Dennis had done, Mr. Christmas said that when the Unama'ki Chiefs asked him to take over the Chair of CEPI when Charlie Dennis passed he thought it was time again to bring people together from all around the Lakes to talk about the future of the Lakes and the young people who want to stay and live around the Lakes. Mr. Christmas said the question then became: How can we develop the Bras d'Or Lakes in a sustainable way so that our young people can have a future here? He said that a lot of effort went into involving youth and their viewpoint in the preparations for the Conference.

Mr. Christmas pointed out that many young people have left the area. If young people decide to stay around the Lakes, what will they be doing? What jobs are available to them? What business and industries will be around the Lakes in future decades? He said that that the Conference will be taking a new look at traditional industries with new eyes. Mr. Christmas pointed out that CEPI was
founded on the concept of "Two Eyed Seeing", using the "eye" of Western science together with the "eye" of traditional Mi'kmaq knowledge as taught and promoted by Elder Albert Marshall.

Mr. Christmas said the Conference was a beginning of a new dialogue about how development can take place in the Bras d'Or Lakes and its watershed in a sustainable way. He asked all in the audience as they listen to the sessions of the Conference to consider the question: What do we do next? At the conclusion of the Conference, Mr. Christmas said he would be looking for help, volunteers to work together on various Task Teams.

**The Youth Speak!**

- **Introduction**: Ian MacNeil, Emcee

  Mr. MacNeil commented on a survey conducted by a group of students led by Waddie Long, NSCC. He said the survey explored the reasons for out-migration by young people from the Bras d'Or Lakes watershed, and it was the largest sample of young Cape Bretoners every consulted.

  Mr. MacNeil introduced the Moderator for the session, Waddie Long, a teacher of Natural Resources and Environmental Technology at NSCC Strait Campus.

- **Moderator**: Waddie Long, Nova Scotia Community College

  Waddie Long began by thanking all those attending the Conference and all those who had worked hard to organize the Conference, as well as the organizations that had supported the preparations and the hospitality of those that made the Conference happen. He especially thanked Tom Dunn, Principal, NSCC Strait Area Campus and Fred Tilley, Principal, NSCC Marconi Campus. Mr. Long also acknowledged the hard work of Annie Johnson, UINR and Stan Johnson, CEPI. Mr. Long made a point of thanking the CEPI Youth Leaders and the NSCC Green Team who worked together for six months on this project.

  Mr. Long said that the data being discussed today comes from approximately 1100 completed surveys. Over 2000 surveys were completed, but not all the data has been compiled yet.

  Waddie Long welcomed to the platform the CEPI Youth Leaders/ NSCC Green Team members who would present the data: Kelsie Francis, Shane Cormier, Tracy George and Steven Googoo.

- **Presenters**: Kelsie Francis, CEPI Conference Mentoree, CEPI Planning Committee Youth Coordinator and CEPI Youth Leader

  "In the Beginning"

  Kelsie Francis thanked the CEPI Steering Committee for being invited along with her colleagues to present the data from their work.
Ms. Francis said her team was tasked by CEPI Chair Dan Christmas to answer some important questions. Under the guidance of Annie Johnson, UINR, Stan Johnson, CEPI and Waddie Long, NSCC, the Team polled youth in the Bras d'Or Lakes watershed on questions such as: Why are our young people leaving Cape Breton? What would it take to keep them here? If they have already left, how can we bring them home?

Surveys were conducted at high schools, communities and community events, NSCC Strait Area campus, NSCC Marconi Campus, Cape Breton University and also on the Internet. Ms. Francis said that with over 2000 youth surveyed over six months, Wendy Bergfeldt of CBC Radio called the effort the largest youth survey ever conducted on Cape Breton Island. Over 100 Elders were also surveyed.

- **Presenters:** Tracy George, CEPI Youth Leader & NSCC Green Team Co-Chair

"Some of the Numbers"

Tracy George explained that before polling the youth of the Bras d'Or Lakes, the Team wanted to get the thoughts of the Elders, and so an "Elders Survey" was prepared. Questions posed to the Elders and their responses were:

**Question: What is one idea that can make the Bras d'Or Lakes part of the livelihood of our youth?**

72% of those surveyed said: increase economic development. Examples given were:

- Increase tourism activities such as boating and recreational fishing
- Teach traditional ways at cultural camps
- Keep it clean

**Question: What are some things leaders can do to bring or keep the youth in our communities?**

44% of those surveyed said: More jobs and training, and 20% said: sports and recreation. Other responses included community projects and more educational opportunities.

**Question: What are some things happening in Cape Breton that are positive?**

The top two responses were: Festivals and Events (42%) and Communities working together (22%). Other responses were: We are helping each other now, more Native issues are being resolved, Donald Trump getting elected.

Ms. George next turned to the "Youth Survey" to present the responses gathered. Before revealing the response from some of the survey questions, Ms. George polled the Conference audience to get their answers.

**Question: Did you attend university or college?**

Audience: responses ranged from 32% to 90% of youth had attended university or college.
Youth Survey: 75% of youths surveyed had attended university or college.

**Question:** Do you volunteer in your community?

Youth Survey: 45% of youth said they volunteer in their community.

**Question:** Would you consider starting a business in Cape Breton?

Audience: Responses ranged from 10% to 50% had responded affirmatively.

Youth Survey: 34% of youth surveyed said they would consider starting a business in Cape Breton

**Question:** Are you planning on staying in Cape Breton?

Youth Survey: 36% of High School students said "No".
- 60% said "No" after college or university.

**Question:** Why are you planning on leaving Cape Breton?

Youth Survey: 41%: Lack of jobs
- 11%: Desire to travel
- 6%: Attend off Island schools.

**Question:** Do you think there are adequate educational opportunities in Cape Breton?

Youth Survey: 59% of responses were "Yes".

**Question:** Do you have family members that have left Cape Breton in the last 10 years?

Youth Survey: 32% of those surveyed had someone in their family that had left Cape Breton.

**Question:** If you leave Cape Breton, do you think you will eventually come back to stay?

Youth Survey: 30% said "Yes"

**Question:** What are the top three characteristics of your community?

Youth Survey: 16%: Hospitality
- 12%: Scenery
- 9%: Recreation

- **Presenter:** Shane Cormier, NSCC Green Team Co-Chair

Mr. Cormier continued to present the data gathered from the surveys.
Question: Have you heard of the Truth and Reconciliation Commission?

Audience: Responses ranged from 5% to 90%

Youth Survey: 8.2% of youths surveyed had heard of the Truth and Reconciliation Commission.

Question: Have you heard of the Ivany Report?

Audience: Approximately 60% of the Conference Audience confirmed they had heard of the Ivany Report.

Youth Survey: 4.2% of survey respondents said they had heard of the Ivany Report.

Question: Have you heard of CEPI?

Youth Survey: 3.8% of those surveyed replied "yes".

Question: Did you know that the Bras d'Or Lakes was a UNESCO Biosphere Reserve?

Conference Audience: Responses ranged from 2% to 20% of youth surveyed knew of the UNESCO designation.

Youth Survey: 25% of youth surveyed had heard that the Bras d'Or Lakes was a UNESCO Biosphere Reserve.

Question: Will you be looking for work in any of the six pillars of the Conference?

Youth Survey:
- Fishing and Aquaculture: 12%
- Renewable Energy: 9%
- Forestry: 9%
- Mining: 6%
- Tourism: 4%
- Agriculture: 3%
- Other: 57%

Question: Do you feel that the interests of the youth and the youth workforce are supported in Cape Breton?

Youth Survey: 48% of youth surveyed said "no".

Question: What are the top three priority areas in Cape Breton we need to focus on to keep our young people?

Youth Survey:
- More jobs (careers): 32%
- More recreational opportunities: 16%
- More entertainment: 11%
Question: If you decide to leave Cape Breton, what would be the reason?

Youth Survey: - Jobs: 38%
- Better opportunities elsewhere: 30%
- Travel: 14%
- Better social life: 13%

Question: Do you have hobbies that involve going out in nature?

Audience: Responses ranged from 13% to 90% of youths surveyed had a hobby that involved going out in nature.

Youth Survey: 83% said they did have hobbies that involved going out in nature.

Question: Have you spent time on the Bras d'Or Lakes?

Youth Survey: 28% said "yes".

- **Presenter:** Steven Googoo, Councilor, Wekoqmaq First Nation and CEPI Youth Leader

  Mr. Googoo said he became involved with the Youth Surveys project because he knew it was an historic opportunity.

  Mr. Googoo explained that Max Long and Jude Long had conducted the online portion of the Youth Survey, with 260 surveys completed electronically. He presented the results of the online survey to the audience.

Question: Why did you leave Cape Breton?

Youth Survey: - To find a job: 53%
- To find better opportunities: 22%
- Better education opportunities: 12%
- Marriage: 3%
- Travel: 2%
- Other reasons: 8%

Question: Do you plan on coming home to stay someday?

Youth Survey: - Would come home eventually: 57%
- Wouldn't come home: 43%

Question: Would you consider coming back home to start a business?

Youth Survey:
Question: What is the highest level of education you have completed?

Youth Survey: 
- Did not finish Highschool: 2%
- Finished Highschool: 19%
- College diploma or certificate: 51%
- University degree: 25%
- Masters degree: 2%
- Doctorate: 2%

Mr. Googoo thanked his fellow members of the NSCC Green Team and the CEPI Youth Leaders, the CEPI Steering Committee, the CEPI Conference Planning Task Team, the communities of Unama'ki, St. Anne's Mission, the Mi'kmaq Summer Games, Nova Scotia Community College, Cape Breton University and the online survey team of Jude and Max Long. Mr. Googoo especially thanked Annie Johnson and Stan Johnson, Waddie Long and Dan Christmas.

"Next Steps"

Mr. Googoo explained that there was more data to be compiled and more work to do. He asked those at the Conference to support the CEPI Youth Leaders as they continue the work. Mr. Googoo said it was the goal of the CEPI Youth Leaders to hold a CEPI Youth Conference in 2017, and he asked the Conference attendees to help with that goal.

Steven Googoo concluded by saying that the Youth of the Lakes had spoken.

**Moderator:** Waddie Long, Nova Scotia Community College

Waddie Long said that whenever a youth completed a survey in person, an opportunity was given to discuss some of the points on the survey in more detail.

Kelcie Francis said that most people approached with the surveys were very obliging and they answered truthfully, but there was a small percentage of people who didn't want to do the survey.

Waddie Long noted that sometimes the responses in the data do not add up to 100%. Steven Googoo explained that it was hard to compile single responses in the data. As an example he said when one Elder was asked what would keep young people in Cape Breton, his response was: "a swimming pool". Mr. Googoo said the data presented represents the majority answers.

Mr. Long said that a question posed to the survey participants was: If you could talk to someone who was in a position to help you, what would you say? Shane Cormier said that most of the youth replied that they would simply like the opportunity to be heard and to be listened to.
Waddie Long noted the responses showed that 36% of Highschool aged youth said that when they leave Cape Breton they did not plan to return, but of youth who have already left, 60% wish to return to Cape Breton.

Mr. Long concluded the session by saying that he hoped the survey results changed some people's opinion of young people.

10:08 Nutrition break.

10:30 Conference reconvened.

Plenary Session Part II – Transitioning to a Culture of Sustainable Practices

- **Introduction**: Ian MacNeil, Emcee

  Ian MacNeil introduced the session participants Dr. Ken Oakes and Dr. Jim Foulds and the session moderator Dr. Teresa McNeil.

- **Moderator**: Dr. Teresa McNeil, Bras d'Or Lakes Biosphere Reserve Association

  Dr. McNeil said the session would be an opportunity to take stock of attitudes and behaviour regarding sustainable development around the Bras d'Or Lakes, including the watershed. She said that through the use of questions and the Clicker device given to each attendee the audience would be able to participate in the session. Dr. McNeil encouraged anyone with questions to write them down and pass them in to the Conference organizers so that they could be considered and all the thoughts from the Conference could be pulled together for the final session of the Conference on the last day.

- **Presenter – Biosphere Reserve**: Dr. Jim Foulds, Bras d'Or Lakes Biosphere Reserve Association

  "Building a Culture of Sustainable Development"

  Dr. Foulds noted that to begin the discussion it would be helpful to agree on what sustainable development is. He presented one definition proposed by the Brundtland Report "Our Common Future" in 1987 and quoted that report: "Sustainable development … meets the needs of the present without compromising the ability of future generations to meet their own needs." Dr. Foulds said the Conference Planning Task Team proposed a more action oriented definition: "People acting in a manner providing for the needs of both society and the environment, forever." He further said that the Biosphere Reserve Association often uses the statement: "People using best practices in all of their activities."

  In preparation for polling the audience, Ken Oakes took the opportunity to explain to the audience how to use the Clicker device for audience participation. Dr. Oakes said that the technology was chosen so that each voice at the Conference would contribute, honouring the title of the Conference, "The People of the Lakes Speak".
Question 1: Sustainable Development must include:

a) A healthy Environment: 3%
b) A healthy Society & Culture: 2%
c) A healthy Economy: 2%
d) A and C: 7%
e) All of the above: 86%

As another approach, Dr. Foulds presented a diagram (Fig. 1) showing how the pillars of Sustainable Development (Environment, Economy and Society and Culture) relate to one another. The diagram graphically represented the idea that only with equal amounts of all the pillars was sustainable development possible.
Dr. Ken Oakes took the floor and led a polling session to gather input from the audience using the Clicker devices.

**Question 2: The Environment within the Bras d'Or Lake watershed is healthy.**

- a) Strongly Agree: 7%
- b) Agree: 40%
- c) Neutral: 26%
- d) Disagree: 23%
- e) Strongly Disagree: 4%

**Question 3: Society & Culture within the Bras d'Or Lake watershed boundary is healthy.**

- a) Strongly Agree: 7%
- b) Agree: 39%
- c) Neutral: 28%
- d) Disagree: 25%
- e) Strongly Disagree: 2%

**Question 4: The Economy within the Bras d'Or Lake watershed is healthy.**

- a) Strongly Agree: 2%
- b) Agree: 8%
- c) Neutral: 24%
- d) Disagree: 54%
- e) Strongly Disagree: 13%

**Question 5: I live in the Bras d'Or Lake watershed.**

- a) Yes: 47%
- b) No: 48%
- c) I'm honestly not sure: 6%

Dr. Foulds referred to page 10 of the Conference program which showed a map of the Bras d'Or Lakes and the watershed boundary (Fig 2). He explained that the watershed encompasses the area where, when rain falls, it has a tendency to drain toward the Lake. Dr. Foulds encouraged everyone to view the watershed area as part of the Bras d'Or Lake itself.

**Question 5b: I live in the Bras d'Or Lake watershed.**

- a) Yes: 49%
- b) No: 51%
- c) I'm still not sure!: 0%
Question 6: The Bras d’Or Lake is critical to the socio-cultural, economic and environmental health of Cape Breton.

a) Strongly agree: 73%
b) Agree: 21%
c) Neutral: 4%
d) Disagree: 2%
e) Strongly disagree: 0%
Question 7: Current activities occurring within the Bras d'Or Lake watershed do not compromise ecosystem or human health.
   
a) Strongly agree: 8%
b) Agree: 17%
c) Neutral: 12%
d) Disagree: 45%
e) Strongly disagree: 18%

Question 8: Some economic activities that adversely impact the Bras d'Or Lake are acceptable if economic activity is generated.
   
a) Strongly agree: 22%
b) Agree: 37%
c) Neutral: 15%
d) Disagree: 21%
e) Strongly disagree: 5%

Question 9: The local tourism industry minimally impacts the Bras d'Or Lake watershed.
   
a) Strongly agree: 14%
b) Agree: 32%
c) Neutral: 20%
d) Disagree: 27%
e) Strongly disagree: 6%

Question 10: Forestry activities minimally impact the Bras d'Or Lake watershed.
   
a) Strongly agree: 3%
b) Agree: 12%
c) Neutral: 13%
d) Disagree: 48%
e) Strongly disagree: 23%

Question 11: Mining activities minimally impact the Bras d'Or Lake watershed.
   
a) Strongly agree: 1%
b) Agree: 14%
c) Neutral: 21%
d) Disagree: 36%
e) Strongly disagree: 28%

Question 12: Agricultural activities minimally impact the Bras d'Or Lake watershed.
   
a) Strongly agree: 5%
b) Agree: 27%
c) Neutral: 15%
d) Disagree: 40%
e) Strongly disagree: 13%

Question 13: Aquaculture activities minimally impact the Bras d'Or Lake watershed.

a) Strongly agree: 3%
b) Agree: 21%
c) Neutral: 14%
d) Disagree: 48%
e) Strongly disagree: 13%

Question 14: Renewable energy developments minimally impact the Bras d'Or Lake watershed.

a) Strongly agree: 14%
b) Agree: 36%
c) Neutral: 25%
d) Disagree: 18%
e) Strongly disagree: 6%

Question 15: Outmigration of younger residents is a significant threat to Economic Stability in the Bras d'Or Lake watershed.

a) Strongly agree: 54%
b) Agree: 24%
c) Neutral: 9%
d) Disagree: 9%
e) Strongly disagree: 4%

Question 16: CEPI is the acronym for:

a) Canadian Ecological Planning Institute: 5%
b) Collaborative Environmental Planning Initiative: 92%
c) Canadian Environmental Programme Initiative: 3%
d) Coastal Energy Productivity Index: 0%
e) Concerned Environmentalists Protesting Insecticides: 0%

Question 17: CEPI has representation from:

a) Federal agencies: 1%
b) Provincial agencies: 0%
c) Municipal governments: 2%
d) First Nations Chiefs: 2%
e) All of the above: 95%

Question 18: CEPI has a responsibility to be a leader in sustainability.
a) Strongly agree: 68%
b) Agree: 28%
c) Neutral: 4%
d) Disagree: 0%
e) Strongly disagree: 0%

Question 19: Sustainability is a strong personal value of mine.

a) Strongly agree: 72%
b) Agree: 25%
c) Neutral: 1%
d) Disagree: 1%
e) Strongly disagree: 2%

Question 20: I know what I need to do in my daily activities to operate in a sustainable way.

a) Strongly agree: 19%
b) Agree: 58%
c) Neutral: 16%
d) Disagree: 5%
e) Strongly disagree: 1%

Question 21: I clearly understand sustainability issues relevant to the Bras d'Or watershed.

a) Strongly agree: 11%
b) Agree: 35%
c) Neutral: 24%
d) Disagree: 27%
e) Strongly disagree: 3%

Question 22: There is a culture of sustainability in Cape Breton society generally.

a) Strongly agree: 3%
b) Agree: 25%
c) Neutral: 17%
d) Disagree: 45%
e) Strongly disagree: 10%

Question 23: Responsibility for creating a culture of sustainability lies primarily with:

a) Federal Governments: 16%
b) Provincial Governments: 6%
c) Municipal Governments: 7%
d) NGO's such as CEPI: 9%
e) Individuals: 63%
Question 24: I have a lot of control over the size of my "ecological footprint".

   a) Strongly agree: 22%
   b) Agree: 37%
   c) Neutral: 16%
   d) Disagree: 20%
   e) Strongly disagree: 5%

Question 25: I am well informed about sustainability issues in general.

   a) Strongly agree: 19%
   b) Agree: 53%
   c) Neutral: 12%
   d) Disagree: 15%
   e) Strongly disagree: 2%

Question 26: Have you ever been in a UNESCO Biosphere Reserve?

   a) Yes: 73%
   b) No: 10%
   c) Not sure: 17%

Dr. Jim Foulds returned to the podium to discuss one example of a culture of sustainability that exists in Cape Breton, referring to the history of the Bras d'Or Lakes being designated a UNESCO Biosphere Reserve.

He explained that a Biosphere Reserve was an area recognized internationally as a place where people practice integrated management of land, water and biodiversity, and where activities that promote economic and human development in harmony with nature are currently being practiced. The goal is to balance the needs of the environment with the needs of people living in the Reserve. Dr. Foulds said the UNESCO designation mandates action in three areas:

1. Conservation (including things such as genetic strains to entire ecosystems)
2. Sustainable Economic Development (the human element must be taken into consideration)
3. Capacity Building (teaching and research promoting greater awareness and examination of the environment)

Dr. Foulds also explained what a Biosphere Reserve is not:

- It is not a form of regulation
- It is not a new level of bureaucracy.
- It is not the same as other UN designations like "World Heritage Site".
- It does not create protected areas.
- It does not limit the rights of citizens.
Dr. Foulds assured everyone in attendance that they were currently sitting in a UNESCO Biosphere Reserve. He said the Bras d'Or Lakes Biosphere Reserve comprises 1,100 km$^2$ of estuary and 2,500 km$^2$ of watershed area for a total area of 3,600 km$^2$. It is unique in its biodiversity, having species from 30 degrees of latitude along the Atlantic coast living in less than one degree of latitude in the Bras d'Or Lakes. There are what Dr. Foulds called "Status Species" living in the Biosphere, such as Bald Eagles and Atlantic Salmon. He also noted that there were 19 areas in the Biosphere that have legally protected status, such as North River and Middle River. Over 200 "at risk" species live in the Bras d'Or Lakes watershed, including the American Marten and the Canada Lynx.

Dr. Foulds said the people that live in the Biosphere Reserve give the region a diversity of cultures, both Mi'kmaq and non-Mi'kmaq. These people engage in a wide range of economic activities, from small-scale to large-scale.

The benefits of UNESCO Biosphere Reserve designation were then highlighted by Dr. Foulds, including recognition on an international scale and increased opportunities for tourism (including scientific tourism), conservation, business and industry and research and education.

Dr. Foulds next reviewed the process of receiving the designation, which started with the preparation of a nomination document that was over 300 pages long. He said evidence had to be shown that people in the area supported the application, and so endorsements were gathered from community members, companies and government agencies. Since the application must come from the country where the proposed Biosphere resides, the prepared documents had to go to the Canadian Commission for UNESCO in Ottawa. The Commission vetted the application and provided helpful criticism to assist in making revisions to the document. Dr. Foulds said the document was then sent by Canada to UNESCO in Paris, leading to the official designation in June, 2011. He also explained that it is just the beginning of the designation, and to maintain the designation a reapplication must be made every ten years, at which time it must be shown that efforts have been made to reaffirm that the region still deserves the designation.

Dr. Foulds noted that there were 18 Biosphere Reserves in Canada. (Fig.3)

Dr. Foulds concluded by noting that there are many examples of organizations that are already demonstrating sustainable practices in their activities in the Bras d'Or Lakes watershed. He said that the UN uses Biosphere Reserves to point to areas of the world that are examples in sustainable practices.

Finally, Dr. Foulds had the audience view a video entitled "Biosphere Reserves in a Nutshell", produced by the German Biosphere Reserve.

● **Moderator:** Dr. Teresa McNeil, Bras d'Or Lakes Biosphere Reserve Association

Dr. McNeil noted that in considering the various sectors during the sessions at the Conference, it was important to think of sub-areas that affect all the sectors, such as education and transportation. Without having these areas well developed, the sectors being discussed will suffer.
11:41 Break for lunch.

Day One – Afternoon Session

13:28 Afternoon session convened.

Sustainable Practices Discussion – Tourism

• Introduction: Ian MacNeil, Emcee

Ian MacNeil offered words of welcome to the afternoon session and recapped the morning presentations. Mr. MacNeil also took time to acknowledge the funding partners who made the
Conference possible, including the Atlantic Canada Opportunities Agency, the Municipality of the County of Victoria, Indigenous and Northern Affairs Canada, the Province of Nova Scotia, Eskasoni First Nation, Membertou First Nation, Potlotek First Nation, Wagmatcook First Nation and Wekoqmaq First Nation.

Mr. MacNeil introduced the session participants: Moderator Keith MacDonald and panelists Joella Foulds and Captain Greg Silver, and Context Presenter Mary Tulle. To introduce the topic of tourism, he noted that tourism activity was reported to have increased by 15% in Cape Breton in the month of September 2016, as compared to 4% for the rest of the Province.

**Context Presenter:** Mary Tulle, Destination Cape Breton Association

Mary Tulle described the philosophy that has guided Destination Cape Breton: to research what visitors to Cape Breton Island are looking for, and then develop a plan around those results. She said that based on the research, Destination Cape Breton has targeted two types of travelers. The Bras d'Or Lakes captures what motivates these types to travel and the experience they are looking for.

The Core Experiences that a visitor to the Bras d'Or Lakes can enjoy are the same things that we as residents enjoy:

- Coastal/Seacoast Experiences
- Sightseeing and Touring
- Outdoor Activities
- Culture, Entertainment and Heritage
- Experiential Accommodations
- Major and International Events
- Cuisine

Who do we want to target? Ms. Tulle explained the philosophy of Destination Cape Breton's approach. The mind set of travelers is defined by the Canadian Tourism Commission and described as their Explorer Quotient (EQ). Destination Canada defined nine EQ types and has focused on two EQ types to attract visitors to Canada. These are: Cultural Explorers and Authentic Experiencers. Destination Cape Breton began working with local industry to build product that would appeal to these EQ types.

Ms. Tulle related a survey from 2015 that highlighted the top motivaters the Bras d'Or Lakes has to offer to attract visitors:

- Coastal Sightseeing
- Outdoor adventure
- Celtic Culture
- History
- Culinary
- Aboriginal culture
- Family/Friends
- Golf
- Music/Music Festivals

In the same survey, 46% of respondents listed the Bras d'Or Lakes as the top experience of their visit to Cape Breton. Ms. Tulle also noted that between January 1 and October 31, 2016, page views on cbisland.com for Bras d'Or Lake specific content totaled 19,150 views, while Bras d'Or Highlighted Content page views totaled 121,150.

Ms. Tulle highlighted the many products that are showcased to potential visitors to the Bras d'Or Lakes region, including 29 accommodations, events such as Aros na Mara World Ocean Day and Race the Cape, and organizations like Boating Cape Breton and attractions such as golf, hiking trails, museums, etc. Tour packages have been developed to help visitors experience the area, 16 packages in 2016. Destination Cape Breton has created a book called "Cape Breton Experience", with features such as "Locals Know", to assist travelers to the region. Ms. Tulle said the number one word in tourism right now is "experiential".

She also acknowledged that interest has grown in part because of the U.S. election, what she called the "Trump Bump".

Ms. Tulle talked about the growth Cape Breton has seen in recent years. In considering room night sales from 2012 to 2015 (looking at the months of May to October), Cape Breton Island saw a 6.7% increase, while mainland Nova Scotia saw only a 2.7% increase. She also said that from May to September of 2016, room night sales grew 13.3%.

In considering the future of tourism in Cape Breton, Ms. Tulle noted that Millennials as travelers are an important group to target. They have the desirable Explorer Quotient, and they see travel as part of their personal growth. They seek social and experiential travel experiences, and they want to experience local cultures. They value authenticity and are environmentally conscious. They are willing to pay more for sustainable products and services, and show a preference for mass transportation and biking over travel by car.

Ms. Tulle listed what she believed were sustainable tourism practices for the Bras d'Or Lakes:

- Continue to promote and help build product that stays true to our core experiences.
- Continue to promote and incorporate the Bras d'Or Lake as a UNESCO Biosphere Reserve into marketing efforts
- Acknowledge the importance and encourage best practices around eco-conscious tourism activity within the Bras d'Or Biosphere.

Ms. Tulle accepted questions from the audience.

Question: There are five First Nations communities in Unama'ki. Eskasoni Cultural Journeys promotes Eskasoni. What are the promotional efforts for the other communities?
Mary Tulle: Robert Bernard develops programs for Wagmatcook. Membertou has the Cultural Centre. Potlotek has just gotten approval to move forward with some new programming. I am not sure what Wekoqmaq is currently doing.

Question: Have any efforts been made to work with Gampo Abbey in Bay St. Lawrence to attract visitors?

Mary Tulle: Yes. Three years ago when we started developing tourism packages, they connected with us and began offering tours at 2:00 PM every day. Ten of us were invited on June 20\textsuperscript{th} to experience their smudging ceremony during the full moon that fell on the summer solstice. They have been very receptive and have connected directly with us.

- **Best Practices: Joella Foulds, Celtic Colours**

Joella Foulds said that the Celtic Colours International Festival had just completed its 20\textsuperscript{th} year. She explained that the Celtic Colours International Festival happens for nine days in October on Cape Breton Island. It features not only concerts but also dances, workshops, community suppers, etc. Up to 60 communities are involved and over 100 community organizations. In 2016 there were 49 performances and 280 community events. 20,568 tickets were sold in 2015 for just the music concerts. This provides a full cultural experience for those attending the Festival.

Ms. Foulds presented a chart that showed how the festival has grown over the years. (Fig. 4)

Ms. Foulds next discussed the concept and model that makes Celtic Colours a sustainable event, which she attributed to the Festival being decentralized, offering an authentic cultural experience. She emphasized that the Festival is a Cultural Festival above all. The name of the Festival refers to the Scottish culture that was the source of the most immigrants to Cape Breton Island. October was chosen because of the beautiful fall colours on display, symbolic of all the colours of the different cultures that live in the region, and so as not to interfere with all of the established summer events.

She said that the partners and stakeholders in the festival included:

- Artists and Culture Bearers
- Communities and Non-Profit Community Groups
- All levels of Government
- Corporate Sponsors
- The loyal audience
- Volunteers
- Media
- Educational and Cultural Organizations
- Tourism Industry Businesses and Associations

There are four reasons Ms. Foulds gave for why the model for the Festival works: it is authentic, meaningful partnerships are created, communities buy-in to the concept and take
Ms. Foulds said the Festival has helped to extend the Cape Breton tourism season, it has given an economic boost to the communities, it has placed our culture on the world stage and it engenders a sense of community pride.

The Celtic Colours Festival supports development at a community level, culturally and economically. At a community level, communities learn skills that they can apply elsewhere, year-round. It brings communities together to work toward a common goal, and allows them to make money. Venues are sustained and improved. Ms. Foulds also highlighted that volunteers are critical to the Festival. She said that in 2015, 28,507 volunteer hours were contributed with an estimated value of $427,605.00.

The value was highlighted regarding cultural development. Cape Breton living culture gets international recognition. Our active artists are able to make a living at what they do, touring nationally and internationally. It shows our young people that our culture is a viable career, even staying here to work in the culture sector. The Festival also helps to support culture sector companies so that they grow and are sustainable, and it helps cultural organizations work together.

In considering economic development, Ms. Foulds noted that the Festival has helped to extend the tourist season in Cape Breton, and thus extending tourism sector employment. Spending
by Festival attendees has grown to approximately $11.5 million in 2015. The Festival has helped to make Cape Breton a well known cultural tourism destination, bringing visitors from over 30 countries.

Ms. Foulds talked about the Festival's plans moving forward, and said they would continue to focus on gradual, incremental growth, while maintaining cultural authenticity. The Festival will continue to use niche marketing and word of mouth for promotion. It is also the goal to support and nurture youth involvement in our culture.

Ms. Foulds said she would welcome questions from the audience.

Comment: Just as those with a Celtic background can best contribute to promoting Celtic culture, the Mi'kmaq would be the best suited to give guidance on promoting the Mi'kmaq culture. We would like to enter into a spirit of collaboration and co-learning.

Joella Foulds: We would welcome that. When we first started Celtic Colours there was pressure to do things that were not authentic to the culture, and we resisted, and First Nations people should do the same. The continuing organizers of the Festival would love to have First Nations communities be an even bigger part of the Festival. Germany is a potential market that has an interest in both Celtic and First Nations culture.

Comment: As a suggestion, a simple mention that October is our Aboriginal Month would be helpful.

Joella Foulds: That is a great suggestion, thank you.

- **Best Practices:** Captain Greg Silver, Cape Breton Sailing Charters

  Captain Silver explained that he operates an eco-tourism business on the Bras d'Or Lakes, namely sailing charters. He said his comments are based solely on his personal experience. His business is based near St. Peters, and he operates day sailing charters for up to six people per trip. He said his business model is to offer visitors a hands on experience.

  To explain what eco-tourism is, Captain Silver quoted a couple of definitions. He said a Google search resulted in the definition: "Tourism directed toward exotic, often threatened, natural environments, especially to support conservation efforts and observe wildlife." The International Ecotourism Society gives the definition: "Responsible travel to natural areas that conserves the environment and improves the well being of local people." And in 2015 the International Ecotourism Society updated the definition to: "Responsible travel to natural areas that conserves the environment, sustains the well-being of the local people and involves interpretation and education." He said by the latter definition, we are attracting the right kind of people and using a business model that benefits local people. Cultural Explorers and Authentic Experiencers have been identified as a top market to target for tourism. Captain Silver highlighted further aspects of Eco-tourism:

  - It is a form of tourism involving visits to fragile, pristine and relatively undisturbed natural areas
- It is a low impact, small scale alternative to standard commercial tourism
- It is locally owned, managed and operated.
- It provides education to the traveler.
- It may provide funds for ecological conservation to directly benefit economic development of local communities

He also highlighted that ecotourism strives to provide future generations with destinations that haven't been spoiled by human intervention. There is also intent for both parties to be educated, the visitor and the tourism operator.

Captain Silver said that ecotourism typically involves travel to destinations where the primary attractions are flora, fauna and cultural heritage, which the Bras d'Or Lakes has an abundance of. In addition, we have the designation of the UNESCO Biosphere Reserve as a further enticement.

Captain Silver next explained how he runs his business. He said that 99.9% of his marketing happens on the internet. He said he maintains a presence on other portals, but they all lead back to his website, where visitors can see lots of pictures and descriptions of what is offered. Also, the ability to book online is important, as the website can work for you while you sleep or are out of the office providing your service. This is also convenient for the customer.

Captain Silver explained how he endeavours to provide a very personal and hospitable experience for the client. He involves the client in the experience as much as possible, to the level they desire. A meal during the tour is very important.

In looking at his business with a view to sustainability, Captain Silver said that in his particular experience:

- Start up costs were low, since he used existing resources.
- He looks forward to doing it because he loves doing it.
- His business brings the right kind of people, responsible travelers, looking for quiet, authentic experiences
- The benefits extend throughout the community: food, accommodations, etc.

Looking at the future, Captain Silver said he doesn't have much ambition to grow the business because he hopes it will be more of a retirement occupation. However, he said he does see it as a growing opportunity for young people with similar lifestyles and goals, who can be passionate about what they do.

Keith MacDonald opened the floor for questions.

Question: We have found many Millennials are interested in an authentic Mi'kmaq experience. They would like to tour our sacred sites. We have the largest number of petroglyphs in the world. We have the earliest history of contact in the world, and a strong oral tradition. They would enjoy hunting and trapping and gathering medicines, and learning about our culture. But it is difficult for visitors to get past the stereotypical aboriginal experience. Wouldn't you say that any development that classes
itself as authentic should have the consent of the aboriginal people? Do you think that some sort of Certificate of Authenticity would be interesting to people? Would you consider an authentic aboriginal strategy directed specifically at the Millennials? If we are going to support a UN designation for the work you are doing under the guise of economic development and opportunities, can we do it in a way that celebrates the original people from this area and say that all of us have an obligation to promote the original people?

Captain Greg Silver: You are talking about amazing opportunities, not only for yourself but to partner with other people.

Mary Tulle: On December 4th, a new National Tourism Strategy with a focus on Aboriginal Development is going to be launched. The President of Destination Canada is going to be speaking specifically to this at the Aboriginal Tourism Conference.

Comment: You expect business to carry the theme, but we expect our Mentors to carry the theme. They can be linked to your tourism clients.

15:05 Nutrition break

15:15 Conference reconvened

**Sustainable Practices Discussion – Renewable Energy**

- **Introduction:** Ian MacNeil, Emcee

  Mr. MacNeil introduced the session panelists, Dr. Judith Lipp, Gloria Hill, William Marshall and the session moderator, Dr. Michelle Adams.

- **Moderator:** Dr. Michelle Adams, Dalhousie University

  Dr. Adams said that a number of questions had been submitted by the audience, and these would be addressed by each presenter. Some of the questions will be addressed by the entire panel.

- **Context Presenter:** Dr. Judith Lipp, TREC Charitable Foundation

  "Renewable Energy for a Sustainable Future"

  Dr. Lipp said her perspective on renewable energy is based on community participation. She said her interest in renewable energy sprang from a desire to leave the world a better place, and that it represents a solution. She also said she believed switching completely to renewable energy was 100% doable within a generation because the technology exists. All that is needed is the political will.

  Dr. Lipp said her background was with a charity operating out of Ontario called Toronto Renewable Energy Cooperative (TREC) Education. The mission of TREC is to build community owned renewable energy projects.
Dr. Lipp said that community led renewable energy projects are a model of sustainability. Communities initiate the project themselves or partner with corporations, leading to positive social, environmental and economic returns.

Renewable energy was defined by Dr. Lipp as energy that comes from earth, air, water or fire. It is a source of energy that is quickly replaced and is usually available in infinite supply. Examples are solar panels, wind turbines, biomass which can be combusted to produce energy, geothermal systems, and water. Renewable energy projects vary in scale. This is contrasted with non-renewable energy which is energy generated from sources that is not replaced. Dr. Lipp explained that currently 97.7% of the global energy demands are satisfied by non-renewable sources, 41% by coal alone, while renewable sources make up 2.3% of the global power supply. In Nova Scotia, 54% of our energy needs are fueled by coal, but the goal is to reach 40% renewable energy sources by 2025.

Technology has reached the point where the traditional model of centralized power distribution is not the only option, and a transition is happening to clean, local power. One reason for this transition, said Dr. Lipp, is a steady decrease in the cost of renewable energy compared to traditional options like oil. Renewable energy is a growing industry, and last year job growth in this sector outpaced every other sector. Dr. Lipp acknowledged that many First Nations communities in Ontario and Nova Scotia are developing community renewable energy projects.

Dr. Lipp also pointed out that there are more jobs created per dollar invested in renewable energy as compared to traditional industries like oil and gas. There is an entire range of employment opportunities available in the clean energy sector, from conservation to environmental assessment at the beginning of a new project, through construction and maintenance.

In considering the challenges to clean energy, Dr. Lipp pointed out that all projects are currently dependent on government policy. Traditional industries are resistant. The renewable energy industry has been cyclical so far, with surges and lulls in development.

Moderator Dr. Michelle Adams next polled the audience and asked them to respond using the Clicker remote.

**Question: Renewable Energy can be a viable sector supporting sustainable economic development in the Bras d'Or region.**

- a) Strongly agree: 67%
- b) Agree: 27%
- c) Neutral: 0%
- d) Disagree: 0%
- e) Strongly disagree: 6%

Dr. Michelle Adams next relayed a question from the audience.
Question: What steps can be or are already being taken to further the opportunities and benefits realized by First Nations communities with regards to pursuing renewable energy projects?

Dr. Judith Lipp: Community based renewable energy projects build capacity in the community, and much of that capacity needs to be built before construction begins. In Ontario, the government recognized that and provided funding to assist community members to develop the necessary skills. The experience is there and people need only take the opportunity to bring those people together and listen.

**Best Practices: Gloria Hill, Appleseed Energy**

Gloria Hill said her company, located on Janvrin Island, Nova Scotia, has been in operation for seven years. Appleseed began by marketing domestic wind turbines, and also had some success with solar thermal systems. The company has now focused on solar photovoltaic systems. Ms. Hill said the systems are affordable, with little maintenance, long useable life and good warranties, resulting in good customer satisfaction.

Ms. Hill explained how solar pv technology works: Light strikes the solar cell, knocking electrons loose from the atoms of the semi-conductor material. If an electric current is formed, the electrons can be captured to create Direct Current (DC) power. A solar panel is made of many solar cells. The DC power can be used as is or inverted into AC power to be compatible with the existing power grid.

Ms. Hill used her own home as an example, a 28' x 46' bungalow built with insulated concrete forms and a full in-law suite in the basement. The dwelling is entirely electrically powered, with an air to air heat pump. Ms. Hill explained that she had 39 solar panels on her roof. The system costs $27,500.00 + tax to install. The pay back is anticipated to be about 12 years. The system has a 25 year warranty, with an expected lifespan of 30+ years. The system generates approximately 11,600 kWh per year, which translates to about $1,760.00 at NS Power rates. The agreement with Nova Scotia Power is they will buy any excess electricity produced by the system for the current rate. The system can be monitored online.

Ms. Hill said that off grid systems are available as well.

Dr. Michelle Adams related a question from the audience:

Question: What is the greatest misconception about solar energy that you encounter?

Gloria Hill: Many people feel the systems should be cheaper, and there should be incentives provided by levels of government, and they are surprised that doesn't exist in Nova Scotia. Nova Scotia Power needs to get on board with renewables and partner in projects.

Question: What opportunities are there for employment? Does your team manufacture and install the systems? What is their educational background?
Gloria Hill: I am a co-owner of the company, and I look after the administration side. My partner Brian is the installer, and he has a crew of people that work with him. We hire electricians as needed. Brian has been living off grid for 15 years and has gained a lot of experience. We have taken courses. Our employees are savvy, with skills and training.

Question: Are you storing your energy, and do you have any experience with the new Tesla batteries?

Gloria Hill: I don't store my power. I am connected to the grid and sell my power back to Nova Scotia Power. In essence, they store my power for me at 100% efficiency. There are a number of battery systems coming to market. In a few years I anticipate a revolution in how solar power is stored and handled. Eventually Nova Scotia Power will stop buying at full rate. Instead the future is going toward the customer storing the power in batteries that Nova Scotia Power can draw from when needed, like at peak times.

The Moderator Dr. Michelle Adams next polled the audience.

Question: Our youth can access the skills and knowledge needed to engage in and support development of a renewable energy sector in the region.

a) Strongly agree: 33%
b) Agree: 17%
c) Neutral: 19%
d) Disagree: 29%
e) Strongly disagree: 2%


Mr. Marshall said that in considering renewable energy, one must first consider what the best investment is. Many economic factors come into play in calculating the value of an investment.

In the decision making process, the first step is recognizing the problem and the decision that needs to be made. The second step is about defining goals and objectives; what would constitute a positive result? Third, relevant information must be collected. Fourth, feasible alternatives should be considered. Lastly, the choices must be weighed and measured.

Some of the drivers for considering renewable energy are: climate change, escalating fuel costs and the unsustainable wasteful culture we live in.

Mr. Marshall said that conservation is a first step to take before installing renewable energy systems. Lowering operating costs, proper maintenance of older equipment, controlling waste and being socially responsible need to be considered.

The key goal is to reduce GHG emissions, and we need to think about long term sustainability. We need to promote responsible stewardship of resources.
In considering renewable energy for your home, Mr. Marshall said there are some questions to consider. What are your current and future energy needs? What energy sources are currently available? What are the sources of consumption? (domestic hot water, space heating, etc.) How much is spent on repairs and maintenance? Are we comfortable? How much do we waste? Where should we invest, and what is the return on investment? Many people only consider the initial cost, and not the cost over the life of the system or equipment.

Mr. Marshall said that to operate sustainably, we must have clear targets and goals. We need to make decisions with facts. We must do regular preventative maintenance so that systems operate at peak efficiency and do not break down prematurely. We need to identify areas of waste. Ultimately, the triple bottom line must be considered (the social, environmental and economic impact).

Mr. Marshall noted that energy efficiency and renewable energy go hand in hand. Renewable energy is a growing job market. He also said that pursuing renewable technology as a community is a great way to spread the cost.

Dr. Michelle Adams asked the panel: What is the role of local educational institutions in helping facilitate the transition to renewable energy?

William Marshall: We certainly need their support, but a lot of these skills can be learned on the job so we need community buy in and commitment.

Dr. Judith Lipp: Educational institutions can't create the jobs, but they can train people once the jobs are there. Otherwise people will get trained and then go elsewhere to work. Once communities pull together and start to insist that these projects exist, government will start to put policy in place which will lead to jobs.

Ian MacNeil thanked the day's session participants and the audience for their attention.

16:46 Afternoon session adjorned.
Day Two – Morning Session

09:00 Morning session convened

Welcome and Day 1 Outcome Overview: Dan Christmas, Emcee

Dan Christmas welcomed everyone to the second day of the Conference. He commented that the previous day had been a great start to the conversation.

In reviewing the presentations from the previous day, Mr. Christmas said he appreciated very much the effort the young people had put into preparing for the Conference. He said he was struck by the survey statistic that 41% of young people had left Cape Breton because there were no jobs, with the online survey revealing 53% had left for the same reason. He also noted the ask from the young people that they organize their own conference in 2017, and he said he would work toward this, and CEPI as an organization would also support this.

Mr. Christmas praised the use of the Clicker remotes for participating in the Conference, because it allowed every person's voice to be heard. He noted that Ken Oakes had already sent the results of the polls to the Conference Task Team, and he thanked Dr. Oakes for organizing the technology to accomplish that.

Mr. Christmas said it was gratifying to see that 25% of people responding to the poll question were aware that the Bras d'Or Lakes were designated as a Biosphere Reserve. He thanked Dr. Jim Foulds for his informative presentation of what a Biosphere is.

Mr. Christmas said it was exciting to hear from Mary Tulle that tourism is growing in Nova Scotia and especially on Cape Breton Island. He said when he had participated in preparing the Ivany Report, one of the recommendations was to double tourism in Nova Scotia, and so it was good to see this trend with Cape Breton leading the way. He also commented on the encouraging report from Joella Foulds about the growth for the Celtic Colours Festival, and he especially highlighted her comment that involvement of young people is needed for continued growth. Mr. Christmas reminded the audience that two Mi'kmaq attendees yesterday had expressed interest in being more involved in the tourism industry. And he noted that again in Greg Silver's presentation, there was presented an opportunity for young people to get involved.

Mr. Christmas said it was significant that the renewable energy panel had emphasized that there are jobs in clean energy, and it is outpacing other types of jobs. It was also pleasing to note the Mi'kmaq renewable energy projects where First Nations were producing more energy than their community required. He said that the new rink that had just opened in Membertou did not use fossil fuels, but was run with geothermal power. Mr. Christmas said it was interesting to hear the installer's perspective from Gloria Hill, and acknowledged that he was a customer of Appleseed Energy. William Marshall presented his engineering perspective and took a critical look at the decision making process for renewable energy.
Lastly, Mr. Christmas commended the Bras d'Or Lakes Biosphere Reserve Association for the film that was screened the previous evening during dinner, highlighting the work with oysters in the Bras d'Or Lakes by men like Charlie Dennis.

Mr. Christmas then reviewed the agenda for the second day of the Conference.

**Sustainable Practices Discussion – Fisheries and Aquaculture**

**Introduction:** Dan Christmas, Emcee

Mr. Christmas noted that although Fisheries and Aquaculture are related, they are two very different topics.

Mr. Christmas introduced the panel participants: Moderator Bruce Hatcher, Shelley Denny, Paul Gentile, Charles Thompson, Bruce Hancock, Robin Stuart and Robert Cotton.

**Presenter:** Dr. Bruce Hatcher, Cape Breton University

"The CONTEXT of Fisheries & Aquaculture Development in the Bras d'Or Lake Biosphere"

Dr. Hatcher began by giving an overview of the geological history of the Bras d'Or Lakes. He said that human use of the Bras d'Or Lakes for food began with gathering, leading to hunting then eventually cultivation. He called it a relatively young ecosystem, and 4,500 years ago nomadic peoples began frequenting the area. Around 200 years ago with the Industrial Revolution and as European colonization of the area began to increase, so did the environmental effects. Within the last 50 years, Dr. Hatcher said that anthropogenic climate change has accelerated the instability of the ecosystem.

Dr. Hatcher noted all the fish species that have declined or completely disappeared in the Bras d'Or Lakes, to the point that there is really no commercially viable species left. Where did the fish go? He said there is no concrete answer, but the likely explanation is over exploitation, recruitment failure (supply of larvae), starvation and malnutrition, range expansion and invasive species, habitat alteration (damage or destruction, including the watershed) and ocean regime shifts.

Dr. Hatcher posed the question: How much fish production can the Bras d'Or ecosystem support? He explained that the amount of water movement in the Lakes varies from place to place, with parts of the Lake taking months to almost two years to completely flush and exchange water, and parts of the Lake even being "dead zones" with no water movement at all, leading to limited inputs of nutrients from the ocean. He said the conclusion is that the estuary has a lower capacity for fish production than it did a century ago.

In considering where to go in the future, Dr. Hatcher said the choices are whether to try and rebuild the capture fisheries or abandon them, try to develop an aquaculture industry, or try to do both rebuilding the capture fishery and aquaculture. Should food sources be added to the Lake to
increase fish production? He also noted that the future results of climate change on the ecosystem are unknown.

- **Best Practices:** Paul Gentile, Fisheries and Oceans Canada

"What Now? On and Around the Bras d'Or Lakes"

Paul Gentile gave a brief overview of his Department and the Maritimes Region looked after by his office. He noted that the Bras d'Or Lakes is a small but important part of the area under the concern of DFO.

Mr. Gentile said the Fishery in Nova Scotia is a large economic contributor. It is consistently ranked top five in terms of jobs and economic output. He said in the last 25 years, the Fishery in the Maritimes Region has expanded three times, with a shift to a focus more on shellfish and particularly lobster. During that same 25 year period, the focus has been more on sustainability, and he said that international markets demand some recognition of a sustainable fishing plan. Mr. Gentile said that 85% of commercial fishing is certified by the Marine Stewardship Council.

Mr. Gentile noted that recreational fishing results in over $60 million dollars in expenditures in Nova Scotia each year.

Aquaculture is also regulated by Fisheries and Oceans Canada. It is a growing industry and the focus is on sustainability. In Nova Scotia it had become a $75 million dollar industry by 2014.

Paul Gentile next talked about where the Bras d'Or Lakes fit in the picture. He noted that the area suffers from challenges. There is limited commercial fishing activity in the Lakes. Mainly the catch is lobster, and the majority of that is from First Nations fishers. Mr. Gentile noted that for the last two years First Nations have decided not to fish lobster in the Lakes to reduce pressure on the species. The Commercial Oyster Industry, which was very promising 20 years ago, has been challenged by MSX and invasive species.

Mr. Gentile next considered the sustainable practices that Fisheries and Oceans Canada recommended for the future. The Department is expanding its Marine Protected Areas. Science and research is very important, including invasive species. Mr. Gentile said Fisheries and Oceans was particularly proud of its work in the Bras d'Or Lakes with First Nations and UINR regarding the oyster species. Six oyster sanctuaries have been established in the Lakes.

Mr. Gentile gave an overview of the current perspective of Fisheries and Oceans regarding the Bras d'Or Lakes:

- Although commercial activity is limited, it is done in a sustainable way and is important to those doing it, so it has value.
- Science and research has value
- Marine protection has value
- Aquaculture is challenging, but it has value
- The recreational use of the Bras d'Or Lakes has value
He noted that it was determining the correct mixture of these elements that would promote sustainability.

- **Best Practices:** Charles Thompson, Middle River Watershed Society

Mr. Thompson described himself as a keen angler, and said he had worked for DFO for 32 years.

Mr. Thompson noted that the herring, cod, flounder, lobster and the commercial oyster fisheries are disappearing or are already gone. This has happened despite efforts to intervene by government. Mr. Thompson said that now his focus is on the recreational fishery.

He explained that in the Bras d'Or Lakes there is a significant recreational fishery for cod, brown, brook and rainbow trout and striped bass. He noted that striped bass and brown trout are actually considered invasive species to the area. Trout fishing is growing in popularity, with the possibility of becoming economically lucrative. Since it has potential, Mr. Thompson said the question is how much do citizens of the Bras d'Or Lakes want to expand it? It is an opportunity for First Nations to promote a recreational fishery.

Mr. Thompson stated that climate change is real. He noted that user groups have to look to the future, not lament what was. There are possibly more recreational fishing opportunities than there ever was before, as trout are abundant. The situation can be considered unique in Eastern Canada.

Dr. Bruce Hatcher noted that there are many places in the world where the value of the recreational fishery completely surpasses the value of the commercial fishery. He also said that many areas use recreational fishing as a tool to control invasive species, such as with lionfish on the east coast of the United States.

- **Best Practices:** Bruce Hancock, Nova Scotia Fisheries and Aquaculture

"Nova Scotia Aquaculture – Identifying Opportunities for Balanced Growth in the Bras d'Or Lakes"

Mr. Hancock noted that the Province issues licenses and leases for aquaculture operations and the Province is the lead regulator for the sector. Currently there are 70 licenses issued in the Province, 63 for shellfish (primarily oyster) and 7 for finfish sites. He noted that the vast majority of these sites are inactive, particularly with shellfish. The commercial landings from these sites is less than $2,000.00 annually. Essentially there is no commercial oyster aquaculture industry in the Bras d'Or Lakes right now. Efforts are underway to see this industry re-established.

Before the MSX parasite, Mr. Hancock said the vast majority of oyster catch in Nova Scotia, both wild and cultivated, was from the Bras d'Or Lakes. The Bras d'Or Lakes was on the cusp of developing a significant oyster industry when the parasite hit. The eastern seaboard of the United States has been dealing with MSX for 60 or 70 years so they have been developing strategies to deal
with it, with the result that they have built a strong oyster aquaculture industry. That gives hope for the Bras d'Or Lakes. The Province is actively putting resources into the issue and funding research to re-establish the oyster aquaculture industry in the Lakes. The Nova Scotia government has identified it as a priority industry.

Mr. Hancock said there were three things necessary for growth of the aquaculture industry:

- Public Trust and Investor Confidence
  > changes have been made to the regulatory framework to encourage growth
  > better communication regarding lease and licensing, allowing the public to comment on Department decisions
  > increased funding to research and development to ensure science based decision making

- Access to Productive Sites
  > working with license holders to maximize production from existing sites
  > new regulatory framework will help with approval of new sites

- Industry Support
  > Business development tools
  > Access to working capital
  > Technical support (biologists and fish health veterinarians on staff)
  > Making funds available for targeted research and development initiatives
  > Advanced planning. Not just reactive, but proactive and engage with communities that are interested in aquaculture development and help map out a strategy. Better decision making tools are available.

Mr. Hancock said that the department is encouraging initiative. He believed the Bras d'Or Lakes was ripe to begin that advanced planning process.

He summarized by saying that aquaculture has been going on in the Bras d'Or Lakes for over 40 years. It can be considered the birthplace for aquaculture in Canada. There is potential for further development. The development can't be done at the expense of the environment and other users, but advanced planning provides an opportunity for informed and balanced development.

Dr. Bruce Hatcher mentioned that the first aquaculture study in Canada was done in the Bras d'Or Lakes in 1975.

- **Best Practices**: Robin Stuart, Marine Biologist

  "Aquaculture in the Bras d'Or – A Sustainable Way to Produce Food & Jobs"

  Mr. Stuart said he had been involved in aquaculture for 43 years. He confirmed that commercial aquaculture in Canada had its start in the Bras d'Or Lakes. The first international aquaculture conference was organized by the Bras d'Or Institute at the Isle Royal Hotel in Sydney in
1975. There is a lot of history with all different methods and species, and Mr. Stuart said that the opportunities are still available.

Mr. Stuart said he believed that the people who live in the area should be the ones to develop the industry, with First Nations being a key component.

Mr. Stuart related examples of current aquaculture operations in the Bras d'Or Lakes, such as trout farming in Wekoqmaq. He told of Joe Googoo, currently the only oyster farmer in the Bras d'Or Lakes that is growing oysters effectively in the presence of MSX, with less than 2% mortality over two years. This is providing jobs and what is a long term sustainable opportunity. Mr. Stuart said he would love to see more research and site trials take place. He said he is encouraged by other efforts elsewhere to develop MSX resistant strains of oysters, by taking survivors and using them as brood stock. He cautioned against going too big too quickly with encouragement from government programs. Experience has shown that off bottom aquaculture is the most successful method. Adaptive management is the key, as each area has its own characteristics.

- **Best Practices:** Shelley Denny, Unama'ki Institute of Natural Resources

  "Msit No'kmaq"

Ms. Denny said that at UINR, traditional Mi'kmaq knowledge and Two-Eyed Seeing is greatly valued, and she endeavours to use this knowledge to improve fisheries governance. She said all knowledge is based on a knowledge system which has multiple elements. It is often the differences in elements of different knowledge systems that create barriers to collaboration. Aboriginal peoples are often seen as environmentalists or conservationists, wanting to protect the land. Ms. Denny said she would like to explain the "why" of the Mi'kmaq perspective.

She said there is a Mi'kmaq expression, "Msit No'kmaq" that literally translated means "All my relations." It describes an existence beyond one's being. The Mi'kmaq story explains that the Mi'kmaq were created simultaneously from and with the earth, and their ability to survive was derived from people, plants and the elements. Kluskap was the Creator's firstborn, but did not become human himself until life was formed and human life created from non-human life. Relations between living and non-living are critical to survival. Next Kluskap's Grandmother was created, to guide him with wisdom and knowledge. Msit No'kmaq recognizes a kinship to the animal word, a reciprocal relationship. It also recognizes a responsibility to our relations, today and tomorrow.

Ms. Denny challenged the audience to examine their own knowledge system, and to look at the world with an eye to relationships.

- **Panel Member:** Robert Cotton, Fish Farmer

Mr. Cotton noted that a lot more is known about fisheries and aquaculture than was known 25 years ago. There is real opportunity for growth, and now we are equipped with more tools than ever before. Mr. Cotton said he agreed with Robin Stuart that aquaculture projects should be grown slowly. He said farming is more than just the money; it is about a way of life and a mentality.
Moderator: Dr. Bruce Hatcher, Cape Breton University

Dr. Bruce Hatcher reflected on the presentations and said he was encouraged to hear that there was a future for salmonids, both in commercial and recreational fishing and aquaculture, as well as futures in other types of aquaculture. He noted there was an attitude about "right sizing" our investments of time and energy and knowledge, and a strong desire to do things guided by ancient wisdom.

Dr. Hatcher opened the floor to questions.

Question: I would like to hear more about the recreational fishery in the Bras d'Or Lakes.

Chuck Thompson: We have a very unique recreational fishery in the Bras d'Or Lakes, in terms of trophy fish and amount of fish. There is salmon fishing, but trout fishing has amazing untapped potential. There is not a lot of organization.

Alan MacNeil: The Province feels there is tremendous potential for a recreational fishery. Currently about 3% of our anglers are from out-of-province, which is about the lowest in Canada. Blue Fin Tuna is another opportunity, which has become popular internationally. We have just commissioned a study that is soon to be released looking at the issue of fishing and tourism.

Question: I am interested in aquaculture opportunities in the major rivers that feed into the Bras d'Or, like Middle River, with respect to trout and salmon production.

Robin Stuart: Bobby Cotton has operated a fresh water hatchery near St. Peters for many years. It is one of the first hatcheries in Canada. The opportunities are there. They could enhance the stocks.

Bruce Hancock: We currently have 24 licensed hatcheries throughout Nova Scotia. There are hatcheries in Cape Breton, and if more hatcheries were identified as being beneficial we would support that.

Question: So if somebody was interested in developing a sport fishery, say from a First Nation community, who should they be talking to?

Paul Gentile: There is always jurisdictional handshaking that takes place when salt water meets fresh, but in this case if someone were thinking about starting this type of enterprise, they should first talk to a business development bank. The Province handles licensing for fresh water species, so it would just be a matter of applying for the proper licenses for the species being sought.

Robin Stuart: A lot of players should come into play in that kind of endeavour, recreational fishing associations, science, etc. The mechanism hasn't been put in place here, but it is something to look into.

Shelley Denny: There are conflicting values and beliefs to consider. If species numbers were low, First Nations would not endorse a catch and release type of fishery. First Nations would have to be consulted through the Assembly of Nova Scotia Chiefs.
Comment: The deteriorating quality of the fish that you mentioned is a situation we see around the world. We still see fish only as a human resource for food. One fundamental problem we have is we have cut 50% of our trees in the Bras d'Or area. That has a devastating impact on the watershed. Research needs to be done on how serious that impact is. CEPI is an important organization that needs to be expanded to have an equal voice in Provincial policy. The eyes of all cultures should be considered in the discussion.

Paul Gentile: I would like to speak to that idea of trying to find a collaborative way to gather information and knowledge so that we as regulators can develop policy. In terms of fisheries management, there has been an attempt over the last two decades to create advisory bodies that try to encapsulate the entire chain of people that are impacted by those activities: harvesters, processors, marketers, etc. We have a significant voice from First Nations and other levels of government. As a result we have seen a shift toward sustainability, and certification by outside parties that best practices are being upheld. It is challenging, because there are so many opinions, and it is hard to distill that into policy.

Dr. Hatcher now asked the audience to use their Clickers to answer some questions.

**Question 1: What have Fisheries and Aquaculture contributed to the economies (private, public, social, cultural, and natural) of the Bras d'Or?**

- a) We would have no society without them: 19%
- b) A lot in the past, but very little now: 39%
- c) A lot to some economies, nothing to others: 22%
- d) Fisheries a lot, aquaculture a little: 7%
- e) Aquaculture a lot, fisheries little: 4%
- f) No place for commercial seafood industries: 7%

**Question 2: What have been the cumulative economic, ecological and social COSTS of Fishing and Aquaculture in the Bras d'Or?**

- a) Insignificant compared to the benefits derived: 14%
- b) About the same as the benefits derived: 35%
- c) Unacceptably high compared with the benefits derived: 21%
- d) It has been a disaster!: 6%
- e) I don't know: 25%

**Question 3: Are there concerns about overfishing?**

- a) Yes, overfishing is a widespread problem: 44%
- b) Yes, for some species: 48%
- c) Don't know: 5%
- d) Very few: 3%
- e) None: 1%
Question 4: What potential does Fisheries and Aquaculture have to contribute to the sustainable economy of the Bras d'Or?

a) They are our only salvation: 2%
b) They have an important role to play: 79%
c) A role for Fisheries, but not Aquaculture: 3%
d) A role for Aquaculture, but not Fisheries: 6%
e) Allow recreational Fisheries only in the Bras d'Or: 10%

Question 5: What sustainable practices are best employed to manage seafood production in the Bras d'Or?

a) Precautionary approach to development: 27%
b) Build small-scale, co-operative enterprises: 39%
c) Allow no net loss of fish habitat: 19%
d) Fallow-rotate suspended farms: 5%
e) Land-based culture: 10%

Question 6: How can fish and fisheries be restored in the economy of the Bras d'Or Biosphere?

a) A Bras d'Or no-take Marine Protected Area: 13%
b) Cease ALL fishing of depleted stocks: 28%
c) Integrated management of river catchments: 38%
d) Massive hatchery restocking: 12%
e) Install artificial reefs: 2%
f) Nutrient fertilization: 7%

Question 7: What is the appropriate development of Recreational Fisheries in the Bras d'Or economy?

a) RecFish has the greatest economic potential: 22%
b) Promote RecFish for nuisance species: 20%
c) Introduce new species of high value: 3%
d) RecFish must be strictly managed: 44%
e) RecFish compromises other fisheries: 6%
f) No place for RecFish in the Bras d'Or: 4%

Question 8: Is aquaculture really sustainable?

a) Yes, it has been proven elsewhere: 31%
b) It can be, but often is not: 46%
c) Don't know: 11%
d) Rarely, because ecological sustainability is expensive: 11%
e) Never: 2%

Question 9: What is the appropriate development of Aquaculture in the Bras d'Or economy?
a) Aquaculture has the best economic potential: 8%
b) Designate aquaculture development area: 30%
c) Zone for polyculture: 19%
d) Aquaculture must be strictly managed: 33%
e) Aquaculture compromises fisheries: 4%
f) No use of imported feeds: 5%
g) No place for aquaculture in the Bras d'Or: 1%

Question 10: What is the role of Aboriginal Food and Ceremonial (F&C) Fisheries in the Bras d'Or economy?

a) Aboriginal fisheries are a priority in the Bras d'Or: 41%
b) F&C Fisheries are sustainable practices: 23%
c) F&C Fisheries have no negative impact: 8%
d) F&C Fisheries must be strictly managed: 25%
e) F&C Fisheries compromise other Fisheries and Species at Risk: 2%

Question 11: Fishing and Aquaculture activities minimally impact the Bras d'Or Lake Watershed

a) Strongly agree: 10%
b) Agree: 28%
c) Neutral: 25%
d) Disagree: 28%
e) Strongly disagree: 9%

10:59 Nutrition break.

11:19 Conference Reconvened.

**Sustainable Practices Discussion – Mining**

- **Introduction**: Dan Christmas, Emcee

  Mr. Christmas introduced the session on mining by saying that we should look at the topic of mining with fresh eyes. He introduced the session panelists: Context Presenter Fred Baechler, Dr. Martin Mkandawire, Byron MacMillan and session Moderator Ken Oakes.

- **Moderator**: Dr. Ken Oakes, CBU

  Dr. Oakes said that mining has a long history in Cape Breton. In the 1700's coal was needed during the construction of the Fortress of Louisbourg, and it was collected from the cliffs in Cow Bay, what is now known as Port Morien. The coal in Cape Breton was at one time about 40% of Canada's total output, and in 1923 totaled 3.5 million tons per year. It was critically important to the development of Canada, as it fueled the industrial development of Central Canada not just with coal but also the steel that was produced from the coal and the trans-Canada railway.
The environmental impact of mining in the past is well known. Dr. Oakes spoke of the example of silver mining in Cobalt in northern Ontario in the early 1900's. Tens of thousands of tons of silver were shipped from the mines by railway. But by the 1920's most of the mines in Cobalt were closed, and the area forgotten. The landscape is scared by arsenic contamination and abandoned mine works. The mining companies and workers moved on leaving behind social and economic devastation, plus vast amounts of waste rock and contaminated water. Even with strict environmental guidelines today, accidents do happen, such as at Mount Polley Mine in British Columbia in 2014.

However, Dr. Oakes pointed out that mining provides us with everything from the metals in our cell phones to the gypsum that makes the walls of our buildings, giving us the lifestyle we have today.

He assured the audience that mining can be done sustainably today. The boom and bust cycles that are typically associated with mining are eased today because of the capital intensive nature of modern mining, and by developing mining sites over a longer duration and lowering output. Canadian mining companies continue to supply the world's insatiable demand for raw materials. Globally, mining remains a significant economic driver. Canada has a resource economy. Mining activities today operate under very strict environmental regulations.

Dr. Oakes then polled the audience using questions and the Clicker devices.

**Question 1:** Can we mine sustainably without affecting the health of the environment?

a) Strongly agree: 4%

b) Agree: 31%

c) Neutral: 18%

d) Disagree: 38%

e) Strongly disagree: 9%

**Question 2:** Although a non-renewable, extractive industry by definition, mining can be done, if not sustainably, in a sustainable manner.

a) Strongly agree: 4%

b) Agree: 41%

c) Neutral: 20%

d) Disagree: 31%

e) Strongly disagree: 3%

**Question 3:** Mining activities must achieve a net environmental and human benefit to be considered as contributing positively to sustainability.

a) Strongly agree: 29%

b) Agree: 55%

c) Neutral: 8%
d) Disagree: 5%
e) Strongly disagree: 2%

**Question 4:** Mining can be done in such a way as to achieve a net environmental and human benefit.

a) Strongly agree: 9%
b) Agree: 46%
c) Neutral: 22%
d) Disagree: 22%
e) Strongly disagree: 2%

**Question 5:** Mining activities always reflect a "trade-off" between human benefits and ecosystem integrity.

a) Strongly agree: 20%
b) Agree: 53%
c) Neutral: 13%
d) Disagree: 12%
e) Strongly disagree: 1%

**Question 6:** The fact that minerals are fixed in absolute quantity, is relatively important from a sustainability perspective.

a) Strongly agree: 38%
b) Agree: 49%
c) Neutral: 10%
d) Disagree: 2%
e) Strongly disagree: 1%

**Question 7:** Continued discoveries of new oil, coal, and mineral reserves in recent years have largely lessened the fears of running out of non-renewable resources.

a) Strongly agree: 5%
b) Agree: 22%
c) Neutral: 16%
d) Disagree: 42%
e) Strongly disagree: 15%

**Question 8:** Although mining may occur on a relatively small land area, the associated pollution can affect much larger areas.

a) Strongly agree: 60%
b) Agree: 33%
c) Neutral: 5%
d) Disagree: 2%
e) Strongly disagree: 1%
Question 9: What % of Canada's land area has been used for the production of minerals and metals since mining began over 100 years ago?

- a) 0.01%: 20%
- b) 0.1%: 23%
- c) 1%: 24%
- d) 5%: 21%
- e) 10%: 12%

The correct answer is a) 0.01%.

**Context Presenter:** Fred Baechler, exp Services Inc.

Fred Baechler said he would first put mining in perspective. He asked the question: Why do we need mining? He answered by saying that if it can't be grown, it has to be mined. An innumerable array of things we depend on everyday to keep our society running are the result of mining:

- **Coal:** it is burned to produce electricity. It is burned to create coke for the production of steel. Coal Tar was also produced in Sydney, which was then used to produce a plethora of daily use products (Those products today are made from oil): kerosene, moth balls, graphite for pencils, preservatives, laxatives, etc.
- **Gypsum:** today used in wallboard, food, toothpaste, medicine (casts), beauty products, beer making, and wine making.
- **Limestone:** used to blend with coal to reduce acid rain emissions for electricity production, used in steel manufacturing, fertilizer, feed stock for animals and fillers for paints.
- **Aggregate:** rock is broken up into different sizes to be used for concrete for construction and asphalt.
- **Silicon:** used to create glass, solar panels, caulking, printer cartridges and food (it absorbs moisture) and because our bodies need it, cosmetics and microchips for computers.
- **Salt:** in ancient times it was used as money. There are 14,000 uses of salt in our modern society. We use it for deicing our roads, as a water softener and for livestock.
- **Oil and Gas:** Americans consume 3.5 gallons of oil and 250 ft$^3$ of gas per person per day. Oil produces plastics and a wide variety of other things in our daily lives.
- **Lead:** batteries, ammunition, protective shielding in medical applications.

Mr. Baechler also pointed out even for grown things, since the industrial revolution, mining allows us to make the machines to take grown things and make them into products.

The next question Mr. Baechler asked was: Do we have the resources? He said that in the Bras d'Or Lakes watershed, we are blessed with a wide variety of resources. In the watershed there are occurrences of gypsum, salt, potash, coal, limestone, marble, silica sand, aggregate, copper, lead, zinc, oil, gas and gold.

Mr. Baechler further pointed out that everyone in the watershed is a miner extracting a resource: ground water. There are 3,285 wells in the watershed, and 6 central groundwater supplies.
He said that not only do big mining companies need best management practices, but those best management practices need to apply to each individual as well. For example, we expect big mining operations to do regular water quality monitoring. Fred Baechler asked: do you do regular water quality monitoring on your own property?

Mr. Baechler next considered three best management practices based on his experience. The first was Environmental Impact Assessments, which he said have been used as a successful tool for over 20 years. While they involve considering impacts that a process might have on the environment and working to reduce or remediate those impacts, he gave the example of the Georgia Pacific Gypsum Mine, where the environmental impact assessment led to the discovery of a brook and an ongoing Salmonid Research and Management Plan. It lead to Georgia Pacific sponsoring a lot of research. The impact assessment also led to an arrangement for royalties to First Nations for tons of ore mined to support research in the Bras d'Or Lakes.

The second best management practice Mr. Baechler described was monitoring, which he said was a very critical component and required by the regulators. This can lead to years of data collection.

The third best management practice Mr. Baechler called the Public and the Press. He said the Public and the Press also need best management practices dealing with mining. In his experience people become very passionate about the topic of mining, but he said people must put their passion aside and do their research and get the facts, not just accepting everything in the media. For the media, Mr. Baechler insisted the media needs to have an objective view, not just a balanced view.

- **Best Practice:** Professor Dr. Martin Mkandawire, Cape Breton University

"Mining: Sustainable Development in Non-Sustainable Industry"

Dr. Mkandawire said that he would explain what mining is. He began by referring to the Industrial Revolution that changed human society, which was fueled by machinery made possible by mining.

He next explained that mining has two components: the act of mining and then processing what is mined. Mining begins with exploration. Processes like geological and geophysical surveys, trenching and drilling are used to find ore deposits.

The next step in mining is extraction, usually facilitated by excavation. There are many methods of excavation and extraction, what most people would refer to as mining: Place mining (panning and dredging), Open pit mining, Underground mining (such as was common in Cape Breton) – vertical shaft and inclined shaft, Hydraulic mining (water is pushed into the ground to push material out) and In situ leaching.

Dr. Mkandawire said that once the resource is extracted, crushing, beneficitation and smelting are used to process the material.
He noted that the inconvenient truth is historically when mining is finished, the company is finished. Environmental impacts of the mining operation are left behind, such as with waste material heaps. These economic and environmental effects take their toll on the area long after the mining company has closed and left.

In contrast, Dr. Mkandawire said that sustainable mining would include:

- managing the operations capacity so as to absorb periods of change
- provide an avenue to hear the voices of the people who live in the area of influence of the mine.
- development of a governance and management plan to promote sustainable goals.

Dr. Mkandawire said sustainable mining would take into account social, economic and environmental concerns. Before mining operations begin, the social, economic and environmental situation must be observed and then plans made to make sure that those segments stay the same or improve during the operations and after the operations. Before mining operations begin, plans should be made on how the mine will be effectively decommissioned when operations are over so that enough positive impacts have been left to assist in sustainable development.

- **Best Practice:** Byron MacMillan, Little Narrows Gypsum

"Mining on the Bras d'Or Lakes"

Mr. MacMillan first gave a brief overview of the mine. He said that production began in 1935, operating continuously except for a brief suspension of operations during World War II. The operation produces gypsum and other products which are shipped to the east coast of the United States and into the Great Lakes by way of the St. Lawrence. Approximately 1.1 million tons of product is shipped by water each year, but that has been reduced over the last few years. 800,000 tons of screen waste is produced each year, and another 400,000 tons of overburden is removed, with 600,000 tons of direct quarry waste.

Mr. MacMillan said he would discuss four phases of the operation. The first was water management. He explained that mine site design plans for all water to drain to central points and settling ponds. There are four stages to mine dewatering: Large in-pit sumps, primary catchment area, secondary rock dam filter and large settling pond with appropriate controls. The water is aerated at the discharge area to control erosion.

The second phase Mr. MacMillan described was stockpile management, referring to overburden, rock and screen waste. He explained that the waste piles are controlled by stabilizing the slope to reduce sediment run-off and erosion and promote natural growth. The material is put back in the same order it came out. Backfilling as soon as possible reduces the "footprint" of the operation and controls run-off.

Mr. MacMullin said his operation uses reclamation best practices, safely stabilizing the area with specific slope gradients and returning it to a vegetated state. Working with the Department of
Natural Resources, the operation endeavours to incorporate heterogeneity and biodiversity when completing reclamation efforts.

He then described the End of Life lake that is created after mining operations, and explained how the site is prepared: shore lines and beaches are defined and properly sloped and a vision is planned for how the lake will ultimately look.

12:35 Break for lunch

**Day Two – Afternoon Session**

14:00 Afternoon session convened

**Sustainable Practices Discussion – Forestry**

- **Introduction:** Ian MacNeil, Emcee

  Mr. MacNeil welcomed everyone to the afternoon session. He acknowledged the funding partners that made the Conference possible: Eskasoni, Membertou, Wagmatcook, Wekoqmaq and Potlotek First Nations, the Province of Nova Scotia, Indigenous and Northern Affairs Canada, The Municipality of the County of Victoria and the Atlantic Canada Opportunities Agency.

  Mr. MacNeil introduced the panelist for the session on Sustainable Forestry: Context Presenter Mark MacPhail, Dan Nightingale, Clifford Paul, and Moderator Waddie Long.

- **Moderator:** Waddie Long, Nova Scotia Community College

  Waddie Long began the session by polling the audience to get a sense of the level of knowledge of those in attendance.

**Question 1: Sustainable Forestry is critical to Cape Breton's economy.**

  a) Strongly agree: 58%
  b) Agree: 37%
  c) Neutral: 1%
  d) 4%
  e) 0%

**Question 2: Forestry can be done sustainably.**

  a) Strongly agree: 59%
  b) Agree: 36%
  c) Neutral: 2%
  d) 3%
  e) 0%
Question 3: I know the difference between selective cutting and selection cutting.

a) Yes: 57%
b) No: 43%

Question 4: Cape Breton is home to high value (commercially speaking) hardwood species.

a) Strongly agree: 36%
b) Agree: 39%
c) Neutral: 18%
d) 7%
e) 0%

Question 5: How many private woodlot owners are there in Nova Scotia?

a) 5,000: 14%
b) 10,000: 17%
c) 15,000: 22%
d) 20,000: 20%
e) 30,000: 27%

Question 6: What percentage of Nova Scotian residents participate in the "Forestry" industry.

a) 10%: 39%
b) 30%: 30%
c) 60%: 19%
d) 80%: 8%
e) 90%: 4%

Question 7: Nova Scotia harvests approximately how many softwood cords per year?

a) 200,000: 4%
b) 500,000: 21%
c) 700,000: 33%
d) 900,000: 42%

Question 8: 30-40 commercial hardwood species are utilized globally; how many are found in Cape Breton?

a) 5%: 9%
b) 10%: 15%
c) 15%: 18%
d) 20%: 24%
e) 25%: 34%

Question 9: I know what "Bolterwood" is.
a) Yes: 8%
b) No: 85%
c) I think I do: 6%

Question 10: We are utilizing our forests to the maximum.

  a) Strongly agree: 3%
  b) Agree: 24%
  c) Neutral: 15%
  d) 37%
  e) 21%

Question 11: I own a woodlot exceeding 25 acres.

  a) Yes: 29%
  b) No: 71%

Question 12: Today's retail price for a 1" x 6" x 6' sugar maple board is:

  a) $15: 8%
  b) $30: 29%
  c) $45: 28%
  d) $60: 22%
  e) $75: 13%

Question 13: Cape Breton could sustain a hardwood forestry industry.

  a) Strongly agree: 28%
  b) Agree: 50%
  c) Neutral: 14%
  d) 8%
  e) 1%

Question 14: There are sufficient markets for our forest products.

  a) Strongly agree: 26%
  b) Agree: 42%
  c) Neutral: 13%
  d) 13%
  e) 6%

Question 15: People would accept a generational approach to hardwood management.

  a) Strongly agree: 23%
  b) Agree: 48%
c) Neutral: 16%
d) 12%
e) 1%

Question 16: Cape Breton needs training in hardwood management.

a) Strongly agree: 45%
b) Agree: 45%
c) Neutral: 9%
d) 1%
e) 1%

Question 17: We do not need a hardwood industry. Leave it alone!

a) Strongly agree: 3%
b) Agree: 7%
c) Neutral: 19%
d) 43%
e) 27%

Question 18: Sustainable forestry needs to encompass all aspects of the ecosystem.

a) Strongly agree: 72%
b) Agree: 25%
c) Neutral: 0%
d) 1%
e) 2%

Question 19: Current forestry operations need to be improved.

a) Strongly agree: 46%
b) Agree: 39%
c) Neutral: 11%
d) 3%
e) 1%

Question 20: If hardwood was readily available, I would (or do!) burn it to heat my home.

a) Yes: 60%
b) No: 40%

Question 21: We need more education in sustainable forestry practices.

a) Strongly agree: 61%
b) Agree: 34%
c) Neutral: 3%
d) 1%
e) 2%

Question 22: Current Nova Scotia law requires a minimum "buffer zone" of:

a) 20m: 44%
b) 40m: 20%
c) 60m: 13%
d) 80m: 9%
e) 100m: 15%

Question 23: Nova Scotia forests have been clear cut how many times?

a) Once: 7%
b) Twice: 14%
c) Three times: 36%
d) Four times: 22%
e) Five times: 21%

Question 24: Old growth forests in Nova Scotia comprise what percentage of landmass?

a) <1%: 29%
b) Between 1 and 5%: 31%
c) Between 5 and 10%: 17%
d) Between 10 and 15%: 13%
e) Between 15 and 20%: 10%

Question 25: The majority of Nova Scotian forests are in which age class?

a) 0-40 years: 31%
b) 40-80 years: 47%
c) 80-120 years: 17%
d) 120-160 years: 6%

Question 26: I am familiar with "Two-Eyed" seeing philosophy

a) Yes: 84%
b) No: 16%

Question 27: I would like to learn more about "Two-Eyed" seeing.

a) Yes: 85%
b) No: 15%

Question 28: I would take an on-line course to learn about sustainable hardwood management.
a) Strongly agree: 19%
b) Agree: 34%
c) Neutral: 23%
d) Disagree: 16%
e) Strongly Disagree: 8%

Question 29: You can have a sustainable forest industry without clear cutting.

a) Strongly agree: 56%
b) Agree: 30%
c) Neutral: 4%
d) Disagree: 7%
e) Strongly Disagree: 3%

Question 30: I own a chainsaw.

a) Yes: 50%
b) No: 50%

Question 31: I have been trained to use a chainsaw.

a) Yes: 41%
b) No: 59%

● **Context Presenter:** Mark MacPhail, Nova Scotia Natural Resources

"Forestry in the Bras d'Or Lakes Watershed"

Mr. MacPhail said that the Bras d'Or Lakes watershed is about 2500 km² of land. Only 30% of that land is Provincial Crown land, the rest being privately owned. There are approximately 22,000 residents in the watershed, living in rural communities. Traditionally these communities have relied on resource jobs for employment. Mr. MacPhail concluded that forestry is a vital component of a healthy rural economy.

Mr. MacPhail related that there were approximately 5,500 Nova Scotians employed in forestry in 2015. Total domestic exports from forestry in Nova Scotia amounted to $679,486,598.00 in that same year, according to Statistics Canada.

Mr. MacPhail prepared a statement of what sustainable forestry management means:

"Attainment of balance – balance between society's increasing demands for forest products and benefits, and the preservation of forest health and biodiversity. This balance is critical to the survival of forests, and to the prosperity of forest-dependent communities."
He explained that the forestry sector has seen dramatic changes that have changed values and management practices. It has highlighted the need for a balance between commercial and non-commercial forest use. He also noted that Nova Scotia has adopted a forest ecosystem based management approach.

Mr. MacPhail explained that a forestry management plan is informed by a number of things. First of all, guides prepared by the Province help identify vegetation type and soil type, which describes the eco site. A Pre-Treatment Assessment (PTA) will gather necessary information for an ecosystem based management plan. Nova Scotia has made it mandatory that all license holders submit PTA's for sites they are managing.

Mr. MacPhail said that Natural Resources has developed a harvest monitoring system for the Province. It is a three tiered system that involves the licensee and Natural Resources staff, with a focus on accountability to the public.

Mr. MacPhail said that since forests are dynamic our approach to utilizing the resource must be as well.

- **Best Practices:** Clifford Paul, Unama'ki Institute of Natural Resources

  Mr. Paul said that the Mi'kmaq take a holistic approach to management. He related that he was approached by Charlie Dennis 11 years ago and was told, "Clifford, you are going to be managing moose in Unama'ki." Mr. Paul said he discovered very early on that moose don't listen. He then realized that he instead had to manage human behaviour around moose. Mr. Paul said being a student of the teaching of Two-Eyed Seeing assisted greatly in this. He said that Two-Eyed Seeing tells us that sustainable forestry is the future of Nova Scotia. The Mi'kmaq would like to see sustainable management of the ecosystems. There needs to be collaboration between the management of each sector. Management plans today are for damage control from the last 500 years. We need to plan seven generations ahead.

  Mr. Paul said he is currently organizing a harvest of the hyper abundant moose population in the Cape Breton Highlands. The population has grown to the point where the natural regeneration of the forest has been impeded. The moose are turning what was once sustainable forest into grassland. The Mi'kmaq are not just concerned about the moose, they are concerned about the entire ecosystem.

- **Best Practices:** Dan Nightingale, Nova Scotia Community College

  "The Knowledge Gap"

  Dan Nightingale said he has been working in the Forestry Industry for 38 years, and for the last 22 years he has been helping NSCC with the Natural Resources program.

  Mr. Nightingale said that when he started, his training consisted of being given a chainsaw and being pointed at the woods. He said that situation still exists today. But the forest ecosystem is very complex. He shared with the audience a list of the things that are often commented on by people in the industry:
- Maintaining or re-establishing species diversity
- Keeping forest cover intact
- Preserving forest type
- Preserving and enhancing wildlife habitat
- Generating income

Mr. Nightingale said these things require knowledge and skill to deal with, but historically training wasn't a priority in the forestry industry. He said that he was part of a group of people that became the first trainers of silviculturalists in the Province. But around the year 2000, mechanical processors were introduced, radically changing the industry. The will to train as a silviculturalist was lost. He said that situation still persists today, and he related that he encounters many sites where the workers have learned on their own, or were shown what to do by someone who had also never received any training.

Mr. Nightingale said this is what he calls the knowledge gap, where the knowledge and skill is not reaching the people who are doing the work (the forestry worker and the woodlot owner).

Mr. Nightingale posed the question to those who are or want to be forestry workers and woodlot owners: What do I need to know?

He said first of all you need to know about the forest, information such as tree types. How and where does that tree grow best? How do you know what is the best tree? What is my land capable of producing? What role does soil play? What about wildlife? What are best practices?

Next you would need to know about the work. What skills do I need? How do I operate a chainsaw? How do I maintain a chainsaw? What is the proper way to cut a tree? What tools do I need? How do I work safely? How do I generate income? Mr. Nightingale noted that the price of wood today does not support the type of management we need to do. What are best practices?

Mr. Nightingale also commented on questions to consider when hiring a contractor: Are they prescribing the correct treatment? Are their workers knowledgeable and competent? Is the job done right? Have I overpaid, or been underpaid for product? What are best practices?

Mr. Nightingale said there are people in the industry in Nova Scotia who know the answers to these questions. What are a person's options for learning? Reading, networking, workshops, field days and mentorship.

- **Best Practices**: Waddie Long, Local Wood Lot Owner

Mr. Long commented that he has managed his own woodlot for 33 years by studying the wildlife on it, not by thinking about the fiber.

15:16 Nutrition Break.

15:31 Conference Reconvened.
Sustainable Practices Discussion – Agriculture

● **Introduction:** Ian MacNeil, Emcee

Mr. MacNeil introduced the session panelists: Alicia Lake, Jo Ann Fewer, Matt and Meagan Brosens, Rod Resch, Cam Samson and Moderator Ken Oakes.

● **Moderator:** Dr. Ken Oakes, Cape Breton University

Dr. Oakes related that he came from several generations of farmers and was familiar with the challenges that industry faces, but also the passion that drives people to work in the industry. He said he also had the opportunity to live near and observe an Amish community for several years and gained a deep respect for their sustainable farming practices.

● **Presenter:** Alicia Lake, Pan-Cape Breton Food Hub

Ms. Lake began with an overview of the history of agriculture in Cape Breton. Natural food has always been a part of life on Cape Breton. When settlers arrived from across the ocean, mostly Scottish, they started farming and fishing. In the early 1900's, Cape Breton was producing a large variety of crops with surprising yields. In 1918 there were 30,000 cattle in Inverness County alone. At that time Cape Breton was not just producing food for its own communities but was actually exporting produce. As Cape Breton became more urbanized, farms saw a decline. We began importing instead of exporting.

Ms. Lake said that today there are 231 registered farms in Cape Breton, with other small farms that are not registered. Most of these farms use organic practices, but they are not all organic certified (only one farm does have organic certification). She said that 31 new farms have started in the last five years.

Ms. Lake noted that there has been a recent trend of increased consumer demand for local produce.

Ms. Lake asked the audience to take five minutes to discuss in smaller groups the questions: How do farmers in Cape Breton get their products to local consumers and what are the challenges around that?

15:42 Break for discussion groups.

15:43 Conference reconvened.

After the discussion: comments from the audience included:

- Farmers markets
- Friends/word of mouth
- Don't have easy access, need better distribution
- Direct sales
- Co-Op stores
- U-picks
- Many of these farmers sell from their vehicles
- In California, you can pay a monthly fee to join a group and have fresh organic produce delivered to your door.
- Need central distribution
- Facebook

Ms. Lake asked: Why is it still hard for producers to distribute their product? One answer she offered was that most of Cape Breton's population is centered around the CBRM and that is not where the farms are. The geography of the Bras d'Or Lakes makes travel not feasible in some cases. Communication can be a challenge as well. How do we overcome those challenges?

Ms. Lake said that in 2013, Inverness County put together a Food Security Committee. From that sprang a pilot called the Pan-Cape Breton Food Hub Co-Op. She explained that food hubs market, aggregate and distribute local foods, and they are becoming increasingly popular in Canada. The group examined other food hubs and picked features that they thought would work well here in Cape Breton. They settled on a multi-stakeholder model. Both producers and consumers are members of the organization. There is an online market place. Producers can log in and list what they have for sale each week. Consumers log in and order the items they want. They can pay with credit card or pay when they pick up. The food hub has a partnership with a trucking company, so the food gets picked up at seven different locations and is trucked to five distribution points. About 20 volunteers organize the produce for pick up. The Food Hub has been operating for two years now with great success. It only operates in season.

Ms. Lake reported that since 2015 about $100,000.00 has been put back into the hands of local producers. Some producers have quit their off farm jobs, and some have even expanded their operations. Another effort of the food hub is to educate the consumers through workshops and newsletters, teaching people how to eat whole foods. Ms. Lake said that currently there are 30 producers participating and about 120 consumer members.

- **Best Practices:** Jo Ann Fewer, Perennia

Ms. Fewer said that the current situation is very promising for agriculture in Nova Scotia. The "Now or Never" report called for a doubling of agriculture in Nova Scotia within the next 10 years. This has motivated policy makers to take notice of agriculture. A strategy for private sector growth has been created, and agriculture was named as one of three key areas.

Ms. Fewer said that Perennia uses a sustainable approach when helping their clients. On a grant from the Government of Nova Scotia, Perennia has been able to place staff on client farms to help them be more productive and sustainable. But Perennia offers support throughout the whole process.
Ms. Fewer explained that Perennia grew out of a service the government was no longer able to provide to become a not-for-profit corporation with the only shareholder being the Minister of Agriculture.

She said that the organization's area of most expertise is in high volume production. Perennia's scientists can help producers make better product. She said they also help producers make sure their product is market ready.

Ms. Fewer said when the organization considers what are sustainable "best use" practices, the philosophy is to consider value not volume. For example, Nova Scotia is the leading world producer of atlantic lobster and wild blueberries. Ms. Fewer said they are also always looking for new products to market.

There are challenges to be faced. A large part of Nova Scotia's crops rot on the ground because consumers want perfect looking fruit. Whatever does not appear marketable is left on the ground.

As an example, Ms. Fewer referred to the cod fishery in Iceland, where several organizations were able to come together and turn the industry around, increasing value while decreasing volume. They did this by examining their processes and refining them while introducing new practices.

She also discussed a number of success stories that her organization had worked or are working with, demonstrating the need to be innovative thinkers to create markets or even niches in markets to reach success.

Ms. Fewer also informed the audience about Perennia's Innovation Centre, which she said offered services such as:

- help clients with product commercialization (on site labs and facilities)
- help with analytical support for nutritional claims
- shelf life studies
- nutritional labeling
- pilot plan to test first product and get it to market.
- quality and food safety team, for services from coaching to auditing.

**Best Practices:** Matt and Megan Brosens, Brosendale Farms

Megan Brosens explained that the couple had moved from Ontario to the Whycogomagh area to dairy farm in 2013. They left a sheep farm when they had an opportunity to buy an existing dairy farm here in Cape Breton. The farm has 150 workable acres of over 500 acres. Ms. Brosens explained that she had grown up on a dairy farm but had not had a desire to work one herself.

Matt Brosens said he had pursued an education in agri-business. Not wanting to farm sheep, but knowing that a dairy farm in Ontario was not financially possible, the Cape Breton opportunity seemed like a good option.
Mr. Brosens said although moving to Cape Breton has allowed them to pursue their dream, there have been challenges. One he mentioned was that equipment repair is not as readily available as in Ontario. It has led to learning to become more self sufficient.

Mr. Brosens said he wanted to mention that a big positive for their efforts has come from the Victoria and Inverness Federation of Agriculture and their equipment rental program.

He said they are constantly focusing on how to make the farm more sustainable, and they are considering trying niche markets like cheese and butter.

- **Best Practices:** Rod Resch and Cam Samson, Green-Phonic Worldwide

Cam Samson began by saying that his company's Dundee Hills Aquaponics Dome project was an example of sustainable development.

Mr. Samson said his education was in engineering and his passion was for green construction. He said his colleague Dr. Hossam Elokda is a retired Professor of Heart Surgery, but is currently the largest grower of Haskap Superberries in North America, grown right in Nova Scotia on 250 acres of land.

Mr. Samson said he has partnered with Dr. Elokda and together they have purchased 350 acres of land surrounding the Dundee Golf Course, with the goal of making Dundee Hills a unique vacation destination, focusing on experiential tourism.

He said one of the features of the site will be an Aquaponics dome.

Rod Resch explained that he had been in the construction industry for 25 years. He said he started studying aquaponics in 2010, and has worked on some large aquaponic farms in California.

Mr. Resch explained that aquaponics involves growing fruits and vegetables and herbs in water. The nutrients to grow the produce come from fish. The fish feed the plants, and the plants clean the water for the fish in a closed loop system. Only fish food enters the system, and only produce leaves it. Produce that is not marketable is composted and returned to the system. The system requires only 2% of the water usage of typical farming. Mr. Resch said that in his team's project, the aquaponics facility will be housed inside a geodesic dome. The dome is the key to the sustainability of the system. It is the strongest structure because it is made from triangles. The dome's design allows for the most amount of interior space with the least amount of cladding material. Once a dome reaches a certain size, typically there is more heat gain than heat loss, so it is very efficient to run. They are durable. The dome will be run on alternative energy.

Ian MacNeil thanked the panelists for their presentations and the audience for their kind attention.

16:45 Afternoon session adjourned.
Day Three – Morning Session

09:01 Morning session convened.

Welcome and Day 2 Outcome Overview: Ian MacNeil, Emcee

Ian MacNeil welcomed everyone to the third day of the Conference. He said after two days of discussion, this day would be used to look back on what was heard.

Mr. MacNeil acknowledged the funders who helped make the Conference possible: The First Nations of Wagmatcook, Wekoqmaq, Potlotek, Membertou and Eskasoni, the Province of Nova Scotia, Indigenous and Northern Affairs Canada, the Municipality of the County of Victoria and the Atlantic Canada Opportunities Agency. He also included the Nova Scotia Department of Community, Culture and Heritage and the Mi'kmaq Culture Activities Program which made possible the theatre presentation "Kluskap and the Big Frog" during the events the previous evening.

Mr. MacNeil explained that the morning session would consist of himself, Dan Christmas, and the Moderators of the various panels taking the opportunity to talk about "What We Heard" from the two days of discussion and presentations. There would then be time for a discussion with the audience to get their thoughts.

Ian MacNeil welcomed Dan Christmas to the podium.

"What We Heard" – The People Define Sustainability Practices for the Bras d'Or Lakes

The speakers commented on things that stood out to them from the two days of presentations:

Ian MacNeil said regarding "The Youth Speak!" session that he was impressed to see the hard work that the young people had put into the survey project, conducting the largest survey of young people ever in Cape Breton.

Mr. MacNeil said that societies that develop well are able to produce their own food and generate their own energy. Doing this allows them to grow at their own rate and with more autonomy. It was impressive to learn that we have greater potential to produce our own food and generate our own electricity. Solar panels are being used by people in Cape Breton. To learn that at one point Cape Breton not only met its own needs but that we were exporting food is an important precedent.

It was important to note that some of these things were not new ideas, but we need to remember through Two-Eyed Seeing.

Dan Christmas commented on the things that made an impression on him:

Fisheries and Aquaculture panel:
- Bruce Hatchery naming all the species that have been lost since 1967.

- Chuck Thompson's comments about the potential for trout fishing in the Bras d'Or Lakes, and the potential for young people to support tourism in that industry.

- Robin Stuart's presentation about the struggles we have had with aquaculture and oysters and the acknowledgement that we have made mistakes but we have learned things and we are much wiser than we were 25 or 30 years ago. Aquaculture still has a great potential in the Bras d'Or Lakes. We have the opportunity to stand on the shoulders of giants like Robin Stuart, Charlie Dennis and Joe Googoo who are telling us the things they have learned.

- Shelley Denny reminding us to close our eyes, and reminding me to think of my ancestors and how they would have thought about the land.

Mining discussion:

- Fred Baechler changed my ideas about what mining is.

- Byron MacMillan's presentation about the care and effort that Little Narrows Gypsum takes to incur as little environmental impact as possible in their operation.

Forestry panel:

- Mark MacPhail's comments that most of the land around the Bras d'Or Lakes is privately owned.

- Clifford Paul reminding everyone not to think in terms of departments but to consider everything together, holistically.

- Dan Nightingale helped us to see that the forestry worker of today is a professional, and those who want to work in forestry should be professionals too.

Agriculture session:

- Alicia Lake and how innovative Cape Bretoners have become about getting their produce to market.

- Jo Ann Fewer and all the support that is available for those who want to get into sustainable agriculture.

- Matt and Megan Brosens: their message came across clearly. It is what we are striving for: a young family willing to put all their energy into a sustainable resource based business on the Bras d'Or Lakes.

Day Two's evening presentations:
- Very moved by the tribute to Charlie Dennis

- Moved by the impromptu award from the Youth and showing appreciation for their colleague Shane Cormier. They don't see each other as Mi'kmaq and non-Mi'kmaq; they see each other as friends. They taught me that we adults are more than just representatives of different departments and organizations, we are all friends, and we will get to know each other more and more.

Mr. Christmas said we are like a flock of birds all taking wing and going somewhere together.

The nine session moderators were then given a chance to reflect on their impressions from the two days of discussion.

- Waddie Long – The Youth Speak!

  I hope we dispelled the stereotype that young people are lazy. 45% of young people surveyed volunteer in their community. Young people want careers, not just jobs. They want more educational and training opportunities. Some youth are leaving because they see better education opportunities off Island. They want to build bridges between cultures. Truth and reconciliation is alive and well in Unama'ki. 36% of High School students want to leave Cape Breton. 60% of College age youth want to leave. Of those that have left, 60% wanted to come home. Only 4% of people had heard of the "Now or Never" report. More people need to know who CEPI is. The biggest thing I heard is that the CEPI Youth want their own conference in 2017.

- Teresa MacNeil – Transitioning to a Culture of Sustainable Practices

  Audience submitted question: "Does CEPI have its own mutually agreed upon definition of sustainability? Sustainability is a loaded term these days and it's often misused. How does CEPI define sustainability, and how does this redefined definition shape CEPI's work on this vision?" No, CEPI does not have an agreed upon definition of sustainability.

  Definition suggested on Day 1: "Sustainable development can be defined as action, people acting in a manner providing for the needs of both society and the environment, forever. People using best practices in all their activities."

Question 1: Do you agree that, at least for the immediate term until CEPI can refine it, that this definition would be a good definition for CEPI to adopt?

   a) Yes: 86%
   b) No: 14%

We will now revisit questions from Tuesday morning.

Question 2: The Environment within the Bras d'Or Lake watershed is healthy.
a) Strongly agree: 4%
b) Agree: 50%
c) Neutral: 19%
d) Disagree: 26%
e) Strongly disagree: 1%

Question 3: Society and culture within the Bras d'Or Lake watershed is healthy.

a) Strongly agree: 8%
b) Agree: 60%
c) Neutral: 16%
d) Disagree: 15%
e) Strongly disagree: 1%

Question 4: The Economy within the Bras d'Or Lake watershed is healthy.

a) Strongly agree: 2%
b) Agree: 11%
c) Neutral: 27%
d) Disagree: 57%
e) Strongly disagree: 4%

Question 5: Some economic activities that adversely impact the Bras d'Or Lake are acceptable if economic activity is generated.

a) Strongly agree: 5%
b) Agree: 20%
c) Neutral: 11%
d) Disagree: 41%
e) Strongly disagree: 23%

Question 6: The local tourism industry minimally impacts the Bras d'Or Lake watershed.

a) Strongly agree: 20%
b) Agree: 50%
c) Neutral: 13%
d) Disagree: 15%
e) Strongly disagree: 3%

Question 7: Forestry activities minimally impact the Bras d'Or Lake watershed.

a) Strongly agree: 2%
b) Agree: 16%
c) Neutral: 9%
d) Disagree: 56%
e) Strongly disagree: 17%
Question 8: Mining activities minimally impact the Bras d'Or Lake watershed.
- a) Strongly agree: 3%
- b) Agree: 19%
- c) Neutral: 20%
- d) Disagree: 40%
- e) Strongly disagree: 18%

Question 9: Agricultural activities minimally impact the Bras d'Or Lake watershed.
- a) Strongly agree: 9%
- b) Agree: 34%
- c) Neutral: 21%
- d) Disagree: 29%
- e) Strongly disagree: 6%

Question 10: Fishing and Aquaculture activities minimally impact the Bras d'Or Lake watershed.
- a) Strongly agree: 2%
- b) Agree: 39%
- c) Neutral: 15%
- d) Disagree: 36%
- e) Strongly disagree: 8%

Question 11: Renewable energy developments minimally impact the Bras d'Or Lake watershed.
- a) Strongly agree: 33%
- b) Agree: 48%
- c) Neutral: 6%
- d) Disagree: 10%
- e) Strongly disagree: 3%

Question: Would Port Hawkesbury Paper be included in the question? The entire watershed is logged by Port Hawkesbury Paper. A lot of the wood cut there is used for their Biomass Burner. It has a great effect on the watershed. When we are thinking of this question, it is not just about sustainable forestry. We should consider there is a much larger player that wasn't represented at this Conference.

Ian MacNeil: On Day One of the Conference, Port Hawkesbury Paper's CEO Mark Dube was present to participate.

Question 12: I clearly understand sustainability issues relevant to the Bras d'Or watershed.
- a) Strongly agree: 19%
- b) Agree: 50%
c) Neutral: 15%
d) Disagree: 13%
e) Strongly disagree: 3%

Question 13: There is a culture of sustainability in Cape Breton society generally.

a) Strongly agree: 12%
b) Agree: 38%
c) Neutral: 21%
d) Disagree: 24%
e) Strongly disagree: 5%

Comment: The definition presented left out the economy.

- Dr. Michelle Adams – Renewable Energy

Dr. Judith Lipp gave an overview of what's possible for communities. Gloria Hill talked about economic opportunities from a business perspective. There is an appetite for this technology. Wil Marshall talked about how to look at this from a business standpoint. The takeaway message was the opportunities around these kinds of developments for communities and businesses. There are also employment opportunities. When polling the audience, there was a split between those who felt our young people could access the tools they needed to take advantage of these opportunities, and those who felt young people did not have what they needed to access these things. Many of the questions from the floor spoke to people trying to define what sustainable energy is. Does it relate to the scale of the operation? People also asked about the kinds of renewable energy that can be considered around the Bras d'Or. There has been discussion around wind and solar, but technologies that weren't discussed were hydro and small scale tidal.

Comment (Dr. Bruce Hatcher): A five megawatt turbine has been placed in an area of the Bay of Fundy, with more to follow. That area is designated under Provincial law as a Marine Renewable Electricity Generation Site. The Bras d'Or Lakes is the only other place in Nova Scotia to have that designation. A group of people led by the Verschuren Centre put together a proposal for an experimental test facility for a five kilowatt small scale tidal experiment in the Barra Strait. Cape Breton University committed $200, 000.00 and arrangements were being made through ACOA for another $1.2 million. The arrangement was cancelled when the Bay of Fundy project insisted that the Province not dilute the investment in tidal energy. There is room for a discussion regarding economic development in the Bras d'Or Lakes that says we will decide how we do things here and we will do it at the appropriate scale.

- Dr. Bruce Hatcher – Fisheries & Aquaculture

The Bras d'Or is a system that is constantly under change. Currently its capacity for fish production is rather low. Paul Gentile emphasized how he and his department are working to find the right mix of value for our unique ecosystem. Chuck Thompson said that there is real scope for growth in recreational fisheries. We have to decide how much we want. Bruce Hancock showed us the supportive face of aquaculture in the Province. He emphasized advance planning for further
aquaculture development. Robin Stuart emphasized resident ownership, and involving the public community and government. He emphasized getting off the seabed. Shelley Denny presented us a mental piece about how we approach the exploitation of nature to meet our needs. Robert Cotton recommended starting small and in collaboration. The polls were very helpful. Fish and aquaculture has been a major contributor to our economy in the Bras d'Or, but what is the cost? There are concerns about overfishing. We need to manage our predation, and be part of the ecosystem. The value of recreational fishing is obvious, but it needs to be developed cautiously. Sustainable aquaculture is possible, and it should play a role in the economy. Aboriginal and ceremonial fishing are a sacred responsibility of all of us.

This is the beginning of conversations. This is something to think about. Start small and innovative. Grow as nature permits.

Comment (Ian MacNeil): Last year was the first time that Nova Scotians ate more fish that was farmed than was caught in the wild.

● Dr. Ken Oakes – Mining and Agriculture

Many of us were surprised with the wealth and diversity of mining that has occurred in the Bras d'Or watershed. There is potential for even more to happen. And methods with less environmental impact. We have to mine. There are trade offs that are necessary.

A lot of young people are involved in agriculture. It is an industry that faces challenges. But there is government policy in place to support this industry. Alicia Lake showed the value of food hubs. Cape Breton was once an exporter. Climate change presents problems, but also opportunities.

● Waddie Long – Forestry

Mark MacPhail told us the majority of the land in the Bras d'Or watershed is privately owned. That leaves the decisions of how you cut to private individuals. This can lead to cutting wood without a management plan. Dan Nightingale highlighted that there is a need for training.

Returning to the poll questions from the session:

- A majority of people agreed that Forestry is critical to the economy and can be done sustainably.

- Selection cutting refers to having a management plan for an area and taking the whole ecosystem into account. Selective cutting is also called "take the best and leave the rest", harvesting only the "money" trees regardless of the damage to the ecosystem.

- There are 32,000 woodlot owners in Nova Scotia that own 70% of the Province.

- Less than 10% of Nova Scotians participate in Industrial Forestry.

- Nova Scotia harvests approximately 900,000 cords of softwood per year.
- 25% of commercial hardwood species grow in Cape Breton. We typically burn it for heat.

- Bolterwood is waste wood from firewood. It can be used for making things like table legs, cabinet frames, pencils, etc. It is an estimated $7 billion industry in the New England states.

- The retail price for a 1" x 6" x 6' sugar maple board is $75.00 before tax.

- Current Nova Scotia law requires a minimum "buffer zone" of 20m.

- Nova Scotia forests have been clear cut three times.

- Old growth forests in Nova Scotia comprise about 1% of the Province.

- The majority of Nova Scotian forests are in the 0-80 year age class.

  ● Ian MacNeil – Tourism

The tourism sector has momentum, as demonstrated by 14% growth in the last month. Two important factors contribute to that momentum: 1) the so called Trump Bump. 2) the development of authentic experiences for people to participate in. We have assets in the Bras d'Or Lakes Biosphere: cultural, natural, recreational. There is a new Federal strategy focusing on indigenous cultural experiences to influence the growth of tourism. Nova Scotia has a goal to double tourism in the next 10 years, coming out of the Ivany Report. There is a desire for collaboration and partnerships in the five First Nations communities.

  Two-Eyed Seeing: Shelley Denny, Unama'ki Institute of Natural Resources

Ms. Denny repeated that knowledge systems can sometimes be a barrier to collaboration. But they can also give opportunities for more meaningful engagement. If we don't know where we are coming from, how can we understand where we are going? Ms. Denny referred to Clifford Paul's comments about finding common ground, but she acknowledged that is not always easy.

Ms. Denny referred again to the concept of Msit No'kmaq and said it informs the values of UINR. How does UINR incorporate those values in their research program? She said UINR strives for inclusion. The relationship component of research is very important to UINR. When UINR works with other organizations, they strive to build relationships. Those organizations need to understand why UINR needs this and why they operate with a different set of ethics. There is a need when working with other organizations to educate as to what First Nations value as knowledge. Msit No'kmaq is about respect for animal life, people and their whole systems, respect for experiential knowledge over scientific knowledge. The Bras d'Or is unique, so we wouldn't expect to find the same conditions as we do elsewhere.

Ms. Denny said that UINR also tries to incorporate ceremony in research. Often it is just quiet reflection and quiet prayer. Effort is made not to waste anything.
UINR believes in reciprocity and giving back, so Ms. Denny said that they look for ways to do this in each relationship. Samples received from fishers are returned to them if possible.

Ms. Denny next spoke of challenges to implementing Two-Eyed Seeing. She said she is part of a consultation table between Mi'kmaq and DFO. After two years at the table, efforts were frustrated because neither party understood where the other was coming from. Ms. Denny said she took a Two-Eyed Seeing approach and mapped the different perspectives. She said the only thing the two parties could agree on was that the issue was important, and that each side would listen.

She noted that in dealing with fisheries, you have to deal with law. Unfortunately, when fisheries started to be developed in the 1890's the goal was to legislate First Nations out of the fishery. So when First Nations are trying to implement their way of being and culture with fisheries, it is not possible because the law does not allow for it.

Ms. Denny posed the question: Where do we start? She answered by saying we do need to work together. We need to talk and share our perspectives before we can move forward. We need to acknowledge different knowledge systems so we can move forward. She recommended making law better through best management practices. Is the willingness there?

How can CEPI use Two-Eyed Seeing to tackle issues? By CEPI bringing those industries to the table to talk and explain the Mi'kmaq perspective, finding ways to incorporate the Mi'kmaq perspective. We can create partnerships. Ultimately it is about interdependence. We need to collaborate in a meaningful way.

Questions, Answers and Committee Structure with Volunteer Sign Up – Dan Christmas, CEPI Chairperson

Mr. Christmas said he had two things to accomplish. First of all, we need to determine what happens next. He asked: After the Conference, what do we do? Mr. Christmas said that he is looking at everything that is being said through the lens of how this will affect young people. He said there needs to be a conference for young people.

Mr. Christmas asked for comments from the audience.

Anna Curtis-Steele: We need to restructure how CEPI is organized. There needs to be a meeting of the youth, Elders, Steering Committee and Management Committee to look at what CEPI's structure should be given the results of the Conference.

Dan Christmas: I support that, because I think the young people have to be more involved.

Albert Marshall: I was offended by the question about food and ceremonial fisheries. I would like to see the question rephrased to say: "What can we do together to give proof that the way in which food and ceremonial fisheries is conducted … " Also, the word "sustainability" is being bastardized. I think it should be written: "Are these industries and sectors economically viable? How can it be transformed to be ecologically sustainable?" Language is such a powerful tool. It is imperative that we use the right kind of language so that we can expect the right kind of answers.
Dan Christmas: I look forward to discussing that further with you, Albert. We do need to refine our definition of sustainability. The Bras d'Or Lakes is unique, so we have to use our words to describe it.

Daryl Morris: A lot of us have a lot of knowledge. Today we have good supports like NSCC. Mature students don't have to be afraid to go back to school.

Dan Christmas: How do we get the right knowledge and the right teachers to help us move forward? I hear many comments about how well NSCC has been supporting our communities and transforming our people into professionals.

Brooke Oland: Is the survey data collected here going to be used to help CEPI move forward? Some of the questions asked were about forestry impact and renewable energy. Was Nova Scotia Power included in that? If they were, then it has quite a bit of impact. If these data are being used to make decisions about the future, it is something to keep in mind. There are some players that have a larger impact than what showed up here. I would also like to comment on the diagram that was shown demonstrating the relationship between economy, culture and the environment. I think economy and culture are subsets of the environment, we are completely inside it.

Waddie Long: The Lake and the watershed are in relatively pristine shape and we want to keep it that way. We need to be proactive in our management plan. Coming out of this Conference CEPI may need to restructure a little bit, and then grow by forming committees. We need people to step up and join committees, bringing experts to the table.

Dr. Teresa MacNeil: Regarding the data that were gathered at this Conference, no one would say it is totally valid and reliable. But it is nice temperature testing. For instance, our definition of sustainable development is only something to start with. I would call it dirty data, but good data just the same.

Brooke Oland: There is always the concern that some of those issues will be put to rest because of the results from the polls.

Dr. Teresa MacNeil: We recognize that it is an indication of where people stand, but it is in no way final.

Fred William: I think if people were educated about what options they have, and that information was readily available, most people would want to do the right thing.

Dan Christmas: Should CEPI bring those educators into this process? Should CEPI be the conduit?

Demetrius Best: When I am finished school, there has to be somewhere for me to get a job. It's great to talk about the importance of all these sectors, but are there jobs immediately available in those industries? There needs to be incentive for young people to stay around and be involved.

Dan Christmas: For me, that's the whole point. How soon do you have to find a job?
Demetrius Best: I am almost 30 and I have a mortgage. I have lots of bills and I'm a student. I'm going to school full time and working part time. So, as soon as possible.

Michelle Adams: I was in a very similar situation a number of years ago. Is there a role for CEPI to develop support networks that allow young people to identify these niches and then start their own businesses? A place where young people can go because they have a great idea but need some money at very low interest to start a business and stay here. A change to the mind set of finding a job to becoming the employer and creating your own business.

Dan Christmas: I know Cape Breton University has the Island Sandbox. It's all about helping young people develop their business ideas. I am hoping to engage CBU as far as the process. And there are investors in the audience today. Let your idea be known.

Tiny Cremo: My Grandmother used to recycle her tobacco and I learned a lot from her. When we kill a moose, we use the whole moose. There was a boy that got lost, and he survived because he had survival skills that he learned from his Grandfather.

Jude Long: How can we integrate sustainable practices into developing our industries such as forestry, agriculture and renewable energies, while creating jobs and careers for our youth?

Dan Christmas: That's really the whole Conference in a nutshell.

Bruce Hatcher: We got quite a few answers to that in the presentations and the discussions today. Be willing to be self-employed or multi-employed. Be flexible as a worker and lifetime learner. There are tools available for young people today. Be innovative. Make use of organizations that want to see you succeed.

Dan Christmas: There are many experienced people who would be willing to mentor younger workers. They want you to succeed. We had 34 presenters at the Conference who would be willing to help.

(Unidentified): I am glad Shelley brought up the idea of consultation. It is wonderful that there is a desire to form partnerships. But First Nations rights have to be addressed in the partnership. For the youth, as you move ahead with your conference, you should have some type of form or speakers that can give education about what First Nations rights are in regards to natural resource development in and around First Nations land. That element of rights adds another level to this whole discussion.

Anna Curtis-Steele: Why doesn't Cape Breton University have a Masters program in water resources?

Emilie (last name not given): How can we get elementary students such as me involved with sustainability? We have been talking about youth, but what about my age group?

Dan Christmas: All of us want our children to be involved. You have asked us. We will get you involved. We will find a way.
Albert Marshall: We should take stock of what we have or don't have, an ecological audit.

Dan Christmas: We have talked about a lot of great ideas. Will our watershed support it? We have to do some evidence based research, to know factually what our environment can support. It is a go forward that has been on my mind.

Luke (last name not given): I am 88 years old. There are other people besides children. There are seniors and adults. I am an investor. I do not give money unless there is a plan that deals with things like environment, sustainability, transfer of skills and knowledge and mentoring. I think there are many people like myself who would like to invest. We need immigrants.

Dan Christmas: I don't know how we can move forward without private local investment. We need to develop a network, a group of people who have the same interests as you do.

Henry Fuller: I want to say to the young people, there is a great future here. You have to have the desire and be willing to make some sacrifices. I served on the Northside Economic Development Assistance Corporation. We have loaned $7.9 million into small business in Victoria County. We have a low default rate. Make sure your education provides you with information to know about these things, where money is and how you can get it.

Rod Resch: I was wondering if CEPI is just going to concentrate on the Bras d'Or, or will they expand to other areas of Cape Breton?

Dan Christmas: Our mandate is strictly the Lakes and the watershed. But if other areas of Cape Breton asked us for advice, we would give it.

Charcey (last name not given): I am a Dalhousie student. We are having a conference called the Atlantic Conference on Public Administration. We are looking at some of the things being talked about here today. One of the things we are focusing on this year is that education piece, exactly what Shelley talked about. The piece about consultation is one of the most important things to us. We would like to partner with the NSCC and the students here today to talk about these things. Just because our conference is happening in Halifax doesn't mean we aren't talking about issues that affect Cape Breton.

(unidentified): In discussing collaboration, because the Bras d'Or Lakes are unique, there are certain capacities here that are not found elsewhere. There should be knowledge sharing with Nova Scotia and other Maritime provinces.

Dan Christmas: I served on the Ivany Report, and we were told our report "Now or Never" was used extensively by the other provinces because our situations were so similar. Yes, there is a need for more collaboration.

Bruce Hatcher: We conduct ourselves in the context of an ecosystem. But we will gladly share our knowledge.
Rowan (last name not given): It can be very discouraging as young people looking for a job. I was wondering if there is a way to make people believe in themselves.

Dan Christmas: I hope you believe you came to the right place this morning. Hang in there, stay with us. Be part of us. I would like to think that we are going to make things a lot better.

(unidentified): There haven't been enough studies to look at the ecological impacts of the industries that have been discussed at the Conference. It is commendable to reconfigure an area after mining operations, but there is no way we can say that the area is ecologically sound or minimally impacted. We need some very hard indicators of what is sustainable.

Dan Christmas: We need to do good science.

(unidentified): If Cape Breton is a Biosphere, how did an LNG pipeline get approved? If there is a fracking ban in Cape Breton, liquefied natural gas is fracked gas. They want to explore it in Port Hastings.

Dan Christmas: Although it's in Cape Breton, it is not within the Bras d'Or Lakes watershed.

Diane Austin: I want to direct my comment to Emilie. Last year my research project at CBU was to create a curriculum package for students grades primary to four which would get them involved in ecological things. So the teachers would have the option of implementing that and still fulfilling their very difficult curriculum requirements. The idea was to get youth involved, and the best way to do that is to get children involved when they are very young.

Sharon MacIntyre: I have done a number of jobs on this Island to be able to stay here. I would like to see from this Conference some education for my seven year old son. If we want to change things, this is the youth we should commit to educating.

Dan Christmas: Emilie, I want to let you know, you have had a great impact here this morning.

Dan Christmas commented that it takes a lot of people to make a Conference happen. He took the time to thank the members of the Planning Team, Dr. Teresa MacNeil, Dr. Bruce Hatcher, Dr. Ken Oakes, Waddie Long, Keith MacDonald, Dr. Jim Foulds, Lisa Young and Annie Johnson. Mr. Christmas especially thanked Stan Johnson, and informed the audience that Mr. Johnson is the only employee of CEPI.

Mr. Christmas thanked the moderators of the sessions. He thanked each of the 34 speakers who participated in the Conference. Mr. Christmas thanked Dr. Ken Oakes for the many roles he played in the Conference and for his technical help, and for the Clicker technology.

Dan Christmas also thanked the CEPI Youth Leaders for participating in the Conference, and the young presenters Kelcie Francis, Shane Cormier, Tracy George and Steven Googoo. He thanked Ron Newcombe and the CEPI Players for the play presentation during the reception on Wednesday night. Mr. Christmas thanked Cape Breton University and President David Wheeler for bestowing a degree on Charlie Dennis.
Mr. Christmas once again thanked the funding agencies that supported the Conference: ACOA, Indigenous Affairs, the Province of Nova Scotia, Victoria County, the five Unama'ki First Nations, Community, Culture and Heritage for funding the Play. He also thanked the videographer Aaron Young, the Inverary Resort and the Wagmatcook Culture and Heritage Centre.

Mr. Christmas thanked Ian MacNeil. He also thanked the attendees. He noted that this was only the beginning. Lastly, Mr. Christmas said he wanted to thank the Creator for the good weather for the Conference, for the wisdom that inspired what took place and the friendship.

Ian MacNeil asked the audience to join him in a warm round of applause to thank Dan Christmas.

11:46 Break for lunch.

_Day Three – Afternoon Session_

12:58 Afternoon session convened.

**Welcome and Introduction:** Ian MacNeil, Emcee

Ian MacNeil greeted the guests at the afternoon session, including the Elders, Unama'ki Chiefs and Grand Chief Ben Sylliboy and the Municipal leaders in attendance.

By way of introduction of the keynote speaker, Mr. MacNeil described him as a man who appeared on our televisions a number of years ago as a broadcaster, but said he is essentially a teacher who reminded us that we are all connected to one another. He is a member of the order of Canada. Twenty-five years ago he established a Foundation to encourage people to consider science and to gather and recognize our interconnectedness as we strive to make the world a better place.

**Keynote Speaker:** Dr. David Suzuki

Dr. Suzuki said he was honoured to be welcomed in to the territory of the Mi'kmaq people. He said he was very impressed to learn about the work of CEPI and was happy to have the opportunity to speak at the Conference.

Dr. Suzuki said he remembered the battles that were raging over Forestry in British Columbia in the 1970's and 80's. The Premiere invited all the stakeholders to roundtable discussions. More recently, he said another process was started called the Pacific North Coast Integrated Management Area (PNCIMA), which was to be from the panhandle of Alaska, down the coast of British Columbia to the northern tip of Vancouver Island. That whole area of the ocean was going to be managed as an integrated management area. Again, all the stakeholders were brought in. The problem is all the stakeholders are there to fight for their stake. Dr. Suzuki said they would not listen to him when he said they should all agree that they all can flourish if the ecosystem flourished and was healthy.
He said that the people in the audience had a job to make sure that nothing that is done impinges on the health of the ecosystem. As long as the oceans and the forests are healthy, everyone can benefit. He commented that from his admittedly superficial understanding of CEPI's work, it was very commendable to see all levels of government brought together by First Nations to work toward the common goal of protecting the health of the Bras d'Or Lakes system. He congratulated everyone for being a part of it.

Dr. Suzuki related another example, referring to the Haida people of Haida Gwaii, an archipelago off the north coast of British Columbia. He said the Haida persisted for many years to convince Parks Canada to accept that a protected area cannot stop at the shoreline. It must extend from the tops of the mountains to the bottom of the ocean, because it is all interconnected.

He noted that Island people often understand more clearly the idea that there is not an infinite supply, that there are boundaries to work within. What is going on in the Bras d'Or Lakes is a microcosm of what is going on across the planet. How can we live and balance our current needs and practices with a sustainable future? There are many solutions that will be found in local communities.

We stand at a critical point in human history. What we do now could decide whether we survive as a species past the end of the century. Statements like this are being made by some of the leading scientists of the world. A few years ago British Astrophysicist Sir Martin Reese was asked in a BBC interview: What are the chances there will be human beings on the planet in the year 2100? His answer? "50/50". Other scientists agree. Dr. Suzuki said when people say, "It's too late" his answer is: "Shut the hell up and go away." Being told it's too late is disempowering. Besides we don't know enough to say that.

In British Columbia, scientists like to see 20 to 25 million of the highly valued Sockeye Salmon returning every year. In 2009, just over a million Salmon returned to the Fraser river. Dr. Suzuki said he was sure the species was doomed. In 2010, there was the biggest run of Sockeye Salmon in 100 years. Nobody knows what happened. Nature shocked us. He said he believed Nature is full of surprises. If we can pull back and give Nature a chance, she can be generous. There is very little time to give that chance, but Dr. Suzuki said he is filled with hope.

Scientist are calling the time we live in the Anthropocene Epoch, the time when human beings are the major force altering the Earth. This has come at the conjunction of a number of factors:

- Population: we didn't reach a billion people on Earth until about 1830. Dr. Suzuki said there were two billion people on the planet when he was born in 1936. Since then, the population of the planet has more than tripled. There has never been so many billions of any one mammal on the planet before. This leaves a very heavy ecological footprint.

- Technology: we use an enormous amount of technology today, and that has all been developed in the last 100 years. The technology allows us to exploit every nook and cranny on the planet.
- Consumptive demand: we love stuff. American teenage girls consider shopping their number one recreation. The amount of waste amplifies our ecological footprint.

All of these factors together have led to humans becoming a force of nature unlike anything in the Earth's history. The problem is we don't know enough to be able to manage our impact on the planet properly. We are guessing at what sustainability is.

The consequences of our power today is evident everywhere. We've changed the chemistry of the atmosphere. The oceans are a mess; the acidity of the oceans is changing. They are full of garbage, with islands of plastic bigger than the state of Texas. Our technology for fishing has become to powerful, and we are overfishing the vast majority of commercial species to virtual extinction. Our forests are vanishing. 80% of our forests have been invaded by humans. Air, water and soil are being used as a garbage can. We have entered the era called the Sixth Extinction.

Dr. Suzuki asked: How did we get to this point in time? All cultures have an origin story. By tracking DNA, scientists have traced mankind back to Africa 150,000 years ago. For some reason we began to move. As we moved into new ecosystems, we were an invasive species. You can follow a wave of extinction of mega fauna as humans began to move across the planet. Humans were effective predators. He said he believed the roots of indigenous knowledge were the people who decided not to move to find new resources to exploit, but those who stayed and learned to live with the ecosystem. No science will ever duplicate indigenous knowledge. Indigenous knowledge is hard won knowledge for survival.

For 95% of human existence we were hunter/gatherers. Imagine how things changed when humans realized they could domesticate the horse. In the last 10,000 years we changed dramatically when we discovered agriculture. When humans became farmers we didn't have to move anymore. This led to cities. By the year 2000, we had over 300 cities with more than a million people. Now the majority of people live in big cities. When you live in a big city, your biggest concern is your job. The economy is the driving force for urban people.

Dr. Suzuki talked about the experience of trying to protect the forests of the Stein Valley. The value the forestry industry placed on the valley was different than the value placed by the First Nations people, because the Valley was sacred to them. Dr. Suzuki said the value he placed on the Valley was based on what the trees did for the ecosystem. When economics is the main value, it is very quantifiable. We can never win in that kind of argument.

Dr. Suzuki talked about the triple bottom line and the idea that society, economy and the environment should all be represented by circles of the same size. He said the real depiction should be one big circle called the biosphere. The economy should be a much smaller circle inside the big one. The economy is there to serve us.

Dr. Suzuki said he was asked to meet with the CEO of the Alberta Tar Sands. He agreed but asked the gentleman to leave his identity as a CEO outside. He asked the man to agree that we all have common basic needs. We are all subject to the laws of nature like gravity. If we don't have air we will die in three minutes. If we don't have clean air we will get sick. So clean air has to be the highest priority on the planet. We are mostly water. If we don't have water for six days, we are dead.
If we drink polluted water we get sick. So clean water has to be put as the next highest priority on earth. Four to six weeks without food and we die. If food is grown in polluted soil, we get sick. So clean food and soil has to be a high priority along with air and water. All our movements come essentially from energy from the sun, so clean energy from the sun must be placed on the list of high priorities. These are the four sacred elements to aboriginal peoples around the world. These are the most basic and essential requirements of life that we must protect as the highest priority. Dr. Suzuki told the CEO that if he would shake hands and agree that he would operate with that view, then Dr. Suzuki would do all he could to help his company. Of course the CEO could not shake hands, because he knew that his shareholders would not accept placing these things as higher in value than their economic goals.

Nature doesn't care about borders we draw. We create economies and markets; they are not forces of nature. We are constantly trying to make nature fit our economic demands. We have to decide on our values, and then make the economy work to serve that.

Rachel Carson's book Silent Springs back in the 1960s was the beginning of getting people to think about the environment. Up until then no government had a department of the environment. The failure of the environmental movement was not getting people to change the way they think.

Dr. Suzuki spoke of his grass roots movement to get the right to a healthy environment for all Canadians. With enough support, pressure can be brought on the premiers to pass legislation. And if seven Provinces get behind the idea with more than 50% of the population, then the movement can go to Ottawa and the Federal government and we can say we want an amendment to the Constitution. Dr. Suzuki calls it the Blue Dot movement. It also tackles hunger, poverty and social injustice. No one can focus on the environment if they are facing these problems. Dr. Suzuki said they used a bus tour starting in Newfoundland to cross the country. The first people they went to were First Nations. Also, many musicians and artists joined the cause. To date 142 communities have passed legislation to ensure a right to a healthy environment, including Halifax.

In conclusion, he thanked the Mi'kmaq people for hanging on to their traditional knowledge and ways of living in harmony with the ecosystem.

Ian MacNeil thanked Dr. Suzuki for reminding those at the Conference of their right to a healthy environment. He thanked the NSCC for the live stream of Dr. Suzuki's presentation.

**Closing Prayer and Farewell to attendees** – Ian MacNeil, Emcee

Chief Norman Bernard offered Dr. David Suzuki a gift from the community.

- **Prayer:** Mary Katherine Piero, Elder, Wagmatcook First Nation

14:06 Conference adjourned