

**Cheryl Bartlett**

**Professor of Biology**

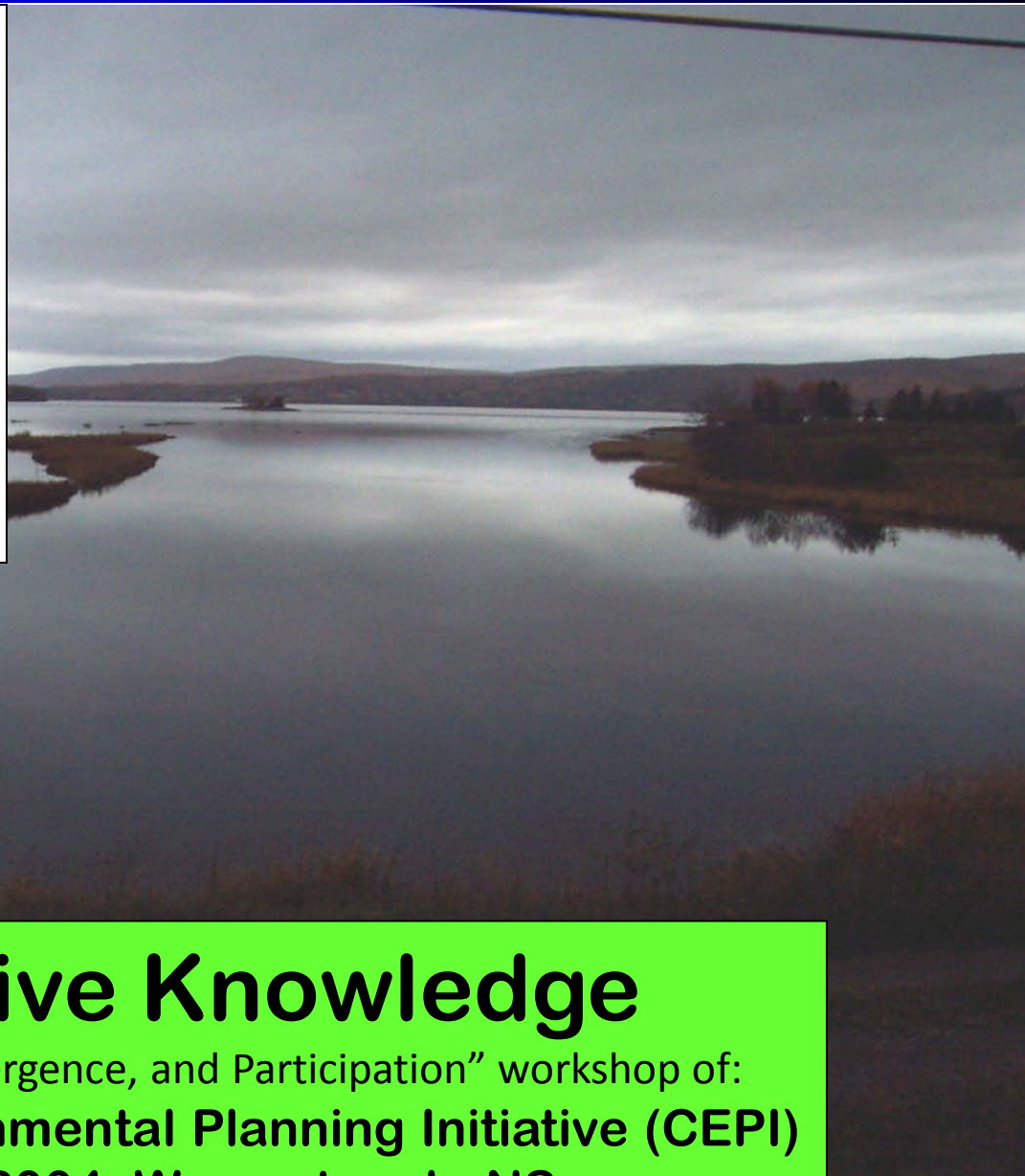
**Canada Research Chair**

**In Integrative Science**



**UCCB**

University College of Cape Breton



## **Integrative Knowledge**

for “Sense of Place, Emergence, and Participation” workshop of:  
**Collaborative Environmental Planning Initiative (CEPI)**  
7 October 2004; Wagmatcook, NS

# Workshop #2: Wagmatcook, Cape Breton

## “Sense of Place, Emergence, and Participation”

*Bras d'Or Lake*

**CEPI**

*Collaborative Environmental  
Planning Initiative*

**IN CONJUNCTION WITH CIHR-IAPH FUNDED, COMMUNITY-  
BASED, PARTICIPATORY ACTION RESEARCH PROJECT:**

**Integrative Health & Healing:  
mental health - ecosystem relationships**



# Bras d'Or health

sewage

clear cutting

mental health

roads, cottages

emissions

erosion &  
siltation

runoff

youth suicide

mining

invasive species

crime

climate change

munitions

over-fishing

substance abuse



# Bras d'Or health

**CHARLIE'S CONCERN:**  
could the entire lake  
become coloured / covered in red?

... beginning or ending?

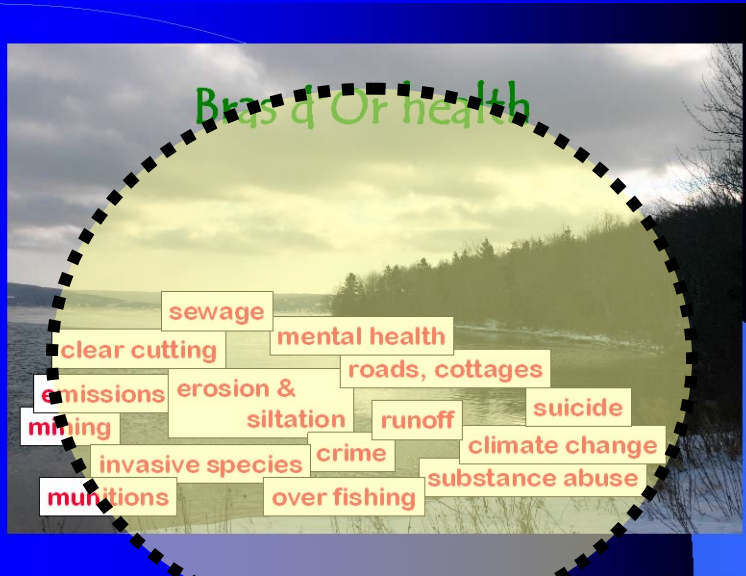


## Integrative Knowledge

for “Sense of Place, Emergence, and Participation” CEPI workshop

# challenges re health

current “seeing”



## Science

theory, written  
masterful  
prediction & control

mathematical models

“rigour language”

- numbers
- language
- naturalist

1) TK?

2) you, me, us ... “we” who live here?  
... and who “know, value, do”

3) change?

to change, we need ... more “seeing”

“vigour” & “rigour”

life & health & now & future

theory, written

(all) mindful

(all) ecosystem relationships

masterful prediction & control

all stakeholders ... us

mathematical models

more of our human “smarts”

- numbers
- language
- naturalist

mental health  
roads, cottages  
erosion & siltation  
runoff  
suicide  
emissions  
mining  
invasive species  
crime  
climate change  
substance abuse  
munitions  
overfishing

WEAVING

UN-WEAVING

# we see & do via “pattern smarts”

participatory  
interconnectedness

all my relations

- numbers
- language
- music
- body (e.g. dance)
- spatial
- all creatures
- self
- naturalist
- spiritual

masterful  
prediction & control

mathematical models

- numbers
- language
- naturalist

**WEAVING**

**UN-WEAVING**

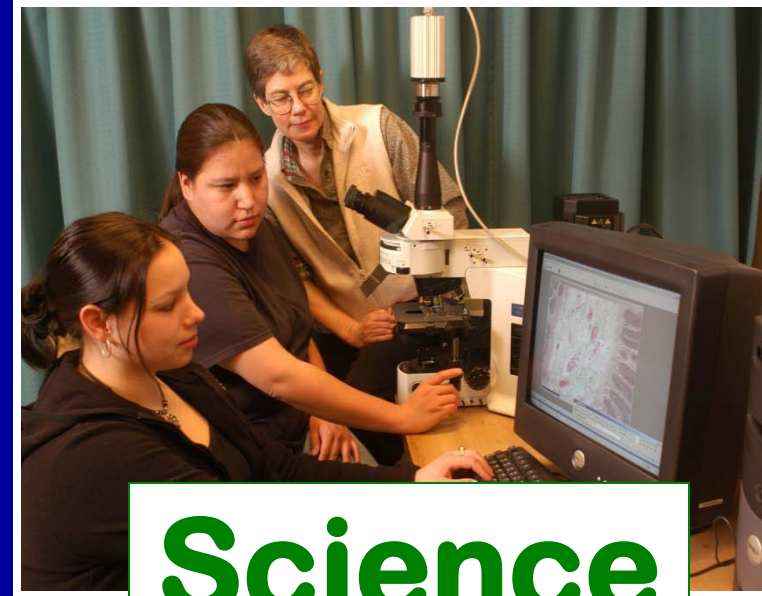


more seeing = “co-seeing”

“vigour” & “rigour”



**TK**



**Science**

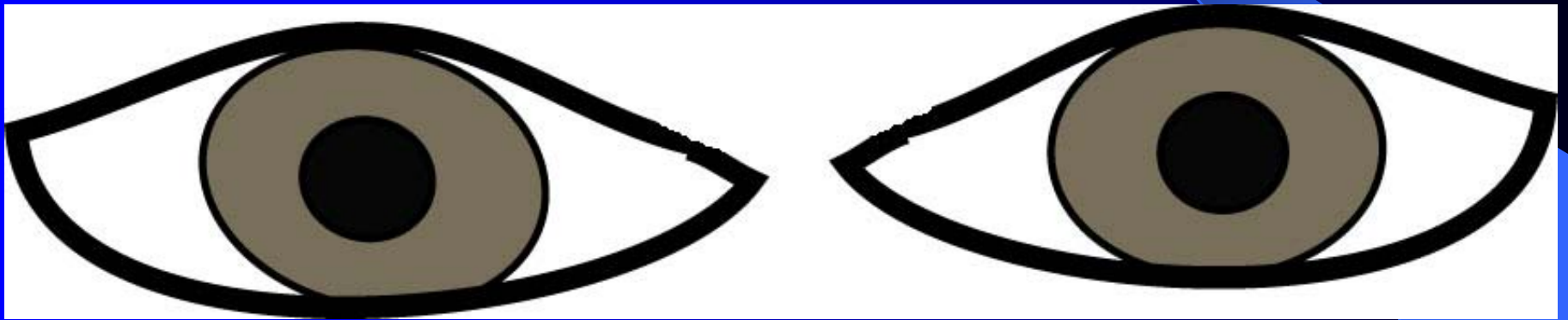
**WEAVING**

**UN-WEAVING**

“co-seeing”

“vigour” & “rigour”

Albert Marshall, Elder, Eskasoni First Nation, Unama’ki



**TK**

**Science**

**WEAVING**

**UN-WEAVING**

**“co-seeing”**

**“vigour” & “rigour”**



**towards resonance  
of understanding**



**towards construction  
of understanding**

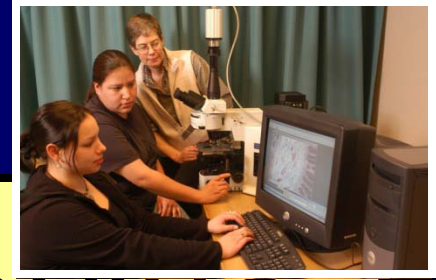
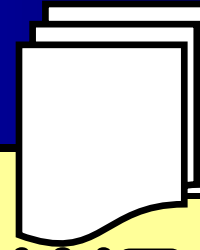
**WEAVING**

**UN-WEAVING**



## WEAVING

- relationship
- respect
- reverence
- reciprocity
- ritual
- repetition
- responsibility

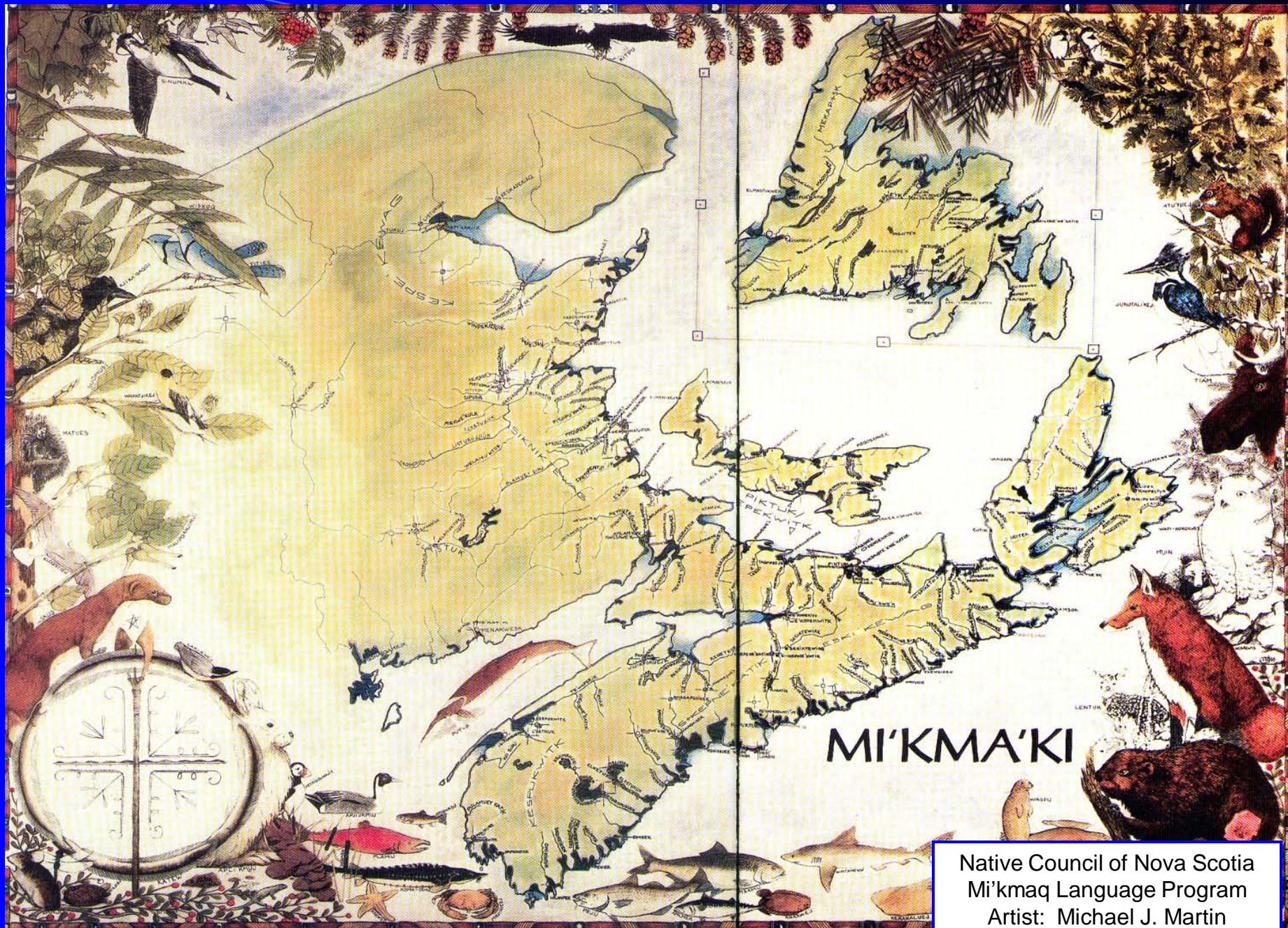


## UN-WEAVING

- data collection
- data analysis
- hypothesis  
(induction, deduction)
- testing
- theory

**“vigour language” & “rigour language”**





Native Council of Nova Scotia  
Mi'kmaq Language Program  
Artist: Michael J. Martin



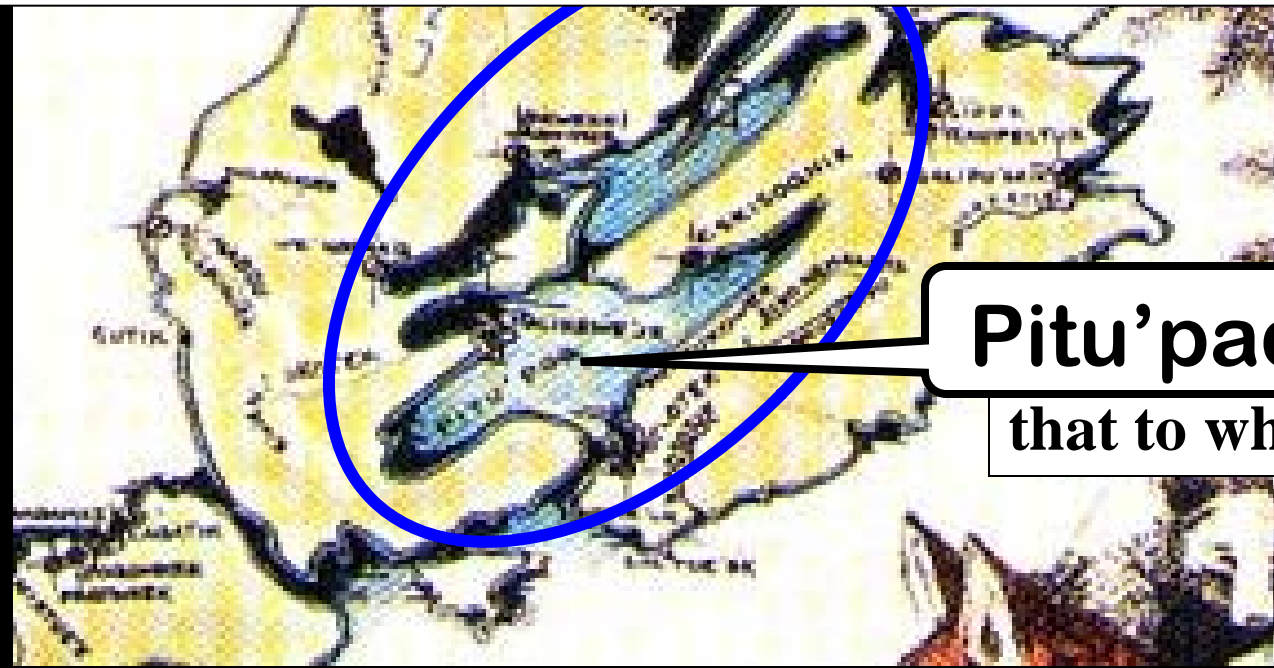
**TK**

The Lakes and Mi'kmaq people are one ...  
a sacred relationship extending through  
thousands of years. (Mi'kmaq Elders, Unama'ki)

**“sacred trust”**

**Integrative Health & Healing**

**... mental health - ecosystem relationships**



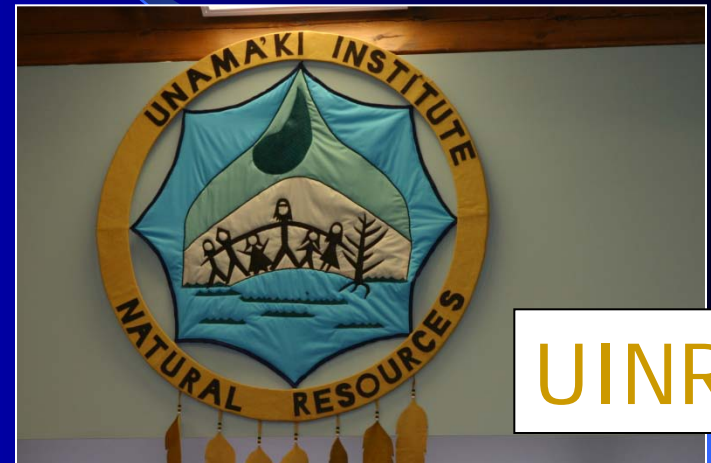
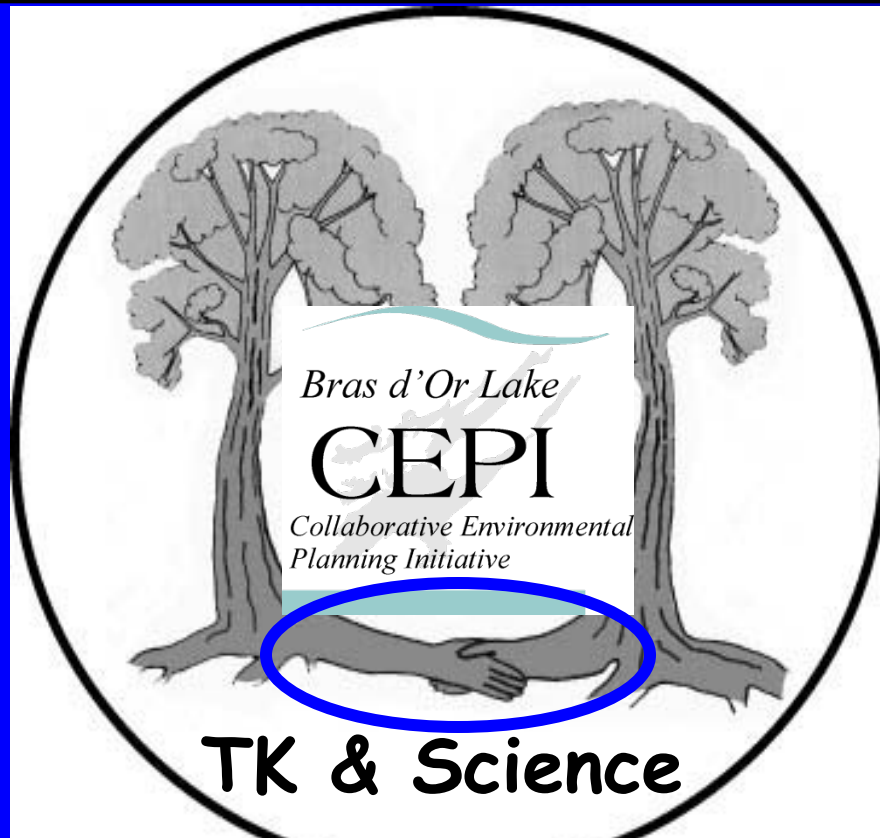
**Pitu'paq**

**that to which all things flow**

Native Council of Nova Scotia  
Mi'kmaq Language Program  
Artist: Michael J. Martin



Go into a forest, you see the birch, maple, pine.  
Look underground and all those trees are holding  
hands. We as people must do the same.  
(late Mi'kmaq Chief, Spiritual Elder, and Healer Charlie Labrador)



**INTEGRATIVE HEALTH & HEALING research project:  
mental health - ecosystem relationships**

# TK & Science ...

## “integrative knowledge”

“integrative” ... both, plus

- our role (you and me) in “the knowing”
- our common ground
- our differences
- our journey forward, together

vs.

“integrated” ... science, plus  
bits and pieces of TK





Artist Basma Kavanagh



**Ta'n tujiw kijjitaqn tela'tasik  
kepme'ktn ketloqo kisiktpi'taskitew.**

Only when knowledge is conditioned  
by respect can it be truly shared.



**TK & Science**

**we need a tool to “co-see”  
towards using our collective smarts**



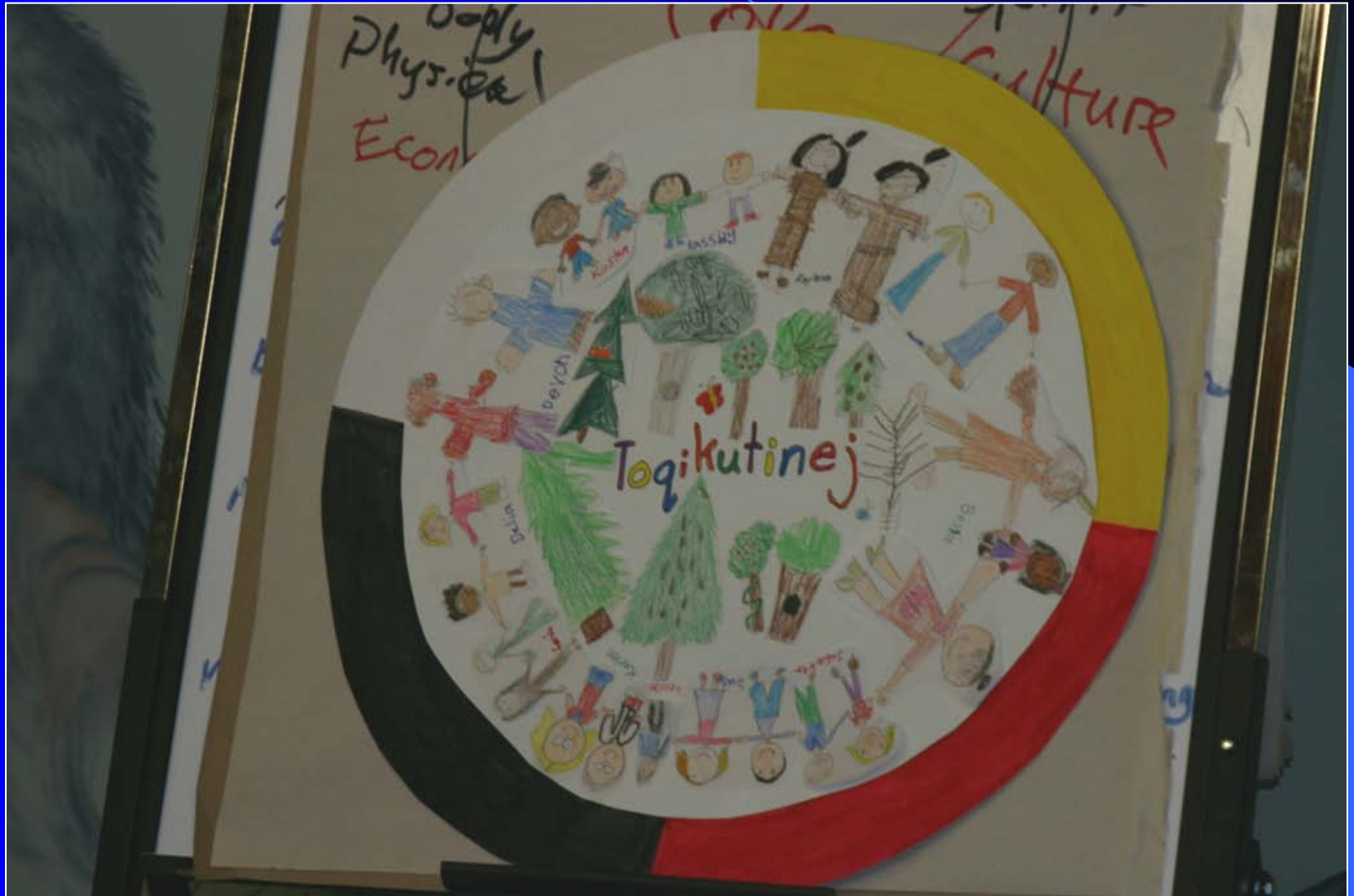
**to know, value, and do ... re:**

**Bras d'Or health:  
our sense of place, emergence, & participation**



a tool ... to help us “co-see”

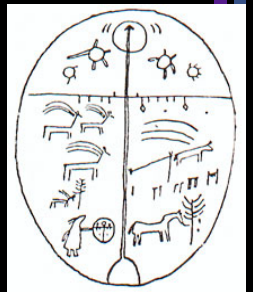
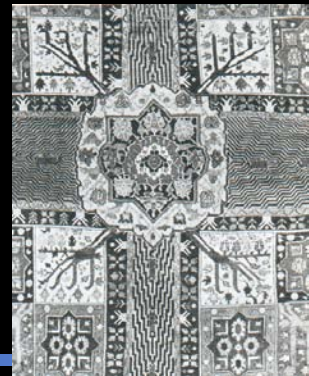
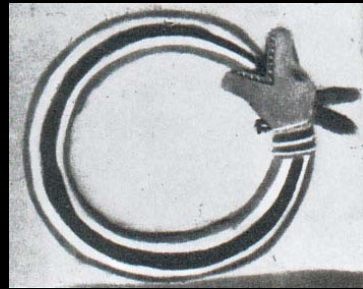
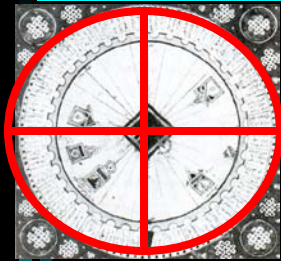
# Medicine Wheel





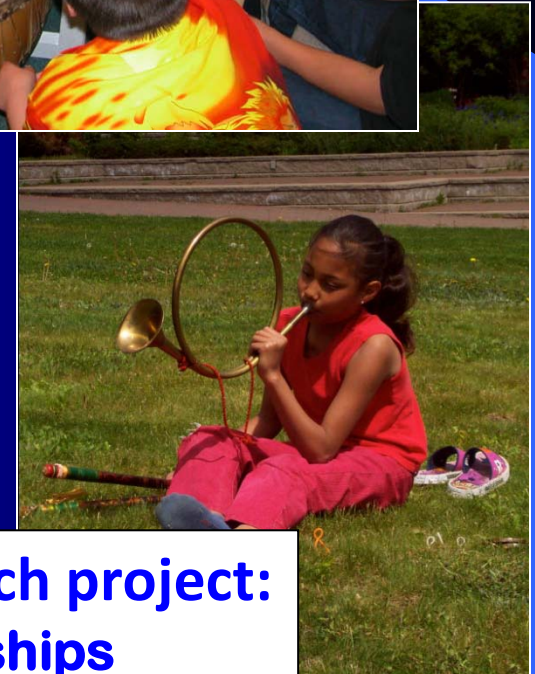
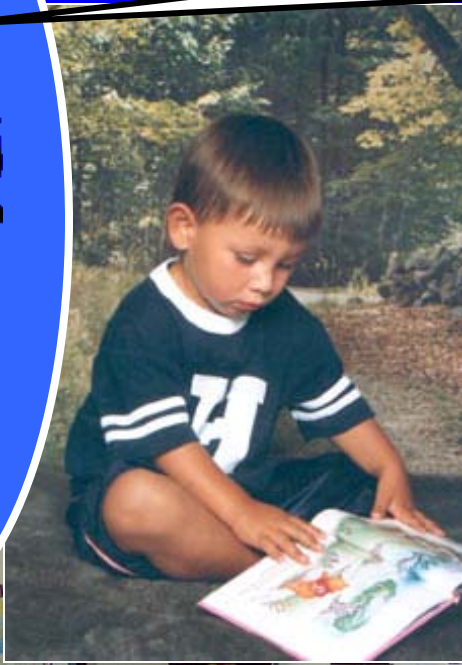
# Medicine ... in many, many cultures: "that which heals, that which helps"

## Medicine Wheels





Elders: "we need to involve youth"



**INTEGRATIVE HEALTH & HEALING** research project:  
mental health - ecosystem relationships

Elders: "we need to involve youth"



**INTEGRATIVE HEALTH & HEALING research project:  
mental health - ecosystem relationships**



Elders: "we need to involve youth"



## Integrative Knowledge

for "Sense of Place, Emergence, and Participation" CEPI workshop

place



“to know, to value, and to do”



**place**

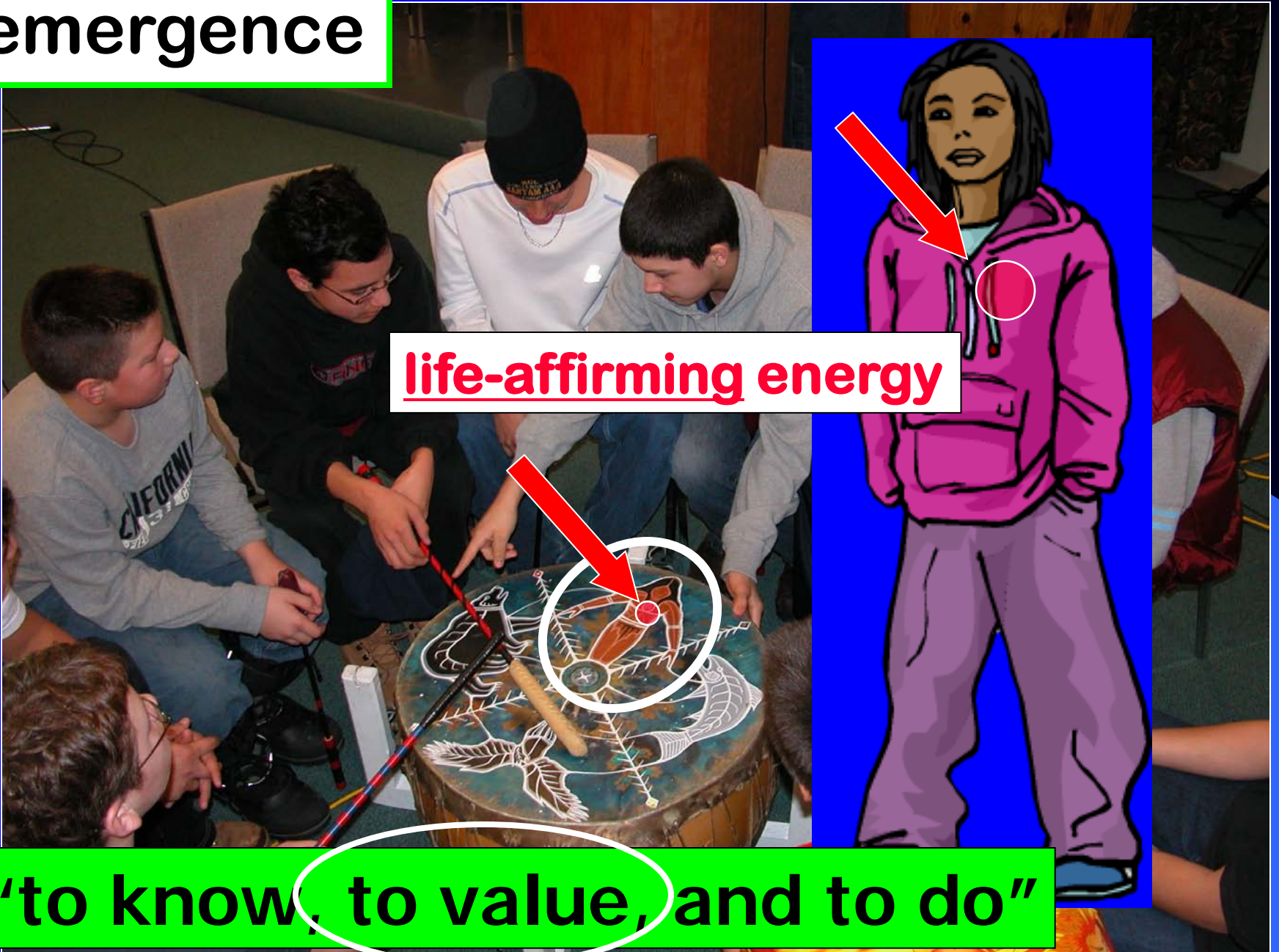
**Puppet Performance**  
(university science students)

**Mi'kmaq Legend:  
How Rabbit Got  
His Long Ears**

**... lived relationships  
with Grandfather Sun**



**emergence**



**life-affirming energy**

**“to know, to value, and to do”**

**emergence**

**cognitive  
know**

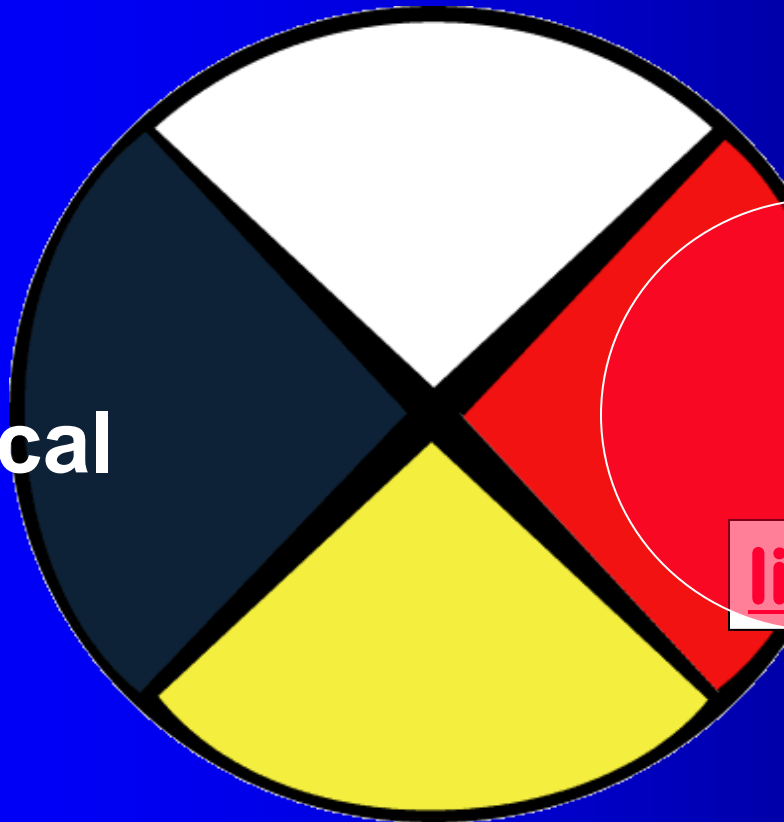
**do  
physical**

**feel  
emotional**

four aspects  
of the  
whole  
human being

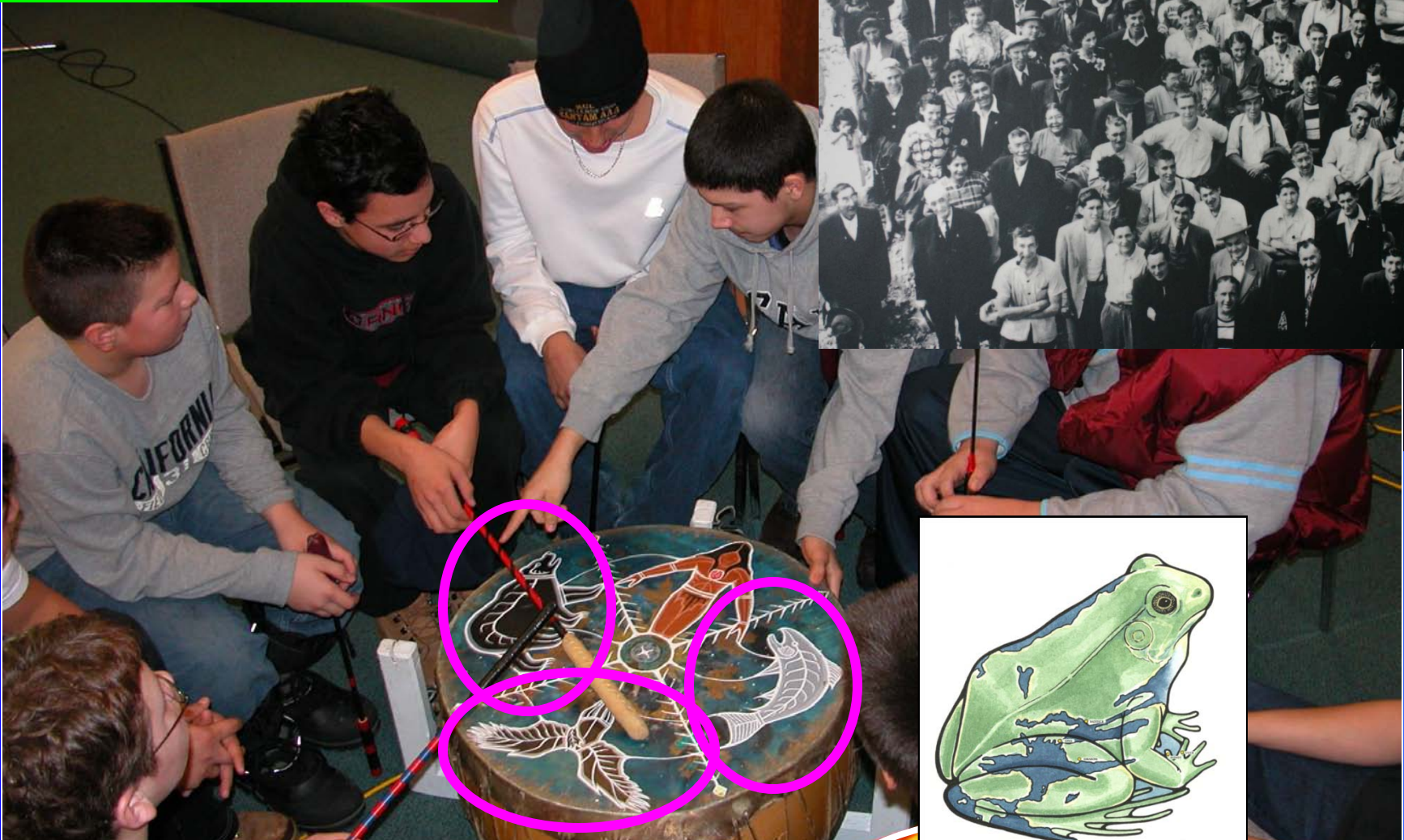
**love - value  
spiritual**

**life-affirming energy**





# participation



**“to know, to value, and to do”**

# participation

Puppet Performance  
(university science students)

Mi'kmaq Legend:  
How Bullfrog Was Conquered

... dealing with greed  
to live our sacred trust



Workshop #2: Wagmatcook, Cape Breton  
"Sense of Place, Emergence, and Participation"

Bras d'Or Lake  
**CEPI**  
Collaborative Environmental  
Planning Initiative

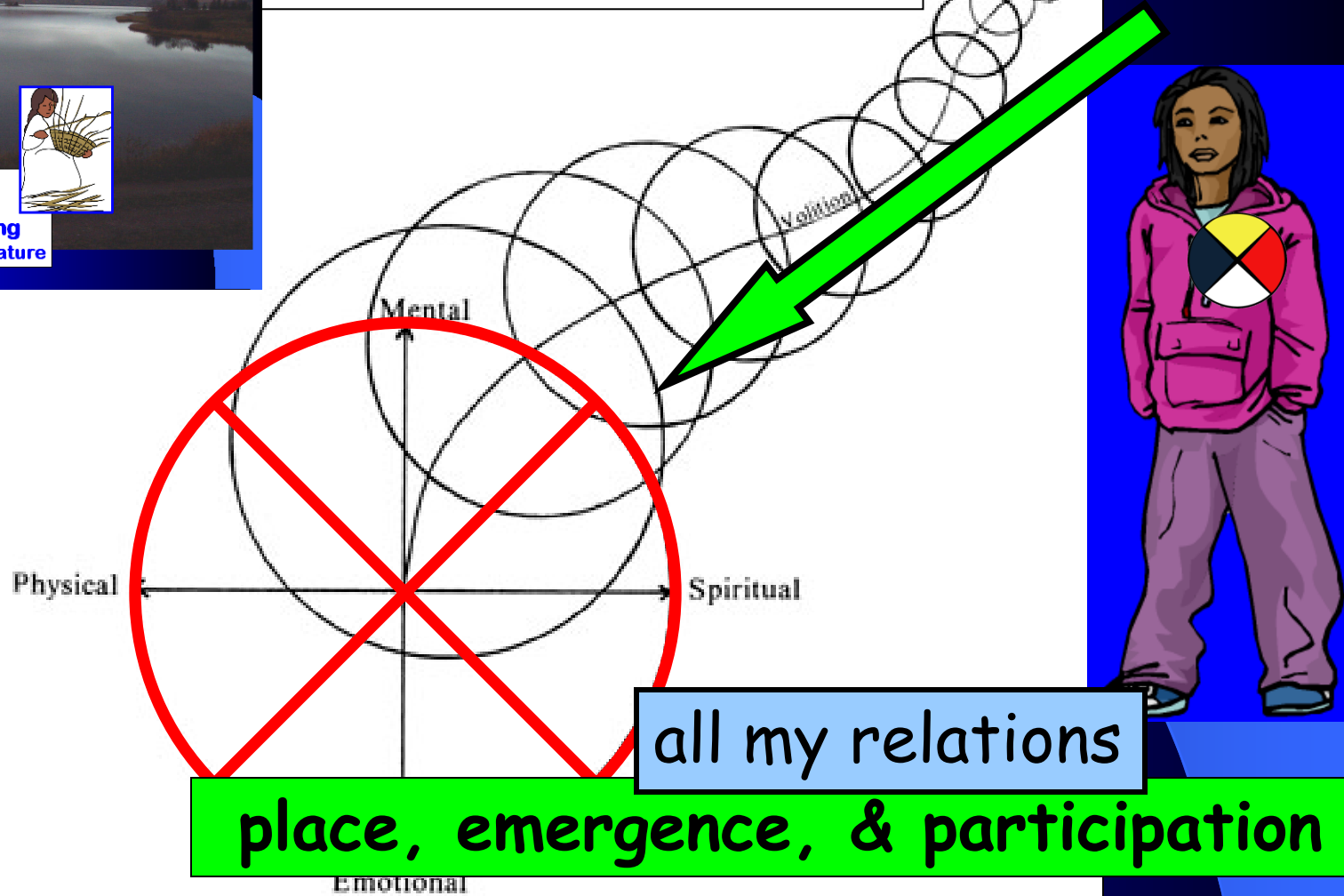
IN CONJUNCTION WITH CIHR-IAPH FUNDED,  
COMMUNITY-BASED RESEARCH PROJECT:

**Integrative Health & Healing**  
... youth & relationships with nature



base image from: "The Sacred Tree"  
by: Lane, Bopp, Bopp, Brown and Elders, 1984.  
published by: Four Worlds International Institute

Vision 



an expanding sense of  
wholeness and connectedness



living systems

4 sacred elements

air

land

fire

water

place, emergence, & participation



Bras d'Or

substance abuse

suicide

crime

air

climate change

mental health

mining

emissions

life-affirming  
energy of change

roads, cottages

land

fire

clear cutting

erosion &  
siltation

runoff

invasive species

water

sewage

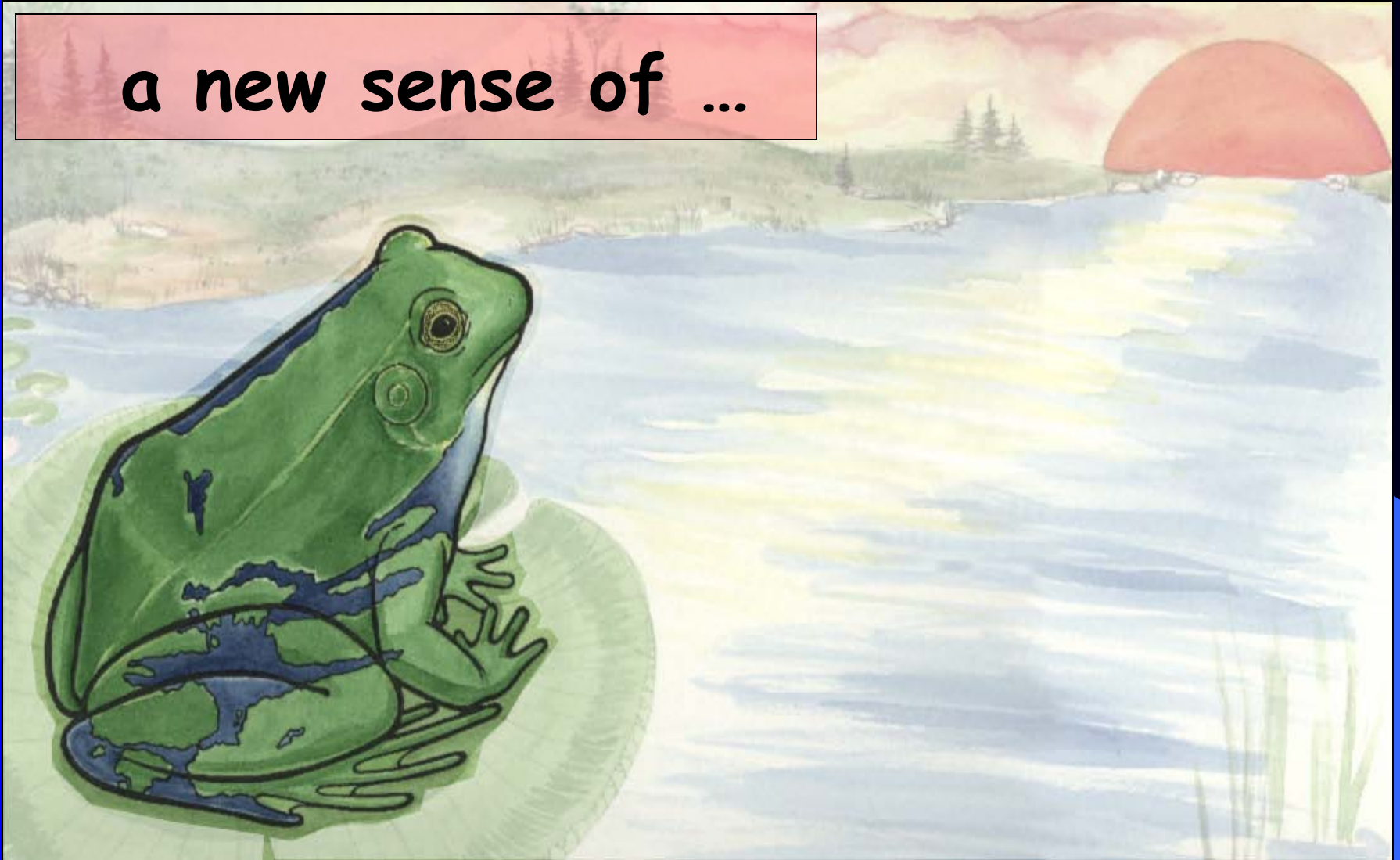
munitions

over fishing

place, emergence, & participation



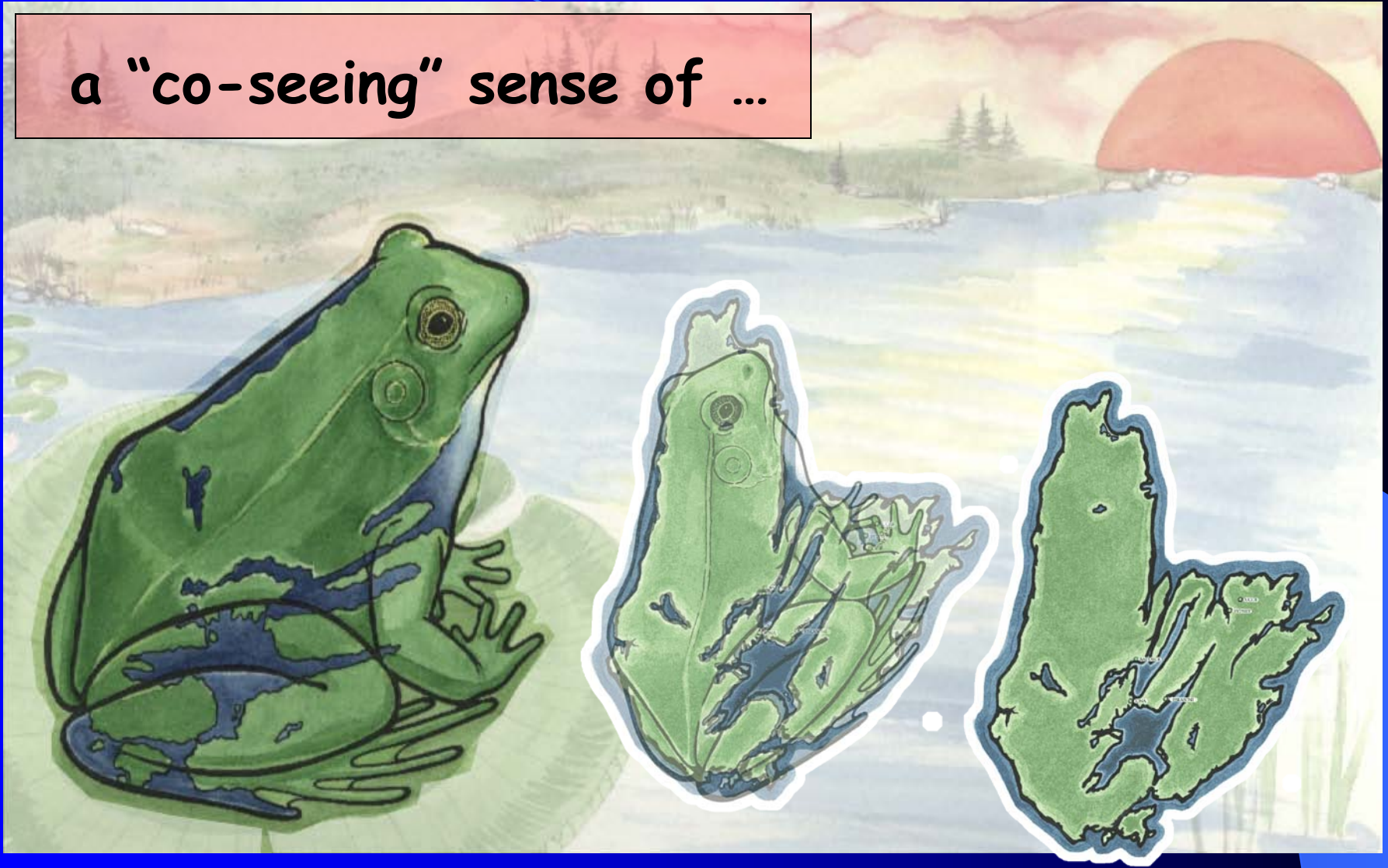
a new sense of ...



Artist Basma Kavanagh



a "co-seeing" sense of ...



Artist Basma Kavanagh

Artist Basma Kavanagh



# Our Place

# Our Emergence

# Our Participation

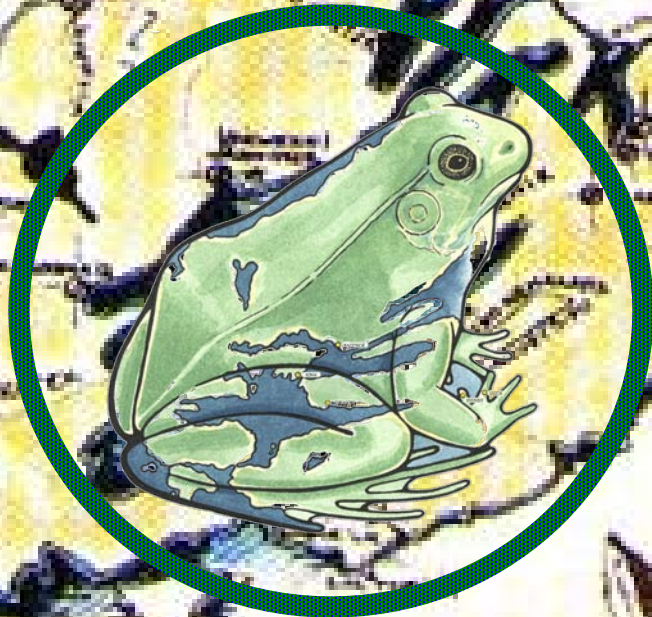




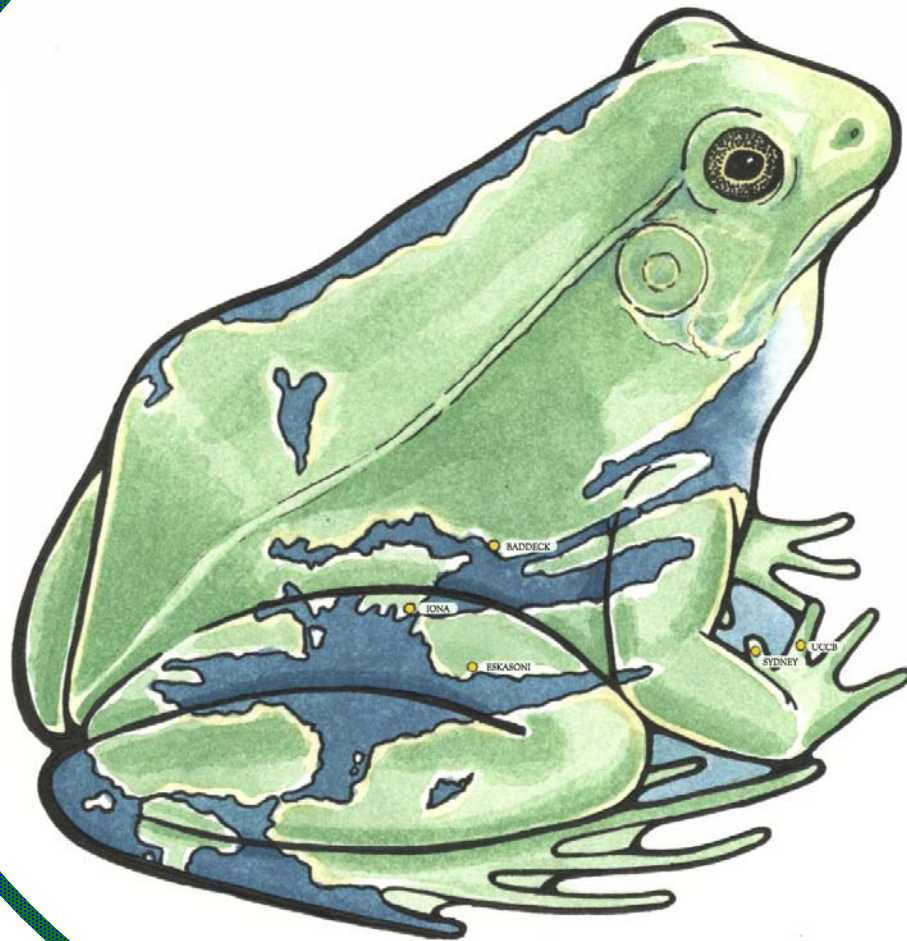
# Our Place

# Our Emergence

# Our Participation



All Our Relations



Pitu'paq

Wela'liog  
Thank you

**Bras d'Or Collaborative Environmental Planning Initiative  
Wagmatcook Workshop Agenda  
October 7-8, 2004**

**Thursday - October 7**

- 9:00           **Registration**
- 9:45           **Opening Prayer and Sweetgrass Ceremony**  
Albert Marshall – Elder, Eskasoni First Nation  
Sylvia Denny – Elder, Eskasoni First Nation  
George Paul – Public Relations – Eskasoni Fish and Wildlife Commission
- 10:15          **Opening Comments**  
Chief Terry Paul – Membertou First Nation  
Albert Marshall - Elder Eskasoni First Nation  
Laurie Suitor - Director of Collaborative Planning – Unama'ki Institute of Natural Resources
- 10:45          **Integrative Knowledge**  
Integrative Health and Healing - Dr. Cheryl Bartlett  
Tier 1 Canada Research Chair in Integrative Science and Professor of Biology,  
University College of Cape Breton
- The Medicine Wheel – Ken Paul – Parks Canada**
- 11:15          **Nutrition Break**
- 11:30          **Introduction to the Workshop Program and Format**  
John Hugh Edwards – Facilitator – St. Francis Xavier University Extension Department
- 11:40          **Working Together - Exploring Current Collaborative Initiatives:**  
- Sustainable Communities Initiative (SCI) - Wayne Bona - Provincial Co-Chair  
- Pitu'paq – Sharon Carter – Bras d'Or Lakes Coordinator  
  NS Department of Environment and Labour  
- Unama'ki Institute of Natural Resources (UINR) – Charlie Dennis – Executive  
  Director  
- Science for the Integrated Management of the Bras d'Or Lakes (SIMBOL)  
  Gary Bugden - Senior Physical Oceanographer, Fisheries and Oceans Canada.
- 12:30          **Lunch**
- 1:30           **Building the Future: Imagining a Healthy Bras d'Or**  
- Puppet Performance of the Mi'kmaq legends of “How Bullfrog Was Conquered” and  
“How Rabbit Got His Long Ears” – as performed by Students from the First Year Class  
(MS&T 101) of the Integrative Science Program at UCCB: Steve Fraser, Mary Johnson,  
Marilyn Julian, Nancy Marshall, Selena Marshall, Amanda Poulette, Mel Ryan,  
Da'Trice Sims, Elena Simon, Kerrie Anne Sylliboy, and Terrence Sylliboy, with  
Instructors Nadine Lefort, Stephanie Bernard and Chantelle Cormier.



- Small Group Work Sessions - participants will develop a vision for the future of the Bras d'Or in relation to the Medicine Wheel.
- In plenary the work of each group will be combined into a large Medicine Wheel which will represent and reflect the work and ideas of all workshop participants.

3:00 **Nutrition Break**

3:30 **Building Our Knowledge**

State of the Bras d'Or Report – Shelley Denny – Senior Biologist and Science Program Manager - Eskasoni Fish & Wildlife Commission (EFWC)

This plenary session provides an overview of current information with presentations on:

- Water Quality - Cheryl Berube – Water Quality Coordinator – Lab Technician EFWC
- Land Development  
Rick McCready – Planner – Cape Breton Regional Municipality  
Pat Bates – Chair of the Bras d'Or Stewardship Society
- Invasive Species – Kara Paul – Biologist - EFWC
- Forestry - Mark MacPhail – Manager Forestry Division, UINR

4:30 **Reflection**

In this plenary session participants will have the opportunity to reflect on the present condition of the Bras d'Or.

5:00 **Closing Prayer** – Albert Marshall

6:00 **Dinner**

**Entertainment** – Andrew “Mooney” Francis (Fiddle) and Vincent Joe (Keyboard)

### **Friday - October 8**

9:00 **Opening Prayer** – Albert Marshall - Elder

9:15 **Reflection on Day 1**

Participants will be asked to reflect on the first day of the workshop. In particular people will be asked to focus on the gap between the vision they created of the future and the present conditions

10:00 **Where the Work Is**

Participants will begin to identify key areas in which action will be required to fill the gap between the present conditions and our vision for the future:

- A review of previous work which suggested priorities for planning including the recommendations of the October 2003 collaborative planning workshop, results from the Sustainable Communities Initiatives community meetings, and State of the Bras d'Or session.
- Small group work sessions

- 10:45        **Nutrition Break**
- 11:00        **Presentations** – Charlie Dennis and Laurie Sutor  
Thanks and Appreciation from the Collaborative Environmental Planning Initiative to:  
Albert Marshall - Elder – Eskasoni First Nation  
Georgia Pacific Canada Inc.  
Stewards of the River Denys Watershed – Robert Livingstone  
Catherine Godwin – Community Volunteer  
Dave Duggan – Head/Coastal Management Section – Fisheries and Oceans Canada  
Lawrence MacDonald – NS Department of Environment and Labour – Regional  
                  Manager
- 11:20        **Where the Work is (continued)**  
- In plenary the work of the small groups will be combined to create a list of key areas  
to be emphasized in the planning process.
- 12:00        **Lunch**
- 1:00         **Building on Our Work 1 - Next Steps to the Future**  
Working with the areas of emphasis agreed upon in the morning, participants will begin  
to explore specific objectives for the planning initiative in small groups and plenary  
discussions.
- 2:00         **Building on Our Work 2 - The Road Ahead**  
Participants will be asked to give recommendations to the Unama’ki Institute on how to  
proceed with the Collaborative Environmental Planning Initiative.
- 3:00         **Closing**  
Charlie Dennis
- Wagmatcook Indian Bay Drummers
- Closing Prayer** offered by Albert Marshall

## **Integrative Knowledge**

**keynote presentation about a new way of seeing to assist the CEPI process**

**by: Dr. Cheryl Bartlett; University College of Cape Breton**

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The concept of “Integrative Knowledge” is new and, as with many things unknown that we are asked to come to understand, a metaphor can be extremely helpful in the learning journey. Albert Marshall, Elder, Eskasoni First Nation, offers an excellent metaphor for Integrative Knowledge in which he emphasizes that all humans have two eyes and encourages us to learn to use both in a new “way of seeing”. In this new way, we need to use one eye to see with the strengths of the Traditional Knowledges of Aboriginal and Indigenous peoples, as, for example, in the traditional practices of the Mi’kmaq First Nations of Atlantic Canada. With the other eye we need to see with the strengths of mainstream or Western Scientific Knowledge, as, for example, in contemporary biology, chemistry, and mathematics. In learning to use both eyes in this new way, we can bring the strengths of the different knowledges together, to help one another in our journey today and tomorrow as participants within the life giving ecosystems of Mother Earth.

In acknowledging that Integrative Knowledge represents a new way of seeing for humans, we must also acknowledge that we will learn how to do this only as we make the first efforts to genuinely try. It is essential that in these first efforts we strive towards a mutual and respectful sharing of knowledge and also recognize that such sharing must be infinitely on-going in our journey. CEPI presents us with the challenge and opportunity of a cross-cultural collaborative journey. It brings together different communities, sectors, levels of government, universities, and organizations — all of whom contain “knowledge holders” whose viewpoints and perspectives may be linked directly or indirectly to Traditional Knowledge or Western Scientific Knowledge.

Integrative Knowledge, or “two-eyed seeing”, has immense potential to assist CEPI. Harnessing this potential will require that we recognize four major things: (1) that we (you and I) have an active role as “knowers” in our “ways of knowing”; (2) that we have common ground between our knowledges; (3) that we have differences in our knowledges that we wish to respect; and (4) that our journey on Mother Earth must be forward, together.

Traditional Knowledge emphasizes living relationships of interdependence and interconnectedness, and furthermore always reminds we humans of our responsibilities within these. Western Science emphasizes laws of energy and matter, but neglects the roles and responsibilities of humans. So ... how can we begin to put the above four requirements of Integrative Knowledge into action? Our efforts can start with a very simple consideration of our “sense of place, emergence, and participation” within the Bras d’Or ecosystem.

“Sense of place” can be fostered by way of the Medicine Wheel, a sacred tool for many of the world’s diverse cultures including Canada’s First Nations. When the Medicine Wheel is represented as an X within a circle, the relationship of Grandfather Sun with Mother Earth and you “the knower” over one year is ideally depicted ... i.e. your place is represented. Within this, you are offered guiding concepts of cardinal directions, change, balance, wholeness, reciprocity, and duality ... and much more. These concepts begin to speak to “knowing”.

“Sense of emergence” can be explored visually using the Medicine Wheel and its guiding concepts. Here the “life affirming energy” that comes from the hearts of individuals and communities is essential



— it is this energy that maintains balance among the Wheel’s four quadrants. This concept begins to speak to “knowing plus valuing”.

“Sense of participation” can also be explored visually using the Medicine Wheel since the characteristic biodiversity of an ecosystem can be represented within its quadrants. In particular, this can constantly serve to remind us of all our brother and sister organisms (“all our relations”) with which we share the place we call home. And, from this can come a much richer exploration of the various voices and gifts that our brothers and sisters within the ecosystem bring to our collective journey. These concepts begin to speak to “knowing and valuing, plus doing”.

Integrative Knowledge can start with some of the very simple, yet potentially exceedingly complex concepts outlined above. The presentation “Integrative Knowledge” at the beginning of the CEPI Workshop at Wagmatcook in October 2004 was created to help address challenges identified at the first workshop in October 2003. It was offered completely within a generous spirit of new integrative thinking towards “knowing, valuing, and doing” that management and stewardship for healthy and sustainable ecosystems demand of us, and particularly when the planning for this management and stewardship is to be done in a truly collaborative manner. The Integrative Knowledge presentation ended with the island of Cape Breton artistically rendered as Frog ... an animal whose life consists of transformation while drawing sustenance from the land, water, air, and energy of its home surroundings.

## **Puppet Presentations of Mi'kmaq Legends**

- **How Rabbit Got His Long Ears and**
- **How Bull Frog Was Conquered**

by: **Mi'kmaq Students in UCCB's Integrative Science course MSIT 101**

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The afternoon of the first day of the workshop began with puppet enactments by students enrolled in UCCB's Integrative Science first year course MSIT 101. UCCB's Integrative Science program brings together Aboriginal and Western scientific knowledges for the purposes of post-secondary science education, research projects involving science, and applications in communities involving science (<http://www.integrativescience.ca>).

### ***How Rabbit Got His Long Ears***

The story revolves around the importance of the sun (Na'ku'set) for life on earth, as found in the day-to-day lives of forest animals. Rabbit creates considerable anxiety that quickly spreads to encompass the entire community of animals when he starts a joke that the sun will cease to shine. As a result, Rabbit has his ears "pulled long" as a reminder of his inappropriate, inconsiderate audaciousness (ki'kaja'sit).



### ***How Bullfrog Was Conquered***

The story revolves around the hoarding of a vital natural resource (water), the resolution of this greed, and the roles animals can play to remind us of our spiritual responsibilities towards each other. It features "clean water" (waqmapua'q ... the flowing is clean) and "dirty water" (mejikapua'q ... the flowing is dirty) within the larger understanding that water is essential for life (samqwan npisunapu ... water medicine; ikn namakwemkeway ... divine gift). The story emphasizes the understanding that individual human greed must be overcome by actions at the community level, and Bullfrog's wrinkles serve to remind the people what happens to those whose personal wants are out of balance with the needs of the community.



The puppets used to enact the Mi'kmaq legends were made by young people who used natural materials such as bark, moss, twigs, and leaves that are easily picked up in local forests. Natural materials were chosen to help re-establish connections with the land and thus help young people begin to sense and nourish their understandings of the bio-spiritual relationships within Traditional Knowledge. This hope for the youth is the theme behind the Integrative Health and Healing (IHH) research project that involves various university and Mi'kmaq community partners. The IHH project is funded by the Institute of Aboriginal Peoples= Health, within the Canadian Institutes of Health Research (CIHR-IAPH).

***Sense of Place, Emergence and Participation:*** Like the stories of many Aboriginal and Indigenous peoples, Mi'kmaq legends feature intimate understandings of the peoples' natural environment, i.e. their "sense of place, emergence, and participation" in a specific ecological context. These understandings are woven via story into the rich, living knowledge system (Traditional Knowledge) that interconnects the human generations with diverse animate and inanimate forms sharing the land, water, and air. Via the puppet shows, we wish to suggest that this strength within Traditional Knowledge needs to be more fully acknowledged by society in general. Furthermore, it should be embraced as we seek ways to connect the mathematical language and empirical-analytic-objective

methodological strengths of Western Science with the broader questions of human health, environmental planning, and ecosystem stewardship.

***Gifts that non-human animals offer human animals:*** In both Mi'kmaq legends, a physical aspect of the main character (Rabbit's long ears, Bullfrog's wrinkles) becomes a reminder to humans that their communal happiness, health, and longevity necessitate movement in consciousness from individual to collective ... and, ultimately, to "we are all one". Thus, the stories involve a symbolism, a gift, or "via me, remember this message" from an animal to humans. Often, the animal referent has multi-vocality or "many voices", as well as multi-valency or "many gifts"; thus, the stories are complex and rich. For example, Bullfrog further serves to remind us that, just as frogs undergo metamorphosis from tadpole to adult, an individual human's consciousness over the course of time must change towards more advanced wisdom. In order for efforts such as CEPI to succeed we must bear in mind these ideas of evolving wisdom.

Mi'kmaq words or phrases for some of the key concepts above are: nestu'et (individual consciousness); nestua'tijik (collective consciousness); nkte'ji'k ("we are all one"); keknuaqnasit kulaman mikuite'tew (symbolism, gift, or "via me, remember this message"); pikwelkl wsitunual (referent animal's multi-vocality or "many voices"); pikwelkl iknmakwemkl (referent animal's multi-valency or "many gifts"); nikwet (growing); and nsituo'qn (more advanced wisdom).

***Why puppet shows?*** Environmental management and stewardship projects frequently call for non-native scientists and government organizations to involve Traditional Knowledge (aka TK, Traditional Ecological Knowledge, Aboriginal Knowledge/Science, Indigenous Knowledge/Science, Native Knowledge/Science) in planning, consultation, and implementation phases. This often presents a challenge for those individuals who are familiar mainly or only with "western" or "Eurocentric" methodologies and knowledge systems, especially when science is envisioned as being only objective, empirical, and analytic and, moreover, when this science is accorded the lead role in the conception and evolution of the projects. Traditional Knowledge, unlike this vision of Western Science, embraces a wholistic approach in that it considers the cognitive, physical, emotional, and spiritual aspects of humans. The puppet enactments of the two Mi'kmaq legends were presented in an effort to bring to the audience at the CEPI Workshop some initial exposure to the very important issue of "embracing both the subjective and the objective re collaborative environmental planning", or "how to connect head and heart knowledges among different cultures". This issue will likely become critical to the success of CEPI as it begins to draw upon the strengths within both Traditional Knowledge and Western Science, as we begin to walk our collaborative path towards environmental planning and management for improving and guarding the health of the Bras d'Or Lakes and its watershed. The fact that puppetry appeals to humans of all ages and can thus be used to educate in a way that is joyful and easily understood was very apparent at the Workshop. Furthermore, puppetry enables such a Workshop to comfortably expand its agenda to include voices, participants, and ages not generally featured i.e. the "youth component" that the Elders keep telling the planners is essential in order for CEPI to succeed. Indeed, the laughter of the small children who came specially to the Workshop to view the puppet show melted the hearts of all in the audience; may their laughter continue to remind us of the importance of including such life-affirming, inter-generational aspects within our on-going, overall efforts.

***More information:*** Further exploration of Aboriginal storytelling and Mi'kmaq legends can be found online at <http://www.horizonzero.ca/textsite/tell.php?is=17&file=8&tlang=0> (HorizonZero Issue 17: TELL: aboriginal story in digital media).