# Partnership Grant Milestone Report

**File number:** 895-2015-1024 **Project Director last name:** PARLEE
**Institution:** University of Alberta
**Project Title:** Tracking Change: Local and Traditional Knowledge in Watershed Governance

## 1.0 PROJECT SUMMARY

1.1 *Provide a plain-language summary of the results of your project to date. This summary may be used for promotional purposes. Do not include proprietary information or personal information about others. (Max. 300 words)*

**Tracking Change** is a multi-year research network of Indigenous communities, universities, governments and other partners including the Mackenzie River Basin Board. The broad goal is to create opportunities to collaboratively document and share local and traditional knowledge (LTK) about social-ecological change in the Mackenzie River, Lower Mekong, and Lower Amazon basins and determine its' role in watershed governance. The project is focused on building capacity through community-based research projects, networking activities, symposiums, and multidisciplinary publications. Freshwater ecosystems globally are under significant stress from resource development and impacts of climate change. Graduate students and community partners are working to document observations and experience of disturbances to fish, fish habitat, water levels, and water quality. These changes are ecologically significant but also have reverberating effects on the economies, cultures, and well-being of fishing communities. By workinops, g globally, the project aims to build and mobilize knowledge that can contribute to better decision-making including improved recognition of the value of subsistence freshwater fisheries.

Twelve **Community-Based Projects** were funded (through an RFP process) in each of 2016 and 2017 throughout the Mackenzie River Basin that involved similar kinds of research methods and activities including fish camps, canoe trips, youth-elder knowledge exchanges, semi-structured interviews, workshops, and secondary literature reviews. An interview guide and a 'toolbox' of methods was provided to guide communities to carry out projects in ways considered synergistic with other projects in the basin. Research in the Amazon and Mekong basins established baseline information in 2016 and project were underway In 2017 and 2018.
**Knowledge Mobilization and Transfer** to date has focused on knowledge sharing through literature reviews, methods documents and research toolkits, website and social media presence, seminars, webinars, conferences and workshops, and shared reporting; more recent efforts are directed to the production of academic and professional publications. In May 2016, the project hosted the first **Youth Knowledge Fair** to engage the next generation in monitoring and traditional knowledge research; the second fair is scheduled for May 2018. In February 2017, the first ***Tracking Change Global Knowledge Symposium*** was held in Ubon Ratchathani, Thailand where students, academics, community leaders and other researchers shared their first year of research outcomes together. The second symposium is planned for February 2019 in Santarem, Brazil and the third and final global symposium will take place in Edmonton, Alberta in 2021.

## 2.0 PARTNERSHIP UPDATES

2.1 Using the table or format below identify contributing partners that have joined the project since the time of the formal application.

| Contact Full Name | Organization (province or country) | Role or Activity (e.g. support, research, training, knowledge mobilization) | Total Contribution (cash or in kind value in $CDN) |
|---|---|---|---|
| Government of Alberta | Alberta | Support, research, knowledge mobilization | TBD |
| | | | |

2.2 Using the table or format below identify participants (co-applicants and collaborators) who have joined the project since the time of the formal application.

| Full Name and Organization | Role (co-applicant or collaborator) | Description of activities or contributions |
|---|---|---|
| Dr. Kanokwan Manoram | Co-applicant | Tracking Change in the Mekong Basin |
| Dr. Ellen Bielawski, University of Alberta | Co-applicant | Community-based research initiatives |
| Dr. Bryan Grimwood | Co-applicant | Community-based research initiatives |
| Dr. Arn Keeling | Co-applicant | Community-based research initiatives |
| Dr. Mark Poesch | Co-applicant | Community-based research initiatives |
| Dr. Herman Michell | Co-applicant | Community-based research initiatives |
| Tracey Howlett | Collaborator | Knowledge Mobilization, Government of Alberta |
| Corinne Porter | Collaborator | Aboriginal Representative for Yukon on TKSPC MRRB |
| | | Aboriginal Representative for Northern Alberta on TKSPC MRRB |
| Kyle Nault | Collaborator | Aboriginal Representative for Yukon on TKSPC MRRB |

2.3 Using the table or format below identify any other participants or organizations (who are not participating as co-applicants or collaborators, or who have not opted to become formal partners) who have joined the project since the time of the formal application.

| Full Name Organization | Role | Description of activities or contributions |
|---|---|---|
| Telus World of Science, Edmonton | Collaborator | Contribute to Knowledge Mobilization activities |
| Ron Harpelle and Kelly Saxberg, Sheba Films, Thunder Bay, ON | Collaborators | Video production/streaming of the Global Knowledge Symposium, excursions, and activities |
| | | |

## 3.0 STUDENTS' AND POSTDOCTORAL RESEARCHERS' PARTICIPATION

3.1 How many students, postdoctoral researchers and/or non-students, respectively, are participating in your project?

| | **Supported by SSHRC grant** | | **Not supported by SSHRC grant** | |
|---|---|---|---|---|
| | Number of Canadian and permanent residents | Number of foreign | Number of Canadian and permanent residents | Number of foreign |
| Undergraduate students | | | | |
| Master's students | 7 | 5 | 4 | |
| Doctoral students | 1 | 2 | 1 | |
| Postdoctoral researchers | | 1 | | |
| College students | | | 1 | |
| Other (e.g., technician, professional research associate) | | | 1 | |
| **Total Number** | 8 | **8** | **7** | |

3.2 Indicate, if applicable, the kinds of activities in which students and/or postdoctoral researchers, supported by the SSHRC grant, are engaged in as part of this initiative. Select all that apply.

| **Activities** | **Undergraduate students** | **Master's students** | **Doctoral students** | **Postdoctoral researchers** | **College students** |
|---|---|---|---|---|---|
| Data collection | | X | X | | |
| Data entry | | X | X | | |
| Data analysis and literature review | | X | X | | |
| Communications (e.g., lecturing or presenting at conferences) | | X | X | | |
| Mentoring | | X | X | | |
| Networking and collaborations | | X | X | | |
| Outreach activities | | X | X | | |
| Participation in publications | | X | X | | |
| Project Design | | | | | |
| Report writing/editing | | | X | | |
| Teaching (including pedagogy and/or educational training). | | | X | | |

| Activities | Undergraduate students | Master's students | Doctoral students | Postdoctoral researchers | College students |
|---|---|---|---|---|---|
| Internships or other activities in the business, not-for profit or government sectors | | X | | | |
| Activities that provide international experience | | X | X | | |
| Other (Specify: Video production, webinar development, map) | | X | X | | |

**4.0 ORGANIZATION OF ACTIVITIES**

*Provide an overview of the way in which the Partnership is organized (e.g. working groups, clusters, themes, teams, departments), as well as the research and/or related activities or sub-projects associated with each grouping. If applicable, identify any changes from the formal application.*

*This section should provide a clear 'road map' of where the project will be going throughout its lifetime in a year-by-year format, which can then be referred to at the Midterm Review. Please use the best format (text, bullets, organograms, charts etc.) to illustrate you plans.*

The Tracking Change project is a partnership led and administered at the University of Alberta in partnership with multiple community, government, university partners as well as academics and students living and working in the Mackenzie, Lower Mekong and Lower Amazon Basins.

The Project Team includes all Partner Organizations[1], Academic Co-applicants, Collaborators, Students and Community Researchers. The Project Management Committee includes the Mackenzie River Basin Board (MRRB) Traditional Knowledge and Strengthening Partnerships Committee (TKSPC), a representative of the Government of the Northwest Territories, the Academic Leads for each of the Mackenzie (Parlee), Mekong (Baird) and Amazon (Silvano) and the Academic Leads for the six Sub-Basins of the Mackenzie (Lantz, Natcher, Napoleon, Jobin, Parlee, Wesche).The Executive Committee includes an Aboriginal member of MRRB TKSPC, the Principal Investigator (Parlee), a sub-basin academic lead (co-applicant) from another Canadian University, and a representative from Water Resources Division of the Department of Environment and Natural Resources of the Government of the Northwest Territories.

The project is designed as a six year period to allow adequate time to build opportunities for research Partnership activities across the Basin, create opportunities for community/region specific projects, as well as to ensure time for the development, implementation and dissemination of the outcomes within Canada and internationally. Research activities are organized in four phases over the life of the project. Phase 1 (2015-2017) – Review and Planning to mobilize team members and develop a Training Plan and Knowledge Mobilization Plan (including terms for protecting intellectual property rights of LTK holders). Through 2016 we recruited and trained students and community researchers, and created terms of reference for funding research in each Sub-Basin Node. Phase 2 (2016-2018) – Community-based Research in Sub-Basins – where bottom-up thinking, place-based research activities, and community-based research methods are key to meaningful engagement in the Partnership and ensuring that socio-cultural diversity (values, beliefs, practices) are respected. Research at more than twenty sites in each of the Mackenzie, Mekong and Amazon Basins is being undertaken with the aim of situating work in locations of social and ecological significance. The intent is to encourage communities to utilize and share their own best practices for LTK research (e.g., use

[1] *Aboriginal organization partners of the Tracking Change project are those Aboriginal governments, organizations and co-management boards who provided a letter of support for the funding application to the Social Sciences and Humanities Research Council (2014) including acknowledgement of the Principles of Partnership. Other Aboriginal organizations can be added as partners by i) by being nominated by an existing Partner or member of the MRRB Traditional Knowledge and Strengthening Partnerships Committee, and ii) becoming a signatory to the* ***Guiding Principles of Collaboration****.*

an integration of Aboriginal languages, interview approach etc.) such that other communities can learn from both the research. process and the outcomes. Funding of community-based projects is allocated on recommendation of the TKSPC according to proposals submitted, with an eye to equity in the number of projects funded in each sub-basin. Phase 3 (2018-2020)- Basin-Wide Research in the Mackenzie – A basin wide research initiative will allow greater understanding and synthesis of the linked nature of LTK. Drawing on the results of Phases 1 and 2, the research team will identify a suite of commonly valued LTK indicators of social-ecological change that might be used in a multi-community research activity. We anticipate this will include a digital storytelling process involving multiple communities in year 3 and/or 4 in which we will knit together narratives on common issues and themes (e.g., food security). A social-ecological survey will be carried out in year 5. This survey effort will be guided by previous multi-community studies in the Mekong and that which has taken place in marine ecosystems in Canada, Latin America and the circumpolar north. Where possible and meaningful, the team will build on previous research initiatives in each basin and cross-fertilize ideas between the Mackenzie-Mekong-Amazon. Phase 4 (2019-2021) - Global Connections – The project will result in a more linked understanding of how fishing livelihoods in the Mackenzie-Mekong-Amazon basins are changing and what those changes mean for governance. A major focus will be in analyzing the implications of the research undertaken at many different scales of decision-making including globally. During three global meetings (Ubon, Santarem, Yellowknife), members of the research team gather (2017, 2019, 2021) to share insights about the research process and outcomes.

MILESTONES: Phase 1 objectives have been met, and Phase 2 objectives will be completed by the end of 2018. Phase 3 is developing. Understandably, there will be overlap in the planned phases through the life of the project, depending on results and circumstances that arise.

**5.0 KNOWLEDGE MOBILIZATION**

***Knowledge mobilization:*** *The reciprocal and complementary flow and uptake of research knowledge between researchers, knowledge brokers and knowledge users—both within and beyond academia—in such a way that may benefit users and create positive impacts within Canada and/or internationally, and, ultimately, has the potential to enhance the profile, reach and impact of social sciences and humanities research. Knowledge mobilization initiatives must address at least one of the following, as appropriate, depending on research area and project objectives, context, and target audience:*

*Within academia:*

- *informs, advances and/or improves:*
  - *research agendas;*
  - *theory; and/or*
  - *methods.*

*Beyond academia:*

- *informs:*
  - *public debate;*
  - *policies; and/or*
  - *practice;*
- *enhances/improves services; and/or*
- *informs the decisions and/or processes of people in business, government, the media, practitioner communities and civil society.*

Knowledge is created and shared within each Basin and between Basins through yearly workshops, River Gatherings in yrs. 1, 3 and 5 and global meetings in yrs. 2, 4, 6 and other site-specific activities (e.g., in the Mackenzie River Basin, Fish Camps are held in each of the sub-basins). Upstream-Downstream sharing of knowledge is planned for neighboring communities. In addition to this neighbour-neighbour (adjacent) knowledge translation process, a snowballed (additive and cumulative) understanding of the kinds of downstream changes is occurring.

Knowledge mobilization also occurs along theoretical and thematic paths; regardless of their location in each basin (Mackenzie, Mekong and Amazon), team members and partner organizations gravitate to those with similar theoretical interests, concerns and issues. In addition to

theoretical/thematic networking, there is significant interest in common questions of climate change, resource development, the role of youth and gender.

A final mode is Global Knowledge Networks whereby key collaborators and co-applicants network with others who have an interest in the project and its outcomes but may not be in a position to directly participate. Individuals participate in distributing research reports and academic papers. The knowledge translation of the Partnership is expected to grow year to year with an increasing number of knowledge users benefiting over time.

These knowledge networks enable the research team to contribute to watershed governance at different institutional scales. Individuals and communities make daily livelihood decisions (e.g., can I eat the fish?) within a local-level institutional framework of social norms (indigenous law, rules-in-use). Regional governments and co-management boards whose decisions are informed by regulations as well as LTK must also make decisions about many aspects of Basin sustainability through their own mandates (e.g., fisheries management, land use planning, watershed planning). A third institutional scale is that of basin-wide governance; of obvious relevance is the Mackenzie River Board, the Mekong River Commission, the Amazon Cooperation Treaty Organization and their constituent governments. Other regional organizations including NGO networks also operate at this scale.

Individuals and organizations also interact across institutional scales with the opportunity of informing global governance including softer principles and processes of law and decision-making (e.g., United Nations Intergovernmental Panel on Climate Change). The Partnership aims to mobilize knowledge within and among these institutions to increase individual/household and community capacity to understand and respond to variability and change in valued fish species and fishing livelihoods.

Through knowledge mobilization, we also seek to ensure LTK is closer to the forefront of watershed governance at larger scales.

**Outcomes of Knowledge Mobilization –**

I. Oral Traditions and Experiential Learning: LTK is a way of life with strong traditions of orality and experiential learning. In all aspects of the project, the Partnership aims to affirm these traditional practices of knowledge sharing. Specifically, we aim to: i) ensure that LTK documented (audio-video recorded) through the project, are also shared in settings that honour oral structure, meaning and transmission (e.g., youth involvement in interviews; sharing in a family or peer gathering), and sharing through open access networks. ii) Experiential learning opportunities will be offered at fish places (e.g., setting nets, navigating river channels), including mentorship of community researchers.

II. Plain Language and Cultural Materials –Plain language reports (suitable for use in K-12) integrate teachings from LTK holders. We have been developing three plain language guidebooks that speak to the –'how-to' of tracking change. In 2016-17, the focus was on traditional and contemporary land practices and the generation of LTK; in yr. 3, a guidebook on community-based monitoring is being prepared (identifying and using LTK indicators for tracking change) and in yr. 5, we plan to develop a guide for organizing, interpreting and mobilizing knowledge in watershed governance (such as a guide on Indigenous Legal Traditions in Watershed Governance). Through this focus on methods, we aim to facilitate continued generation and sharing of LTK beyond 2021.

III. Policy Documents - The project will also focus on the development of policy related materials that will help inform decision-making at various institutional scales; ongoing feedback (quarterly newsletters) for partner organizations will facilitate knowledge sharing, including in regional government decisions, on an ongoing basis. Contributions to the *State of the Aquatic Ecosystem Report* of the Mackenzie River Basin Board will also be an important activity. Policy briefs for the MRBB as well as the Mekong River Commission and the Amazon Cooperation Treaty Organization are also planned on key issues identified as important by Partner Organizations. Through research partners we will also aim report to the Arctic Council, and the Permanent Forum on Indigenous Issues (UNPFII).

IV. Academic Publications – The team includes academic experts on themes of: LTK, community-based monitoring, livelihoods and governance (including watershed and indigenous governance); as such we will collaboratively contribute to academic forums (conference/peer reviewed journals), post-secondary teaching, practice (methods); these will include 15-20 theses and academic publications (3 per year related to each basin, and 3 co-edited volumes. By so doing, we anticipate positioning the research team as global leaders in Tracking Change.

5.1 Has your project involved any of the following methods of knowledge mobilization? Select all that apply.

☒ Academic dissemination (*Essentially, a one-way flow to other scholars in or near your field(s) of research)*
☒ Knowledge transfer (*Transferring knowledge to scholars in other fields of research)*
☒ Knowledge translation (*Writing or presenting research findings in more readable or useable forms e.g., writing for a wider or more diverse public)*
☒ Knowledge exchange (*Exchanging or sharing knowledge with other disciplines or across sectors (two-way flow) e.g., workshop or conference)*
☒ Knowledge brokering (*Facilitating the flow of knowledge between others)*
☒ Knowledge synthesis (*Pulling together existing research in a useful form for other researchers or organizations)*
☒ Co-production (*Building research teams or alliances that generate new knowledge based on an ongoing exchange of knowledge)*
☒ Networking (*Organizing ongoing networks of scholars and/or other experts to mobilize knowledge)*
☐ Not applicable

5.2 How many research products (including those under submission) have resulted from the grant to date, and how many are planned?

| **Products** | **No.** | |
|---|---|---|
| | **Developed** | **Planned** |
| Presentations (includes Webinars) | 51 | 35 |
| Interviews (broadcast or text) | | |
| Peer-reviewed journal articles (open access) | | |
| Peer-reviewed journal articles (subscription based) | 6 | 5 |
| Edited journal issues | | |
| Books (including edited books) | | 1 |
| Book chapters | | |
| Entries (dictionary and encyclopedia) | | |
| Conference publications | 1 | 1 |
| Articles in popular media | 3 | 1 |
| Reports, briefs, and other forms of grey literature | 29 | 1 |
| Artistic performances | | |

Other (Specify): **Video Documentary**: Production of a **short video documentary** about the **Tracking Change…Global Knowledge Symposium** is under way. The meeting was among the first of its kind where participants from Canada's Mackenzie Basin and the lower Mekong River Basin, and Amazon Basin sharing their ideas, research and perspectives on the sustainability of freshwater ecosystems and their importance to local communities and villages. The project **streamed video footage** of the discussions and presentations over the internet.

5.3 ***Optional*** - Provide any additional information on your research contributions. Do not include proprietary information or personal information about others. (Max. 100 words)

***Presentations:*** *includes seminars, webinars, and conference presentations*
***Interviews:*** *radio, newspapers, magazines, newsletters, etc.*
***Journal Articles:*** *academic*
***Books:*** *State of Knowledge:*
***Conference Publications:*** *includes the proceedings of the Youth Knowledge Fair 2016 and the Global Knowledge Symposium 2017*
***Articles in popular media:*** *includes website features, newsletters*
***Articles in Popular Media:*** *Global and Mail*
***Reports:*** *includes literature reviews, community-based research reports, project summaries, terminological repots, powerpoint presentations*
*(a full list of products is provided in the narrative report)*

5.4 List the number of knowledge mobilization events that occurred as a result of the grant.

| **Event** | **No.** | |
|---|---|---|
| | **Developed** | **Planned** |
| Conference | 1 | 2 |
| Workshops | 3 | |
| Summer institute | | |
| Media events (such as television/radio presentations) | | |
| Public debates | | |

**Other (Specify):** Webinars (4), Video Streaming (6)

5.5 ***Optional*** - Provide any additional information on the events. Do not include proprietary information or personal information about others. (Max. 100 words)

**Youth Knowledge Fair I, University of Alberta, Edmonton, Alberta 20-24 May 2016**
A 'Youth Knowledge Fair' was held (24-26 May 2016) as a means of building research capacity among northern and Indigenous youth (where graduate student enrolment is low). Thirty student (and 12 teachers) presented poster-projects on the Mackenzie River Basin; training activities were offered as well as opportunities to network with other students from other areas of the Basin.

**Youth Knowledge Fair II, University of Alberta, Edmonton, Alberta 15-18 May 2018**
A second 'Youth Knowledge Fair' is being planned.

**Global Knowledge Symposium I – Mekong – Ubon Ratchathani, Thailand (20-25 February 2017)-** 50 participants– a great mix of community people, students and academics - there were also key resource people attending in addition to representatives from the federal government (DFO), Gov. of the Northwest Territories, and the Government of Alberta. Representatives from the Mackenzie region made presentations based on their community reports; graduate students presented summaries of their work, and we had the opportunity to learn more about issues of change in the Mekong river basin.

**Global Knowledge Symposium II – Amazon - Santarem, Brazil (18-23 February 2019) -** 50 participants– In Development: Once again, a mix of community people, students and academics is planned. Representatives from all regions will make presentations on

community projects; graduate students will on their thesis work. The focus will be on research in the Amazon river basins.

**Global Knowledge Symposium III – Mackenzie – Edmonton, Alberta 2021-** 100 participants– Planned for 2021, this conference will represent the culmination 5 years of research in the Mackenzie, Mekong, and Amazon basins. Representatives will present the results of community-based research,, as well as synthesis work o; graduate students presented related to the basins, and global issues. It is anticipated that the results from this symposium will inform policy and influence governance of each of the basis, and contribute to understanding of the impacts of climate and development on the livelihoods of the people living in these regions.

5.6 Is your project working towards the enhancement or creation of a tool(s) to collect or analyze data (e.g., survey, database)?

☒ Yes ☐ No

5.6.1 ***Optional*** - Provide a brief description of the progress to date on this tool(s). Do not include proprietary information or personal information about others. (Max. 100 words)

Parlee, B. and J. Fresque-Baxter. 2016. *How to: Some Ideas on Methods for Community-Based Research on Social-Ecological Change in the Mackenzie River Basin*, Volume 1
Parlee, B. and J. Fresque-Baxter. 2016. *Guiding Interview Questions: Tracking Change in the Mackenzie River Basin*
Parlee, B. and J. Fresque-Baxter (in prep.). Guidebook/best practices for traditional knowledge research and documentation, including research protocols that recognize and honour OCAP Principles.
Parlee, B. 2017. *Oral Histories, Perception, and Knowledge of Change*, Volume 2.
Parlee, B. 2017. *Fishing Livelihoods: Harvest and Perceptions of Change in Fish Health*. Volume 2

5.7 Is your project working towards the enhancement or creation of a tool to mobilize knowledge (e.g., a website or other educational tool)?

☒ Yes ☐ No

5.7.1 ***Optional*** - Provide a brief description of the progress to date on this tool(s). Do not include proprietary information or personal information about others. (Max. 100 words)

**Website:** A project website has been established and is updated regularly. www.trackingchange.ca
**Facebook account**
**Twitter account**
**Video Series**: 'Mackenzie Watershed 101' under development.
**Webinar Series**: featuring community leaders, professionals, and academics on thematic issues
**Quarterly Newsletter:** each volume focusing on a specific theme or sub-basin
**Bi-weekly updates:** online newsletter for team members and colleagues
**Navigational Hazard App:** The Mikisew Cree First Nation Community-Based Monitoring Program is developing a tool for community-based monitoring staff and community members to continuously update a database of navigational hazards.
**Tracking Change Terminology:** In an effort to standardize the language and develop f acommon ground for discussions, a comprehensive list of terms is being developed in the various languages of the Mackenzie River Basin.
**Community-Based Monitoring Applications**: The project is aiming to promote/adopt standard monitoring applications, so that data and knowledge will be consistent and shareable.
**Data Management System:** the project is working with communities and partners to develop a means for collecting, organizing, preserving, sharing, and archiving the data (including scientific data and cultural data) resulting from this project, in consideration of collaborative approaches while respecting OCAP principles.

# TRACKING CHANGE: Local and Traditional Knowledge in Watershed Governance

## NARATIVE REPORT (Section 6.0)

*Please append a **5 to 10 page** Narrative Report that further elaborates upon the sections above as well as detailing salient accomplishments, issues and details about the structure, governance, or other significant features of the partnership. In particular, please address outlined points below.*

**Executive Summary**

*Tracking Change*… is based on recognition that many people in the Mackenzie River Basin, Amazon and Mekong, particularly Indigenous peoples, have valuable insights about the social-ecological change. **Project Governance:** In 2015-16, a more refined governance plan structure and process was developed to ensure research activities reflect the core interests of the team, including the Traditional Knowledge and Strengthening Partnerships Steering Committee (TKSPC) of the Mackenzie River Basin Board (MRRB). The Canadian and international core team members met in Whitehorse (17 Nov 2015) to review the structure and functions of the network including the allocation of research funds for 2016-2018. A second workshop (10 Feb 2016) of the Aboriginal Steering Committee of the NWT Water Stewardship Strategy and the TKSPC partner organizations was held to define common interests (research priorities) for 2016-17. **Building Research Capacity –** There are currently 20 graduate students and once PDF working on various aspects of the project. A 'Youth Knowledge Fair' was held in Edmonton, Alberta (24-26 May 2016), and the first Global Knowledge Symposium (20-25 Feb 2017) was held in Ubon Ratchathani, Thailand. **Research Activities:** ***Secondary Literature Review*** - A review of existing documented traditional knowledge was carried out by 5 students for all six sub-basins of the Mackenzie watershed to help communicate the current state of knowledge and guide decision-making about where future research is needed. ***Community-Based Research Projects*** – Based on partner input an RPF process was developed for community-based research in the Mackenzie River Basin. Collaborative proposals from community-university team members were solicited and 12 collaborative projects were funded in the Mackenzie and two others internationally in 2016-2017. **Publications and Outreach:** There are 7 reports (non-peer reviewed) to date. There are two newsletters and a website that have been created: **www.trackingchange.ca**

**Tracking Change…** is a research initiative led by the University of Alberta, the Traditional Knowledge and Strengthening Partnerships Committee of the Mackenzie River Basin Board, the Government of the Northwest Territories and many other valued partner organizations. Over six years (2015-2022), the project funds local and traditional knowledge research activities in the Mackenzie River Basin and sister projects in the Lower Amazon and Lower Mekong River basins, with the long term goal of strengthening the voices of subsistence fishers and Indigenous communities in the governance of major freshwater ecosystems. The project developed in recognition that river systems are important social, economic, cultural and ecological places that contribute to the well-being of communities in diverse ways. River peoples, particularly Indigenous peoples who have well developed fishing livelihoods can offer extremely valuable insights about long term (historic and current) patterns of social and ecological change and the interconnections between the health and dynamics of these river systems and that of river communities. Although based on oral traditions, this system of observation or 'tracking change' is much like monitoring. Like those who live on Canada's east and west coasts, the ability of Indigenous communities in the Mackenzie River Basin to maintain fishing as a livelihood practice is of social, economic and cultural importance to all of Canada; if this river system is not healthy, how can we be?

Fishers have been tracking change in the same places, in the same ways, using the same signs & signals for many generations. Such traditional knowledge is key to our understanding of many kinds of issues resulting from resource development, climate change and other land uses. This tracking of change is not simply a technical process; people watch, listen, learn and communicate about change because they care about the health of the land and the health of their communities.

The mission of the *Tracking Change* Project Team, *Tracking Change* Management Committee and the *Tracking Change* Executive Committee is to work together to facilitate the creation, documentation and sharing of Local and Traditional Knowledge about social-ecological change in the Mackenzie, Lower Amazon, and Lower Mekong river basins in ways that can contribute to improved

sustainability of these important fresh water ecosystems and the communities that depend on them for their current and future livelihood and well-being.

**Partnership Objectives:**

(i) Build a multi-scale, multi-disciplinary, multi-cultural network for social science research that is meaningful locally and globally;
(ii) Build research capacity in the Mackenzie, Mekong and Amazon Basins;
(iii) Build global partnerships for mobilizing knowledge relevant to the governance of the Mackenzie River Basin; and,
(iv) Foster global collaboration and knowledge sharing on common issues of watershed governance.

**Thematic Objectives:**

Develop and facilitate knowledge sharing related to the Mackenzie River Basin, the Lower Amazon Basin and the Lower Mekong Basin on the following themes:

i) Sustainability of River Fisheries and Fishing Livelihoods;
ii) Meaning and Well-being;
iii) Watershed Governance.

**Legacy Objectives**

The project will aim to create a legacy of materials and processes (knowledge and practices) for community involvement and Local and Traditional knowledge in the monitoring and management of social-ecological change in the Mackenzie, Amazon and Mekong rivers as well as other freshwater ecosystems globally.

## Research in the Mackenzie Basin

Tracking Change projects in 2016-17 focused on a set of research priorities defined by the *Traditional Knowledge Steering Committee* of the *Mackenzie River Basin Board* and the *Aboriginal Steering Committee of the Northwest Territories Water Stewardship Strategy*. Twelve Community-based Research Projects were funded (through a request for proposals process) that involved similar kinds of research methods and activities including fish camps, canoe trips, youth-elder knowledge exchanges, semi-structured interviews, workshops and secondary literature reviews. An interview guide and a 'toolbox' of methods was provided to guide communities seeking to carry out their research projects in ways considered synergistic (linked) to other projects in the basin. Full descriptions of the projects are available from the website at www.trackingchange.ca:

- Fisheries Joint Management Committee: *Inuvialuit knowledge and use of Fisheries in the Mackenzie River Delta*
- Gwich'in Renewable Resources Board: *Changes affecting Fishing Livelihoods in the Gwich'in Settlement Area*
- Sahtu Renewable Resources Board: *Sahtú hé Deocha hé Dene Náowerá Chets'elə - Great Bear Lake and Mackenzie River Dene Knowledge Research Camps*
- Deh Cho First Nations: Deh Cho K'ehodi Youth River Trip: *Fort Simpson to Willow Lake River*
- Tłı̨chǫ/Wek'eezhii Renewable Resources Board: *Fish, Todzi, and Forest Fire on the Land Research*
- Akaitcho Territorial Government: *Guiding Water Protection Through Traditional Knowledge*
- Lutsel K'e Dene First Nation: *Tracking Change in the Great Slave Basin*
- Mikisew Cree First Nation: *Community-Based Monitoring Program*
- Treaty 8 Tribal Association of British Columbia: *Eagle Island Fish Camp*
- Treaty 8 First Nations of Alberta: *Place names and Oral Histories of Change in the Peace River Sub-Basin*
- Nacho Nayak Dun First Nation, Yukon: *Traditional Knowledge Camp*
- ✓ Unfortunately, there was no community-based project in northern Saskatchewan this past year so there is no report from that region.

Summary reports (2016) from each of the projects were received in December; these are forming the basis of an annual report for the project for 2016-17. Many oral histories, narratives and observations were documented about local issues of concern and of priority to local communities. The key themes and issues that were highlighted in these reports included the following:

**Overview:**

- ✓ The Mackenzie River basin is a network in which people are interconnected with the aquatic ecosystem in many different ways. A holistic understanding of the social, economic, cultural and ecological changes occurring in the basin is necessary to ensure that aquatic ecosystems are managed in ways that ensure the continued health and well-being of the Basin's Indigenous communities;
- ✓ The Mackenzie River is a dynamic cultural landscape in which local economies and cultures have been shaped by the seasonality as well as year to year variability in the availability and condition of basin resources;
- ✓ Fishing is important to the culture and well-being of communities in the Mackenzie River Basin and is an inherent right protected both by the Canadian constitution as well as in Treaties and comprehensive land claim agreements.
- ✓ Although practices have changed over the last century, contemporary harvesting and use of fish continues to contribute significantly to the diets and economies of Indigenous communities;
- ✓ More than 20 species, and thousands of pounds of fish are harvested annually in the main river, the deltas and the numerous tributary rivers and lakes that comprise the Mackenzie River basin. Fresh fish, dry fish and related dietary uses of fish have very high nutritional value, and are particularly important to food security in areas where other traditional/country food resources are variable or limited and where market foods are not an economically or nutritionally valuable alternative.
- ✓ Indigenous communities continue to practice traditional practices for respecting (managing) fish and fish habitat throughout the basin. These practices and have developed based on generations of Traditional Knowledge. Although there are co-management boards and cooperative arrangements with territorial governments and the Department of Fisheries and Oceans, that create opportunities for ongoing recognition of Traditional Knowledge in the management of fish stocks and key fishing areas in the Yukon and Northwest Territories, no such arrangements exist in British Columbia, Alberta or Saskatchewan;

**Climatic Change:**

- ✓ There were numerous reports of decreased water levels and water flows, including dried up creeks, across the basin. Such widespread observations may be the result of warming weather and lower levels of precipitation.
- ✓ Lower water levels are complicating access and use of places valued for fishing and related cultural uses;
- ✓ Water temperatures are reported to be warming with consequent effects water quality, fish habitat, fish health and their abundance and distribution;
- ✓ Warming temperatures are reportedly affecting the movements of some species, the timing and location of spawning areas and consequently the timing and location of harvesting activities. Warming water is also perceived as an influence over the condition of fish including the size, health (e.g., lesions) and palatability of fish valued as food (e.g., softer fish);
- ✓ Warming temperatures are affecting the stability of permafrost in the northern regions of the basin. Melting of permafrost is increasing river bank erosion in northerly areas of the basin, with consequent effects on fish habitat, fish movements as well as access and use of the river for fishing and related practices;
- ✓ There is an increase in observation of fish considered new or invasive to the Mackenzie River. Most notably is the increase in incidence of salmon-catch;
- ✓ Warming winter temperatures have led to earlier break ups and later freeze-ups in many areas. Observations of extreme weather events including unseasonably warm winter days. As a result, there is more uncertainty in communities about ice safety and an increase in accidents associated with thinning ice. For example, the deaths of three men in Fort Chipewyan in early 2017 is attributed to unpredictable ice conditions.

**Resource Development:**

- ✓ Commercial fishing activities including historic trade of fish resources to trading posts over the last 150 years, impacted fish stocks valued for food security in different regions, particularly in the Peach Athabasca and Slave river regions.

- ✓ Numerous contaminated sites through the basin including abandoned mines and exploration sites have altered the relationship of communities to places that were traditionally valued for fishing and other cultural uses. Most notably, oil sands mining activity in northern Alberta, the Giant Mine near Yellowknife as well as the Faro mine in Yukon have fundamentally and adversely affected the value of local aquatic ecosystems, the cultural, economic and spiritual value of these places to local communities, as well as the capacity of First Nations to exercise their rights to harvest and maintain traditional livelihoods;
- ✓ In the Peace-Athabasca-Slave River systems, where hydro-electric development projects have been developed and are expanding, decreased water levels, decreased water quality and unpredictable water flows are fundamentally and adversely affecting the relationship of First Nations and other communities to these river systems, the integrity of sacred and cultural sites (e.g., burial areas), access to traditional fishing areas, the health of fish valued for food security and many other related values and uses;
- ✓ Hydro-electric development in the Peace-Athabasca-Slave systems, have changed water flows and the dynamics of the delta. As a result there is more uncertainty in communities about ice safety and an increase in accidents associated with thinning ice. For example, the deaths of three men in Fort Chipewyan in early 2017 is attributed to unpredictable ice conditions.
- ✓ In the southern part of the basin (Alberta, British Columbia, Saskatchewan and southern Northwest Territories), there is limited access to key fishing and cultural use areas as a result of forestry, mining, petroleum extraction and hydro-electric development;
- ✓ The loss of biodiversity including fish valued for food security by First Nations communities in the southern part of the Basin has been impacted over the last century by both agriculture, forestry an petroleum exploration and development. For example, Lake Trout were extirpated from Lesser Slave Lake in the 1930s.
- ✓ In the provincial jurisdictions (Alberta, British Columbia, Saskatchewan), there is limited access to key fishing and cultural use areas, and compromised rights to fish, as a result of provincial government regulation;
- ✓ There are ongoing and emergent resource-user conflicts between recreational anglers and First Nations and other communities who depend on fishing for food security, particularly where anglers use (disrespectfully) areas valued for food security and cultural use by First Nations communities;

**Research in Progress 2017-2018**

*Tracking Change*… will fund projects led by our partners on the same themes as year 1; however, based on feedback from partners and graduate students, more guidance swill be provided on common methods and interview questions that will help us understand 'big picture' change in the whole of the Mackenzie Basin. By carrying out research in the same or similar ways and in different regions, community-based and collaborative research activities can be related to specific themes: [2]

- ✓ historical and contemporary observations and perceptions of conditions and change in the health of the aquatic environment (e.g., water quality, quantity, flow, groundwater, permafrost conditions);
- ✓ historical and contemporary observations and perceptions of conditions and change in fish species (population, movements, diversity, invasive species) and other aquatic species (e.g., geese, beaver);
- ✓ sustainability of fishing livelihoods (e.g., harvesting levels and practices, diet, health, access issues, perceptions of change in the health of valued fish species);
- ✓ implications of change for governance (e.g., how to maintain healthy relationships to the aquatic ecosystem, maintaining respectful and spiritual relationships, respecting treaty rights).

In 2017-2018, the following 12 community-based projects were funded:

- Akaitcho Territorial Government, NT: *Past Knowledge for Future Protection*
- Dena Kaveh Institute, YT: *Tracking Change on the Liard River*
- Inuvialuit Fisheries Joint Management Committee, NT*: Inuvialuit Knowledge and Use of Fisheries in the Mackenzie River Delta*

[2] *These priorities were recommended in a workshop with the NWT Water Stewardship Strategy Aboriginal Steering Committee and the Mackenzie River Basin Board (MRRB) Traditional Knowledge and Strengthening Partnerships Committee (TKSPC), Feb. 10, 2016. Additional input was asked of the partners and other members of the Project Team by email in October 2015.*

- Gwich'in Renewable Resources Board, NT*: Gwich'in Fish Project and Knowledge Exchange Camp*
- Katl'odeeche First Nation, NT*: Upper Katl'odeh Traditional Knowledge Assessment*
- Lutsel K'e Dene First Nation, NT*: Lutsel K'e Dene First Nation (LKDFN) Tracking Change in the Great Slave Basin Project*
- Mikisew Cree First Nation , AB: *Mikisew Cree First Nation Community-Based Monitoring Plan*
- Prince Albert Grand Council, SK*: Denesuline Elders and Youth Gatherings on the Health of the Aquatic Environment*
- Sahtu Renewable Resources Board, NT: *Tulit'a Got'ine Traditional Knowledge: The Impact of Climate Change on Fishing Livelihoods*
- Treaty 8 First Nations of Alberta, AB: *Canoe Trip 2017: Protecting our Environment for Future Generations – Exercising our Treaty Rights.*
- Wek'eezhii Renewable Resources Board, NT*: Guiding Respectful Behaviour While Experiencing the Aquatic Environment of Whati: Implications of Change for Governance*
- Ya Thi Nene Lands and Resource Office, SK: *Ya Thi Nene Lands and Resources Youth Science/Culture Camp and Canoe Quest*

Reports on 2017 research are due 31 March 2018. An annual report will be produced to consolidate the findings from a second field season.

**Plans for 2018-2019**

In 2018-19, Tracking Change aims to fund 12 community-based and collaborative research activities in the Mackenzie River Basin related to some specific research themes and priorities:

- ✓ historical and contemporary observations and perceptions of conditions and change in the health of the aquatic environment (e.g., water quality, quantity, flow, groundwater, permafrost conditions);
- ✓ historical and contemporary observations and perceptions of conditions and change in fish species (population, movements, diversity, invasive species) and other aquatic species (e.g., geese, beaver);
- ✓ sustainability of fishing livelihoods (e.g., harvesting levels and practices, diet, health, access issues, perceptions of change in the health of valued fish species);
- ✓ implications of change for governance (e.g., how to maintain healthy relationships to the aquatic ecosystem, maintaining respectful and spiritual relationships, respecting treaty rights);

Applications will be accepted from Aboriginal organizations that are partners of Tracking Change and that are working in collaboration with one or more academics from a partner university. The RFP was released in March 2018; applications are due 31 May and competition results will be announced by 30 June 2018.

## Research in the Mekong River Basin

In January 2017 Ian Baird and Kanokwan Manorom conducted fieldwork in northeastern Thailand, southern Laos and northeastern Cambodia regarding knowledge mobility related to fish migrations in the Mekong and tributaries. In February 2017 Ubon Ratchathani University hosted the workshop organized by Tracking Changes. From April 2017 to June 2017, the Tracking Changes Project supported field research in six villages in the Mun River Basin in northeastern Thailand, Thalat, Nong Yang, Dum Yai, Sanamchai, Bung, and Lalai Villages. This has mainly working with local fishers to analyze fisheries data, integrate and contextualize with local knowledge, and document the importance of this knowledge for management decisions. This research added to research conducted with other project funding from the Margaret A. Cargill Foundation.

**1. Partnerships**

*Reiterate and expand upon how the partnership and its activities are responding to the objectives of the Insight, Connection or Talent programs as applicable, using your original proposal as a baseline. Describe, if appropriate, the evolution and refinement of your partnership's objectives in light of your own thinking or comments raised by the merit review committee or the expert panel.*

*Describe the development and formalization of the management and governance approach to the partnership (e.g. approach to communication and decision making, including the establishment of management, advisory boards or other governing structures).*

*Have written agreements or protocols been developed pertaining to the management and governance of the formal partnership since the original application? If so, specify, describe and provide an example of these developments. Examples include, but are not limited to: Terms of Reference, Guiding Principles, Conflict Resolution Mechanisms, Resource Allocation Principles, contracts and so on.*

*Describe any successes or challenges related to the partnership (e.g., funding delivery, managing ethics review, team building, management structure, personnel, etc.), and how the members of the partnership plan to address these challenges.*

The Partnership began with the intention of building bridges between those most sensitive to social-ecological change in the Mackenzie-Mekong-Amazon and those involved in its' governance. Working together with academics from multiple universities and in multiple disciplines, the Partnership aims to increase the capacity of LTK holders (and Partner Organizations) to bring forward knowledge they consider relevant to decision-making

The Partnership facilitates capacity-building through community-academic collaborations in each of the sub-basins of the Mackenzie, the Lower Mekong and Lower Amazon (Tapajos Sub-Basin). Specifically, we are training and mentoring students and community researchers to build knowledge for and with communities, providing opportunities for communities to network with other knowledge holders, and identifying mechanisms and processes by which communities can continue to generate LTK. By doing so, we are building a legacy that will extend beyond 2021.

The Partnership is unique and significant in terms of the number and scope of Partner Organizations that have been engaged from across the Mackenzie River Basin. A critical base of the network is the Mackenzie River Basin Board; this institution is poised to be at the forefront of multi-scale thinking and decision-making on many emerging issues in the Basin. The board's Traditional Knowledge and Strengthening Partnerships Committee (TKSPC), along with other partner organizations, guide the design, implementation and outcomes of the Partnership. By connecting the Board with international partners we are create a more global lens on local issues, and opportunities to share knowledge from Canada on a global stage.

The global partnerships being developed in the Mackenzie-Mekong-Amazon will facilitate the co-production of knowledge on key issues of common concern (e.g., effects of hydro-electric development on subsistence). Advances in knowledge made about the sustainability of freshwater fisheries, fishing livelihoods and wellbeing, and watershed governance will be of global significance.

The partnership is led and administered at the University of Alberta in partnership with multiple community, government, university partners as well as academics and students living and working in the Mackenzie, Lower Mekong and Lower Amazon Basins.

- The Project Team includes all Partner Organizations[3], Academic Co-applicants, Collaborators, Students and Community Researchers;
- The Project Management Committee includes the members of the Mackenzie River Basin Board (MRRB) Traditional Knowledge and Strengthening Partnerships Committee (TKSPC), a representative of the Government of the Northwest Territories, the Academic Leads for each of the Mackenzie, Mekong, and Amazon and the Academic Leads for the Sub-Basins of the Mackenzie;
- The Executive Committee includes an Aboriginal member of the Mackenzie River Basin Board (MRRB) Traditional Knowledge and Strengthening Partnerships Committee (TKSPC), the Principal Investigator, a sub-basin academic lead (co-applicant) from another Canadian University, and a representative from Water Resources Division of the Department of Environment and Natural Resources of the Government of the Northwest Territories.

[3] *Aboriginal organization partners of the Tracking Change project are those Aboriginal governments, organizations and co-management boards who provided a letter of support for the funding application to the Social Sciences and Humanities Research Council (2014) including acknowledgement of the Principles of Partnership. Other Aboriginal organizations can be added as partners by i) by being nominated by an existing Partner or member of the MRRB Traditional Knowledge and Strengthening Partnerships Committee, and ii) becoming a signatory to the* ***Guiding Principles of Collaboration****.*

The Tracking Change Management Committee (TCMC) and the Executive Committee will seek input in its decisions from other members of the Project Team including:

- Partner Organizations (e.g., Aboriginal organizations)
- Senior Advisory Committee
- Senior Aboriginal Advisory Committee
- Technical Advisory Committee

The Tracking Change Management Committee shall make best efforts to ensure equitable involvement of all members of the Project Team;

Decision making in meetings will be guided by a consensus process. If consensus cannot be reached, the TCMC members will have voting privileges, with a two-thirds majority needed for agreement.

A project framework and research protocols are being developed (nearly completed) that describe the management and governance of the formal partnership. Terms of Reference for the various committees (Project Management Committee, executive committee, senior advisory group), have been developed and approved and are included in the Project Framework document. The framework document also includes Guiding Principles, Conflict Resolution Mechanisms, Research Protocols, Data Sharing protocols, etc.

The major challenges in the partnership to date have related to administrative procedures for sub-grants to partner organizations and/or individuals, and determining funding priorities for the inaugural field season. Further challenges have been in coordinating research, administration, and communications effectively. Now that the project framework has been developed, the first full year of research is complete, and the mechanisms for moving funds to partner and community-based programs, the team will be in a better position to mobilize resources quickly to address priorities and needs of the network.

**2. Participation and Training of Research and / or Support Staff**

*Describe progress made to date in establishing the training and/or development of research or support staff. Explain the expected degree of participation of the research staff (students, specialists, individuals from partner organizations and others) in the partnership, including an explanation of the extent of involvement as well as the range or diversity of available opportunities to build knowledge, expertise and research skills. As appropriate, provide examples and explain how these skills will be demonstrated.*

*Describe any planned or actual advanced training, seminars, knowledge mobilization and integration streams, etc., that are or will be or offered as a result of partnership activities. In particular, please explain the partnership's roles and contributions to these opportunities, and to what degree the participants will be able to contribute to the evolution of the project.*

The aim of the project is to carry out collaborative research with LTK holders in the Mackenzie-Mekong-Amazon in ways that will ensure the continued tracking of social-ecological change during and after the grant is completed in 2021. Collaborative research is a general framework for describing the many and varied participatory, and community-based research methods valued and used by Indigenous and rural communities. Guided by principles of 'bottom-up thinking and doing' and a commitment to decolonizing science, collaborative research provides theoretical grounding, methods and tools for the research enterprise that is affirming of local best-practice for research, builds (rather than diffuses) research capacity and meets the needs of communities both in process and in outcome. However, collaboration does not mean open-access in knowledge sharing; OCAP principles (ownership, control access and possession by communities) apply. We also use collaborative research to frame the kinds of multidisciplinary and interdisciplinary research relationships that exist and will emerge through this Partnership.

Collaboration in all aspects of the research process (including knowledge mobilization) are structured as follows:

- Collaboration through Sub-Basin Nodes: Research activities are organized around sub-basin nodes that comprise partner organizations and regional academic leads. Regional academic leads with previous experience and capacity for working with these organizations and communities provide capacity (students, expertise, training opportunities) as needed. These collaborations create opportunities for the development of sub-basin projects, basin-wide research activities, and local-global knowledge mobilization.

- Theoretical and Thematic Collaboration (Advisory Circles): The project is supported by senior and junior academics and collaborators with expertise relevant to fisheries ecology. fishing livelihoods, well-being, governance, and digital knowledge mobilization. These groups lead, collaborate and/or advise in all aspects of the research process, providing thematic, theoretical and how-to insights.

*Describe any planned or actual advanced training, seminars, knowledge mobilization and integration streams, etc., that are or will be or offered as a result of partnership activities. In particular, please explain the partnership's roles and contributions to these opportunities, and to what degree the participants will be able to contribute to the evolution of the project.*

The project has introduced a series of free research webinars that offer the opportunity to come together to learn about critical issues related to our research program and are designed to be useful to academics, community organizations and policy makers and other research partners. The webinar format includes a presentation by a leading academic or community leader followed by question/answer, debate and discussion. Focused on research project themes, such as traditional knowledge, sustainable livelihoods, food security, climate change, hydro development, indigenous governance and community-based monitoring, participants are invited to listen and learn and apply insights from the discussions to their own research, teaching, practice and policy. Three academic related webinars were held in 2016-17. Five more are planned for 2017-18.

- 27 January 2017: **Kristine Wray**, PhD Candidate, University of Alberta: *Graduate Students and the Tracking Change Project: Preparing for the Global Knowledge Symposium and forming a Student Council*
- 10 December 2016: **Dr. Fikret Berkes**, Distinguished Professor, University of Manitoba*: Livelihoods and Small Scale Fisheries.*
- 30 September 2016: **Dr. Brenda Parlee**, Project Director, and **Vice-Chief Joseph Tsannie**, TKSC*: Community-based Research and Tracking Change*

The project is also designing a series of videos with the provisional working title 'Mackenzie Watershed 101' that feature 5-7 minute vignettes on various aspects of the project. Raw video footage has been obtained for 3 of the vignettes to date.

2. **Graduate Students –**Currently, 20 graduate students and one postdoc have been engaged to work in various aspects of the Tracking Change Project; most continue for 2018-19:

**Mackenzie River Basin, Canada (2 Doctoral,10 Masters)**

D'Souza, Amabel, MSc in Risk and Community Resilience, University of Alberta
Collaboration with: Treaty 8 Tribal Association / Ubon Ratchathani University; Brenda Parlee – Supervisor
*The Impact of Hydroelectric Development on Rural Communities near The Peace River and the Mun River*

Gaitan, Laura – MA Candidate in Geography, Memorial University
Collaboration with: Fond du Lac First Nation; Arn Keeling – Supervisor
*Traditional Knowledge in the Athabasca Land Use Plan*

Heredia-Vasquez, Iria - MA in Geography, University of Ottawa
Collaboration with: Inuvialuit Fisheries Joint Management Committee; Sonia Wesche – Supervisor
*Local and Traditional Knowledge Indicators for Tracking Socio-Ecological Changes in Inuvialuit Fishing Livelihoods*

Johnson, Johanne - MA in Native Studies, University of Alberta
Collaboration with: Prince Albert Grand Council; Brenda Parlee – Supervisor
*Local and Traditional Knowledge in the Watershed Social Economy of Saskatchewan's Athabasca Basin Region*

Lowe, Lana – PhD Candidate, Faculty of Law, University of Victoria

Collaboration with Fort Nelson First Nation; Val Napoleon – Supervisor
*Indigenous Oral Histories of Water*

Martin, Chelsea - MSc in Risk and Community Resilience, University of Alberta
Collaboration with: Sahtu Renewable Resources Board' Brenda Parlee – Supervisor
*Sahtu Goti'ine Traditional Knowledge: The Impact of Climate Change on Fishing Livelihoods*

Oroliz, Carrie - MA in Environmental Management, Royal Roads University
Collaboration with: Stó:lō Nation / Ubon Ratchathani University ; Brenda Parlee – Supervisor
*Local Fishers Knowledge, Cultural Values and Governance in the Lower Mekong (Thailand) and Lower Fraser River (Canada)*

Proverbs, Tracy - MA Environmental Studies, Royal Roads University
Collaboration with: Gwich'in Renewable Resources Board; Trevor Lantz– Supervisor
*Impacts of Environmental and Socioeconomic Changes on Gwich'in Fishing Liverlihoods and Cultural Resources*

Rice, Abigael – MA Candidate, Unviersity of Saskatchewan
Collaboration with: West Moberly First Nation; David Natcher – Supervisor
*Peaceful Enjoyment of Treaty 8 Lands*

Spicer, Neal – MSc, Resource Economics and Environmental Sociology, University of Alberta
Collaboration with: Katlodeche First Nation; Brenda Parlee, Supervisor
*Risk Perceptions of Drinking Water in Northern Communities in the Mackenzie Basin.*

Stenekes, Sydney, MSc candidate in Risk and Community Resilience
Collaboration with: Katlodeche First Nation; Brenda Parlee, Supervisor
*The Role of Traditional Knowledge in Understanding and Addressing Cumulative Impacts on Freshwater Systems in the Decho Region*

Wray, Kristine – PhD Candidate in Environmental Sociology, University of Alberta
Collaboration with: Akaitcho Territorial Government / Deh Cho First Nations; Brenda Parlee – Supervisor
*Linking Fishers Knowledge and Science to Understand Ecological Change in the Mackenzie River Basin*

**Amazon River Basin, Brazil (1 PostDoc; 1 Masters)**

Hallwass, Gustavo - Post-Doctoral Fellow, Universidade Federal do Rio Grande do Sul
Renato Silvano – Supervisor
*Title*

Tavares de Freitas, Carolina – MSc in Biological Sciences, Universidade Federal do Rio Grande do Norte; Priscila Fabiana Macedo Lopes – Supervisor
*Arapaima Fisheries Co-ManagementL An Alternative to Conciliate Biodiversity Conservation with Human Well-Being in the Amazon Region?*

**Mekong River Basin, Thailand (2 Doctoral; 4 Masters)**

Bukla, Phongthep - MA Candidate in Sociology
Ubon Ratchathani University; Kanokwan Manorom – Supervisor
*Fishery Resources and Knowledge Management Through Empowerment of Local Wisdom in the Mun and Mekong Rivers*

Gaja-Svastic, Sirassak (Toe) – MA Candidate in Sociology
Ubon Ratchathani University; Kanokwan Manorom – Supervisor
*Fish Consumption in the Context of Community Change in the Tributaries of the Mun River*

Koukouzikis, Kostas – MA in Human Geography, University of Alberta (abandoned program in 2016)
Brenda Parlee / Robert Summers – Supervisor(s)
*Everything flows in Baan Don Samran? From lower Mekong river to human mobilities*

Papadimitriou, Andre – PhD Candidate in Geography, University of Ottawa
Collaboration with: Ubon Ratchathani University; Sonia Wesche - Supervisor
*Project Undefined to Date*

Soukhaphon, Akarath – PhD Candidate in Geography, University of Wisconsin, Madison
Collaboration with: Ubon Ratchathani University; Ian Baird – Supervisor'
*Knowing the River: Utilizing Traditional Knowledge to Shape New Discourses in the Age of Dams*

Wongpinit, Wanapa - MA Candidate in Sociology
Ubon Ratchathani University; Kanokwan Manorom – Supervisor
*Gender and Indigenous Knowledge on Fisheries in the Mun River and Si Phan Don in Southern Laos*

**3. Organization of Activities and Contributions**

*Has the combination of SSHRC funds and the cash and/or in-kind contributions from the host organization and Partners been sufficient to meet the objectives for this stage of the project? Are the original plans for partner contributions likely to be sufficient to allow the project to attain its objectives? If more resources seem likely to be required, describe any plans or actions being undertaken to obtain additional partner contributions.*

The combination of SSHRC funds and the cash and in-kind contributions from the host organization and Partners has been sufficient to meet the objectives for this stage of the project. Additional funding is sought for the support of sub-project initiatives and outreach activities that are not fully supported by existing funding. Opportunities are arising from expansion of the partnership and network as the program develops and the relevance of project outcomes become known.

**4. Knowledge Mobilization, Exchange and Dissemination of Research and Results**

*If formalized, please append to this report the partnership's formal knowledge mobilization, exchange and dissemination plan**. If not**, describe plans for the development of a formal plan, including anticipated completion date.*

A formal Knowledge Mobilization Plan is being developed to ensure best practices are used in knowledge mobilization and outcomes reflect academic excellence and meet Partner organization needs. Principles for protecting LTK are forefront in Knowledge Mobilization planning. Outcomes will strengthen local and regional stewardship of subsistence fisheries, educate upstream river users of the downstream social-ecological implications of their activities, improve the decision-making capacity of institutions at different scales, and create international awareness of how global pressures (e.g., climate change) manifest in Mackenzie-Mekong-Amazon ecosystems and communities.

**Completed and Planned Knowledge Mobilization Products of the Network**

**Presentations (44):**

Andrew, L. and C. Martin. 2017. *Great Bear Lake and Mackenzie River Dene Research Camp*. Presentation on behalf of the Sahtu Renewable Resources Board at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Baird, Ian G. 2017. *Mobile Fish and Mobile Knowledge: Fish Migrations and Fishers Knowledge and Networks in the Lower Mekong River Basin in Thailand, Laos and Cambodia.* ICPP3 conference on public policy, Singapore.

Baydack, M. IASSA Conference – was this related to Tracking Change?

Berkes, F. 2017. *Signs and signals of environmental change*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017.

Berkes, F. 2017. *Linking community to global: scaling up our thinking*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 24 February 2017.

Betsina, Chief E. and K. Wray. 2017. *Linking Fishers Knowledge and Science to Understand Ecological Change in the Mackenzie River Basin*. Presentation on behalf of the Akaitcho Territorial Government at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Bukla, P. 2017. *Fishery Resources and Knowledge Management Through Empowerment of Local Wisdom in the Mun and Mekong Rivers*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Catholique, T.T. and T. Proverbs. 2017. *Changes Affecting Fishing Livelihoods in the Mackenzie Delta*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017.

D'Souza, A. 2017. *The Impact of Hydroelectric Development on Rural Communities near the Peace River, Mckenzie Basin, Canada and the Mun River, Thailand*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Freitas, C.T. 2017. Arapaima *Co-Management: Reconciling Biodiversity Conservation and Human Well-Being in the Amazon Region?* Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Fresque-Baxter, J., T. Howlett and Yamin Muhammad. 2017. *Policy Contexts*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 22 February 2017.

Heredia, I. 2017. *Local and Traditional Knowledge Indicators for Tracking Socio-Ecological Changes in Inuvialuit Fishing Livelihoods*. Poster and Oral Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Heredia, I. 2017. *Understanding socio-ecological changes in Inuvialuit fishing livelihoods and implications for food security: The role of local and traditional knowledge.* ArcticNet: International Global Change Conference, 11-15 December 2017, Quebec City, QC.

Hogan, J. and S. Peters. 2017. *Traditional Knowledge: Peel River Watershed.* Presentation on behalf of the Nacho Nayak Dunn First Nation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017.

Hogan, J. 2017. *Building capacity for stewardship of the Pell River watershed: Tracking change of fish stocks by Nacho Nyak Dun First Nation*. ArcticNet: International Global Change Conference, 11-15 December 2017, Quebec City, QC.

Hynes, K. and I. Heredia-Vasquez. 2017. *Inuvialuit Knowledge and Use of Fisheries in the Mackenzie River Delta*. Presentation on behalf of the Inuvialuit Fisheries Joint Management Committee at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Johnson, J. 2017. . *Local and Traditional Knowledge in the Watershed Social Economy of Saskatchewan's Athabasca Basin Region*. Poster and oral presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017.

Lepine, M. and B. McLean. 2017. *Community-Based Monitoring in the Athabasca River and Delta*. Presentation on behalf of the Mikisew Cree First Nation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Lockhart, Chief F. and B. Parlee. 2017. *Tracking Change in the Great Slave Basin*. Presentation on behalf of the Lutsel K'e Dene First Nation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Lopes, P. 2017. *Tracking Change in the Lower Amazon Basin*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Manorom, K. and I.G. Baird. 2017. *Tracking Change in the Lower Mekong*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Martin, C. 2017. *Sahtu Goti'ine Traditional Knowledge: The Impact f Climate Change on Fishing Livelihoods*. Poster presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Martin, C. 2017. *The importance of traditional knowledge for maintaining fishing livelihoods during times of change in the Sahtu region.* ArcticNet: International Global Change Conference, 11-15 December 2017, Quebec City, QC.

McLeod, R. and J. Fresque-Baxter. 2017. *Deh Cho K'ehodi Youth River Trip and Traditional Knowledge*. Presentation on behaf of the Deh Cho First Nations at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Napoleon, A. and K. Aird. 2017. *Eagle Island Fish Camp*. Presentation on behalf of the Treaty 8 Tribal Association of British Columbia at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

Oloriz. C. 2017. *Local Fishers' Knowledge in Governance in the Lower Mekong*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017
Parlee, B. 2016. *The Tracking Change Project*, Northern Research Workshop Series, 20 May 2016
Parlee, B., C. Fraser and A. Amos. 2016. *Approaches to Working with Northern Indigenous Communities*, Northern Research Workshop Series, 20 October 2016
Parlee, B. 2017. *Introduction to Tracking Change*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017
Parlee, B. 2017… IASSA Conference 1
Parlee, B. 2017. IASSA Conference 2
Parlee, B. 2017. IASSA Conference 3
Parlee, B., I. Baird and R. Silvano. 2017. *Trends and Patterns of Change in the Mackenzie, Mekong, and Amazon*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 22 February 2017.
Parlee, B., I. Baird, and R. Silvano. 2017. *What do we know about Local and Traditional Knowledge in Watershed Governance?* Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 22 February 2017
Parlee, B. *Tracking Change: Fishing Livelihoods in the Mackenzie River Basin*. ArcticNet: International Global Change Conference, 11-15 December 2017, Quebec City, QC.
Proverbs, T. 2017. Impacts of Environmental and Socioeconomic Changes on Gwich'in Fishing Livelihoods and Cultural Resources. Poster and oral presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017.
Proverbs. T. 2017. *Socioecological changes, access to fish, and individual well-being in Gwich'in communities.* ArcticNet: International Global Change Conference, 11-15 December 2017, Quebec City, QC.
Reece, C. and N. Spicer. 2017. *Water Quality in the Athabasca Watershed*. Presentation on behalf of the Treaty 8 First Nations of Alberta at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017
Silvano, R. 2017. *Tracking Change in the Tapajos River in the Lower Amazon*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017
Sirasak Gaja-Svasti, T. 2017. *Fish consumption in the Context of Community Change in the Tributaries of the Mun River*. Poster and oral presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017
Soukhaphon, A. 2017. *Knowing the River: Utilizing Traditional Knowledge to Shape New Discourses in the Age of Dams.* Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017.
Spicer, Neal. 2017. *"Nothing is Safe anymore" – Risk perceptions of drinking water*. ArcticNet: International Global Change Conference, 11-15 December 2017, Quebec City, QC.
Tsannie, Chief J. and J. Johnson. 2017. *Local and Traditional Knowledge in the atershed Social Economy of Saskatchewan's Athabasca Basin Region*. Presentation on behalf of the Prince Albert Grant Council at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017.
Wongpinit, W. 2017. *Gender and Indigenous Knowledge of Fisheries in the Mun River and Si Phan Don in Southern Laos*. Presentation at the Tracking Change Global Knowledge Symposium, Ubon, Thailand, 21 February 2017

**Webinars (7):**
Parlee, B. 2017. Progress in Tracking Change in the Mackenzie River Basin
Parlee, B. Open Discussion on Best Practices in Tracking Change.
Natcher, D. 2017. Variability in Fishing Livelihoods and Fishing Knowledge among Peace River First Nations
Huntington, H. 2017. How do we Document and Demonstrate the Value of Community-Based Research?
Ommer, R. 2017. Canadian Collaborative Research for Sustainability.
Napoleon, V. 2017. Indigenous Law as Foundation.
Berkes, F. 2017. Local and Traditional Knowledge in Fishing Livelihoods.

**Interview (3):**

Parlee, B. 2017. CBC North
Parlee, B. 2017.
Psarlee, B. 2017

**Journal Articles (5):**

Manoram, Kanokwan and Ian G. Baird. (in preparation). *What about the Tributaries of the Tributaries? Fish Migrations, Fisheries, Dams and Local Knowledge along the Sebok River in Northeastern Thailand*.

Michell, H., J. Tsannie and A. Adam. 2018. Tu ʔëhena – "Water is Life": Tracking Changes on Land, Lake, and River Systems in the Northern Saskatchewan Athabasca Region from the Perspectives of Denesuline Peoples. *Green Theory and Praxis Journal*, Vol 11, Issue 1, March 2018, 17 pp.

Baird, Ian G., Kanokwan Manorom, Aurore Phenow and Sirisak Gaja-Svasti 2017 (In Preparation). *Mobile Fish and Mobile Knowledge: Fish Migrations and Fishers Knowledge and Networks in the Lower Mekong River Basin in Thailand, Laos and Cambodia* (first draft written, April 12, 2017; revised June 6, 2017 and sent for review at *International Journal of Water Resources Development* for review).

Baird, Ian G. and Kanokwan Manorom 2017 (In Preparation). *Mobile Fish and Mobile Knowledge: Fish Migrations and Fishers Knowledge and Networks in the Lower Mekong River Basin in Thailand, Laos and Cambodia* (preparing to submit to journal).

Baird, Ian G. and Kanokwan Manorom 2017 (In Preparation*). Fishers Knowledge and Irrigation and Hydropower Dam Development: Lessons from The Khayung Stream tributary of the Mun River in northeastern Thailand*.

**Planned Publications (5):**

Parlee, B. and J. Fresque-Baxter et al. (prep). *Creating a Toolbox for Community-Based Research in the Mackenzie River Basin*

Natcher, D., et al. (in prep). *Methods for assessing Subsistence Harvests of Fishing Resources*

Berkes, F., R. Silvano, I.G. Baird, J. Fresque-Baxter, B. Parlee and J. Tsannit (in prep). *Indicators and the Governance of Freshwater Ecosystems*

Lantz, T. et al. (in prep). *Stressors and Disturbances in the Mackenzie River Basin.*

Wray, K., et al (in prep). *Community-based research.*

**Planned Books (1):**

Parlee, B., I. Baird, R. Silvano, and K. Manoram. The Role of Local and Traditional Knowledge in Watershed Governance: A State of Knowledge

**Conference Proceedings (2):**

Parlee, B., V. Zeppa, F. Lopez, and E. Maloney. 2016. *Proceedings of the Youth Knowledge Forum 2016*.

Parlee, B. and E. Maloney, eds. (in preparation). *Tracking Change: Proceedings of the Global Knowledge Symposium*

**Articles in Popular Media (3):**

Mosleh, Ompar. 2017. Indigenous insights on climate change: UofA turns to elders to help with the Mackenzie River Basin. *Edmonton Metro News* Wednesday, October 11, 2017.

Parlee, B. 2017. *Tracking Change*: Featured project on the Department of Resource Economics and Environmental Sociology (REES), University of Alberta, website

Semeniak, Ivan. 2017. Riverworld: A sweeping survey of traditional knowledge from the Mackenzie Basin reveals Canada's largest watershed is in the midst of a rapid and uncertain transformation. *The Global and Mail*, Tuesday, October 10, 2017 News, Folio: Environment pp A8-A9.

**Newsletter Articles: (2)**

Schuman, Wally. 2016. *Importance of Partnerships*. Tracking Change, Mackenzie River SSHRC PG project - www.trackingchange.ca highlighted in the legislative assembly of the Government of the Northwest Territories as a valued partnership http://www.gov.nt.ca/newsroom/news/wally-schumann-importance-partnerships, 2 March 2016

Silvano, R. 2016. *Amazon Inspiration For The Mekong Basin* http://fishbio.com/field-notes/the-fish-report/amazon-inspiration-mekong-river *FishBio*, 17 October 2016

**Literature Reviews (8):**

Literature reviews have been developed for the *Tracking Change…* with the aim of synthesizing the existing and documenting local and traditional knowledge about social and ecological change in the Mackenzie River Basin.

D'Souza, A. and B. Parlee (2016). Literature Review: Local and Traditional Knowledge in the Peace River Sub-Basin

Heredia Vasquez, I. and S. Wesche (2016). Literature Review: Local and Traditional Knowledge in the Great Slave Lake Area

Parlee, B. (2016). Literature Review: Local and Traditional Knowledge in the Great Bear Lake Watershed

Parlee, B. (2016). Literature Review: Local and Traditional Knowledge in the Lower Mackenzie

Parlee, B. (2016). Literature Review: Local and Traditional Knowledge in the Liard River Watershed

Parlee, B., and A. D'Souza (2016). Literature Review: Local and Traditional Knowledge in the Athabasca River Watershed

Parlee, B., and C. Martin (2016). Literature Review: Local and Traditional Knowledge in the Peel River Watershed

Wray, K. (2016). Literature Review: Local and Traditional Knowledge in the Hay River Watershed

**Methodological Papers/Toolkits (5):**

Parlee, B. and J. Fresque-Baxter. 2016. *How to: Some Ideas on Methods for Community-Based Research on Social-Ecological Change in the Mackenzie River Basin*, Volume 1

Parlee, B. and J. Fresque-Baxter. 2016. *Guiding Interview Questions: Tracking Change in the Mackenzie River Basin*

Parlee, B. and J. Fresque-Baxter (in prep.). Guidebook/best practices for traditional knowledge research and documentation, including research protocols that recognize and honour OCAP Principles.

Parlee, B. 2017. *Oral Histories, Perception, and Knowledge of Change*, Volume 2.

Parlee, B. 2017. *Fishing Livelihoods: Harvest and Perceptions of Change in Fish Health*. Volume 2

**Tracking Change Terminology (1):**

Ahkimnachie, K. 2017. *Ecological Monitoring Terminology* (English, Dene – Beaver or xe'ghont'e; Dene – Slavey or Kaguntu)

**PowerPoint Presentations (1):**

Parlee, B. 2017. *Tracking Change… Review of 2016-17 Annual Report*

**Research Reports 2016 (12):**

Abel, Diane, Art Napoleon and Karen Aird and the Treaty 8 Tribal Association of British Columbia. 2016. *Eagle Island Fish Camp*

Boucher, Annie, Diane Giroux, Mike Tollis, Lauren King and Cochise Paulette, Akaitcho Territorial Government. 2016. *Guiding Water Protection Through Traditional Knowledge*

Boxwell, Janet, Trevor Lantz, Tracey Proverbs, Tas-tsi Catholique, Sharon Snowshoe and Ingrid Kritsch, Gwich'in Tribal Council, Gwich'in Renewable Resources Board. 2016. *Changes affecting Fishing Livelihoods in the Gwich'in Settlement Area*

Hynes, Kristin, Sonia Wesche, and the Aklavik Hunters and Trappers Committee, Fisheries Joint Management Committee. 2016. *Inuvialuit knowledge and use of Fisheries in the Mackenzie River Delta*

King, Lauren, Andreina Cambronero, Joseph Catholique, and Ron Fatt, Lutsel K'e Dene First Nation, Lutsel K'e Dene First Nation. 2016. *Tracking Change in the Great Slave Basin*

Mikisew Cree First Nation. 2016. *Community-Based Monitoring Program*

Pellisey, Jody, Alice Legat and Imbe Program, Tłı̨chǫ/Wek'eezhii Renewable Resources Board. 2016. *Fish, Todzi, and Forest Fire on the Land Research*

*Sabo, Ray,* Joella Hogan, Sharon Peter, Ellen Bielawski, and Kristine Wray, Nacho Nayak Dun First Nation, Yukon. 2016. *Traditional Knowledge Camp*

*Simmons, Deb, Leon Andrew, Michael Neyelle, Edward Reeves, Roger Odgaard, Jennie Vandermeer, Mandy Bayha, *Cheslea Martin,* Sahtu Renewable Resources Board. 2016. *Sahtú hé Deocha hé Dene Náowerá Chets'elə - Great Bear Lake and Mackenzie River Dene Knowledge Research Camps*

*Tsetso, Dahti, Dean Holman, Alison De Pelham, George Low, and Kristine Wray,* Deh Cho First Nations. 2016. *Deh Cho K'ehodi Youth River Trip: Fort Simpson to Willow Lake River*

Treaty 8 First Nations of Alberta. 2016. *Place names and Oral Histories of Change in the Peace River Sub-Basin*

Parlee, B. and E. Maloney, eds. 2017. Tracking Change.. Local and Traditional Knowledge in Watershed Governance: Report of the 2016 Community-Based Research Projects in the Mackenzie River Basin, 92p.

**Research Reports 2017 (2)**

Prince Albert Grand Council. 2017.

Mikisew Cree First Nation. 2017. *Community-Based Monitoring Program*

**Newsletters (6):**

Parlee, B. 2015. *Tracking Change: Local and Traditional Knowledge in Watershed Governance*, 6pp.

Hereida, I. 2017. *Understanding Socio-Ecological Change in Inuvialuit Fishing Livelihoods and Implications for Food Security: The Role of Local and Traditional Knowledge*, 4pp.

Hogan, J. 2017. *Building Capacity for Stewardship of the Peel River Watershed: Tracking Change of Fishstocks, First Nation of the Nacho Nayak Dun*, 4p.

Martin, C. 2017. *The Importance of Traditional Knowledge for Maintaining Fishing Livelihoods in Times of Change in the Sahtu Region*, 4pp.

Proverbs, T. 2017. *Socioecological Change Affecting Gwich'in Fishing Livelihoods in the Gwich'in Settlement Region*, 4pp.

**Posters from the Youth Knowledge Forum 2016 (21):**

"Tazi twe Hydroelectric Project," by Marie Rosalie Bruno from Black Lake School, Father Porte Memorial Dene

"Trout" by Randon John Cook from Black Lake School, Father Porte Memorial Dene

"The Mackenzie River Watershed: Our Water is the Boss," by Kennedy Marten and Mahailla Frank-Powder from Athabasca Delta Community School, Fort Chipewyan, AB

"Lakes and Rivers in the Athabasca River," by Michael Boudreau and Raymond Cardinal from Athabasca Delta Community School, Fort Chipewyan, AB

"Why is there oil in the Water?" by Jaiden Cypien and Tyson Cardinal from Athabasca Delta Community School, Fort Chipewyan, AB

"Water Pollution: Canada's Toxic Tar Sands," by Shauntay Antoine and Alissa Castor from Athabasca Delta Community School, Fort Chipewyan, AB

"Which Fish are Best to Eat?" by Sam Bunning from Chief Tallcree High School, Fort Vermillion, AB

"How Nutrient Rich is Our Water," by Dana Auger from Chief Tallcree High School, Fort Vermillion, AB

"Sustainable Water and Unsustainable Water," by Tyrell Fern and Josh Piche from Fond du Lac, SK

"The Mackenzie River Basin: Sub-basins before and after," by Emma Tom Tom from Robert Service School, Dawson City, YT

"Fish in the Mackenzie River," by Mataya Mantla from Chief Albert Wright School, Tulita, NWT

"Changes in the Water Level in the Mackenzie River," by Rylan Campbell from Chief Albert Wright School, Tulita, NWT

"Quietus of Adam's Ale: Current and Future State of the Mackenzie River Basin," by Shaznay Waugh from Thomas Simpson School, Fort Simpson, NWT

"Fish Species and Migration Routes in the Mackenzie River," by SaNaeah Allen from Thomas Simpson School, Fort Simpson, NWT

"Mackenzie River Basin," by Lane Voudrach from East Three Secondary School, Inuvik, NWT

"Testing the Water," by Trya Cockney-Goose from East Three Secondary School, Inuvik, NWT

"Deh Cho," by Cassidy Villeneuve and Paul William from Paul W. Kaeser Secondary School, Fort Smith, NWT

"The Mackenzie River," by Faith Gaudet from Paul W. Kaeser Secondary School, Fort Smith, NWT
"Fishing Without a Hook," by Cheyenne Hoagak from Mackenzie Mountain School, Norman Wells, NWT
"Water Heart-Tudze," by Emily Bayha from Mackenzie Mountain School, Norman Wells, NWT
"A Fishy Situation: The Machenzie River Basin – Theme: Historical and contemporary observations and perception of conditions and change in the health of the aquatic environment," by Branda Le and Taylor Lake, from Ecole Sir John Franklin High School, Yellownife, NWT

**Canadian Museum of Nature Exhibit**. 2017. The *Tracking Change* project is featured in the new permanent gallery on the Canadian Arctic, to mark the 150th anniversary of Canada that focuses on the sustainable use of Arctic resources. The MacKenzie Basin's Tracking Change project strengthens cooperation between fishers, indigenous communities and renewable resource managers. Participants share data, observations and insights to maintain healthy ecosystems that sustain fishing as an activity of social, cultural and economic importance.

**Video Documentary (in preparation)**
We are working towards the development of a **short video documentary** about the **Tracking Change...Global Knowledge Symposium.** The meeting was the first of its kind where we have participants from Canada's Mackenzie Basin and the lower Mekong River Basin sharing their ideas, research and perspectives on the sustainability of freshwater ecosystems and their importance to local communities and villages.

**Video streaming** of discussions, presentations, excursions and activities related to the Global Knowledge Symposium in Ubon Ratchathani, Thailand.

**5. Performance Measurement and Assessment**

*Describe the plans, indicators and mechanisms you expect to use to monitor, measure and assess the success of the partnership in reaching the stated objectives throughout the life of the grant period. In particular, address how you will assess the following areas:*

- *planned activities, including individual projects and their expected deliverables as well as suitability and significance of the activities conducted;*
- *level of participation of the partnership team (host institution, researchers, partners, students, etc.) in the project; and,*
- *Impact and suitability of dissemination activities for the stakeholders.*

## Milestones to date

**a) Meetings with Partner Organizations**
The project proposal took such a long time to develop that a priority since hearing about our success, was to check back in with our partners. The Project Director traveled to Deline for the *Waterheart Conference* in August 2015 and shared news about the project with the community. InIn that same month, she also attended meetings in Whitehorse (with the Inuvialuit Fisheries Joint Mgt Committee and Game Council), and a Livelihood Committee meeting of Treaty 8 First Nations of Alberta. A visit with members of Water Keepers and a colleague working for West Moberly First Nation in BC was also possible during the Treaty 8 gathering in August. Although a meeting in Saskatchewan was not possible, the Project Director traveled with Vice Chief Joseph Tsannie (of the Prince Albert Grand Council) and Jennifer Fresque Baxter to Ottawa in September to participate in a "SSHRC Partnership Grant" start-up meeting. The Project director also travelled to Yellowknife in October for a meeting of the Aboriginal Steering Committee of the NWT Water Stewardship Strategy. Through these meetings, much was learned about some of the specific issues and needs for research in different parts of the Mackenzie basin.

**b) Establishment of Project Governance**
Project Governance was established and Terms of Reference were developed for committees and sub-committees of the project.

**3. Administration at the University of Alberta**
Administrative coordination and management of the project was set up. *Ethics*: The project applied for a blanket ethics approval from the University of Alberta in anticipation of initial subprojects beginning in late spring/summer of 2016. *Funding Transfer Agreements*: most of the accounting for the project was set up by September, but determining how to set up the funding transfer agreements for all of the partners/universities took some time. The agreements were finalized in April 2016 and funds transferred. Finally, a mechanism for moving funds to community partners was also needed; the system was set up in June 2016, and administrative systems are now in place for all sub-grant transfers.

**4. Communications**

*Website:* A website for the project has been established under www.trackingchange.ca.

*Media:* A short media release was sent out in July 2016 by the University of Alberta. A plain language summary was developed and then translated into the Indigenous languages, Thai/Lao and Portuguese for distribution to partners. In planning are a round of radio interviews on community and regional radio stations and perhaps on the Aboriginal Peoples Television Network.

*Logos:* The Project Team is considering several logo design ideas… and will be formalizing this in the next few months. In the interim, we have been using a working logo design featuring the project name, which may continue to be used for some applications.

*Documents:* A Dropbox account has been established to house various documents for sharing. In the near future, the project will be developing an online 'reference centre' as part of the website, to provide a more permanent and formal collection of relevant documents.

*Newsletters:* The first issue of a quarterly Newsletter has been released and the second issue is in preparation.

*Bi-Weekly updates:* a means of communicating regularly with all project collaborators and partners was launched in mid-April.

**5. Planning Meetings**
An inaugural meeting of the Project Team (Traditional Knowledge Steering Committee and the sub-basin leads from the Mackenzie and colleagues working in the Amazon and Mekong) was held in Whitehorse on 19-20 November 2016. This meeting helped get a number of things moving including decisions about budgets and funding.

The Project Executive Committee with members of the project team and the Mackenzie River Basin Board Traditional Knowledge & Strengthening Partnerships Committee met with the Aboriginal Steering Committee of the NWT Water Stewardship Strategy in February 2016 for a one day planning session to provide direction for the implementation of the Tracking Change…project. The facilitated workshop provided input to the guidelines for community-based research projects for the 2016-17 fiscal year.

**6. Funding: RFP for Community Projects**
Representatives of the Partner Organizations and the academic leads for the sub-basins are invited to work together to develop projects that meet the research needs of communities as well as deal in a focused way with the big picture research objectives of our project. Themes and Priorities for *Tracking Change*… Sub-Projects in 2016-2017

- ✓ historical and contemporary observations and perceptions of conditions and change in the health of the aquatic environment (e.g., water quality, quantity, flow, groundwater, permafrost conditions);
- ✓ historical and contemporary observations and perceptions of conditions and change in fish species (population, movements, diversity, invasive species) and other aquatic species (e.g., geese, beaver);
- ✓ sustainability of fishing livelihoods (e.g., harvesting levels and practices, diet, health, access issues, perceptions of change in the health of valued fish species);

- ✓ implications of change for governance (e.g., how to maintain healthy relationships to the aquatic ecosystem, maintaining respectful and spiritual relationships, respecting treaty rights);

**7. Youth Knowledge Fairs**

Partners and collaborators involved in Tracking Change… identified the importance of engaging youth in all aspects of our research project, including the definition of research priorities and key issues for study. The objectives of the knowledge fair were to: 1) create opportunities for junior high and high school-aged youth to connect with each other in Edmonton for three days of educational activities, including knowledge sharing activities, educational workshops, keynote presentations from inspirational youth and Aboriginal leaders, tours of the University of Alberta; 2 support students to learn about their own histories, ecosystems, and communities from elders and their communities and through their schools through submissions of poster projects, and, 3) encourage the development of research and written/oral communication skills through a poster project related to the health of water, fish, fishing livelihoods, and well-being of communities in the Mackenzie River Basin.

The Youth Knowledge Fair was open to applications from junior/high school groups and individual students from the five provincial and territorial jurisdictions of the Mackenzie River Basin. We hosted 30 students and 15 Chaperones Grades 7-10 from every jurisdiction of the Mackenzie River basin participated in the Tracking Change Youth Knowledge Fair in May 2016 to learn from each other and share perspectives difference environmental issues at an event held over 3 days at the Lister Centre for the University of Alberta Campus, the Telus World of Science, the Art Gallery of Alberta. The quality of the students' work was impressive. A panel of judges reviewed the posters and evaluated the students' oral presentations. Awards were given out on the last day of the event. The posters are being reproduced in a report booklet (proceedings) of the event and added to the website. The second Youth Knowledge Fair is planned for May 2018.

**Global Knowledge Symposium -** 40 participants – a great mix of community people, students and academics - there are also key resource people attending in addition to representatives from the federal government (DFO), Gov. of the Northwest Territories and the Government of Alberta. Representatives from the Mackenzie region made presentations based on their community reports; the graduate students who have been working on various projects also presented summaries of their work. And we had the opportunity to learn more about the work of those at Ubon Ratchathani and involved in work about the impacts of hydro on the Mun River.