SCIENTIFIC RESEARCH LICENCE APPLICATION
LAND, FRESHWATER & MARINE BASED RESEARCH

NRI strongly recommends that applicants review the following documents prior to submitting an application: *Scientific Research Licencing Guidelines* and *Negotiating Research Relationships in Inuit Communities: A Guide for Researchers.*

IMPORTANT
This application fulfills the requirements for the NIRB environmental screening. Please be advised that your application will not be processed until the application form, project summary, and maps are received. All documents should be uploaded in the following formats: MS Word, Adobe PDF or jpeg.

SECTION 1: APPLICANT INFORMATION

1a. Project Title Northern Ellesmere Ice Shelves, Epishelf Lakes and Climate Impacts

1b. Project Number

Please indicate if applicant has submitted any previous application(s) to NRI related to this project proposal? Yes (o) No ( )

If yes, please indicate the previous NRI licence number: 0200609N-M

Please indicate if applicant has submitted any previous application(s) to NIRB related to this project proposal? Yes (o) No ( )

If yes, please indicate the previous NIRB licence number(s): 08YN010

2. Applicant's full name and mailing address:

Dr. Luke Copland
Department of Geography, University of Ottawa
60 University Pvt. (Room SMD047) Ottawa, Ontario K1N 6N5

Phone: 613 562 5800 x2826
Fax: 613 562 5145
Email: luke.copland@uottawa.ca

3. Field Supervisor's name and mailing address:

Dr. Luke Copland (details as above)

Phone:
Fax:
Email:

4. Other Personnel list (name, position, affiliation)

Dr. Derek Mueller, Assistant Professor	Carleton University
Adrienne White, M.Sc. student	University of Ottawa
Andrew Hamilton, Ph.D. student	University of British Columbia (+future students)

SECTION 2: AUTHORIZATION NEEDED

1. Indicate all authorizations associated with the project proposal:

[ ]	Regional Inuit Association (RIA)	[ ]	Canadian Launch Safety (CLS)
[ ]	Nunavut Water Board (NWB)	[ ]	Environment Canada (EC)
[ ]	Nunavut Planning Commission (NPC)	[ ]	Department of Environment (GN)
[ ]	Department of Indian And Northern Development (DIAND)	[ ]	Department of National Defense (DND)
[ ]	Department of Fisheries and Oceans (DFO)	[ ]	Hamlet
[ ]	Community Government & Services (CG&S)	[ ]	Parks Canada (PC)
[x]	Nunavut Research Institute (NRI/GN)	[ ]	Canadian Wildlife Service (CWS)

[ ] Department of Culture, Language, Elders, and Youth (CLEY/GN) [ ] Other (please specify):

2. List the active permits, licences, or other rights related to the project proposal and their expiry date:

Permit:	Expiry Date
NRI licence # 02 106 11R-M	Expires April 1, 2012

3. Have you applied for all authorizations required to conduct the project proposal activities?

(o) Yes ( ) No

SECTION 3: PROJECT PROPOSAL DESCRIPTION

1. Indicate the activities related to the project proposal:

[x]	Temporary camp (to be removed at end of field season)	[ ]	Soil disposal/ soil storage
[ ]	Permanent camp (to remain for life of authorization)	[ ]	Incineration of combustible wastes and removal of non-combustible wastes
[ ]	Construction of recreational or safety cabin	[ ]	River/ stream/ lake crossing or work/ bridge
[x]	Temporary fuel storage (to be removed at end of field season)	[ ]	Drainage alteration
[x]	Permanent fuel storage (to remain for life of authorization)	[ ]	Geoscientific sampling by diamond drilling
[x]	Placement of structures for life of permit (other than camp or cabin â€“ i.e. scientific instruments)	[ ]	Geoscientific sampling by soil sampling
[ ]	Placement of permanent structures (other than camp or cabin â€“ i.e. scientific instruments)	[ ]	Geoscientific sampling by trenching
[x]	Air surveys (i.e. geophysical, wildlife)	[ ]	Geoscientific sampling by borehole core
[x]	Use of aircraft/watercraft/land vehicle for personnel drop-off and pick-up to project location	[ ]	Blasting
[x]	Use of on-site mechanized vehicles (i.e. atv, snowmobile, truck, zodiac)	[ ]	Channeling
[x]	Sewage or grey water disposal via sump	[ ]	Excavation
[ ]	Hazardous waste storage or disposal	[x]	Hydrological testing
[ ]	Solid waste disposal	[ ]	Abandonment and restoration
[ ]	Chemical storage	[ ]	Site restoration (fertilization/ grubbing/ scarification/ spraying/ recontouring)
[ ]	Explosives storage	[x]	Research
[ ]	Soil testing	[ ]	Ecological survey
[ ]	Harvesting	[ ]	Removal of vegetation for scientific purposes

[x] Other: Ice thickness radar surveys, ice coring, GPS measurements, oceanographic measurements

2. Personnel

Total No. of personnel on site = (A)	Total No. of days on-site = (B)	**Total No. of Person days (A) Ã— (B) =**
4	20	120

3. Timing

Period of operation:	April 15	to	Aug 31 (varies year to year)
Proposed term of authorization:	April 1, 2012	to	April 1, 2018

Please outline the phases of the proposed project (construction/ operation/ decommissioning) including the timing and scheduling of each phase.

Temporary field camps (in tents) will be established each year for work on the ice shelves. All material and garbage will be removed at the end of each field season, except for fuel caches that can be used in future years and scientific instruments
designed to be permanently installed (e.g., weather station, GPS). This year 4 people will stay 3 weeks in May and 2 people will stay 2 weeks in July.

4. Location(s) of data collection:

Location Name	**Region** North Baffin, South Baffin, Kivalliq, Kitikmeot	**Co-ordinates** Lat (degree / minute), Long (degree / minute)	**NTS Map Sheet Nr.**	**Land Status** Crown, Commissionersâ€™, Inuit Owned
Milne Ice Shelf	North Baffin	82°43'N, 081°55'W	340F	Crown
Petersen Ice Shelf	North Baffin	82°32'N, 082°26'W	340F	Crown
Other nearby fiords and ice shelves	North Baffin	82°51'N, 080°50'W	340E/F/G/H	Crown
Floating ice islands	North/South Baffin	Location varies: can be anywhere in the Arctic Ocean	Varies	Crown

If the project proposal includes a **camp**, please provide the coordinates of the camp location

Lat (degree/minute) 82°29'N Long (degree/minute) 081°59'W

NTS Map Sheet Nr. (if different from above) 340F

Please attach maps (preferably 1:250,000 scale) which clearly indicate camp sites and research sites. PDF, jpeg or tiff versions are requested.

land-map.tiff

The Nunavut Impact Review Board may require additional location information in a subsequent Project Specific Information Requirement (PSIR) submission. This may take the form of a digital Geographic Information Systems (GIS) file.

SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please attach a non-technical description of the project proposal, no more than 500 words, in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot). The project description should outline the following:

- Project Title
- Researcher's Name and Affiliation
- Project Location
- Timeframe
- Project Description
  - purpose
  - goals & objectives
  - method of transportation
  - any structures that will be erected (permanent / temporary)
  - restoration / abandonment plans
- Methodology
  - collection protocol
  - collection mechanisms
  - indicate why specific communities or individuals were selected for your research
- Data
  - short term & long term use of data
  - other uses of data
- Reporting
  - How will the research results be communicated to the individual participants, communities, regional and Nunavut organizations?
  - Will the research result in a publication?

land-Copland project summary 2012 English.doc land-Copland project summary 2012 Inukt.doc

SECTION 5: MATERIAL USE

1. List equipment (including drills, pumps, aircrafts, vehicles etc.):

Equipment type and number	Size â€“ dimensions	Proposed use
1 Twin Otter	20m x 20m x10m	Transport
2 Snowmobile w/komatiq	2m x 60cm x 1m	Transport
2 Kovacs ice auger	5m x 5cm	Drilling ice
1 Jiffy drill	3m x 30cm	Drilling ice
2 Ice-penetrating radar	1m x 50cm x 50cm	Measure ice thickness
1 Helicopter	15 m x 5 m x 3 m	Transport

2. Detail fuel and hazardous material use:

Fuel	Number of Containers and Capacity of Containers	Total Amount of Fuel (in Litres)	Proposed Storage Methods
Diesel			
Gasoline	2 x 45 gal	410	steel drums
Aviation fuel	6 x 45 gal	1230	steel drums
Propane	8 x 20 L	160	propane bottles
Other	16 x 1L	16	sealed plastic containers
Hazardous Materials and Chemicals		**Total Amount of Hazardous Materials and Chemicals (in Litres)**	

3. Detail daily water consumption rates

Daily amount (in Litres)	Proposed water retrieval methods	Proposed water retrieval location
30 litres	snow or melt water	From floating ice shelves

4. Have you applied for a Class A Licence with the Nunavut Water Board?

( )	YES	(o)	NO

SECTION 6: WASTE DISPOSAL AND TREATMENT METHODS

1. List the types of waste:

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage (human waste)	4 kg/day	fly out	
Greywater	30 L/day	leave on sea ice	
Combustible wastes	5 kg/day	fly out	
Non-Combustible wastes	5 kg/day	fly out	
Overburden (organic soil, waste material, tailings)			
Hazardous waste			
Other:			

2. Will you be incinerating combustible waste, removing all solid waste, and removing the ash generated from incineration?

( ) YES (o) NO

SECTION 7: COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

1. List the community representatives that have been contacted and provide the minutes of the meetings if available:

Minute			
Community	Name	Organization	Date Contacted
Resolute Bay	Martha Kudluk/Jefferey Amagoalik	Hamlet/HTA	Feb 20, 22, 24
Grise Fiord	Janice Anderson/Mark Akeeagok	Hamlet/HTA	Feb 22, 24
Resolute Bay	Jennifer Borden	Qamartalik School	Feb 20

2. How will the proposed project benefit Nunavut? Will your project provide local employment or training opportunities? Please specify.

The proposed research project will improve understanding of the current state of the ice shelves along northern Ellesmere Island, as well as monitor the drift patterns of ice islands after they have broken away from the ice shelves.

This work will help Nunavut understand how its coastline is changing, how ice shelf breakup events are impacting local ecosystems, and what the causes of these changes are.

Knowledge of ice island drift patterns and locations will help avoid future collisions with ships and other marine vessels such as oil exploration platforms.

3. Please describe the nature of local services and/or logistic support that will be required from local communities, eg. Equipment, accommodations, outfitting, translations...

Travel to the field site is typically conducted through the Polar Continental Shelf Program in Resolute Bay.

Some field gear is shipped to and from Resolute Bay each year with Canada Post and First Air, while the remaining field gear is kept in storage cages at PCSP.

Accommodation in Resolute Bay is typically at the PCSP base. Translations of annual scientific license reports are typically conducted by Innirvik Support Services Ltd in Iqaluit.

4. Describe and attach documentation regarding community support or concerns for the proposed project?

No concerns have been expressed

5. Is there a traditional knowledge component to this research project? If yes, please explain:

No – the study location is outside of traditional hunting/settlement areas

SECTION 8: GENERAL QUESTIONS

1. Do you give NRI permission to publish project information in the Nunavut Research Institute Annual Compendium of Research Undertaken in Nunavut?

(o) YES ( ) NO

2. Is the proposed research associated with International Polar Year (IPY)?

( ) YES (o) NO

Applicant:

Luke Copland	Associate Professor	Feb 24, 2012
Signature	**Title**	**Date**

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