

***“Speed is everything out here. It opens up everything.”***

**-- SW Alaska respondent, concerning impact of broadband in rural communities**

***“On a scale of 1 to 10, I’d rate it about 10.”***

**-- Tribal administrator in Alaska on the importance of broadband**

***“Here we have devices. We are device rich, and bandwidth poor.”***

**-- Village store owner**

***“Our clients sometimes don't understand ... they just stare at us when we tell them about how big uploads and downloads make our lives difficult.”***

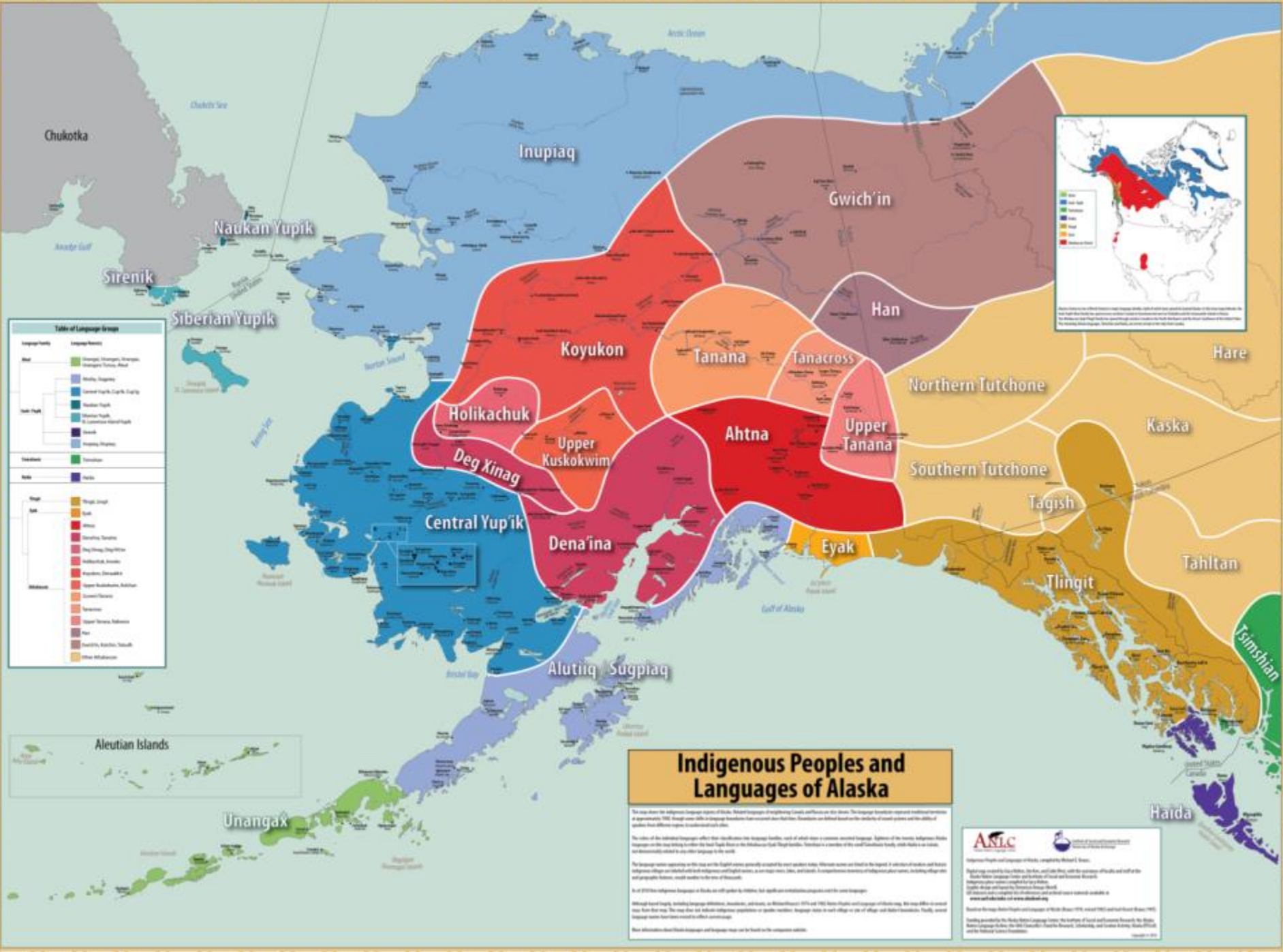
**-- Fishing lodge owner**



***ISER: More than 50 years  
of public policy research in Alaska***



**UNIVERSITY of ALASKA ANCHORAGE**



**Table of Language Groups**

Language Family	Language Name
Athabaskan	Chukchi, Chuglyk, Koryak, Kereken, Tutchone, Tanana, Athabaskan
	Yup'ik
	Alutiiq
	Unangax
Eskimo-Aleut	Central Yup'ik
	Siberian Yup'ik
	Naukan Yup'ik
	Sirenik
	Alutiiq
	Sugpiaq
	Unangax
	Aleutian Islands
	Chukchi
	Koryak
Na-Dene	Upper Tanana
	Upper Kuskokwim
	Deg Xinag
	Holikachuk
	Central Yup'ik
	Dena'ina
	Upper Tanana
	Upper Kuskokwim
	Deg Xinag
	Holikachuk
Salishan	Tlingit
	Haida
	Tahltan
	Kaska
	Hare
	Northern Tutchone
	Southern Tutchone
	Tagish
	Tlingit
	Haida
Siouan	Upper Tanana
	Upper Kuskokwim
	Deg Xinag
	Holikachuk
	Central Yup'ik
	Dena'ina
	Upper Tanana
	Upper Kuskokwim
	Deg Xinag
	Holikachuk
Uto-Aztecan	Upper Tanana
	Upper Kuskokwim
	Deg Xinag
	Holikachuk
	Central Yup'ik
	Dena'ina
	Upper Tanana
	Upper Kuskokwim
	Deg Xinag
	Holikachuk



## Indigenous Peoples and Languages of Alaska

The map shows the indigenous language regions of Alaska. Several languages (highlighting Central and Upper Tanana) are shown in red. The language families represent traditional groupings as of approximately 1900, though some (like Eskimo-Aleut and Athabaskan) have been shown to have spread from their original homelands to other parts of the state. The map also shows the distribution of several other languages in the state.

The names of the indigenous languages reflect their classification into language families, each of which is a common worded category. Speakers of the same indigenous language may not be able to understand each other, but they may be able to understand speakers of other languages in the same family. Speakers of different languages may not be able to understand each other, but they may be able to understand speakers of other languages in the same family.

Based on the 1970s census, the map shows the distribution of indigenous languages in Alaska. The map also shows the distribution of several other languages in the state. The map shows the distribution of indigenous languages in Alaska. The map also shows the distribution of several other languages in the state.

**ASLC** Alaska State Language Center

Indigenous Peoples and Languages of Alaska, Language: Richard A. Ross

Project supported by the Alaska, Yukon, and Yukon-Charley National Preserve and the Alaska Native Language Center and Institute of Arctic and Alpine Research

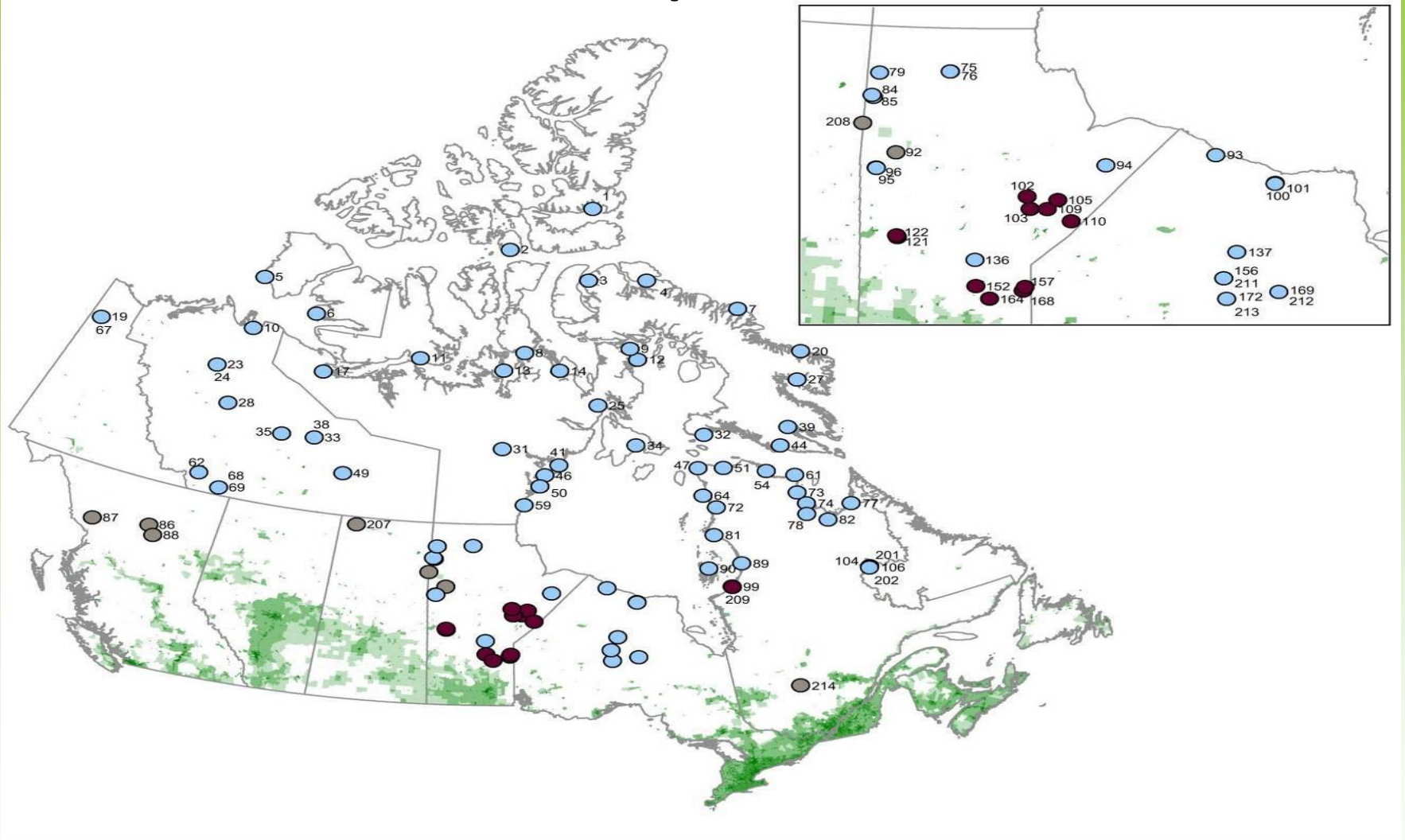
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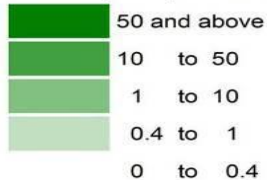
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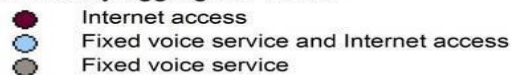
# Canadian Communities Dependent on Satellite Service



Population density  
Persons per square kilometre



Community aggregator model



# Arctic Communities

- **Generally small, isolated communities**
  - Small markets
  - Expensive to serve
- **Primarily indigenous populations**
  - Young, fast growing populations
  - Large households
  - Low/seasonal incomes
- **Institutions:**
  - businesses, government, social services, public safety

## Broadband Requirements

- **Households: education, cloud-based services, government and commercial online services**
- **Public services: education, health care, public safety**
- **Business and organizations: logistics, payroll, funding, marketing, training, meetings**
- **Mobile as well as fixed**



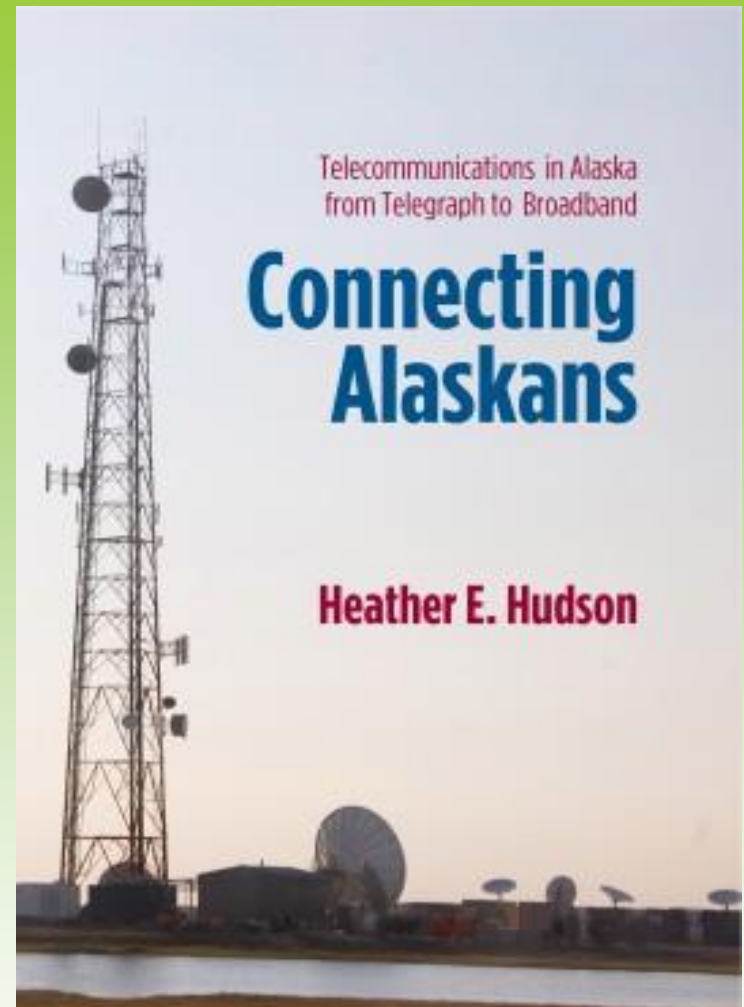
# Implications for Arctic Connectivity

- **Capital Investment: necessary but not sufficient**
  - Capex subsidies may be required
- **Opex subsidies also required**
  - High cost provider subsidies
  - Anchor tenant subsidies: schools/libraries, health care
  - User subsidies: e.g. broadband Lifeline
  - Alaska received almost \$3 billion since 1998 in US USF funding
- **Broadband as a moving target**
  - Applications are likely to become more bandwidth-intensive and cloud-based
- **Affordability is key**
  - Users in Alaska and N Canada unable to take full advantage of broadband
  - Low incomes, multiple-user households,
- **Indigenous providers as well as users need to be involved**
  - Infrastructure funding and subsidies open to all providers
  - Local jobs: installation, maintenance, training , tech support

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