

Abstract for the 11th Annual ArcticNet Scientific Meeting (ASM 2015)_7-11 December 2015

INDICATORS FOR SUSTAINABLE CIRCUMARCTIC COASTAL COMMUNITIES

Forbes, Donald L.¹, T. Bell¹, J.Nyman Larsen², A. Petrov³, P. Pulsifer⁴, R. Ole Rasmussen⁵, R. Riedlsperger¹ and P. Schweitzer⁶

(1) Department of Geography, Memorial University of Newfoundland, St. John's, NL. A1B 3X9

(2) Stefansson Arctic Institute, University of Akureyri, Akureyri, Iceland

(3) Department of Geography, Northern Iowa University, Cedar Falls, Iowa, USA

(4) National Snow and Ice Data Center, Ottawa

(5) Nordregio, Stockholm, Sweden

(6) Department of Anthropology, University of Vienna, Vienna, Austria

With unprecedented rates of change in climate, population, technological innovation, and externally driven shipping and resource extraction activity, small Arctic communities face a plethora of challenges to sustainability. Coastal communities are located at the biologically productive interface between terrestrial, marine, and atmospheric systems, which exhibit trends beyond the range of recent human experience. These communities are exposed to growing natural hazards and associated social, cultural, and economic risk, exacerbated in many cases by social, institutional, or governance barriers to adaptation. Inuit culture, traditionally tied to the coastal environment, remains a strong determinant of resilience in the modern Arctic, but confronts new realities in the coastal communities where the majority of Inuit reside today. The capacity to adapt and to implement adaptive measures is a critical determinant of individual and community health and well-being in the face of rapid change. It depends on a number of key factors including objectives (consensus or diversity of interests), perceptions of risk, and societal values (IPCC, 2013, Summary for Policymakers, www.ipcc.ch/report/ar5/wg2/). Knowledge is the key to successful outcomes, but how do individuals or institutional decision-makers identify and access the necessary knowledge to make the best choices in particular circumstances? One approach to identifying trends, assessing adaptive capacity, and measuring success is the use of indicators, co-designed by users (decision-makers at various scales) and tailored to the particular circumstances of individual communities, regions, or networks. Situational indicators (biophysical or social) are valuable tools for identifying the current status of environmental constraints and hazards, social and economic conditions, and individual health and well-being. Examples include changing sea level and ice conditions, geoinicators of coastal response (e.g. Lantuit et al. 2012, *Estuaries & Coasts*, 35, doi:10.1007/s12237-010-9362-6), or a range of social indicators, such as population trend, infant mortality, household income, consumption of traditional (country) food, cultural

autonomy, language retention, or measures of fate control (Larsen et al. 2014, Arctic Social Indicators – ASI II: Implementation, Norden, doi:10.6027/TN2014-568). Another approach is the use of adaptive capacity indices (ACIs), which involve a “a systematic synthesis of key social, biological, and physical indicators that allow for targeted yet coordinated responses under changing conditions for the purpose of sustaining desired livelihoods and wellbeing” (Alessa et al. 2015, Sustainability Science, 10, doi:10.1007/s11625-015-0295-7). Effective ACIs require user involvement and availability of relevant information, which may come from a variety of sources, including conventional remote sensing, monitoring, survey and census data, and particularly from community-based observers and indigenous science. The relevance and utility of such co-produced ACIs also depend on adequate dissemination and availability of the resulting insights. There is as yet very limited experience in the development or application of effective adaptive capacity and sustainability indices in Arctic communities, a gap we aim to address collaboratively with network partners and other initiatives in the Circumpolar Arctic Coastal Communities Observatory Network (caccon.org).