Human Dimensions of the Arctic System

In 1997, the National Science Foundation (USA) started a project called Human Dimensions of the Arctic System, given the acronym HARC. This initiative was part of the Arctic System Science Program, intended to promote understanding of the processes and feedbacks that involve and shape the physical, biological, and social components of the Arctic. HARC, in turn, was designed to boost research involving those social components, examining ways in which humans affect and are affected by the Arctic system.

In a meeting of HARC investigators in 2002, several people suggested compiling a journal issue dedicated to Arctic human dimensions research. This issue is the result. I am grateful to the authors of the papers for making that idea a reality. On their behalf and mine, I thank the National Science Foundation for funding this issue and the Arctic Research Consortium of the United States for administrative and intellectual support.

Arctic human dimensions research neither began nor developed in isolation. Various national and international efforts, such as the International Human Dimensions Program (IHDP), have sponsored, encouraged, and developed a community of researchers for the field. Nonetheless, HARC stands out in three ways: it has a clear geographic focus; it has a strong link to physical and biological research in the same region and program; and researchers have had considerable latitude in determining appropriate subjects and methods for their studies.

This collection of papers reflects that diversity, constituting a rough and partial summary of HARC's achievements, plus one paper (Ford and Smit) that was not part of HARC but addresses a relevant topic. Hamilton et al. describe the interplay of physical, biological, and social forces that caused the rise and fall of Siglufjörður, Iceland, as the Herring Capital of the World. Brunner et al. describe a major storm and its impacts in Barrow, Alaska, in 1963, as a starting point for determining community policies toward coastal erosion and storm damage. Norton and Gaylord use synthetic-aperture-radar (SAR) imagery to compare ice conditions in years favorable for and adverse to spring whaling in Barrow, Alaska. George et al. examine human use of the shorefast ice near Barrow, Alaska, and the implications of ice dynamics and climate change. Voinov et al. look at the Imandra watershed on Russia's Kola Peninsula and the impacts of societal change on part of the most industrialized area of the Arctic. Ford and Smit develop an analytical approach to assessing community vulnerability to climate change, using several Canadian Arctic communities as examples. Berman et al. discuss the use of agent-based modeling to explore scenarios for, and engender community discussions about, economy, climate, and environment in Old Crow, Yukon Territory. Robards and Alessa take a social-ecological system approach to explore resilience and change across a variety of community types.

From this list, three main conclusions can be drawn. First, the human dimensions of the Arctic system are extensive, complex, and diverse. Second, the study of human dimensions is similarly diverse, innovative, and compelling. Third, the field has matured to the stage that the next major challenge lies in synthesizing the results of many individual studies so that we can discern patterns and paradigms that will further illuminate the various case studies already conducted. If we can maintain the momentum generated by the work to date, the study of human dimensions in the Arctic has a bright future.

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