



Lead Author e-mail: [eric.sjoberg@ne.su.se](mailto:eric.sjoberg@ne.su.se)

**Title:** *Games in the Arctic. Applying game theory insights to Arctic challenges*

**Eric Sjöberg**<sup>1</sup>, Scott Cole<sup>2</sup>, Sergei Izmalkov<sup>3</sup>

<sup>1</sup>*Stockholm University, Department of Economics*

<sup>2</sup>*EnviroEconomics Sweden, Consultancy*

<sup>3</sup>*New Economic School, Moscow*

Game theory offers tools to analyze how and why people make the decisions they do. It has been successfully applied in areas ranging from a prosecutor's questioning of suspects, to political leaders' assessment of the threat of nuclear war to an engineer's analysis of traffic congestion. There is a vast literature on the subject, some of which is complex and intimidating. This article suggests that game theory's value in a policy context is that its structure and language provides insights that can help public decision-makers better understand conflicts and facilitate the identification of possible remedies, with the ultimate goal of reaching socially preferred outcomes. The game-theoretic approach identifies key decision makers, their possibilities, and the losses or benefits associated with their decisions. The goal is to reduce these complexities to a relatively simple 'game' -- while still capturing the underlying issues that lead to conflict -- and to analyze possible outcomes. This paper provides a layman's terms interpretation of game theory in a way that is useful for policy application. Then it goes through a series of salient Arctic issues - managing open-access fisheries, opening areas to resource extraction, and effective regulatory oversight - and identifies the types of insights that game theory can provide and how these insights have, and can, shape policy responses. We find that this tool is particularly relevant to the types of problems facing countries, firms, and individuals in the Arctic. To stimulate interest in this decision-making tool, we suggest a number of specific applications.