

# Expanding carrying capacity assessment from the site-level to the national-level: An Icelandic Case Study

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Tourism and visitation to Iceland has increased dramatically over the last decade, rising from just a few hundred thousand visitors per year to several million visitors annually. Nearly 90% of these visitors cite experiencing Icelandic nature as the primary motivation for their visits. This motivation manifests in heavily visited nature-based tourism destinations that include waterfalls and beaches; mountain and highland trails; glacier-, volcano-, and wildlife viewing-based excursion areas; and “internet famous” selfie spots. Consequently, Iceland can be understood as functioning like a park-nation in which the entire country and its diverse regions are the destination for nature-based tourists.

The current pattern of visitation to Iceland provides the island many benefits with potential to counterbalance the more tenuous phases of existence in the remote north Atlantic. This Icelandic economy has been rocked by spectacular booms and busts throughout its millennium-long history (e.g., maritime trade cycles, fisheries, catastrophic volcanism, energy intensive industries, etc.). Additionally, as a nation of less than 400,000 nationals with close ties to North America, Europe, and Asia, the Icelandic language and culture are vulnerable to dilution and evaporation amid the flow of globalization. Sustainable tourism, driven by both Icelandic nature and cultural, has great potential to provide a stable economic foundation for the country and a mechanism to preserve and celebrate Icelandic nature and cultural.

However, the combination of the island’s rapid rise in popularity, historically low-intensity development, and traditional resident-centric approaches to outdoor recreation have created a critical situation with respect to visitor infrastructure, carrying capacity, and nature-based tourism management. The infrastructure at Icelandic tourism destinations, most of which are nature-based sites that in many other countries would be enshrined within protected areas, is being overwhelmed by tourism demands. Trails are turning into muddy troughs. Overlooks and scenic viewpoints are trampled, eroded, and littered. In the absence of public toilets human waste is scattered about the countryside. Prime opportunities for environmental and cultural interpretation are missed and conflicts occur because of an absence or inadequacy of information signage and visitor education. It is important to note that these conditions exist not because of a lack of will or interest among Icelanders but because of the overwhelming and unrelenting explosion of visitation to the island.

Clearly, many dimensions of Iceland’s carrying capacity for nature-based tourism are being exceeded. Yet, surely excess capacity exists in some places and at some times. There must be ways to expand and enhance the carrying capacity of already busy sites and seasons and better use underutilized existing capacity. This is, generally speaking, the perspective of Stjórnstöð Ferðamála - the Icelandic Tourism Task Force.

Stjórnstöð Ferðamála has commissioned EFLA Consulting Engineers (Iceland), and their collaborators from Recreation and Tourism Science (USA) and TRC Tourism (New Zealand), to develop a nation-wide approach to tourism carrying capacity assessment. This assessment analyzes the economic, infrastructural, and social dimensions of tourism carrying capacity for Iceland. Based on a quantitative modeling approach that predicts destination conditions (Y-axis variables) from tourism drivers (X-axis variables), the study leverages existing data from diverse sectors (e.g., transportation, environment, hospitality, safety, community wellbeing, etc.) to:

- Identify the key factors that define Iceland's carrying capacity for tourism
- Establish thresholds associated with the desired level of quality for Icelandic environments, infrastructures, and tourism experiences
- Identify the factors that currently limit the island's tourism carrying capacity
- Provide guidance on strategic approaches to efficiently enhance the carrying capacity of Iceland for tourism while sustaining Icelandic nature and culture.

This presentation will review the project's theoretical and methodological approaches, discuss how existing administrative and social science data is being leveraged to drive the project's quantitative models, and illustrate how results will inform tourism, infrastructure, and environmental planning and management in Iceland. Attendees will gain a better understanding of the national-level challenges facing Iceland, preview innovative quantitative approaches to monitoring and evaluating carrying capacity-related visitor use and tourism issues, and participate in a discussion with application to nature- and culture-based recreation and tourism sites elsewhere.