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Hafnarhólmi í Borgarfirði eystri, efnahagsleg áhrif

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1 Correction published to report on 24.10.2020: In Table 12, direct economic impacts were earlier calculated erroneously as a combined figure of personal income and business value-added. However, in October 2020, we became aware that in the MGM2 the business value-added includes the personal incomes and thus should be used as such for the economic impacts. Changes to the affected figures in this Table have been updated in the report text as well on page 21.

Hafnarhólmi í Borgarfirði eystri - Efnahagsleg áhrif

Economic impact of Hafnarhólmi Bird Colony in Borgarfjörður Eystri

Jukka Siltanen

Abstract

The tourism boom that started in 2011 shortly after the Eyjafjallajökull eruption has changed Iceland in many ways. Economically tourism has quickly become the country's main export sector. Livelihoods and communities have changed with the influx of foreign tourists and workers. Tourism has also exerted environmental pressures and degradation at many popular sites. At the same time, tourism has put new emphasis on the value of Iceland's natural attractions and environmental conservation as most visitors come to Iceland to experience the unique nature. The perception of protected areas as 'economical dead space' or sinks of public money have started to change towards potential sources of income and employment opportunities.

To assess these opportunities, many techniques to measure economic impacts of nature-based and/or protected area tourism have been developed in recent decades. One of the most widely used methodologies are variants of the Money Generation Model (MGM) that was originally developed for the US National Parks (NPs). This methodology was piloted in Iceland at the Snæfellsjökull NP in 2017, and larger study covering 11 other sites was conducted in 2018 (Siltanen, 2017 & 2018). These studies showed that the economic and employment impacts of most sites in the studies were high and that nature-based tourism also contributed a significant amount of tax revenue to the state.

This report presents an economic impact study of the Hafnarhólmi bird colony, a protected breeding area especially famous for puffins in the remote East Iceland community of Borgarfjörður Eystri. The results of the study are interesting for two reasons; this is the first time the MGM methodology is used in Iceland to measure the economic impact of a bird-watching site, and second, the remoteness of the Borgarfjörður Eystri community allows for a focused analysis of the economic and employment impacts to a small community. Regardless of the tourism boom, small rural communities in Iceland have been struggling with declines of economic opportunities and populations, and research methods that could indicate new sources of income and opportunities are needed. In part supporting these efforts, this study received partial grant funding from Iceland's Fragile Communities program and the Ministry of the Environment and Natural Resources; and volunteer work effort from the Royal Society for the Protection of Birds (RSPB).

The results of the study indicate that the local economic effects of the Hafnarhólmi bird colony are relatively modest in comparison to local effects at other sites in the previous studies. This is mainly due to undeveloped tourism services locally and short stays of the visitors. However, overall economic effects that also account for the visitors' spending outside the immediate vicinity are comparable to previous studies, suggesting that bird-watching sites have similar economic potential as other nature sites. Several suggestions on how to increase the local economic impacts are also provided based on the observed visitor behavior and spending during the study.

Formáli

Haustið 2017 arfleiddi Magnús Þorsteinsson í Höfn, Borgarfirði eystri, Fuglavernd að 60% hluta jarðarinnar Njarðvík og Hafnarhólma.

Sumarið 2018 var gerð úttekt á fuglalífi Njarðvíkur og Hafnarhólma á vegum félagsins. Niðurstöðum var skilað til umhverfis- og auðlindaráðuneytis og skýrslu um verkið má finna á vef félagsins: https://fuglavernd.is/busvaedavernd/njardvik

Í Hafnarhólma hefur verið byggð upp aðstaða til fuglaskoðunar. Frá höfninni er uppganga í hólmann um stiga sem liggur að tveimur útsýnispöllum. Frá neðri útsýnispallinum liggur göngubrú að fuglaskoðunarhúsi. Stiginn heldur áfram upp á efri útsýnispall. Til fræðslu fyrir gesti eru þar skilti á fjórum tungumálum um einkennisfugla hólmans, lunda, æðarfugl, ritu og fýl.

Árið 2019 ákvað félagið að láta rannsaka heimsóknir ferðafólks í Hafnarhólma. Settur var upp teljari við uppgang í hólmann til að fá nákvæmar tölur um fjölda gesta. Fuglavernd fékk Rögnvald Ólafsson og Gyðu Þórhallsdóttur til verksins en þau hafa um árabil talið ferðamenn á áfangastöðum. Helga Erla Erlendsdóttir, umsjónarkona æðarvarpsins í Hafnarhólma, framkvæmdi kvarðanir og aflestur á teljaranum.

Til að rannsaka efnahagsleg áhrif Hafnarhólma var leitað til Jukka Siltanen, umhverfis- og auðlindafræðings. Jukka hefur áður unnið hliðstæð verkefni m.a. fyrir Hagfræðistofnun Háskóla Íslands.

Jukka útbjó spurningalista um útgjöld sem lagður var fyrir ferðamenn í Hafnarhólma. Landverðir og sjálfboðaliði á vegum breska fuglaverndarfélagsins RSPB (The Royal Socity for the Protection of Birds) sáu um að spyrja ferðamennina.

Hér á eftir er á íslensku yfirlit um efni skýrslunnar, en skýrslan er annars á ensku.

Fuglavernd

Íslensk samantekt

Markmið rannsóknarinnar var að kanna efnahagsleg áhrif Hafnarhólma á samfélagið í Borgarfirði eystri. Borgarfjörður eystri tekur þátt í verkefninu Brothættar byggðir hjá Byggðastofnun undir yfirskriftinni Betri Borgarfjörður og verkefnið styrkti að hluta til þessa rannsókn. Verkefnasjóður til styrktar verkefnum í umhverfis- og náttúruvernd á vegum umhverfis- og auðlindaráðuneytisins styrkti einnig verkefnið að hluta til.

Fylgt var sömu aðferðafræði og við könnun á áhrifum friðlýstra svæða á framleiðslu og atvinnu í næsta umhverfi (Siltanen, 2018). Teljari var settur upp og á tímabilinu 1. maí til 30. september 2019 heimsóttu 46.810 gestir Hafnarhólma. Landverðir og sjálfboðaliði á vegum breska fuglaverndarfélagsins fengu þjálfun og lögðu sambærilegan spurningalista fyrir og í fyrri rannsóknum Jukka Siltanen (2018). Í júlí og ágúst 2019 svöruðu 834 gestir spurningakönnun um útgjöld sem gerir úrtakið tölfræðilega marktækt. MGM2 líkanið (Money Generation Model) var notað til að reikna efnahagsleg áhrif.

Setja má líkanið fram þannig:
*Efnahagsleg áhrif = fjöldi ferðamanna * meðalútgjöld á mann * margfaldari*

Í líkaninu eru margfölduð saman útgjöld hvers ferðamanns, fjöldi á hverjum stað og sérstakur margfaldari sem venjulega byggir á svæðisbundnum áhrifum, sem lesa má úr aðfanga- og afurðatöflum. Vegna skorts á upplýsingum var notaður margfaldari úr svipuðum könnunum á varfærnasta máta. Útkoman sýnir mat á áhrifum af útgjöldum ferðamanna á framleiðslu og atvinnu í næsta nágrenni. Nágrenni er hér skilgreint sem 50 km radíus í burtu.

Með því að greina efnahagsleg áhrif er leitast við að svara eftirfarandi spurningum:

- Hve miklu eyða ferðamenn á svæðinu?
- Hvaða hlutfall sölutekna fyrirtækja á svæðinu er tilkomið vegna ferðaþjónustu?
- Hve miklar tekjur skapar ferðaþjónusta fyrir heimili og fyrirtæki á svæðinu?
- Hve mörg (hluta)störf skapar ferðaþjónusta á svæðinu?
- Hvaða skatttekjur verða til vegna ferðaþjónustu?

Efnahagsleg áhrif eru mæld í sölu, tekjum, störfum, skatttekjum og virðisauka. Gerður er greinarmunur á beinum efnahagslegum áhrifum, óbeinum áhrifum og afleiddum áhrifum.

Bein áhrif eru kaup ferðamanna á vörum og þjónustu. Óbein áhrif eru útgjöld starfsmanna ferðaþjónustufyrirtækja og fyrirtækjanna sjálfra við kaup af sínum birgjum. Afleidd áhrif eru eyðsla starfsmanna og fyrirtækja í ferðaþjónustu sem drifin er af launum og hagnaði.

Þessi rannsókn er ólík fyrri rannsóknum Jukka Siltanen að tvennu leyti: Allri athyglinni er beint að einum ákveðnum fuglaskoðunarstað og samfélagið á Borgarfirði eystra er bæði fámennara og afskekktara en áður hefur verið skoðað. Þetta er því einstakt tækifæri til að rannsaka efnahagsleg áhrif ferðaþjónustu á lítið og fámennt samfélag.

Að auki spannaði söfnun gagna í þessari rannsókn lengri tíma en í fyrri rannsóknum og þannig varð til stærsta og mest lýsandi úrtak af eyðslu ferðamanna sem hingað til hefur verið safnað með MGM2 aðferðafræðinni á Íslandi.

Ferðamenn í Hafnarhólma

Alls komu 46.810 ferðamenn í Hafnarhólma á tímabilinu 1. maí - 30. september 2019, sjá töflu 1, sundurliðun eftir mánuðum. Fjölmennast var laugardaginn 27. júlí, um Bræðsluhelgina, en þann dag heimsóttu Hafnarhólma 977 gestir.

Jukka greinir aðspurða niður í fjóra flokka, dagsferðafólk (59%), þá sem gista innandyra (16%), þá sem gista utandyra (11%) og innlenda ferðamenn (13%), sjá töflu 2. Athygli vekur að meirihluti ferðamanna er í dagsferð.

Rúmlega helmingur eða 54% aðspurðra nefndu Hafnarhólmann sem eina eða aðal áfangastað dagsins. Þetta er hæsta hlutfall eða einkunn sem svæði hefur hlotið í þeim rannsóknum sem höfundur hefur gert á friðlýstum svæðum og öðrum náttúruperlum til þessa, sjá samanburð í töflu 3. Þriðjungur (34%) gesta heimsótti einnig aðra staði samdægurs og 12% gesta heimsóttu Hafnarhólma án þess að hafa áætlað hann sem áfangastað.

Lengd dvalar á svæðinu er ein sú stysta sem mælst hefur í öðrum sambærilegum rannsóknum eða jafnlöng dvöl og við Hvítserk og að meðaltali innan við dagur að lengd. Þrátt fyrir það stoppaði

nærri helmingur ferðamanna einnig í þorpinu Bakkagerði og um það bil 30% höfðu einnig farið í gönguferðir á svæðinu meðan á dvöl þeirra stóð, sjá mynd 1.

Ferðamálahópur Borgarfjarðar hafði áhuga á að vita hvernig ferðamenn hefðu heyrt af Borgarfirði eystra og var þeirri spurningu bætt við spurningakönnunina, spurning af þessu tagi hefur ekki verið hluti þeirra rannsókna sem við miðum okkur við. Fjórðungur aðspurðra hafði heyrt um Borgarfjörð eystri gegnum samfélagsmiðla (24%) og fast á hæla samfélagsmiðla komu ferðavefir (22%) sjá mynd 2. Hér er því undirstrikað mikilvægi stafrænnar markaðssetningar.

Efnahagsleg áhrif Hafnarhólma

Niðurstöður sem sýna útgjöld ferðamanna eru áhugaverðar og töluverður munur var á milli hópa gesta og milli eyðslu á svæðinu og eyðslu í heild. Þegar aðeins er horft til eyðslu vegna Hafnarhólma eyddu gestir ~2.500 kr. á mann á svæðinu nærri Borgarfirði eystri og heildareyðsla nam ~10.700 krónum á mann, þar með talin eyðsla annars staðar á Íslandi. Þetta bendir til þess að aðeins fjórðungur af heildareyðslu ferðamanna verði eftir í nærsamfélagi áfangastaðarins Hafnarhólma. Eðlilega verða útgjöld í þjónustu eins og bílaleigu ekki eftir í nærsamfélaginu þar sem Hafnarhólmi er frekar endastöð en upphafsstöð. Í uppbyggingu innviða svo sem gististaða og auknu framboði ferða felast möguleikar en einungis þriðjungur af útgjöldum gesta á nærsvæðinu fór í þessa flokka. Gistiþjónusta er stærsti einstaki þátturinn sem ferðamenn eyða í og þriðji hver gestur Hafnarhólma hafði farið í gönguferð á svæðinu. Gestir sem gistu innandyra á svæðinu eyddu að meðaltali ~6.080 krónum á dag innan svæðisins og gestir sem gistu utandyra fylgdu þar á eftir með meðaleyðslu upp á ~4.240 krónur. Til samanburðar eyddu dagsferðamenn aðeins um ~1.390 krónum á svæðinu.

Þegar litið er til efnahagslegra áhrifa á svæðinu sést að, vegna Hafnarhólma, verða til um 62 milljónir í staðbundinni beinni sölu, 24 milljónir í tekjur, 36 milljónir í virðisauka fyrirtækja á svæðinu og 11 hlutastörf, mestmegnis í gistiþjónustu og veitingasölu. Störf eru reiknuð sem hlutastörf bæði vegna þess að ferðamannatíminn við Hafnarhólma er árstíðabundinn (maí-september) og vegna þess hvernig MGM2 líkanið metur störf. Í samanburði við önnur friðlýst svæði og náttúruperlur á Íslandi eru staðbundin efnahagsleg áhrif Hafnarhólma hófleg. Fyrir hverja 1.000 gesti eru staðbundin áhrif svipuð og við Hengifoss og í Þórsmörk þó að báðir þessir staðir skapi fleiri staðbundin störf en Hafnarhólmi. Í þessum samanburði þarf þó að hafa í huga að nærsvæði Hafnarhólma, og staðbundið áhrifasvæði, eru afskekktari og ferðaþjónusta komin skemur á veg í samanburði við aðra áfangastaði í fyrri rannsóknum.

Efnahagsleg áhrif Hafnarhólma eru sambærileg við þá ferðamannastaði sem rannsakaðir hafa verið sem fá innan við hundrað þúsund gesti á ári. Þegar á heildina er litið, þ.e. til allra útgjalda sem tengja má heimsókninni í Hafnarhólma og einnig annars staðar á landinu, eru efnahagsleg áhrif um það bil þreföld staðbundin áhrif: ~211 milljónir króna í beinni sölu,~90 milljónir króna í tekjum, ~129 milljónir króna í virðisauka og 35 hlutastörf. Óbein áhrif þegar haldið er niður virðiskeðjuna gætu leitt til um 60 milljóna króna í sölu og skapað sjö störf til viðbótar. Skatttekjur sem verða til vegna Hafnarhólma eru metnar á 77 milljónir króna í söluskatt og í tekjuskatt ~26 milljónir króna, sem gera heildarskatttekjur uppá 103 milljónir króna. Sem dæmi má nefna þegar skoðað er hve mörg störf tengjast hverjum 1000 gestum, tengjast u.þ.b. jafnmörg störf Hafnarhólma og Hvítserk, Hraunfossum, Dynjanda og Hengifossi. Það má því leiða líkum að því að þessi afskekkti fuglaskoðunarstaður búi yfir svipuðum efnahagslegum möguleikum og nafntogaðir fossar og friðlýst náttúruverndarsvæði.

Ályktanir

Tækifæri í uppbyggingu innviða

Niðurstöður rannsóknarinnar gefa til kynna nokkur lykilatriði ef auka á efnahagsleg áhrif á Borgarfirði eystri af ferðamönnum sem heimsækja Hafnarhólma. Þetta eru aðgerðir sem miða að því að lengja dvöl gesta, auka úrval gistimöguleika innandyra, þróa ferðir og afþreyingarþjónustu og að auka úrval kaffi- og veitingahúsa til að ná í stærri sneið af þeirri köku.

Innlendir ferðamenn

Þess má geta að Íslendingar sem heimsækja Borgarfjörð eystri notuðu álíka mikið fé þar og erlendir ferðamenn. Útgjöld skiptast frekar jafnt milli staðbundinna ferða og afþreyingar, gistiþjónustu, veitingaþjónustu og kaupum á matvöru, en allt eru þetta þættir þar sem góður hluti útgjaldanna verður eftir á staðnum. Með þessu eyðslumynstri og þar sem Íslendingar eru tiltölulega stór hluti þeirra gesta sem heimsækja svæðið (13%) er framlag þeirra til staðbundinna efnahagslegra áhrifa meira á Borgarfirði eystra en á flestum öðrum stöðum í fyrri rannsóknum.

Áhrifaþættir

Þessi rannsókn hefur beint kastljósi að efnahagslegum áhrifum Hafnarhólma. Við framtíðarstefnumótun vegna Hafnarhólma og áætlanagerð og þróun á Borgarfirði eystri eru áhrif á samfélag og umhverfi jafnmikilvægir þættir sem hafa ber í huga. Einnig sýnir rannsóknin að fuglaskoðunarstaður hefur sambærilega möguleika til efnahagslegra áhrifa og friðlýst svæði eða aðrar náttúruperlur. Frá aðferðafræðilegu sjónarhorni hefur það verið fróðleg tilraun að skala MGM2 líkanið niður að svo smáu afskekktu samfélagi og niðurstöðurnar, sem virðast varfærnislegar, benda til þess að það sé fýsilegur kostur. Ferðaþjónusta er enn skammt á veg komin í Borgarfirði eystra og má því ef til vill segja að sem stendur séu tækifærin meiri en umfangið.

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Introduction

Iceland has recently experienced a tremendous tourism boom that started 2011 in the wake of the Eyjafjallajökull volcano and soared from 2014. In 2018, the country received 2.316 million visitors, five times the starting point from 2010 (Icelandic Tourist Board, 2019a). Effects of the tourism boom in the society have been significant in many ways.

Economically, tourism's share of Iceland's exports quickly surpassed energy and seafood sectors in the early years of the boom, and for the past two years tourism's share of exports has roughly been the same of the other two sectors combined. Following the WOW air's bankruptcy in March 2019, and grounding of Icelandair's Boeing 737 MAX fleet for most of the year, it seems that at least for now, tourism has reached its peak in 2018 and the visitor numbers will be lower for this year. Recent developments are however not expected to change the experienced economic and social developments significantly. (Icelandic Chamber of Commerce, 2019)

Socially, booming tourism industry has changed livelihoods, attracted record numbers of immigrant workers and opened remote parts of the country to a flux of visitors. These changes have affected the social fabric in most of the country. However, development has been regionally uneven and highly seasonal in rural areas in North-West, North and East Iceland, and studies of the social impacts are still limited. Environmentally, effects of the tourism boom have been mixed as well. Iceland's unique nature has consistently been the main attraction for tourism; giving 92 % of the visitors the idea to visit, but at the same time making 75 % of the respondents feel that the tourist pressure on the Icelandic nature is high (Icelandic Tourist Board, 2018).

As tourism started to soar, both Iceland's general infrastructure (e.g. road network, waste management, health and emergency services) and protected area infrastructure and staffing were not always a match to the needs of the visitors, many of whom were experiencing harsh natural conditions for the first time in their lives. The infrastructure and service improvements needed to respond to these challenges are expensive to implement on a national scale, but significant improvements in these areas have been made in recent years, perhaps partly supported by the outcomes of various national research initiatives into the economic impacts of tourism in Iceland.

The author of this report conducted an assessment of the economic impacts of 11 popular national parks (NPs), protected areas (PAs) and nature-based tourism sites last year (Siltanen, 2018), following a pilot study at Snæfellsjökull NP (Siltanen, 2017). The reports showed high economic impacts in national and local economies, and significant employment effects across the country. Significant variation was noted in the share of the visitor spending accrued in the vicinity of the site vs. elsewhere in the country, which is naturally linked to the development tourism services in different parts of the country.

This study focuses on the economic impact of the Hafnarhólmi bird colony in Borgarfjörður Eystri using the same research methods as the assessment last year (Siltanen, 2018). Two factors make this study unique from the previous ones: 1) the study focuses on a bird-watching site, and 2) small size and remoteness of the Borgarfjörður Eystri community is a unique opportunity to study the local economic impacts of tourism in small rural communities.

Objectives of the study

This study focuses on the economic impacts of visitor spending in connection with the Hafnarhólmi bird colony – a protected breeding area for a variety of birds and especially famous for nesting puffins from April-May to mid-August. In terms of economic impacts, the study focuses on the local vicinity of Borgarfjörður Eystri community.

The study was commissioned and organized by non-governmental organization Fuglavernd BirdLife Iceland in collaboration with the Borgarfjörður Eystri community, partially supported with grant funding from Iceland's Fragile Communities program (Icelandic Regional Development Institute, 2019). The research was also partially funded with a grant from the Ministry of the Environment and Natural Resources.

Research methodology

This study uses the same methodology to calculate the economic impacts of the visitors spending to Hafnarhólmi as the economic impact assessment on Iceland's protected areas and nature-based attractions last year (Siltanen, 2018). Visitor spending surveys were collected at the Hafnarhólmi bird colony by the local rangers and a volunteer from the Royal Society for the Protection of Birds (RSPB), a trail counter was installed at Hafnarhólmi to determine exact visitor numbers for the summer 2019, and MGM2 or 'Money Generation Model' methodology was used for calculating the economic impacts with the same assumptions and pre-sets as in the earlier study.

Due to the smaller scope of this project, the results are not cross-referenced with municipal tax data as in Siltanen (2018), and in reality this would have been difficult to implement in the case of Borgarfjörður Eystri as the Icelandic Tax Authority doesn't release tax data unless there are more than five companies in a given sector in the municipality to protect the anonymity of the businesses. However, this study had a longer timespan for collecting the survey data, allowing for the largest and most robust sample of the visitor spending data so far in the studies using the MGM2 methodology in Iceland.

The methodology in general and contextual issues related to Iceland have been extensively covered in the earlier reports (Siltanen 2017 & 2018), so only a brief summary is provided in the next chapter to introduce unfamiliar readers with the terms used in analysis of the results from Hafnarhólmi.

Key concepts of the methodology

In the context of protected areas, economic impact analyses determine the contribution of inbound tourism activity to the economy of the region by answering the following questions (Stynes 1999):

- How much do tourists spend in the area?
- What portion of sales by local businesses is due to tourism?
- How much income does tourism generate for households and businesses in the area?
- How many jobs in the area does tourism support?
- How much tax revenue is generated from tourism?

Economic impact analyses can provide information on how to allocate resources among competing projects, assess the potential returns to public or private investments and policies, and put 'hard

numbers' to political strategies. Economic impacts are measured in terms of sales, income, jobs, tax receipts and value added. A distinction between direct, indirect and induced effects of visitor spending can also be made. Direct effects are composed of goods and services purchased by visitors. Indirect effects are comprised of goods and services bought by tourism companies from their suppliers. Induced effects represent the spending of employees and companies in the tourism sector through wages and profits from tourism businesses. (Stynes et al., 2000)

The MGM model yields reasonable estimates of economic impact of national parks and protected areas at a low data collection cost by forming an aggregate figure based on number of visits, average spending per visitor and economic multipliers through the following simplified equation:

*Economic impact = Number of visitors * Average spending per visitor * Economic multiplier*

Economic impact analysis is completed with input-output (I-O) models, which capture the structure of the local, regional or national economy. I-O models provide a foundation for deriving multipliers, which are needed to estimate the secondary impacts of visitor spending through the economy (Stynes, 2005). As Iceland doesn't yet produce regional input-output tables needed to calculate the local economic multipliers, the usage of generic multipliers is subject to criticism because of the potential for errors. However, as the verification from tax records showed in the economic impact assessment last year (Siltanen, 2018), using the most conservative default parameters in the MGM2 calculations seems to yield results that are in line with the domestic tax data and comparable to similar international studies.

Descriptive statistics on visitors

The total number of visitors for the period May-September 2019 at Hafnarhólmi was 46.810 according to the trail counter, which is located on the base of the stairs that lead up to the colony (Rögnvaldur Ólafsson, 2019). Monthly visitor numbers are presented in Table 1. Even through the puffin season generally finishes around mid-August, all visitors were included in the analysis as the study focuses on the bird colony, not just the breed that attracts the most visitors.

Table 1: Visitors at Hafnarhólmi during summer 2019 (Rögnvaldur Ólafsson, 2019)

Month	May	June	July	August	September	*Total*
No. visitors	**6 904**	**12 687**	**15 898**	**9 902**	**1 419**	***46 810***

In the MGM methodology, visitor segments capture the spending of different visitor types with different needs and spending profiles. Table 2 indicates the number of visitors interviewed in each visitor segment. Segmentation used in this study follows the previous assessments (Siltanen, 2017 & 2018). Largest group of visitors in this study were foreign day-trip visitors who visited Hafnarhólmi and continued on their trip; their share of the interviewees was 59 %. Second largest group, 16 %, were foreigners who stayed overnight in the area, followed by 13 % of Icelandic residents visiting Hafnarhólmi. Foreign campers represented 11 % of the sample.

Local residents of Borgarfjörður Eystri are not in the scope of the study as their spending doesn't count as additional spending in the community. 11 local residents visited Hafnarhólmi during the survey but their answers as excluded from the results. In total 834 people were surveyed, and the results are based on the analysis of 823 people. According to Dillman's formula (Vaske, 2008), a statistically significant sample size with 95 % confidence interval would be 381 interviewees for a

total number of 46.810 visitors. This is comfortably met by the sample of 823 people. The margin of error according to Dillman for this sample is 3,4 %.

Based on the statistical robustness of the sample, we can assume that the segment shares are a relatively good representation of the total number of visitors in each segment. Table 2 provides the estimated total numbers of visitors in each segment based on the current total number of visitors. It is important to note that these figures indicate the type of the visitor and do not yet take into account the location of the spending for example in accommodation services. Thus, Table 2 doesn't imply that 7.582 people would have stayed overnight in Borgarfjörður Eystri during the summer – the community may not have this kind of capacity – however, it does imply that this number of people did stay overnight somewhere in the area in connection with their visit to Hafnarhólmi, and this could be useful information for planning future services in the area.

Table 2: Visitor segment overview.

Segment	**Number of interviewees**	**%-share**	***Est. total number of visitors***
LOCAL: Icelandic residents excluding residents of the local municipality	109	13%	*6 179*
DAY: Non-local day-trip visitor	489	59%	*27 805*
HOTEL: Non-local overnight visitors in indoor accommodation, e.g. hotel, guesthouse, farm, mountain hut, AirBnb, cottage, friends, …	133	16%	*7 583*
CAMP: Non-local overnight camping visitors, e.g. campsites, camper-vans, sleeping in the car, …	92	11%	*5 243*
Local residents of Borgarfjörður Eystri – excluded from study	11		
Total	**823**	**100%**	***46 810***

Visitors' average length of stay in Hafnarhólmi / Borgarfjörður Eystri in the study was 1.1 days, adjusted to 0.9 days by excluding stays over 2 days from the averages as per earlier studies (Siltanen, 2018). Longer stays generally imply multiple activities, and might generate a positive bias for time spent in this case at Hafnarhólmi and its related economic impacts, even through the methodology attempts to account for the effect of other visitor destinations or 'multi-destination spending'. Overall, it would seem to be a good general guideline to assume that visitors to Hafnarhólmi are spending around one day on average in the vicinity. Compared to the other sites in earlier study (Siltanen, 2018), the adjusted length of stay at Hafnarhólmi is the shortest of all sites studied, same as for Hvítserkur. However, the combined average of all sites studied was only 1.3 days including large national parks and protected areas, so day-visits and single overnight stays seem to be the norm in Iceland.

It is also very typical for visitors in Iceland to visit several attractions in one day. As we are trying to evaluate the economic impact of a particular site, we need to exclude the effect of the other visited sites during the same day as the spending is measured for a 24-hour period. In the previous assessments (Siltanen, 2017 & 2018), we developed one of the strategies suggested by Huhtala et al. (2010) for the Icelandic context to account for this 'multi-destination spending' and same strategy has been implemented in this study. In this strategy, the visitors are asked about the importance of the site in question for their trip plan, and of any other activities they have carried out or are planning to carry out during the same day. Then in the analysis, we include all spending for those visitors for whom the site in question was the only or most important destination during the day, divide the spending of those visitors for whom it was one among many planned destinations by the number of sites visited during the day, and exclude all visitor spending for whom the site was a non-planned destination.

Table 3 presents the visitor responses to the importance of Hafnarhólmi for their visit. The bird colony was the most important or only site for the day for 54 % of the visitors, one among many sites for 34 %, and a non-planned visit for 12 % (n=823). The other sites from last year's assessment (Siltanen, 2018) have been included in Table 3 for comparison purposes.

Table 3: Importance of the site to the visitor

Importance of Hafnarhólmi for the visit day	**%**	**Hraunfossar**	**Þingvellir**	**Landman.lgr.**	**Jökulsárg.**	**Mývatn**	**Hengifoss**	**Skaftafell**	**Hvítserkur**	**Þórsmörk**	**Laki**	**Dynjandi**
Most important or only site – *all spending included*	54%	3%	3%	28%	8%	5%	2%	5%	2%	47%	11%	20%
One among multiple – *spending divided by no. sites*	34%	84%	93%	70%	89%	90%	79%	92%	72%	53%	81%	75%
Non planned – *spending excluded from analysis*	12%	13%	4%	3%	3%	5%	19%	3%	26%	0%	8%	6%

As Table 3 indicates, the visit to Hafnarhólmi is exceptionally important for the visitors in they trip day plan – the highest 'most important' share of responses in the assessments so far conducted by the author. This is partially explained by the fact that most of the other sites in the comparison are perhaps more along 'multi-destination routes', in other words they can be equally important to the visitors, but they are more likely to be visited among other sites during the day (as indicated by the respective shares of answers in this category) compared to Hafnarhólmi, which is more of a remote location. Also, since this is the first study to a bird-watching site, it may be that the visitors are more focused in this activity than visitors in general who visit protected areas or other nature sites.

Regardless, there are other attractions in the vicinity of Borgarfjörður Eystri. Apart from Hafnarhólmi, the area is a well-known destination for hiking and the town of Bakkagerði – core of the Borgarfjörður Eystri community - with Álfaborg (Elf Hill) is a reason to visit as well. In the survey, the visitors were asked what other destinations in the vicinity of Borgarfjörður Eystri they

had visited during the same 24-hour period, and the responses are presented in Figure 1. On average, the visitors visited one (0.8 to be exact) other site in the vicinity during the same day as the visit to Hafnarhólmi, and most common stop was the town of Bakkagerði. Approximately half of the visitors to the town also walked up to the Elf Hill.

All other activities recorded in the survey were various hiking routes. The hiking routes had relatively low frequencies in the answers but this may be due to the same reason as implied above that bird-watching visitors and hiking visitors are not necessary same group of people. Also, many of the hiking routes in the area are quite time-consuming, and it may not be feasible to visit them during the same 24-hour period as the bird colony.

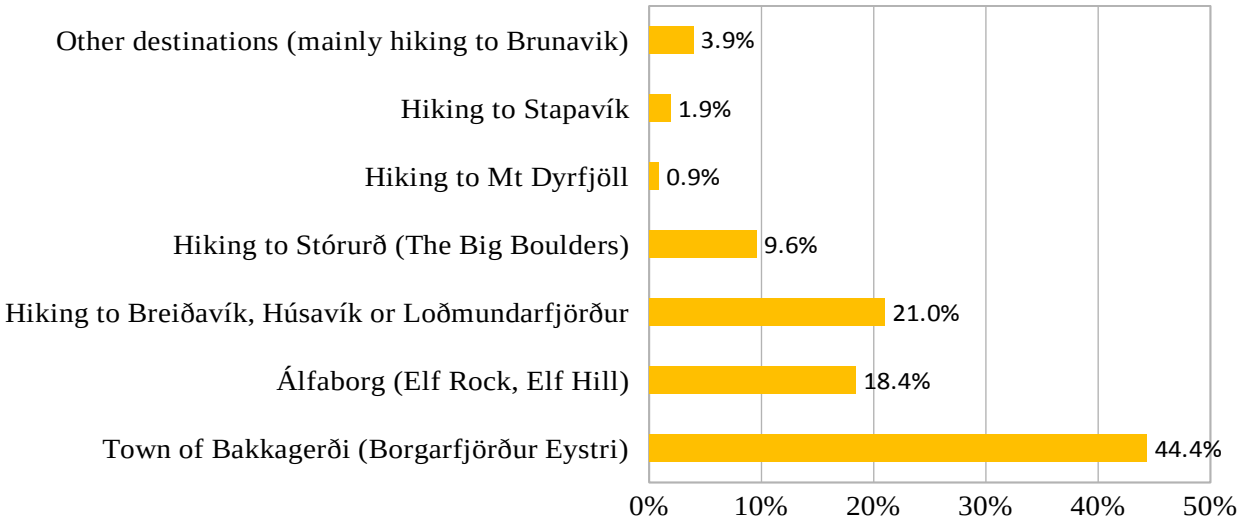


Figure 1: Other sites visited in the surrounding area the last 24 hours / one day?

The survey elicited some background information from the visitors, describing general attributes such as age, country of residence and accommodation choices. We also included a question on how the visitors had heard of Borgarfjörður Eystri on request of the community. These answers can be useful in developing visitor services in the area, and may also provide insights to the travel and spending patterns.

Table 4 shows how the visitors are spread in different age groups. The age group is determined based on the person answering the survey, so for example children are not accounted for in the numbers as they don't fill the survey themselves. Largest group of visitors are 35-44 years old at 30 %, closely followed by 25-34 year-olds at 29 %. Visitors in middle age, between 45-64 using the categories provided, account for ca. 33 % combined. In general, visitors to Hafnarhólmi are quite young but visitors' age is also very evenly spread. This is an encouraging observation as it suggests that services catering to all ages could be needed.

Table 4: Visitors' age

Age group	< 18	18-24	25-34	35-44	45-54	55-64	> 65	Total
Share %	**1.3%**	**4.3%**	**28.8%**	**30.0%**	**23.2%**	**10.2%**	**2.2%**	**100%**

Table 5 indicates the country of residence of the visitors; only countries with more the 20 people in the survey are presented. Germans represented the largest share (15%) during the survey, closely followed by Icelandic residents from other parts of the country (13%). The Bræðslan music festival in Borgarfjörður Eystri in July increases the number of Icelandic visitors to the community, and consequently to Hafnarhólmi. As all the numbers in study are based on actual visitors to the bird colony, the effect of the music festival visitor numbers from overall descriptive statistics has not been removed. However, as explained earlier, if for example the music festival visitors state that their visit to the bird colony was unplanned, their spending is not included in economic impact analysis; and if they state the visit to the bird colony was one among many trip objectives, the impact of their spending is only calculated partially for the bird colony.

The country list is heavily dominated by European countries, and visitors from the United States and Canada only account for 12 % combined while their overall share of all foreign visitors arriving via Keflavík airport in July 2019 was ca. 32 % (Icelandic Tourist Board, 2019b). Possibly the proximity of the Seyðisfjörður port and the entry point of self-catering camper visitors is reflected in these numbers – it was noted from the survey answers that a significant number of visitors were traveling by their own vehicle.

Table 5: Country of residence

Country of residence	%
Germany	15.3%
Iceland	13.2%
France	10.4%
United States	9.3%
Italy	6.3%
Spain	6.1%
Netherlands	5.1%
Austria	3.4%
Belgium	3.1%
Switzerland	3.0%
Canada	2.7%
United Kingdom	2.5%
Other	19.6%
Total	***100%***

Table 6 presents the visitors' choice of accommodation: camping by tents or camper-vans is the largest group, 36 %, followed by ca. 31 % of the visitors staying at hotels or guesthouses. These results are almost identical to other sites in the north and east of Iceland in the previous assessment (Siltanen, 2018), where the share of campers varied between 35-42 % and hotel/guesthouse tenants between 23-36 %. Third and fourth largest groups are private rentals via services like AirBnb at 8 % and summer houses and cottages at 6 %. Relatively large share of visitors staying at friends and family, 5.5 %, likely represents the high share of Icelanders in this sample.

Finally, it is notable that 5.3 % of the people mentioned they slept in their car. Compared with the previous assessment (Siltanen, 2018) this is the highest share recorded so far – last year's highest

(4%) was recorded at Dynjandi while other sites were generally between 0-2%. It seems that remote areas and communities with little visitor control are susceptible for this kind of visitor behavior.

Table 6: Choice of accommodation

Accommodation	%
Hotel / guesthouse	30.7%
Mountain hut	6.3%
Farm accommodation	1.2%
Private rental (eg. Airbnb)	8.4%
Camping / camper van	36.2%
Summer house / cottage	6.3%
At home / family / friends	5.5%
Sleeping in the car	5.3%
Total	**100%**

Figure 2 shows how visitors heard of Borgarfjörður Eystri before the visit. The largest category covering a fourth of the responses was various social media sources, followed closed by travel websites at 22 %. Tourist information and friends were both elicited as the main source by 18 %, and rest came inspired by guide books (8 %), tour agents (7 %) and search engines (3 %).

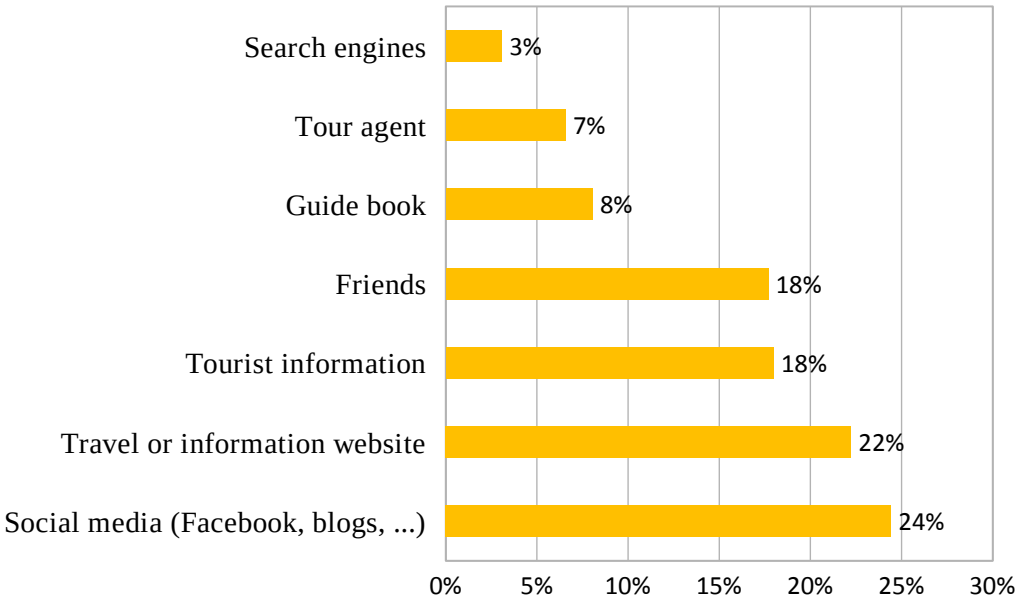


Figure 2: "How did you hear about Borgarfjörður Eystri?"

Visitor spending data

In the MGM methodology, visitor spending is calculated as a weighted average for each visitor segment and spending category including zero-spending answers, and further, the effect of other sites and activities during the same period is excluded. These spending figures are then multiplied by the number of visitors annually in each segment, and by economic impact multipliers derived from input-output tables.

The overall spending figures used as basis for the calculation of economic impacts of the Hafnarhólmi bird colony are presented in Table 7. In these figures, the effects of other activities and sites, and the spending of all 'non-planned visits, have been removed. Visitor spending in each visitor segment and spending category is provided for the local vicinity (i.e. within 50 km radius of Borgarfjörður Eystri by road) and in total. It is evident from the table that local spending in most categories is modest. On average, visitors spent ~2.500 kr per person per day in the vicinity of Borgarfjörður Eystri, and ~10.700 kr in total related to visit to Hafnarhólmi.

There are significant differences in spending between the visitor segments. For example, day-visitors spent the least in local vicinity (~1.390 kr), but the most in total (~12.500 kr). Icelandic residents spent relatively low amount both locally (~1.630 kr) and in total (~3.500 kr); however this is to be expected as they have almost no costs related accommodation (mainly camping or staying at friends or family) and transportation (using own cars filled elsewhere).

Visitors who stay overnight in various indoor accommodation options account for the highest spending locally, on average ~6.080 kr, and ~11.600 kr in total. As their share of all visitors in relatively low (16 %, see Table 2), their effect of the overall weighted averages is low. As usual, overnight visitors also spend the most cafe and restaurant services. Spending of the camper segment was between the other segments both locally (4.240 kr) and in total (8.150 kr).

In terms of spending categories, results are similar to earlier studies (Siltanen, 2018). Accommodation has the highest daily average, ~3.470 kr, followed by transportation mainly consisting of rental car costs at ~2.850 kr and fuel at ~1.870 kr. The main difference to most sites in the previous study is that visitors spend almost no money on tours or tour packages in connection with visiting Hafnarhólmi.

Table 7: Average 'Hafnarhólmi-only' spending per visitor per day by visitor segment.

		Fuel and gas station purchases	Trans-portation	Tours and recreation	Cultural activities	Accom-moda-tion	Cafes and restau-rants	Groce-ries	Souve-nirs	Other retail	*Sum*
DAY n=489	Local	363 kr.	6 kr.	50 kr.	13 kr.	478 kr.	339 kr.	125 kr.	13 kr.	1 kr.	*1,387 kr.*
	Total	2,190 kr.	3,686 kr.	263 kr.	158 kr.	4,045 kr.	1,231 kr.	866 kr.	42 kr.	9 kr.	*12,489 kr.*
HOTEL n=133	Local	547 kr.	128 kr.	147 kr.	0 kr.	3,623 kr.	1,326 kr.	246 kr.	67 kr.	0 kr.	*6,083 kr.*
	Total	1,260 kr.	2,189 kr.	1,113 kr.	0 kr.	4,687 kr.	1,803 kr.	482 kr.	85 kr.	0 kr.	*11,619 kr.*
CAMP n=92	Local	700 kr.	784 kr.	368 kr.	33 kr.	1,243 kr.	639 kr.	457 kr.	16 kr.	0 kr.	*4,240 kr.*
	Total	1,758 kr.	2,662 kr.	374 kr.	69 kr.	1,708 kr.	887 kr.	671 kr.	22 kr.	0 kr.	*8,151 kr.*
LOCAL n=109	Local	179 kr.	31 kr.	384 kr.	0 kr.	770 kr.	215 kr.	46 kr.	0 kr.	2 kr.	*1,626 kr.*
	Total	1,241 kr.	31 kr.	417 kr.	0 kr.	880 kr.	280 kr.	603 kr.	0 kr.	61 kr.	*3,513 kr.*
Average *n=823*	*Local*	*433 kr.*	*147 kr.*	*146 kr.*	*3 kr.*	*1,128 kr.*	*511 kr.*	*178 kr.*	*22 kr.*	*1 kr.*	*2,497 kr.*
	Total	*1,866 kr.*	*2,846 kr.*	*433 kr.*	*102 kr.*	*3,468 kr.*	*1,159 kr.*	*747 kr.*	*41 kr.*	*13 kr.*	*10,675 kr.*

Considering the very low local spending of day-visitors who currently form the majority of all visitors (59 %) - and high spending of overnight visitors – it seems likely that any development encouraging day-visitors to stay longer would be beneficial for the local economic impacts. While this suggestion of course generally always applies in connection with economic impacts of tourism, in this case the numbers are exceptionally clear.

For comparison to Table 7, we have also provided overall averages of total visitor spending without excluding other sites or non-planned visits, as this can be useful information for the community as

well. These results are presented in Table 8. Some differences are observed when the spending is not focused on Hafnarhólmi, i.e. also including hiking destinations around Borgarfjörður Eystri and visits to the town itself.

As Table 8 shows, the overall average daily spending in the local vicinity is 4.425 kr and in total ~13.000 kr. These are not largely different from the 'Hafnarhólmi-only' spending averages, which account for 56 % of the local overall spending and 82 % of the total overall spending. Especially the high share of Hafnarhólmi-specific share of overall spending is notable – it suggests that for visitors who visit Hafnarhólmi, 4/5 of all of their visit spending is 'targeted' for the bird colony.

Table 8: Average overall spending per visitor per day by visitor segment

		Fuel and gas station purchases	Trans-portation	Tours and recreation	Cultural activities	Accom moda-tion	Cafes and restau-rants	Groce-ries	Souve-nirs	Other retail	*Sum*
DAY n=489	Local	474 kr.	29 kr.	57 kr.	23 kr.	711 kr.	476 kr.	172 kr.	13 kr.	3 kr.	*1,959 kr.*
	Total	2,593 kr.	2,715 kr.	270 kr.	201 kr.	4,559 kr.	1,562 kr.	1,004 kr.	42 kr.	12 kr.	*12,956 kr.*
HOTEL n=133	Local	984 kr.	104 kr.	387 kr.	0 kr.	5,214 kr.	2,236 kr.	519 kr.	115 kr.	0 kr.	*9,558 kr.*
	Total	2,200 kr.	1,524 kr.	1,436 kr.	0 kr.	6,407 kr.	3,060 kr.	942 kr.	171 kr.	0 kr.	*15,741 kr.*
CAMP n=92	Local	874 kr.	494 kr.	584 kr.	114 kr.	1,921 kr.	1,226 kr.	823 kr.	33 kr.	0 kr.	*6,069 kr.*
	Total	2,334 kr.	2,494 kr.	589 kr.	162 kr.	2,467 kr.	1,675 kr.	1,170 kr.	38 kr.	0 kr.	*10,929 kr.*
LOCAL n=109	Local	849 kr.	92 kr.	1,345 kr.	147 kr.	3,454 kr.	1,069 kr.	876 kr.	0 kr.	7 kr.	*7,839 kr.*
	Total	2,872 kr.	92 kr.	1,442 kr.	147 kr.	3,693 kr.	1,353 kr.	1,885 kr.	0 kr.	67 kr.	*11,550 kr.*
Average *n=823*	*Local*	*651 kr.*	*102 kr.*	*340 kr.*	*46 kr.*	*1,937 kr.*	*923 kr.*	*394 kr.*	*30 kr.*	*3 kr.*	*4,425 kr.*
	Total	*2,537 kr.*	*2,150 kr.*	*649 kr.*	*157 kr.*	*4,509 kr.*	*1,789 kr.*	*1,129 kr.*	*57 kr.*	*16 kr.*	*12,993 kr.*

With regard to visitor segments, Table 8 presents interesting findings. For example, the day-trippers overall spending is almost identical to their 'Hafnarhólmi-only' spending (~1.960 kr locally and ~12.960 kr overall), implying that their visit is really focused on Hafnarhólmi and there is no time or interest for other activities in the area. The shares of overall local and total spending remain similar to the 'Hafnarhólmi-only' spending averages for overnight visitors and campers as well, only at a somewhat higher level. Overnight visitors spend on average ~9.560 kr locally and ~15.700 kr in total, while campers spend ~6.070 kr and ~10.900 kr respectively. Since these visitors are spending a full day/night in the area, they have more time for other activities as well, thus the higher share of 'non-Hafnarhólmi' spending overall.

As most foreign visitors are traveling around Iceland with rental cars, it's important to note that rental car costs per day are included in the overall per-day transportation costs; this share is clearly evident on the overall transportation costs of day-trippers, overnight visitors and campers. Some visitors also travel with self-catering tour packages that include a rental vehicle and accommodation along the route – the per-day price of the this kind of packages was included in the 'tours and recreation' spending category, which is at least partially explains why spending in this category is higher for overnight visitors.

The largest difference between Tables 7 and 8 is by far in the Icelandic resident visitor segment. Their total 'Hafnarhólmi-only' spending was the lowest of the four visitor segments, though they did spend a bit more locally than the day-trippers in relation to visiting Hafnarhólmi. However, their overall spending in Table 8 shows that overall domestic visitors spend a comparable amount of money in comparison to the foreign visitors, slightly more than the campers and slightly less than

day-trippers, with the marked differences in some of the spending categories. They have almost no transportation costs (excluding fuel which they used the most money on of all segments), but they spent more money on tour & recreation services and groceries than the other visitor segments. Since their segment is also similar in size to the campers and overnight visitors, and the spending is targeted differently, here they have a more significant economic impact compared to most of the other sites at the previous assessment (Siltanen, 2018) – however, only a small share of this impact is generated from the Hafnarhólmi bird colony.

Economic impact analysis

Economic impact analysis of the Hafnarhólmi bird colony is very interesting in comparison to the previous study (Siltanen, 2018), as the local vicinity of the site covers essentially only the Borgarfjörður Eystri community and the focus of the visitor activity is bird-watching for the first time.

Table 9: Local economic impacts of 'Hafnarhólmi-only' spending

Sector/Spending category	Direct Sales (thousand ISK)	Direct Local Sales % of Total Sales (thousand ISK)	Jobs (part-time)	Personal Income (thousand ISK)	Value Added (thousand ISK)
Accommodation	32 758	30%	6	14 288	23 199
Camping fees	5 863	73%	1	665	1 598
Cafes and restaurants	16 301	44%	3	6 168	6 962
Tours, recreation and culture	3 305	29%	1	1 200	2 008
Transportation	1 468	4%	0	793	889
Groceries	541	23%	0	207	277
Fuel and gas station purchases	1 281	22%	0	459	596
Souvenirs, other retail	66	38%	0	30	42
Total Direct Effects	**61 583**	**29%**	**11**	**23 812**	**35 571**
Secondary Effects	**17 571**	**29%**	**2**	**5 069**	**9 259**
Total Effects	**79 155**	**29%**	**13**	**28 881**	**44 830**
Sec. effect multiplier	1,29	*n/a*	1,19	1,21	1,26

Table 9 presents the local economic impacts of 'Hafnarhólmi-only' spending in terms of direct sales, jobs, personal income and added-value for business based on MGM2 methodology using the most conservative settings. By default, the MGM2 methodological reports jobs as part-time, and in the context of Hafnarhólmi this makes sense in any case as the tourism season is only approximately three months of the year. Direct economic effects are based on the observed visitor spending and visitor numbers, and thus have a high degree of confidence. The secondary economic effects represent the economic effects of spending further down in the value-chain, and should be observed with caution as we don't have local input-output tables and derived economic multipliers for Borgarfjörður Eystri. Consequently, the following reporting will focus on the direct economic effects.

As observed from Table 9, the main economic impacts of Hafnarhólmi-related visitor spending locally are realized in primarily via accommodation (inc. camping) services, and secondly through

cafe and restaurant purchases, generating seven and three indicative local part-time jobs. One additional local job is generated through tour and recreation services. Overall, Hafnarhólmi generates locally ca. 62 million krona in direct sales, 24 million krona in personal income and 36 million krona in value-added for local businesses. Regarding these numbers, it should be noted that the methodology assumes that at least part of the money spent locally stays in the area; the exact ratio being defined by sector-specific capture rates. This does not account for the fact that for example sales of an automated unmanned petrol station are not captured locally even if the visitors spend the money locally. Being able to trace the registered location of each company in the vicinity is beyond the scope of this study – as it was in the previous studies (Siltanen 2017 & 2018) – however, money spent locally does imply a local business opportunity, even if the money would currently be realized elsewhere.

For comparison purposes, Table 9 also presents a percentage share of sales captured locally from the overall sales (in reference to Table 10). We can observe from the figures that Borgarfjörður Eystri only captures roughly 1/3 of the sales and jobs overall generated by the Hafnarhólmi visits. In the camper segment the local capture rate is much higher; Borgarfjörður Eystri captures 73 % of the campers' overnight camping fees but for other accommodation options only about 30 %. Cafe and restaurant sales are captured 44 % locally; and tour, recreation and culture services by 29 %. As the local sales in these four spending categories are at least on a modest level, these results suggest that a much larger share could be captured locally by developing the services and offering visitors more options.

In terms of scaling, it is very interesting to note that the MGM2 methodology seems to scale down to small communities and relatively small economic impacts quite well. For example, the local jobs generated by Hafnarhólmi-related spending seem feasible for a community the size of Borgarfjörður Eystri. The MGM2 methodology has generally not been used many times in settings where the local economic impact area would essentially cover only one small community, so these results are significant also from a methodological point of view.

As an additional methodological note, the MGM2 methodology calculates the economic impacts in US dollars, so the spending figures in Icelandic kronas need to be converted to dollars for the analysis, and then the economic impact figures back to Icelandic kronas to report the results in kronas. The Central Bank of Iceland mid-rate of 123,63 ISK/USD (August 15th, 2019) was used for the conversions. Regarding the interpretation of the results, it is important to understand that a weak krona results in lower economic impacts and vice-versa. During the previous study (Siltanen, 2018), krona was very strong at 108 ISK/USD, thus the economic impacts reported in this study are ca. 15 % lower due to the difference in currency rate. This difference could be avoided by using a fixed currency rate in all related studies but it was considered more realistic for international comparisons to consistently use the currency conversion rate of the time of visitor spending data collection – the reported rates can be used to adjust results to current-day value if needed.

Table 10: Overall nation-wide economic impacts of visits to Hafnarhólmi

Sector/Spending category	Direct Sales (thousand ISK)	Jobs (part-time)	Personal Income (thousand ISK)	Value Added (thousand ISK)
Accommodation	110 489	19	48 192	78 247
Camping fees	8 056	1	914	2 196
Cafes and restaurants	36 650	7	13 869	15 652
Tours, recreation and culture	11 262	2	4 090	6 842
Transportation	35 978	5	19 444	21 775
Groceries	2 360	0	903	1 207
Fuel and gas station purchases	5 894	1	2 110	2 743
Souvenirs, other retail	172	0	79	111
Total Direct Effects	**210 862**	**35**	**89 602**	**128 773**
Secondary Effects	**60 536**	**7**	**17 727**	**32 265**
Total Effects	**271 398**	**42**	**107 329**	**161 038**
Sec. effect multiplier	1,29	1,19	1,20	1,25

Table 10 presents the overall nation-wide economic impacts of total ‘Hafnarhólmi-only’ visitor spending. Accommodation remains the largest category, generating 20 indicative jobs in the region, followed by cafe and restaurant services contributing to seven jobs and transportation services contributing to five jobs. Tours, camping services and fuel and gas station purchases also contribute to a few jobs in the region. Accommodation accounts for ca. 110 million krona in direct sales while cafe & restaurant purchases and transportation account for ca. 36 million krona each. Overall, direct sales effects of Hafnarhólmi bird colony account for 211 million krona, with ca. 90 million krona in personal income and 129 million krona in business value-added. A conservative but unverified estimate of the overall secondary effects according to the model would be additional 60 million krona in direct sales and 7 additional part-time jobs.

Table 11: Overall nation-wide generated taxes (tISK)

Sales	Income	Total
77 183	**25 985**	**103 168**

Finally, Table 11 presents the indicative tax revenue generated by the sales and income taxes, ca. 77 million krona in sales taxes and ca. 26 million krona in income taxes, in total contributing to ca. 103 million tax kronas.

Comparison of economic impact to other sites

In Table 12, the economic impacts of Hafnarhólmi are compared to the results from earlier studies (Siltanen, 2017 & 2018). The figures have not been adjusted to changes in value of the Icelandic krona between the data collection periods, so they are not directly comparable between Hafnarhólmi and the earlier studies, but general observations can be made. As the different sites in the studies have been very different in terms of access, type and visitor numbers, comparable ratios of jobs and economic impact per 1000 visitors have been calculated in the table both for the local and total impacts.

The economic impacts of Hafnarhólmi are comparable to other sites with less than 100.000 visitors but overall generally somewhat lower in comparison, especially in terms of jobs generated. Considering the visitor segments of Hafnarhólmi, the high amount of day-trippers and self-catering visitors may contribute to this. Other factor is likely the low level of tourism service development in Borgarfjörður Eystri compared to the other more well-known and more developed natural attractions in Iceland. For example, the local direct economic impact per thousand visitors for Hafnarhólmi is the lowest (ca. 760 thousand krona) in the whole dataset. However, the total economic impact per thousand visitors is ca. 2,75 million krona, which is already similar to other sites under 100.000 visitors category. This suggests Hafnarhólmi has similar potential in local economic impact as some other seasonal national park sites.

Table 12: Comparison of economic impacts to other sites (adapted from Siltanen, 2017 & 2018)

Site	Visitors[2]	Direct jobs		Direct jobs[3] / 1000 visitors		Direct economic impact[4] (tISK)		Direct economic impact (tISK) / 1000 visitors[5]		Total taxes[6] (tISK)
		Local	Total	Local	Total	Local	Total	Local	Total	
National parks										
Snæfellsjökull	392 168	344	670	0.9	1.7	1 159 436	2 125 702	2 956	5 420	1 426 234
Þingvellir	1 526 523	n/a	1 806	n/a	1.2	n/a	7 942 050	n/a	5 203	4 918 874
Vatnajökull	931 710	970	2 100	1	2.3	3 225 279	6 528 736	3 462	7 007	3 874 137
- Skaftafell	735 728	840	1 887	1.1	2.6	2 844 471	5 900 939	3 866	8 021	3 428 526
- Jökulsárgljúfur	123 770	98	153	0.8	1.2	272 480	437 662	2 202	3 536	320 897
- Laki	7 836	15	21	1.9	2.7	46 493	63 736	5 933	8 134	40 302
- Hengifoss	64 376	17	39	0.3	0.6	61 835	126 399	961	1 963	84 412
Other protection status										
Dynjandi	80 473	26	60	0.3	0.7	79 726	175 514	991	2 181	123 430
Hraunfossar	281 592	99	237	0.4	0.8	329 630	776 959	1 171	2 759	513 529
Hvítserkur	112 855	24	58	0.2	0.5	73 402	181 580	650	1 609	148 693
Landmannalaugar	67 100	96	201	1.4	3.0	309 705	649 828	4 616	9 684	429 173
Mývatn	409 091	232	469	0.6	1.1	756 593	1 458 457	1 849	3 565	1 038 301
Þórsmörk	40 390	23	66	0.6	1.6	68 339	175 285	1 692	4 340	97 308
Hafnarhólmi	**46 810**	**11**	**35**	**0.2**	**0.7**	**35 571**	**128 773**	**760**	**2 751**	**103 168**

2 Visitor count for Hafnarhólmi from summer 2019, for other sites from 2017
3 Including part-time and seasonal jobs.
4 Locally captured value-added, inclusive of generated personal incomes. *Note: Updated 24.10.2020 - original report erroneously combined value of business value-added and personal income.*
5 Value-added captured nationwide, inclusive of generated personal incomes. *Note: Updated 24.10.2020 as above.*
6 Combined value of sales taxes, personal income taxes and company taxes.

Conclusions

This study has focused on the economic impacts of visitor spending in connection with the Hafnarhólmi bird colony in the Borgarfjörður Eystri community. The community is part of the Fragile Communities program, and this study is partially funded by a grant from the program. The study has been organized by non-governmental organization Fuglavernd BirdLife Iceland.

This study followed the same methodology to calculate the economic impacts as the assessment on 12 of Iceland's protected areas and nature sites last year (Siltanen, 2018). A trail counter was installed at the bird colony, counting 46.810 visitors during May-September 2019. Local rangers and a BirdLife International volunteer were trained to collect the survey using the same method as the earlier study, and 834 visitors were interviewed during July-August 2019 making the sample statistically significant (95 % c.i.) with a 3.4 % error margin. MGM2 or 'Money Generation Model' methodology was used for calculating the economic impacts with the same assumptions and pre-sets as in the Siltanen (2018) study.

Based on the visitor surveys, most of the visitors (ca. 60 %) to Hafnarhólmi are on a day-trip, and very focused on Hafnarhólmi; 54 % of all visitors stated the bird colony was their most important or only site for the day. So far, this is the highest importance-rating in the studies conducted by the author in Iceland's protected areas and other natural attractions. 34 % of the visitors visited other sites during the day as well, and 12 % of the visitors made a non-planned stop at the bird colony. Other visitors segments were evenly split between overnight visitors (16 %), domestic tourists (13 %) and campers (11 %). The length of stay in the area was shortest so far measured compared to the previous studies, same as for Hvítserkur, and less than a day on average. However, nearly half of the visitors still managed to visit the town of Bakkagerði, and ca. 30 % also did some hiking activities in the area during the visit.

Visitor spending figures were very interesting and varied between the visitor segments and local vs. overall spending in this study. On average, considering only spending targeted at Hafnarhólmi, visitors spent ~2500 kr per person per day locally around the Borgarfjörður Eystri community, and in total ~10.700 kr including spending elsewhere in Iceland. This suggests only ¼th of overall spending is captured by the community where the attraction resides. Naturally, some of the services such as car rentals can never be captured locally as Hafnarhólmi is more end of a road than a beginning, but for example developing accommodation services and tours has potential as only a third of visitor spending was captured locally in these categories, accommodation accounts for the largest single spending category in the study, and every third visitor to Hafnarhólmi hikes in the area. Visitors using local indoor accommodation spent on average ~6.080 kr per day in the community with campers following at ~4.240 kr. In comparison, day-visitors only spend ~1.390 kr locally.

In terms of local economic impact, Hafnarhólmi generates ca. 62 million krona of annual sales, 24 million in personal income, 36 million in business value-added and 11 part-time jobs, primarily in accommodation and restaurant services. Jobs are reported as part-time due to the short tourism season for Hafnarhólmi and the way the MGM2 methodology calculates them. In comparison to other protected areas and nature sites in Iceland, the local economic impacts of Hafnarhólmi are modest in relative comparisons (per 1000 visitors), and similar to the local impacts of Hengifoss and Þórsmörk, though both generate more jobs locally than Hafnarhólmi. In these comparisons, we should keep in mind that Hafnarhólmi's vicinity and local impact area is also one the most remote and undeveloped for tourism in comparison to the other sites in earlier studies.

Overall, with spending related to the Hafnarhólmi visits included also from elsewhere in Iceland, the economic impacts are approximately three times the local effects: ~211 million krona of direct sales, ~90 million krona of personal income, ~129 million krona in value-added and 35 part-time jobs. Secondary impacts down the value chain could generate ca. 60 million krona of further sales and seven more jobs according to the model. Overall sales taxes generated from Hafnarhólmi are estimated at 77 million krona and income taxes ~26 million krona, generating in total ca. 103 million krona of taxes. In comparison to other sites in earlier studies, the overall impacts are higher in proportion to the local impacts. For example, in terms of jobs generated per 1000 visitors, Hafnarhólmi generates roughly the same number jobs than Hvítserkur, Hraunfossar, Dynjandi and Hengifoss; suggesting that a remote bird-watching site can have similar economic potential as famous waterfalls and protected nature sites.

Findings of the study suggest that key factors in increasing the economic impacts of Hafnarhólmi locally in the Borgarfjörður Eystri community are interventions that increase the length of stay of visitors, providing more accommodation options for indoor overnight stays, developing tour and recreation services, and ways to capture more of the visitors' cafe and restaurant spending locally. While not the focus of this study, it should be noted that the Icelandic residents visiting Borgarfjörður Eystri did spend a comparable amount of money to the foreign tourists when looking at their overall (non-Hafnarhólmi focused) spending, which was divided rather evenly on local tour and recreation services, accommodation, restaurants and groceries – all sectors where a good share of the spending is retained locally. With this spending profile and relatively large visitor segment share, their contribution to the local economic impact is higher than at most other sites in the previous study.

In conclusion, this study has showed that a bird-watching site has similar potential for economic impact as protected areas and natural attractions. From a methodological standpoint it has been an interesting experiment to scale the MGM2 methodology to a size of a small remote community, and the moderate results lend support to the feasibility. In case of Borgarfjörður Eystri, there is perhaps still more potential than realized impacts, but that is to be expected when tourism development is still low.

As in earlier studies, the author wishes to note that this study has focused solely on the economic perspective, and social and environmental considerations are equally critical issues to consider when the community works on their future development plans.

References

Huhtala, M., Kajala, L., & Vatanen, E. (2010). Local economic impacts of national park visitors' spending in Finland: The development process of an estimation method. *Working Papers of the Finnish Forest Research Institute 149*, Vantaa, Finland. ISBN 978-951-40-2224-1.

Icelandic Chamber of Commerce. (2019). The Icelandic Economy: Current State, Recent Developments and Future Outlook - 2019 edition. Reykjavik. [online]. Accessed Oct 19th 2019.

Icelandic Regional Development Institute (Byggðastofnun). 2019. Grant projects - Hafnarhólmi: Lífríki og fræðsla. Reykjavik. [online]. Accessed October 19th 2019.

Icelandic Tourist Board. (2018). Tourism in Iceland in Figures – June 2018. Reykjavik. [online]. Accessed October 19th 2019.

Icelandic Tourist Board. (2019a). Tourism in Iceland in Figures – January 2019. Reykjavik. [online]. Accessed October 19th 2019.

Icelandic Tourist Board. (2019b). Tourism in Iceland in Figures – July 2019. Reykjavik. [online]. Accessed October 22th 2019.

Rögnvaldur Ólafsson. (2019, October). Summary of visitor counter data at Hafnarhólmi. Unpublished work. University of Iceland, Reykjavik.

Siltanen, J. K. (2017). Economic Impact of National Parks in Iceland; Case Study of Snæfellsjökull National Park (M.Sc. dissertation). University of Iceland. [online]. Accessed October 19th 2019.

Siltanen, J. (2018). Economic impact of Iceland´s protected areas and nature-based tourism sites. Report for the Ministry for the Environment and Natural Resources. *C18:08 Áhrif friðlýstra svæða á framleiðslu og atvinnu í næsta umhverfi.* Institute of Economic Studies, University of Iceland. Reykjavik. [online]. Accessed October 19th 2019.

Stynes, D. J. (1999). Economic Impacts of Tourism. Updated January 1999. Michigan State University. [online]. Accessed October 19th 2019.

Stynes, D. J. (2005). Economic significance of recreational uses of national parks and other public lands. *Social Science Research Review*, **5** (1), Winter 2005.

Stynes, D. J., Propst, D. B., Chang, W., & Sun, Y. (2000). Estimating national park visitor spending and economic impacts; The MGM2 Model. Report to the National Park Service. Department of Park, Recreation and Tourism Resources, Michigan State University, East Lansing, Michigan. [online]. Accessed October 19th 2019.

Vaske, J. J. (2008). *Survey research and analysis: Applications in parks, recreation and human dimensions*. Venture Publishing.

Appendices

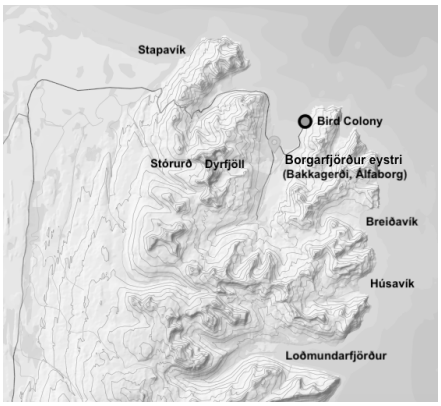
Fuglavernd

Visitor Spending Survey 2019 - Borgarfjörður Eystri Bird Colony

* 1. On your trip to Borgarfjörður Eystri, the bird colony (Hafnarhólmi) is...

- your only or the most important destination?
- one among other intended destinations?
- a non-planned destination along your route?

Map of Borgarfjörður eystri and its surrounding areas



2. What other sites **in the surrounding area** have you visited **in the last 24 hours or one day?**

- [ ] Town of Bakkagerði (Borgarfjörður Eystri)
- [ ] Álfaborg (Elf Rock, Elf Hill)
- [ ] Hiking to Breiðavík, Húsavík or Loðmundarfjörður
- [ ] Hiking to Stórurð (The Big Boulders)
- [ ] Hiking to Mt Dyrfjöll
- [ ] Hiking to Stapavík

Other (please specify)

* 3. How many days are you going to stay altogether around Borgarfjörður Eystri or its surroundings?

- Half-day / Day-trip
- 1
- 2
- 3
- More...

... (please specify)

* 4. How many people are traveling in your party?

Party is defined as your family, friends, partners, etc. you're traveling with... Please do not include other participants of an organized tour.

- 1 / only me
- 2
- 3
- 4
- 5
- More...

... (please specify)

* 5. Are you a local resident living in the municipality of Borgarfjörður eystra?

- Yes
- No

Fuglavernd

Visitor Spending Survey 2019 - Borgarfjörður Eystri Bird Colony

* 6. In the following section we will ask you to estimate your spending in connection to visiting the Borgarfjörður Eystri Bird Colony and its surroundings. Please indicate whether you will estimate:

- your personal expenses only (1 person)
- total expenses of your party (for the number of people indicated above)

* 7. Please select the currency you're most comfortable estimating the expenses in:

- ISK
- EUR
- USD
- GBP

Other (please specify)

8. In the following questions, please indicate your total expenses for the **last 24 hours or one day** on this trip **to Borgarfjörður Eystri and its surroundings** (map area).

*Remember to include also any pre-paid expences on a per-day basis.

Fuel purchases

Local transportation

Tours and recreation*

Cultural activites

Local accommodation*

Cafes and restaurants

Groceries

Souvenirs

Other retail

9. Please indicate your total expenses **elsewhere in Iceland during the same 24 h time period** (outside the map area).

*Remember to include any pre-paid expences on a per-day basis.

Fuel and gas station purchases

Transportation (eg. rental car)*

Tours and recreation

Cultural activities

Accommodation*

Cafes and restaurants

Groceries

Souvenirs

Other retail

* 10. Type of accommodation if overnight stay:

- Hotel / guesthouse
- Hostel / mountain hut
- Farm accommodations
- Private rental (e.g. AirBnB)
- Camping / camper van
- Summer house / cottage
- At family / friends / home
- Sleeping in the car

Other (please specify)

* 11. Your gender?

- Female
- Male
- Non binary

* 12. Your age?

* 13. Country of residence

14. Additional information

Clarification to answers above, for example description of multi-day tour packages (total sum, how many people, how many days, what is included) ; notes by survey supervisor, etc.

15. How did you hear about Borgarfjörður Eystri?

- Social media (Facebook, blogs, ...)
- Friends
- Travel or information website
- Tourist information
- Search engines
- Tour agent

Other (please specify)