Ministry of Agriculture
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FINNISH ARCHIPELAGO IN 2024

Current state of Finland's archipelago areas

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Finnish Archipelago in 2024 : Current state of Finland's archipelago areas

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Abstract

This information package provides a comprehensive view of Finland's archipelago areas in the light of both quantitative and qualitative data. It presents an extensive picture of the situation in the Finnish archipelago areas in 2024.

For the archipelago areas covered by the classification, it contains data on the residents and demographic structure, transport connections, economic activities, jobs, workforce, infrastructure (electricity, telecommunications, water supply and sewage network, waste management), access to services, archipelago culture, sense of community and inclusion, internal security, and archipelago nature and environment sites.

The data in the information package is based on the Liiteri database of the Finnish Environment Institute, materials of the Community Structure Monitoring (YKR) and the project on access to services (PALSA), spatial datasets of the Finnish Transport and Communications Agency Traficom, and quantitative and qualitative data collected from various sources.

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Tekijä/t	Sari Rannanpää, Simo Rautiainen, Timo Hirvonen, Petri Kahila		
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Tiivistelmä

Saariston tietopaketti on kattava katsaus Suomen saaristoalueista määrällisen ja laadullisen tiedon valossa. Se antaa laajan tilannekuvan Suomen saaristoalueista vuonna 2024.

Tietopakettiin on koottu tietoa saaristoluokituksen mukaisten saaristoalueiden asukkaista ja väestörakenteesta, liikenneyhteyksistä, elinkeinoista, työpaikoista, työvoimasta, infrastruktuurista (sähkö-, tietoliikenne-, vesijohto- ja viemäriverkot, jätehuolto), palveluiden saavutettavuudesta, saaristokulttuurista, yhteisöllisyydestä ja osallisuudesta, saariston kokonaisturvallisuudesta sekä saariston luonto- ja ympäristökohteista.

Tietopaketin aineistot perustuvat pääosin Suomen Ympäristökeskuksen Liiteri-tietokantaan, Yhdyskuntarakenteen Seurannan aineistoihin (YKR), Palveluiden saavutettavuus (PALSA) -hankkeen aineistoihin, Traficomin paikkatietoaineistoihin sekä rilaisista lähteistä koottuihin määrällisiin ja laadullisiin tietoihin

Asiasanat	saaristot, saaristolaiset, saaristopolitiikka, alueet		
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Referat

Denna rapport ger en heltäckande översikt över Finlands skärgårdsområden utifrån kvantitativa och kvalitativa data. Den ger en omfattande lägesbild av skärgårdsområdena i Finland 2024.

Rapporten innehåller information om invånare och befolkningsstruktur, transportförbindelser, försörjning, arbetstillfällen, arbetskraft, infrastruktur (el-, telekommunikations-, vatten- och avloppsnät samt avfallshantering), tillgänglighet till tjänster, skärgårdskultur, gemenskap och delaktighet, den inre säkerheten och natur- och miljöobjekt i olika skärgårdsområden, indelade enligt skärgårdsklassificeringen.

Materialet i rapporten bygger i huvudsak på Finlands miljöcentrals databas Liiteri, data från uppföljningen av samhällsstrukturen (YKR), material från ett projekt om tillgänglighet till tjänster (Palveluiden saavutettavuus, PALSA), Transport- och kommunikationsverket Traficoms geodatamaterial samt kvantitativa och kvalitativa data insamlade från olika källor.

Nyckelord	skärgårdar, skärgårdsbor, skärgårdspolitik, områden		
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Contents

ABSTRACT

This report provides a comprehensive overview of Finland's archipelago areas, based on statistical and qualitative data. It examines the characteristics and development trends of the archipelago areas through surveys, interviews, and previous research and reports.

The work was commissioned by the Island Committee and carried out by NordEval Oy and the Spatia Centre for Regional Research of the University of Eastern Finland. The project team included Sari Rannanpää (principal consultant), Simo Rautiainen, Timo Hirvonen and Petri Kahila. The project took place between December 2023 and October 2024.

Archipelago area types

In mainland Finland, archipelago areas cover approximately 56,500 square kilometres, accounting for about 15 per cent of the country's total area. Of these areas, nearly half (45%) are classified as inner archipelago, a tenth (10%) as middle archipelago, and around a fifth (22%) each as outer archipelago and archipelagic mainland areas.

The archipelago areas are almost entirely rural: more than two thirds (70%) are sparsely populated rural areas, a tenth (10%) are rural heartland areas, and slightly more than a sixth (16%) are rural areas close to urban areas.

Archipelago population

As of the end of 2023, 131,800 people (2.4% of mainland Finland's population) lived permanently in the archipelago areas. This figure excludes so-called urban archipelago areas, i.e. urban localities with more than 15,000 inhabitants. Of the archipelago population, more than half (52%) lived in the archipelagic mainland areas. The second largest share (43%) lived in inner archipelagos, whereas only small numbers lived in middle archipelagos (4%) and outer archipelagos (1%). Approximately three quarters (76%) of the archipelago population lived in rural

areas, a quarter (26%) in peri-urban areas, and only one per cent in urban areas. Archipelago residents were present in every mainland Finland region and in 158 municipalities.

The permanent population of archipelago areas has declined and aged over the last 40 years. In 1980, the archipelago population was 162,300, but by the end of 2023, it had decreased by around 30,500 people. Between 1980 and 2023, the number of people aged 65 and older increased by 16,000 in archipelago areas, while the number of working-age individuals aged 18–29 decreased by 18,600.

The number of second homes in archipelago areas has increased by ten per cent between 2005 and 2023, and second homes now represent a significant share of the archipelago housing stock. As of the end of 2023, there were 150,000 second homes in mainland Finland's archipelago areas, accounting for around a third (30%) of all second homes in the country. Of these second homes, around half (54%) were in inner archipelagos, one in three (29%) in archipelagic mainland areas, slightly more than one in eight (13%) in middle archipelagos, and four per cent in outer archipelagos.

Infrastructure, connections and mobility in the archipelago

The ELY Centre for Southwest Finland (Centre for Economic Development, Transport and the Environment) operates commuter vessel services on ten routes in the Archipelago Sea and two routes in the Gulf of Finland, serving approximately 150 islands. The ELY Centre also supports transport services in the Ingå and Raseborg archipelagos, as well as along the Archipelago Trails. In 2023, a total of 261,000 passengers used the commuter vessel services, of which 48,000 travelled on the tourism routes of the Archipelago Trail and the Small Archipelago Trail. The number of passengers using road ferries on highways varies significantly. By far the busiest ferry is the Pargas–Nauvo ferry, which transported 566,000 vehicles in 2023. The next busiest, the Puutossalmi (Kuopio) and Nauvo–Korppoo ferries, served approximately 280,000 vehicles each.

As of spring 2024, almost all permanently inhabited households (99.9%) in the archipelago areas had access to grid electricity. In the archipelagic mainland areas, virtually all households are connected to the grid, as are nearly all in the inner and middle archipelagos. While access is slightly lower in the outer archipelago, it remains very high overall. In contrast, access to grid electricity is lower for second homes in the archipelago, with 14 per cent located beyond the reach of the power grid.

In spring 2024, fixed broadband with a speed of at least 100 Mbps was available to half the permanently inhabited households in the archipelago areas. Minimum 100 Mbps 4G mobile broadband was available to 78 per cent of permanently inhabited households and nearly 60 per cent of second homes. Availability was better in the inner and middle archipelagos than in the outer archipelago and archipelagic mainland areas. 5G mobile broadband was available to slightly more than half of households, although availability varied greatly between archipelago areas.

In permanently inhabited archipelago areas, water supply is primarily managed through municipal water supply facilities or local water cooperatives. Some smaller islands have no organised water supply. Drinking and household water are typically supplied through water supply networks, which are more common than trunk sewers for storm water and grey water. Depending on the area, the water supplied via a network may be purified groundwater, surface water, or seawater filtered using reverse osmosis. However, water supply networks do not necessarily cover entire islands. In the archipelago, sewer systems are typically property-specific, similarly to sparsely populated rural areas. Only a few islands have trunk sewer systems, and even where they exist, they may not cover the entire island.

The general state of waste management in the archipelago is fragmented. Approaches vary depending on factors such as the size of the archipelago population, the distance from the mainland and the practices of local waste management companies. In some areas, waste management arrangements differ between permanent and second homes. The most common form of waste management in the archipelago is shared collection points, including regional or mixed waste collection points or locked container points accessible with a key. Waste collection (mixed, dry and packaging waste, as well as glass and metal) is only organised on islands with sufficient permanent populations. A unique feature of waste management in the archipelago is the use of collection boats.

Livelihoods and services

At the end of 2022, the labour force in the archipelago areas consisted of slightly more than 57,000 people. Of them, 92 per cent, or nearly 53,000 people, were employed. The employment rate of the working-age population in the archipelago was 78.3 per cent. There were slightly fewer than 39,000 jobs in the archipelago areas at the end of 2022. Over half (58%) the jobs were in the inner archipelago, while more than a third (38%) were in the archipelagic mainland areas. Among the archipelago areas, most jobs in 2022 were found in the Turku archipelago (8,200 jobs), North Savo (5,900) and the Vaasa region (3,100).

In 2022, half (53%) the jobs in the archipelago areas were in the service sector. More than one in three (37%) jobs were in the processing sector, which includes manufacturing and construction. Primary production, which covers agriculture, forestry and fishing, accounted for a tenth (10%) of the jobs. By industry, the largest number of jobs was in manufacturing, with approximately 9,100 jobs, representing 23 per cent of all jobs in the archipelago areas. Between 1990 and 2022, the number of jobs in the archipelago areas decreased by over 8,000. Most of this decline occurred in primary production, including agriculture, forestry and fishing.

In 2023, there were 85 villages and localities in the archipelago areas with basic services (health, retail, pharmacy, postal, banking or library services). All six services were available in 16 localities, all of which were the central localities of current or former municipalities.

Archipelago culture, community and participation

The living cultural heritage of the archipelago is rooted in the knowledge and appreciation of the conditions and history of the archipelago. This heritage is inseparably linked to a nature-oriented lifestyle, encompassing not only a way of life but also the ability to adapt to natural conditions.

The development of the archipelago involves various stakeholders. Municipalities and cities provide frameworks and directions, while Leader groups that promote local development play an important role in enabling progress in archipelago areas. Grassroots development is led by local associations, communities, businesses and other stakeholders, which are key players in the practical development work of the archipelago.

Archipelago development efforts are typically integrated into broader municipal strategies or programmes (e.g. municipal strategies, economic development programmes, tourism strategies or village plans). Strategies or programmes specifically dealing with the archipelago are very rare. Municipal strategies often address archipelago-related issues in terms of transport connections and accessibility, service availability, economic activities, tourism, energy solutions, and environmental protection.

In some municipalities, archipelago considerations are also integrated into local administrative bodies. Archipelago committees or similar entities exist in Pargas, Naantali, Kimitoön, Sipoo, Taipalsaari and Kotka, and their roles and mandates vary by municipality.

Nature and the environment

In terms of land use, the archipelago areas are predominantly rural. Over four fifths (85%) of their land area is forested. In the outer archipelago, marshlands account for six per cent of the land area, compared to around two per cent in the other archipelago areas. Agricultural land constitutes eight per cent of the archipelago land area.

In coastal waters, nearly three quarters (73%) of the total surface area is classified as having a moderate ecological status. Only a little more than a sixth (16%) of coastal waters have a good ecological status, while ten per cent are in poor or bad condition. The best conditions are found in the coastal waters of the Kvarken and the Gulf of Bothnia, whereas the Gulf of Finland's coasts and many inner bays of the Archipelago Sea are largely in poor condition. Marine ecosystems are particularly affected by eutrophication, as well as alien species, dredging and coastal construction.

The ecological status of Finland's inland waters is generally good. Eighty-seven per cent of lake areas and 65 per cent of river waters are in good or very good condition. The best inland waters are found in the large lakes of Eastern Finland and especially the water bodies of Northern Lapland, while the weakest conditions are in the rivers of Southern and Western Finland.

The archipelago areas host numerous valuable natural and cultural heritage sites. Protected natural sites help preserve biodiversity and are also popular recreational destinations, contributing positively to regional economies. Cultural heritage sites and landscapes convey historical and cultural values, having emerged from long-term interactions between humans and nature. Finland has 41 national parks, 12 of which are in the archipelago areas. The marine national parks include the Eastern Gulf of Finland, Ekenäs Archipelago, Archipelago Sea, Bothnian Sea and Bothnian Bay National Parks. In the archipelago areas of Finnish Lakeland, the national parks include the Päijänne, Leivonmäki, Southern Konnevesi, Linnansaari, Kolovesi, Koli and Petkeljärvi National Parks. Most of the hiking areas also include water bodies, with two – the Oulujärvi and Inari Hiking Areas – located in the archipelago areas.

Internal security

The archipelago areas present a challenging operating environment, particularly in terms of transport, which directly affects the safety of residents and visitors. In emergencies, obtaining assistance in the archipelago may take significantly longer than on the mainland due to poorer accessibility. Rescue operations often require special equipment in the archipelago, such as boats and helicopters. Medical helicopter services can reach 72,000 permanent residents of mainland Finland's archipelago areas (55% of the archipelago population) and 66,600 (44%) second homes within 30 minutes. The areas this service covers well include Uusimaa, the Archipelago Sea, Pirkanmaa, North Savo and the coast of the Bothnian Bay.

Responsibility for safety in the archipelago lies with the police, rescue departments and the Finnish Border Guard, supported by voluntary safety and rescue organisations.

The core of rescue operations is provided by rescue departments, which handle tasks such as firefighting, emergency medical services and oil spill response. In the archipelago, rescue preparedness relies partly on volunteers and contract fire brigades, which are a significant part of Finland's rescue system. The Finnish Border Guard leads maritime search and rescue operations and conducts patrols along the coastline and in open waters. The Finnish Lifeboat Institution supports maritime rescue operations through voluntary efforts, and medical helicopter services enable emergency medical services even in remote areas.

1 Introduction

Until recent years, the knowledge base regarding Finland's archipelago areas has been fragmented. Although several studies[1] have been conducted on Finland's archipelago, no comprehensive review of the archipelago areas has been compiled in over a decade. In 2022, the Finnish Environment Institute (Syke) and the Ministry of Agriculture and Forestry developed a statistical classification of archipelago areas based on spatial data, which laid the groundwork for strengthening the knowledge base concerning these areas. This classification divided the archipelago areas and archipelagic mainland areas into four subcategories: outer archipelago; middle archipelago; inner archipelago; and archipelagic mainland areas. The classification does not encompass all water-based regions in mainland Finland because not all of them meet the Finnish Environment Institute's definition of an archipelago.

Based on the archipelago classification, two statistical reviews were published in 2022: *Finland's Archipelago as Shown by Statistics*[2] and *Archipelago Areas of Finnish Counties as Shown by Statistics*[3]. These reviews analysed all the data available in the Liiteri service using the different archipelago classifications and identified

1 Island Committee, Ministry of Economic Affairs and Employment (2015). Suomi saarten ja vetten maa. http://mmm.fi/documents/1410837/1948019/Suomi_Saarten_ja_vetten_maa_esite_suomi.pdf/; Island Committee (2017). Suomen saaristo- ja vesistömatkailusta eurooppalainen vetovoimatekijä. [Making island and water-based tourism in Finland into a European attraction; English abstract available]. Publications of the Ministry of Agriculture and Forestry. http://urn.fi/URN:ISBN:978-952-453-947-0; Antikainen, J., Auri, E., Rannanpää, S., and Talvitie, J. (2019). Saaristo- ja vesistöaluepolitiikat Euroopassa -selvitys. [Report on island and river basin policies in Europe; English abstract available]. Publications of the Ministry of Agriculture and Forestry. http://urn.fi/URN:ISBN:978-952-453-996-8

2 Suomen saaristoalueet tilastojen kertomana. Tilastokatsaus saaristoluokituksella [Finland's Archipelago as Shown by Statistics.Statistical Analysis with Classification of Archipelago Areas; English abstract available]. Rannanpää, Sari, Ahtinen, Sini-Maaria, Antikainen, Janne, Heikkinen, Benjamin, Hovi, Sebastian, Sinerma, Janne, and Tolonen, Satu. Publications of the Ministry of Agriculture and Forestry 2022:21. https://urn.fi/URN:ISBN:978-952-366-755-6

3 Maakuntien saaristoalueet tilastojen kertomana. Tilastokatsaus saaristoluokituksella [Archipelago Areas of Finnish Counties as Shown by Statistics; English abstract available]. Rannanpää, Sari, Ahtinen, Sini-Maaria, Antikainen, Janne, Heikkinen, Benjamin, Hovi, Sebastian, Sinerma, Janne, and Tolonen, Satu. Publications of the Ministry of Agriculture and Forestry 2022:8. http://urn.fi/URN:ISBN:978-952-366-193-6

information gaps concerning the current state of the archipelago areas. Although the reports are detailed, their extensive scope makes a comprehensive overview of Finland's archipelago less accessible to a broader audience. Furthermore, comprehensive statistical data on some topics essential for the archipelago (e.g. waste and water management and rescue services) are unavailable.

1.1 Objective and execution of the study

This study's purpose was to provide an overview of the current state of Finland's archipelago areas based on both statistical and qualitative data. This report offers an overall view and information package concerning the nature, current state and operating environment of Finland's archipelago. Using statistics and qualitative data (surveys, interviews, and previous research and reports), the report addresses various themes related to different archipelago areas (the outer, middle and inner archipelagos, and the archipelagic mainland areas). Case examples of specific themes are also presented. The study excludes the Åland Islands and focuses solely on the archipelago areas of mainland Finland.

The report was commissioned by the Island Committee and carried out by NordEval Oy and the Spatia Centre for Regional Research of the University of Eastern Finland. The project team included Sari Rannanpää (principal consultant), Simo Rautiainen, Timo Hirvonen and Petri Kahila. The project took place between December 2023 and October 2024.

1.2 Data and limitations of the study

In this study, archipelago areas refer to those defined by the Finnish Environment Institute (Syke) in mainland Finland. The statistical analysis of the archipelago areas was further specified using Syke's urban-rural classification. However, a challenge was posed by the fact that some archipelago areas lie within the country's largest urban centres (e.g. Helsinki, Kotka, Kuopio, Lappeenranta, Savonlinna, Tornio and Turku). These archipelago areas within urban localities host 56 per cent of the archipelago population, despite comprising only about half a per cent of all archipelago areas. The strong concentration of population, jobs and other activities in a few major centres skews the overall statistics, reflecting the situation in a very small area. Urban localities[4] (with populations of at least 15,000) were therefore excluded from this study. By contrast, urban archipelago areas outside these urban

4 Finnish Environment Institute (Syke). YKR kaupunkiseudut [YKR Urban Regions; available in English]. https://ckan.ymparisto.fi/dataset/ykr-kaupunkiseudut

localities, such as Suomenlinna in Helsinki, Tiutinen in Kotka and Vaskiluoto in Vaasa, were included. This delineation facilitated the interpretation of statistics and enabled a more accurate depiction of the current state of the archipelago areas.

1.3 Description of data sources

Finnish Environment Institute's open spatial datasets

The spatial data analyses in this report are based on the regional classifications developed by the Finnish Environment Institute (Syke). The report also used various spatial datasets[5] describing the state of the environment. The following open spatial datasets provided by Syke were used (the year of the dataset is indicated in brackets):

- Classification of Finnish archipelago areas (2022)
- Urban-rural classification (2020)
- YKR Spatial structure (2023)
- Water bodies according to Water Framework Directive (2022)
- Other national protected areas (2024)
- National hiking areas (2024)
- Nationally valuable landscapes (VAMA) (2021)

Liiteri information service

The Finnish Environment Institute's Liiteri[6] information service, which focuses on the living environment, provides statistical data organised according to the archipelago classification. This report used the following data derived from Liiteri:

- Population data (age structure, demographic development, population by gender) (2023)
- Jobs by industry (2022)
- Commuting (2022)
- Finnish Environment Institute, the PALSA project to develop the monitoring of service accessibility (2023–2024)

5 Finnish Environment Institute's open spatial datasets [available in English] https://www.syke.fi/fi-FI/Avoin_tieto/Paikkatietoaineistot/Ladattavat_paikkatietoaineistot

6 Liiteri information service focusing on the living environment [in Finnish]: https://liiteri.ymparisto.fi/

Monitoring System of Spatial Structure and Urban Form

The Finnish Environment Institute's Monitoring System of Spatial Structure and Urban Form (YKR)[7] includes statistical data organised according to the archipelago classification. This report used the following data derived from the YKR system:

- Population data (total number) (2023)
- Households (2022)
- Second homes (2023)
- Jobs (2022)
- Labour force (2022)
- Employment (2022)
- Corine land cover (2018).

Rural area indicators

The study obtained data concerning the summer residents in various regions (2023) from the Maaseutuindikaattorit[8] (Rural area indicators) service provided by the Rural Network (Maaseutuverkosto).

ELY Centre for Southwest Finland's data on transport connections

The report used the ELY Centre for Southwest Finland's data on ferry and cable ferry transport (2021) and commuter vessel transport in the archipelago (2022–2023), as well as the report on private road cable ferries (2020) commissioned by the Island Committee.

Traficom

The report derived data on fixed broadband availability (100 Mbps and 1,000 Mbps) and mobile network availability (4G and 5G 100 Mbps) from Traficom's geographic information service[9], using 250- by 250-metre grid cells and the data of 30 September 2023.

7 Monitoring System of Spatial Structure and Urban Form (YKR) [in Finnish] https://ckan.ymparisto.fi/dataset/ykr-ruutuaineisto

8 Rural Network's Maaseutuindikaattorit service [in Finnish]: https://maaseutuverkosto.fi/maaseutuindikaattorit/

9 Traficom's geographic information service [available in English]: https://kartat-tieto.traficom.fi/

Electricity transmission companies

The coverage of the electricity distribution network in the archipelago areas was analysed in collaboration with electricity transmission companies. Of mainland Finland's 80 local electricity transmission companies, 54 operate in the archipelago areas. Sixteen of these companies responded to data requests and provided location data for the connection points of low-voltage networks in the archipelago areas. These companies' operating areas cover 87 per cent of permanently inhabited households and 85 per cent of second homes in the archipelago areas.

Interviews

Representatives of island municipalities (10), representatives of archipelago Leader groups (4), the Keep the Archipelago Tidy association and researchers from the Habitability network were interviewed for this study.

Desk research

Some of the data (e.g. municipal strategies, Leader groups' local development strategies, and the archipelago water and waste management and electricity grids) were collected through desk research or targeted data requests.

1.4 Data gaps and development needs

No comprehensive or standardised data are available on water and waste management in the archipelago; instead, the information is fragmented. Furthermore, spatial data are generally unavailable from water and waste management operators, which would allow statistical analysis of the water and waste management in the archipelago based on the archipelago classification.

A comprehensive overview of associations and organisations operating in the archipelago is also lacking, as some operate over a wider area or are registered on the mainland.

2 Archipelago operating environment

Finland's archipelago areas are diverse in both natural conditions and community structures, characterised by the dominant role of water bodies and the challenges of mobility and accessibility. According to the Finnish Environment Institute's (Syke) spatial-data-based classification, archipelago areas are divided into four categories: the outer archipelago; middle archipelago; inner archipelago; and archipelagic mainland areas. These areas account for around 15 per cent of mainland Finland's surface area, with a strong emphasis on sparsely populated rural areas.

Finland's archipelago areas include regions that differ significantly in terms of natural geographical conditions and community structures. However, they share features such as the significant presence of water bodies, fragmented land areas, and the challenges posed by water bodies to mobility and accessibility.

Syke's archipelago classification[10] underpinning this study is a statistical classification based on spatial data that divides the entire country into five categories based on the natural geographical conditions and functional characteristics of areas, with four of these categories representing actual archipelago areas. The classification distinguishes between various types of archipelago areas (the outer, middle and inner archipelago) and identifies archipelagic mainland areas, where the fragmentation caused by water bodies results in conditions similar to those in the archipelago (as described in the Archipelago Act as 'areas comparable to the archipelago in terms of conditions'[11]). The fifth category includes other water-based and mainland regions, which are not discussed in this study. The classification is based on 250- by 250-metre grid cells, which are independent of administrative boundaries and enable a more detailed classification of areas than at the municipal level. Rather than describing the characteristics of individual locations, the classification characterises broader area structures and highlights their differences at the regional level (Figure 1).

10 Finnish Environment Institute (Syke). Tietoa yhdyskuntarakenteesta [Information about community structures; in Finnish]. https://www.syke.fi/fi-FI/Tutkimus__kehittaminen/Rakennettu_ymparisto/Tietojarjestelmat_ja_aineistot/Yhdyskuntarakenne

11 Act on the Promotion of the Development of the Archipelago 1981/494 [in Finnish]: https://www.finlex.fi/fi/laki/ajantasa/1981/19810494

The **outer archipelago** is characterised by extensive open sea areas and often long distances between islands. It may also include dense archipelago areas surrounded by large bodies of water. Outer archipelago areas do not exist in lake regions. The islands in the outer archipelago are often small, and some are accessible from the mainland via archipelago transport connections.

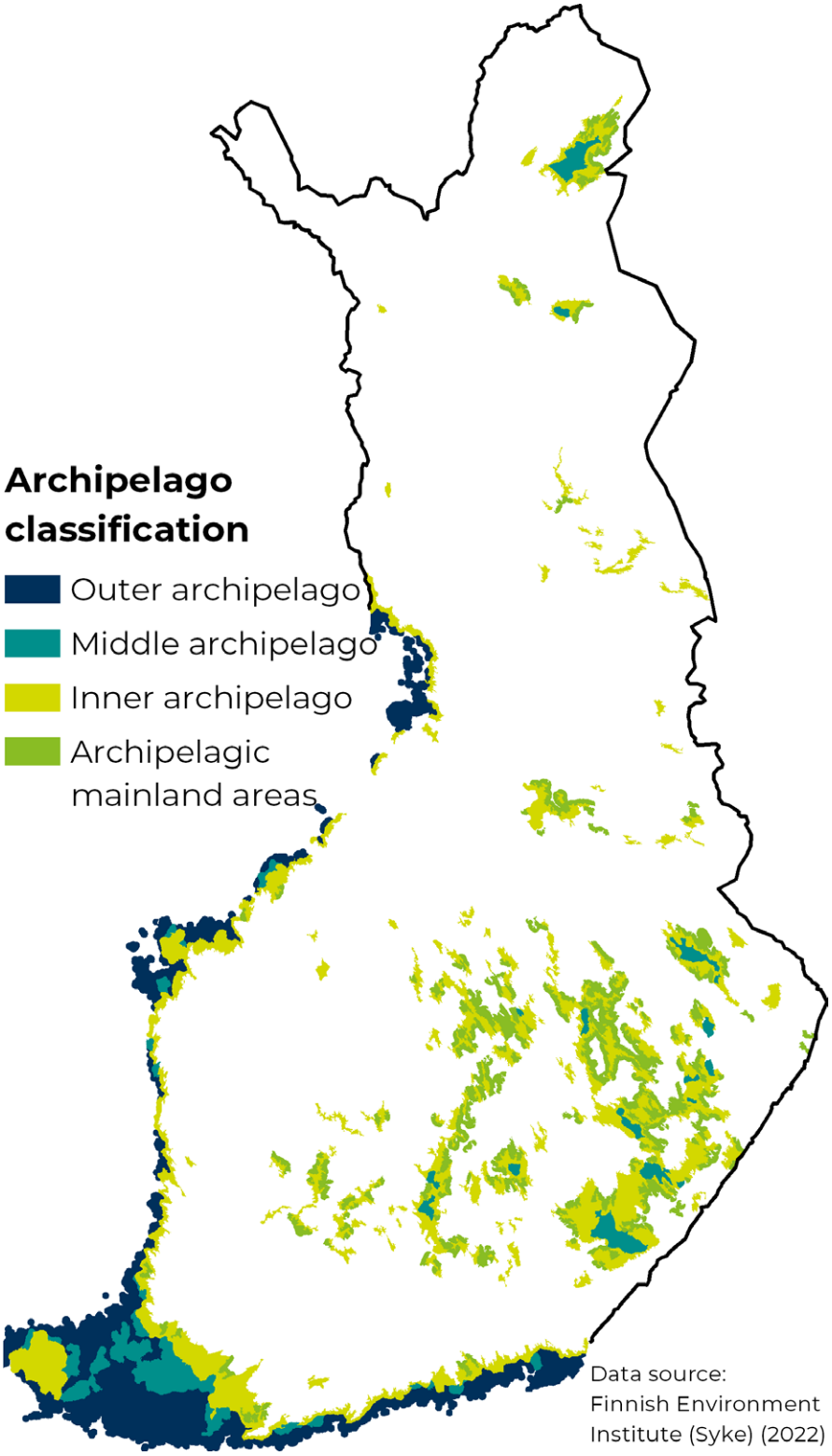
The **middle archipelago** serves as a transition zone between the inner and outer archipelagos. It is typically characterised by numerous islands with relatively short distances between them. Middle archipelago areas are extensive and relatively dense, and their nature gradually changes as one moves towards the open sea. Fixed road connections to the mainland are rare in the middle archipelago, but the most significant islands are accessible via archipelago transport connections.

The **inner archipelago** is defined by its proximity to the mainland and a higher proportion of land area than water area. It largely consists of archipelago areas with fixed road connections, which ensures good links to the mainland. The inner archipelago also includes open water areas.

Archipelagic mainland areas are mainland regions heavily fragmented by water bodies, where accessibility challenges resemble those of the archipelago. These areas are primarily found in inland lake regions but also appear as small areas along the coast, consisting of individual peninsulas or narrow fragmented coastal areas.

The archipelago areas classified under Syke's system form a continuous belt along the coast from Virolahti to Kokkola and from Hailuoto to Tornio. Smaller archipelago areas are also found off the coasts of Kalajoki and Raahe. Inland, the archipelago areas span large lake districts from Lake Lohjanjärvi to Lake Inarijärvi. The largest inland archipelago areas are found in Eastern and Central Finland, with smaller areas in Pirkanmaa, Kainuu, Koillismaa and Northern Lapland. In mainland Finland, the archipelago areas cover approximately 56,500 square kilometres, accounting for about 15 per cent of the country's total area. Nearly half (45%) the archipelago areas are classified as inner archipelago, while the middle archipelago accounts for 10 per cent, and both the outer archipelago and archipelagic mainland areas represent 22 per cent each (Figure 1, Table 1).

Figure 1. Classification of the archipelago areas based on spatial data



Another classification describing the operating environment and community structure of the archipelago areas is the urban-rural classification[12] developed by Syke. This system divides Finland into seven categories independent of municipal boundaries: three urban and four rural categories. The archipelago areas are almost entirely rural: 70 per cent are sparsely populated rural areas, 10 per cent are rural heartland areas, and 16 per cent are rural areas close to urban areas. Urban archipelago accounts for around half a per cent of all archipelago areas, and peri-urban areas make up just under four per cent (Table 1).

Table 1. Surface areas of the archipelago areas by the archipelago and urban-rural categories

Surface area		Inner urban area	Outerurban area	Peri-urban area	Local centres in rural areas	Rural areas close to urban areas	Rural heartland areas	Sparsely populated rural areas	Total
Outer archipelago	Km^2	0	0	8	0	454	32	12,106	12,600
	%	0.0	0.0	0.0	0.0	0.8	0.1	21.5	22.4
Middle archipelago	Km^2	0	0	22	0	660	515	4,507	5,705
	%	0.0	0.0	0.0	0.0	1.2	0.9	8.0	10.1
Inner archipelago	Km^2	29	170	1,688	3	5,224	3,614	14,451	25,179
	%	0.1	0.3	3.0	0.0	9.3	6.4	25.7	44.8
Archipelagic mainland areas	Km^2	0	2	375	1	2,408	1,631	8,347	12,764
	%	0.0	0.0	0.7	0.0	4.3	2.9	14.8	22.7
Total	Km^2	29	174	2,096	4	8,747	5,792	39,410	56,247
	%	0.1	0.3	3.7	0.0	15.6	10.3	70.1	100.0

Data sources: archipelago classification: Syke (2022); urban-rural classification: Syke (2020).

12 Finnish Environment Institute (Syke). Kaupunki-maaseutuluokitus [Urban-rural classification; in Finnish]. https://www.ymparisto.fi/fi/rakennettu-ymparisto/kaupunkiseudut-ja-kaupungistuminen/kaupunki-maaseutuluokitus

3 Archipelago population

At the end of 2023, a total of 131,800 people resided permanently in Finland's archipelago areas, accounting for 2.4 per cent of mainland Finland's population. This figure excludes so-called urban archipelago areas, i.e. urban localities with more than 15,000 inhabitants. More than half the archipelago population lived in the archipelagic mainland areas, and the majority lived in rural areas, while only one per cent lived in the outer archipelago. Over recent decades, the archipelago population has declined significantly and aged. The pension-aged population has increased in all Finnish archipelago areas. Although permanent residence is decreasing in the archipelago, the number of second homes increased by ten per cent between 2005 and 2023. Second homes account for a significant share of the archipelago's housing stock.

3.1 Permanent residence

As of the end of 2023, 131,800 people lived permanently in the archipelago areas, representing 2.4 per cent of mainland Finland's population. This figure excludes so-called urban archipelago areas, i.e. urban localities with more than 15,000 inhabitants. Of the archipelago population, 52 per cent lived in the archipelagic mainland areas, 43 per cent in the inner archipelago, four per cent in the middle archipelago, and one per cent in the outer archipelago. Seventy-six per cent lived in rural areas, 26 per cent in peri-urban areas, and slightly more than one per cent in urban areas. Archipelago residents were present in every mainland Finland region and in 158 municipalities, which is slightly more than half of all municipalities (Table 2).

When the distribution of the archipelago population is examined by water-based regions and the archipelago categories, a clear division emerges between coastal and lake archipelago areas. Along the coast, the population resides predominantly in 'actual' archipelago areas, whereas in inland regions, the majority live in archipelagic mainland areas (Figure 2). In 2023, 41 per cent of the archipelago population lived in coastal areas, while 59 per cent resided inland. Coastal and marine areas were home to 91 per cent of middle archipelago residents, 75 per cent of inner archipelago residents and all outer archipelago residents. In contrast, 92 per cent of archipelagic mainland area residents lived in inland Finland.

Of the coastal archipelago population, 79 per cent lived in inner archipelago areas. Only in the Uusikaupunki region were archipelagic mainland residents the majority, while in the Oulu region, the outer archipelago population of Hailuoto formed a clear majority. Notably, Hailuoto's more than 900 residents accounted for 83 per cent of all outer archipelago residents. Among the middle archipelago residents in mainland Finland, two in three lived in the Archipelago Sea area. Middle archipelago residents also lived along the Ostrobothnian coast, in the eastern and western Gulf of Finland, and in the Uusikaupunki region (Figure 2).

Table 2. Permanent population in the archipelago areas by the archipelago and urban-rural categories in 2023

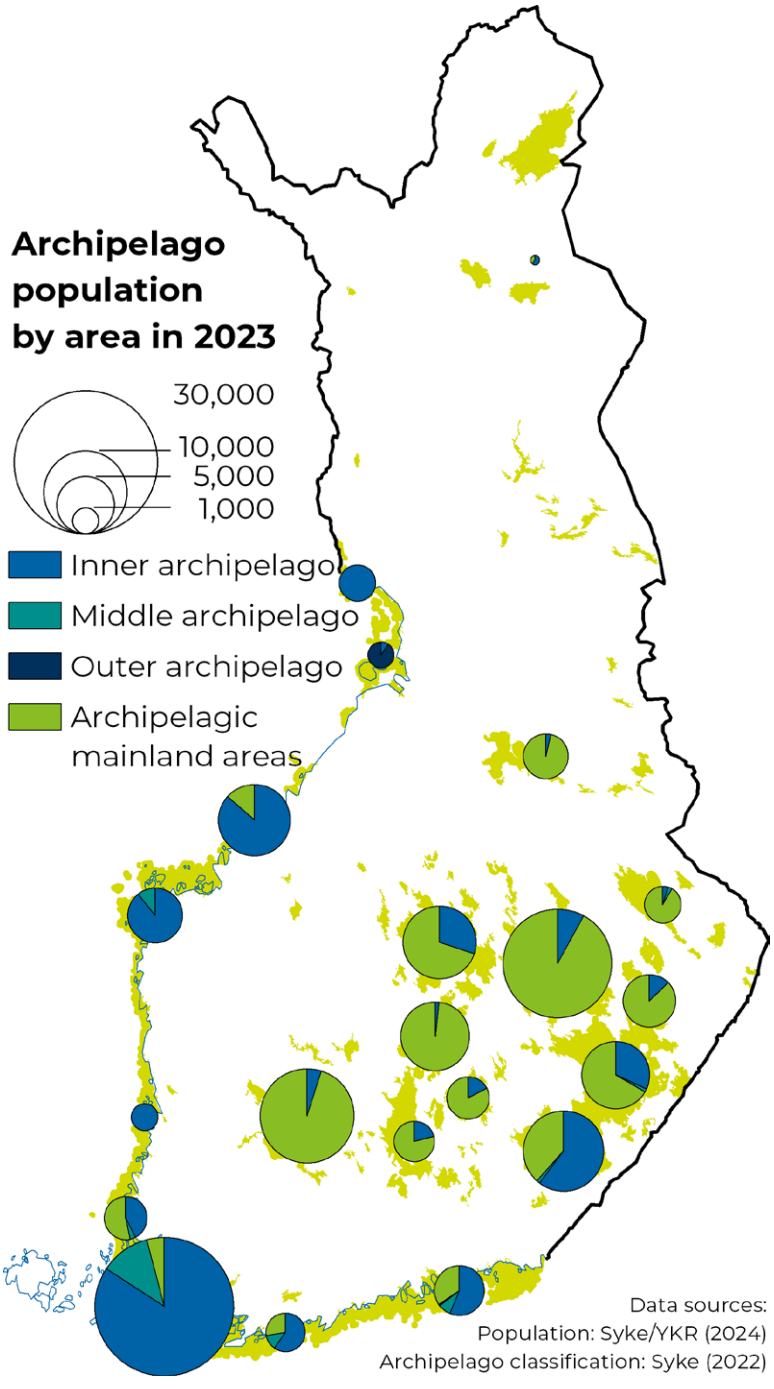
Population in 2023		Inner urban area	Outer urban area	Peri-urban area	Local centres in rural areas	Rural areas close to urban areas	Rural heart-land areas	Sparsely populated rural areas	Total
Outer archipelago	Number	0	0	0	0	3	0	1,120	1,123
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.9
Middle archipelago	Number	0	0	0	0	705	1,946	2,367	5,018
	%	0.0	0.0	0.0	0.0	0.5	1.5	1.8	3.8
Inner archipelago	Number	231	1,302	26,158	22	11,527	12,208	5,870	57,318
	%	0.2	1.0	19.9	0.0	8.7	9.3	4.5	43.5
Archipelagic mainland areas	Number	0	17	8,052	105	24,454	14,119	21,561	68,308
	%	0.0	0.0	6.1	0.1	18.6	10.7	16.4	51.8
Total	Number	231	1,319	34,210	127	36,689	28,273	30,918	131,767
	%	0.2	1.0	26.0	0.1	27.8	21.5	23.5	100.0

Data sources: population: Syke/YKR datasets (2024); archipelago classification: Syke (2022); urban-rural classification: Syke (2020).

Of the inland archipelago population, 81 per cent lived in the archipelagic mainland areas, and 19 per cent in the inner archipelago areas. Only in the Saimaa region and Lapland were inner archipelago residents the majority, although the archipelago population in Lapland was very small. Furthermore, in East Savo and northern Central Finland, inner archipelago residents comprised around 30 per cent of the

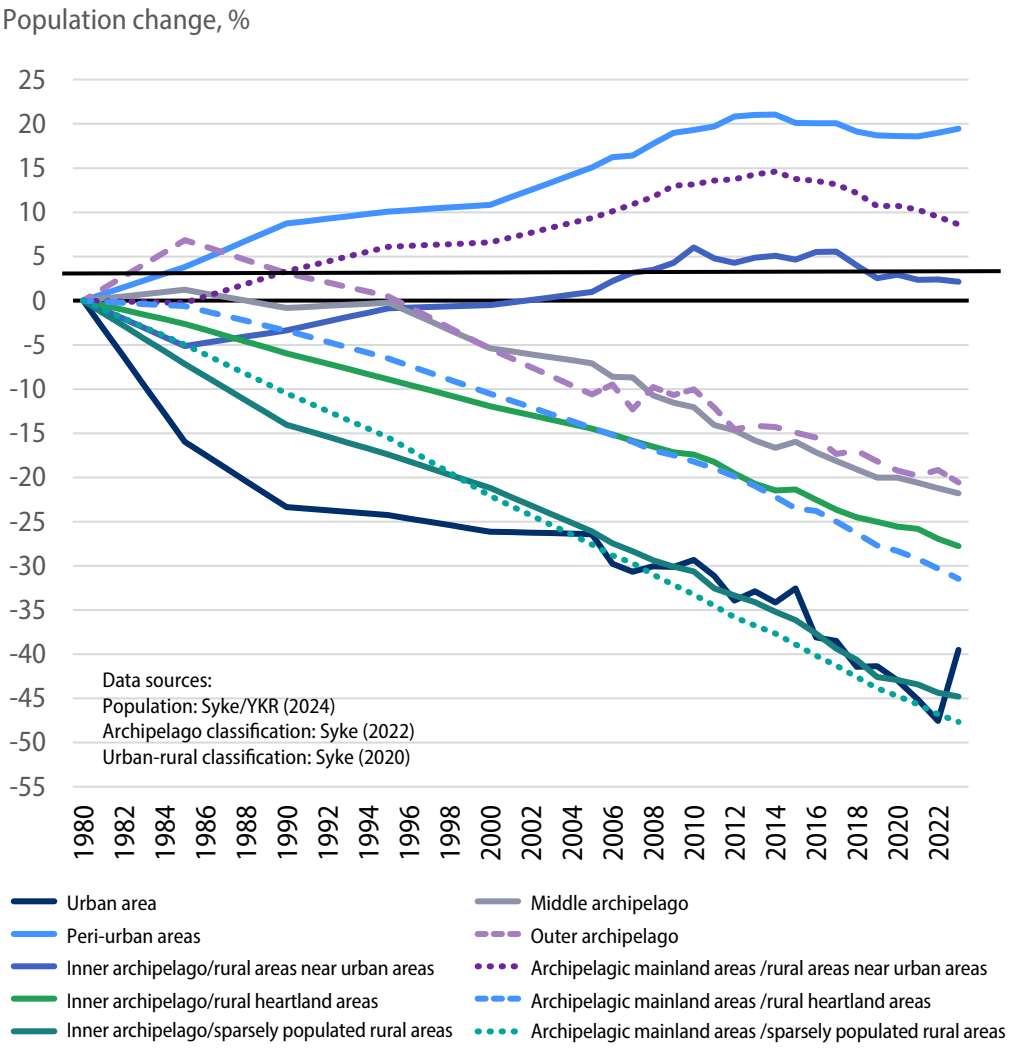
population. Approximately 0.5 per cent of the inland archipelago population, or 450 residents, lived in the middle archipelago, with over half of them residing in Saimaa and East Savo (Figure 2).

Figure 2. Number and location of the archipelago population by the water-based regions and archipelago categories in 2023.



The number of people permanently residing in the archipelago areas continues to decline. In 1980, the archipelago population was 162,300, but by the end of 2023, it had decreased to 131,800, a loss of nearly 30,500 people (-19%). Over the 43-year period, the population has declined every year. This decline accelerated in the early 2010s and has remained high since. During the 2010s and 2020s, the number of archipelago residents has decreased by approximately 1,000 annually, with a peak decline of nearly 2,000 in some years. However, the population change in the archipelago has been polarised. Urban archipelago areas have experienced population decreases, while populations in archipelago areas near cities have grown. Population loss intensifies the further one moves from cities, particularly in Finnish Lakeland. In contrast, population decline has been less pronounced in the middle and outer archipelago than in other rural areas (Figure 3).

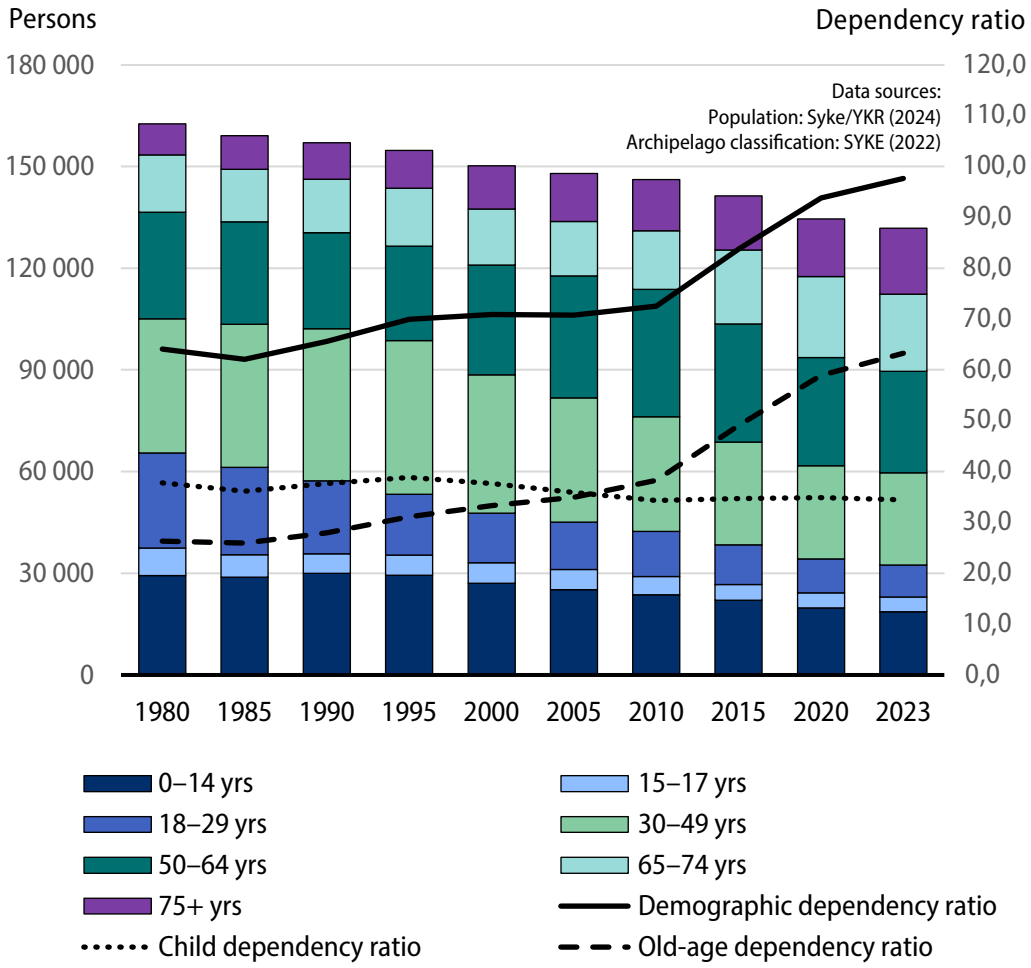
Figure 3. Relative change of the permanent population in the archipelago areas by the archipelago and urban-rural categories between 1980 and 2023.



The archipelago population is not only shrinking but also ageing. The oldest age groups are the only ones growing, while the number of working-age adults and children continues to decline. Between 1980 and 2023, the number of residents aged 65 and older increased by 16,000, representing growth of 62 per cent. Notably, the number of residents aged 75 and older more than doubled during this period, increasing by more than 10,000. Conversely, the working-age population has seen significant decreases: the number of residents aged 18–29 decreased by 18,600 (-66%), those aged 30–49 declined by 12,300 (-31%), and those aged 50–64 decreased by 1,500 (-5%). In total, the working-age archipelago population was 32,400 fewer (-33%) in 2023 than in 1980. Similarly, the number of children under 18 decreased by 14,500 (-39%). The most significant relative decreases have occurred among children, young people and adults in their twenties (Figure 4).

The pension-aged population has increased in all Finnish archipelago areas. In contrast, the number of children and working-age residents has decreased nationwide, with the exception of Pirkanmaa and particularly the Jakobstad and Kokkola region, where their numbers have grown significantly. These areas are home to the youngest archipelago populations. The oldest populations reside in the archipelago areas of Eastern and Northern Finland, which have also experienced the largest declines in children, young people and working-age adults.

Figure 4. Development of the age structure and dependency ratio in the archipelago's permanent population between 1980 and 2023.



3.2 Seasonal residence

The development of archipelago areas is more multifaceted than the statistics based solely on the locations of permanent housing suggest. The population residing in these areas fluctuates significantly, depending on the season and

day of the week. While the exact number of leisure-time residents is difficult to determine[13], the actual number of people present in the archipelago – particularly during the summer and weekends – is considerably higher than the permanent resident statistics indicate. The results of the Free-Time Residence Barometer 2021 survey demonstrate the growing significance of leisure-time residence and suggest that this trend is likely to continue in the near future.

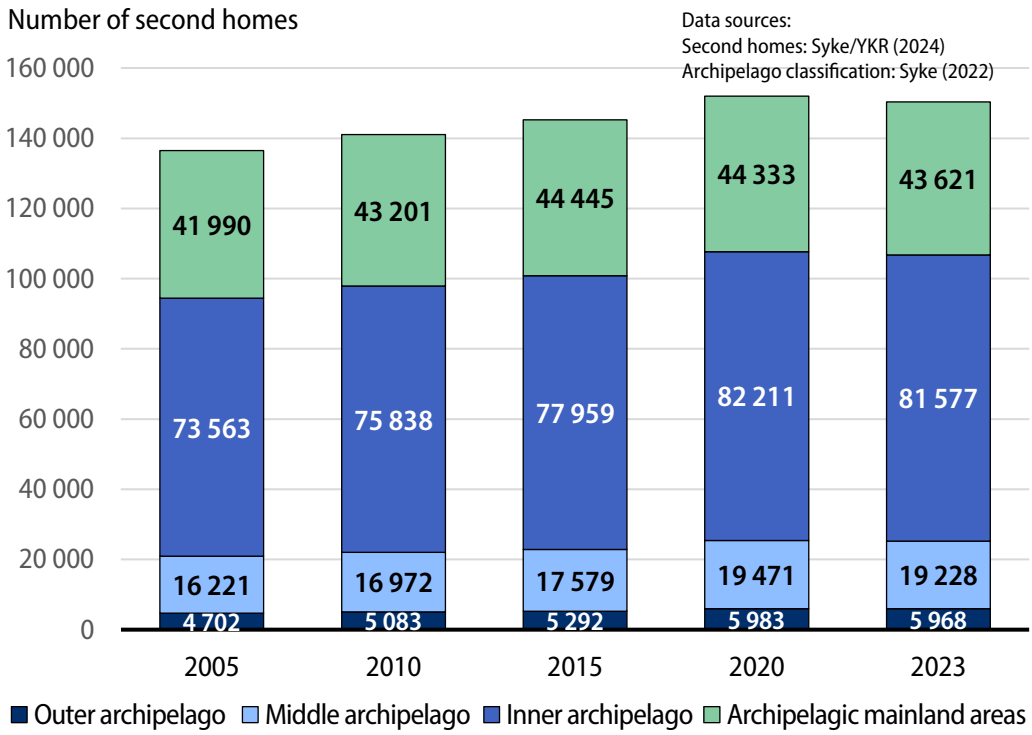
Proximity to water is a central aspect of Finnish leisure-time residence. More than 90 per cent of respondents to the Free-Time Residence Barometer 2021 survey reported that their second home was located on the shore, on an island or near a body of water. The archipelago areas are thus clearly characterised by second home living. At the end of 2023, 150,000 second homes[14] were found in mainland Finland's archipelago areas. This represented 30 per cent of all second homes in Finland, despite covering only 14 per cent of the country's total area and being home to slightly more than two per cent of its population. Municipalities with abundant water and archipelago landscapes, including Kuopio, Mikkeli, Pargas, Savonlinna, Hämeenlinna and Lohja, are prominently featured at the top of the second home statistics.

Between 2005 and 2023, the number of second homes in the archipelago areas grew by a total of 14,000, or ten per cent (Figure 5). A small decrease in 2023 was due to changes in statistical methods. Not only has the number of second homes increased, but they have also become better equipped. In 2023, 22.5 per cent of second homes in the archipelago areas were suitable for year-round use. As a result, the time spent at second homes has increased, with many being used more frequently for remote work.

13 According to Statistics Finland's rural area indicators, the average household size of second homeowners in mainland Finland was 1.8 persons in 2022. The Free-Time Residence Barometer 2021 survey reported that the average number of individuals who regularly used a second home (regardless of frequency) was 4.7, with a median of 4.

14 Definition of a second home according to Syke's YKR (community structure monitoring) system: a second home is a permanent secondary residence or a residential building used as a holiday or leisure-time property. This definition excludes holiday cottages serving business purposes, buildings in holiday villages and allotment garden cottages.

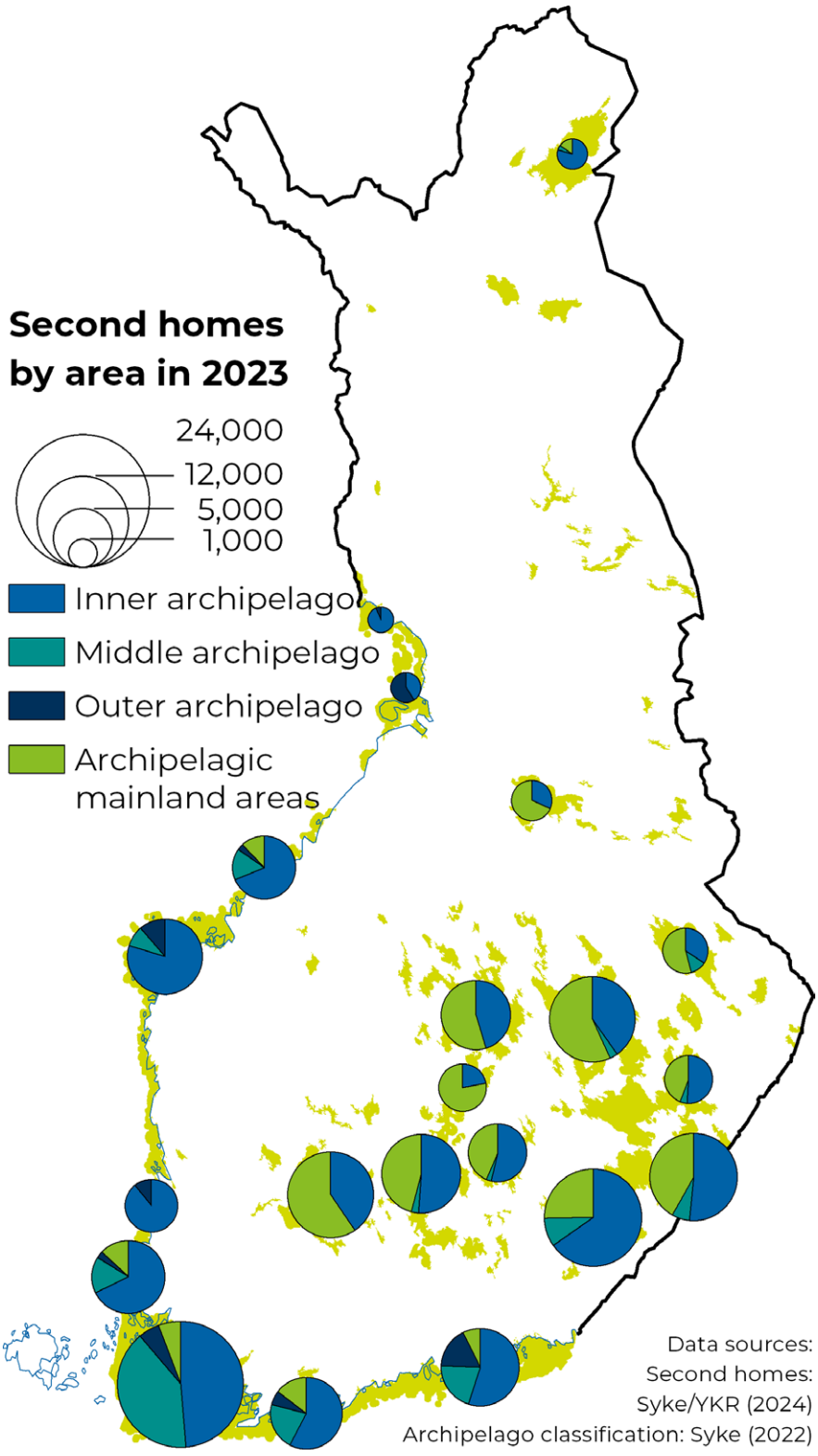
Figure 5. Number of second homes in the archipelago areas between 2005 and 2023.



In 2023, 54 per cent of second homes in the archipelago areas were in the inner archipelago, 29 per cent in the archipelagic mainland areas, 13 per cent in the middle archipelago, and four per cent in the outer archipelago (Figure 5). The significance of water proximity in the location of second homes is also highlighted across the different archipelago categories. In the outer, middle and inner archipelagos, the proportion of second homes relative to total housing was significantly higher than that of permanent housing (see Table 2). Conversely, the proportion of second homes in the archipelagic mainland areas was notably smaller.

The region with the greatest number of second homes is the Archipelago Sea, which in 2023 had 35,400 second homes, representing 16 per cent of all second homes in mainland Finland's archipelago areas. Almost as many second homes were located in the Saimaa region, with 19,400 in southern Saimaa, and 15,000 in the Savonlinna region. Other significant and nearly equally sized areas for leisure-time residence include North Savo, the Päijänne region, Pirkanmaa, the eastern and western Gulf of Finland, the Uusikaupunki region and the Ostrobothnian coast (Figure 6).

Figure 6. Number and location of secondary residences in the archipelago areas by the water-based regions and archipelago categories in 2023



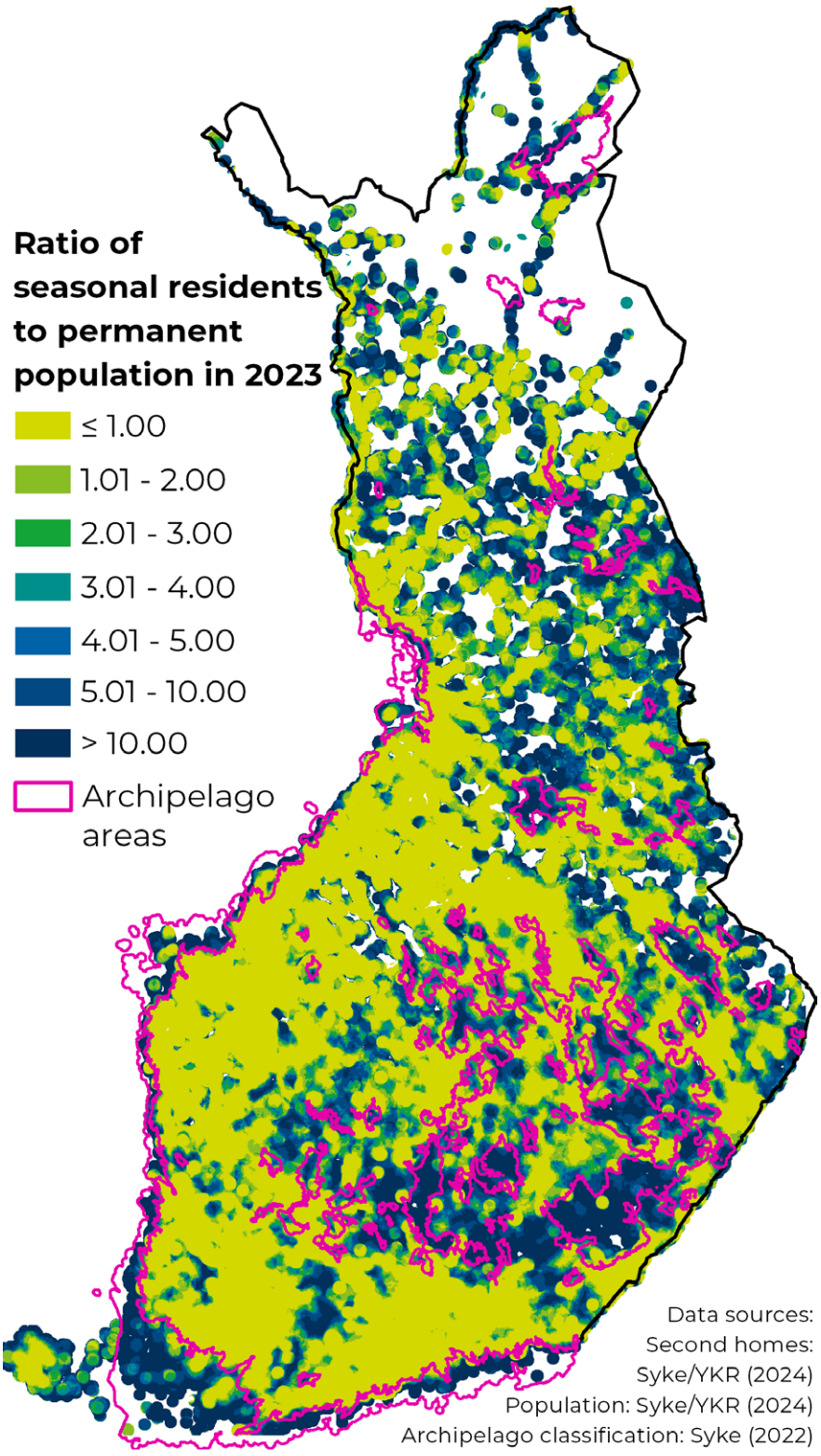
In 2022, 68 per cent of all private second homeowners in mainland Finland were out-of-towners, meaning their second home municipality was not their municipality of residence. In Kustavi, 94 per cent of second homeowners were out-of-towners, while in Kuopio, Finland's municipality with the most second homes, nearly two in three owners had Kuopio as their municipality of residence. Municipalities with the largest number of second homes have expanded significantly through municipal mergers, leading to situations in which owners of second homes far away from the municipality's centre are considered residents of the municipality if their municipality of residence is the same as the municipality of their second home. In contrast, municipalities with the highest relative number of second homes are small in population. In them, the number of seasonal residents is many times greater than that of permanent residents, and 90 per cent of seasonal residents are out-of-towners. A comparison of the ratio of seasonal residents with the permanent population suggests that archipelago areas are overwhelmingly the most popular regions for second homes.

Table 3. Statistics on second homes and seasonal residents in the four municipalities with the highest absolute number of second homes and the four with the highest relative number in mainland Finland in 2022

Municipality	Second homes total	Second homes per 1,000 residents	Proportion of second homes owned by out-of-towners, %*	Out-of-town seasonal residents**	Ratio of seasonal residents to permanent population, %	Proportion of out-of-towners among seasonal residents, %
Mainland Finland	502,062	90.7	68.0	509,954	9.2	69.0
Kuopio	10,496	85.6	36.5	5,680	4.6	37.6
Mikkeli	10,222	196.7	64.3	10,557	20.3	66.6
Parainen	9,695	646.7	79.0	10,216	68.2	81.3
Savonlinna	8,786	273.8	55.8	6,939	21.6	60.3
Kustavi	3,282	3,454.7	93.8	4,101	431.7	95.1
Puumala	4,023	1,909.4	86.1	5,186	246.1	89.4
Kuhmoinen	3,165	1,493.6	90.4	4,462	210.6	91.3
Hirvensalmi	2,964	1,417.5	89.3	4,329	207.0	90.9

*The proportion of second homes owned by out-of-towners among those second homes whose owners' municipality of residence is known. **Seasonal residents refer to the household sizes of second homeowners. Source: Rural Network, rural area indicators.

Figure 7. Number of seasonal residents (= number of second homes x 4) in relation to the number of the permanent population in 2023



CALCULATING THE TOTAL POPULATION OF THE ARCHIPELAGO: THE HABITABILITY TOOL

The habitability tool is specifically developed for analysing and developing small archipelago communities. The habitability of an archipelago community means that residents have access to jobs, housing, schools, ferry connections and a sense of community – everything a sustainable society needs to take care of its people, natural environment, and surrounding marine or water areas. One component of the habitability tool involves calculating population pressure.

The population of the archipelago exhibits significant seasonal variation, which affects both the use of infrastructure and the need for services. As population statistics are based on the number of permanent residents and estimates of seasonal residents derived from second home data, it has become necessary to develop alternative methods for calculating the total population of the archipelago.

In the habitability tool, the total population of the archipelago is defined as the number of individuals spending time in a specific area during a specific period. The total population calculation enables the determination of the area's annual population pressure. The formula[15] for calculating the total population is as follows:

Population category	Number of individuals	Persondays
Year-round residents	A	A x 365
Part-time residents	B	B x days per yea
Visitors	C	C x days per yea
Total		

15 Pleijel, C., Lundberg, C., and Prost, P. (2022). Asuttavuuden käsikirja. Saaristoyhteisöjen elinkelpoisuuden arviointityökalu [The Habitability Handbook. An assessment tool for viable island communities; available in English]. Archipelago Institute at Åbo Akademi University. https://www.abo.fi/fi/centret-for-livslangt-larande/siaa-bobarhet/habitability-handbook/

The number of permanent residents used in the calculation is obtained from official statistics. In contrast, the number of seasonal residents is gathered for each island using the habitability tool. Local data collection provides information about the number of second homes, other buildings used as a secondary residence, the number of people using them and the time they spend in them. The number of visitors is based on data such as ferry and cable ferry passenger numbers, overnight stays at guest marinas, and mobile data.

For example, Pellinki Island in the Porvoo archipelago has 247 permanent residents (equivalent to 90,155 person-days annually). Local data collection revealed that second homes are used by an average of 2.9 people, and that each second home is occupied for approximately 116 days per year. Accordingly, leisure-time residents spend 247,544 person-days annually on the island. Based on transport and mobile data, it was estimated that Pellinki has visitors equalling 38,047 person-days each year. This results in a total of 375,746 person-days on Pellinki per year. When converted to annual population pressure (person-days divided by 365), this equals 1,029 people, which is three times the number of permanent residents.

The population pressure calculations and results from the habitability tool can be used to appropriately scale infrastructure and services such as evacuation and rescue planning.

4 Infrastructure, connections and mobility in the archipelago

The accessibility of archipelago areas relies on well-functioning transport connections. Ferries, cable ferries and commuter vessels are essential modes of transport in the archipelago and water-based regions, facilitating the movement of both permanent residents and visitors. Commuter vessel services are free for all passengers, and road ferries are part of the public highway network.

The archipelago's infrastructure includes electricity, telephone and telecommunications networks, as well as water and waste management, but their availability and coverage vary greatly by region. The electricity network covers nearly all permanently inhabited households in the archipelago, but a significant share of second homes, particularly in the outer archipelago, is still without grid electricity. Infrastructure development has improved the living conditions and attractiveness of the archipelago areas.

In Finland, mobile networks cover nearly the entire country, but access to fixed broadband and high-speed mobile connections varies, especially in sparsely populated and archipelago areas. In 2024, 4G network coverage reached 99.9 per cent of households and 94 per cent of the land area. High-speed 4G network coverage extended to 96 per cent of households but only 26 per cent of the land area.

Water management is often based on local water cooperatives or municipal networks, but in many parts of the archipelago, wastewater management is property-specific. Waste management poses logistical challenges due to the fragmented and seasonal nature of the archipelago, and collection systems vary by region and often cover only the more densely populated islands.

4.1 Archipelago commuter vessels, ferries and cable ferries

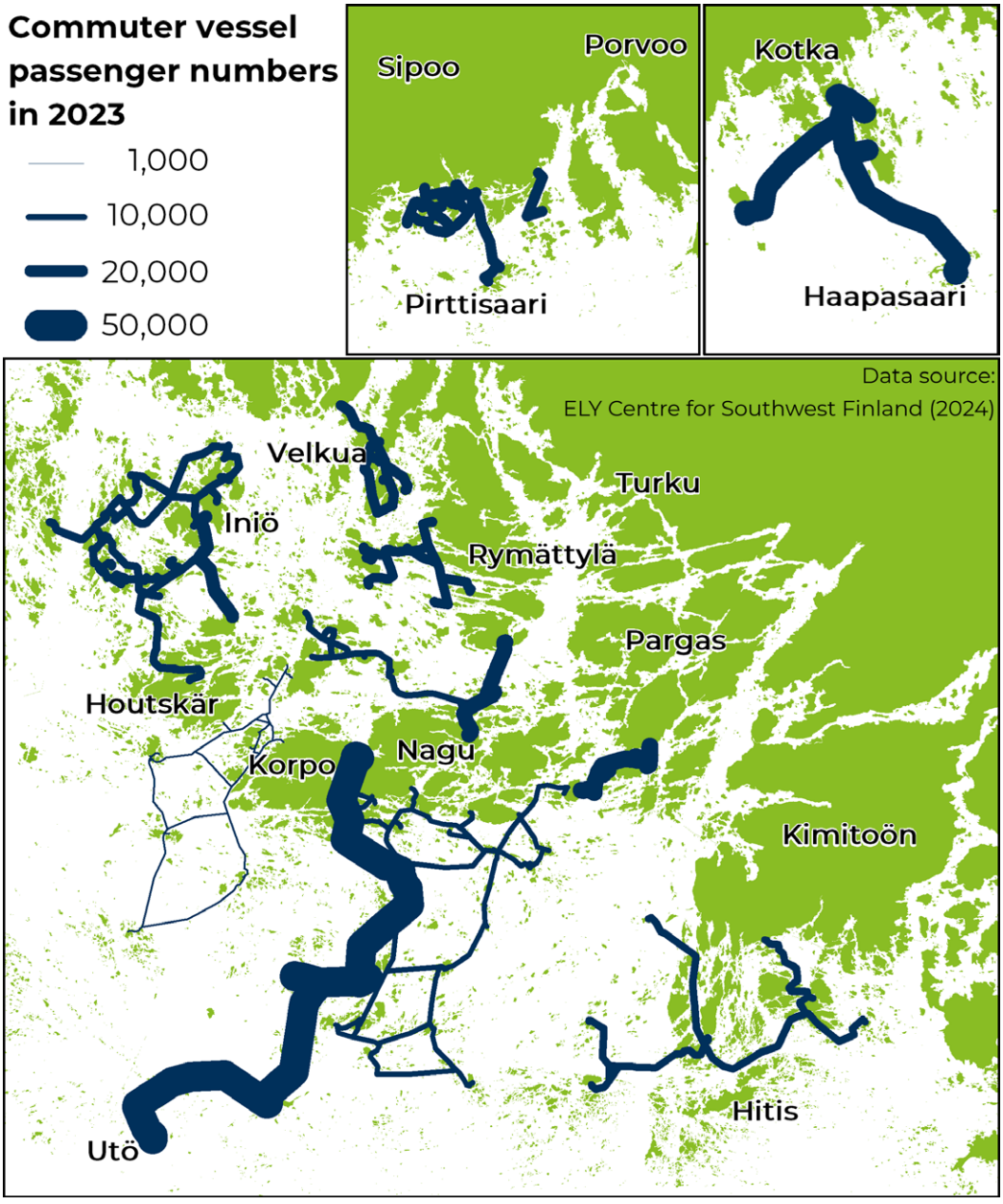
Accessibility is a fundamental requirement for the vitality of any region, and efficient transport connections are the cornerstone of physical accessibility. The maintenance of transport connections in archipelago and water-based regions

depends on ferry, cable ferry and commuter vessel services. Road ferries on highways and private roads are part of the highway network, as roads continue on both sides of ferry landing sites. In contrast, commuter vessels primarily serve islands without road access, and the road ends at the vessel's departure point. The ferry service to Suomenlinna is part of the public transport system in the Helsinki Metropolitan Area.

The ELY Centre for Southwest Finland is responsible for organising road ferry and commuter vessel services, as well as maintaining piers and ferry terminals across the country. The provision of road ferry services is a statutory obligation (under the Act on the Transport System and Highways), but the organisation of commuter vessel services is not as strictly mandated. The Archipelago Act is the only law governing commuter vessel transport, stating that central government must strive to ensure the provision of transport services for the archipelago's permanent residents. In the absence of more specific criteria, the ELY Centre for Southwest Finland currently organises commuter vessel routes only to islands with registered permanent residents. However, there are several permanently inhabited islands outside the commuter vessel services where residents are entirely responsible for their own transport.

The ELY Centre for Southwest Finland operates ten connection vessel routes in the Archipelago Sea and two routes in the Gulf of Finland (Figure 8). The ELY Centre also supports transport services in the Ingå and Raseborg archipelagos, as well as along the Archipelago Trails. Supported commuter vessel services are provided in areas where regular commuter vessel transport is unavailable. Commuter vessels operate to a total of approximately 150 islands. Cargo and heavy transport are managed by commuter vessels based on their load capacity and available space, with larger cargo transported by heavy transport vessels. Commuter vessel services have been free for permanent residents of the outer archipelago since 1975, and they have been free for all passengers since 2009. Supported routes are subject to charges for all but permanent archipelago residents.

Figure 8. Commuter vessel routes and passenger numbers in 2023.



In 2023, a total of 261,000 passengers used the commuter vessel services, of which 48,000 travelled on the tourism routes of the Archipelago Trail and the Small Archipelago Trail. Passenger numbers vary greatly across different routes. The most popular routes in 2023 were the Utö (49,000 passengers), Kotka–Pyhtää (36,500) and Pargas (27,700) routes. The least used routes were the Korppoo (3,000

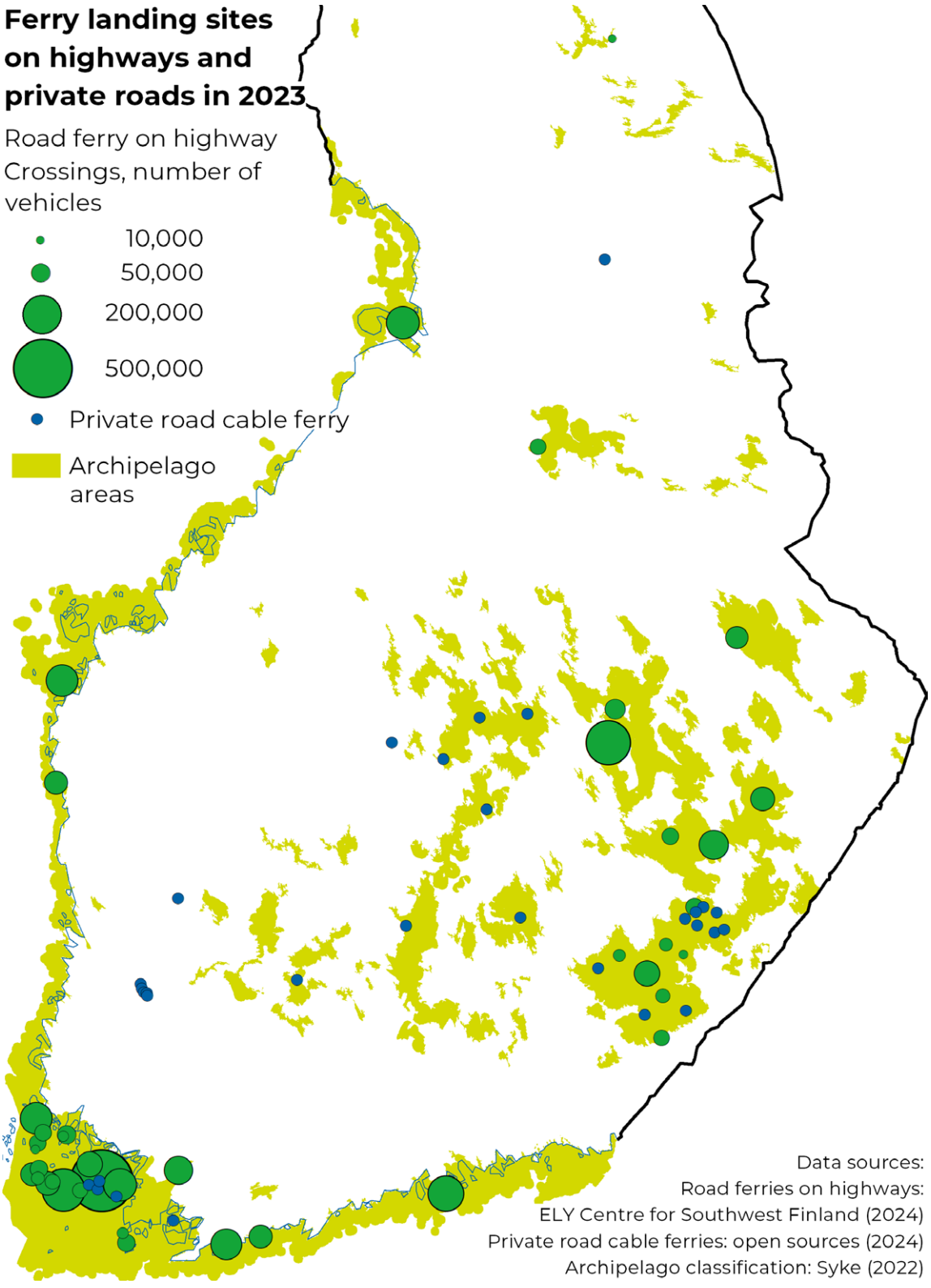
passengers) and southern and transverse Nauvo routes (8,000 passengers). Other routes carried between 12,000 and 18,000 passengers. The share of permanent residents among passengers has decreased, while that of summer residents and tourists has increased. Overall, traffic volumes in commuter vessel services have remained stable in recent years (Figure 8).

There are 40 ferry landing sites on mainland Finland's highways, primarily located in the Archipelago Sea (19 sites) and the inland lake regions of Eastern Finland (13 sites) (Figure 9). Road ferries are part of the highway network and are free for all users. The number of ferry landing sites on public roads has decreased significantly due to bridge construction. At the beginning of 1980, public roads included 98 road ferries, but by the start of 2024, only 40 remained. Bridges were constructed actively between the early 1980s and mid-2000s, during which time 69 old ferry landing sites were replaced with bridges. Fifteen new road ferry connections were opened during this period, one of which was later replaced by a bridge. In the 2010s, only three ferry routes were replaced by bridges.

The number of passengers using road ferries on highways varies significantly. By far the busiest ferry is the Pargas–Nauvo ferry, which transported 566,000 vehicles in 2023. The next busiest, the Puutossalmi (Kuopio) and Nauvo–Korppoo ferries, served approximately 280,000 vehicles each. The majority of ferry landing sites have significantly lower volumes, typically only a few tens of thousands of vehicles (Figure 9). Increased passenger numbers and the limited capacity of road ferries cause congestion on the most popular routes during peak seasons. In recent years, congestion has been reduced by introducing several new ferries with a greater capacity and by improving traffic arrangements at ferry terminals. The modernisation of ferry fleets has also improved the energy efficiency and environmental friendliness of road ferries, as most new vessels are electrically powered hybrid ferries.

In addition to highways, ferries also operate on private roads. Of the 30 ferry landing sites on private roads, most are located on inland waters. Private road cable ferries are more evenly distributed across the country than road ferries on highways, and some are located outside archipelago areas (Figure 9). Road maintenance associations are responsible for the operation of private road cable ferries, for which they may receive central and local government grants. A fee may be charged for using private road cable ferries, and their level of service varies widely. The busiest cable ferries are equal to road ferries in terms of equipment and schedules. Around half of private road cable ferries serve very small user groups and operate on a self-service basis. Among them, there is even a manually operated cable ferry across the Iijoki River in Pudasjärvi.

Figure 9. Road ferry passenger numbers and private road cable ferries in 2023.



THE JÄNKÄSALO CABLE FERRY

In 2005, a private road cable ferry was introduced to the island of Suur-Jänkäsalo, marking a significant change in the lives of its residents. Before the ferry was built, connections to the mainland were made by boat.

In 2000, the island had only five permanent residents, but by 2023, the population had grown to sixteen. At the same time, the number of households increased from two in 2000 to eleven in 2022. The cable ferry also made it easier for leisure-time residents to access the island, extending their stays.

The improved connection has also had a positive impact on commuting to work. Lappeenranta is about a 40-minute drive from the ferry terminal, making regular commuting from the island to the mainland possible. This has made Jänkäsalo an even more attractive place for permanent residence.

Local residents played a significant role in securing the cable ferry. Gaining the support of forest owners was particularly important for the project's realisation, as improved logistics reduced harvesting costs and increased the value of forest land.

The ferry has also been important for fostering a sense of community on the island. Previously, everyone travelled by boat to their own pier, and natural encounters with other islanders were rare. The ferry terminal has become an important meeting place where island residents can interact in their daily lives. The ferry terminal area also features a summer kiosk, a village library and a volunteer fire department.

Financially, the cable ferry project was made possible because central government covers 80 per cent of the costs as part of private road grants, local government contributes 10 per cent, and the remaining 10 per cent is funded by the island residents and forest owners.

4.2 Electricity networks

Nearly all of Finland is electrified. The electrification of the country began in the south in the early 20th century, and by the end of the 1930s, half of rural households were already connected to the electrical grid. The most significant progress in electrification occurred during the 1950s and 1960s. By the mid-1970s, there were only 35,000 households without electricity in Finland, primarily in the rural areas of Eastern and Northern Finland and Häme, where sparse populations and challenging natural conditions slowed the work. Inland lake regions, particularly in Eastern Finland, experienced slow grid expansion overall. In mainland Finland, the final villages in Lapland were connected to the national grid in the 1980s. The most remote outer islands received electricity in the mid-1990s when marine cables connected Haapasaari in Kotka, and Jurmo and Utö in Pargas, to the electricity grid. At this point, all permanently inhabited areas in Finland had access to grid electricity. However, not every island with second homes has been electrified. The smaller and more remote the island – whether in the sea or on lakes – the higher the proportion of second homes still relying on generators, solar panels, gas or other alternative energy sources.

In mainland Finland, 80 local electricity transmission companies are responsible for transmitting electricity through medium- and low-voltage networks to end users. In the archipelago, there are 54 such electricity transmission companies, most of which are small. The five largest distribution companies cover 74.5 per cent of all permanently inhabited households and 67 per cent of all second homes in archipelago areas. Among the 16 companies that responded to our data requests, their coverage areas include 87 per cent of permanently inhabited households and 85 per cent of second homes in archipelago areas. These data provide a comprehensive view of the distribution network coverage in the archipelago. It is important to note that due to limitations in the accuracy of location data, it is impossible to determine precisely how many households and second homes are actively connected to grid electricity – only how many this is available to.

In spring 2024, nearly all (99.9%) permanently inhabited households in archipelago areas had access to grid electricity, which matches historical trends. The analysis covered a total of approximately 55,600 households, of which around 70 were outside the electricity grid. In the archipelagic mainland areas, virtually all households are connected to the grid, as are nearly all in the inner and middle archipelagos. Only in the outer archipelago is electricity availability slightly less, but it remains very high overall. In contrast, a larger proportion of second homes remain outside the electricity grid, as grid electricity was available to 86 per cent of second homes. In the archipelagic mainland areas, nearly all second homes have

access to the electricity grid. In the inner and middle archipelagos, grid electricity is available to approximately 80 per cent of second homes. In the outer archipelago, however, only slightly more than half of second homes are within the electricity grid (Table 4).

Table 4. Households and second homes covered by the electricity distribution network, including their share of all households and second homes, by archipelago category in the spring of 2024.

	Household (2022)		Second homes (2023)	
	Number	Proportion, %	Number	Proportion, %
Outer archipelago	589	98.2	2,876	57.3
Middle archipelago	2,456	99.6	13,840	79.5
Inner archipelago	22,158	99.8	54,906	81.5
Archipelagic mainland areas	30,361	100.0	37,356	99.4
Total	55,564	99.9	108,978	85.6

Data sources: electricity network, electricity transmission companies, households: Syke/YKR (2024); second homes: Syke/YKR (2024); archipelago classification: Syke (2022).

4.3 Telecommunications networks

Telecommunications networks are a fundamental requirement for the functioning of a modern society. Telephone and internet connections can be provided either through fixed connections or mobile networks. Finland transitioned to mobile phone use very quickly, and by the late 1990s, the number of mobile phone subscriptions had surpassed landline connections. In 2023, only a few tens of thousands of landline connections were left in Finland, compared with over nine million mobile subscriptions. In Finland, data transmission also primarily occurs via mobile connections. The availability of fixed connections with a maximum download speed of at least 100 Mbps is lower in Finland (73%) than in the other Nordic countries (more than 90%). The availability of fibre-optic connections is the weakest in Finland (52%) among the Nordic and Baltic countries. However, mobile broadband use is higher in Finland than in the rest of the Nordic and Baltic regions. Fixed internet connections are primarily available in cities and localities, while they are rare in rural areas.

Mobile networks cover nearly all of Finland and reach almost every resident. The GSM mobile network (2G) covers practically the entire country, and 4G network coverage is continuously expanding, starting from densely populated areas. In 2024, basic 4G coverage reached 99.9 per cent of Finnish households and 94 per cent of the land area. High-speed 4G network coverage extended to 96 per cent of households but only 26 per cent of the land area. With the adoption of newer technologies, telecommunications operators DNA, Elisa and Telia are gradually phasing out their 3G networks during 2023 and 2024. Newer mobile technologies (4G and 5G) are more efficient, environmentally friendly and secure than older network technologies. The operators are also required to maintain 2G networks until the end of 2029. The shutdown of 3G networks particularly affects customers who rely on devices operating exclusively on 2G or 3G networks. Once 3G networks are shut down, these devices will switch to 2G networks, which have significantly lower data capacity, resulting in slower data connections for users.

While mobile networks cover almost all of Finland, the quality of telephone and internet connections depends on mobile network signal strength. This affects both call reliability and internet data transfer speeds. Varying signal strengths and gaps in network coverage are inherent structural features of mobile networks and depend on the user's location. As a rule, the signal between a base station and a device is strong near the base station but weakens with increasing distance. Signal strength is also affected by obstacles such as buildings, vegetation, terrain elevation and even local weather conditions. A dense network of base stations improves coverage, but operators are not obligated to ensure seamless mobile network coverage. In areas with weak signals, coverage can sometimes be improved with antenna solutions, but even high-performance directional antennas have a limited range.

In the spring of 2024, fixed broadband with a speed of at least 100 Mbps was available to half the permanently inhabited households in the archipelago areas. It is important to note that this figure indicates availability, not the number of households with an active subscription. Broadband speeds of 1,000 Mbps were available to one in three households. Availability was best in the inner archipelago and weakest in the middle archipelago. The figures for the outer archipelago are skewed because five in six outer archipelago residents live on Hailuoto, and the figures therefore do not represent the situation in other coastal outer archipelago areas very accurately. For second homes, fixed broadband was available to only two to three per cent of properties (Table 5).

As mentioned above, the 4G mobile network covers almost all of Finland. However, the availability of high-speed mobile broadband connections (at least 100 Mbps) varies regionally. High-speed 4G and 5G mobile broadband connections are more widely available in large centres, as well as rural areas in Southern and Western Finland. In contrast, in Eastern and Northern Finland, high-speed mobile broadband is only available in larger centres. It is essential to note that mobile network coverage maps are based on computational models and may not account for all terrain obstacles. Furthermore, they typically represent outdoor service quality, and indoor coverage can be weakened by building structures (Figure 10).

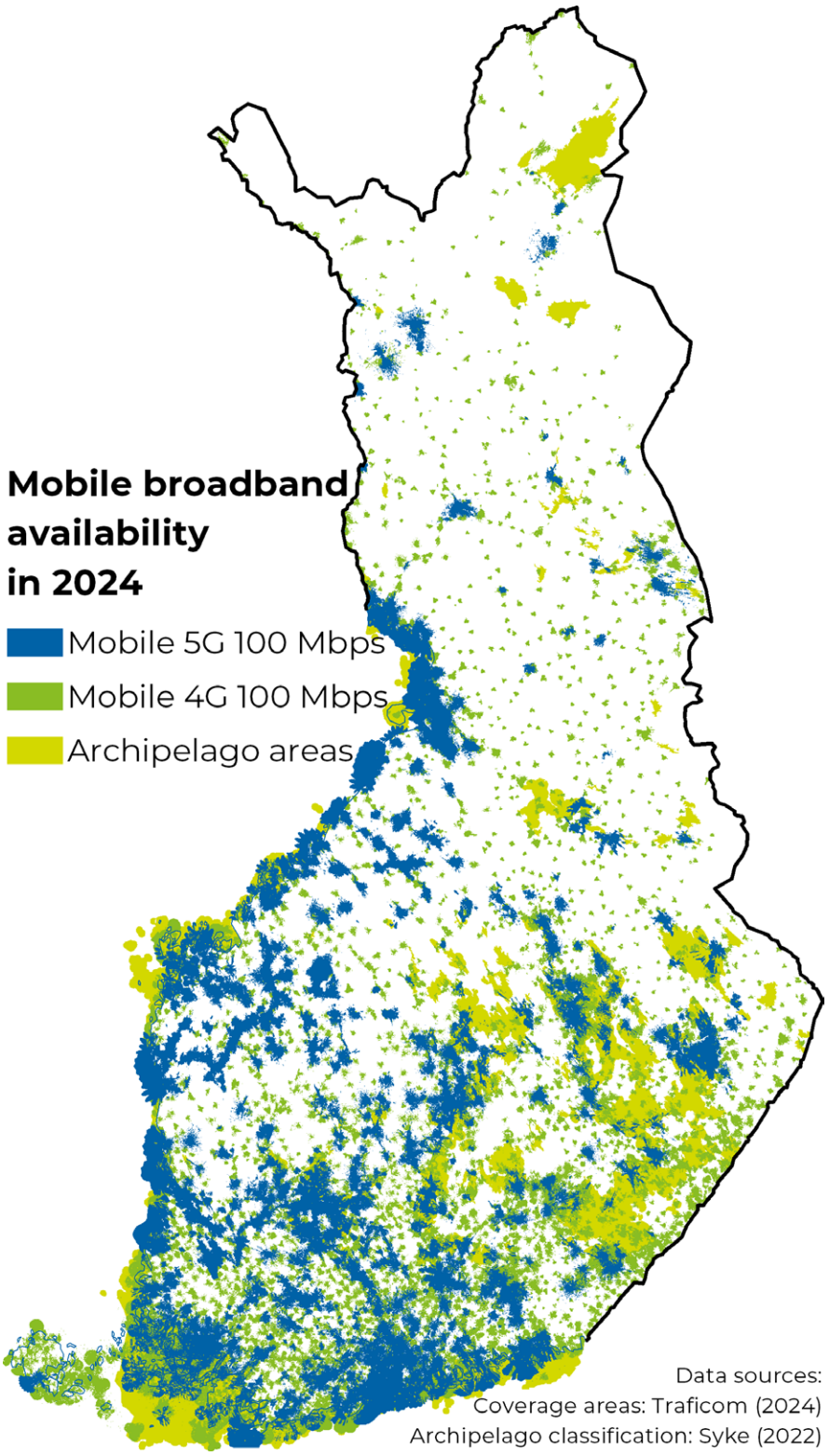
In archipelago areas, a minimum 100 Mbps 4G mobile broadband connection was available to 78 per cent of permanently inhabited households and nearly 60 per cent of second homes. Availability was better in the inner and middle archipelagos compared to the outer archipelago and archipelagic mainland areas. 5G mobile broadband was available to slightly more than half of households, although availability varied greatly between archipelago areas. For second homes, 5G mobile broadband was available to approximately 40 per cent. Availability was best in the inner archipelago, with no significant differences among the other archipelago categories (Table 5).

Table 5. Households (2022) and second homes (2023) in the archipelago areas with access to a broadband connection in spring 2024

	Proportion of households with internet access, %				Proportion of second homes with internet access, %			
	Fixed 100 Mbps	Fixed 100 Mbps	Mobile 4G 100 Mbps	Mobile 5G 100 Mbps	Fixed 100 Mbps	Fixed 100 Mbps	Mobile 4G 100 Mbps	Mobile 5G 100 Mbps
Outer archipelago	78.4	34.4	70.0	5.2	2.9	1.3	47.5	35.7
Middle archipelago	37.9	14.9	83.1	35.3	1.7	1.0	63.2	33.9
Inner archipelago	62.7	39.4	85.7	70.8	3.0	2.2	63.9	44.8
Archipelagic mainland areas	38.6	32.5	70.9	47.6	3.2	2.6	48.6	31.2
All island regions	49.1	34.7	77.7	56.5	2.9	2.1	58.7	39.1

Data sources: internet connections: Traficom (2024); households: Syke/YKR (2024); second homes: Syke/YKR (2024); archipelago classification: Syke (2022).

Figure 10. Coverage of high-speed mobile broadband services (of at least 100 Mbps) in spring 2024



4.4 Water supply and sewer networks

In permanently inhabited archipelago areas, water supply is primarily managed through municipal water supply facilities or local water cooperatives. Some smaller islands have no organised water supply.

Drinking and household water are typically supplied through water supply networks, which are more common than trunk sewers for storm water and grey water. Depending on the area, the water supplied via a network may be purified groundwater, surface water, or seawater filtered using reverse osmosis. For example, water is supplied to Kaunissaari in Pyhtää via a pipeline from the mainland, whereas in Houtskari in Pargas, seawater is treated using reverse osmosis. Water supply networks can be found in areas such as the Southwest Finland archipelago (Nauvo, Korppoo, Houtskari, Utö, Hiittinen, Kivimaa and Vartsala), the eastern Gulf of Finland archipelago (Emäsalo, Pellinki and Kaunissaari) and the Gulf of Bothnia archipelago (Hailuoto, Bergö and Raippaluoto). However, water supply networks do not necessarily cover entire islands.

In the archipelago, sewer systems are typically property specific, similarly to sparsely populated rural areas. Only a few islands have trunk sewer systems, and even where they exist, they may not extend across the entire island. This is the case in places such as Nauvo, Korppoo, Utö, Houtskari, the islands of Naantali and Kustavi, and Pellinki. In contrast, Hailuoto has an island-wide sewer network, and wastewater is transferred via a pipeline to the mainland for treatment. In Bergö, Malax, wastewater is treated in a local water treatment facility.

There is pressure to develop water management in the archipelago due to the number of seasonal residents and visitors, as well as environmental protection considerations. However, extending water supply and sewer networks into the archipelago is challenging because the terrain is often rocky and uneven, and installing underwater pipelines is costly. The cost-benefit ratio of such infrastructure investments is difficult to justify because of the small number of permanent residents, even though the seasonal population increases demand significantly during peak times. For example, on the island of Utö, a cooperative of 40 members manages drinking and household water supply, as well as wastewater treatment. However, approximately 50,000 visitors arrive on Utö annually.

4.5 Waste management

In the archipelago, waste management is logistically complex and requires special solutions. Challenges arise from limited accessibility, a dispersed population, seasonal variation and a lack of waste management infrastructure, all of which increase costs. Waste management is particularly challenging in the outer archipelago, on smaller islands and on rocky islands where there are no suitable places for compost or toilet waste.

The general state of waste management in the archipelago is fragmented. In other words, various approaches are applied depending on factors such as the size of the archipelago population, the distance from the mainland and the local practices of organising waste management. In some areas, waste management arrangements differ between permanent and second homes.

The most common form of waste management in the archipelago is shared collection points, including regional or mixed waste collection points or locked container points accessible with a key. These collection points are located either on the islands themselves (e.g. Iniö, Rosala, Hiittinen and Högsåra) or on the mainland (e.g. Tammio, Kuorsalo, Haapasaari and Kaunissaari). In Imatra, Lappeenranta and Jyväskylä, waste from island second homes is managed through shared collection points on the mainland.

Waste collection (mixed, dry and packaging waste, as well as glass and metal) is only organised on islands with sufficient permanent populations. These islands include Nauvo, Korppoo, Kukainen, Bergö and Hailuoto. Biowaste collection is typically available only in more densely populated areas, including Hailuoto, Nauvo, Korppoo, Bergö, the Naantali archipelago (Rymättylä, Ojainen, Livonsaari, Velkua, Luonnonmaa and Pulkkala) and the Uusikaupunki archipelago (Kukainen, Iso-Kaskinen, Korsaari, Lepäinen, Iso Pirkholma and Pitkäluoto). In some archipelago areas, waste collection is limited to specific types of waste. For example, in South Karelia, dry waste collection is arranged on selected larger islands in Parikkala, Ruokolahti, Taipalsaari, Lappeenranta, Lemi and Luumäki.

The archipelago also has a significant number of Rinki ecopoints[16], particularly in the Southwest Finland archipelago (e.g. Korppoo, Iniö, Brunskär, Jurmo, Utö, Aspö, Hiittinen and Rosala) and in the eastern Gulf of Finland archipelago (e.g. Sarvisalo, Baggö and Pellinki).

16 The Rinki ecopoint collection points are shown on a map at http://kierratys.net/

A unique feature of waste management in the archipelago is the use of collection boats, which operate during the summer months in the archipelago areas of Southwest Finland, Central Finland, Uusimaa and Kymenlaakso. These collection boats follow either fixed or annually varying routes, depending on the region. This waste collection is managed by local waste management companies, either using their own boats (e.g. Rosk'n Roll's *Otto* and *Romulus* collection boats) or through outsourced services provided by the Keep the Archipelago Tidy association. The materials collected include scrap metal, hazardous waste, electrical devices, car tyres, construction waste and cleaning waste. In the archipelago areas of Southwest Finland and Central Finland, the collection of decommissioned boats is also regularly organised using waste collection boats. Some islands in Southwest Finland, such as Houtskari, Utö, Korppoo and Leonsaari, have permanent waste sorting stations, while others, including Nauvo and Iniö, are served by mobile waste sorting stations.

For boating toilet waste, more than 300 septic tank emptying stations are found in the archipelago, primarily at or near guest marinas, either as stationary or floating facilities. Some of these stations also accept bilge water. The septic tank emptying stations[17] are maintained by marinas, municipalities or the Keep the Archipelago Tidy association, and approximately two thirds are located in coastal waters, while a third are found in lake regions (e.g. Päijänne, Saimaa and Oulujärvi).

In the archipelago, wastewater from residential and holiday properties is managed in various ways, depending on the property's location, soil type, proximity to water bodies and use. The treatment methods include infiltration fields, soil filtration systems, septic tanks, cesspools, small treatment plants, grey water systems and composting toilets. The management of toilet waste depends on factors such as the island's distance from the mainland, terrain characteristics, waste management services and municipal land-use planning. In recent years, the increase in tourist numbers has highlighted the need for systematic toilet waste management in some archipelago areas such as Jurmo.

17 The stations for emptying septic tanks are shown on a map at https://septit.net/

KEEP THE ARCHIPELAGO TIDY ASSOCIATION

Founded in 1969, the Keep the Archipelago Tidy association (Pidä Saaristo Siistinä ry) is an environmental organisation for boaters, dedicated to promoting the cleanliness and environmental protection of archipelago and water bodies. In 2024, the association had approximately 11,300 members.

The association's core activities include the organisation and coordination of waste management in the archipelago (e.g. the maintenance of waste collection points, septic tank emptying stations and Roope service stations), awareness campaigns, environmental education, environmental monitoring and research in archipelago areas, and various water and environmental protection projects. The association also provides outsourced waste management services for island properties and separate scrap and boat collection campaigns in collaboration with waste management companies. These scrap collection campaigns use service vessels to collect scrap metal, construction and cleaning waste, hazardous waste, decommissioned vehicles, and electrical and electronic waste. These collections, conducted along annually varying routes, are a crucial component of archipelago waste management. For example, during 2020–2023, the annual scrap collection in the Archipelago Sea resulted in approximately 45,000 to 54,000 kilograms of waste being collected each year.

The Keep the Archipelago Tidy association offers and maintains Roope services with four service vessels and five service boats. These operate in marine and inland water areas (the Archipelago Sea, eastern Gulf of Finland, Gulf of Bothnia, Päijänne, Pirkanmaa, and Saimaa), providing services for boaters. The Roope services include waste collection points, sewage pump-out stations, dry toilets, dishwashing facilities, docks and campfire sites. The locations of Roope services can be found on a map at https://www.roopekartta.fi. In addition to the service vessels and boats, the association has operated a litter collection boat, *Roska-Roope,* since 2019 to collect floating litter from water bodies. In summer 2024, *Roska-Roope* was also piloted for collecting blue-green algae in the Turku archipelago.

5 Livelihoods and services

At the end of 2022, the labour force in the archipelago areas consisted of slightly more than 57,000 people, of whom 92 per cent (approximately 53,000) were employed. The employment rate of the working-age population in the archipelago was 78.3 per cent. There were just under 39,000 jobs in the archipelago areas.

Due to large industrial units, manufacturing remains the largest employer in the archipelago. Since 1990, the number of jobs in the archipelago has decreased by approximately 8,000. The largest decline has occurred in primary production, whereas the number of jobs in manufacturing, construction and services has remained relatively stable.

Access to services varies across the archipelago regions. In 2023, there were 85 localities and villages in the archipelago in which basic services – such as shops, health services, pharmacies, post offices, banks and libraries – were available. While shops selling consumer goods can usually be found in the archipelago, residents often need to travel longer distances for other services, particularly healthcare.

5.1 Jobs and commuting in the archipelago

At the end of 2022, the labour force[18] living in the archipelago areas consisted of slightly more than 57,000 people. Of them, 92 per cent, or nearly 53,000 people, were employed. The employment rate[19] of the working-age population in the archipelago was 78.3 per cent. There were slightly fewer than 39,000 jobs[20] in the archipelago areas at the end of 2022. Of these jobs, 58 per cent were in the inner archipelago, 38 per cent in the archipelagic mainland areas, three per cent

18 The number of employed and unemployed people aged between 18 and 64.

19 The proportion of employed people of the working-age population.

20 The Syke Monitoring System of Spatial Structure and Urban Form (YKR) describes the number of jobs based on the number of people employed in an area at the end of the year. Part-time and temporary employment relationships also count as jobs if the employment relationship is active at the end of the year. Data gaps in the source material may distort the reported number of jobs.

in the middle archipelago and fewer than one per cent in the outer archipelago. On the coast, jobs were primarily concentrated in the inner archipelago, while in inland Finland, most jobs were in the archipelagic mainland areas (Figure 11). Jobs were more concentrated in urban areas and their surroundings compared to the population. Of the jobs in archipelago areas, 42 per cent were in localities and their surroundings, and 58 per cent were in rural areas.

In 2022, the regions with the highest number of jobs in the archipelago were the Southwest Finland archipelago (8,200 jobs), North Savo (5,900), the Vaasa region (3,100), the Kemi–Tornio region (2,800) and Pirkanmaa (2,800) (Figure 11). The areas with the most jobs do not completely overlap with the areas that have the largest archipelago populations (see Figure 2). This difference is primarily due to the impact of large industrial plants on overall employment statistics. The largest single employers in the archipelago areas include Outokumpu's steel and ferrochromium plants on Röyttä, Tornio (2,100 employees), Wärtsilä's Sustainable Technology Hub on Vaskiluoto, Vaasa (1,600), Teollisuuden Voima and Fortum's nuclear power plants on Olkiluoto, Eurajoki (1,400), and Hästholmen, Loviisa (600), the Finnish Defence Forces in Rissala, Siilinjärvi (550), Yara's fertiliser and chemical plants on Hangonsaari, Uusikaupunki (300), Nordkalk's lime plants and Finnsementti's cement works in Pargas (250) and Mondi Powerflute's cardboard factory in Sorsasalo, Kuopio (250). These units account for 18 per cent of all jobs in the archipelago areas. The coastal regions also include other large employers – such as industrial plants and ports – but fall just outside the official archipelago classification areas.

In 2022, 10 per cent of jobs in the archipelago areas were in primary production (agriculture, forestry and fishing), 37 per cent in the processing sector, i.e. manufacturing and construction, and 53 per cent in the service sector. As indicated by the list of largest employers, manufacturing accounted for the largest number of jobs in the archipelago with approximately 9,100 jobs, representing 23 per cent of all archipelago jobs. Among other processing industries, energy, water and waste management accounted for six per cent of jobs, and construction for eight per cent. In the service sector, the largest employer was health and social services, providing approximately 5,500 jobs, or 14 per cent, of all archipelago jobs. Other service jobs were distributed relatively evenly across various industries, with the largest sectors being transport and storage, wholesale and retail trade, and education (Figure 12).

Figure 11. Jobs by archipelago areas and categories at the end of 2022

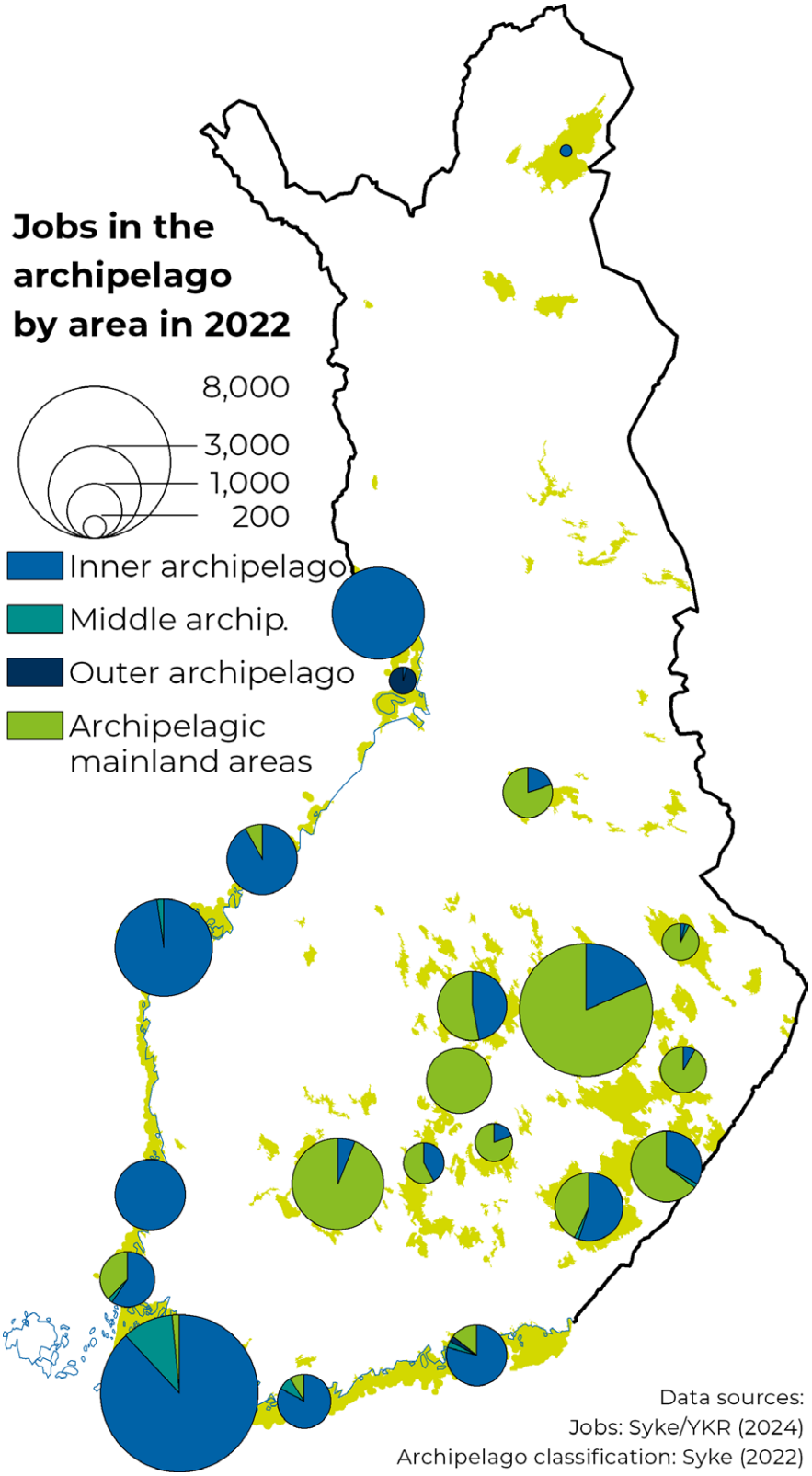
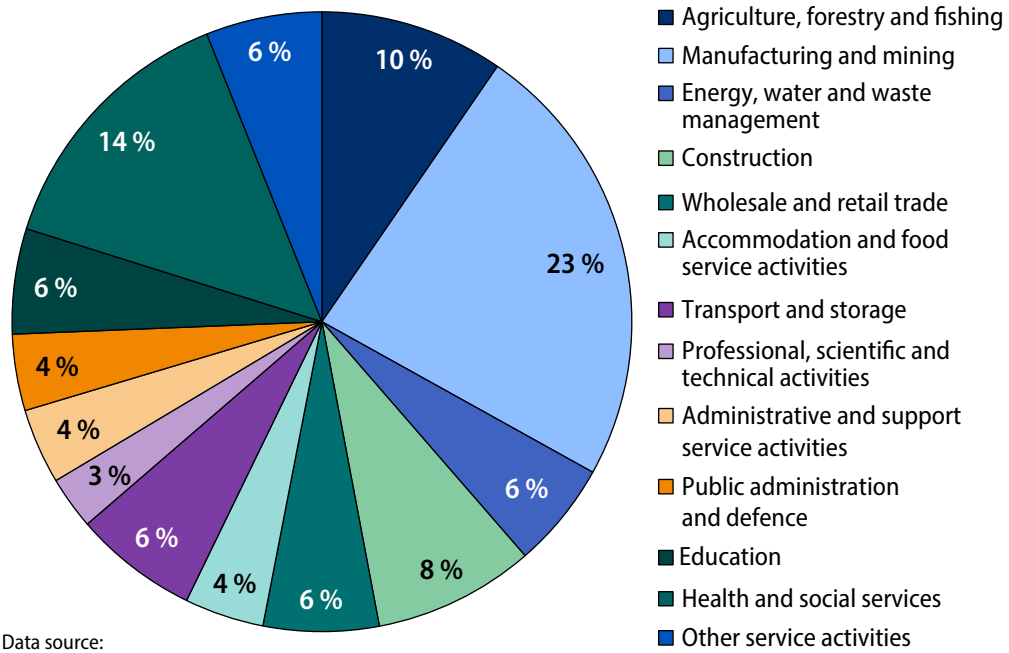


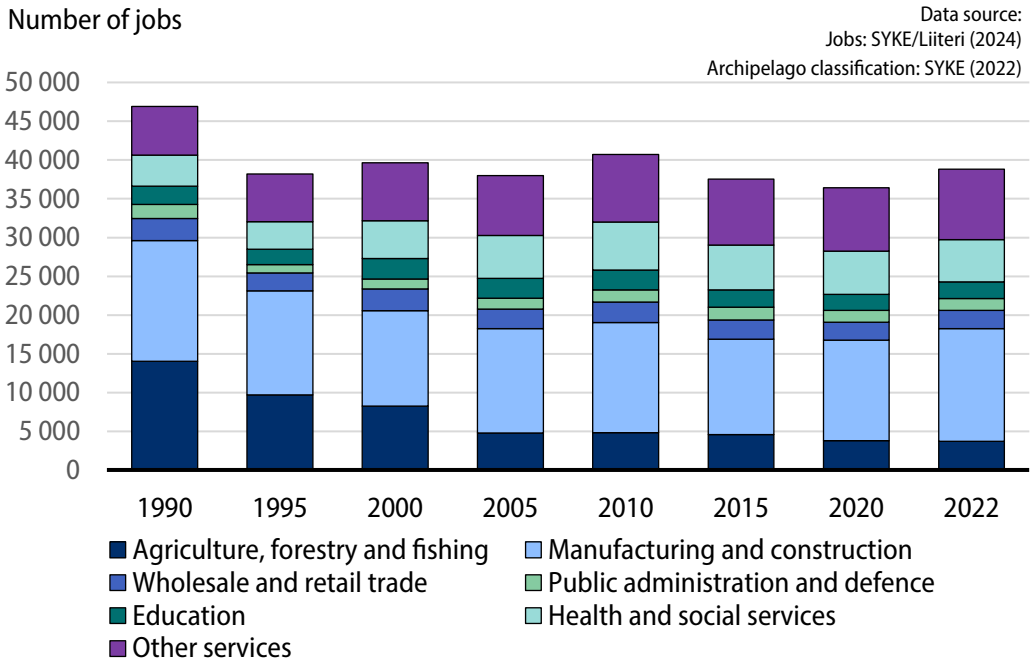
Figure 12. Jobs in the archipelago areas by industry in 2022



Data source:
Syke / Liiteri (2024)

Between 1990 and 2022, the number of jobs decreased by approximately 8,000 in the archipelago. Most of this decline occurred in primary production, i.e. agriculture, forestry and fishing, in which 10,300 jobs were lost. The most significant decline happened during the 1990s and early 2000s, after which it slowed considerably. In manufacturing and construction, job numbers have remained relatively stable but have fluctuated significantly in response to economic cycles. In trade, public administration, defence and education, the number of jobs has declined slightly. In contrast, jobs in health and social services increased by 1,500, and those in other service sectors grew by 2,800. Job losses have been particularly pronounced in the archipelagic mainland areas, where 7,000 jobs were lost. In the inner archipelago, the number of jobs decreased by 1,200, and in the middle archipelago, by 500. In the outer archipelago, however, the number of jobs has remained unchanged (Figure 13).

Figure 13. Jobs in the archipelago areas by industry between 1990 and 2022



In 2022, the average commuting distance for a working resident in the archipelago was approximately 20 kilometres.[21]. Twenty-two per cent of archipelago residents worked within two kilometres of their home. The most common commuting distances were 5 to 20 kilometres (38% of commuters) and 20 to 50 kilometres (25%) of commuters. Short commutes (less than 5 km) were most common in areas near cities, and the shortest average commutes were recorded in Vaasa (7 km), Luoto (11 km) and the Helsinki Metropolitan Area (12 km). Similarly, short commutes are common near other localities. Commuting distances of 5 to 20 kilometres are most prevalent in peri-urban areas. In contrast, in many lake regions of Eastern Finland, commutes of 20 to 50 kilometres are most common. The longest commutes are made by residents of Houtskari and Iniö in the Archipelago Sea, where one in three residents works more than 50 kilometres from home. These residents also have the longest average commuting distances, exceeding 30 kilometres. The further out one travels into the outer archipelago, the higher the proportion of both short commutes (less than 5 km) and long commutes (more

21 The commuting data are based on statistics from Syke's YKR system, in which commuting distance refers to the straight-line distance between an employee's home and workplace. In archipelago areas, the actual commuting distance can be significantly longer than the straight-line distance.

than 50 km), whereas the proportion of medium-distance commutes (5–50 km) decreases. This suggests that residents of the outer archipelago typically earn their living either on their home island or on the mainland, but rarely on neighbouring islands.

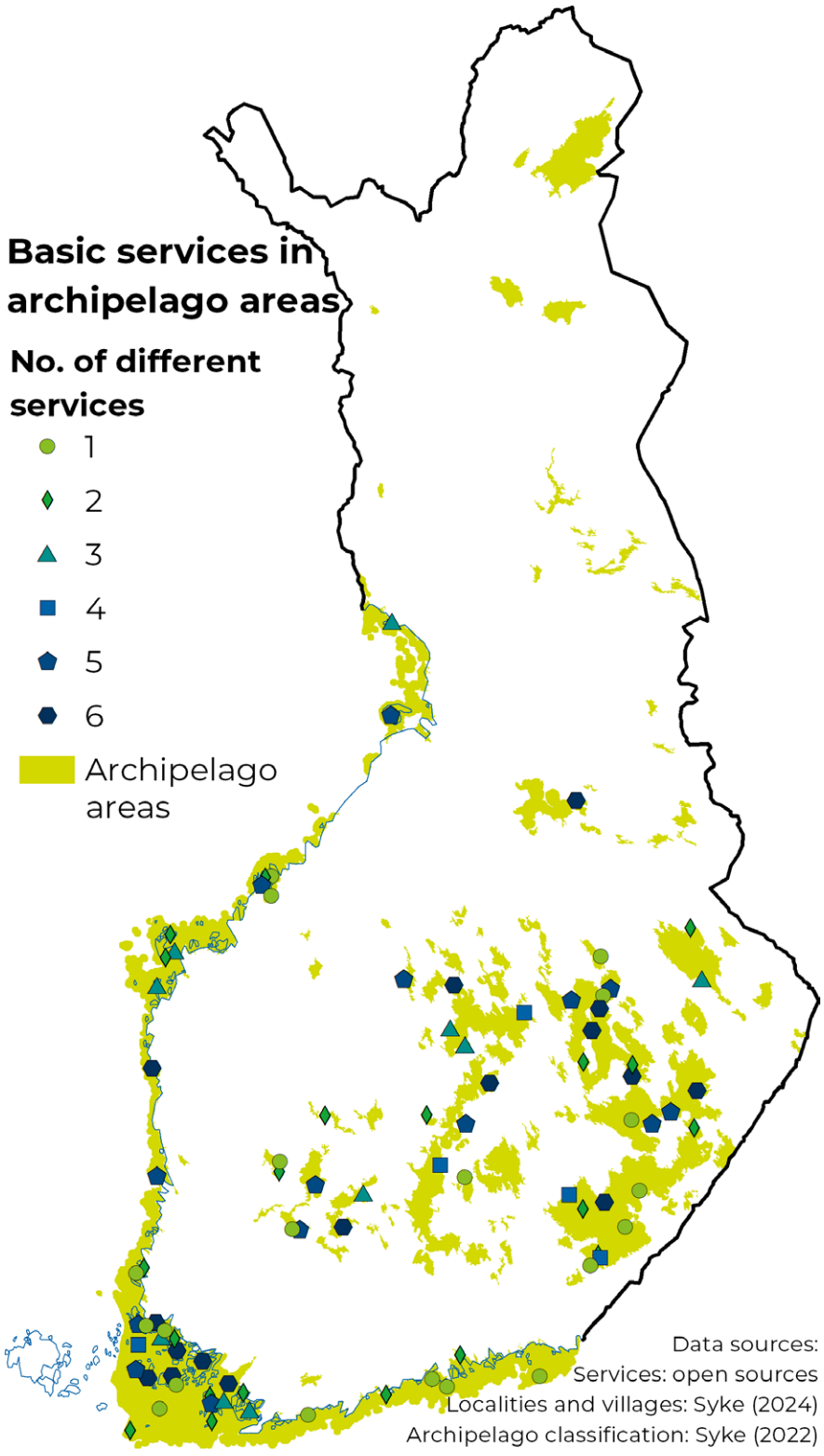
5.2 Accessibility of services

Accessibility is a multidimensional concept that can refer to various aspects. In a geographical sense, accessibility broadly means the ability to engage in interaction. It is often measured in terms of travel times and distances. Many factors affect accessibility, including the availability of services, individual needs and mobility, location, time, transport systems, and increasingly, the digital infrastructure. In northern conditions like those in Finland, weather conditions also significantly influence accessibility. In the archipelago, a specific challenge is the reliance on archipelago transport, which imposes time constraints on travel.

In 2023, there was a total of 85 localities and villages in the archipelago where basic services were available. In this context, basic services refer to health, retail, pharmacy, postal, banking and library services. All six types of service[22] were available in 16 localities, all of which were the central localities of current or former municipalities. There were 14 centres with five types of service, five centres with four types, 10 centres with three types, and 20 centres each with two types or one type of service (Figure 14). Retail services were the most common service, available in 76 centres. Postal and library services were available in 54 centres, health services in 37 centres, pharmacies in 33 centres, and banking services in 22 centres. In addition to these 85 localities and villages, there were 26 villages in the archipelago with a comprehensive school but no other services. Overall, 87 localities or villages had a comprehensive school, eight had a general upper secondary school, and four had a vocational school.

22 This analysis only considers which types of basic services are available in localities and villages. Larger localities may include multiple services of the same type, such as several shops, but this detail is irrelevant to this analysis.

Figure 14. Localities and villages in archipelago areas by the number of different types of basic services (health, retail, pharmacy, postal, banking and library services) available.

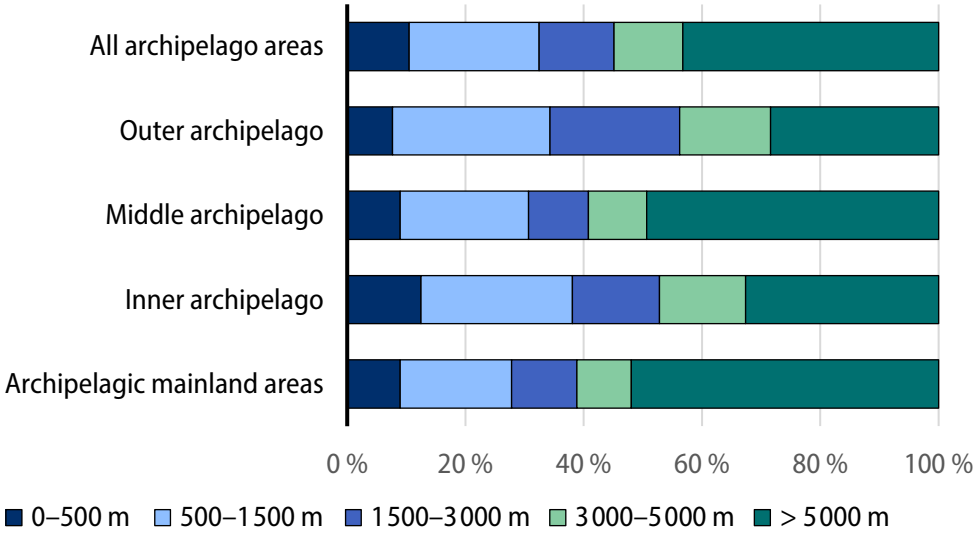


When examining the accessibility of services in the archipelago, the focus is on the perspective of permanent residents[23]; for seasonal residents, service accessibility appears differently. For the vast majority of archipelago residents, the nearest services are available in archipelago areas. For example, 69 per cent of archipelago residents have their nearest shop in the archipelago. For six per cent, the closest shop is in an urban locality, and for 25 per cent, it is in another mainland area. Among outer archipelago residents, the share is even higher, with 97 per cent having their nearest shop in the archipelago, and for middle archipelago residents, the figure is 91 per cent. In the inner archipelago, 78 per cent of residents find their shop in archipelago areas, while the lowest proportion is among residents of archipelagic mainland areas, where 60 per cent have their nearest shop in the archipelago, and 33 per cent on the mainland. The network of health services is sparser, meaning that the nearest health service is less often located in the archipelago (59%) and more frequently in an urban locality (12%) or another mainland area (27%). Where archipelago residents actually go to access services cannot be determined here.

The accessibility of services on foot is best in the inner and outer archipelago. There are no significant differences between archipelago classifications in terms of the proportion of people living near services, but in the middle archipelago and archipelagic mainland areas, the proportion of those living further away from services is notably higher. In the inner archipelago, there are more localities and peri-urban areas, resulting in a denser network of services. The results for the outer archipelago primarily reflect the accessibility of services on Hailuoto, as 90 per cent of the outer archipelago population resides there. On offshore islands, accessibility to services is considerably weaker. The middle archipelago and archipelagic mainland areas are essentially rural areas, where services are sparse, and distances to them are longer. Accessibility also varies between different types of services; for example, shops and schools are more densely located than health services, making them more accessible overall (Figures 15 to 17).

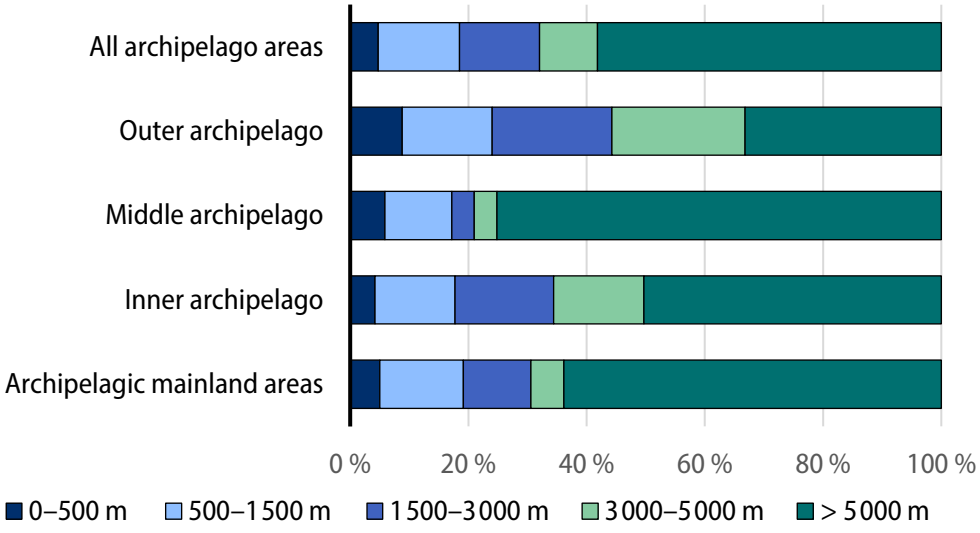
23 The accessibility analyses are based on the results of the project to develop the monitoring of service accessibility (PALSA) conducted by the Finnish Environment Institute during 2023–2024. The project examined the accessibility of shops selling consumer goods, libraries, pharmacies, educational institutions, postal services and health services by identifying the nearest services for inhabited statistical grid cells by different modes of transport (walking, public transport and car). Accessibility was measured in terms of travel time, and the analysis accounted for speed limits, as well as public transport, ferry and cable ferry schedules. Inaccuracies in the source data may affect the precision of the results. Data sources: Finnish Environment Institute (2023), Digital and Population Data Services Agency/Population Information System (2023), OpenStreetMap (2023), Statistics Finland/Register of Enterprises and Establishments and Register of educational institutions (2023), Finnish Institute for Health and Welfare (THL) and wellbeing services counties (2023), Suomi.fi service data repository (2023), Finnish Medicines Agency (Fimea)/Register of pharmacies (2023) and Posti API (2023).

Figure 15. Accessibility of shops on foot. The relative proportion of the population at different walking distances from the nearest shop by archipelago category



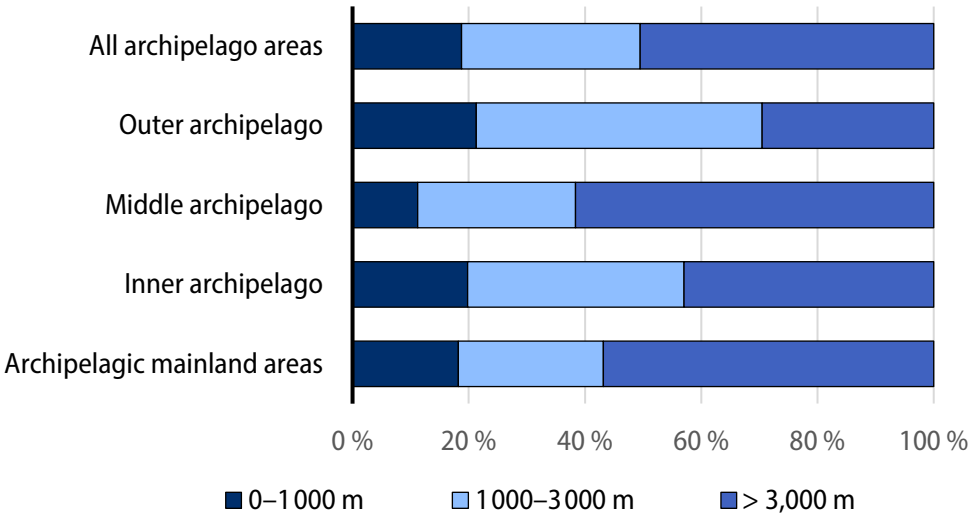
Source: Syke, the PALSA-project (2024)

Figure 16. Accessibility of health services on foot The relative proportion of the population at different walking distances from the nearest health service by archipelago category



Source: Syke, the PALSA-project (2024)

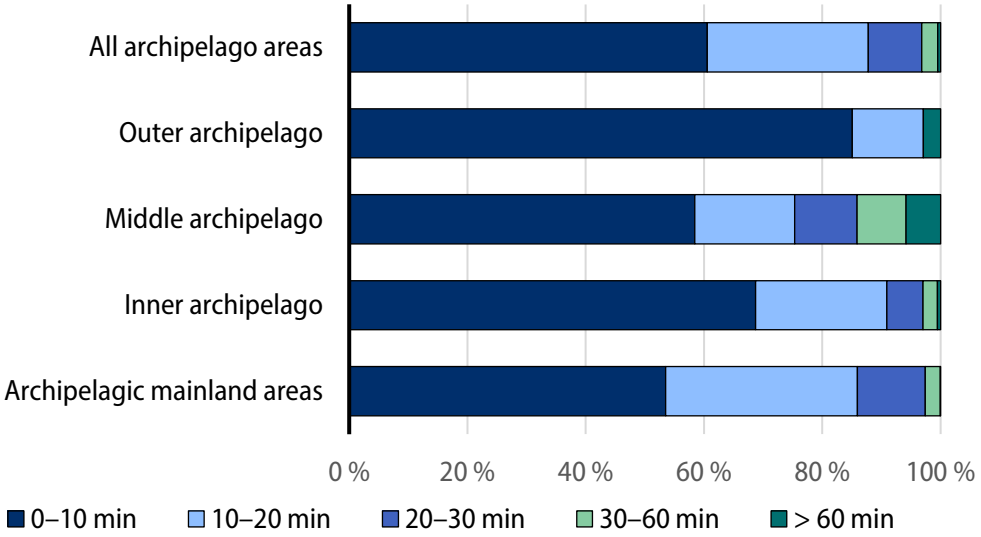
Figure 17. Accessibility of primary schools on foot The relative proportion of children aged 7–12 at different walking distances from the nearest primary school by archipelago category



Source: Syke, the PALSA-project (2024)

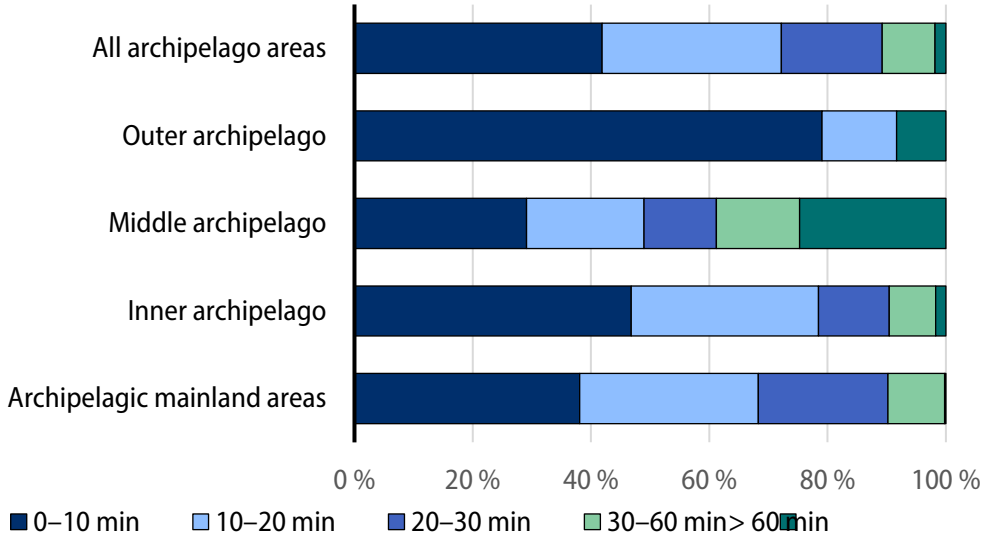
Accessibility of services by car is generally quite good in the archipelago, although there are differences between archipelago categories and service types. For example, health services are less accessible due to a sparser service network than shops and pharmacies. Service accessibility is by far the best in the outer archipelago, but as was mentioned above, these statistics mainly reflect the situation on Hailuoto. In the inner archipelago and archipelagic mainland areas, accessibility is nearly as good. In the inner archipelago, the proportion of residents living within a 10-minute drive of services is slightly higher, but with a thirty-minute drive, these differences disappear entirely. In the middle archipelago, the proportion of people living very close to services is similar to that of the inner archipelago and archipelagic mainland areas. However, the proportion of those living further away from services is higher in the middle archipelago. The difference in accessibility between the middle archipelago and the other archipelago categories also varies by service; for example, the difference is more pronounced for health services than for shops or pharmacy services (Figures 18 to 20).

Figure 18. Accessibility of shops by car Relative proportion of the population at different driving distances from the nearest shop by archipelago category



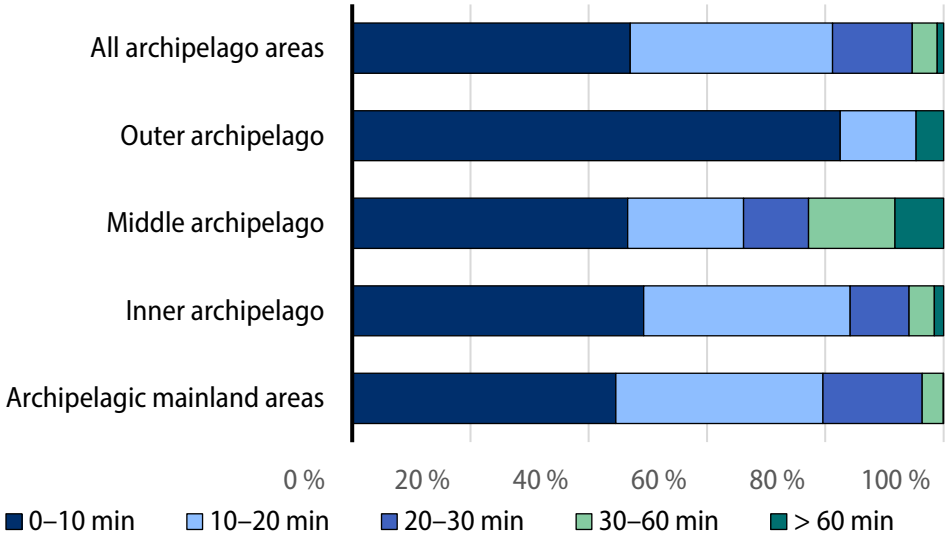
Source: Syke, the PALSA-project (2024)

Figure 19. Accessibility of health services by car Relative proportion of the population at different driving distances from the nearest health service by archipelago category



Source: Syke, the PALSA-project (2024)

Figure 20. Accessibility of pharmacies by car Relative proportion of the population at different driving distances from the nearest pharmacy by archipelago category



Source: Syke, the PALSA-project (2024)

THE KORPPOO SCHOOL CENTRE

Located in Korppoo, Pargas, the Korppoo School Centre houses both Finnish-language and Swedish-language schools. The same premises include the Korppoo library, a daycare centre and a central kitchen.

The Finnish-language school (Ulkosaariston koulu, 'Outer archipelago school') is a comprehensive school with approximately 15 to 20 pupils annually from pre-primary education to ninth grade, and staffed by five teachers. The pupils come from the areas of Korppoo, Nauvo and Houtskari.

The Swedish-language school (Skärgårdshavets skola, 'Archipelago sea school') is also a comprehensive school with around 50 pupils from Korppoo, as well as seventh- to ninth-grade pupils from Houtskari. In grades 8 and 9, pupils have the opportunity to study archipelago skills as an optional subject.

A NURSING HOME CONNECTED TO A SCHOOL IN BERGÖ

In Bergö, Malax, an elderly care nursing home for ten residents was built next to the local school in 2017. The project was initiated by a local association, Bergö Örad, which now owns the nursing home operated by the Wellbeing Services County of Ostrobothnia. The proximity of the school allows synergy benefits such as the shared use of the school's kitchen and sports facilities. Joint activities are also regularly organised for the schoolchildren and the elderly residents.

DOCTOR BOATS

The Archipelago Doctors (Saaristolaislääkärit) company provides private medical services in the Archipelago Sea using two doctor boats. The doctor boats can be requested for home visits, second homes, boats or guest marinas. During the summer, they also operate on a scheduled basis in ports across the Western Uusimaa and Southwest Finland archipelago. These doctor boats offer general medical services, including treatment for minor injuries (e.g. cuts, sprains and burns), infections and tick bites, and laboratory tests and vaccinations.

In the Kotka archipelago (including Haapasaari, Kaunissaari and Kuutsalo), a private doctor boat serves residents on summer Saturdays. It provides general medical services such as inflammation marker checks, vaccinations, and treatment for wounds, infections and tick bites for both permanent and seasonal residents.

VOTING ON COMMUTER VESSELS

In the Archipelago Sea, it is possible to vote in advance on a few commuter vessel routes serving the Pargas and Kimitoön archipelago. Voting is conducted as part of the regular schedule of commuter vessels. However, the vessels wait at the island stops long enough to ensure everyone present has had a chance to vote. Advance voting is only available on commuter vessels at pre-scheduled times. The voting process is adapted to the conditions on the vessel, and the usual voting booths are not always available.

Without the possibility of advance voting brought directly to their home piers by the commuter vessel, many archipelago residents would face a journey of several hours, including waiting times, to reach the nearest voting location. On the official election day, a return trip would not even be possible for some residents due to the limited commuter vessel schedules. Voting on commuter vessels is a practical solution for many archipelago residents and plays an important role in ensuring democratic participation.

6 Archipelago culture, community and participation

Archipelago culture is part of a broader coastal culture, in which language, livelihoods and material heritage connect the coastal regions of Finland, Sweden and Estonia. While the culture is tied to the unique natural conditions of the archipelago, traditional livelihoods such as fishing and agriculture have gradually given way to tourism. In archipelago areas, a sense of community and participation play a central role, with local associations and municipal bodies promoting the development of the archipelago and preserving its cultural heritage.

6.1 Archipelago culture

In a broad sense, culture encompasses everything that human communities pass on and teach to future generations. It consists of the knowledge, skills and customs, as well as shared attitudes, values, beliefs and norms, on which human communities are built. Culture includes language, power structures, livelihoods, art, sports, religion and other worldviews. Above all, culture is a collective phenomenon, uniting people through a shared way of life while distinguishing them from other groups. At its core, culture always involves a shared way of understanding and interpreting the world. However, no culture is entirely homogeneous; every culture has elements that are embraced by only part of the community – and even then, to varying degrees.

The archipelago culture of Finland's coast is part of a broader Swedish coastal culture spanning Sweden's Baltic Sea coast from Skåne to the Gulf of Bothnia, the Finnish coast, the Åland Islands and some islands off the Estonian coast. This cultural area is connected by language, material culture and similar livelihoods. However, archipelago culture is not entirely tied to one language, as the material culture has remained largely unchanged even in coastal areas where Finnish and Estonian have completely replaced Swedish. It represents a broader cultural adaptation to the unique conditions of the archipelago and coast. In contrast, inland lake regions rarely identify as archipelago communities. The term 'archipelago' is primarily associated with the inhabitants of coastal islands, even though the challenges and strengths of inland archipelago areas share similarities with their coastal counterparts. For example, in Saimaa, island residents are typically

referred to by the name of their island, village or municipality, not as archipelago dwellers. Tourism operators, meanwhile, increasingly promote the term 'Saimaa people' *(saimaalaiset)*.

The Swedish language is a central part of the identity of the coast and archipelago. In the Åland Islands, Swedish is spoken exclusively, and it is the majority language in the southern and central parts of the Southwest Finland archipelago and along the coast of Ostrobothnia. Swedish also holds a strong position along the coast of Uusimaa. Historically, Swedish was spoken in a broader area, including the archipelago of Kymenlaakso, the northern parts of the Turku archipelago and the northern coastal strip of Southwest Finland, which are now predominantly Finnish-speaking areas. On the coast of Satakunta, Finnish has always been the dominant language. The current Swedish-speaking population in the archipelago mainly originates in migration waves from Sweden in the Middle Ages. Some place names in the archipelago hint at later population movements, while others point to an earlier Finnish-speaking population that preceded the Swedish settlement. Archaeological remains in the archipelago also reveal prehistoric connections to the west.

Fishing, agriculture and animal husbandry were long the main livelihoods in the archipelago. Due to the varied conditions of the archipelago, cultural practices differ between regions. Life on the rugged outer islands has been very different from life on the large, forested inner islands. The archipelago has therefore been divided into three zones based on the living and farming conditions: the inner archipelago, the middle archipelago and the outer archipelago. This division does not fully apply to the large lake archipelago areas of inland Finland, but generally, the conditions of lake regions most closely resemble those of the inner archipelago. In the inner archipelago, the primary focus has been on agriculture and animal husbandry, whereas outer archipelago residents have historically relied on fishing and hunting in addition to animal husbandry. In the lake regions, forestry has been a key livelihood alongside agriculture.

Seafaring and boats are central to archipelago culture. Without boats, life in the archipelago would have been impossible. Perhaps the most significant surviving piece of material cultural heritage in the archipelago is the clinker-built wooden boat. The clinker-built wooden boat is a distinctive Nordic type of vessel that has been built in Finland for thousands of years and can still be found by the thousands along cottage shores. In 2021, the Nordic clinker boat tradition was added to the UNESCO list of Intangible Cultural Heritage. Boats have been used to cover long distances, as coastal farmers would sail to Tallinn, Stockholm or Turku on trading voyages. During the Russian era, the rapid growth of seafaring led to an increase in shipbuilding along the coast, and young islanders were often recruited as crew members for sailing ships. Maritime trade also brought new products from Europe to Finland's coast and archipelago. In contrast, residents of lake regions lacked

the freedom of movement offered by the sea. Instead, they made trade journeys to nearby towns. Larger sailing ships were rare in inland Finland, and boats were primarily rowed rather than sailed.

With industrialisation, Finland's rural areas experienced population decline, and the archipelago was no exception. However, alongside this depopulation, the number of summer cottages increased significantly. Today, tourism is the most important industry in the archipelago, significantly shaping daily life. Many islanders work in shops or restaurants or are otherwise indirectly involved in the tourism industry. The archipelago's traditional livelihoods have diminished. Many people fish recreationally, but few make their living from fishing. The archipelago's cultural heritage is not exhibited in a single comprehensive museum. Instead, it is preserved in numerous small local museums, scattered across various island municipalities and run largely by volunteers. These museums provide glimpses into life in the archipelago in bygone times.

Today, the archipelago's living cultural heritage is deeply rooted in the knowledge and appreciation of its conditions and history. A close relationship with nature remains an essential aspect of this heritage, influencing the islanders' way of life and ability to adapt to natural conditions. For those navigating the waters, careful observation of the weather is particularly important, as nature's challenges can have severe consequences. Even modern ferry transport must adapt to weather conditions. Archipelago residents have also grown accustomed to a certain level of solitude and isolation. As such, self-sufficiency, resourcefulness, versatility and preparedness are fundamental aspects of the archipelago's living cultural heritage, enabling islanders to manage independently when necessary.

6.2 Community and participation

In everyday language, community generally refers to cooperation among people and various forms of collaboration. More precisely, community signifies the cohesive force, sense of belonging and commitment that arise from pleasant collective action and cooperation. Combined with urbanisation, technological and societal developments challenge the traditional forms of community that were built around family, extended family and village life in rural areas. A significant part of community is participation. Participation is the sense of belonging to a meaningful and personally important community while feeling heard and valued. A key dimension of participation is people's right to engage in planning and decision-making regarding their living environment. Active participation by individuals forms the core of a well-functioning civil society.

The development of the archipelago involves various stakeholders. Municipalities and cities are key players, while Leader groups that promote local development play an important role in enabling progress in archipelago areas. However, local associations, communities, businesses and other stakeholders are at the heart of all development. They act as the driving forces behind the archipelago's development.

At the municipal level, strategic archipelago development is addressed through separate archipelago strategies or programmes, or integrated into broader municipal strategic or programmatic work (e.g. municipal strategies, economic development programmes, tourism strategies or village plans). In 2024, Sipoo was the only municipality with a separate archipelago programme. The City of Helsinki also has its Helsinki Maritime Strategy 2030. In most of Finland's archipelago municipalities and cities, archipelago development has been incorporated into municipal or city strategies, as seen in Ingå, Luhanka, Malax, Naantali, Pargas, Porvoo, Pyhtää and Taipalsaari. In some archipelago municipalities such as Kustavi and Hailuoto, the entire municipality consists of archipelago areas, and the municipal strategy therefore inherently serves as an archipelago development strategy. Municipal strategies often address archipelago-related issues in terms of transport connections and accessibility, service availability, economic activities, tourism, energy solutions and environmental protection. In some municipalities, including Naantali, archipelago development is also included in municipal vitality programmes.

Archipelago issues are also integrated into the municipal administrative bodies in certain municipalities. Archipelago committees or similar entities exist in Pargas, Naantali, Kimitoön, Sipoo, Taipalsaari and Kotka, and their roles and mandates vary by municipality. In most cases, archipelago committees play a preparatory or monitoring role, but in Pargas, the archipelago committee also participates in planning and identifying projects suitable for project funding (Table 6).

Table 6. Archipelago committees and other similar municipal bodies

Municipality	Name of body	Duties in 2024
Kimitoön	Archipelago committee (saaristolautakunta)	Provides opinions on matters concerning the archipelago and its development.
Kotka	Archipelago committee (saaristotoimikunta)	Acts as an expert in all matters related to the archipelago. Proposes and initiates development measures for the archipelago. Provides statements on matters falling under the Archipelago Act.

Municipality	Name of body	Duties in 2024
Naantali	Archipelago committee (Saaristolautakunta)	Acts as an expert on municipal archipelago matters. Monitors and evaluates the implementation of services from the perspective of the archipelago. Its responsibilities also include rural and archipelago development projects, fishing and hunting affairs, and archipelago advocacy.
Pargas	Archipelago committee (Saaristolautakunta)	Proposes and provides statements to the local executive on matters concerning the archipelago's environment, land use and service provision, and annually monitors and evaluates the implementation of services in the archipelago. Proposes and provides statements to the local executive regarding permanent residence, multilocality and economic development in the archipelago, and the coordination of these with secondary housing. Proposes and provides statements on suitable project-funded initiatives for the city. Participates in developing archipelago tourism in collaboration with the municipal tourism office and the regional tourism company. Oversees the development of the commuter vessel, ferry and cable ferry transport serving the archipelago and issues statements on behalf of the city regarding transport, including physical and digital connections. Monitors and plans the development of archipelago villages and the enhancement of village self-reliance and vitality in cooperation with partners. Appoints committees or representatives to promote cooperation among archipelago residents. Appoints representatives to working groups and other bodies requiring archipelago representation.

Municipality	Name of body	Duties in 2024
Sipoo	Archipelago committee (saaristo-valtuuskunta)	Participates in projects and provides opinions on matters concerning the archipelago and its development.
Taipalsaari	Archipelago committee (saaristoasian toimikunta)	Supports the preparation of archipelago-related matters. Monitors issues related to the Archipelago Act, generates ideas and makes initiatives. Maintains communication with the Island Committee and other organisations handling archipelago issues.

Naantali's new administrative regulations will come into effect on 1 June 2025, which will bring changes to the role of the archipelago committee. The committee's responsibilities include the following:

- Monitoring and making proposals on matters related to their remit, such as archipelago and rural services, livelihoods, environmental issues and land use.
- Preparing and coordinating advocacy for archipelago-related matters with external stakeholders.
- Contributing to the development of rural and archipelago tourism.
- Overseeing the development of the commuter vessel and ferry transport serving the archipelago and issuing statements on commuter vessel and ferry transport on behalf of the city.
- Monitoring and planning the development of archipelago villages and the enhancement of village self-reliance and vitality in cooperation with partners.
- Ensuring the provision of rural services.
- Guiding and supervising fishing and hunting activities in areas owned or managed by the city.

In matters related to the archipelago, municipal bodies may also invite representatives from the archipelago committee to their meetings or request the committee's opinion on key archipelago-related issues.

Local development groups, known as Leader groups, address various issues related to the archipelago in their regional development strategies. In identifying local needs, these groups pay attention to archipelago-specific challenges, and their

work to support local livelihoods, communities and small-scale infrastructure also benefits archipelago areas. Some Leader groups (e.g. I Samma Båt) award extra points to projects located in the archipelago during project selection. In addition, Leader Silmu had a specific theme project related to the archipelago infrastructure during the 2014–2020 programme period.

The Finnish archipelago hosts a wide range of associations focusing on culture, local history, village activities, boating, sailing, hunting, fishing, environmental protection and tourism. These associations are vital for maintaining a sense of community and local vitality and often participate in regional development and advocacy efforts. However, the exact number of archipelago associations is difficult to determine, as many are officially registered outside the archipelago.

The archipelago is home to village associations, local societies and advocative associations that focus on promoting the preservation, development and protection of specific islands or archipelago areas. Village associations are typically found on islands with permanent residents (e.g. Pellinki, Vartsala, Livonsaari, Jänkäsalo, Laukansaari, Soisalo and Paalasmaa). In the eastern Gulf of Finland, there are many local societies on islands such as Haapasaari, Kuorsalo, Kuutsalo and Seiskari. Meanwhile, many islands in the Archipelago Sea and Gulf of Bothnia have their own advocative associations (*Pro* associations in Finnish), including Korppoo, Nauvo, Seili, Houtskari, Kimitoön, Tankar and Hailuoto. Several archipelago regions also have cultural societies (e.g. Hailuoto-Seura, Merimasku-Seura and Rymättylä-Seura) that advocate for the interests of residents and summer visitors. The bilingual civil society organisation Finlands öar – Suomen saaret (FÖSS) operates at a national and European level, acting as the voice of archipelago residents and an important contributor to projects in archipelago areas. Other active local developers include local Martha associations, pensioners' associations, 4H clubs, sports clubs, hunting clubs and cottage residents' committees.

ARCHIPELAGO INSTITUTE AT ÅBO AKADEMI UNIVERSITY

The Archipelago Institute at Åbo Akademi University works to support the development of the archipelago by coordinating and participating in archipelago-related projects. Established in 1977, the institute benefits from Åbo Akademi University's extensive expertise in archipelago research. The institute collaborates with organisations, authorities and individuals working on archipelago issues at regional, national, Nordic and international levels.

One of the key tasks of the Archipelago Institute is to popularise current archipelago research. To this end, the institute publishes the quarterly magazine *Skärgård*, which has been in circulation since the institute's founding. The magazine focuses on topics such as the nature, culture, history and research of the coastal and archipelago regions. To foster connections between researchers and archipelago residents, the institute also organises an archipelago research forum twice a year in collaboration with the Archipelago Sea Biosphere Reserve.

Recent projects led by the Archipelago Institute include the 'Habitability – elinvoimaiset ja kestävästi asutut saaristo- ja vesistöalueet' (Habitability – vibrant and sustainably inhabited archipelago and water-based regions) thematic network (2022–2023) and the SALT (Archipelago and rural areas in collaboration) project (2022–2024). The Habitability Network aims to enhance the quality of life and vitality of archipelago communities while laying the foundation for a well-functioning national grassroots network. The SALT project focused on fostering a positive local identity through various activities, encouraging young people to return to their home regions in the future.

LIPERI COTTAGE RESIDENTS' COMMITTEE

North Karelia's first cottage residents' committee was established in Liperi in 2004. The committee gathers and conveys information from summer residents to the municipality (e.g. through surveys), reviews municipal matters relevant to cottage residents, and can make initiatives and proposals to the municipality. The committee meets twice a year and includes representatives from the municipality's various lake areas. It is chaired by the municipal manager of Liperi.

ARCHIPELAGO EDUCATION IN THE VELKUA COMPREHENSIVE SCHOOL

Education in archipelago skills and the preservation of archipelago culture play a significant role in the activities of the Velkua comprehensive school (Velkuan yhtenäiskoulu) in Naantali. The goal of archipelago education is to instil and maintain in children an appreciation of their home region and archipelago identity while preserving traditional archipelago skills and heritage. Archipelago skills are integrated into subjects such as visual arts, crafts and mother tongue education, following the seasonal cycles of archipelago nature and life. The school also holds archipelago skills days during the school year, with themes tied to the current season, archipelago customs, traditions and skills. In archipelago education, the Velkua school collaborates with organisations such as Velkuan saaristolaisyhdistys (Velkua archipelago association), the Velkua Martha association and the Pro Sinervo association.

7 Nature and the environment

Land use is predominantly rural in character in the archipelago. According to the European Environment Agency's Corine Land Cover inventory, 63 per cent of the archipelago areas are covered by water, and coastal regions have a higher proportion of water bodies than inland archipelago areas. Forests cover the majority of the land area in the archipelago areas. Agricultural land is most common in the archipelagic mainland areas, whereas built-up land is found most in the inner archipelago.

The condition of water bodies varies by region. Finland's inland waters are generally in good ecological condition, whereas most coastal waters are only in moderate or poor condition. Eutrophication is the most significant problem. The Archipelago Sea and the Gulf of Finland are most affected by eutrophication, which is visible in blue-green algal blooms and water turbidity. While point source nutrient pollution has decreased, nitrogen and phosphorus run-off from agriculture and forestry remains a significant challenge. Alien species and coastal construction cause further pressure on the natural environment.

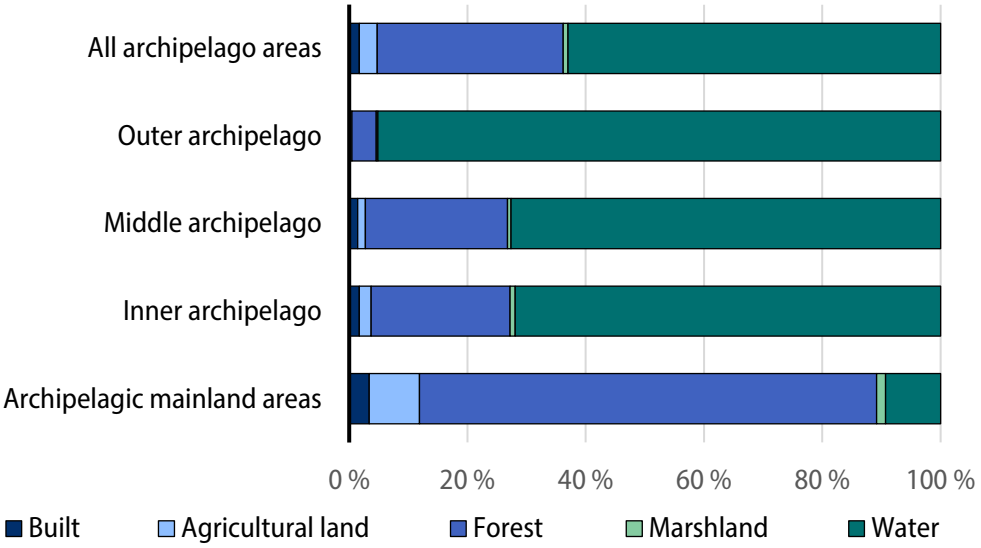
The archipelago areas are home to numerous valuable natural and cultural heritage sites, including national parks and UNESCO World Heritage sites. These areas play a crucial role in preserving biodiversity and cultural heritage, while serving as popular recreational destinations. UNESCO Biosphere Reserves and Geoparks such as the Archipelago Sea Biosphere Reserve act as model regions for sustainable development, combining the sustainable use of natural resources and nature conservation.

7.1 Land use

The abundance of water bodies is a defining characteristic of archipelago areas. According to the European Environment Agency's (EEA) Corine Land Cover inventory, 63 per cent of all archipelago areas were covered by water in 2018. However, water coverage differs significantly between the archipelago categories. The further out to sea one goes, the larger the proportion of water becomes: while 91 per cent of the archipelagic mainland areas consist of land, the outer archipelago is 95 per cent water. Of the water bodies in archipelago regions, 54 per cent are sea, and 46 per cent are lakes. Rivers account for only two per mille. In terms of land

use, the archipelago areas are predominantly rural. In every archipelago category, forests cover approximately 85 per cent of the land area. In the outer archipelago, marshlands account for six per cent of the land area, compared to around two per cent in the other archipelago areas. Agricultural land constitutes eight per cent, and the highest proportions are found in the archipelagic mainland areas (9%) and inner archipelago (7%). In the middle and outer archipelago, agricultural land covers only five per cent of the area. Built-up land accounts for around five per cent of the archipelago areas. The highest proportion of built-up land is found in the inner archipelago (6%) and middle archipelago (5%), whereas in the outer archipelago and archipelagic mainland areas, the proportion is slightly less than four per cent (Figure 21).

Figure 21. Land use in archipelago areas in 2018



Source: Corine Land Cover (2018) / Syke: YKR

In marine spatial planning, several conflicts have been identified in the use of archipelago areas, as these areas host various users and competing interests. For example, fishing, aquaculture and tourism are significant industries in archipelago regions, but their expansion impacts the archipelago's ecosystems. Similarly, energy production (e.g. wind power, electricity grids and the energy infrastructure) may disturb ecosystems and have a negative impact on landscapes. The construction of summer cottages and housing in archipelago areas may create pressures on land ownership, while the development of archipelago transport and recreational use of

water bodies may compete for space with nature conservation areas or traditional livelihoods. The goal of marine spatial planning is to reconcile these different needs and find compromises that ensure the sustainable use of archipelago areas.

7.2 The status of water bodies

The ecological status[24] of Finland's water bodies is generally good, meaning that on average, the water bodies provide a reasonably favourable habitat for their native plant and animal species. However, water quality varies significantly in different regions. In particular, eutrophication weakens the ecological status. The most recent assessment of the state of Finland's surface waters is from 2019. The assessment covered all coastal waters, lakes larger than one square kilometre and rivers with a catchment area exceeding one hundred square kilometres.

Seventy-three per cent of the total surface area of coastal waters have a moderate ecological status. Only 16 per cent of coastal waters have a good ecological status, and no areas achieve a high status. Ten per cent are in poor or bad condition. The best conditions are found in the coastal waters of the Kvarken and the Gulf of Bothnia, whereas the Gulf of Finland's coasts and many inner bays of the Archipelago Sea are largely in poor condition (Figures 22 and 23). The status of coastal waters is primarily influenced by Finland's own emissions, while open sea conditions are also affected by other sources of pollution in the Baltic Sea. The entire Baltic Sea continues to suffer from eutrophication, which is visible in blue-green algal blooms, water turbidity and oxygen depletion on the seabed. The weakest conditions are found in the coastal waters of the Gulf of Finland and the Archipelago Sea. While slight improvements have been observed along the coast of the Gulf of Finland, blue-green algal blooms have increased in the Bothnian Sea in recent years.

The condition of marine ecosystems is particularly affected by eutrophication, as well as alien species, dredging and coastal construction. The situation remains most severe in the Gulf of Finland, with no clear signs of improvement. Among breeding seabirds, the situation is worst with diving species that feed on benthic organisms. In contrast, the populations of grazing birds and seals have mostly increased. Many

24 The assessment of the ecological status of waters primarily examines biological quality factors. In addition, certain water quality variables are considered, and hydrological and morphological conditions are assessed. In the evaluation, the reference condition is the natural state, which means that the closer surface waters are to their natural condition, the better their ecological status is.

migratory fish species are endangered. Approximately 220 alien species have been recorded in the Baltic Sea, of which around 30 are found in Finland's coastal waters. Not all alien species cause harm, but some displace native species or disrupt their communities. A unique feature of Finland's coastal regions is post-glacial rebound, i.e. the rise of land, which creates distinct natural habitats. Coastal bays gradually form into nearly enclosed flads *(flada)* and eventually separate completely from the sea, forming gloe lakes *(kluuvi)*. Both habitat types are classified as endangered. Their fragile ecosystems are particularly vulnerable to dredging and eutrophication.

Figure 22. Ecological status of Finland's surface waters in 2019.

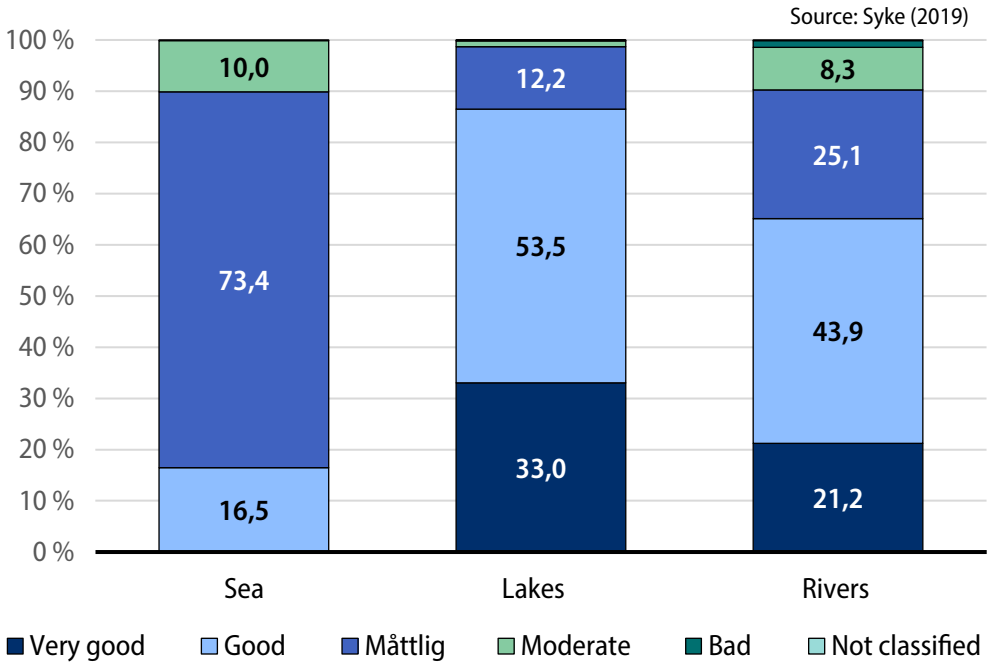
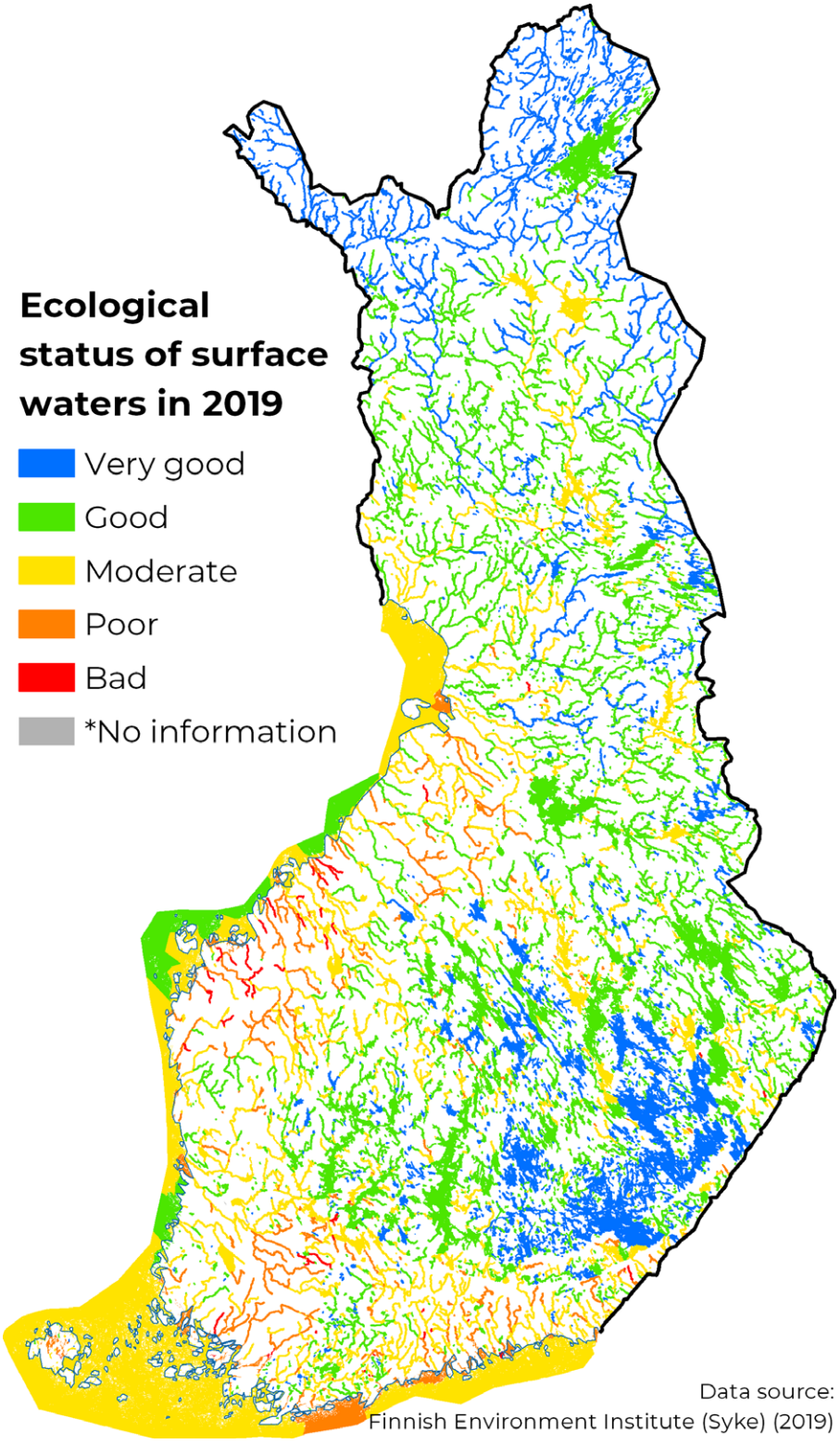


Figure 23. Ecological status of Finland's surface waters by water body in 2019.



The ecological status of Finland's inland waters is generally good. Eighty-seven per cent of lake areas and 65 per cent of river waters are in good or very good condition. The best inland waters are found in the large lakes of Eastern Finland and especially the water bodies of Northern Lapland, while the weakest conditions are in the rivers of Southern and Western Finland. Ten per cent of Finnish river waters have a poor or bad ecological status. Eutrophication particularly weakens the ecological status of small and shallow lakes. River dredging and straightening have deteriorated river habitats, and changes in flow conditions and nutrient loads from catchment areas cause siltation. In recent years, the ecological status of inland waters has shown little improvement due to diffuse source pollution caused by extensive agriculture and forestry. Dams and other migration barriers also negatively affect the ecological state of flowing waters (Figures 22 and 23).

The eutrophication of Finland's inland and coastal waters is caused by excessive nutrients, specifically nitrogen and phosphorus, entering water bodies. Nutrient levels in the Baltic Sea were at their highest during the 1980s and 1990s, since when the nutrient load causing eutrophication has decreased only slightly. The nutrient load in the Archipelago Sea remains one of the worst in the entire Baltic Sea region. Approximately 90 per cent of the human-induced phosphorus load and 80 per cent of the nitrogen load are caused by diffuse source pollution from agricultural land, managed forests, scattered settlements and atmospheric deposition. Phosphorus run-off from agriculture and forestry has slightly decreased due to reduced fertilisation and improved water protection measures. However, nitrogen run-off from agriculture has remained unchanged, and it has increased from forestry. This is probably due to the effects of climate change on nutrient leaching, including increased winter rainfall. Industrial and urban nutrient emissions declined sharply at the end of the 20th century due to more efficient industrial processes and wastewater treatment. While point source pollution continues to decrease, the rate of reduction has slowed. The increasing nitrogen load in the Bothnian Bay is linked to rising humus loads, primarily originating from drained peatlands used for forestry. Humus binds and transports nutrients to the sea, affects the structure of the marine food web and causes water darkening.

The chemical status of water bodies indicates the presence of hazardous and harmful substances. The chemical status is primarily weakened by persistent bioaccumulative substances transported over long distances. Generally, Finnish water bodies contain low levels of environmentally harmful substances, but the concentrations of certain chemicals frequently exceed safe limits. Currently, the most concerning are the concentrations of PBDE flame retardants and mercury. Hazardous and harmful substances were transported into the Baltic Sea most intensively between the 1960s and 1980s. The use of the most hazardous

substances has since been restricted or banned. However, their concentrations in water decrease very slowly because these substances have accumulated in water, soil and sediments for decades. They also continue to be released from old materials. Oil concentrations in water bodies have decreased as oil spills have become rarer.

7.3 Valuable natural and cultural heritage sites

The archipelago areas host numerous valuable natural and cultural heritage sites. Protected natural sites help preserve biodiversity and are also popular recreational destinations, contributing positively to regional economies. Meanwhile, cultural heritage sites and landscapes convey historical and cultural values, having emerged from long-term interactions between humans and nature. In the archipelago, water bodies are an integral part of both nature and cultural heritage.

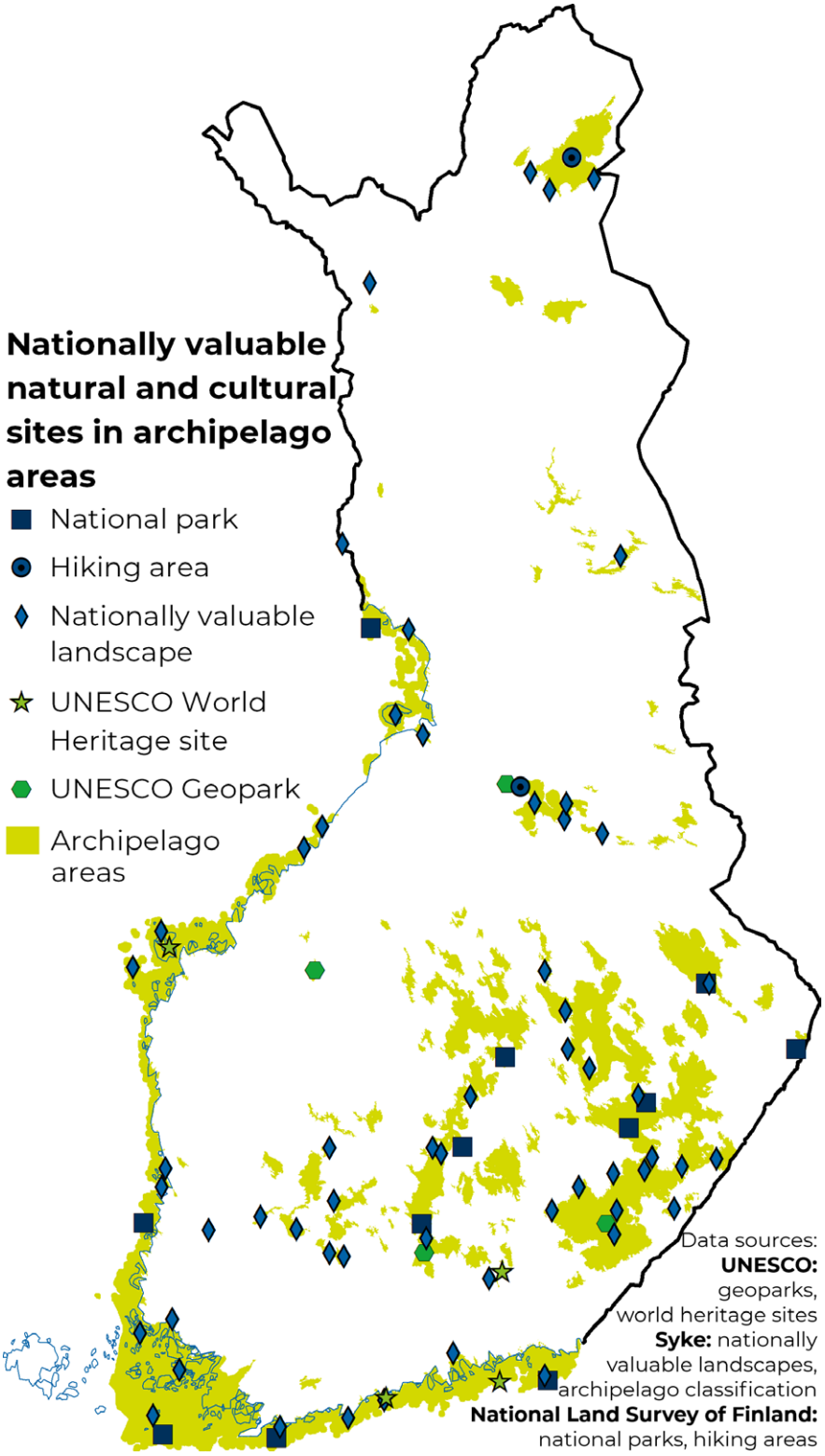
National parks are large protected areas defined in the Finnish Nature Conservation Act, and their primary purpose is to preserve biodiversity. They also often include natural attractions and recreational services, providing opportunities for people to enjoy and relax in nature. According to the law, a national park can only be established on state-owned land, and it must hold significance as a general natural attraction or contribute to raising general awareness of or interest in nature. Any activity that alters the natural environment is prohibited in national parks. Finland has 41 national parks, 12 of which are in archipelago areas. The marine national parks include the Eastern Gulf of Finland, Ekenäs Archipelago, Archipelago, Bothnian Sea and Bothnian Bay National Parks. In the archipelago areas of Finnish Lakeland, the national parks include the Päijänne, Leivonmäki, Southern Konnevesi, Linnansaari, Kolovesi, Koli and Petkeljärvi National Parks (Figure 24). Water bodies also play an essential role in many other national parks.

In addition to national parks, Finland has five national hiking areas established under the Outdoor Recreation Act and two recreational areas established by Metsähallitus. The national hiking areas are diverse sites intended for hiking and other recreational activities, and they are also part of the Natura 2000 network, even though they are not strictly nature conservation areas. Forest management activities such as logging may occur in these areas. However, efforts are made to ensure that such activities do not interfere with recreational use. Most hiking areas are characterised by their water features, and two are located in archipelago areas: the Oulujärvi and Inari Hiking Areas (Figure 24).

Nationally valuable landscape areas (*valtakunnallisesti arvokkaat maisema-alueet,* VAMA) represent Finland's most distinguished rural cultural landscapes. Their value is based on diverse cultural landscapes, well-maintained agricultural scenery and traditional building heritage. These areas also include forestry landscapes, historically and scenically significant landmarks, and landscapes shaped by archipelago livelihoods. The national land-use objectives defined in the Finnish Land Use and Building Act guide land use to ensure the preservation of nationally valuable cultural environments and natural heritage. Finland has 186 nationally valuable landscape areas, spanning the Archipelago Sea to the Teno river. Water bodies play a central role in most of these landscapes, with 56 located in archipelago areas (Figure 24). Among Finland's 27 national landscapes, selected in 1992, several are also characterised by water bodies. These include marine Helsinki, the Archipelago Sea, the Kvarken Archipelago, the Vanajavesi Valley, Punkaharju, the Heinävesi Route, Koli, Hailuoto and the Torne River Valley. The national landscapes lack strictly defined boundaries or legal roles; instead, they carry strong symbolic value and are widely recognised as significant in Finland's national culture, history and natural heritage. They are also popular recreational and tourism destinations.

The UNESCO Global Geopark Network is an international initiative to protect geologically valuable areas worldwide. A Geopark is a coherent geographical area containing internationally significant geological sites. Geoparks tell the story of Earth's history through their geology, living nature, landscapes and cultural heritage. Their primary purpose is to preserve natural and cultural values, strengthen local identity and promote sustainable economic activities. As of spring 2024, there were 213 UNESCO Global Geoparks in 48 countries. Finland has five recognised UNESCO Global Geopark (UGGp) areas, four of which extend into archipelago areas: the Rokua UGGp in Northern Ostrobothnia, the Saimaa UGGp in South Karelia and South Savo; the Salpausselkä UGGp in Päijät-Häme; and the Kraatterijärvi UGGp in Southern Ostrobothnia (Figure 24).

Figure 24. Valuable natural and cultural heritage sites in archipelago areas



The UNESCO Man and the Biosphere (MAB) Programme includes 748 biosphere reserves worldwide. Biosphere reserves are model regions for sustainable development, combining the protection of biodiversity, the sustainable use of natural resources and environmental research. Finland has two biosphere reserves, the Archipelago Sea Biosphere Reserve and the North Karelia Biosphere Reserve, both of which extend into archipelago areas.

The World Heritage List maintained by UNESCO aims to protect and preserve the world's most exceptional cultural and natural heritage. The list includes the most valuable sites, whose protection is considered vital for safeguarding humanity's cultural and natural legacy. Currently, Finland has seven UNESCO World Heritage sites, of which six are cultural, and one is a natural site. Four are partly or entirely in archipelago areas: The Sea Fortress off the coast of Helsinki, the Verla Groundwood and Board Mill in Kymenlaakso, the Struve Geodetic Arc, with one measurement point on the island of Mustaviiri in Pyhtää, and the Kvarken Archipelago, which continues to rise from the sea (Figure 24).

8 Internal security

The archipelago areas present a challenging operating environment, which directly affects the safety of residents and visitors. In emergencies, obtaining assistance in the archipelago may take significantly longer than on the mainland due to poorer accessibility. Rescue operations often require special equipment in the archipelago, such as boats and helicopters. Responsibility for safety in the archipelago lies with the police, rescue departments and the Finnish Border Guard, supported by voluntary safety and rescue organisations.

The core of rescue operations is provided by rescue departments, which handle tasks such as firefighting, emergency medical services and oil spill response. In the archipelago areas, rescue preparedness relies partly on volunteers and contract fire brigades, which are a significant part of Finland's rescue system. The Finnish Border Guard leads maritime search and rescue operations and conducts patrols along the coastline and in open waters. The Finnish Lifeboat Institution supports maritime rescue operations through voluntary efforts, and medical helicopter services enable emergency medical services even in remote areas.

The archipelago areas involve long distances, water crossings, and challenging weather and ice conditions and therefore present a demanding operating environment. These factors also affect the safety of those living in and travelling through the archipelago, as assistance in emergency situations may take longer to arrive due to poorer accessibility than in mainland areas. In archipelago conditions, rescue operations often require boats, helicopters or other special equipment. The authorities are also prepared for the protection and rescue of the vulnerable marine environment, including oil spill response efforts.

Responsibility for safety in the archipelago lies with the police, rescue departments and the Finnish Border Guard, supported by voluntary safety and rescue organisations. Operating as part of the wellbeing services counties, the rescue departments are responsible for rescue, firefighting and patient transport in the archipelago. In sparsely populated areas, contract fire brigades and volunteer maritime and lake rescue teams play a key role in ensuring local and rapid response capabilities. Medical helicopter services enable the rapid deployment of emergency care physicians to even the most inaccessible locations. Offshore, the Border Guard serves as the primary safety and rescue authority (Figure 25).

The emergency response centres receive emergency calls, alerts the nearest and most appropriate authorities and partners, and passes on the necessary information. The Emergency Response Centre Agency is also a central hub for cooperation between the safety authorities. Responsibility for coordinating maritime search and rescue services lies with the Border Guard's Maritime Rescue Command Centres, which oversee rescue operations in maritime and coastal areas.

The functionality of communication networks and services is a critical component of safety, and Finnish law stipulates requirements to ensure their operability during power outages. The key components of mobile, broadband, antenna TV and radio networks have backup power systems, providing weeks of operational time through auxiliary power plants. The backup power duration of mobile network base stations varies depending on their purpose, network technology and location. In locations without a fixed backup power plant, a connection to mobile backup power is usually provided. However, mobile backup power resources are insufficient to maintain all tens of thousands of mobile network base stations in Finland. For base stations providing basic 2G coverage, backup power typically lasts at least from two to six hours, while for 4G and 5G networks, it lasts at least 15 minutes. During power outages lasting a few hours, mobile services generally rely on 2G technology. While networks remain functional, and calls can be made, data connections are slow, and coverage issues may arise. Battery-powered radios or car radios can still be used for information. However, TV and broadband connections usually cease functioning, partly because end users often have not ensured power supply for their reception devices.

The traditional archipelago lifestyle, including the ability to adapt to natural conditions, inherently promotes overall security. Archipelago residents have become accustomed to a certain degree of isolation and remoteness, and it is second nature to them not to challenge the forces of nature. Self-sufficiency, resourcefulness, versatility and preparedness to manage independently or with the help of neighbours arguably make archipelago residents the most resilient citizens in Finland, with a good capacity to withstand disruptions and crises.

Finnish Border Guard

The Finnish Border Guard is the leading maritime search and rescue authority, responsible for managing and organising Finnish maritime search and rescue, and operations within their designated sea area, which extends far into international waters. Maritime search and rescue encompasses a wide range of tasks, including saving people in distress at sea, accident prevention, searching for missing persons,

medical consultation, and patient transport from marine and archipelago areas. The rescue of property such as boats or ships does not fall under maritime search and rescue but is primarily handled by commercial companies.

The operational maritime search and rescue activities are carried out in the field by the Coast Guard Districts of Western Finland and the Gulf of Finland. The West Finland Coast Guard District covers the entire western coastline, including the Åland Islands, while the Gulf of Finland Coast Guard District operates from the Hanko Peninsula to the eastern border. Both districts have a Maritime Rescue Command Centre (in Turku and Helsinki) responsible for field operations, along with several maritime search rescue units operating at sea. The Air Patrol Squadron also maintains continuous maritime rescue readiness, with three helicopters based in Vantaa, Turku and Rovaniemi. The Border Guard's aircraft also support other cooperative authorities in search and rescue operations, patient transport, forest firefighting and various executive assistance tasks.

In addition to the Border Guard, the other authorities operating in marine and coastal areas are obligated to participate in maritime search and rescue operations without charge if the situation requires it. Voluntary associations and other organisations also contribute to maritime search and rescue efforts in accordance with their own rules. Furthermore, any person of working capacity in the vicinity of a danger or accident area may, under specific conditions, be obligated to assist in the rescue operations on the order of the search and rescue mission coordinator.

The West Finland Coast Guard District operates ten coast guard stations in Hiittinen, Nauvo, Kökar, Åland, Susiluoto, Rauma, Pori, Vallgrund, Kokkola and Virpiniemi, along with the patrolling ships *Uisko* and *Tursas*. The Gulf of Finland Coast Guard District operates eight coast guard stations in Hanko, Lappohja, Porkkala, Helsinki, Porvoo, Kotka, Haapasaari and Hurpu, as well as the patrol boat *Turva*. As part of the Border Guard's efficiency measures, smaller coast guard stations have been closed. The most recent closures occurred in Kaskinen, Kalajoki and Kemi in 2018. These closures redirected funds from fixed costs to operations, improving operational reliability. Coast guards continue to patrol all Finnish maritime areas, but they now cover broader areas with increased mobility. In 2023, the operations of the Tammisaari Coast Guard Station were transferred to Lappohja (Figure 25).

Rescue departments

In Finland, rescue operations are managed by 21 regional rescue departments. These departments prevent accidents and maintain safety in collaboration with other authorities, organisations and residents. The rescue departments' primary responsibilities include fire prevention, accident prevention, rescue operations, preparedness and prehospital emergency medical services in cooperation with wellbeing services counties.

The rescue departments are equipped to operate on water with various boats, strategically distributed across their regions based on risk analyses. These boats are used for maritime search and rescue operations, oil spill response, and missions requiring transport across water to islands. For water rescue tasks, the rescue departments employ rescue divers specially trained in underwater operations. In addition to divers, most fire stations are equipped for surface rescue, which involves saving individuals from the water's surface or just below it.

The rescue departments are also responsible for oil spill response on land, inland waters, coastal areas and inner archipelagos. Furthermore, they participate in rescue operations led by the Finnish Border Guard for oil spills and chemical accidents involving vessels in Finland's territorial waters and economic zone.

The Rescue Departments of Southwest Finland and Helsinki have Maritime Incident Response Groups (MIRG) trained to extinguish fires aboard ships. These teams operate under the direction of the Maritime Rescue Command Centres in Turku and Helsinki and often collaborate with the ship's crew during operations. The MIRG teams have a national area of operation, and they may also assist in missions in other countries when necessary.

Mainland Finland's archipelago areas include two permanently staffed rescue stations operated by regional rescue departments, located in Pargas and Paltamo. In their service-level decisions, rescue departments specifically address archipelago-related needs in relation to water rescue, firefighting equipment and oil spill response. For example, in South Savo, the development of archipelago safety and the seasonally increased service demand caused by vacation residents are mentioned in the service-level decision.

Contract fire brigades

In Finland, the rescue services define response time targets for different risk areas. These are generally divided into three categories: 1) urban areas and localities; 2) areas outside localities; and 3) sparsely populated areas. The response time target is six minutes for category 1, ten minutes for category 2, and 20 minutes for category 3. The archipelago areas mostly fall under risk category 3. In them, response times are generally longer due to challenging transport and access, particularly on remote and hard-to-reach islands. Meeting the 20-minute response time target can be extremely difficult for rescue department units in these areas. These targets are therefore primarily met through local contract fire brigades.

Operated by volunteers and part-time personnel, contract fire brigades are an essential part of Finland's rescue system. A contract fire brigade refers to a volunteer fire brigade, institutional fire brigade, industrial fire brigade or military fire brigade that has an agreement with a regional rescue department to carry out rescue-related tasks when alerted. In part-time fire brigades, part-time firefighters have individual employment contracts with the regional rescue department and work on a mission basis. In contrast, volunteer fire brigade members operate under an agreement made by their association.

In Finland, there are 709 contract fire brigades and approximately 13,400 on-call contract firefighters. These brigades handle rescue operations across most of Finland, covering around 90 per cent of the land area, and are home to nearly half Finland's population. In larger localities, contract fire brigades primarily support professional fire departments and serve as backup for extensive or overlapping missions. In the archipelago areas, there are 24 part-time fire brigades and 56 contract fire brigades. Of these, 46 are volunteer fire brigades, five are maritime rescue associations, four are industrial fire brigades, and one is a military fire brigade.

Finnish Lifeboat Institution

Volunteer maritime rescue operations are an essential part of Finland's national rescue services. The Finnish Lifeboat Institution (Suomen Meripelastusseura) is a national umbrella organisation for volunteer maritime and lake rescue associations. Its primary mission is to assist people in distress at sea and on inland waters. The institution also promotes general boating safety and good seamanship practices. The Finnish Lifeboat Institution operates through 57 regional associations and approximately 130 rescue vessels in all major water areas from Hanko to Inari (Figure 25).

Every year, its crews assist more than 3,000 people and save around 20 lives from likely death annually. Most aid recipients are recreational boaters whose journeys are interrupted by technical failures or insufficient boating skills. The around-the-clock standby duty of volunteer units during the open water season accounts for more than 730 person-years annually. Five lifeboat associations also operate as contract fire brigades for regional rescue departments.

Medical helicopter services

Medical helicopter services enable the provision of high-quality emergency medical services in acute and life-threatening situations as part of Finland's prehospital emergency care system. Finland currently has seven medical helicopter bases mainly located at airports in Vantaa, Turku, Pirkkala, Seinäjoki, Kuopio, Oulu and Rovaniemi (Figure 25). An eighth base will begin operations in Kouvola in 2025. The helicopters and their on-call crews are on immediate standby around the clock. Nationwide medical helicopter services are provided by Finnhems, a state-owned special assignment company, in collaboration with wellbeing services counties.

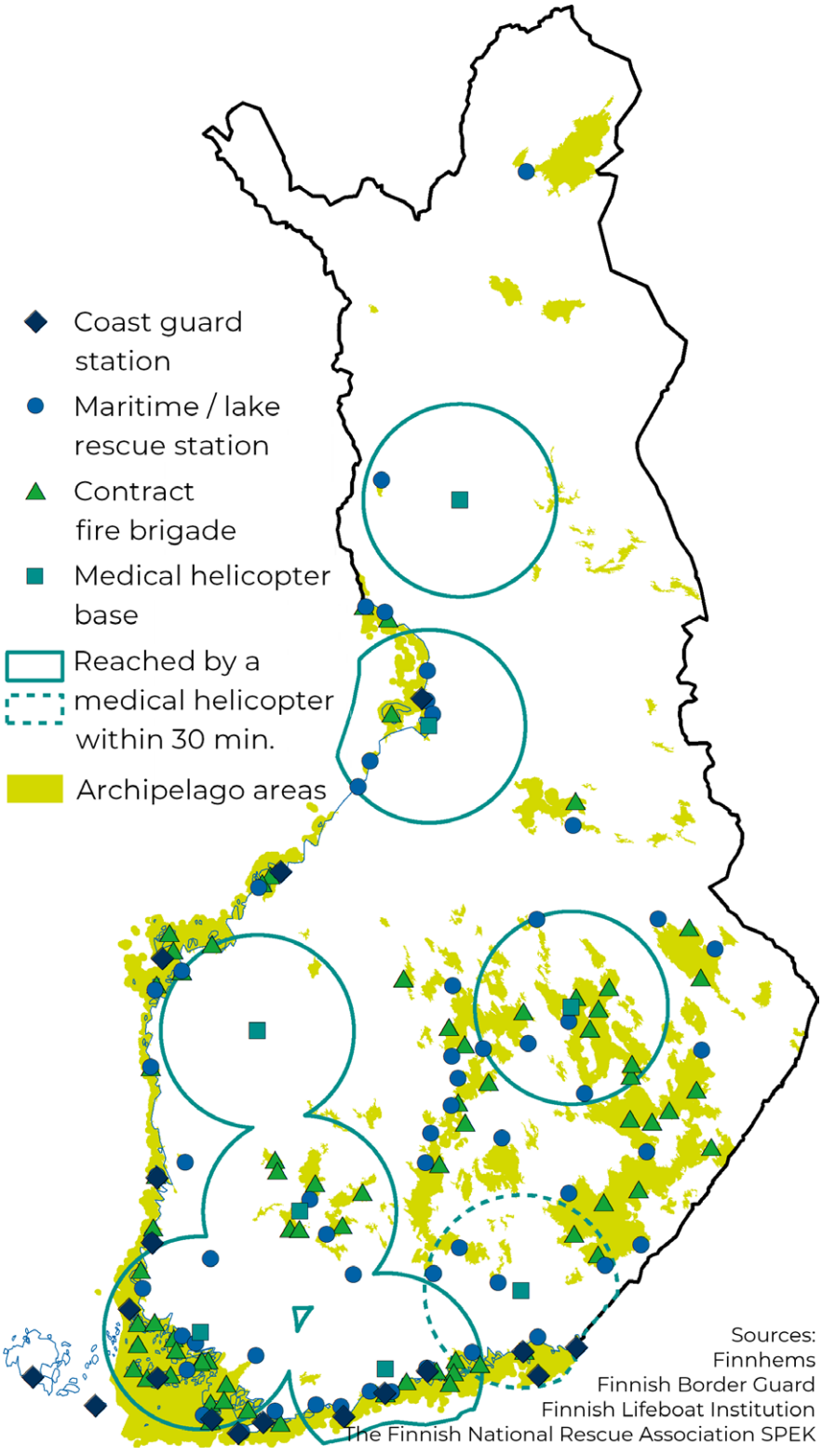
The primary mission of the medical helicopters is to transport a physician and intensive care-level paramedic team to the patient as quickly as possible. A medical helicopter crew typically consists of an emergency care physician, a paramedic, or a rescue professional and a pilot. The most common reasons for dispatching a medical helicopter include cardiac arrests, unconsciousness, chest pain and traffic accidents. Patients are typically transported to hospital by ambulance, which has also been dispatched to the scene. In addition, Finland's only association-based multipurpose rescue helicopter, Aslak, operates under a contract with the Lapland Rescue Department. Unlike the Finnhems helicopters, Aslak also provides rescue, evacuation, search and firefighting capabilities.

The medical helicopter services can reach 72,000 permanent residents of mainland Finland's archipelago areas (55% of the archipelago population) and 66,600 (44%) second homes within 30 minutes. The areas this service covers well include Uusimaa, the Archipelago Sea, Pirkanmaa, North Savo and the coast of the Bothnian Bay. However, its coverage is weaker along the coasts of Satakunta and Ostrobothnia, in Central Finland, and especially in Eastern and Southeastern Finland. This situation will improve with the establishment of the Kouvola base in 2025, which will increase 30-minute accessibility to 60 per cent of permanent residents and 54 per cent of second-home residences in the archipelago. Nevertheless, large areas in the Saimaa region of South Karelia and South Savo will remain without fast medical helicopter services (Figure 25).

Due to poor accessibility, medical helicopters may be dispatched to archipelago areas for missions that would typically be handled by ambulances on the mainland. However, the number of helicopter missions in the archipelago remains relatively small, as demand is strongly correlated with population density. During the summer months, the number of helicopter missions doubles compared to the winter due to increased activity, mobility and substance consumption, leading to more accidents and medical emergencies. Despite the large numbers of second-home residents, the number of missions does not spike in the archipelago in the summer either.

A persistent challenge in the archipelago is the availability of landing sites. Not all islands have suitable landing areas, requiring rescuers to reach patients via rescue boats and transport them to the nearest available helicopter landing site. In some cases, a physician may be lowered by hoist to the patient, but transport to the helicopter must occur elsewhere. In daylight conditions, a helicopter requires a flat area of at least 25 x 25 metres for landing, and the required area doubles at night. This requirement should be considered in the planning of buildings, roads and other operational facilities, as it significantly improves accessibility and overall safety in archipelago areas.

Figure 25. Coast guard stations, maritime rescue stations, contract fire brigades in the archipelago areas and medical helicopter bases in 2024, including areas reachable by helicopter within 30 minutes (departure and landing time included). The Kouvola base will commence operations in 2025.



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Raseborg – www.raasepori.fi
Ruokolahti – www.ruokolahti.fi
Salo – www.salo.fi
Savonlinna – www.savonlinna.fi
Sipoo – www.sipoo.fi
Sulkava – www.sulkava.fi
Sysmä – www.sysma.fi
Taipalsaari – www.taipalsaari.fi
Taivassalo – www.taivassalo.fi
Tervo – www.tervo.fi
Uusikaupunki – www.uusikaupunki.fi
Vaala – www.vaala.fi
Vörå – www.vora.fi

Waste management

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Helistölä https://www.helistola.fi/
Rosk'n Roll https://rosknroll.fi/
Kymenlaakson Jäte https://www.kymenlaaksonjate.fi/
Stormossen https://www.stormossen.fi/
Keräämö https://keraamo.fi/
Lassila & Tikanoja https://www.lt.fi/
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EMO ry – https://emory.fi
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Joensuun Seudun Leader – https://joensuunseudunleader.fi
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