

# General Description of Five Faroese Lakes

## Lýsing av fimm føroyskum vøtnum

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### Úrtak

Sumarið 2000 gjørdi ein kanningarbólkur við granskarum úr Føroyum, Danmark, Íslandi, Noregi og Svørki lívfrøðiligar kanningar á fimm føroyskum vøtnum. Endamálið við kanningin var at fáa meira at vita um lívfrøðina og vistfrøðina á vøtnunum.

Tey fimm vøtnini vóru Eystara Mjáavatn, Leynavatn og Saksunarvatn í Streymoy, Sørvágsvatn/Leitisvatn í Vágoy og Toftavatn í Eysturoy (Mynd 1). Vøtnini eru ymisk í formi, skapi og lívfrøðiligari samanseting. Støddin á vøtnunum er millum 0,03 til 3,56 ferkilometrar, størsta dýpið er millum 7 og 59 metrar, og upplendið er millum 1,8 og 35,2 ferkilometrar.

### Abstract

In summer 2000, a research team from the Faroe Islands, Denmark, Iceland, Norway and Sweden undertook a biological investigation of five Faroese lakes. The purpose of the investigation was to gain more knowledge of the biology and ecology of the lakes.

The five study lakes were Eystara Mjáavatn, Leynavatn and Saksunarvatn on the island of Streymoy, Sørvágsvatn/Leitisvatn on the island of Vágoy and Toftavatn on the island of Eysturoy (Fig. 1). The lakes differ in morphometry, physical nature and biological community structure and vary in size from 0.03 to 3.56 km<sup>2</sup>, maximum depth ranging from 7 to 59 m and catchment area from 1.8 to 35.2 km<sup>2</sup>.

### Introduction

There are many small and medium sized lakes in the Faroe Islands, located both in the low-lying valleys and in the hills and mountains (Rasmussen, 1982). The largest lakes are found on the island of Vágoy, but most lakes are found on Suðuroy, Sandoy, Streymoy and Eysturoy. Some of the lakes are of glacial origin, the results of erosion by ice in valleys or in the highland basalt. Others are of tectonic origin, and yet others are inland lagoons (Rasmussen, 1982; Mortensen, 2002).

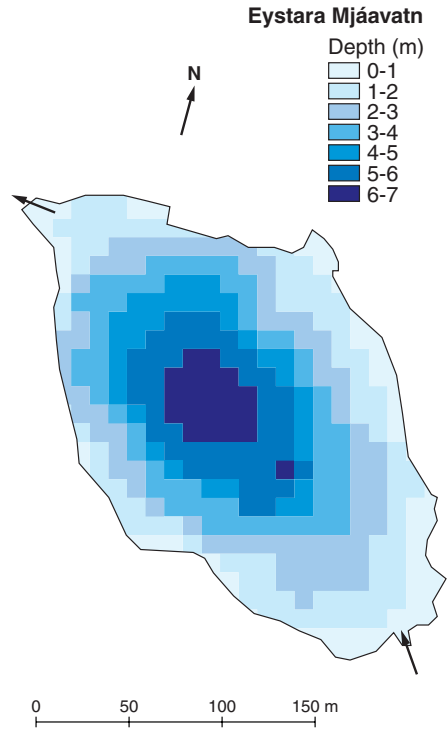
### *Eystara Mjáavatn*

Eystara Mjáavatn (Fig. 2) is located on the island of Streymoy between the two villages of Kollafjørður and Leynar at an altitude of 76 m (Table 1). The lake is the smallest and most shallow of the lakes studied, with an area of 0.03 km<sup>2</sup> and a maximum length and width of 250 and 160 m, respectively. The maximum depth recorded is 7.0 m and the mean depth is 3.0 m. The shore is flat and mostly composed of gravelly sand.



**Figure 1.** Map of the Faroe Islands showing the five investigated lakes.

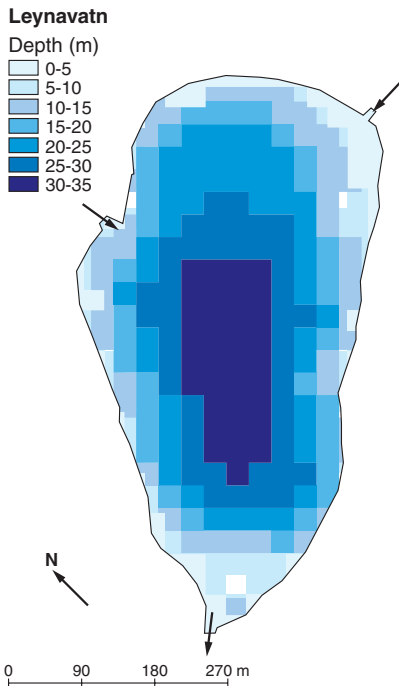
Eystara Mjáavatn has a small catchment area, only 1.8 km<sup>2</sup>, consisting of extensive grass fields on stony hills (Table 2). The input of nutrients and other materials to the lake derives mainly from natural erosion of the surroundings and from precipitation. The main inlet is located at the southeastern side of the lake, but several small brooks enter the lake from the northeast and southwest. The outlet runs into the nearby Vestara Mjáavatn, which is further connected with Leynavatn at 63 m a.s.l.



**Figure 2.** Contour plot of Eystara Mjáavatn with arrows marking the largest in- and outlets.

#### Leynavatn

The area of Leynavatn (Fig. 3) is 0.18 km<sup>2</sup>, and the maximum length and width are 680 and 350 m, respectively. Maximum depth measured by Dali (1975) is 33 m, while the average depth of the lake is 13.7 m. There is a big sandy beach at the northern and eastern sides of the lake, while the southern and western sides are more hilly and stony. The catchment area is 16.6 km<sup>2</sup>, of which just 1 % is cultivated fields and 99 % are extensive grass fields in a hilly area. The input of nutrients to Leynavatn mainly originates from 10 households situated in the infield

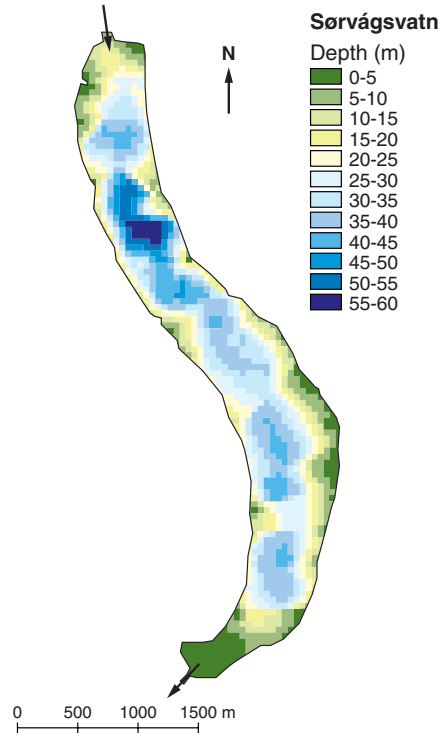


**Figure 3.** Contour plot of Leynavatn with arrows marking the largest in- and outlets.

area and from natural erosion of the surroundings. The main inlets derive from the north via the Dalá, and the outlet from Vestara Mjáavatn. The Leynará runs from the southeast end of the lake and into the sea.

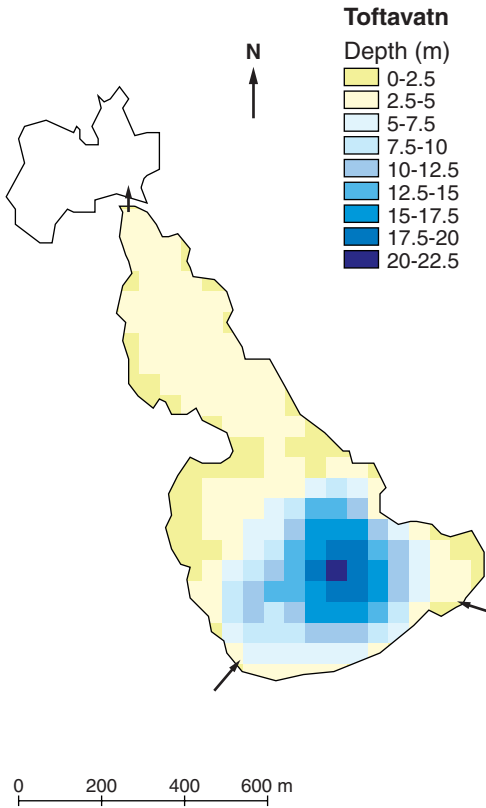
#### *Sørvágsvatn*

Sørvágsvatn, also named Leitisvatn (Fig. 4), is the largest and deepest lake in the Faroe Islands. It is located at an altitude of 32 m between the two towns of Sørvágur and Miðvágur at the southern end of the island of Vágur. The lake is situated at the



**Figure 4.** Contour plot of Sørvágsvatn with arrows marking the largest in- and outlets.

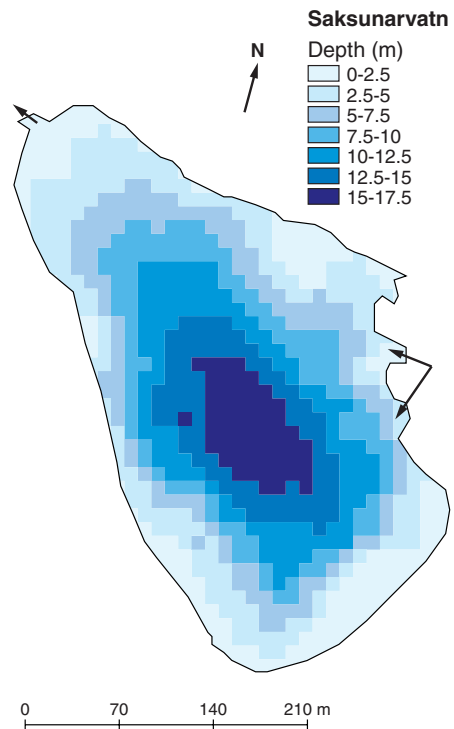
south end of a valley crossing the island from the north to the south (Mortensen, 2002). The lake is long and relatively narrow with a maximum length and width of 6000 and 800 m, respectively. The lake covers an area of 3.56 km<sup>2</sup>. The maximum depth measured by Dali (1975) was 59 m and the mean depth of the lake is 27.5 m. A small sandy beach is found near the village of Vatnsøyra, otherwise the shore is stony. The catchment area is 35.2 km<sup>2</sup>, which is the largest for the five lakes. It comprises of 6 % cultivated fields (including the airport runway) and 94 % of extensive grassland



**Figure 5.** Contour plot of Toftavatn with arrows marking the largest in- and outlets. No data from the northern basin.

and stony fields. The cultivated percentage is the highest for the five lakes. The main input of nutrients to Sørvágsvatn can be attributed to wastewater from households in the village of Vatnsøyra and to runoff from the airport runway due to the ammonia-containing defroster system used during the winter months.

The main inflow is the Skjatlá at the north, but many small brooks enter the lake along the entire shore. The lake outlet runs via the Bøsdalafossur to the sea.



**Figure 6.** Contour plot of Saksunarvatn with arrows marking the largest in- and outlets.

### Toftavatn

Toftavatn (Fig. 5) is located at an altitude of 15 m between the towns of Toftir and Runavík on the island of Eysturoy. The lake is 1500 m long and 770 m wide and covers an area of 0.52 km<sup>2</sup>. The lake is divided into a shallow northern basin and a deep southern basin, with a maximum depth of 3.5 and 22 m, respectively (Dali, 1975). In the northern basin a multitude of rocks and stones break the water surface. Moderate depth and a small, deep central part characterize the southern basin. The mean depth of the whole lake is 5.8 m. A small

**Table 1.** Morphometric characteristics of the five lakes. Areas are measured in the software program Arcview on 1:100,000 maps. Other data derived from Dali (1975; 1977).

	<b>Area</b> (km <sup>2</sup> )	<b>Altitude</b> (m a.s.l.)	<b>Max. depth</b> (m)	<b>Mean depth</b> (m)
Eystara Mjáavatn	0.03	76	7	3.0
Leynavatn	0.18	63	33	13.7
Sørvágsvatn	3.56	32	59	27.5
Toftavatn	0.52	15	22	5.8
Saksunarvatn	0.08	25	17	6.5

sandy beach is found at the southern end of the lake; otherwise the shore is broken and stony.

The catchment area is 3.6 km<sup>2</sup>, consisting of 2 % cultivated fields and 98 % extensive grass fields in a flat area. The cultivated grass fields to the south and southeast of the lake are used as summer pasture for sheep, and the extensive fields are dominated by heath. Many small brooks enter the lake and the outlet of the lake runs from the north through the town of Runavík. The nutrient input derives mainly from 3-4 households and the summer pastures.

#### *Saksunarvatn*

Saksunarvatn (Fig. 6) is located on the island of Streymoy in the valley of Saksunardalur to the east of the village of Saksun. Saksunardalur is a rather long valley running southeast to northwest. The lake is surrounded by very steep hills on all sides, except the flat and sandy south and southeast part of the shore. The lake is situated at 25 m a.s.l. and is 450 m long and 160 m wide at the widest part. The lake covers an area of 0.08 km<sup>2</sup>. The lake bottom of Saksunarvatn has a maximum depth of 17 m and a mean depth of 6.5 m.

The catchment area is 12.3 km<sup>2</sup>, consist-

**Table 2.** Catchment areas including the lake areas and catchment type. Catchment areas and types are measured in the software program Arcview on 1:100,000 maps and on topographic 1:20,000 maps, respectively. The cultivated fields and the extensive fields correspond to the terms infields and outfield, respectively.

	<b>Catchment area</b> (km <sup>2</sup> )	<b>Cultivated fields</b> (%)	<b>Extensive fields (%)</b>	<b>Catchment area divided by lake area</b>
Eystara Mjáavatn	1.8	0	100	60
Leynavatn	16.6	1	99	92
Sørvágsvatn	35.2	6	94	10
Toftavatn	3.6	2	98	7
Saksunarvatn	12.3	1	99	154

ting of 1 % cultivated grassland and 99 % extensive fields. The most important inlet is the Dalá, which enters the lake at the east end. The smaller Tvørá enters the lake from the eastern end of the valley too, while a few small brooks enter the lake from the north and southwest sides. The nutrient load to Saksunarvatn derives from four households, the small infield area, and natural erosion of the environment and precipitation. The lake has the highest catchment to lake surface area ratio.

### Acknowledgements

We thank A.M. Poulsen, A. Kjeldgaard, K. Møgelvang, J. Jacobsen and T. Christensen for editorial and layout assistance. The study was financed by The Nordic Council of Ministers through the Nordic Arctic Research Programme (1999-2003) and from the Danish North Atlantic Research Programme (Ref.no. 9803000).

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