

# OR Annual report 2022

## Appendices



### Sewage treatment, overflows and sea water quality



## Table of contents

OR and subsidiaries' area of operations .....	1
Sea water quality along Reykjavík's coastline and on the periphery of dilution areas in Faxafloi bay.....	2
Sea water quality along the coastline in West Iceland .....	2
Chemicals and trace elements from sewage treatment plants in Reykjavik 2022 .....	3
Release from Veitur utilities' sewerage systems .....	4
Release via overflows in Reykjavik 2020-2022 .....	4
Release via overflows in West Iceland 2022 .....	6

Cover photo: Atli Már Hafsteinsson

# OR and subsidiaries' area of operations



## Sea water quality along Reykjavík's coastline and on the periphery of dilution areas in Faxafloi bay

The percentage (%) of samples below limits, i.e., less than 100 in a 100 ml sample at the coast by Reykjavik in 2016-2022 and less than 1000 in a 100 ml sample at the periphery of dilution areas for the period 2015-2021.

Samples	Heat-tolerant microbes		2016	2017	2018	2019	2020	2021	2022
<b>At the coast and by the discharge point</b>									
RDEP and	Faecal coliforms	%	85	81	87	90	93	87	95
Veitur Utilities	Enterococci	%	95	96	96	99	97	93	99
<b>At the periphery of dilution areas</b>									
Veitur Utilities*	Faecal coliforms	%	100	100	97	100	100	100	-
	Enterococci	%	100	100	100	100	100	100	-

RDEP: Reykjavik's Department of Environment and Planning

\*Veitur Utilities discontinued sampling at the dilution area periphery in 2021 as it is not required in regulations.

## Sea water quality along the coastline in West Iceland

In 2022, from May to December, additional samples were collected in 6 locations along Akranes' coastline and in 11 new sampling sites along Borgarnes' coastline. The table below show the ratio of samples below limits (100 microbes in 100 mL) 71 sample were collected for each category of microbes.

Samples	Heat-tolerant microbes		2021	2022
<b>Sea quality at Akranes, 52 samples for each category of microbes</b>				
Veitur	Faecal coliforms	%	86	85
	Enterococci	%	93	96
<b>Sea quality at Borgarnes, 79 samples for each category of microbes</b>				
Veitur	Faecal coliforms	%		96
	Enterococci	%		97

# Chemicals and trace elements from sewage treatment plants in Reykjavik 2022

Discharge of pollutants (mg/l) from sewage treatment plants in Reykjavik in 2022. The average flow in Klettagardar was 1,558 l/sec and in Ananaust 1,107 l/sec. Calculations are based on results of chemical and trace element analysis from treated sewage samples, collected four times a year for nitrogen and phosphorus analysis and twice a year for trace element analysis.

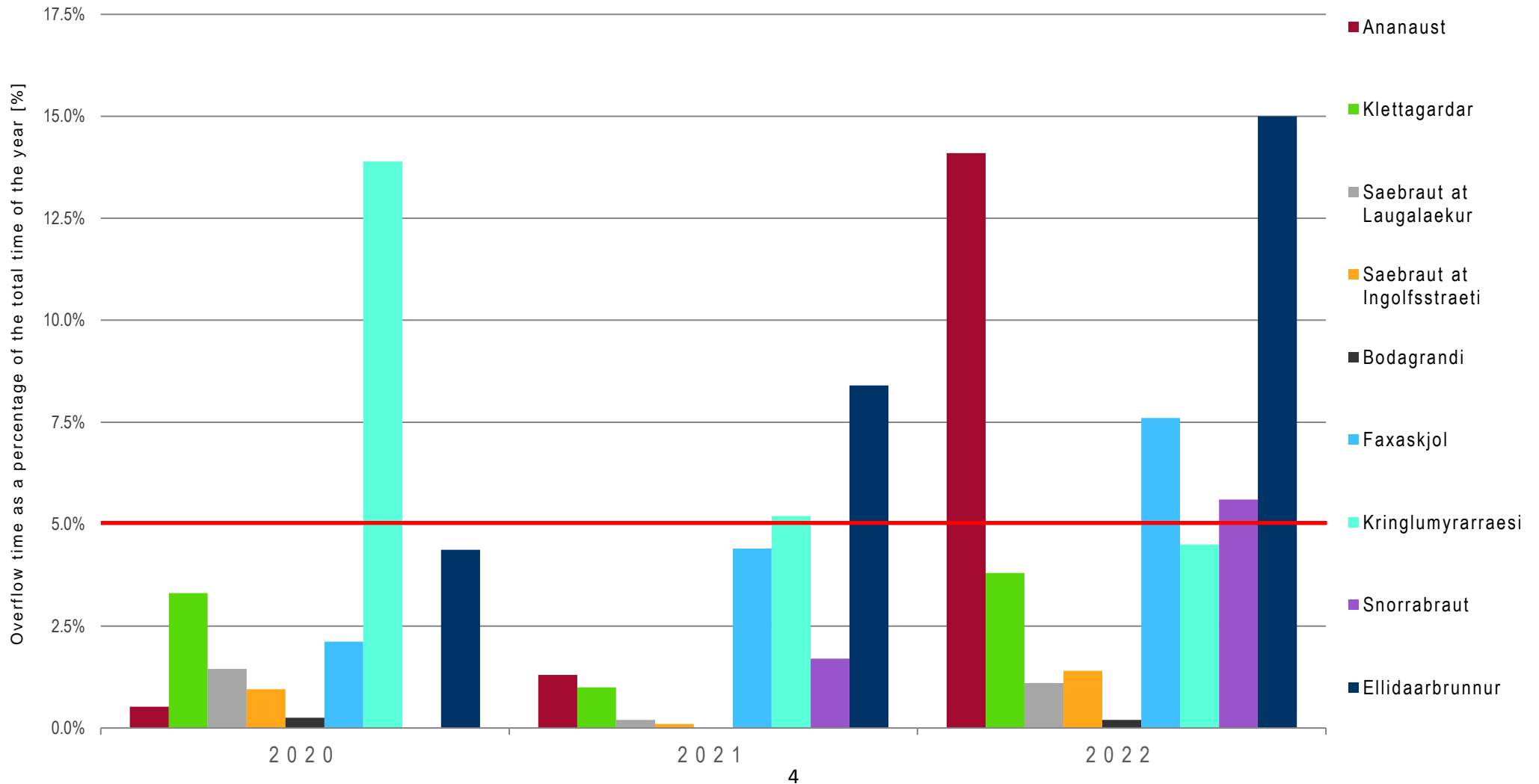
	Spring mg/l	Summer mg/l	Autumn mg/l	Winter mg/l	Average mg/l
<b>Klettagardar</b>					
Total nitrogen (N)	10.5	14.9	13.4	7.5	11.9
Total phosphorus (P)	1.1	2.0	1.5	1.0	1.5
Arsenic (As)		0.0008		0.0011	0.0010
Cadmium (Cd)		<0.00005		<0.00005	Below the detection limit
Chromium (Cr)		0.0013		0.0031	0.0022
Copper (Cu)		0.0048		0.0068	0.0058
Mercury (Hg)		<0.00002		<0.00002	Below the detection limit
Nickel (Ni)		0.0038		0.0026	0.0032
Lead (Pb)		0.0007		0.0008	0.0007
Silver (Ag)		<0.0005		<0.0005	Below the detection limit
Zinc (Zn)		0.12		0.0334	0.0787
<b>Ananaust</b>					
Total nitrogen (N)	12.0	19.3	15.15	8.0	14.1
Total phosphorus (P)	1.5	2.8	2.255	1.2	2.0
Arsenic (As)		0.0012		0.0012	0.0012
Cadmium (Cd)		<0.00005		<0.00005	Below the detection limit
Chromium (Cr)		<0.0009		0.0015	Below or near the detection limit
Copper (Cu)		0.0050		0.0059	0.0054
Mercury (Hg)		<0.00002		<0.00002	Below the detection limit
Nickel (Ni)		0.0023		0.0018	0.0020
Lead (Pb)		0.0007		<0.0005	Undir eða við greiningarmörk
Silfur (Ag)		<0.0005		<0.0005	Below the detection limit
Zinc (Zn)		0.0559		0.0258	0.0409

- When both samples collected are below the detection limits, the column "mean value" states "below the detection limit".

# Release from Veitur utilities' sewerage systems

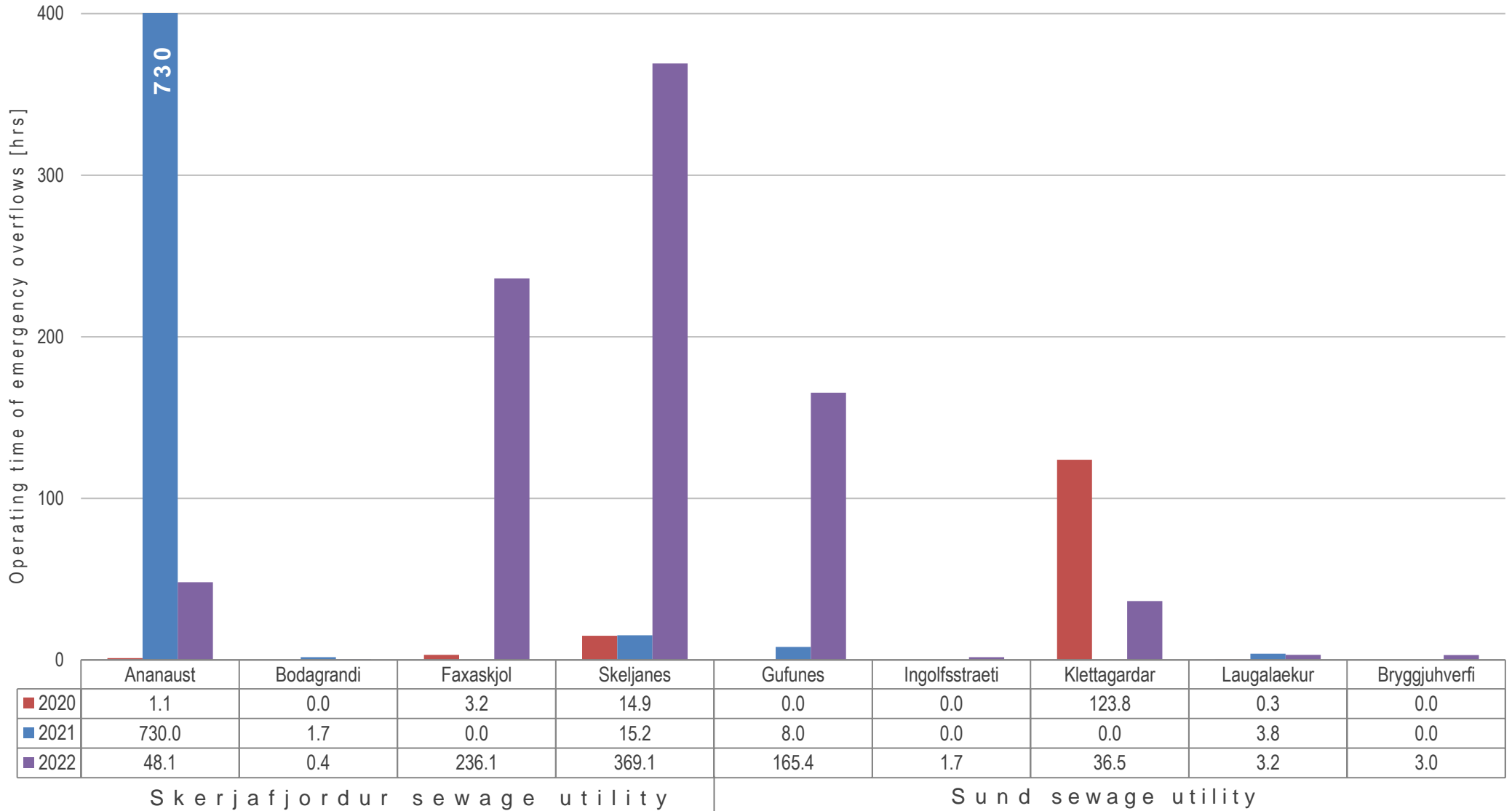
According to regulation no. 798/1999 on Sewerage systems and Sewage, overflow in the sewerage system may be active for up to 5% of the time of the year, or when the sewage mixed with hot water from district heating utilities or rainwater is at least on a ratio of 1:5.

## Release via overflows in Reykjavik 2020-2022



Due to weather conditions, the sewage system load was unusually high in March. Major maintenance in August and September at Faxaskjöl and Skeljanes pumping stations greatly increased the time of emergency overflow activity at the Faxaskjöl and Skeljanes pumping stations.

## Emergency overflow activity in Reykjavik 2020-2022



In 2022, the discharge of wastewater via overflows in West Iceland was within Veitur Utilities' established limits, apart from Aegisbraut in Akranes. According to regulation no. 798/1999 on Sewerage systems and Sewage, overflow in the sewerage system may be active for up to 5% of the time of the year, or when the sewage mixed with hot water from district heating utilities or rainwater is at least on a ratio of 1:5.

## Release via overflows in West Iceland 2022

