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<b>1 Document title</b>	HELCOM MORS environmental data compilation 2021
<b>Code</b>	4-2
<b>Category</b>	INF
<b>Agenda Item</b>	4 – Data collection, databases and ongoing monitoring programme
<b>Submission date</b>	17.5.2021
<b>Submitted by</b>	Secretariat
<b>Reference</b>	

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## Background

This document contains a summary of data reported to MORS Environmental database by the Contracting Parties by 30 April 2021. The document outlines the number of samples of historical data 1984-2019 and with focus on the latest reporting round (data for the year 2019).

## Action

The Meeting is invited to consider the MORS environmental data compilation 2021 and check that all the reported and available national data is reported to the MORS database.

## HELCOM MORS ENVIRONMENTAL DATA COMPILATION 2021

This document contains number of samples reported to the MORS database before 30 April 2021 and includes the years 1984-2019.

This document summarizes the number of samples reported on biota, seawater and sediments by country and by HELCOM sub-basin. The locations of latest reported samples are indicated in map figures. Data reported for this report from different years than the report year are now be distinguished in the maps.

It should be noted that Latvia has reported data occasionally, latest reported data is from 2012.

Biota data is not available from Russia at all or from Latvia since 2005.

Seawater data is not available from Russia and Latvia since 2012.

Estonia has reported sediment data occasionally. Denmark did not report sediment data for the year 2012 and 2014-2016. Denmark informed that for year 2014-2016 no samples were collected, but monitoring has resumed since 2017. German sediment and seawater data for 2019 was not reported. Germany also reported data for biota for the years 2014, 2015, 2016 and 2018.

Russian and Latvian data submission for 2019 data was not received before 30 April 2021.

**Following additions to database codelists were suggested by the data providers:**

DEVICE_NAME		
DEVICE	DEVICE_NAME	COUNTRY
CLOR04	NIEMISTÖ CORER (diameter 50mm) 6 parallel samples - total area 118cm <sup>2</sup>	67

RUBIN_NAME		
RUBIN	SCIENTIFIC_NAME	ENGLISH_NAME
ZOST MARI	Zostera marina	
VERT FUCO	Vertebrata fucoides	

### Modifications on the reported data:

LEPA reported all keys in BIO02 as 2018 (BLEPA2018) for 2019. They were renamed as BLEPA2019 to be included in Access.

IMGW reported identical keys to BIOTATYPE F and P. Sampling number of P was renamed after F end sampling number (BIMGW2019040).

The entry WLEPA2008011 was deleted from SEA02 access file due to erroneous sampling value recorded.

Modifications based on the codelist can be observed in the tables below.

DEVICE_NAME			
DEVICE reported	DEVICE on codelist	DEVICE_NAME	COUNTRY
EBRS02	EBRS01	NIEMISTÖ CORER ( diameter 5 cm)	91

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RUBIN_NAME		
RUBIN reported	RUBIN on codelist	COUNTRY
STUC PECT	STUC PEC	67

## Biota data 1984-2019

Table 1. Number of samples reported on biota in 1984-2019 to the MORS database by country.

YEAR	DENMARK	ESTONIA	FINLAND	GERMANY	LATVIA	LITHUANIA	POLAND	SWEDEN	TOTAL
2019	9	5	15	4		8	78	16	135
2018	9	4	15	11		7	84	15	145
2017	10	4	15	3		1	77	18	128
2016	11	4	15	14		4	20	17	85
2015	10	4	16	26		6	83	18	163
2014	10	4	16	8		1	92	17	148
2013	10	9	16	1		6	20	18	80
2012	10	6	15	51		4	21	19	126
2011	10	3	16	64		7	21	17	138
2010	10	5	16	69		1	20	17	138
2009	11	2	16	69		2	20	18	138
2008	11	2	16	26			20	16	91
2007	11	3	16	32		1	20	17	100
2006	12	2	16	22			21	18	91
2005	11	4	15	16	2		20	17	85
2004	11	4	15	13			29	19	91
2003	11	4	14	34	6	1	28	18	116
2002	11	4	15	16	3		29	18	96
2001	11	4	16	21	2		50	17	121
2000	11		16	35	3		41	19	125
1999	13	1	16	28	6	1	35	18	118
1998	11	3	16	35	4	2	34	16	121
1997	10	2	15	32	4	2	39	12	116
1996	10		16	51	6	2	49	18	152
1995	17		14	56	1	2	37	17	144
1994	23		12	27		2	31	17	112
1993	23		14	48			29	17	131
1992	18		14				34	17	83
1991	15		14	57			54	19	159
1990	22		14	40			34	19	129
1989	3		14	68			51	17	153
1988	3		15	70			34	13	135
1987	6		14	217			29	17	283
1986	4		14	70			22	14	124
1985	5		15	25			14	16	75
1984	7		15	55			6	5	88
<b>TOTAL</b>									<b>4463</b>

Table 2. Number of samples reported on biota in 2010-2019 to the MORS database by HELCOM subbasin.

HELCOM Sub-basin	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Aland Sea	2	2	2	2	2	2	2	2	2	2
Arkona Basin	27	31	26	1	5	14	5	2	8	2
Northern Baltic Proper										
Gdansk Basin	11	5	7	7	52	40	1	37	37	38
Bornholm Basin	22	21	14	8	41	34	13	36	44	37
Bothnian Bay	3	3	2	3	3	3	3	3	2	3
Bothnian Sea	12	8	8	8	8	10	7	8	7	7
Eastern Gotland Basin	8	19	11	16	5	21	16	10	15	16
Western Gotland Basin	4	4	5	4	4	3	4	4	4	4
Gulf of Finland	11	9	12	13	10	10	9	9	9	10
Kattegat	12	11	11	11	11	10	10	11	9	10
The Sound	1	1	1	1	1	1	1	1	1	1
Gulf of Riga				2						
Kiel Bay	5	9	6		2	11	9	1	3	2
Bay of Mecklenburg	16	11	17							
The Quark	3	3	3	3	3	3	3	3	3	2
Skagerrak	1	1	1	1	1	1	1	1	1	1
<b>Total</b>	<b>138</b>	<b>138</b>	<b>126</b>	<b>80</b>	<b>148</b>	<b>163</b>	<b>84</b>	<b>129</b>	<b>145</b>	<b>135</b>

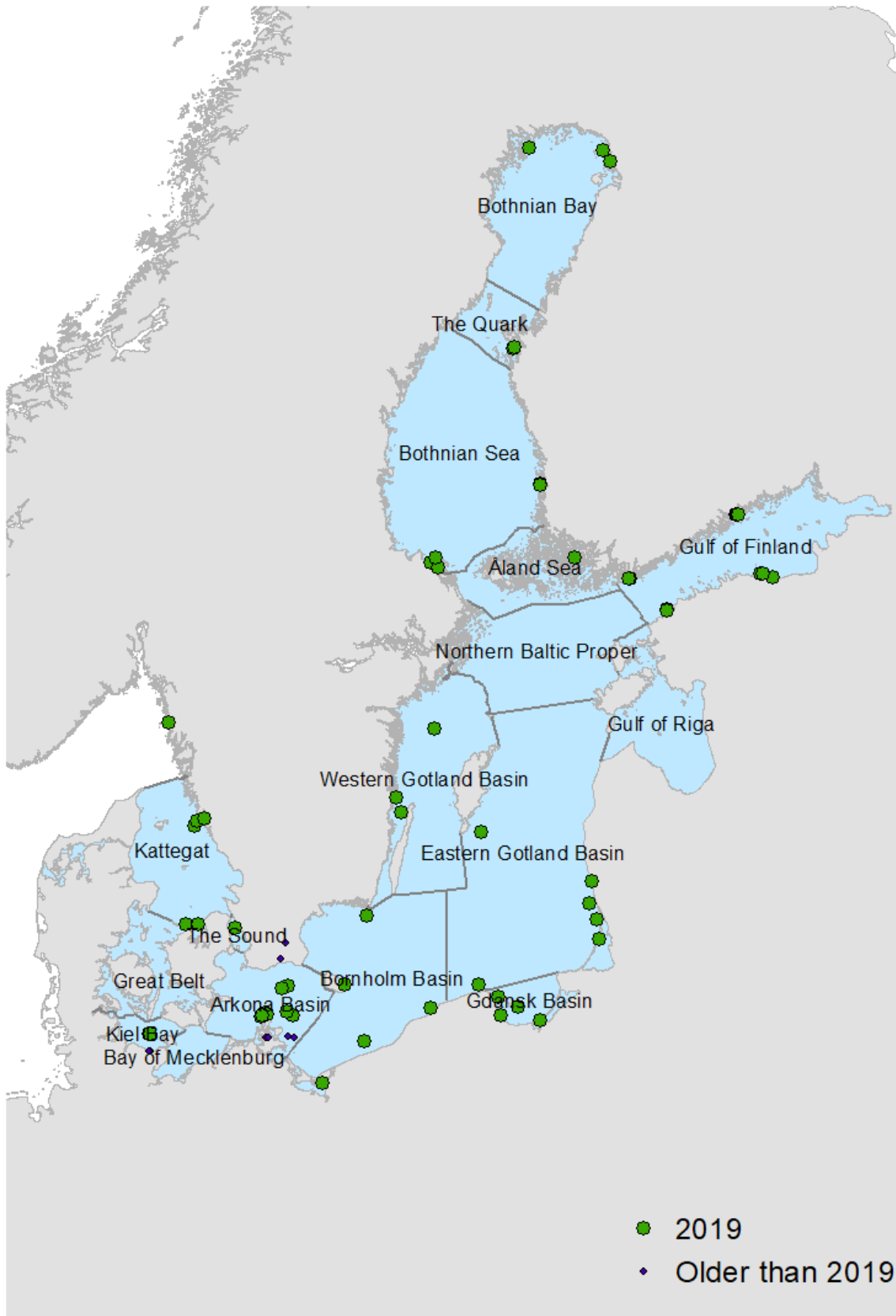


Figure 1. Locations of 2019 biota samples in HELCOM subbasins. The green dots represent the data reported for 2019 and the blue dots represent the data reported in 2019, but for earlier dates.

## Seawater data 1984-2019

Table 3. Number of samples reported on seawater in 1984-2019 to the MORS database by country.

YEAR	DENMARK	ESTONIA	FINLAND	GERMANY	LATVIA	LITHUANIA	POLAND	RUSSIA	SWEDEN	TOTAL
2019	25	5	17			11	51		8	117
2018	25	5	7	57		13	51		8	166
2017	25	5	15	57		13	51		8	174
2016	47	5	17	57		13	51		8	198
2015	45	5	17	57		13	51		8	196
2014	24	5	18	57		15	55		8	182
2013	46	5	18	57		14	51		8	199
2012	45	5	18	57	4	13	51	36	8	237
2011	46	5	18	57	4	12	51	43	8	244
2010	49	5	18	57	4	8	51	23	9	224
2009	49	5	22	57		18	51	10	7	219
2008	49	5	26	56		19	51	3	8	217
2007	49	5	26	52		19	51	15	8	225
2006	49	5	26	52		20	39	19	8	218
2005	49	5	26	52	6	16	51	34	4	243
2004	49	5	26	49	8	6	51	22		216
2003	49	5	25	67	10	6	53	27		242
2002	49	6	29	49	10	4	53	12		212
2001	49	6	27	94	8	4	48	17		253
2000	49	6	28	127	8	4	41	19		282
1999	50	6	28	109	16	5	34	31		279
1998	50	6	26	94	16	4	45	26		267
1997	51	3	26	101	20	4	44	26		275
1996	52		26	181	6	5	36	31		337
1995	56		28	85	2		25	21		217
1994	71		26	164			32	19		312
1993	48		28	130			41	41		288
1992	48		26	142			42	31		289
1991	45		26	131			40	37		279
1990	24		39	103			42	39		247
1989	72		13	283			43	38		449
1988	47		15	165			47			274
1987	48		12	350			49	30		489
1986	70		21	304			51	38		484
1985	46		12	92			35	31		216
1984	48		7	158			49			262
<b>TOTAL</b>										<b>9228</b>



Table 4. Number of samples reported on seawater in 2010-2019 to the MORS database by HELCOM sub-basin

HELCOM Sub-basin	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Aland Sea										
Arkona Basin	23	23	22	23	21	26	25	19	19	4
Northern Baltic Proper	5	5	5	3	3	3	3	3	3	3
Gdansk Basin	17	17	17	17	19	17	17	17	17	17
Great Belt	14	14	14	14	6	12	12	6	6	6
Bornholm Basin	31	31	31	31	32	29	29	31	31	25
Bothnian Bay	4	4	4	4	4	3	3	3	1	3
Bothnian Sea	7	7	7	7	7	7	7	7	5	9
Eastern Gotland Basin	23	28	31	26	17	15	25	23	23	21
Western Gotland Basin	2	1	1	1	11	11	1	1	1	1
Gulf of Finland	28	42	31	10	10	10	10	10	6	10
Kattegat	18	15	16	15	10	16	16	10	10	10
The Sound	4	4	4	4	2	3	4	2	2	2
Gulf of Riga	4	4	4							
Kiel Bay	22	22	21	22	22	28	24	22	22	2
Bay of Mecklenburg	20	20	20	20	16	14	20	18	18	2
The Quark										
Skagerrak	2	2	2	2	2	2	2	2	2	2
Grand Total	224	244	237	199	182	196	198	174	166	117

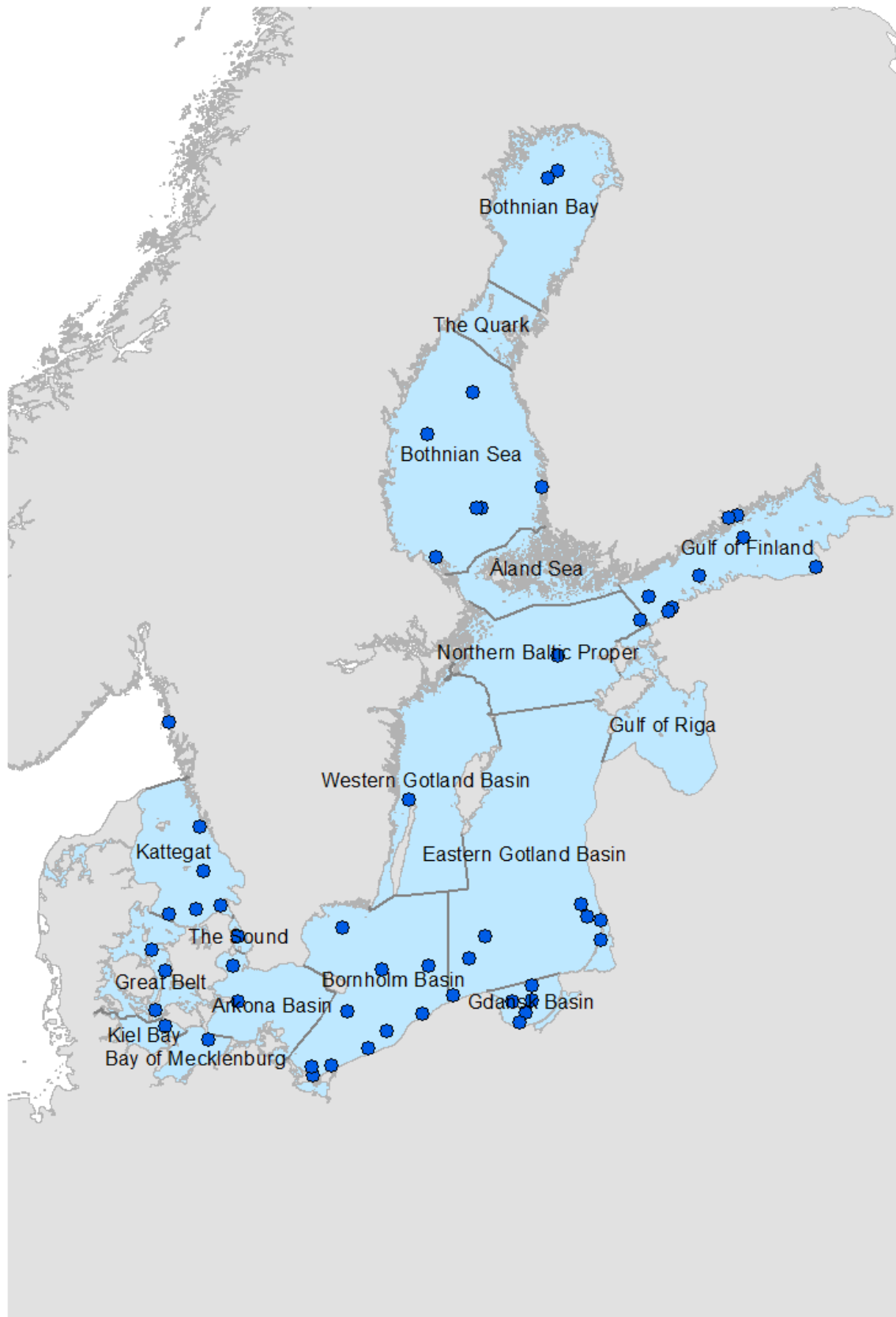


Figure 2. Locations of 2019 seawater samples in HELCOM sub-basins.



## Sediment data 1984-2019

Table 5. Number of samples reported on sediment in 1984-2019 to the MORS database by country.

YEAR	DENMARK	ESTONIA	FINLAND	GERMANY	LATVIA	LITHUANIA	POLAND	RUSSIA	SWEDEN	TOTAL
2019	24	20	105			8	72		32	261
2018	24	20	30			10	72		36	192
2017	25	20	59	122		10	72		36	344
2016		20	79	127		10	72			308
2015		20	95	126		10	72		31	354
2014		19	99	125		12	72		36	363
2013	19	20	95	134		10	72		42	392
2012		20	95	125	24	10	72	269	32	647
2011	25		95	135	24	9	72	181	32	573
2010	19		95	133	24	8	72	95	36	482
2009	19		91	123		9	72		32	346
2008	19		187	105		10	78		32	431
2007	17	1	191	108		10	78	38	32	475
2006	18		185	91		10	78	58	36	476
2005	21	10	165	93	79	13	78	106	32	597
2004	11	3	180	90	45	6	72	49	32	488
2003	29	13	168	87	40	11	72	155	4	579
2002	26	3	260	90	43	10	72	18	32	554
2001	16	9	174	106	23	10	81	10	32	461
2000			148	154	32	10	72	15	36	467
1999		38	35	119	30	10	60	63	53	408
1998			49	145	24	6	85		10	319
1997		5	36	66	40	12	60		31	250
1996			30	72	16	12	60		15	205
1995			32	73		10	25	52	14	206
1994			28	79		12	73	77	3	272
1993			29	80			48		3	160
1992			28	205			77	93	3	406
1991			28	184			71	67	1	351
1990			31	129			31	56	3	250
1989	5		10	154			34	31	3	237
1988	5		25	187			39	13	2	271
1987	4		24	380			37	14	4	463
1986	5		29	41			29	25		129
1985	7		28	71			43	29		178
1984			11	26			30	19		86
<b>TOTAL</b>										<b>13013</b>

Table 6. Number of samples reported on sediment in 2010-2019 to the MORS database by HELCOM sub-basin.

HELCOM SUB-BASIN	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Aland Sea										
Arkona Basin	48	47	41	41	43	43		47	6	6
Northern Baltic Proper	15	24	37	25	25	25	25	20	25	25
Gdansk Basin	36	36	36	36	36	36	36	36	36	36
Great Belt	15	15	10	16	10	10		5	5	5
Bornholm Basin	30	30	30	30	30	30	24	31	24	24
Bothnian Bay	29	29	29	29	28	29	15	28	14	29
Bothnian Sea	30	30	30	30	30	29	15	30	30	55
Eastern Gotland Basin	58	60	71	37	39	37	37	22	22	20
Western Gotland Basin	5	1	1	7	5	1		1	5	1
Gulf of Finland	107	165	220	45	49	45	29	30	10	45
Kattegat	8	17	1	8	1	1		8	8	8
The Sound	1	8	1	11	1	1		12	7	7
Gulf of Riga	24	24	24							
Kiel Bay	39	41	39	40	39	40		47		
Bay of Mecklenburg	37	37	29	37	27	27		27		
TOTAL	482	564	599	392	363	354	181	344	192	261

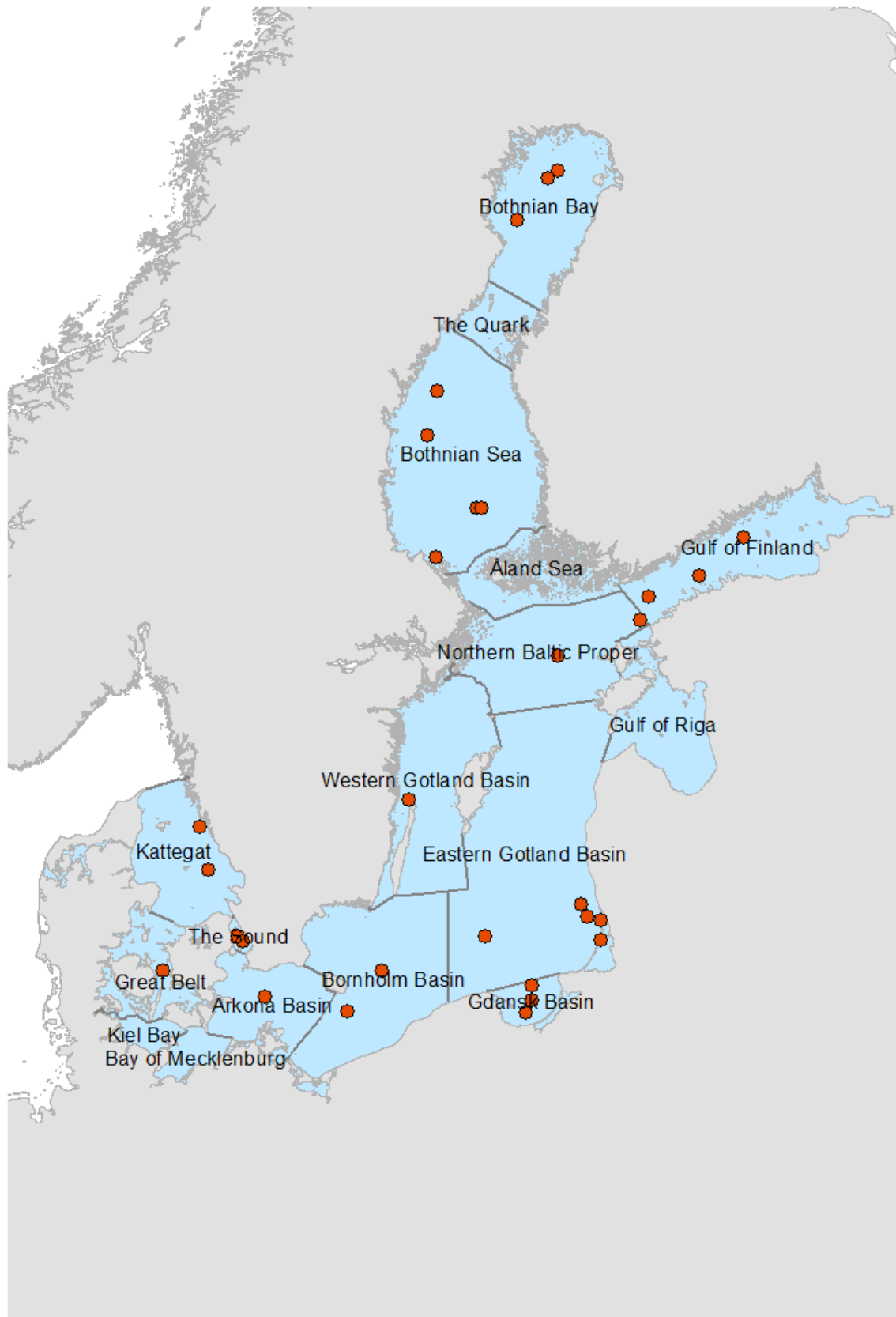


Figure 3. Locations of 2019 sediment samples in HELCOM sub-basins.