



Baltic Marine Environment Protection Commission

Expert Group on Monitoring of Radioactive Substances
in the Baltic Sea

MORS EG 5-2015

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Document title	HELCOM MORS environmental data compilation 2015
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Action required

The Meeting is invited to consider the MORS environmental data compilation 2015 and check and validate the data.

HELCOM MORS ENVIRONMENTAL DATA COMPILATION 2015

This document consists of number of samples reported to the MORS database before 27 April 2015 and includes the years 1984-2013. Attachment 1 contains new reported data for the year 2013 by 27 April 2015.

The first three tables (Tables 1-3) comprise the number of samples reported on biota, seawater and sediments by country, and tables 4-6 comprise the data by sub-basin, respectively.

Figures 1-6 show the number of samples collected on biota, seawater and sediments as totals by country.

It should be noted that Latvia has reported data occasionally, but started reporting for the years 2010-2012.

Biota data is not available from Russia at all and from Latvia since 2005. Biota data from Germany for the year 2013 was not received before 27 April 2015 due to lab construction work that has postponed the radionuclide concentration analyses.

Estonia has reported sediment data occasionally. Denmark did not report sediment data for the year 2012.

Russian and Latvian data submission for 2013 data was not received before 27 April 2014.

Biota data 1984-2013

Table 1. Number of samples reported on biota in 1984-2013 to the MORS database by country.

Year	DENMARK	ESTONIA	FINLAND	GERMANY	LATVIA	LITHUANIA	POLAND	SWEDEN	Total
2013	10	9	16			6	20	18	79
2012	10	6	15	40		4	21	19	115
2011	10	3	16	64		7	21	17	138
2010	10	5	16	67		1	20	17	136
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
Total	341	58	450	1334	37	33	892	500	3645

Table 2. Number of samples reported on biota in 2000-2013 to the MORS database by HELCOM subbasin.

HELCOM Subbasin	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Aland Sea	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Arkona Basin	21	8	7	14	7	10	11	17	10	12	27	31	24	
Bay of Mecklenburg	2	3	2	7	2	3	3	3	4	6	14	11	12	
Bornholm Basin	24	30	6	28	24	14	21	22	22	24	23	21	14	8
Bothnian Bay	3	3	3	3	3	2	3	3	3	3	3	3	2	3
Bothnian Sea	8	8	8	9	10	7	9	8	7	9	12	8	8	8
Eastern Gotland Basin	15	9	16	5	4	5	7	6	5	15	8	19	11	15
Gdansk Basin	17	25	17	10	8	6	4	5	7	7	11	5	7	8
Gulf of Finland	6	10	10	8	9	10	8	9	8	25	11	9	12	13
Gulf of Riga	3	2	3	6		2				9				2
Kattegat	11	11	11	11	11	11	11	10	10	11	12	11	11	11
Kiel Bay	4	2	3	4	2	3	3	5	3	4	5	9	2	
Northern Baltic Proper	1	1	1							4				
Skagerrak	1	1	1	2	1	1	1	1	1	1	1	1	1	1
The Quark	3	2	2	1	2	3	2	3	3	2	3	3	3	3
The Sound	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Western Gotland Basin	3	3	3	5	5	5	5	5	5	3	3	4	5	4
Grand Total	125	121	96	116	91	85	91	100	91	138	136	138	115	79

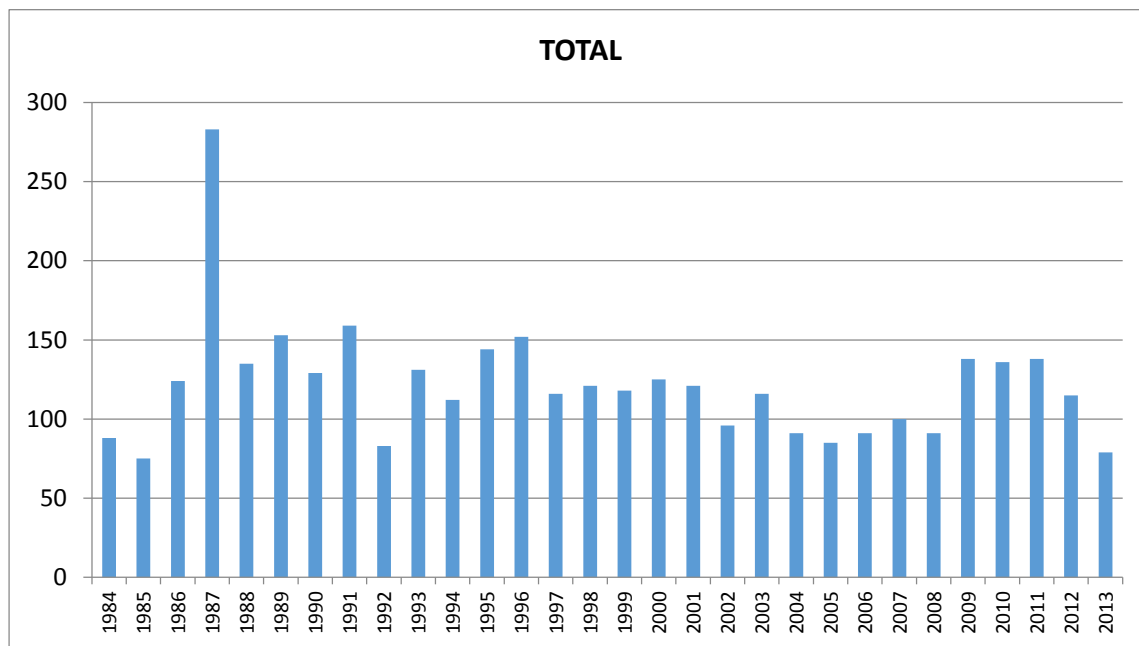
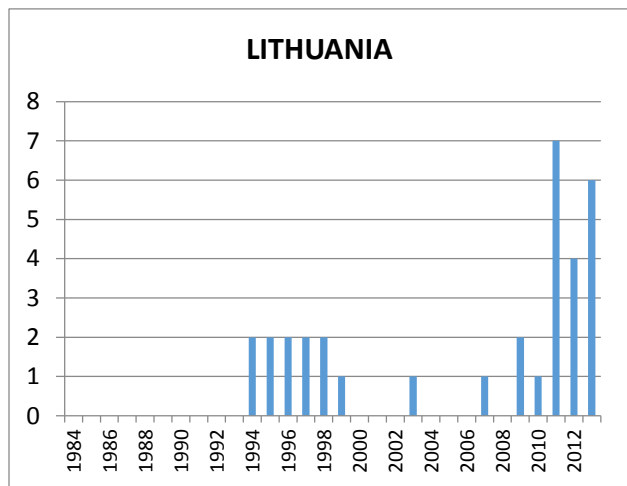
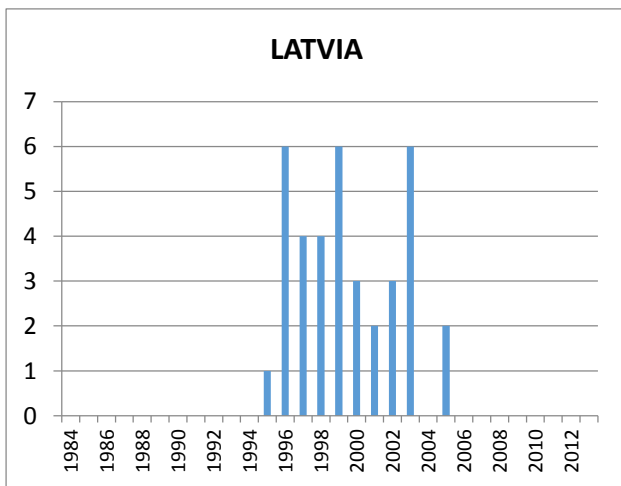
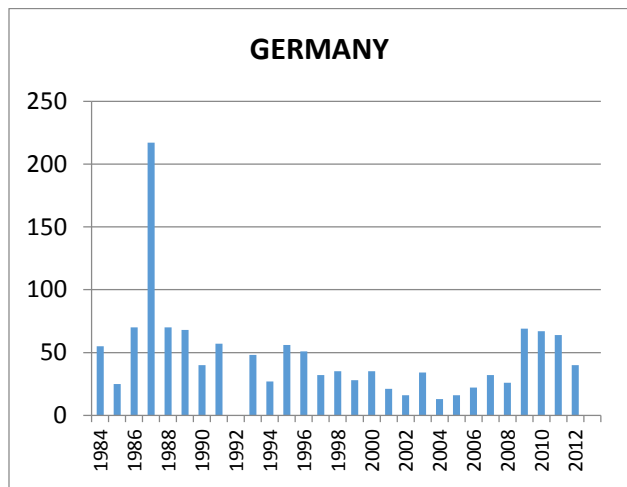
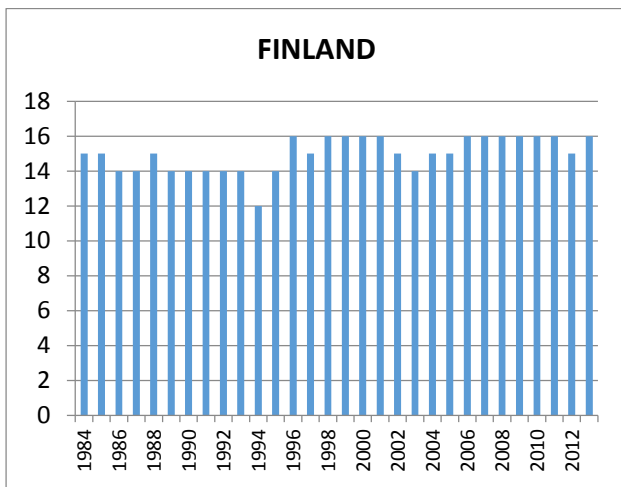
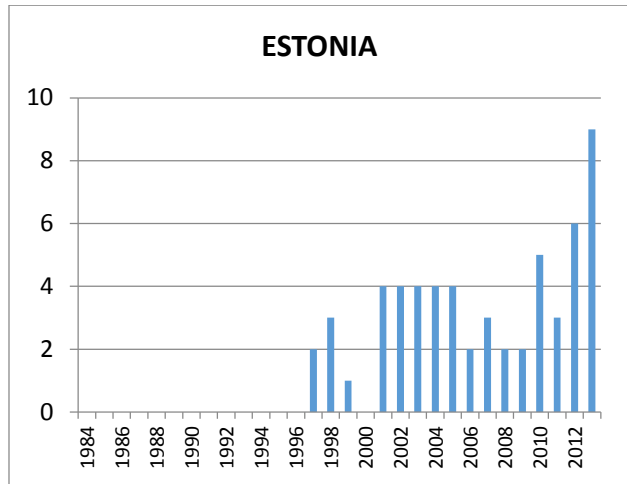
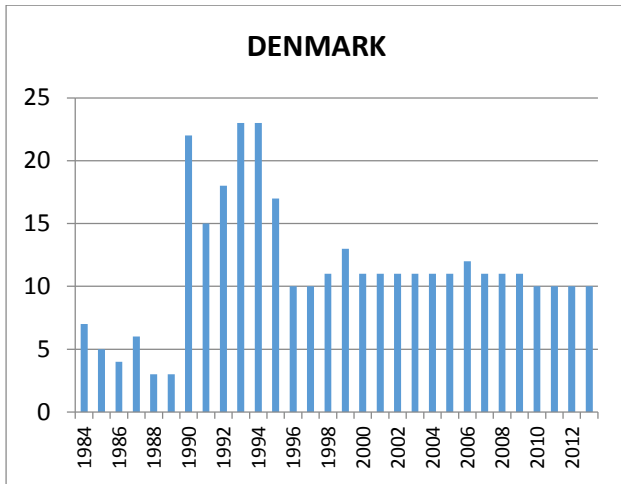
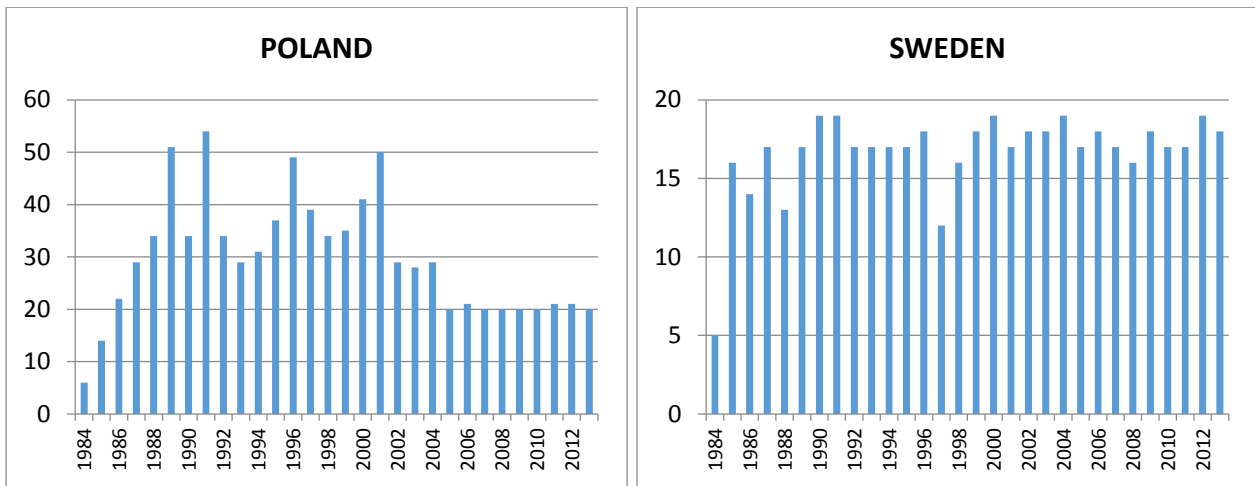


Figure 1. Total amount of biota samples.





Figures 2a-h. Number of biota samples reported in 1984-2013 by Contracting Parties.

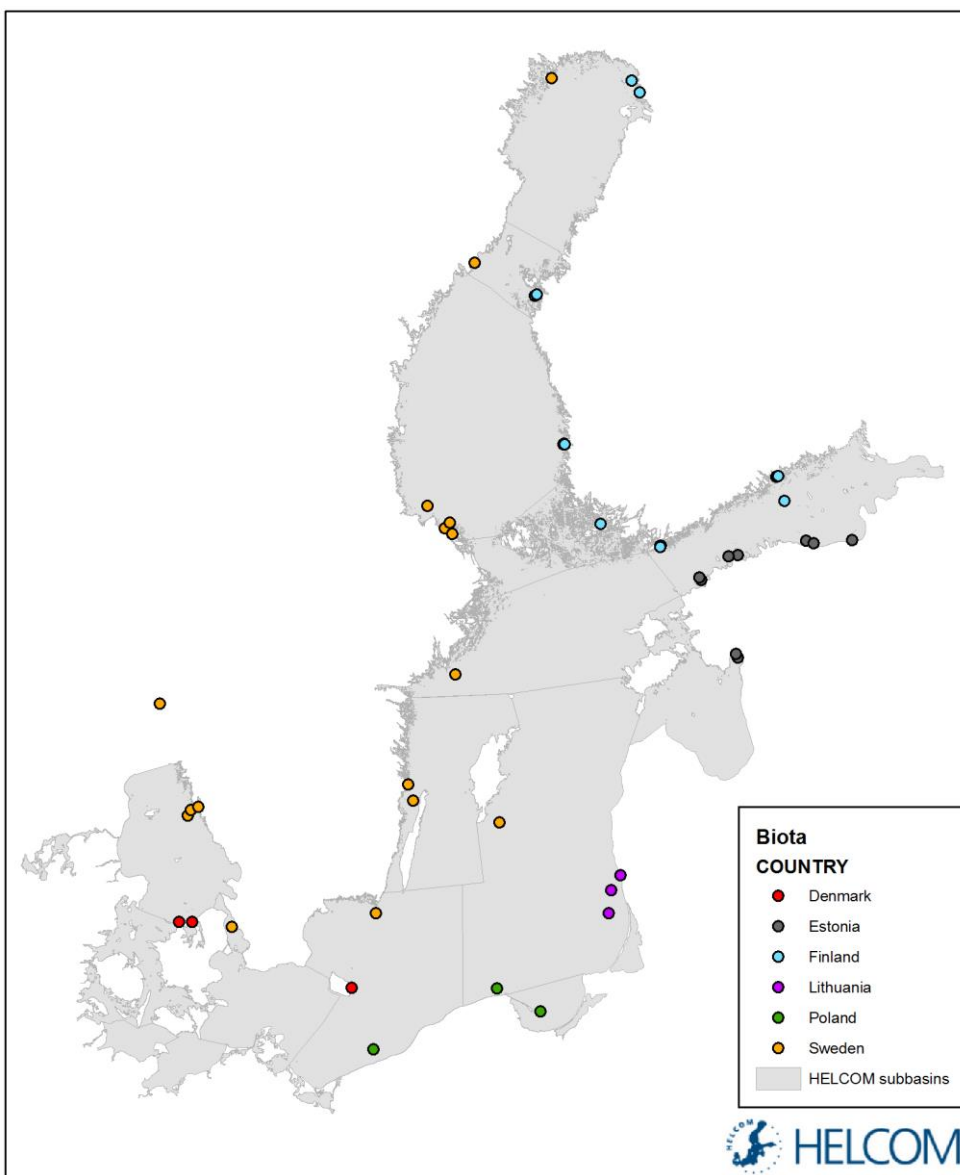


Figure 3. Locations of 2013 biota samples in HELCOM subbasins by country.

Seawater data 1984-2013

Table 3. Number of samples reported on seawater in 1984-2013 to the MORS database by country

Row Labels	DENMARK	ESTONIA	FINLAND	GERMANY	LATVIA	LITHUANIA	POLAND	RUSSIA	SWEDEN	Total
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
Total	1502	88	692	3475	122	181	1348	719	68	8195

Table 4. Number of samples reported on seawater in 2000-2013 to the MORS database by HELCOM subbasin.

Row Labels	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Aland Sea	6													
Arkona Basin	23	24	18	25	18	18	18	18	20	25	23	23	22	23
Bay of Mecklenburg	18	20	20	20	20	20	20	20	20	20	20	20	20	20
Bornholm Basin	31	38	27	27	30	33	23	33	35	31	31	31	31	31
Bothnian Bay	5	4	5	5	5	5	6	6	6	6	4	4	4	4
Bothnian Sea	30	5	5	5	5	6	7	7	7	5	7	7	7	7
Eastern Gotland Basin	25	23	25	31	28	28	30	35	31	30	23	28	31	26
Gdansk Basin	14	18	19	19	17	17	17	17	17	17	17	17	17	17
Great Belt	20	18	14	23	14	14	14	14	14	14	14	14	14	14
Gulf of Finland	27	27	24	32	28	39	27	21	14	22	28	42	31	10
Gulf of Riga	8	4	6	6	4	6					4	4	4	
Kattegat	22	34	16	16	16	17	18	18	18	18	18	15	16	15
Kiel Bay	22	24	22	22	22	22	22	22	22	22	22	22	21	22
Lake Ladoga						4						5	7	
Northern Baltic Proper	16	6	5	5	3	6	7	5	4	3	5	5	5	3
Skagerrak							2	2	2	2	2	2	2	2
The Quark	2	2	2	2	2	2	2	2	2					
The Sound	6	6	4	4	4	5	4	4	4	4	4	4	4	4
Western Gotland Basin	7					1	1	1	1		2	1	1	1
Total	282	253	212	242	216	243	218	225	217	219	224	244	237	199

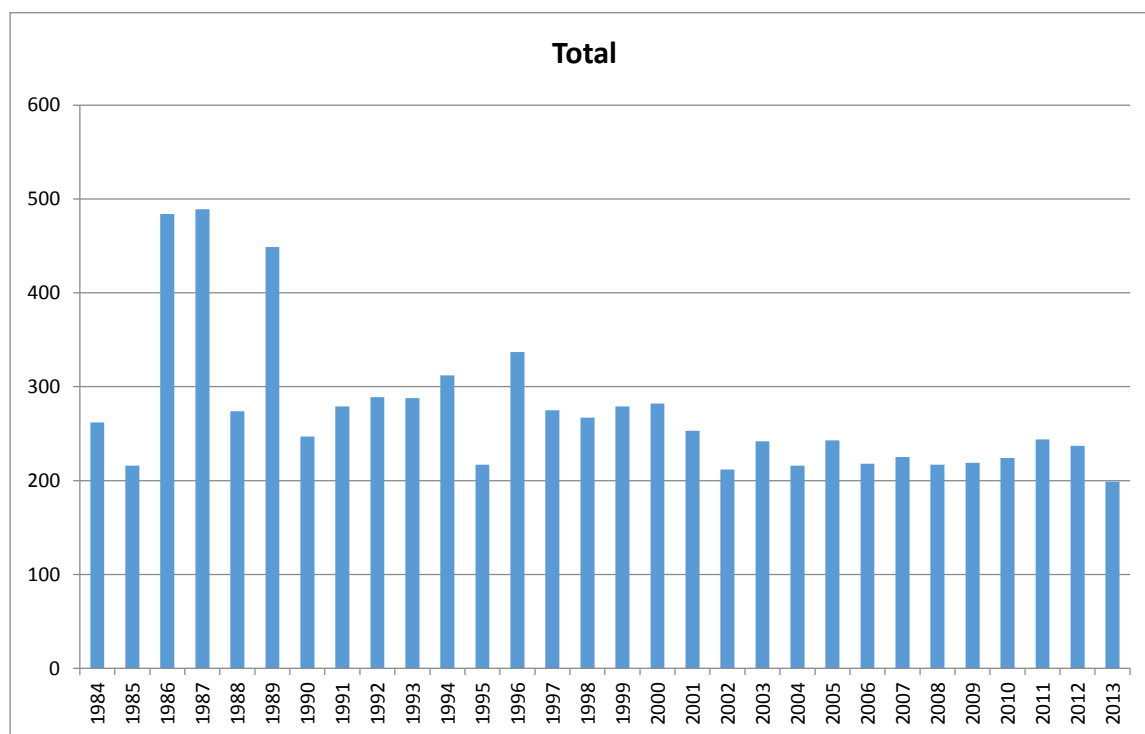
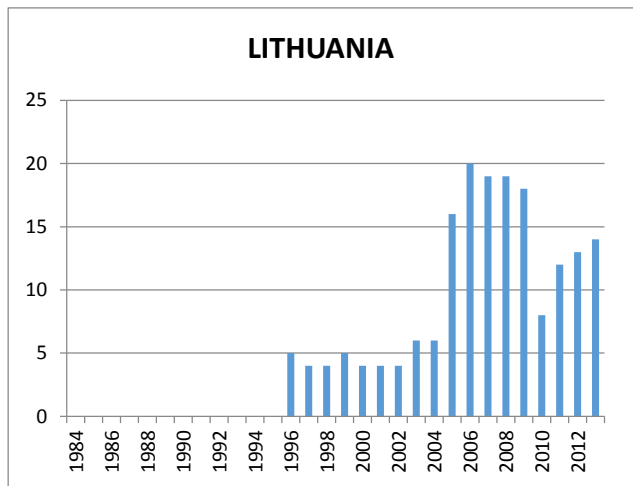
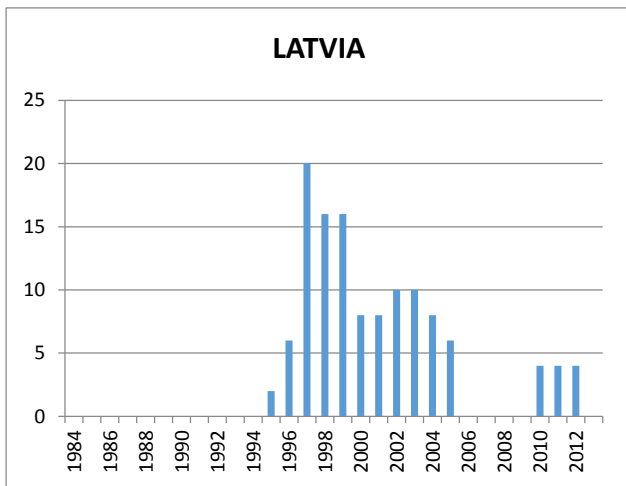
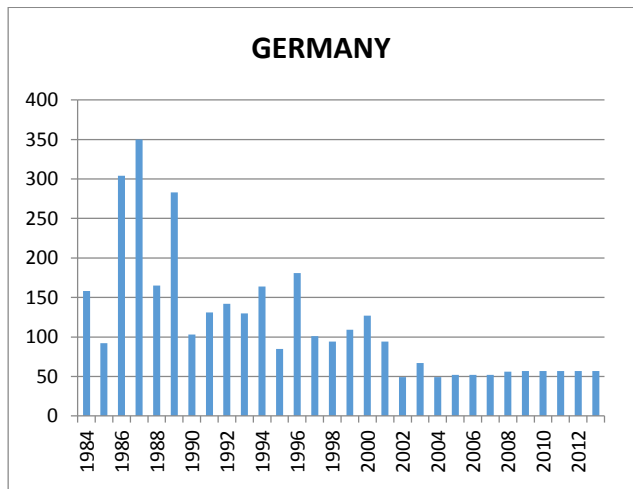
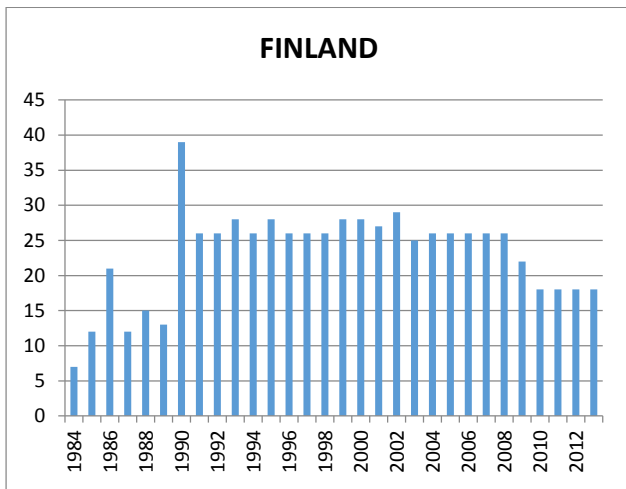
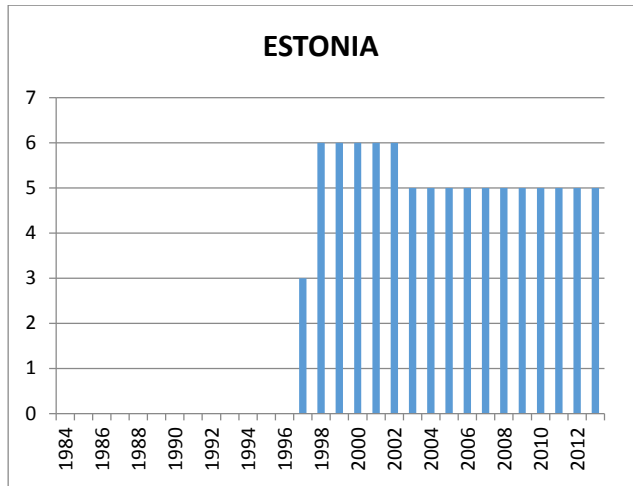
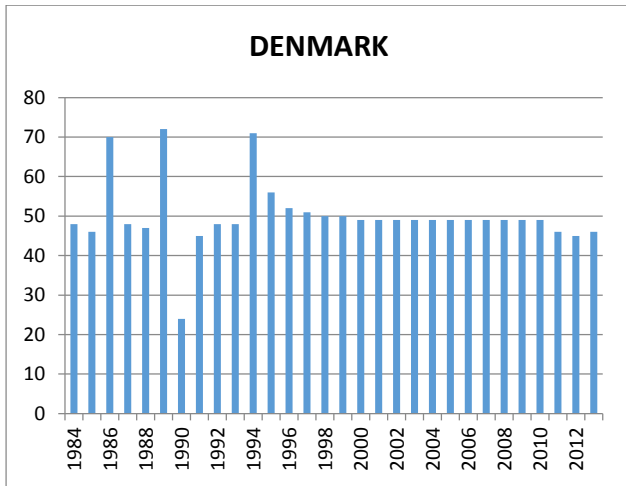
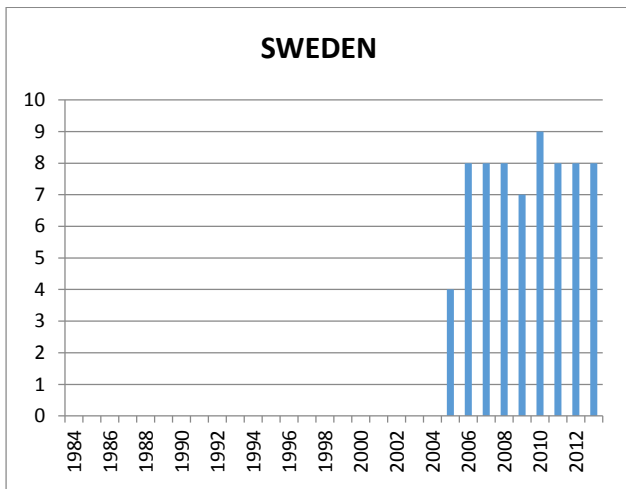
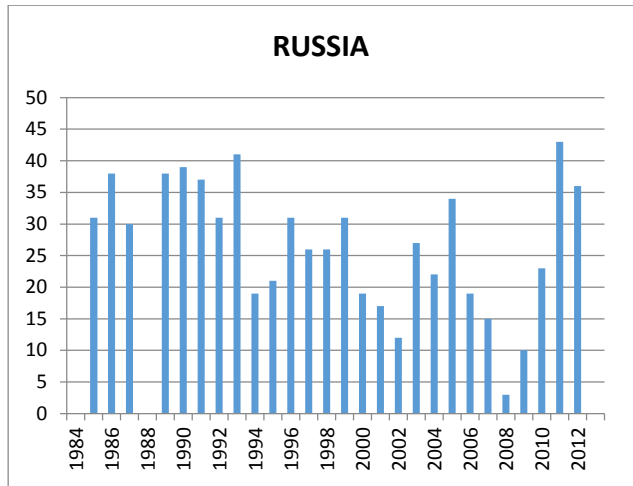
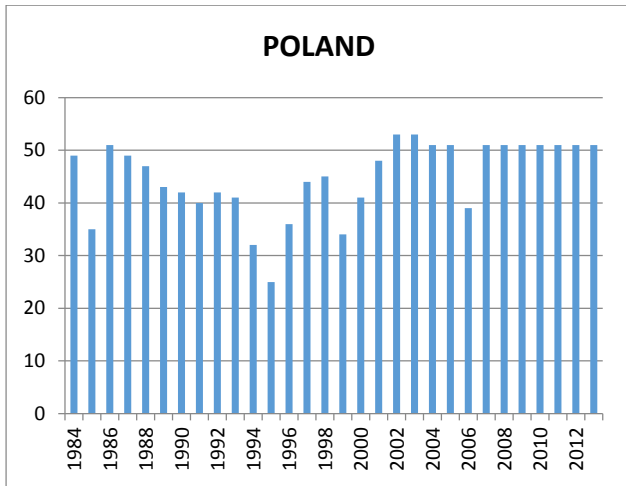


Figure 4. Total amount of seawater samples.





Figures 5a-h. Number of seawater samples reported in 1984-2013 by Contracting Parties.

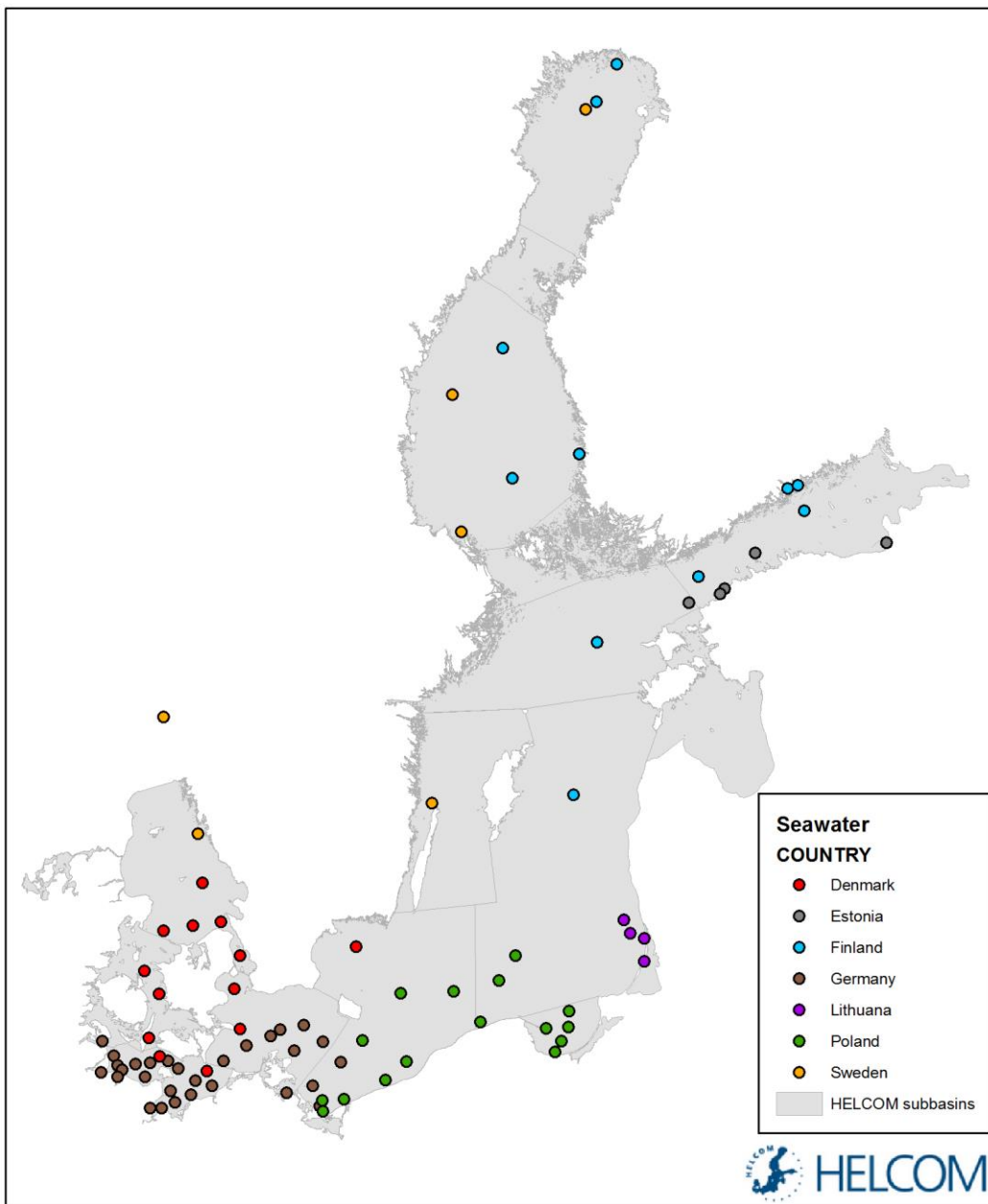


Figure 6. Locations of 2013 seawater samples in HELCOM subbasins by country.

Sediment data 1984-2013

Table 5. Number of samples reported on sediment in 1984-2013 to the MORS database by country

Year	DENMARK	ESTONIA	FINLAND	GERMANY	LATVIA	LITHUANIA	POLAND	RUSSIA	SWEDEN	Total
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
Total	265	122	2582	3585	444	198	1843	1533	587	11159

Table 6. Number of samples reported on sediment in 2000-2013 to the MORS database by HELCOM subbasin.

Subbasin	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Aland Sea	10													
Arkona Basin	7	15	16	18	14	23	15	20	17	45	48	47	41	41
Bay of Mecklenburg	30	31	32	32	32	32	32	36	36	36	37	37	29	37
Bornholm Basin	34	46	32	32	32	33	35	40	41	29	30	30	30	30
Bothnian Bay	38	38	36	20	44	35	39	36	41	25	29	29	29	29
Bothnian Sea	86	45	43	29	45	39	45	44	45	30	30	30	30	30
Eastern Gotland Basin	80	52	82	65	65	56	53	53	53	36	58	60	71	37
Gdansk Basin	36	45	36	36	36	39	39	39	39	36	36	36	36	36
Great Belt	8	14	14	16	13	14	14	14	14	14	15	15	10	16
Gulf of Finland	41	79	81	208	112	157	128	112	70	35	107	165	220	45
Gulf of Riga	32	23	73	40	28	79					24	24	24	
Kattegat	1	4	9	12	1	8	6	6	7	7	8	17	1	8
Kiel Bay	33	32	32	31	34	31	34	36	36	36	39	41	39	40
Lake Ladoga						11						9	48	
Northern Baltic Proper	30	30	60	38	30	38	30	37	30	15	15	24	37	25
The Sound	1	6	7	1	1	1	1	1	1	1	1	8	1	11
Western Gotland Basin		1	1	1	1	1	5	1	1	1	5	1	1	7
Total	467	461	554	579	488	597	476	475	431	346	482	573	647	392

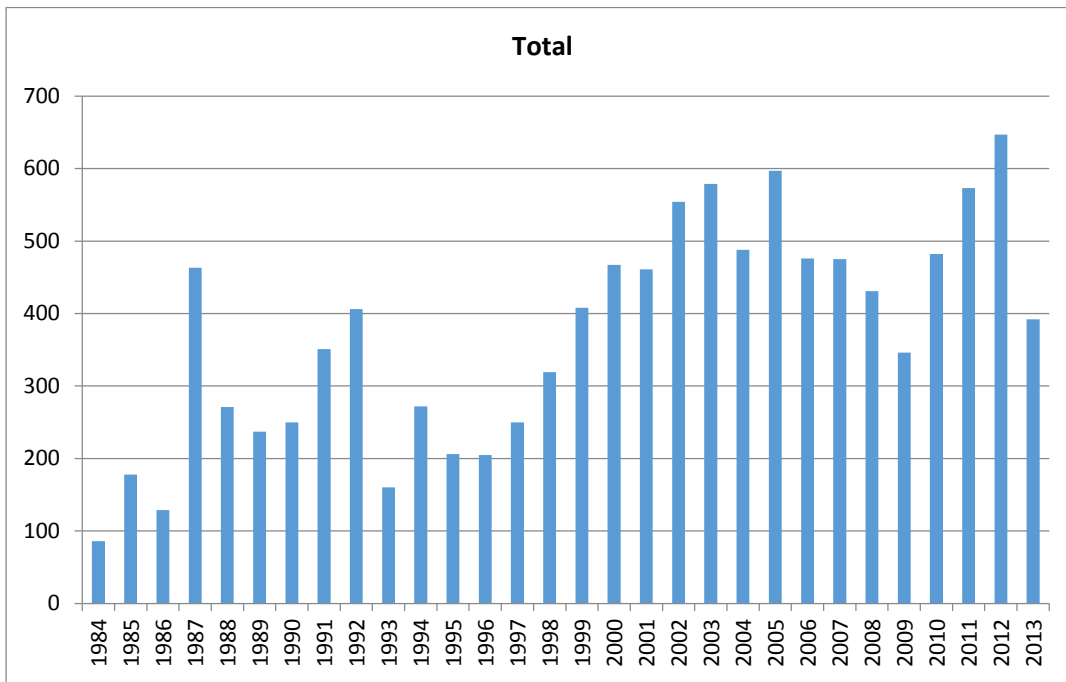
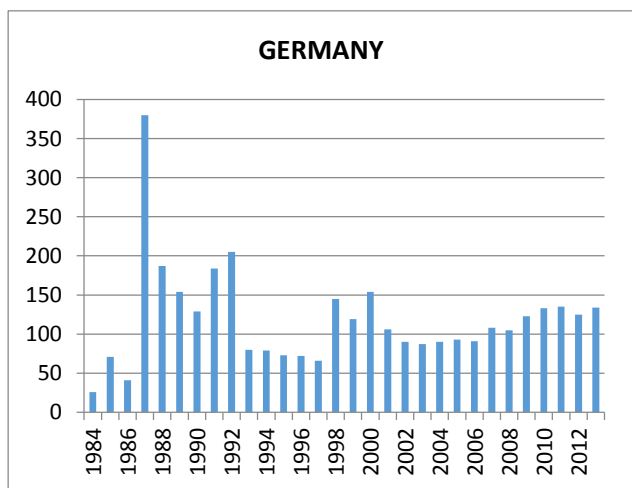
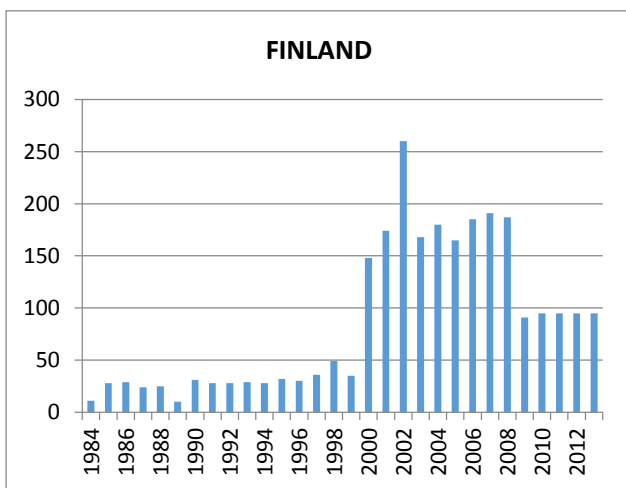
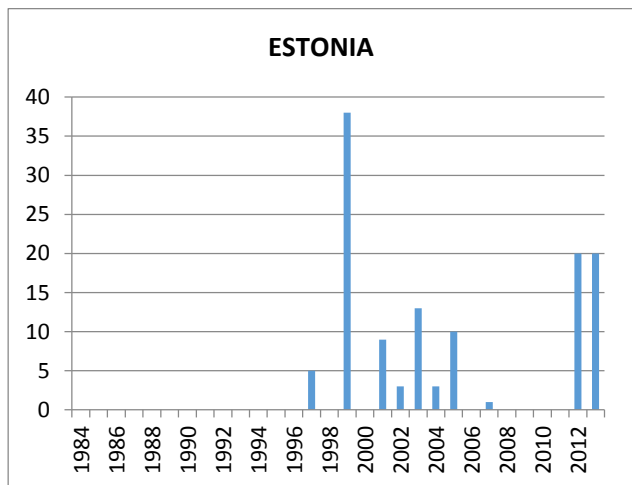
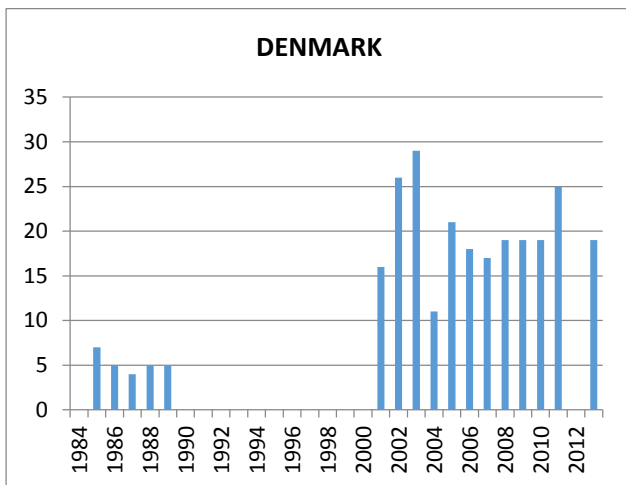
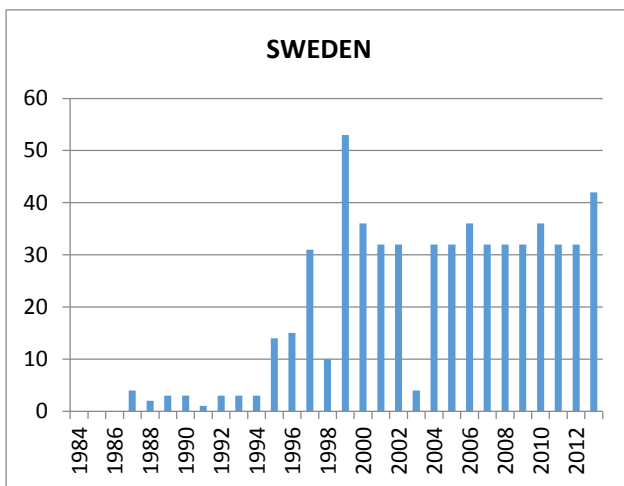
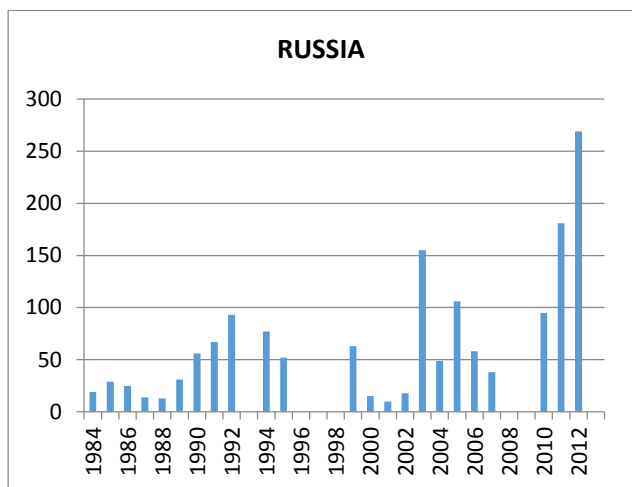
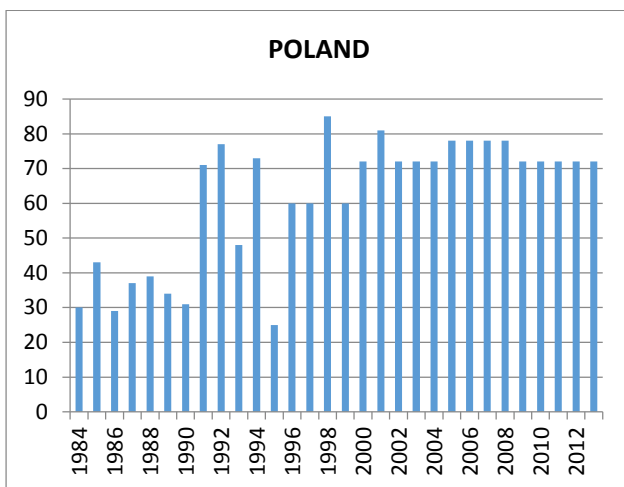
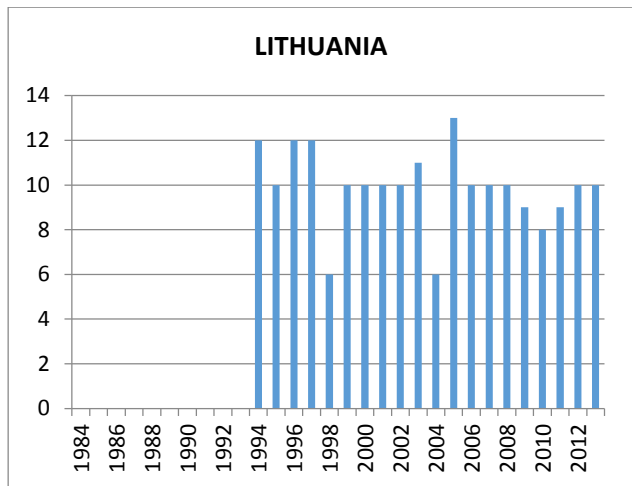
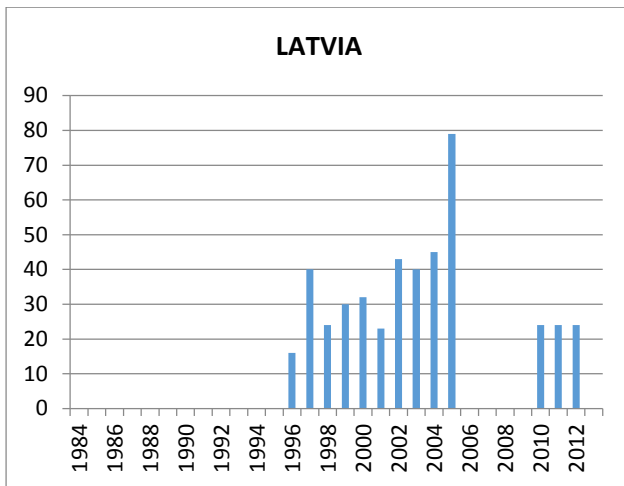


Figure 7. Total amount of sediment samples.





Figures 8a-h. Number of seawater samples reported in 1984-2013 by Contracting Parties.

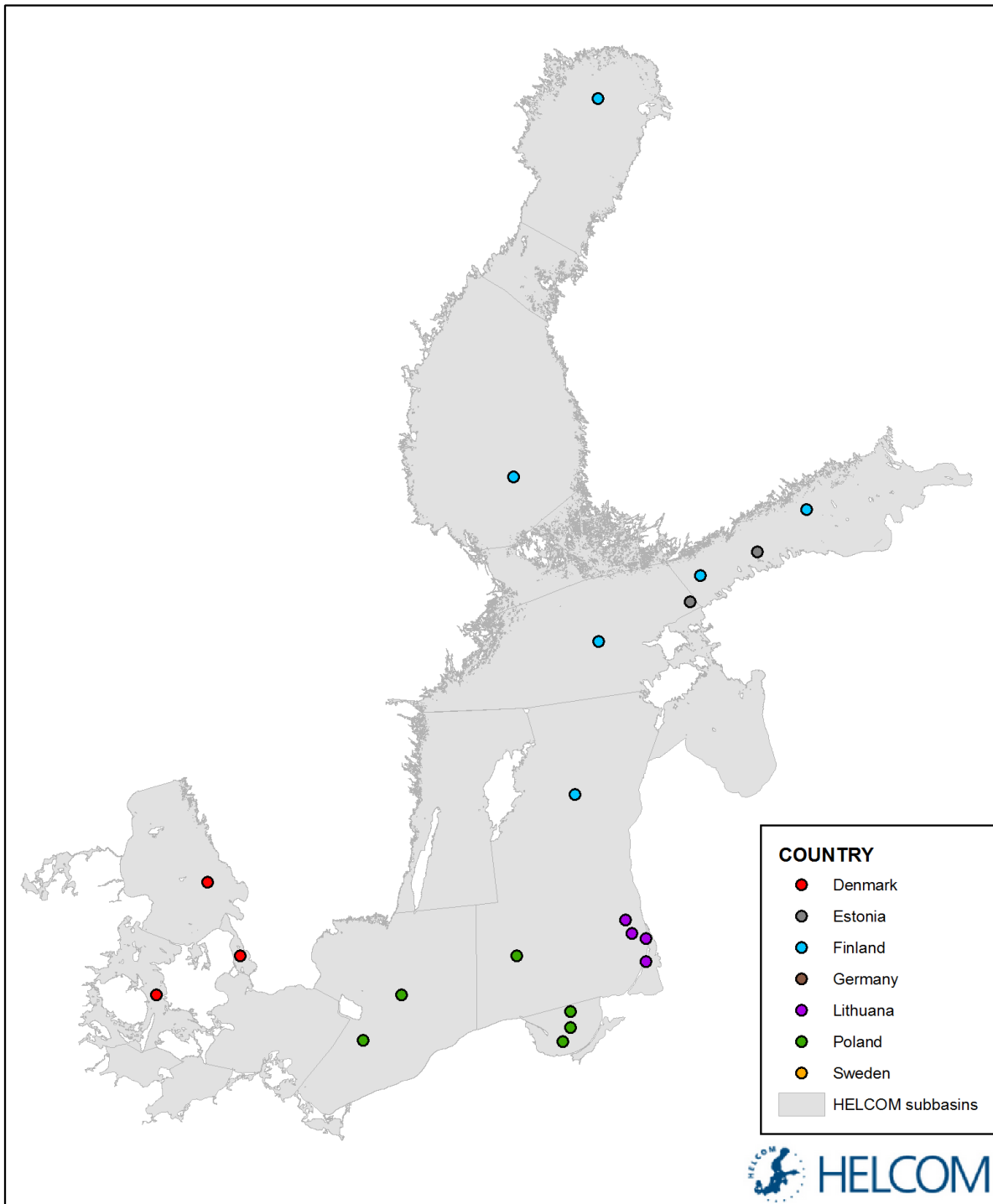


Figure 9. Locations of 2013 sediment samples in HELCOM subbasins by country.