

Calculation of the fulfillment of the nutrient input ceilings by 2017

Tables A and B illustrate the fulfillment of the nutrient input ceilings (NICs), based on estimated inputs in 2017. The tables also provide data on estimated nutrient inputs in 2014 and corresponding assessment of achieving the NICs. Further the tables illustrate the effect of reallocation of extra reduction to neighbouring sub-basins, where it is applicable. The information on remaining reduction to achieve the NICs, taking into account the uncertainty of estimation, is included.

Abbreviation used:

- BOB = Bothnian Bay
- BOS = Bothnian Sea
- BAP = Baltic Proper
- GUF = Gulf of Riga
- GUR = Gulf of Riga
- DS = Danish Straits
- KAT = Kattegat
- BSS = Baltic Sea shipping

- OC = Countries not being HELCOM Contracting Parties and sources outside the catchment area of HELCOM Contracting Parties
- NIC = nutrient input ceilings (og total nitrogen and total phosphorus, respectively)
- TN = total nitrogen
- TP = total phosphorus

Table A. Detailed information used for the assessment of progress towards total nitrogen input ceiling based on estimated 2017 inputs, and for the corresponding assessment on estimated on estimated 2014 inputs. The tables are organized per country/source providing data per basin. Two extra lines are inserted (e.g. for Denmark) where *extra reduction* in a basin can be taken into account in proportion to effect in neighbouring basins. Remaining reduction to fulfill NICs taking into account uncertainty and estimated input and significant changes in inputs since the reference period are given in percentages. The remaining units are in tonnes unless indicated as percentages.

Denmark TN					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)					231	904	7910	334	381	30313	29319
B: Estimated input 2017					151	612	7835	272	246	21079	23615
C: Inputs 2017 including uncertainty (test value)					157	632	8119	282	253	22747	24707
Extra reduction by 2017 (A-C)					74	272		52	128	7566	4613
Remaining reduction to fulfill NIC by 2017							209				
Remaining in % of ceiling							2,6				
<i>Accounting for extra reduction</i>							-1755				
Remaining taking into account extra reduction							0				
D: Estimate input 2014					168	632	7376	273	273	22539	25134
E: Input 2014 including uncertainty (test value)					174	652	7477	283	282	24165	26193
Extra reduction by 2014 (A-E)					57	252	433	51	100	6148	3127
Remaining reduction to fulfill NIC by 2014											
Remaining in % of ceiling											
Significant changes since reference period (%) to 2017					-49	-47	-33	-48	-47	-25	-23

Estonia TN					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)					95	317	1413	11265	13029	18	20
B: Estimated input 2017					96	338	1766	13604	12726	18	21
C: Inputs 2017 including uncertainty (test value)					98	346	1840	14183	13501	18	21
Extra reduction by 2017 (A-C)										0	
Remaining reduction to fulfill NIC by 2017					3	29	427	2918	472		1
Remaining in % of ceiling					3,2	9,3	30	26	3,6		6,8
D: Estimate input 2014					103	341	1511	10486	11192	17	22
E: Input 2014 including uncertainty (test value)					106	348	1607	12100	12130	18	22
Extra reduction by 2014 (A-E)									899	0,4	
Remaining reduction to fulfill NIC by 2014					11	31	195	836			2,1
Remaining in % of ceiling					11	10	14	7,4			11
Significant changes since reference period (%) to 2017					-20	-17	-8,2	-	-	-21	-20

Finland TN					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)					35081	29619	1569	20653	255	64	77
B: Estimated input 2017					34393	24446	1406	21396	180	43	56
C: Inputs 2017 including uncertainty (test value)					35500	26485	1442	22198	185	45	57
Extra reduction by 2017 (A-C)						3135	127		70	19	20
Remaining reduction to fulfill NIC by 2017					419			1544			
Remaining in % of ceiling					1,2			7,5			
D: Estimate input 2014					33362	27710	1642	20930	206	46	62
E: Input 2014 including uncertainty (test value)					34752	29034	1692	22253	212	47	64
Extra reduction by 2014 (A-E)					329	585			43	16	13
Remaining reduction to fulfill NIC by 2014							123	1599			
Remaining in % of ceiling							7,9	7,7			
Significant changes since reference period (%) to 2017					-7,4	-16	-41	-15	-39	-43	-42

Germany TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				817	3170	27473	1312	1465	21957	3285
B: Estimated input 2017				746	2995	37316	1537	1331	18414	4117
C: Inputs 2017 including uncertainty (test value)				755	3028	38204	1554	1345	19419	4159
Extra reduction by 2017 (A-C)				62	142			120	2539	
Remaining reduction to fulfill NIC by 2017						10731	242			874
Remaining in % of ceiling						39	18			27
Accounting for extra reduction						-644				-1495
Remaining taking into account extra reduction						10087				0
D: Estimate input 2014				767	2909	33598	1465	1400	18100	3977
E: Input 2014 including uncertainty (test value)				779	2956	34339	1489	1423	18893	4060
Extra reduction by 2014 (A-E)				38	213			43	3064	
Remaining reduction to fulfill NIC by 2014						6866	177			775
Remaining in % of ceiling						25	14			24
Significant changes since reference period (%) to 2017				-26	-25	-16	-24	-23	-22	-18

Lithuania TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				110	491	33093	261	5795	54	60
B: Estimated input 2017				115	508	49060	382	9558	66	87
C: Inputs 2017 including uncertainty (test value)				117	517	53565	389	10303	67	89
Extra reduction by 2017 (A-C)										
Remaining reduction to fulfill NIC by 2017				7	25	20471	128	4509	13	29
Remaining in % of ceiling				6,2	5,1	62	49	78	24	48
D: Estimate input 2014				105	443	44178	314	7360	53	70
E: Input 2014 including uncertainty (test value)				108	457	48786	325	8535	55	72
Extra reduction by 2014 (A-E)				2	34					
Remaining reduction to fulfill NIC by 2014						15693	64	2741	0,7	12
Remaining in % of ceiling						47	24	47	1,2	20
Significant changes since reference period (%) to 2017				-	-	-	-	-	-	-

Latvia TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				63	273	6091	183	53898	24	25
B: Estimated input 2017				74	328	10965	300	43255	30	35
C: Inputs 2017 including uncertainty (test value)				76	333	11631	304	46387	30	36
Extra reduction by 2017 (A-C)								7511		
Remaining reduction to fulfill NIC by 2017				12	60	5540	121		6	11
Remaining in % of ceiling				19	22	91	66		24	43
Accounting for extra reduction						-5837				
Remaining taking into account extra reduction						0				
D: Estimate input 2014				67	284	10489	248	43228	24	29
E: Input 2014 including uncertainty (test value)				69	292	11390	254	46680	25	30
Extra reduction by 2014 (A-E)								7219		
Remaining reduction to fulfill NIC by 2014				5,8	19	5299	71		0,5	5,3
Remaining in % of ceiling				9,2	6,9	87	39		2,1	21
Significant changes since reference period (%) to 2017				-4,5	-	-	-	-	-4,9	-4,5

Poland TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				644	2802	160857	1166	1361	1125	1106
B: Estimated input 2017				619	2767	191775	1519	1385	1290	1361
C: Inputs 2017 including uncertainty (test value)				624	2832	195171	1554	1417	1321	1394
Extra reduction by 2017 (A-C)				20						
Remaining reduction to fulfill NIC by 2017					30	34314	388	56	196	288
Remaining in % of ceiling					1,1	21	33	4,1	17	26
Accounting for extra reduction					-19					
Remaining taking into account extra reduction					11					
D: Estimate input 2014				625	2667	178377	1408	1417	1119	1270
E: Input 2014 including uncertainty (test value)				636	2715	187847	1434	1442	1141	1293
Extra reduction by 2014 (A-E)				7,6	87					
Remaining reduction to fulfill NIC by 2014						26990	268	80	16	187
Remaining in % of ceiling						17	23	5,9	1,4	17
Significant changes since reference period (%) to 2017				-12	-13	-	-13	-13	-12	-13

Russia TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				710	1551	9253	62522	2516	174	174
B: Estimated input 2017				876	1992	13841	63185	3761	233	261
C: Inputs 2017 including uncertainty (test value)				889	2022	14398	65320	4059	237	265
Extra reduction by 2017 (A-C)										
Remaining reduction to fulfill NIC by 2017				179	471	5145	2798	1543	63	91
Remaining in % of ceiling				25	30	56	4,5	61	36	52
D: Estimate input 2014				836	1806	14688	72124	4214	192	227
E: Input 2014 including uncertainty (test value)				844	1825	14922	79092	4513	194	229
Extra reduction by 2014 (A-E)										
Remaining reduction to fulfill NIC by 2014				134	274	5669	16570	1997	20	55
Remaining in % of ceiling				19	18	61	27	79	11	32
Significant changes since reference period (%) to 2017				-	-	-	-17	-15	-	-

Sweden TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				17924	33350	30942	502	449	6224	34206
B: Estimated input 2017				15646	25619	37096	507	354	5142	28210
C: Inputs 2017 including uncertainty (test value)				16273	26605	38513	513	358	5474	29321
Extra reduction by 2017 (A-C)				1652	6745			91	750	4886
Remaining reduction to fulfill NIC by 2017						7571	11			
Remaining in % of ceiling						24	2,2			
Accounting for extra reduction						-234				
Remaining taking into account extra reduction						7337				
D: Estimate input 2014				14190	27784	32254	519	405	4875	26268
E: Input 2014 including uncertainty (test value)				14602	28612	32775	535	417	5280	27451
Extra reduction by 2014 (A-E)				3322	4738			32	943	6755
Remaining reduction to fulfill NIC by 2014						1832	33			
Remaining in % of ceiling						5,9	6,5			
Significant changes since reference period (%) to 2017				-17	-22	-7	-34	-32	-15	-20

Baltic Sea shipping TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				72	292	1434	147	112	165	149
B: Estimated input 2017				440	1719	7583	953	565	934	892
C: Inputs 2017 including uncertainty (test value)				447	1748	7710	968	574	950	907
Extra reduction by 2017 (A-C)										
Remaining reduction to fulfill NIC by 2017				375	1455	6276	821	462	785	758
Remaining in % of ceiling				520	498	438	559	412	475	509
D: Estimate input 2014				494	1838	8687	950	689	953	960
E: Input 2014 including uncertainty (test value)				500	1860	8791	961	697	965	971
Extra reduction by 2014 (A-E)										
Remaining reduction to fulfill NIC by 2014				428	1568	7357	814	585	800	822
Remaining in % of ceiling				593	537	513	554	521	484	552
Significant changes since reference period (%) to 2017				-27	-27	-27	-27	-27	-27	-27

OC TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				1876	6603	33002	3455	2804	5880	5579
B: Estimated input 2017				2174	7859	41181	4340	3129	7790	7615
C: Inputs 2017 including uncertainty (test value)				2197	7945	41643	4396	3166	7891	7711
Extra reduction by 2017 (A-C)										
Remaining reduction to fulfill NIC by 2017				321	1342	8641	941	362	2011	2132
Remaining in % of ceiling				17	20	26	27	13	34	38
D: Estimate input 2014				2368	8220	44136	4421	3553	7489	7863
E: Input 2014 including uncertainty (test value)				2396	8312	44638	4465	3587	7592	7976
Extra reduction by 2014 (A-E)										
Remaining reduction to fulfill NIC by 2014				520	1709	11636	1010	783	1712	2397
Remaining in % of ceiling				28	26	35	29	28	29	43
Significant changes since reference period (%) to 2017				-33	-33	-34	-31	-32	-38	-38

Belarus TN				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)						7322		6352		
B: Estimated input 2017						16559		12327		
C: Inputs 2017 including uncertainty (test value)						18182		13526		
Extra reduction by 2017 (A-C)										
Remaining reduction to fulfill NIC by 2017						10861		7175		
Remaining in % of ceiling						148		113		
D: Estimate input 2014						8012		11230		
E: Input 2014 including uncertainty (test value)						8926		12164		
Extra reduction by 2014 (A-E)										
Remaining reduction to fulfill NIC by 2014						1604		5812		
Remaining in % of ceiling						22		92		
Significant changes since reference period (%) to 2017						-		-14		

Czech Republic TN					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)							2693				
B: Estimated input 2017							2740				
C: Inputs 2017 including uncertainty (test value)							3200				
Extra reduction by 2017 (A-C)											
Remaining in % of ceiling							19				
0											
D: Estimate input 2014							3221				
E: Input 2014 including uncertainty (test value)							3340				
Extra reduction by 2014 (A-E)											
							647				
Remaining in % of ceiling							24				
Significant changes since reference period (%) to 2017							-31				

Ukraine TN					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)							1948				
B: Estimated input 2017							2784				
C: Inputs 2017 including uncertainty (test value)							3075				
Extra reduction by 2017 (A-C)											
Remaining reduction to fulfill NIC by 2017							1127				
Remaining in % of ceiling							58				
D: Estimate input 2014							4827				
E: Input 2014 including uncertainty (test value)							4991				
Extra reduction by 2014 (A-E)											
Remaining reduction to fulfill NIC by 2014							3042				
Remaining in % of ceiling							156				
Significant changes since reference period (%) to 2017							-				

Table B. Detailed information used for the assessment of progress towards total phosphorus input ceiling based on estimated 2017 inputs, and for the corresponding assessment on estimated on estimated 2014 inputs. The tables are organized per country/source providing data per basin. Two extra lines are inserted (e.g. for Denmark) where *extra reduction* in a basin can be taken into account in proportion to effect in neighbouring basins. Remaining reduction to fulfill NICs taking into account uncertainty and estimated input and significant changes in inputs since the reference period are given in percentages. The remaining units are in tonnes unless indicated as percentages.

Denmark TP					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)							21			1040	829
B: Estimated input 2017							41			769	706
C: Inputs 2017 including uncertainty (test value)							45			818	726
Extra reduction by 2017 (A-C)										222	103
Remaining reduction to fulfill NIC by 2017							23				
Remaining in % of ceiling							109				
<i>Accounting for extra reduction</i>							-70				
Remaining taking into account extra reduction							0				
D: Estimate input 2014							66			1003	692
E: Input 2014 including uncertainty (test value)							68			1039	710
Extra reduction by 2014 (A-E)										1,1	119
Remaining reduction to fulfill NIC by 2014							46				
Remaining in % of ceiling											
Significant changes since reference period (%) to 2017							-25			-14	-12
Estonia TP					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)							8	236	239		
B: Estimated input 2017							22	274	210		
C: Inputs 2017 including uncertainty (test value)							24	317	239		
Extra reduction by 2017 (A-C)											
Remaining reduction to fulfill NIC by 2017							16	81	0,4		
Remaining in % of ceiling							194	34	0,2		
D: Estimate input 2014							17	319	199		
E: Input 2014 including uncertainty (test value)							20	368	220		
Extra reduction by 2014 (A-E)									19		
Remaining reduction to fulfill NIC by 2014							11	132			
Remaining in % of ceiling							143	56			
Significant changes since reference period (%) to 2017							-	-48	-23		
Finland TP					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)					1668	1255		322			
B: Estimated input 2017					1545	1292		634			
C: Inputs 2017 including uncertainty (test value)					1608	1357		668			
Extra reduction by 2017 (A-C)					60						
Remaining reduction to fulfill NIC by 2017						103		346			
Remaining in % of ceiling					0,0			107			
<i>Accounting for extra reduction</i>											
Remaining taking into account extra reduction						96					
D: Estimate input 2014					1483	1248		647			
E: Input 2014 including uncertainty (test value)					1531	1311		673			
Extra reduction by 2014 (A-E)					137						
Remaining reduction to fulfill NIC by 2014						56		351			
Remaining in % of ceiling								109			
Significant changes since reference period (%) to 2017					-14	-		-13			

Germany TP				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)						101			351	
B: Estimated input 2017						274			324	
C: Inputs 2017 including uncertainty (test value)						287			350	
Extra reduction by 2017 (A-C)									0,2	
Remaining reduction to fulfill NIC by 2017						186				
Remaining in % of ceiling						184				
D: Estimate input 2014						250			310	
E: Input 2014 including uncertainty (test value)						264			327	
Extra reduction by 2014 (A-E)									24	
Remaining reduction to fulfill NIC by 2014						163				
Remaining in % of ceiling						162				
Significant changes since reference period (%) to 2017						-			-11	

Lithuania TP				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)						831		166		
B: Estimated input 2017						984		27		
C: Inputs 2017 including uncertainty (test value)						1101		97		
Extra reduction by 2017 (A-C)								69		
Remaining reduction to fulfill NIC by 2017						271				
Remaining in % of ceiling						33		0		
Accounting for extra reduction						-45				
Remaining taking into account extra reduction						226				
D: Estimate input 2014						1109		51		
E: Input 2014 including uncertainty (test value)						1258		84		
Extra reduction by 2014 (A-E)								82		
Remaining reduction to fulfill NIC by 2014						428				
Remaining in % of ceiling						52		0		
Significant changes since reference period (%) to 2017						-47		-92		

Latvia TP				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)						74		541		
B: Estimated input 2017						238		1199		
C: Inputs 2017 including uncertainty (test value)						290		1337		
Extra reduction by 2017 (A-C)										
Remaining reduction to fulfill NIC by 2017						217		796		
Remaining in % of ceiling						295				
D: Estimate input 2014						295		1018		
E: Input 2014 including uncertainty (test value)						340		1119		
Extra reduction by 2014 (A-E)										
Remaining reduction to fulfill NIC by 2014						267		578		
Remaining in % of ceiling						362				
Significant changes since reference period (%) to 2017						-46,3		-		

Poland TP				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)						4309				
B: Estimated input 2017						8742				
C: Inputs 2017 including uncertainty (test value)						9359				
Extra reduction by 2017 (A-C)										
Remaining reduction to fulfill NIC by 2017						5050				
Remaining in % of ceiling						117				
D: Estimate input 2014						10267				
E: Input 2014 including uncertainty (test value)						11010				
Extra reduction by 2014 (A-E)										
Remaining reduction to fulfill NIC by 2014						6701				
Remaining in % of ceiling						156				
Significant changes since reference period (%) to 2017						-21				

Russia TP				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)						277	2892	185	0	0
B: Estimated input 2017						692	1841	209	0	0
C: Inputs 2017 including uncertainty (test value)						754	3174	225	0	0
Extra reduction by 2017 (A-C)									0	0
Remaining reduction to fulfill NIC by 2017						477	282	41	0	0
Remaining in % of ceiling						172	9,8	22,1	0	0
D: Estimate input 2014						749	2522	165	0	0
E: Input 2014 including uncertainty (test value)						808	3649	194	0	0
Extra reduction by 2014 (A-E)									0	0
Remaining reduction to fulfill NIC by 2014						531	757	9	0	0
Remaining in % of ceiling						191	26	5,0	0	0
Significant changes since reference period (%) to 2017						-	-73	-	0	0

Sweden TP				BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)				826	1125	308			105	740
B: Estimated input 2017				789	760	691			80	735
C: Inputs 2017 including uncertainty (test value)				870	822	715			85	772
Extra reduction by 2017 (A-C)					303				20	
Remaining reduction to fulfill NIC by 2017				44		407				32
Remaining in % of ceiling						132				
Accounting for extra reduction				-94		-208				-24
Remaining taking into account extra reduction				0		199				8
D: Estimate input 2014				902	812	706			83	679
E: Input 2014 including uncertainty (test value)				999	874	724			86	717
Extra reduction by 2014 (A-E)					251				19	23
Remaining reduction to fulfill NIC by 2014				173		417				
Remaining in % of ceiling						135,4				
Significant changes since reference period (%) to 2017				-	-35	-17			-24	-

Belarus TP					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)							244		797		
B: Estimated input 2017							880		711		
C: Inputs 2017 including uncertainty (test value)							964		765		
Extra reduction by 2017 (A-C)									31		
Remaining reduction to fulfill NIC by 2017							720				
Remaining in % of ceiling							295				
D: Estimate input 2014							664		704		
E: Input 2014 including uncertainty (test value)							707		835		
Extra reduction by 2014 (A-E)											
Remaining reduction to fulfill NIC by 2014							463		38		
Remaining in % of ceiling							190		5		
Significant changes since reference period (%) to 2017							-14		-		

Czech Republic TP					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)							108				
B: Estimated input 2017							258				
C: Inputs 2017 including uncertainty (test value)							312				
Extra reduction by 2017 (A-C)											
Remaining in % of ceiling							189				
0											
D: Estimate input 2014							225				
E: Input 2014 including uncertainty (test value)							251				
Extra reduction by 2014 (A-E)											
Remaining in % of ceiling							142				
Remaining in % of ceiling							132				
Significant changes since reference period (%) to 2017							-				

Ukraine TP					BOB	BOS	BAP	GUF	GUR	DS	KAT
A : Input ceiling (NIC)							33				
B: Estimated input 2017							223				
C: Inputs 2017 including uncertainty (test value)							241				
Extra reduction by 2017 (A-C)											
Remaining reduction to fulfill NIC by 2017							208				
Remaining in % of ceiling							622				
D: Estimate input 2014							305				
E: Input 2014 including uncertainty (test value)							319				
Extra reduction by 2014 (A-E)											
Remaining reduction to fulfill NIC by 2014							285				
Remaining in % of ceiling							853				
Significant changes since reference period (%) to 2017							-				