EUROPEAN
COMMISSION

Brussels, 4.10.2013
SWD(2013) 405 final

Part 3/4

COMMISSION STAFF WORKING DOCUMENT
Accompanying the document

REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources based on Member State reports for the period 2008-2011

{COM(2013) 683 final}

	Cattle			Pigs			Poultry			Other		
	2004-2007	2008-2011	Change, %	2004-2007	2008-2011	Change, %	2004-2007	2008-2001	Change, %	2004-2007	2008-2011	Change, %
Austria	2.00[a]	2.01[b]	0.5	3.14[a]	3.13[b]	-0.3	13.14[a]	13.14[b]	0.0	0.5[a]	0.56[b]	12.0
Belgium-Flanders	1.33[c]	1.34[d]	0.8	5.96[c]	6.22[d]	4.4	25.13[c]	27.28[d]	8.6	0.25[c]	0.27[d]	9.5
Belgium-Wallonia	1.32[d]	1.28[e]	-3.0	0.35[d]	0.36[e]	2.3	5.40[d]	5.10[e]	-5.6	0.07[d]	0.65[e]	828.6
Bulgaria	0.63[c]	0.55[e]	-11.7	0.93[c]	0.69[e]	-25.4	19.48[c]	16.70[e]	-14.3	2.2[c]	2.23[e]	1.4
Cyprus[f]	0.06	0.06	0.0	0.47	0.44	-6.4	15.70	3.83	-75.6	0.44	0.47	6.8
Czech Republic	1.39[g]	1.34[h]	-3.6	2.83[g]	1.75[h]	-38.2	24.59[g]	21.25[h]	-13.6	0.21[g]	0.26[h]	23.8
Germany	12.68[c]	12.71[d]	0.3	26.82[c]	26.90[d]	0.3	120.56[c]	128.90[d]	6.9	3.23[c]	2.7[d]	-16.4
Denmark	1.58[c]	1.56[e]	-1.3	22.95[c]	21.34[e]	-7.0	17.10[c]	18.30[e]	7.0	*	*	*
Estonia	0.25[c]	0.24[e]	-4.0	0.36[c]	0.39[e]	8.3	1.92[c]	1.94[e]	1.0	0.08[c]	0.09[e]	12.5
Finland	0.95[j]	0.93[k]	-2.1	1.44[j]	1.37[k]	-4.9	10.24[j]	9.59[k]	-6.3	3.64[j]	3.64[k]	0.0
France	*	19.50[k]	*	*	13.90[k]	*	*	221.60[k]	*	*	*	*
Greece[f]	0.65	0.63	-3.1	0.97	0.90	-7.2	39.30	31.60	-19.6	14.1	14.2	0.7
Hungary	0.71[f]	0.69[d]	-2.8	3.94[f]	3.27[d]	-17.0	31.22[f]	40.72[d]	30.4	1.33[f]	1.34[d]	0.8
Italy	6.08[l]	5.59[k]	-8.1	9.04[l]	9.33[k]	3.2	157.22[l]	167.50[k]	6.5	17.32[l]	15.42[k]	-11.0
Ireland	6.90[c]	6.63[e]	-3.9	1.64[c]	1.48[e]	-9.8	11.82[c]	11.03[e]	-6.7	6.27[c]	4.94[e]	-21.2
Latvia	0.40[p]	0.38[q]	-4.8	0.41[p]	0.38[q]	-8.2	4.76[p]	4.42[q]	-7.1	0.08[p]	0.1[q]	25.0
Lithuania[f]	0.81	0.76	-6.2	1.09	0.89	-18.6	8.83	9.08	2.8	0.14	0.74	428.6
Luxembourg	0.19[c]	0.20[e]	5.3	0.09[c]	0.08[e]	-7.0	0.08[c]	0.09[e]	12.5	0.02[c]	0.02[e]	0.0
Malta	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	3.80[c]	3.90[e]	2.6	11.40[c]	12.20[e]	7.0	90.80[c]	97.90[e]	7.8	1.6[c]	1.5[e]	-6.3
Poland[f]	5.41	5.76	6.5	17.26	15.28	-11.5	134.26	176.49	31.5	0.99	0.65	-34.3
Portugal	1.40[m]	1.40[o]	0.0	2.50[m]	1.90[o]	-24.0	29.20[n]	35.40[o]	21.2	4.1[m]	2.6[o]	-36.6
Romania	2.82[p]	2.00[q]	-29.1	6.57[p]	5.43[q]	-17.4	82.04[p]	80.85[q]	-1.5	10.2[p]	10.27[q]	0.7
Sweden	1.61[r]	1.54[o]	-4.3	1.81[r]	1.53[o]	-15.5	6.76[r]	7.16[o]	5.9	0.47[r]	0.54[o]	14.9
Slovakia	0.50[s]	0.46[t]	-8.0	1.10[s]	0.60[t]	-45.5	13.00[s]	11.40[t]	-12.3	0.33[s]	0.39[t]	18.2
Slovenia[f]	0.46	0.47	2.0	0.55	0.40	-27.3	3.52	4.56	29.5	0.17	0.18	5.9

Spain[u]	6.48	6.15	-5.1	25.73	25.38	-1.4	175.75	171.03	-2.7	25.75	22.66	-12.0
United Kingdom -England	5.70[c]	5.80[e]	1.8	4.00[c]	3.70[e]	-7.5	134.00[c]	122.00	-9.0	15.7[c]	14.6	-7.0
United Kingdom - N Ireland	1.62[c]	1.59[e]	-1.5	0.41[c]	0.42[e]	3.2	18.46[c]	17.54[e]	-5.0	2.13[c]	1.92[e]	-9.9
United Kingdom - Scotland	1.90[c]	1.80[e]	-5.1	0.46[c]	0.39[e]	-14.7	14.13[c]	14.53[e]	2.8	7.59[c]	6.85[e]	-9.7
United Kingdom - Wales	*	1.13[e]	*	*	0.02[e]	*	*	7.53[e]	*	*	8.49[e]	*

Table 1. *Average livestock numbers (x1000,000) presented in the 2008-2011 and 2004-2007 reports of the Member States and the average change between the two reporting periods. * no data.*

Note: a, average years 2004 and 2006; b, average years 2008 and 2010; c, average 2004-2007; d, average 2008-2010; e. average 2008-2011; f, years not specified; g, 1-4-2007; h, 1-4-2011; i, average 2010-2011; j, 2006; k, 2010; l, 2000; m, average 2004-2006; n, 2005 (EUROSTAT); o, 2009; p, 2007;q, 2011; r, 2005; s, 1-1-2007; t, 1-1-2012; u, incomplete data (no data from some Regions).

	2004	2005	2006	2007	2008	2009	2010	2011	Change between 2004-2007 and 2008-2011, %
EU-27	90220	89893	88846	89432	89954	89329	87388	86196	-2
Belgium	2657	2604	2607	2573	2538	2535	2510	2472	-4
Bulgaria	680	630	637	611	574	548	545	568	-13
Czech Republic	1368	1352	1390	1367	1358	1356	1319	1340	-2
Denmark	1616	1572	1579	1545	1599	1621	1630	1612	2
Germany	13031	12919	12677	12707	12988	12897	12706	12528	0
Estonia	250	252	245	241	238	235	236	238	-4
Ireland	6212	6390	6340	6248	6304	6232	5918	5925	-3
Greece	640	665	683	682	682	622	685	627	-2
Spain	6653	6464	6184	6585	6020	6082	6075	5923	-7
France	18948	18930	18902	19124	20028	19842	19599	19129	4
Italy	6515	6460	6340	6577	6486	6447	5833	5898	-5
Cyprus	60	58	56	56	56	54	55	57	-4
Latvia	371	385	377	399	380	378	380	381	-1
Lithuania	792	800	839	788	771	759	748	752	-6
Luxembourg	184	184	186	193	196	195	194	188	3
Hungary	723	708	702	705	701	700	686	694	-2
Malta	19	20	19	19	18	16	15	15	-17
Netherlands	3759	3746	3673	3820	3996	3998	3960	3912	6
Austria	2051	2011	2003	2000	1997	2026	2013	1977	-1
Poland	5200	5385	5281	5406	5564	5590	5562	5501	4
Portugal	1443	1495	1452	1492	1495	1447	1503	1519	1
Romania	2808	2861	2934	2819	2684	2512	2001	1989	-20
Slovenia	451	453	454	480	470	473	470	462	2
Slovakia	540	528	508	502	488	472	467	463	-9
Finland	952	945	929	903	907	908	909	903	-3
Sweden	1552	1533	1516	1517	1505	1482	1475	1450	-3
United Kingdom	10745	10545	10335	10075	9911	9901	9896	9675	-6

Table 2.1. *Number of total cattle (x 1000) in the period 2004-2011, and the change in number between the periods 2004-2007 and 2008-2011 (Source: Eurostat). The change in % was calculated as the change in average number in the period 2008-2011 compared to the average number in the period 2004-2007:*

[(average 2008-2011) – (average 2004-2007)]/[(average 2004-2007)] x 100.

	2004	2005	2006	2007	2008	2009	2010	2011	Change between 2004-2007 and 2008-2011, %
EU-27	25237	24746	24193	24061	24193	23641	23093	22844	-5
Belgium	571	548	532	524	518	518	518	511	-5
Bulgaria	369	348	350	336	315	297	308	307	-13
Czech Republic	429	437	417	407	400	384	375	374	-9
Denmark	569	558	555	551	566	574	573	579	3
Germany	4287	4164	4054	4087	4229	4169	4182	4190	1
Estonia	117	113	109	103	100	97	97	96	-12
Ireland	1122	996	1023	1017	1024	1022	1007	1036	-2
Greece	150	152	168	150	154	128	135	130	-12
Spain	1057	1018	942	903	888	828	845	798	-14
France	3947	3895	3799	3759	3857	3748	3718	3664	-3
Italy	1838	1842	1814	1839	1831	1878	1746	1755	-2
Cyprus	26	25	24	24	24	23	23	24	-4
Latvia	186	185	182	180	170	166	164	164	-10
Lithuania	434	417	399	405	395	375	360	350	-11
Luxembourg	41	41	46	40	46	46	46	45	8
Hungary	304	285	268	266	263	248	239	250	-11
Malta	8	8	8	8	7	7	6	6	-12
Netherlands	1502	1486	1443	1490	1587	1562	1518	1504	4
Austria	538	534	527	525	530	533	533	527	0
Poland	2730	2755	2637	2677	2697	2585	2529	2446	-5
Portugal	338	285	270	269	265	255	243	242	-13
Romania	1566	1625	1639	1573	1483	1419	1179	1154	-18
Slovenia	134	120	113	117	113	113	110	109	-8
Slovakia	202	199	185	180	174	163	159	154	-15
Finland	318	313	299	288	288	286	284	282	-6
Sweden	401	391	385	366	366	354	349	348	-8
United Kingdom	2054	2007	2005	1977	1903	1864	1847	1800	-8

Table 2.2. *Number of dairy cattle (x 1000) in the period 2004-2011, and the change in number between the periods 2004-2007 and 2008-2011 (Source: Eurostat). The change in % was calculated as the change in average number in the period 2008-2011 compared to the average number in the period 2004-2007:*

[(average 2008-2011) – (average 2004-2007)]/[(average 2004-2007)] x 100.

	2004	2005	2006	2007	2008	2009	2010	2011	Change between 2004-2007 and 2008-2011, %
EU-27	158559	158719	161550	159570	152603	151569	151162	148545	-5
Belgium	6319	6253	6304	6200	6208	6228	6176	6328	-1
Bulgaria	943	933	1013	889	784	730	664	608	-26
Czech Republic	2915	2719	2741	2662	2135	1914	1846	1487	-33
Denmark	13407	12604	13613	13170	12195	12873	12293	12348	-6
Germany	26335	26989	26821	27113	26719	26841	26901	27403	1
Estonia	354	352	341	375	365	365	372	366	3
Ireland	1754	1671	1620	1501	1511	1502	1500	1553	-7
Greece	994	952	1033	1038	1061	1112	1119	1109	10
Spain	24895	24889	26219	26061	26290	25343	25704	25635	1
France	15150	15123	15009	14969	14810	14552	14279	13967	-4
Italy	8972	9200	9281	9273	9252	9157	9321	9351	1
Cyprus	471	430	453	467	465	463	464	439	1
Latvia	436	428	417	414	384	377	390	375	-10
Lithuania	1073	1115	1127	923	897	928	929	790	-16
Luxembourg	77	77	87	86	78	89	89	91	6
Hungary	4059	3853	3987	3871	3383	3247	3169	3025	-19
Malta	77	73	74	77	66	66	69	46	-18
Netherlands	11140	11000	11220	11710	11735	12108	12206	12103	7
Austria	3125	3170	3139	3286	3064	3137	3134	3005	-3
Poland	17396	18711	18813	17621	14242	14253	14776	13056	-22
Portugal	2348	1955	1917	1978	1955	1945	1917	1985	-5
Romania	6495	6604	6815	6565	6174	5793	5428	5364	-14
Slovenia	534	547	575	543	432	415	396	347	-28
Slovakia	1149	1108	1105	952	749	741	687	580	-36
Finland	1435	1440	1435	1427	1400	1353	1340	1290	-6
Sweden	1920	1797	1662	1728	1703	1616	1607	1568	-9
United Kingdom	4787	4726	4731	4671	4550	4423	4385	4326	-7

Table 2.3. *Number of pigs (x 1000) in the period 2004-2011, and the change in number between the periods 2004-2007 and 2008-2011 (Source: Eurostat). The change in % was calculated as the change in average number in the period 2008-2011 compared to the average number in the period 2004-2007:*

[(average 2008-2011) – (average 2004-2007)]/[(average 2004-2007)] x 100.

	2003	2005	2007	2010	Change between 2003-2005 and 2007-2010, %
EU-27	1616050	1518200	1505260	1616520	0
Belgium	32030	35570	32750	34370	-1
Bulgaria	21800	19670	17440	17490	-16
Czech Republic	30150	26570	29300	25320	-4
Denmark	17800	17580	16690	18730	0
Germany	124950	120560	125770	128900	4
Estonia	2280	2130	1720	1940	-17
Ireland	13010	12290	11880	10920	-10
Greece	38520	32380	33500	36770	-1
Spain	179600	174350	164450	200900	3
France	295170	283330	275780	296130	-1
Italy	173110	149090	157240	167510	1
Cyprus	4600	4340	3840	3220	-21
Latvia	3580	4040	4630	5160	28
Lithuania	8700	9810	9440	8610	-2
Luxembourg	80	80	80	90	6
Hungary	42720	41600	38710	48700	4
Malta	1380	1050	1220	980	-9
Netherlands	81230	95470	95710	103620	13
Austria	12280	11940	14210	14620	19
Poland	198780	151430	158390	174300	-5
Portugal	35430	29230	27570	35350	-3
Romania	82410	81700	75860	79190	-6
Slovenia	5130	3290	5360	4900	22
Slovakia	13120	11880	12480	12660	1
Finland	11000	10540	9790	9310	-11
Sweden	12200	14390	13830	14280	6
United Kingdom	174990	173890	167620	162550	-5

Table 2.4. *Number of poultry (x 1000) in 2003, 2005, 2007, and 2010, and the change in number between 2003-2005 and 2007-2010 (Source: Eurostat). The change in % was calculated as the change in average number in the period 2007-2010 compared to the average number in the period 2003-2005:*

[(average 2007-2010) – (average 2003-2005)]/[(average 2003-2005)] x 100.

	2004	2005	2006	2007	2008	2009	2010	2011	Change between 2004-2007 and 2008-2011, %
EU-27	*	*	*	*	*	*	*	*	*
Belgium	*	*	*	*	*	*	*	*	*
Bulgaria	1693	1602	1635	1526	1475	1400	1368	1455	-12
Czech Republic	155	163	169	184	183	197	*	*	13
Denmark	88	84	98	98	90	*	*	*	-2
Germany	2138	2036	2017	1926	1920	1852	1800	1658	-11
Estonia	42	49	58	74	62	:	:	:	12
Ireland	4557	4257	3826	3531	3423	3183	3122	3321	-19
Greece	9241	8745	8976	8984	8994	8859	9791	8956	2
Spain	22736	22514	22452	22194	19952	19718	18552	17003	-16
France	8898	8760	8494	8285	7715	7528	7955	7621	-11
Italy	8106	7954	8227	8237	8175	8013	7900	7943	-2
Cyprus	279	269	272	292	267	300	329	356	13
Latvia	39	42	41	54	67	*	*	*	53
Lithuania	22	29	37	43	48	53	59	60	67
Luxembourg	7	9	9	8	8	9	8	*	-1
Hungary	1397	1405	1298	1232	1236	1223	1181	1081	-11
Malta	14	15	12	12	13	13	12	12	-6
Netherlands	1700	1725	1755	1715	1545	1091	1211	1113	-28
Austria	327	326	312	351	333	345	358	361	6
Poland	311	318	301	316	270	224	214	213	-26
Portugal	3541	3583	3549	2703	2558	2368	2226	2170	-30
Romania	7425	7608	7678	8469	8882	9142	8417	8533	12
Slovenia	119	129	132	131	139	138	*	*	8
Slovakia	321	321	333	347	362	377	394	394	16
Finland	72	84	88	90	94	*	*	*	12
Sweden	456	480	506	521	521	541	565	623	15
United Kingdom	24524	23730	23429	23676	21856	21343	21295	21951	-9

***Table 2.5**. Number of sheep (x 1000) in the periods 2004-2007 and 2008-2011, and the change in number between these periods (Source: Eurostat; * no data in EUROSTAT). The change in % was calculated as the change in average number in the period 2008-2011 compared to the average number in the period 2004-2007:*

[(average 2008-2011) – (average 2004-2007)]/[(average 2004-2007)] x 100.

	Animal manure N use			Fertilizer N use		
	2004-2007	2008-2011	Change, %	2004-2004	2008-2011	Change, %
Austria	188	185	-1.6	101	104	3.0
Belgium-Flanders[1]	101	101	0.0	37	41	10.8
Belgium-Walloon	81	74	-8.6	77	74	-3.9
Bulgaria	*	69	*	163.8	186	13.6
Cyprus	10	15	50.0	10	8	-20.0
Czech Republic	85	69	-18.8	335	353	5.4
Germany[2]	59	59	0.0	1785	1569	-12.1
Denmark	228	227	-0.4	195	197	1.0
Estonia	14	14	0.0	23	30	30.4
Finland	99	98	-1.0	148	157	6.1
France	*	*	*	*	*	*
Greece	63	65	3.2	271	225	-17.0
Hungary[3]	107	121	13.1	291	288	-1.0
Italy	511	498	-2.5	799	541	-32.3
Ireland	447	420	-6.0	345	331	-4.1
Latvia[4]	*	60	*	48	55	14.6
Lithuania	112	53	-52.7	*	*	*
Luxembourg	12	12	0.0	15	13	-13.3
Malta	*	*	*	*	*	*
Netherlands	349	344	-1.4	270	222	-17.8
Poland	461	483	4.8	1 056	1 091	3.3%
Portugal	203	164	-19.2	168	103	-38.7
Romania	282	262	-7.1	265	306	15.5
Sweden	79	99	25.3	158	157	-0.6
Slovakia[5]	52	46	-11.5	79	96	21.5
Slovenia[6]	30	29	-3.3	30	27	-10.0
Spain	1058	891	-15.8	834	801	-4.0
United Kingdom – England	**	**	**	87	**	**
United Kingdom - N Ireland	108	97	-10.2	86	68	-20.9
United Kingdom - Scotland	159	152	-4.4	166	127	-23.5
United Kingdom - Wales	**	**	**	**	**	**

Table 3. *Annual fertiliser and manure N use in thousand tonnes in the 2004-2007 and 2008-2011 reports of Member States and the average change between the two reporting periods. * no data or inaccurate data. ** England and Wales reported aggregated data: animal manure N use: 343 thousand tons in both periods 2008-2011 and 2004-2007; fertilizer N use: 822 thousand tons in the period 2004-2007and 784 thousand tons in the period 2008-2011.*

[1] Data from 2007 and 2010. [2] Data from 2006 and 2010. [3] Data from 2007 and 2012. [4] Data from 2007 and 2011. [5] Data from 2007 and 2012. [6] Data from 2007 and 2011.

	Average 2006 - 2007	Average 2008 - 2010	Change, %
EU 27	10903805	10253622	-6
Belgium	*	*	*
Bulgaria	147854	190894	29
Czech Republic	313123	246408	-21
Denmark	207684	189901	-9
Germany	1704025	1639266	-4
Estonia	37768	34347	-9
Ireland	326492	341881	5
Greece	204165	175616	-14
Spain	957419	828024	-14
France	2276102	2152093	-5
Italy	710621	595300	-16
Cyprus	7631	5065	-34
Latvia	67061	46090	-31
Lithuania	145994	133666	-8
Luxembourg	*	*	*
Hungary	311734	253100	-19
Malta	*	*	*
Netherlands	260595	236018	-9
Austria	106987	92969	-13
Poland	1098905	1114305	1
Portugal	76773	71338	-7
Romania	282555	336502	19
Slovenia	39411	27285	-31
Slovakia	97273	82067	-16
Finland	158149	141479	-11
Sweden	183733	169980	-7
United Kingdom	1021472	983155	-4

***Table 4**. N fertilizer consumption in tonnes of N in 2006-2007 and 2008-2010 (Source: Eurostat/Fertilizers Europe; *no data in EUROSTAT) and the change between these periods.*

	Nitrogen			Phosphate		
Member State	2004	2008	Change (%)	2004	2008	Change (%)
Austria	36	33	-8.3	3	2	-33.3
Belgium	129	118	-8.5	9	5	-44.4
Bulgaria	22	18	-18.2	-3	-4	-33.3
Cyprus	114*	122	7.0	20*	21	5.0
Czech Republic	72	86	19.4	1	1	0.0
Denmark	113	95	-15.9	10	7	-30.0
Estonia	25	29	16.0	-7*	-8	-14.3
Finland	58	54	-6.9	7	5	-28.6
France	50	49	-2.0	3	2	-33.3
Germany	91	93	2.2	-1	1	-
Greece	27	15	-44.4	-2	-3	-50
Hungary	-13	-18	-38.5	-12	-15	- 25
Ireland	62	50	-19.4	7	3	-57.1
Italy	23	33	43.5	-4	-4	0.0
Latvia	21	16	-23.8	0	-1	-
Lithuania	34	36	5.9	-7	-10	-42.8
Luxembourg	102	89	-12.7	1	1	0.0
Malta	212	120	-43.4	38	20	-47.4
Netherlands	226	188	-16.8	16	10	-37.5
Poland	42	63	50.0	3	7	133.3
Portugal	25	12	-52.0	12	3	-75.0
Romania	-12	4	-	-4	-2	+50
Slovakia	31	28	-9.7	-3	-4	-33.3
Slovenia	56	47	-16.1	9	7	-22.2
Spain	40	35	-12.5	4	3	-25.0
Sweden	47	53	12.8	1	1	0.0
United Kingdom	111	93	-16.2	11	7	-36.4
European Union (27)	**50***	**49**	-2	**2***	**1**	-50

***Table 5**. Nitrogen and phosphate balance (kg N per ha and Kg P per ha) in the EU (Source EUROSTAT). * data from 2005.*

	Stations with measurements		Density per 1000 km2	
Member State	2004-2007	2008-2011	2004-2007	2008-2011
AT-Austria	368	1965	4.5	23.8
BE-Belgium	3020	2974	99.7	98.2
BG-Bulgaria	128	432	1.2	4.0
CY-Cyprus	222	244	24.0	26.4
CZ-Czech Republic	408	611	5.3	7.9
DE-Germany	170	162	0.5	0.5
DK-Denmark	1479	595	34.9	14.0
EE-Estonia	565	299	13.3	7.1
EL-Greece	415	370	3.2	2.8
ES-Spain	4078	4770	8.2	9.5
FR-France	2666	2509	4.9	4.6
FI-Finland	54	79	0.2	0.3
HU-Hungary	1868	1763	20.8	19.7
IE-Ireland	210	211	3.0	3.1
IT-Italy	5782	5331	19.7	18.1
LT-Lithuania	53	62	0.8	1.0
LU-Luxembourg	20	20	7.7	7.7
LV-Latvia	176	174	2.8	2.8
MT-Malta	14	41	44.3	129.7
NL-Netherlands	1244	1308	36.7	38.6
PL-Poland	1266	1258	4.2	4.1
PT-Portugal	630	657	6.9	7.2
RO-Romania	1371	1805	6.0	7.9
SE-Sweden	163	326	0.4	0.8
SK-Slovakia	1558	1717	32.4	35.7
SI-Slovenia	112	104	5.6	5.2
UK-United Kingdom	3061	3088	12.7	12.8
EU	**30827**	**33493**	**7.4**	**8.0**

Table 6. *Number and density of reported groundwater monitoring stations. Figures in the table are taken from the datasets submitted by the Member States. Only stations for which complete and correct information (on ID, coordinates, etc.) has been reported are included.*

	Stations with measurements		Density per 1000 km^2	
Member State	2004-2007	2008-2011	2004-2007	2008-2011
AT-Austria	297	109	3.6	1.3
BE-Belgium	1154	859	38.1	28.4
BG-Bulgaria	109	315	1.0	2.9
CY-Cyprus	10	10	1.1	1.1
CZ-Czech Republic	949	571	12.3	7.4
DE-Germany	171	300	0.5	0.9
DK-Denmark	220	161	5.2	3.8
EE-Estonia	74	145	1.7	3.4
EL-Greece	107	105	0.8	0.8
ES-Spain	2544	3733	5.1	7.5
FI-Finland	147	141	0.5	0.5
FR-France	1746	3331	3.2	6.1
HU-Hungary	535	525	6.0	5.9
IE-Ireland	217	252	3.2	3.7
IT-Italy	2111	2463	7.2	8.4
LT-Lithuania	118	291	1.9	4.6
LU-Luxembourg	16	16	6.2	6.2
LV-Latvia	325	339	5.2	5.4
MT-Malta	7	7[4]	22.2	22.2
NL-Netherlands	502	457	14.8	13.5
PL-Poland	3397	2801	11.2	9.2
PT-Portugal	127	148	1.4	1.6
RO-Romania	1241	1116	5.4	4.9
SE-Sweden	2185	2455	5.3	6.0
SI-Slovenia	118	139	5.9	6.9
SK-Slovakia	224	852	4.7	17.7
UK-United Kingdom	7988	7377	33.1	30.6
EU	**26639**	**29018**	**6.4**	**6.9**

Table 7. *Number and density of freshwater monitoring stations. Figures in the table are taken from the datasets submitted by the Member States. Only stations for which complete and correct information (on ID, coordinates, etc.) has been reported are included.*

[4] Malta reported only fresh surface water data for the year2012.

MS	2004-2007	2008-2011
AT	*	*
BE	25	17[5]
BG	6	7
CY	18	18[6]
CZ	*	*
DE	**	19
DK	136	70
EE	9	39
EL	11	11
ES	332	631
FR	23	21
FI	46	44
HU	*	*
IE	126	104
IT	408	582
LT	19	17
LUX	*	*
LV	31	45
MT	29	31[7]
NL	41	43
PL	66	46
PT	42	55
RO	60	54
SE	229	235
SK	*	*
SI	5	5
UK	915	1064
EU	**2577**	**3210**

Table 8. *Number of saline water monitoring stations (* no saline waters, ** no data). Figures in the table are taken from the datasets submitted by the Member States. Only stations for which complete and correct information (on ID, coordinates, etc.) has been reported are included.*

[5] Trophic status assessment provided only for 7 stations for transitional waters

[6] Winter averages values

[7] Malta reported only saline surface water data for the year 2012.

	2004-2007				2008-2011			
Member State	**< 25**	**25-40**	**40-50**	**≥ 50**	**< 25**	**25-40**	**40-50**	**≥ 50**
AT	74%	12%	5%	9%	74.5%	11.5%	5.3%	8.8%
BE	60%	15%	7%	18%	60.4%	14.7%	7.1%	17.9%
BG	53%	18%	8%	21%	57.3%	16.7%	8.0%	18.1%
CY	76%	8%	3%	14%	75.8%	6.6%	2.5%	15.2%
CZ	74%	8%	3%	14%	75.8%	8.0%	3.9%	12.3%
DE	12%	20%	18%	50%	8.2%	22.6%	18.2%	50.9%
DK	70%	8%	5%	17%	65.4%	8.4%	6.9%	19.3%
EE	66%	16%	7%	11%	54.2%	23.6%	8.4%	13.8%
ES	54%	13%	6%	26%	57.5%	13.1%	6.3%	23.1%
FI	96%	2%	0%	2%	98.7%	1.3%	0.0%	0.0%
FR	50%	26%	10%	14%	51.0%	25.1%	12.0%	12.0%
GR	58%	14%	6%	21%	62.4%	11.4%	6.8%	19.5%
HU	90%	3%	1%	6%	87.7%	4.0%	1.3%	6.9%
IE	73%	20%	5%	2%	86.7%	10.9%	2.4%	0.0%
IT	66%	16%	6%	12%	67.3%	14.0%	6.0%	12.7%
LT	94%	4%	0%	2%	93.5%	3.2%	0.0%	3.2%
LU	40%	35%	10%	15%	40.0%	35.0%	10.0%	15.0%
LV	95%	2%	1%	2%	95.4%	2.9%	0.6%	1.2%
MT	0%	29%	0%	71%	2.4%	9.8%	17.1%	70.7%
NL	71%	5%	3%	21%	77.8%	6.5%	3.2%	12.5%
PL	86%	5%	3%	6%	87.0%	5.0%	2.9%	5.2%
PT	65%	12%	3%	20%	64.7%	11.3%	3.8%	20.2%
RO	75%	10%	4%	11%	76.5%	8.3%	3.8%	11.5%
SE	99%	1%	0%	0%	98.2%	0.9%	0.6%	0.3%
SI	74%	13%	4%	10%	78.8%	6.7%	7.8%	6.7%
SK	89%	6%	2%	4%	75.1%	10.0%	3.8%	11.0%
UK	61%	17%	7%	15%	61.7%	17.4%	6.9%	14.0%
EU	**66%**	**13%**	**6%**	**15%**	**67.0%**	**12.7%**	**5.9%**	**14.4%**

Table 9. *Percentage of groundwater monitoring points per water quality class (annual average nitrate concentration) for all stations for EU 27 Member States for the period 2004-2007 and 2008-2011.*

	2004-2007						2008-2011					
	0-1.99	**2-9.99**	**10-24.99**	**25-39.99**	**40-50**	**>50**	**0-1.99**	**2-9.99**	**10-24.99**	**25-39.99**	**40-50**	**>50**
AT	22.9%	61.6%	14.1%	1.3%	0.0%	0.0%	21.1%	54.1%	22.9%	1.8%	0.0%	0.0%
BE	0.9%	25.3%	42.5%	16.1%	5.7%	9.5%	5.2%	27.8%	37.6%	16.7%	5.6%	7.1%
BG	67.0%	32.1%	0.9%	0.0%	0.0%	0.0%	24.9%	57.0%	14.8%	2.6%	0.3%	0.3%
CY	10.0%	50.0%	30.0%	10.0%	0.0%	0.0%	10.0%	50.0%	40.0%	0.0%	0.0%	0.0%
CZ	0.5%	22.6%	58.3%	16.5%	1.5%	0.6%	0.2%	13.5%	57.6%	24.0%	2.6%	2.1%
DE	12.3%	22.2%	61.4%	4.1%	0.0%	0.0%	15.8%	23.4%	57.1%	3.6%	0.0%	0.0%
DK	40.5%	14.5%	25.5%	15.5%	3.2%	0.9%	31.1%	15.5%	37.3%	14.3%	1.2%	0.6%
EE	75.7%	13.5%	9.5%	1.4%	0.0%	0.0%	57.2%	32.4%	9.7%	0.7%	0.0%	0.0%
ES	37.7%	42.0%	15.4%	2.9%	0.7%	1.3%	37.0%	42.9%	14.5%	3.4%	0.9%	1.3%
FI	58.5%	40.1%	1.4%	0.0%	0.0%	0.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%
FR	3.4%	31.3%	46.6%	15.0%	2.3%	1.4%	7.0%	38.0%	37.0%	14.0%	2.0%	1.0%
GR	34.6%	56.1%	8.4%	0.0%	0.9%	0.0%	45.7%	44.8%	9.5%	0.0%	0.0%	0.0%
HU	24.5%	48.0%	21.5%	3.4%	1.1%	1.5%	13.5%	49.9%	27.0%	7.0%	1.0%	1.5%
IE	42.9%	31.3%	23.0%	2.8%	0.0%	0.0%	48.4%	35.3%	15.5%	0.8%	0.0%	0.0%
IT	21.8%	55.6%	20.2%	2.2%	0.1%	0.1%	25.3%	52.0%	19.5%	2.6%	0.3%	0.2%
LT	42.4%	48.3%	7.6%	1.7%	0.0%	0.0%	64.3%	29.2%	6.5%	0.0%	0.0%	0.0%
LU	0.0%	6.3%	62.5%	31.3%	0.0%	0.0%	0.0%	6.7%	66.7%	26.7%	0.0%	0.0%
LV	46.5%	45.8%	6.2%	1.5%	0.0%	0.0%	52.8%	40.4%	4.7%	2.1%	0.0%	0.0%
MT*	0.0%	0.0%	14.3%	28.6%	14.3%	42.9%	28.6%	14.3%	14.3%	0.0%	0.0%	42.9%
NL	8.8%	51.2%	32.1%	5.2%	0.8%	2.0%	60.6%	38.3%	1.1%	0.0%	0.0%	0.0%
PL	9.6%	58.8%	26.4%	3.7%	0.8%	0.7%	24.4%	50.8%	20.5%	2.7%	0.8%	0.9%
PT	50.4%	44.1%	4.7%	0.8%	0.0%	0.0%	63.0%	33.6%	3.4%	0.0%	0.0%	0.0%
RO	21.0%	71.2%	6.5%	0.7%	0.2%	0.4%	22.7%	70.4%	5.3%	0.8%	0.3%	0.5%
SE	96.7%	2.9%	0.4%	0.0%	0.0%	0.0%	77.0%	18.7%	4.3%	0.0%	0.0%	0.0%
SI	2.5%	90.1%	6.6%	0.8%	0.0%	0.0%	7.2%	89.2%	2.9%	0.7%	0.0%	0.0%
SK	0.0%	73.7%	25.9%	0.4%	0.0%	0.0%	1.9%	79.0%	17.0%	1.4%	0.4%	0.4%
UK	6.5%	25.1%	31.3%	22.8%	7.3%	6.9%	11.7%	30.5%	27.3%	18.8%	5.7%	6.0%
EU	**20.8%**	**36.9%**	**25.8%**	**10.6%**	**2.9%**	**3.0%**	**21.3%**	**41.2%**	**23.3%**	**9.3%**	**2.4%**	**2.4%**

Table 10. *Percentage of points per water quality class (annual average nitrate concentration) for river and lake stations for the periods 2004-2007 and 2008-2011. * In absence of data for the period 2008-2011, data for 2012 are presented.*

SECTION II
NITRATE VULNERABLE ZONES

Under Article 3 of the Nitrates Directive, Member States are required to identify polluted waters or waters at risk of pollution, according to the criteria defined in Annex I to the Directive, and have to designate all areas that drain into identified waters and contribute to pollution as nitrate vulnerable zones (NVZ).

The Directive gives the possibility to Member State not to identify specific vulnerable zones, if they establish and apply action programmes throughout their national territory (Article 3(5).

Table 11 presents the 2008 and 2012 situation in relation to the implementation of Article 3 of the Nitrates Directive. The 2012 situation is also shown in Map 8.

	2012	2012	2008	2008
Country	% of territory designated as NVZ	Area of territory designated (km²)	% of territory designated as NVZ	Area of territory designated (km²)
Austria	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Belgium*	76.2	23356.2	67.53	20710.98
Bulgaria	34.56	38351.59	53.13	58960.69
Cyprus	5.26	486	4.98	461.67
Czech Republic	41.63	32835.39	39.78	31375.68
Denmark	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Estonia	7.18	3250	7.18	3250
Finland	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
France	46.49	255372.07	45.54	250136.51
Germany	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Greece	24.27	31962.81	24.27	31962.81
Hungary	45.7	42519	45.75	42564
Ireland	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Italy	13.07	39391	12.64	38096.96
Latvia	12.8	8258.7	12.65	8173.54
Lithuania	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Luxembourg	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Malta	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Netherlands	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Poland	4.54	14171.24	1.47	4608.82
Portugal	4.39	4046.8	3.70	3408.07
Romania	57.79	137803.8	6.72	16047
Slovakia	29.82	14622	29.82	14622
Slovenia	*Whole territory approach - Art. 3(5)*		*Whole territory approach - Art. 3(5)*	
Spain	16.15	81699.44	12.58	63693.76

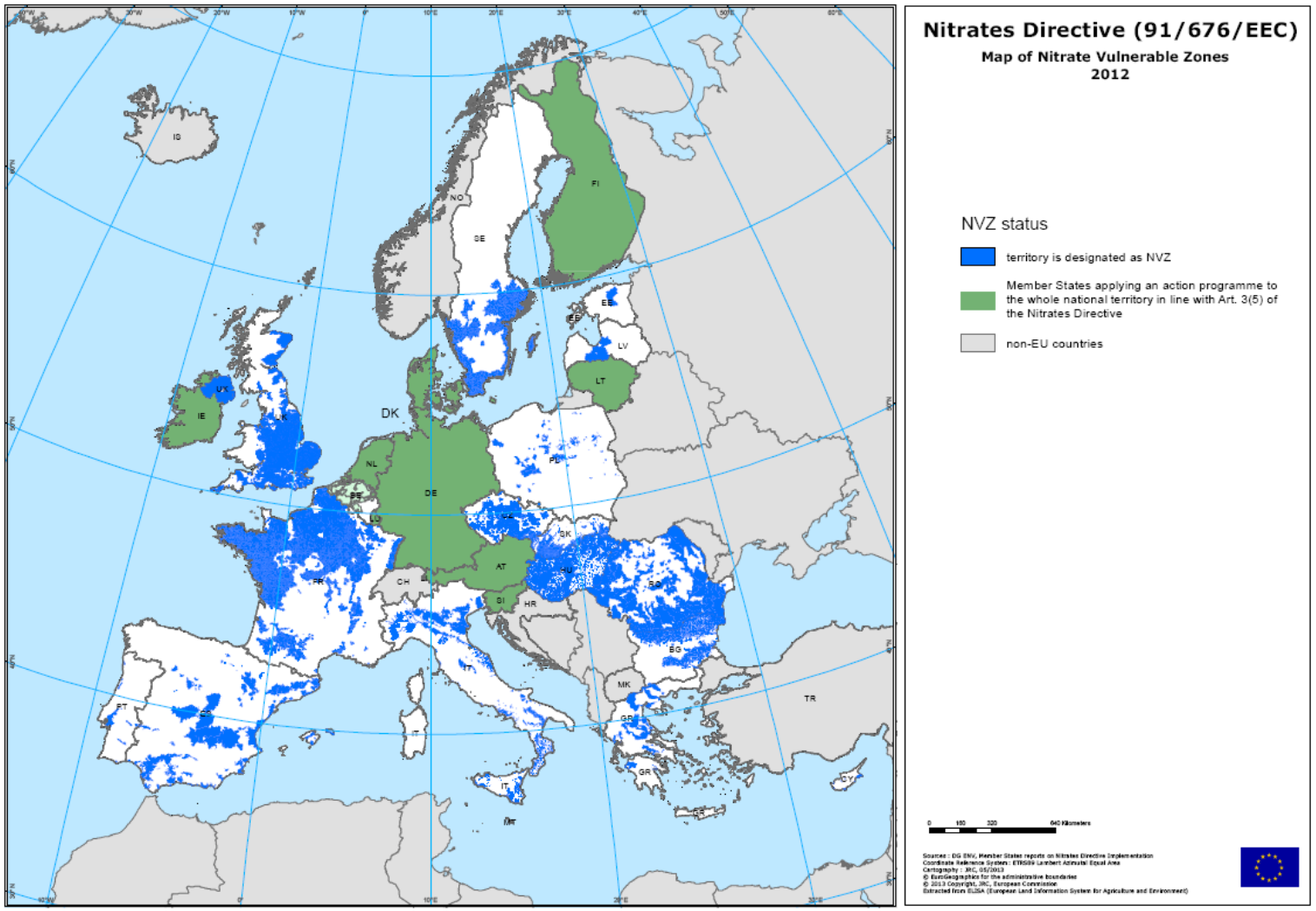
Sweden	22.08	99339.26	15.01	67521.79
United Kingdom**	43.56	106538.68	38.67	94594.25
EU 27***	46.69	1952086.48	42.29	1768271.03

** The Region of Flanders applies an action programme to its entire territory in line with Art. 3(5) of the Nitrates Directive. Flanders whole surface has been considered for the calculation of the NVZ in Belgium.*

*** Northern Ireland applies an action programme to its entire territory in line with Art. 3(5) of the Nitrates Directive. Northern Ireland whole surface has been considered for the calculation of the NVZ in the United Kingdom.*

**** The values for EU27 have been calculated taking into account the whole land area of countries applying an action programme to their territory in line with Art. 3(5) of the Nitrates Directive.*

Table 11. *Nitrate vulnerable zones in Member States and Member States applying an action programme to the whole national territory in line with Art. 3(5) of the Nitrates Directive (source: data provided by Member States to JRC).*



Map 8. Implementation of Article 3 of the Nitrates Directive in 2012.

SECTION III
DEROGATIONS

The Directive establishes a maximum annual limit of 170 kg N/ha from livestock manure that can be applied on land. The Directive envisages a possibility for a derogation to this maximum amount, when certain conditions are met (long growing seasons, crops with high nitrogen uptake, high net precipitation, and soils with exceptionally high denitrification capacity).

At request of a Member State, the derogation is granted by means of a Commission Decision and is subject to an opinion of the Nitrates Committee.

Table 12 presents the situation concerning granted temporary derogations at the end of the year 2012.

Member State/Region	Commission Decision	Publication	Expiry date
Denmark	2012/659/EU	OJ L 295/20, 25.10.2012	31.07.2016
Belgium: Flanders	2011/489/EU	OJ L 200/23, 3.8.2011	31.12.2014
Ireland	2011/127/EU	OJ L 51/19, 25.02.2011	31.12.2013
Germany	2009/753/EC	OJ L 268/35, 13.10.2009	31.12.2013
Netherlands	2010/65/EU	OJ L 35/18, 6.02.2010	31.12.2013
UK: Northern Ireland	2011/128/EU	OJ L 51/21, 25.02.2011	31.12.2014
UK: England, Scotland and Wales	2009/431/EC	OJ L 141/48, 6.6.2009	31.12.2012
Italy: Lombardy, Piedmont, Veneto, and Emilia Romagna	2011/721/EU	OJ L 287/36, 4.11.2011	31.12.2015

Table 12. *Derogations in force at the end of the year 2012.*

SECTION IV
ASSESSMENT OF THE REPORTING EXERCISE

The Member States reports for the period 2008-2011 were mostly submitted in the second half of 2012 and at the early beginning of 2013. There was a large variety in both the format and the quality of the report content among Member States, with consequent challenges in developing a consistent aggregate synthesis at the EU level. Likewise, in a number of cases, digital data provided together with the written reports by Member States, presented inconsistencies and difficulties of interpretation, which required clarifications from Member States.

In general, the overall quality of information submitted by Members States improved as compared to the reporting period 2004-2007. However, the following issues will need special attention in the future reporting periods:

- Ensuring adequate data relating to saline waters (especially marine) both from a quantitative and qualitative point of view;
- Moving towards comparability in the assessment of eutrophication in surface waters, both fresh and saline ones;
- Producing maps showing waters identified in accordance with Article 3(1) and Annex I, indicating for each water which of the criteria in Annex I was used for the purpose of identification;
- Notifying designated nitrate vulnerable zones in the appropriate format, together with the reasons for designation, according to the criteria for identifying polluted waters or at risk of being polluted;
- Delivering data regarding pressures from agriculture in an accurate and complete way, which will make comparability at EU level possible;
- Developing adequate methodologies for the assessment of future developments of water quality;
- Improving the reporting as regards the implementation of the action programmes, their enforcement, impacts, and cost-effectiveness.

SECTION V
MEMBER STATES SUMMARY SHEETS

In this section Member States summary sheets are presented, including information on water quality and trends, as well as main highlights on pressures from agriculture and nitrate vulnerable zones, the code of good agricultural practices and the action programme.

Unless otherwise specified, all information on water quality is based on the analysis of the digital data provided by Member States and includes monitoring results for all stations in their territory and not only for designated nitrate vulnerable zones. All values of nitrates concentrations presented in the graphs refer to annual averages, unless otherwise indicated. Graphs presenting percentages of groundwater stations and fresh water stations exceeding 25 or 50 mg nitrate per L refer to exceeding these values on average over each reporting period. Likewise, trends between different reporting periods also generally refer to average values over each period, unless otherwise indicated.

Member States used different methodologies for the assessment of the trophic status and, in some cases, the methodologies changed between the 2004-2007 and 2008-2011 reporting periods. Therefore, both comparability across EU and trend analysis have to be considered as indicative. In addition, information on reference conditions is needed to provide a complete picture on eutrophication.

The information on pressure from agriculture in the Member States summary sheets (including animal numbers and mineral and manure N use) is based on the written reports submitted by Member States. However, in order to ensure comparability among Member States and to provide a reference for EU, Eurostat data have been used in the Commission report.

As regards nitrates vulnerable zones, figures refer to the designations in force at the end of 2012 and not only to the reporting period 2008-2011.

Member State: Austria

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total groundwater stations	1965	1724
Total fresh surface water stations	109 (81 rivers + 28 lakes)	100 (75 rivers + 28 lakes)
Total saline water stations (coastal and marine)	Not applicable	Not applicable

Table 1. Number of water monitoring stations.

Groundwater quality

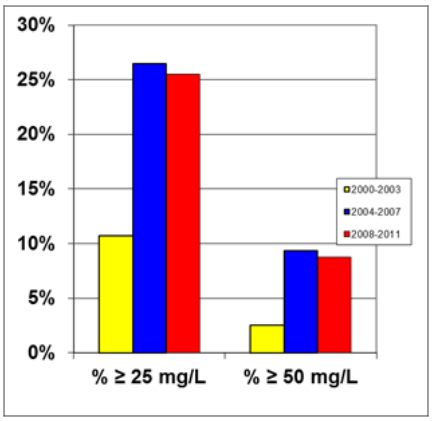


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L during the reporting periods 2000-2003, 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). To be noted that due to the change in the reporting of the groundwater stations, the results of the reporting period 2000-2003 cannot be compared with later results. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]

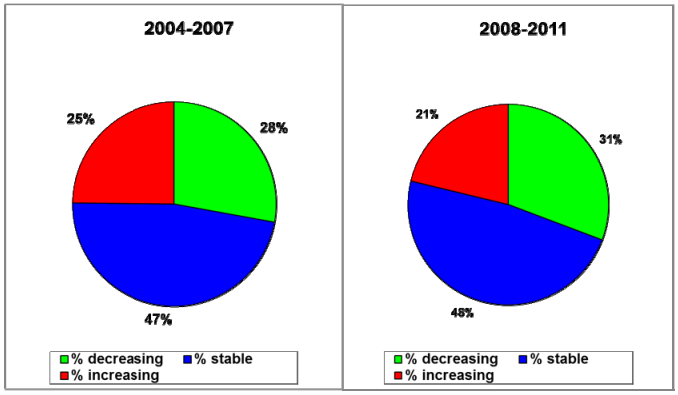


Figure 2. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Surface water quality

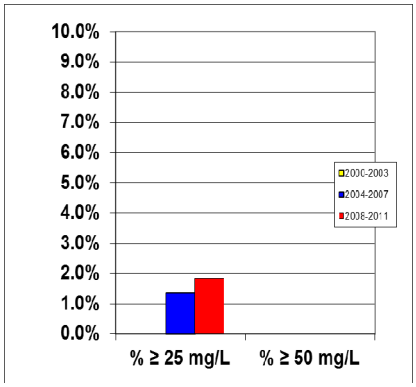


Figure 3. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L in the reporting periods 2000-2003, 2004-2007 and 2008-2011. No river station exceeded 50 mg/l in all reporting periods. No lake station exceeded 25 or 50 mg/l in all reporting periods. [x-axis: average concentrations of nitrates, expressed as mg/l; y-axis: number of monitoring stations, in percentage].

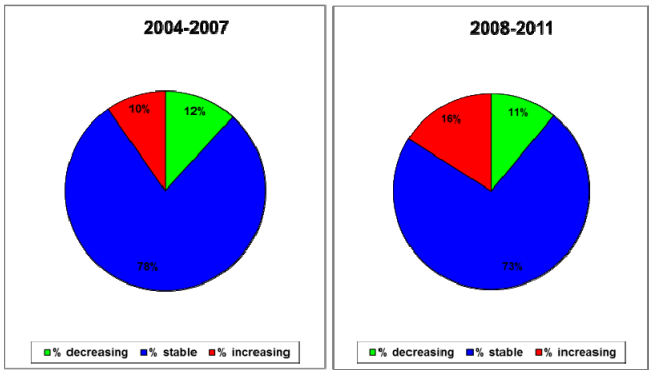


Figure 4. Trends in surface fresh waters nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Eutrophication

For rivers, the assessment was made by means of nitrates concentrations, the trophic state, and phytobenthos. For lakes, nitrates concentrations, the trophic state, phytoplankton, total phosphorus and Secchi depth were used. Phytobenthos and phytoplankton are biological quality parameters which have been developed in accordance with the Water Framework Directive, as indicators for eutrophication. In its submission, Austria stressed that information on the reference status of a water body and its current deviation from it (shown by the trophic status) is needed to assess eutrophication due to anthropogenic impacts.

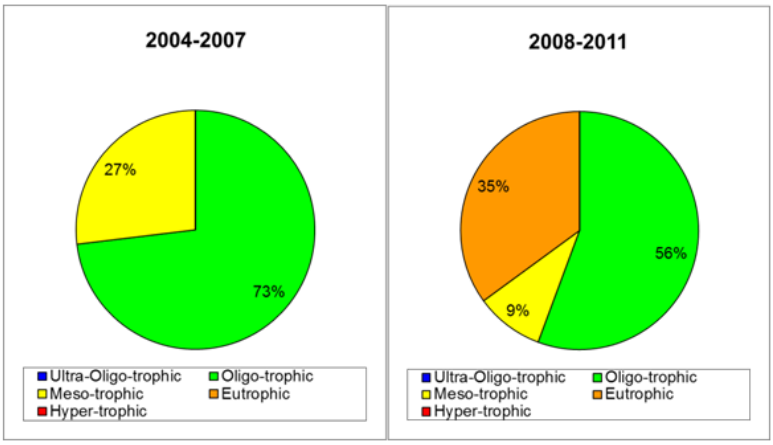


Figure 5. Surface fresh water trophic status during the 2004-2007 and 2008-2011 reporting periods (for 2004 – 2007 data was just reported for lakes and not for rivers).

Pressure from agriculture

Agricultural pressures remained stable as compared to the previous reporting period, as the use of manure and inorganic N fertilizers as well as animal numbers were stable.

Designation of nitrate vulnerable zones

No nitrates vulnerable zones have been designated in Austria, since an action programme applies to its whole territory.

Code of good agricultural practice

The code of good agricultural practices was established in 1995. After the elaboration of the first action programme (1996), which Austria applies since that time throughout the whole national territory, the code of good agricultural practices has been incorporated in the provisions of the action programme. Thus the provisions are mandatory for all farmers in Austria and updated periodically as part of the action programme.

Action programme

The action programme was first established in 1996 and modified at several occasions. The latest revision took place in 2012.

In addition to the obligatory measures of the action programme, a voluntary programme has been established (ÖPUL programme - Austrian programme for the promotion of environmentally sound, extensive agriculture that protects the natural environment). In 2010, around 118.350 holdings have participated in the ÖPUL programme.

Member State: Belgium

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total groundwater stations	2075 (Flanders) + 899 (Wallonia)	2011 (Flanders) + 899 (Wallonia)
Total fresh surface water stations	791 (Flanders) + 68 (Wallonia)	787 (Flanders) + 61 (Wallonia)
Total saline water stations	7 transitional (Flanders) + 6 coastal (federal) + 4 marine (federal)	-

Table 1. Number of water monitoring stations

Groundwater quality

FLANDERS

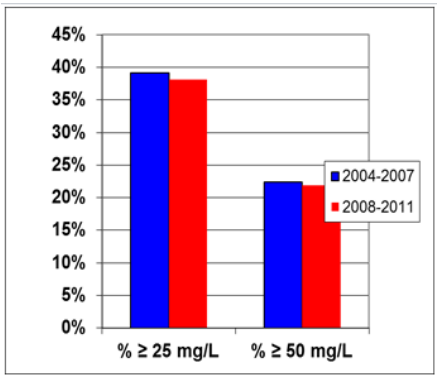


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L during the periods 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

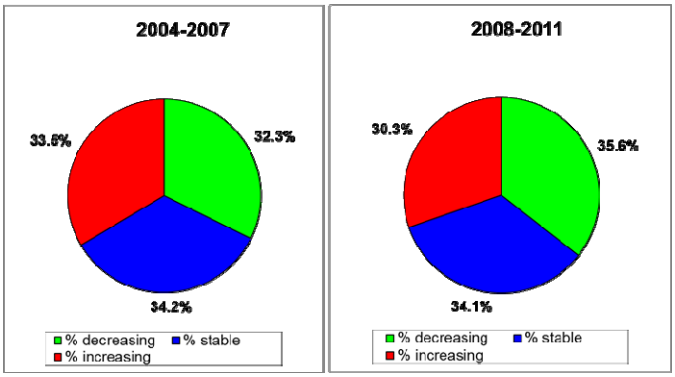


Figure 2. Trends in groundwater nitrate concentrations between the year 2004 and the year 2007 (left) and between the periods 2004-2007 and 2008-2011 (right). A trend between the 2000-2003 and 2004-2007 is not possible, due to a change in the monitoring network in 2004.

WALLONIA

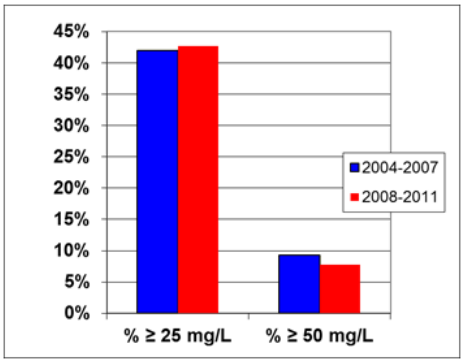


Figure 3. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L during the reporting periods 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

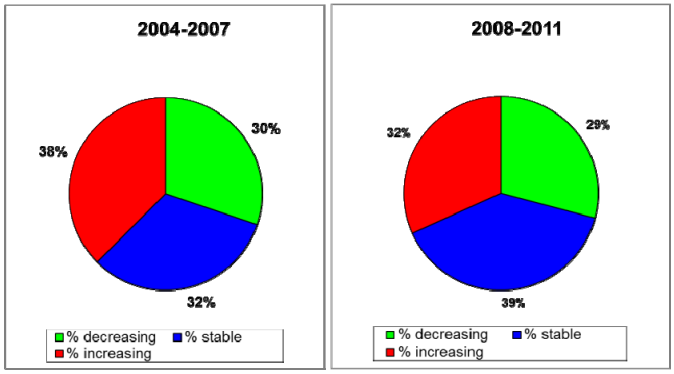


Figure 4. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Surface water quality

FLANDERS

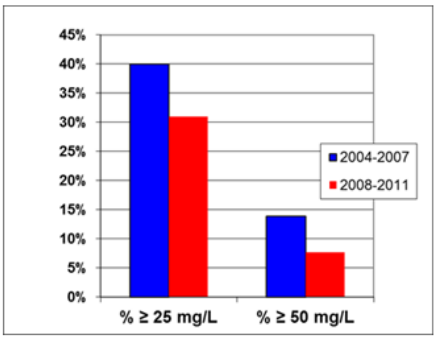


Figure 5. Percentage of river stations (Manure Action Plan monitoring network) exceeding 25 or 50 mg nitrate per L during the reporting periods 2004-2007 and 2008-2011. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

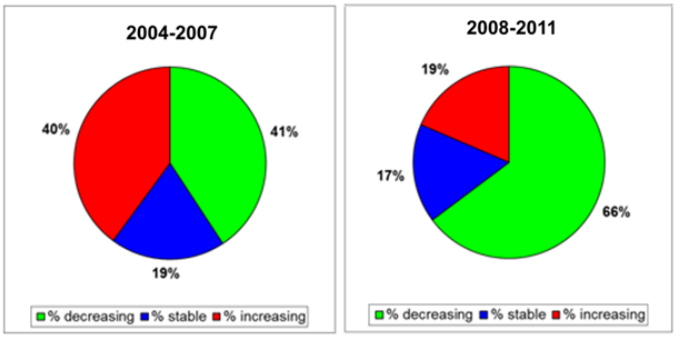


Figure 6. Trends in rivers (Manure Action Plan monitoring network) nitrate concentrations between the period 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

WALLONIA

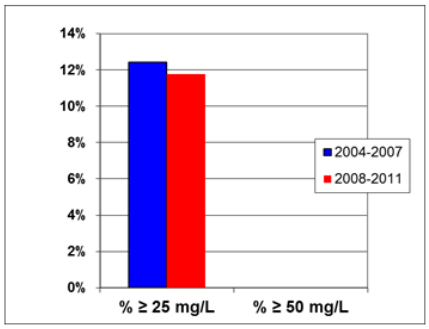


Figure 7. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L on average during 2004-2007 and 2008-2011. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]. No stations exceeded 50 mg nitrate per L in both reporting periods 2004-2007 and 2008-2011

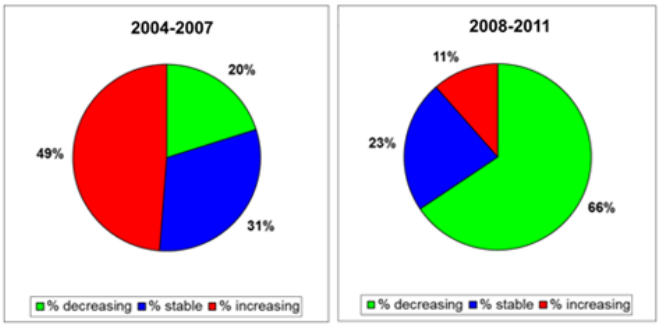


Figure 8. Trends in surface fresh water nitrate concentrations between the period 2004-2007 and 2008-2011 (left) and between the periods 2004-2007 and 2008-2011 (right).

Eutrophication

Rivers and lakes

FLANDERS

The eutrophication status of fresh waters was assessed by means of total phosphorus. Of river monitoring stations (*operational monitoring network WFD*), 82% were eutrophic or hypertrophic. Data for the few monitored lakes showed similar results.

The trophic status of fresh waters remains an issue, although it improved in the reporting period 2008-2011.

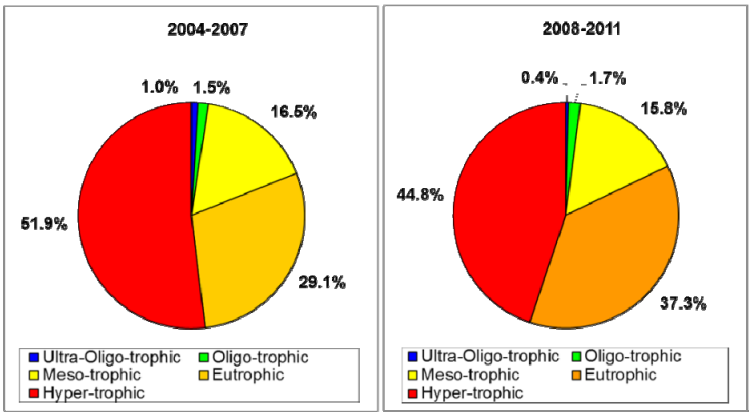


Figure 9. Surface fresh water (rivers) eutrophication classification during the 2004-2007 and 2008-2011 reporting periods

WALLONIA

The eutrophication status of rivers was assessed by means of orthophosphate, total phosphorus and chlorophyll-a. 50% of the monitoring stations were eutrophic or hypertrophic. The trophic status of rivers worsened in the reporting period 2008-2011 compared to 2004-2007, as the proportion of hypertrophic stations increased. As regards lakes, 11 lakes were monitored, of which 8 were eutrophic and 3 were mesotrophic.

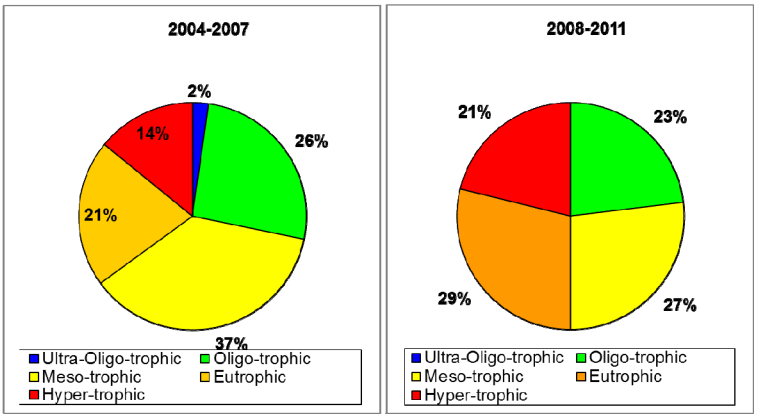


Figure 10. Surface fresh water (rivers) eutrophication classification during the 2004-2007 and 2008-2011 reporting periods.

Saline waters

Flanders only reported transitional waters, which were all found to be in hypertrophic status in the 2008-2011 reporting period, on the basis of total nitrogen concentrations. In the 2004-2007 reporting period, 66.7% of monitored sites were in mesotrophic status and the remaining 33.3% in eutrophic status.

Wallonia did not report on saline waters.

The report of the Belgian Federal Authority presents nitrates concentrations for coastal and marine waters, which were always lower than 2 mg/l. Also data on phytoplankton and diatom contents for marine waters were presented, although not used to assess the trophic status of these waters.

Pressure from agriculture

In Flanders, increasing agricultural pressures were due to increasing number of poultry and pigs, as well as the use of fertilizer N. The use of manure N remained stable. The reported nitrogen discharge of agriculture increased between 2007 and 2009 by 15%. From 1990 to 2009, the nitrogen discharge of agriculture decreased by 70% .

In Wallonia, the agricultural pressures slightly decreased, as both manure use and mineral fertilizers use decreased.

Designation of nitrate vulnerable zones

No nitrates vulnerable zones have been designated in Flanders, since an action programme applies to its whole territory, since 2007. In addition, since year 2011, Flanders has designated focus areas, draining into particularly polluted surface and ground waters.

In Wallonia, nitrate vulnerable zones were first designated in 1994 and then extended in 2002, 2006 and 2012.

At the end of 2012, the total land area to which an action programme applies in Belgium was 23356.2 Km^2, corresponding to 76.2 of the total land area.

Code of good agricultural practice

In Flanders, the code of good agricultural practice (CGAP) was first issued in 1996. It applies to all farmers on an obligatory basis, as integral part of the action programme.

In Wallonia, the Programme for the Sustainable Management of the Nitrogen (PGDA) is the legislative tool established for the implementation of the Nitrates Directive. It describes both the action programme measures, obligatory in NVZ, as well as the rules applicable outside the NVZ, concerning manure storage requirements, application restrictions, maximal total organic N and soil cover.

Action programme

In Flanders, legislation on manure management was established in 1991. The last action programme was published in 2011. Changes in the 2011-2014 action programme as compared to the 2007-2010 one notably related to closed periods, minimum storage capacity and maximum nitrogen application rates. In the reporting period 2008-2011, controls were carried out on several aspects of the programme. Main irregularities were identified in relation to the non-compliance of application rates of manures and fertilizers, with annually 15 to 20% non-compliance, manure transport, with annually 20 to 35% non-compliance and illegal disposal of manures, with annually 38 to 50% non-compliance.

In Wallonia, the action programme was first published in 1994 and modified in 2002, 2007 and 2011. Several activities are carried out on farmer's awareness raising and counselling. Each year at least 3% of the farms are selected for the analysis of the potentially leachable nitrogen, which gives an indication of the fertilization practices on the plot. In 2009, of the 299 monitored farms, 11.4% failed the test. Annual controlling activities were carried out in 1% of the farms. The percentage of compliance with action programme measures varied from 89% for balanced fertilization to 100% for unfertilized buffer strips near watercourses.

Member State: Bulgaria

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total groundwater stations	432	116
Total fresh surface water stations	315	86
Total coastal water stations	7	3

Table 1. Number of water monitoring stations.

Groundwater quality

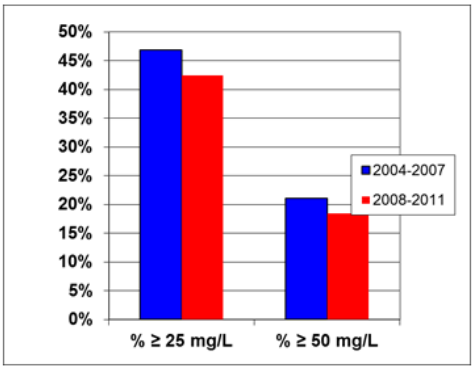


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L, during the 2004-2007 and 2008-2011 reporting periods. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

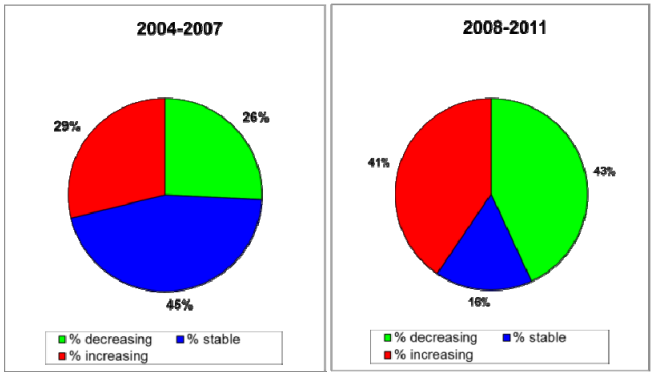


Figure 2. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Surface water quality

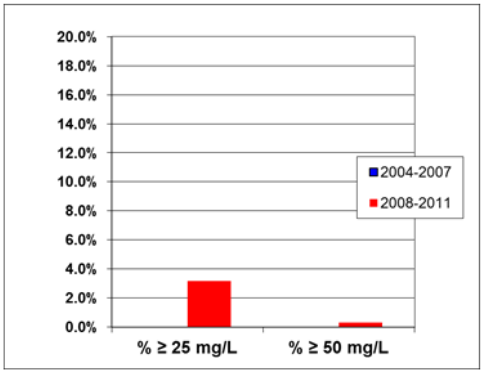


Figure 3. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L during the reporting periods 2004-2007 and 2008-2011. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]. No stations exceeded 25 mg nitrate per L in the reporting period 2004-2007.

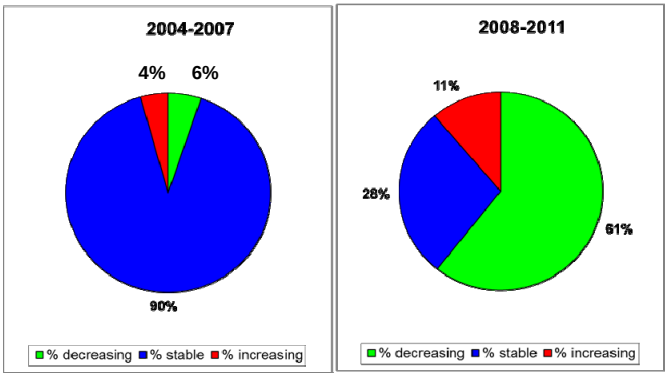


Figure 4. Trends in surface fresh water nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Eutrophication

Rivers and Lakes

The trophic status in rivers was assessed on the basis of nitrate concentrations and inorganic P. The trophic status in lakes was assessed on the basis of nitrate concentrations, chlorophyll-a, total P and inorganic P. The percentages of hypertrophic and eutrophic fresh waters have increased from 2% to 11% and from 6% to 11%, respectively. The percentage of oligotrophic waters has also increased from 25% to 37%. The percentages of mesotrophic and ultra-oligotrophic waters have decreased.

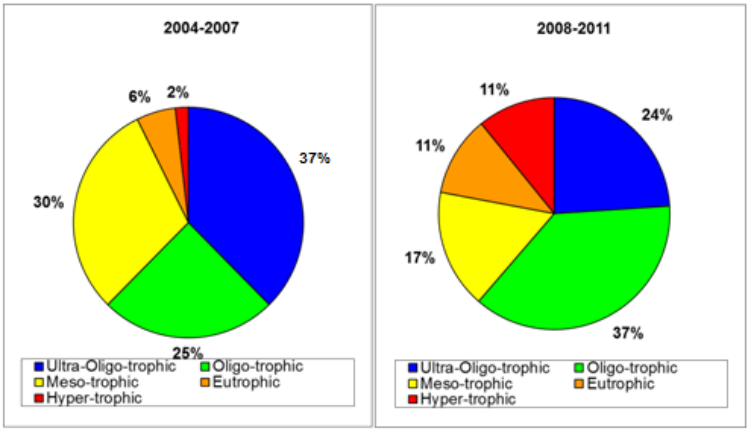


Figure 5. Eutrophication classification for surface fresh waters in the reporting periods 2004-2007 (left) and 2008-2011 (right).

Saline waters

The trophic status of coastal waters was assessed on the basis of nitrate concentrations and inorganic P. All coastal waters were reported as eutrophic. No data for transitional and marine waters were provided.

Pressure from agriculture

The numbers of cattle, pigs and poultry have decreased by 12%, 25% and 14%, respectively. Nitrogen mineral fertilizers use at the national level during the 2008-2011 reporting period increased by about 13% compared to the previous reporting period. No information regarding nutrient balances and nitrogen discharges into the environment has been provided.

Designation of nitrate vulnerable zones

The NVZ area is 38 351.59 km² (34.56% of the total land area), which is smaller than the previously designated NVZ area. The decrease is related to the fact that the previous NVZ area included forests, water bodies, highly urbanised industrial zones, and other non-agricultural land, which have now been excluded from the designation.

Code of good agricultural practice

The code of good agricultural practice was introduced in 2005. The new code was published in 2010.

Action programme

The action programme was lastly revised in 2011 as regards e.g. the storage of animal manure, special equipment for fertilizer application, fertilizer application rates on sloping grounds and split application of fertilizers. Most breaches to action programme measures, observed during checks, related to the absence of or inadequate storage facilities or absence of fertilization recordings.

Member State: Cyprus

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total Groundwater stations	244	221
Total Fresh Surface water stations	10	10
Total Saline water stations	18*	17*

* Winter average values

Table 1. Number of water monitoring stations

Groundwater quality

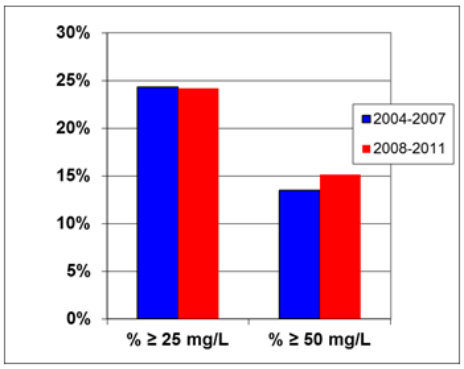


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L, during the reporting periods 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

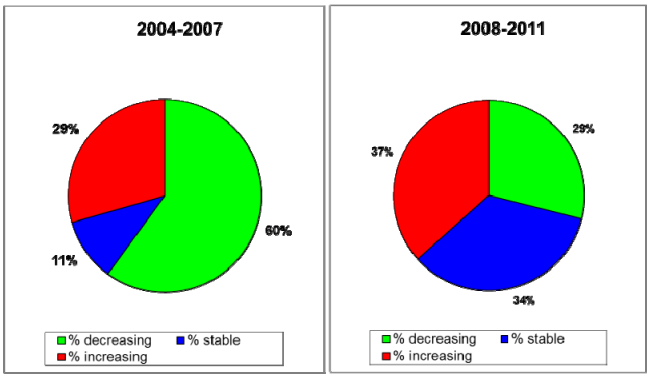


Figure 2. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011(right).

Surface water quality

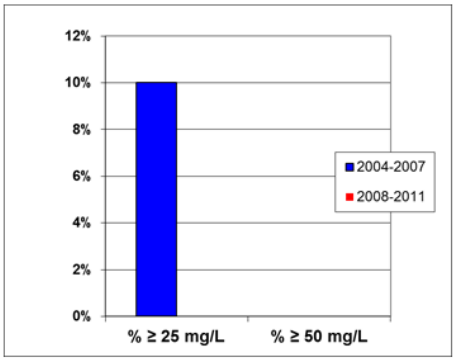


Figure 3. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L during the 2004-2007 and 2008-2011 reporting periods. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]. No stations exceeded 50 mg nitrate per L in both reporting periods 2004-2007 and 2008-2011

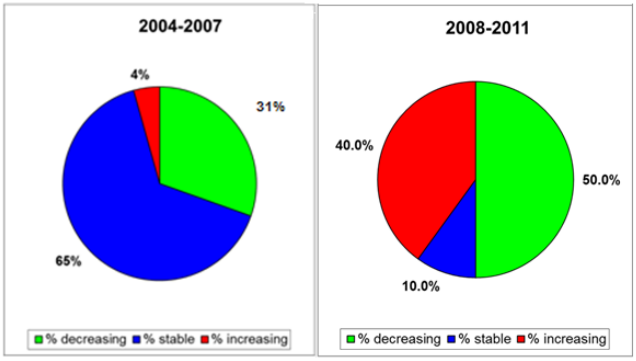


Figure 4. Trends in surface fresh water nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Eutrophication

Rivers and Lakes

Cyprus did not report on the trophic status of inland surface waters. According to the Cypriot authorities, applying methodologies based e.g. on chlorophyll-a measurements has no scientific basis in the local conditions, due to the semiarid environment, the seasonal flow variation and the river morphology.

Saline waters

Nitrate, Chlorophyll-a and orthophosphate were the monitored parameters. However, the Cypriot authorities explained that any eutrophication model could not be applied due to local climatic conditions. Likewise, it was highlighted that none of the coastal waters monitored were identified as eutrophic in the previous reporting period.

Pressure from agriculture

Application of nitrogen from manure increased by 50%, while application of nitrogen from chemical fertilizers decreased by 20%. Animal numbers were stable, except for poultry, which sharply decreased. The nitrogen discharge into the environment increased in the last reporting period as compared to the previous one.

Designation of nitrate vulnerable zones

The nitrates vulnerable zones designation was first done in 2004 and then updated in 2008 and 2011. The last revision brought the designated area to 486 km^2 (5.26% of the total territory), slightly increased as compared to 2008 (461.67 km^2).

Code of good agricultural practice

The code of good agricultural practice (CGAP) was first issued in 2002 and then revised in 2007. No changes were made in the 2008-2011 period. The report highlighted the information programme put in place to improve farmers' awareness relating to the application of the CGAP.

Action programme

The action programme was first issued in 2004 and revised in 2008.

Approximately 4% of the farmers within NVZ areas were controlled annually and most of them were found compliant to the action programme measures. The main compliance difficulties concerned storage capacity and limitation of land application of fertilizers.

Member State: Czech Republic

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total groundwater stations	611	323
Total fresh surface water stations	571	533
Total saline water stations	Not applicable	Not applicable

Table 1. Number of water monitoring stations.

Groundwater quality

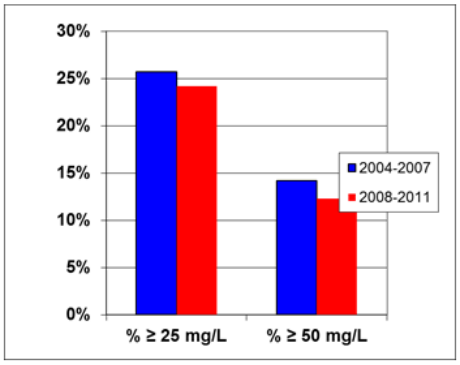


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L, during the reporting periods 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

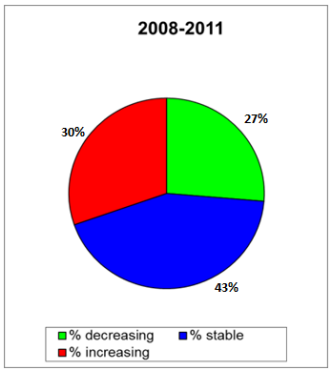


Figure 2. Trends in groundwater nitrate concentrations between the periods 2004-2007 and 2008-2011.

Surface water quality

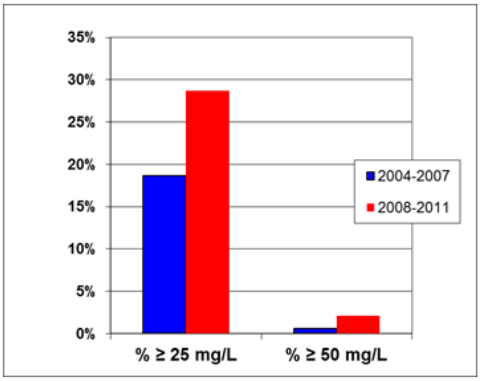


Figure 3. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L during the 2004-2007 and 2008-2011 reporting periods. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

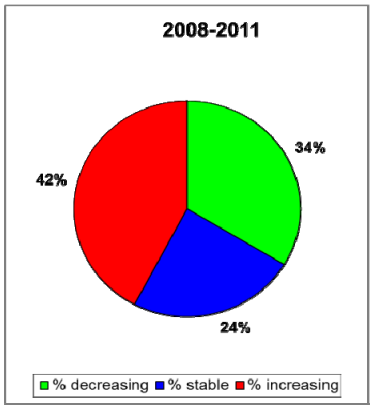


Figure 4 Trends in surface fresh water nitrate concentrations between the periods 2004-2007 and 2008-2011.

Eutrophication

The trophic classification of freshwaters, in the 2004-2007 and 2008-2011 reporting period, is shown in the graphs below. Comparability might be hampered due to the use of different methodologies in the two reporting periods.

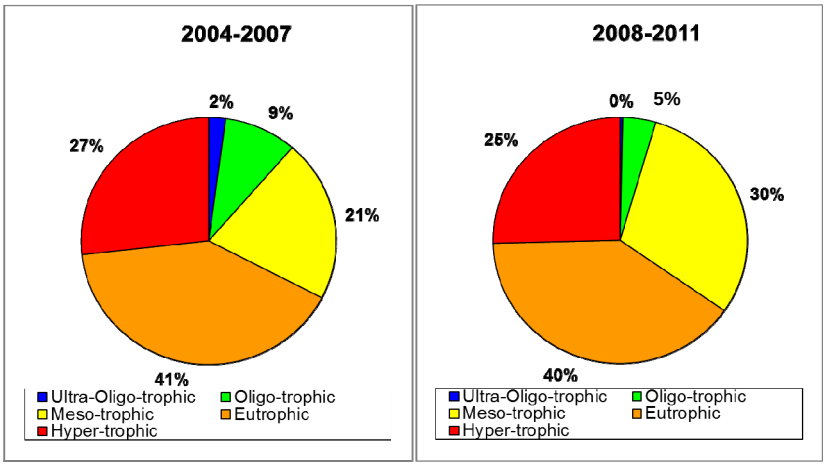


Figure 5. Surface fresh waters eutrophication classification during the 2004-2007 and 2008-2011 reporting periods.

Pressure from agriculture

The total pressure from agriculture decreased during the 2008-2011 reporting period as a result of a lower input from animal fertilizer and a consequent lower N balance for agricultural land. Nitrogen discharge into the environment decreased. The application of nitrogen from manure decreased by 19% and the use of chemical fertiliser increased by about 5%. Animal numbers decreased.

Designation of nitrate vulnerable zones

The present total area of nitrate vulnerable zones is 32835.39 km², representing 41.63% of the total land area. The revision in 2011 slightly increased the total area of vulnerable zones.

Code of good agricultural practice

The code of good agricultural practice was first published in 2003 and revised in 2008.

Action programme

The last action programme dates from 2012. In the 2008-2011 reporting period, 2% farmers within NVZ were visited each year. Practically, 100% of them are reported to be compliant to the action programme measures. The few reported problems concern the storage capacities for animal manure.

Member State: Denmark

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total groundwater stations	595	589
Total fresh surface water stations	161	125
Total saline water stations (coastal and marine)	70	0

Table 1. Number of water monitoring stations.

Groundwater quality

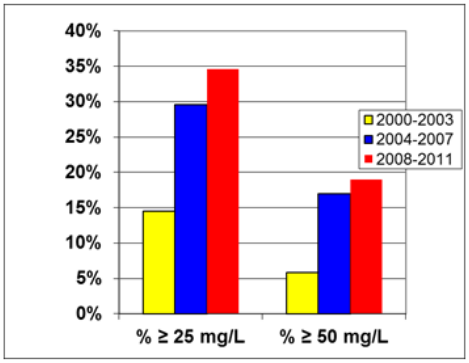


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L, during the reporting periods 2000-2003, 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

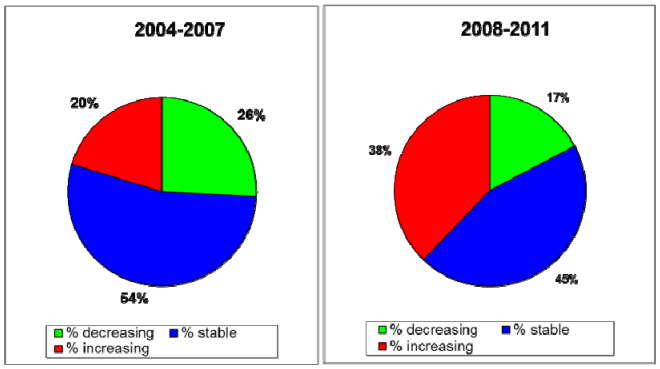


Figure 2. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Surface water quality

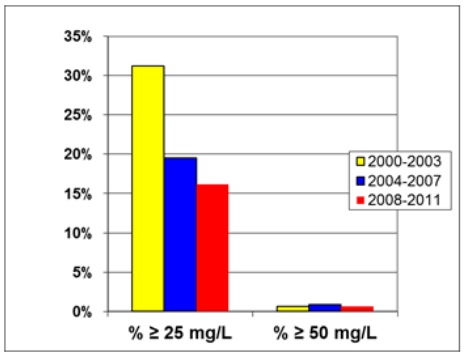


Figure 3. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L during the reporting periods 2000-2003, 2004-2007 and 2008-2011. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

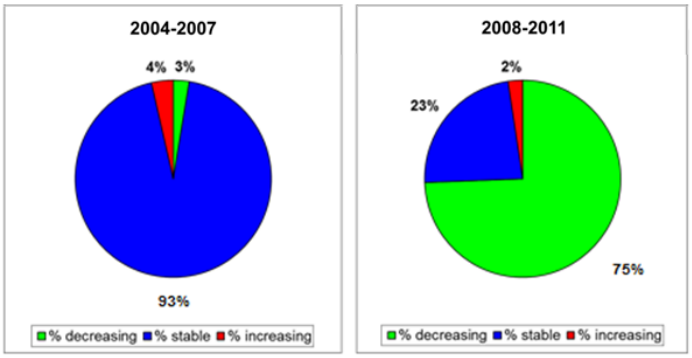


Figure 4. Trends in surface fresh water nitrate concentrations between the periods 2000-2003 and 2004-2007(left) and between the periods 2004-2007 and 2008-2011 (right).

Eutrophication

Rivers and lakes

No data on rivers trophic status was provided. As regards lakes, the Water Framework Directive classification system based on the chlorophyll-a concentrations was used and the results converted to the values for trophic state according to OECD 1982, used within the context of the Nitrates Directive.

Approximately 90% of lakes were either hypertrophic or eutrophic. No data for the reporting period 2004-2007 are available for a comparison.

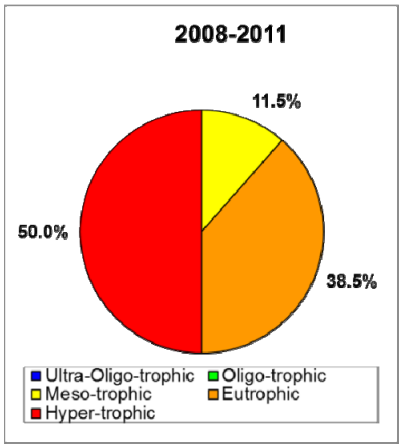


Figure 5. Surface fresh water (lakes only) eutrophication classification during the 2008-2011 reporting period.

Saline waters

Saline waters trophic status has been assessed by means of summer concentrations of chlorophyll-a. However, no results in terms of trophic status of saline waters were provided.

Pressure from agriculture

Agricultural pressures remained stable as the annual use of organic and inorganic N fertilizers as well as the annual production of animal manure were stable.

Designation of nitrate vulnerable zones

No nitrates vulnerable zones have been designated in Denmark, since an action programme applies to its whole territory.

Code of good agricultural practice

Since 1993, Denmark has established measures related to good agricultural practice. Several revisions have taken place since then. These measures are obligatory in the whole Country.

Action programme

The action programme was first published in 1985 and modified at several occasions. In 2010, the Danish AgriFish Agency carried out around 914 inspections on the spot, corresponding to around 2 % of all agricultural holdings. 2,7% of the inspected holdings were reported to the police for severe violations of the provisions on rational fertilizer use. Besides, the Danish AgriFish Agency has carried out around 1834 administrative controls of the fertilizer account, where 165 (9%) holdings were sanctioned.

Member State: Estonia

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total groundwater stations	299	45
Total fresh surface water stations	145	74
Total saline water stations (coastal and marine)	39	9

Table 1. Number of water monitoring stations.

Groundwater quality

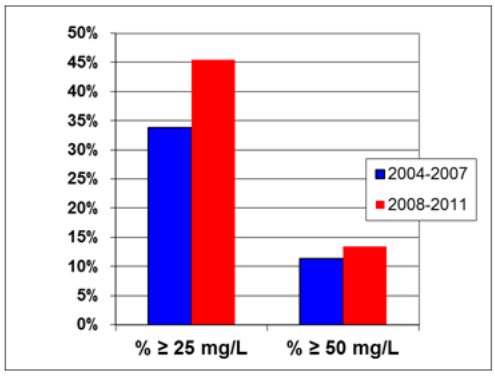


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L, during the reporting periods 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

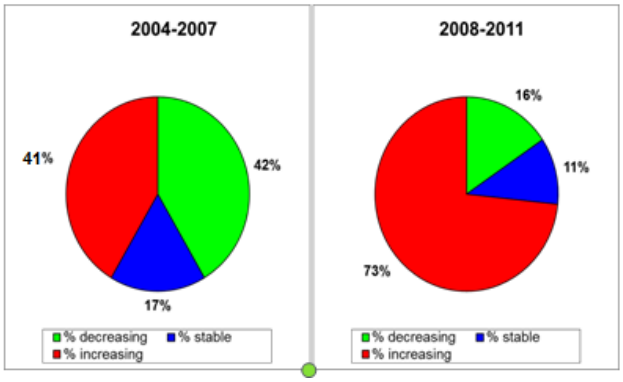


Figure 2. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011(right).

Surface water quality

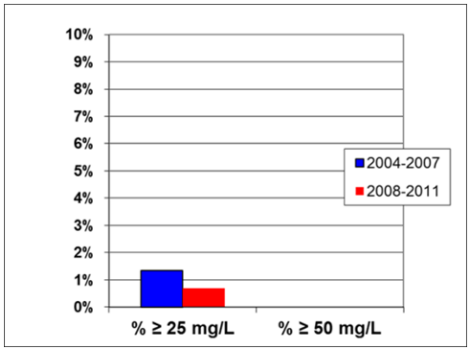


Figure 3. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L during the 2004-2007 and 2008-2011 reporting periods. Results are presented for all types of groundwater. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]. No stations exceeded 50 mg nitrate per L in both reporting periods 2004-2007 and 2008-2011

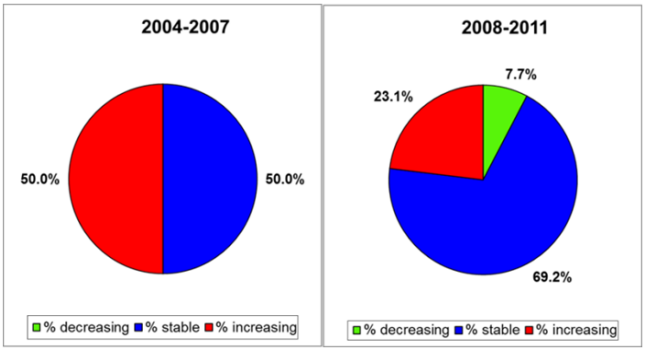


Figure 4. Trends in surface fresh water nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Eutrophication

Rivers and lakes

The eutrophication of rivers was assessed on the basis of total nitrogen and total phosphorus concentrations. The report states that rivers in Estonia are small, so phytoplankton and hence the concentration of chlorophyll-a are not suitable for assessing the water quality. The assessment of eutrophication of lakes was based on the annual average concentration of total nitrogen, total phosphorus and chlorophyll-a. The majority of fresh water sites (rivers and lakes) were oligotrophic, while 9% were eutrophic or hypertrophic.

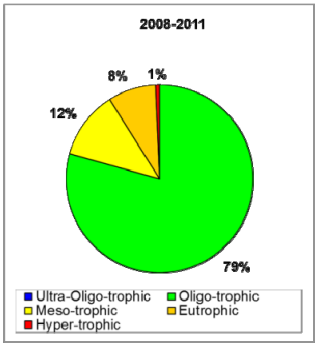


Figure 5. Surface fresh water eutrophication classification during the 2008-2011 reporting period (no data for the previous period).

Saline waters

The assessment of eutrophication of coastal waters was based on the annual average concentration of total nitrogen, total phosphorus and chlorophyll-a. The majority of sites were mesotrophic, while 31% were eutrophic or hypertrophic. No data were reported for transitional and marine waters.

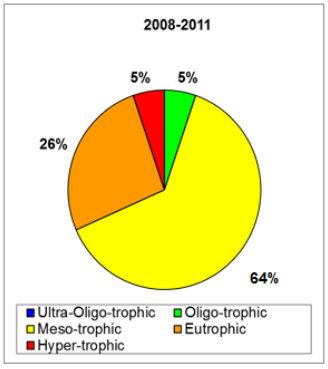


Figure 6. Coastal water eutrophication classification during the 2008-2011 reporting period (no data for the previous period).

Pressure from agriculture

Agricultural pressure increased in the 2008-2011 reporting period, mainly due to increasing inputs from chemical fertilizers (+30%). This is also reflected in the increasing nitrogen discharge from agriculture to surface waters. The agricultural area increased by 9%. The number of animals showed a decreasing cattle and increasing pigs population.

Designation of nitrate vulnerable zones

The total area of Pandivere and Adavere-Põltsamaa Nitrate Vulnerable Zone is 3,250 km^2, which makes up 7.18% of the land area of Estonia. It was designated in 2003 and there have been no revisions.

Code of good agricultural practice

Good agricultural practice consists of advisory guidelines and environmental requirements determined by legislation. Adherence to the advisory guidelines is voluntary.

Action programme

Estonia has implemented an action programme in 2004 and revised it in 2009. Compliance with the different measures of the programme varies between 81 and 100%, depending on the measure.

Member State: Finland

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total groundwater stations	79	54
Total fresh surface water stations	141	138
Total coastal* water stations	44	43

** No transitional or marine water reported.*

Table 1. Number of water monitoring stations.

Groundwater quality

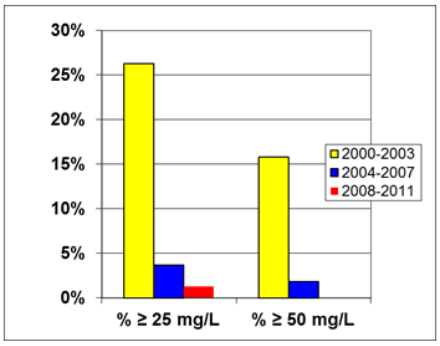


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L, during the reporting periods 2000-2003, 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]. No stations exceeded 50 mg nitrate per L in the reporting period 2008-2011.

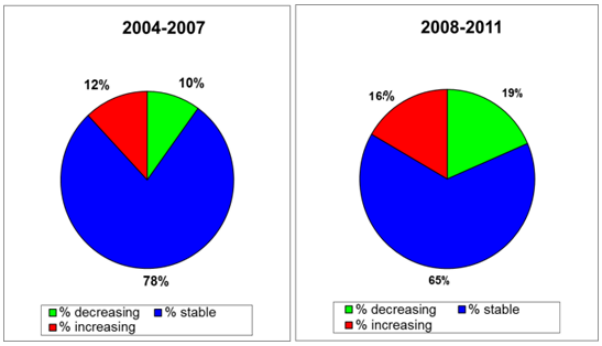


Figure 2. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Surface water quality

No stations exceeded 25 or 50 mg nitrate per L in the reporting periods 2004-2007 and 2008-2011.

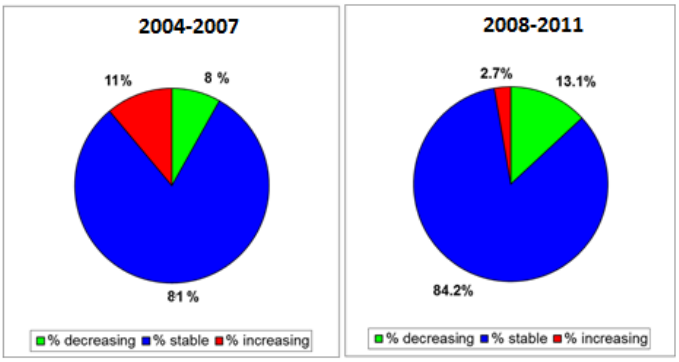


Figure 3. Trends in surface fresh water nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Eutrophication

Rivers and lakes

The trophic status for fresh waters remained very similar to the previous period, with nearly 50% monitored sites being eutrophic or hypertrophic.

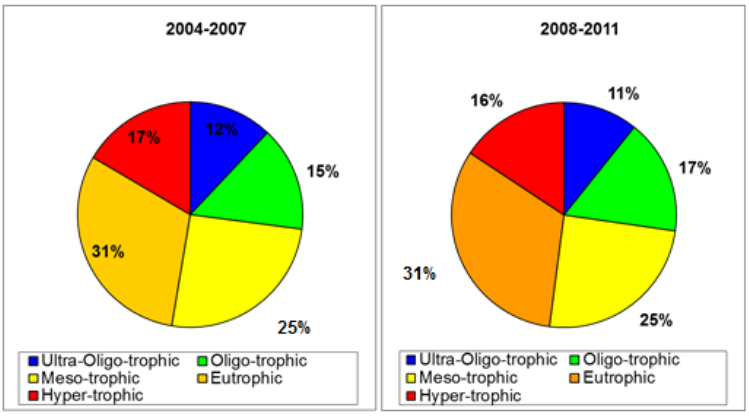


Figure 4. Surface fresh water eutrophication classification during the 2004-2007 and 2008-2011 reporting periods.

Saline waters

The trophic status of coastal waters has declined; more stations have become eutrophic and hypertrophic during the 2008-2011 reporting period as compared to 2004-2007. No data for transitional and marine waters were reported.

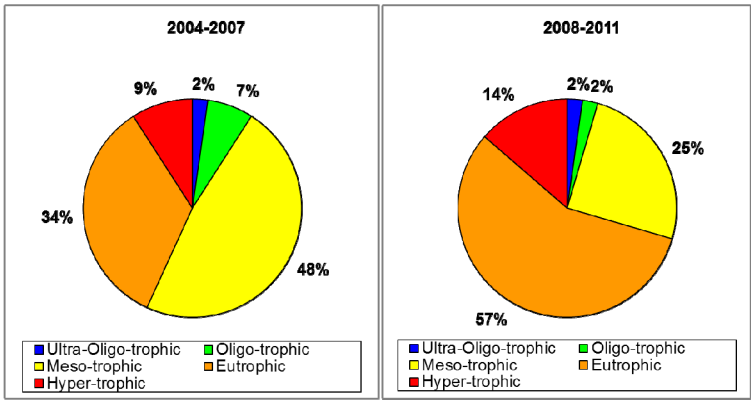


Figure 5. Coastal water eutrophication classification during the 2004-2007 and 2008-2011 reporting periods.

Pressure from agriculture

There were no large changes in land use. Animal manure N use was stable and N-fertilizer use slightly increased.

Designation of nitrate vulnerable zones

No nitrates vulnerable zones have been designated in Finland, since an action programme applies to its whole territory.

Code of good agricultural practice

The code of good agricultural practice was introduced in 1998 and revised in 2000.

Action programme

The action programme was not revised during the reporting period 2008-2011. 1% of farmers were visited each year and over 95% of them complied with the action programme measures.

Member State: France

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total groundwater stations	2509	1039
Total fresh surface water stations	3331	1177
Total saline water stations	21	21

Table 1. Number of water monitoring stations.

Groundwater quality

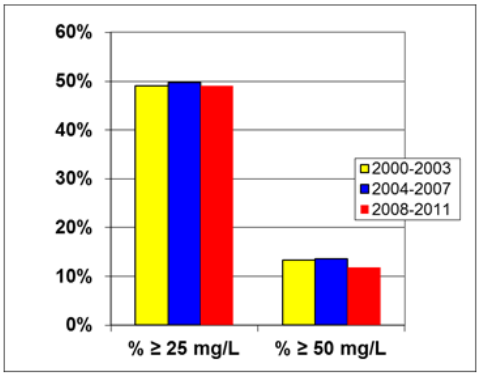


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L, during the reporting periods 2000-2003, 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]. Results for the 2008-2011 reporting period refer to the monitoring campaign 2010-2011.

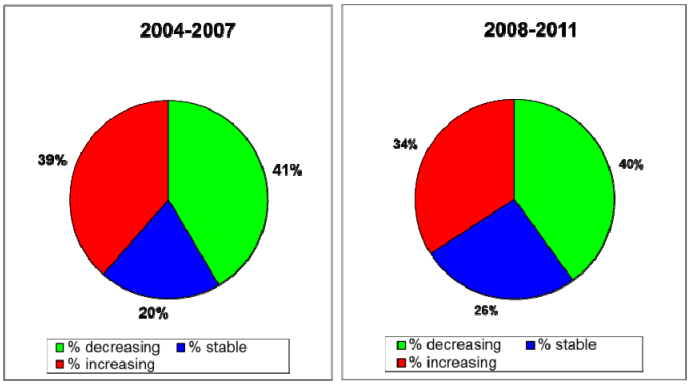


Figure 2. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right). Results for the 2008-2011 reporting period refer to the monitoring campaign 2010-2011.

Surface water quality

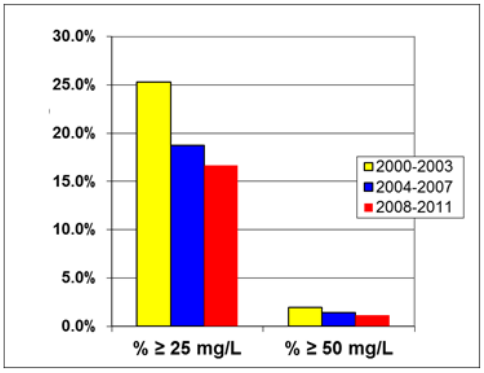


Figure 3. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L on average during the reporting periods 2000-2003, 2004-2007 and 2008-2011. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]. Results for the 2008-2011 reporting period refer to the monitoring campaign 2010-2011

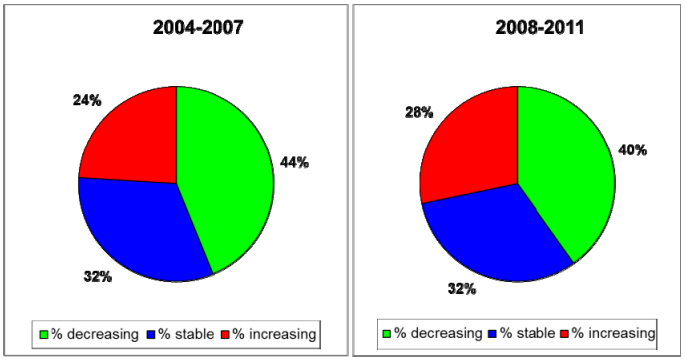


Figure 4. Trends in surface fresh water average nitrate concentrations between the period 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right). Results for the 2008-2011 reporting period refer to the monitoring campaign 2010-2011

Eutrophication

Rivers and lakes

The eutrophication status of surface fresh waters was assessed by means of orthophosphate, total phosphorus, nitrites, dissolved oxygen, biological oxygen demand (BOD) and chlorophyll-a concentrations. Results were only presented for each parameter in terms of good, moderate, bad status (Water Framework Directive classification), aggregated for all water bodies. No results were reported in terms of trophic status of each water body, since no methodology is available in France for such assessment.

Saline waters

The eutrophication status of saline waters was assessed by observations of algal blooms and phytoplankton proliferations. Even though no detailed results were presented in the report, the whole coastline in France is affected by eutrophication, especially Brittany, the Atlantic coast as well as the lagoons of Languedoc-Roussillon.

Pressure from agriculture

A decrease of the agricultural area by 3% was observed between 2000 and 2010. In the same period, the agricultural holdings also decreased by 26%. Wheat, maize, barley and colza are the dominant crops with 27%, 16%, 9% and 8% of the arable crop area, respectively. Poultry numbers increased and bovines and pigs decreased. Livestock is irregularly distributed in the Country, with the majority of livestock located in the Loire Bretagne basin. At national level, France reported that fertilization practices slightly improved as well as the intercrop management.

Designation of nitrate vulnerable zones

Nitrate vulnerable zones were first designated in 1994 and then extended in 2001, 2003, 2007 and 2012. The NVZ area covers 46.5% of the total land area.

Code of good agricultural practice

France reported that the analysis of agricultural practices outside nitrates vulnerable zones showed progress in relation to the application of good practices established in the Code, especially as regards fertilization and use of catch crops. The Code was not revised in the reporting period 2008-2011.

Action programme

Action programmes were established at departmental level, on the basis of a common national framework. The action programmes were first published in 1997 and modified in 2001, 2004 and 2009. France reported that the analysis of agricultural practices inside nitrates vulnerable zones showed progress, especially in relation to fertilization practices and use of catch crops.

Member State: Germany

Water quality

	Monitoring stations with measurements	Monitoring stations with trends
Total Groundwater stations	162	162
Total Fresh Surface water stations	300	231*
Total Saline water stations	19	17

**Trends in winter averages only*

Table 1. Number of water monitoring stations

Groundwater quality

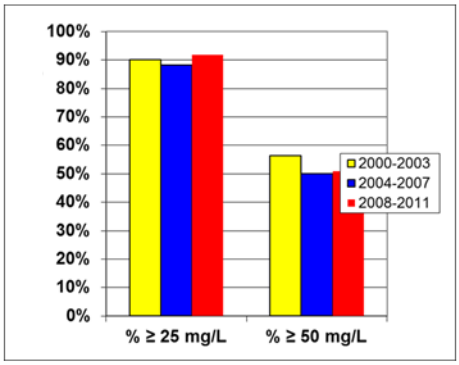


Figure 1. Percentage of groundwater stations exceeding 25 or 50 mg nitrate per L, during the reporting periods 2000-2003, 2004-2007 and 2008-2011. Results are presented for all groundwater stations (at different depths). [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage].

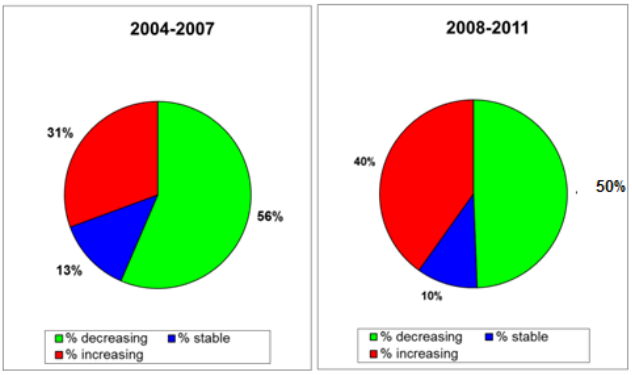


Figure 2. Trends in groundwater nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Surface water quality

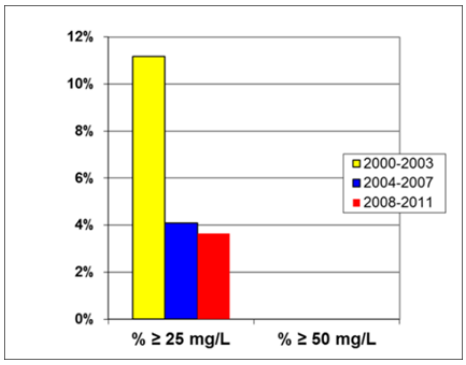


Figure 3. Percentage of surface fresh water stations exceeding 25 or 50 mg nitrate per L during the reporting periods 2000-2003, 2004-2007 and 2008-2011. [x-axis: average concentrations of nitrates expressed as mg/l; y-axis: number of monitoring stations, in percentage]. No stations exceeded 50 mg nitrate per L in all the reporting periods 2000-2003, 2004-2007 and 2008-2011

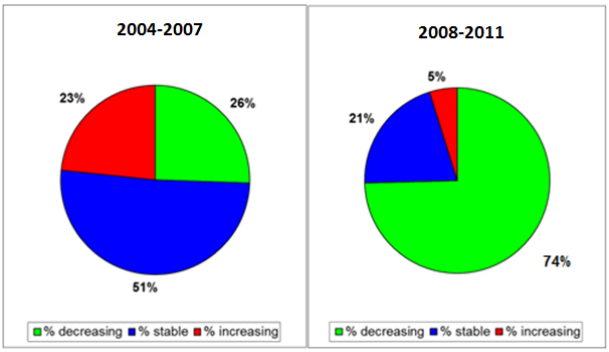


Figure 4. Trends in surface fresh water winter average nitrate concentrations between the periods 2000-2003 and 2004-2007 (left) and between the periods 2004-2007 and 2008-2011 (right).

Eutrophication

Rivers and Lakes

In the report, Germany explained that algal growth of inland waters is primarily limited by phosphate concentrations. In many waters, growth limitation by nitrogen occurs only occasionally during mid-summer. Under these circumstances there are frequently blooms of blue-green algae. Algal growth also varies considerably from year to year as a result of weather conditions, biotic interactions and other causes. For these reasons, Germany explained that there is only a very uncertain connection between chlorophyll-a and nitrogen concentrations in the form of nitrates and ammonium in inland waters. Only data on lakes were reported.

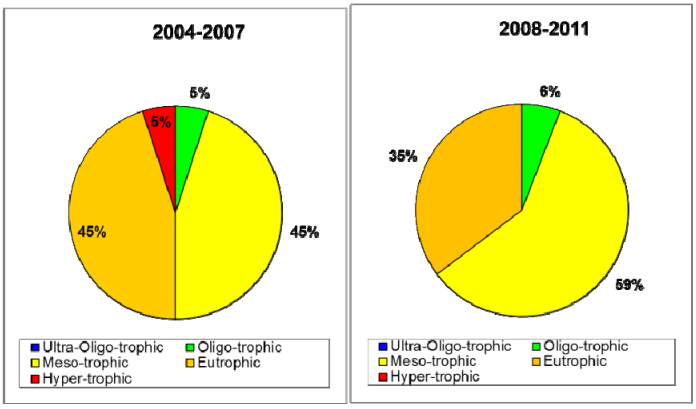


Figure 5. Surface fresh water (lakes only) eutrophication classification during the 2004-2007 and 2008-2011 reporting period.

Saline waters

No quantitative information on the trophic status of saline waters was reported. However, the report quotes some information from the OSPAR and the HELCOM Conventions on eutrophication problems in marine waters, especially in the Baltic Sea.

Pressure from agriculture

Animal numbers remained stable in the reporting period 2008-2011 as compared to the period 2004-2007, except an increase in poultry. Application of nitrogen from animal origin has remained stable, while the annual use of chemical fertilizer has decreased.

Designation of nitrate vulnerable zones

No nitrates vulnerable zones have been designated in Germany, since an action programme applies to its whole territory.

Code of good agricultural practice

The code of good agricultural practice was first published in 1996 and revised in 2006 and 2007.

Action programme

The action programme was first published in 1996 and revised in 2006 and 2007. The *Bundesländers* are responsible for the implementation of the action programme including monitoring, supervision, farmers education, training and advisory services. During the years 2007-2010 on average 4100 farmers (1.15% of the total number of CAP single payments applicants) were checked annually, in the framework of cross compliance checks. Of these, 4.9%, 4.1% and 0.9% each year respectively were penalized with a reduction in payment by 1, 3 and 5% respectively.