

## Finland

### National Focal Centre

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### Summary

This document gives an overview of the response by Finland to the Call for Data 2015–17, dated October 12<sup>th</sup> 2016 by the CCE. The Finnish NFC submitted critical loads of acidity for lakes, and critical loads of eutrophication, for terrestrial and aquatic Natura 2000 sites. Altogether critical loads for 32,311 sites were submitted, covering a total ecosystem area of 41,427 km<sup>2</sup>.

### Critical loads of acidity

For Finland, critical loads of acidity were updated only for lakes (EUNIS class C1 Surface standing waters). Critical loads of acidity for Finnish lakes were calculated by Posch et al. (2012). The steady-state First-order Acidity Balance (FAB) model was set up with information from comprehensive national surveys of headwater lakes (N=1066) and soils. A variable ANC limit was used to take into account the total organic carbon concentration of the lakes (Posch et al., 2012). The resulting values of CL<sub>max</sub>S, CL<sub>min</sub>N and CL<sub>max</sub>N that define the critical load function of S and N are summarized in Table FI.01. These values were submitted in January 2017 to the CCE for 1066 lakes, covering a total ecosystem area of 287 km<sup>2</sup>.

Table FI-1. Summary of critical loads of acidity for a subset of Finnish lakes (N=1066, total area 287 km<sup>2</sup>) (Posch et al., 2012).

CL acidity	5%tile	Median	95%tile
CL <sub>max</sub> S (eq ha <sup>-1</sup> yr <sup>-1</sup> )	86	603	1 626
CL <sub>min</sub> N (eq ha <sup>-1</sup> yr <sup>-1</sup> )	37	72	125
CL <sub>max</sub> N (eq ha <sup>-1</sup> yr <sup>-1</sup> )	319	1 554	5 290
[ANC] <sub>crit</sub> (eq m <sup>-3</sup> )	0.01	0.05	0.10
EcoArea (km <sup>2</sup> )	0.02	0.08	1.13

### Critical loads of eutrophication

Empirical critical loads of nutrient nitrogen were first assigned for Finnish Natura 2000 sites in response to the CCE Call for Data 2010–2011 (Holmberg et al., 2011), and updated in response to the CCE Call

for Data 2014-2015 (Holmberg et al., 2015). These values were used for the current submission of critical loads of eutrophication ( $CL_{eutN}$ ) (Table FI-2).

Table FI-2. Critical loads of eutrophication ( $CL_{eutN}$ ) for Finnish Natura 2000 sites and total area per protection type.

EUNIS code		$CL_{eutN}$ ( $kg\ ha^{-1}\ yr^{-1}$ )	Natura sites ( $km^2$ )	SPA ( $km^2$ )	SCI ( $km^2$ )	SCI/SPA ( $km^2$ )
A2	Littoral sediments	20	125	12	6.3	107
B1	Coastal dune and sand habitats	8	1.3	0	0.4	1.0
B1.3	Shifting coastal dunes	10	1.3	0	0.6	0.7
B1.4	Coastal stable dune grassland	8	1.6	0	0.7	0.9
B1.5	Coastal dune heaths	10	1.0	0	0.7	0.4
B1.7	Coastal dune woods	10	5.7	0	2.7	2.9
B1.8	Moist and wet dune slacks	10	0.6	0	0.03	0.6
C1	Surface standing waters	3	1,508	24	865	619
C1.1	Permanent oligotrophic lakes	3	3,546	10	2,375	1,161
C1.3	Permanent eutrophic lakes	3	29	13	5.5	11
C1.4	Permanent dystrophic lakes	3	1,562	98	1,209	255
D1	Raised and blanket bogs	5	1,729	19	575	1,134
D1.1	Raised bogs	5	1,077	0.5	548	529
D3.1	Palsa mires	5	376	0	105	271
D3.2	Aapa mires	5	6,519	11	1,954	4,554
D4.1	Rich fens	15	460	0.5	110	350
E2.2	Low and medium altitude hay meadows	10	0.2	0	0.1	0.1
E2.3	Mountain hay meadows	10	0.1	0	0.1	0.01
F2	Arctic, alpine and subalpine scrub habitats	5	6,859	0.1	1,930	4,929
G1	Broadleaved deciduous woodland	10	542	3.4	146	393
G1.9	Non-riverine woodland with <i>Betula</i>	5	3,900	0	1,533	2,367
G1.A	Meso- and eutrophic <i>Quercus</i> woodland	15	0.6	0.02	0.3	0.3
G3	Coniferous woodland	5	10,952	26	5,453	5,473
G4.1	Mixed swamp woodland	5	145	2	72	71
G4.2	Mixed taiga woodland with <i>Betula</i>	5	1,800	11	540	1,249
Total area			41,141	231	17,431	23,479

## References

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