Common Intercalibration Metrics

FACT SHEET

SPECIES RICHNESS

NO. OF TAXA AND NO. OF TAXA SUBMERGED

GENERAL INFORMATION

BIOLOGICAL QUALITY ELEMENT

Macrophytes

WATER CATEGORY

Lakes

MAIN STRESSOR

Eutrophication

GEOGRAPHICAL INTERCALIBRATION GROUP

Mainly Central-Baltic and Nordic

COMMON INTERCALIBRATION TYPES

CB and N lake types

COUNTRIES PARTICIPATING IN INTERCALIBRATION EXERCISE

Countries from CB and N GIGs

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SPECIFICATION

COMMON METRIC DESCRIPTION (INCL. WFD'S INDICATIVE PARAMETERS)

Species richness was expressed as a number of all taxa identified within a lake (N_TT) and the number of taxa submerged only (N_ST). Since the definitions of 'real helophyte' has been discussed for years and a common pan-European list of helophytes has been never agreed, the life form indicated in the common taxa list produced within WISER (available at: http://www.aqplants.ceh.ac.uk) was used as a reference.

COMBINATION RULE FOR MULTI-METRICS

Not applicable

SOFTWARE / (EXCEL) SPREADSHEET AVAILABLE FOR CALCULATING THE (INDIVIDUAL) COMMON METRIC(S)

Not applicable

AVAILABLE DOCUMENTS / ONLINE SOURCES REPORTING ON THE DEVELOPMENT OF COMMON METRIC(S)

Deliverable 3.2-3 Report on the most suitable lake macrophyte based assessment methods for impacts of eutrophication and water level fluctuations; available at: www.wiser.eu

PRESSURES + ASSESSMENT SYSTEMS

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DESCRIPTION OF DATA SET TO ESTABLISH RELATIONSHIP TO PRESSURE / NATIONAL ASSESSMENT SYSTEMS[1]

The WISER common database includes macrophyte data from approximately 2000 lake-years from 16 countries. For testing the response of macrophyte metrics to eutrophication the TP concentration was used as a pressure proxy. Both biological and TP data for over 1500 lake-years from 12 countries were available. Database was dominated by FI, SE and NO lakes followed by PL, LV and IE ones. From FR, DE and DK only three or two lakes were available. All the lakes belong to four GIGs (CB, N, ATL and EC), however the EC and ATL GIG were represented by a very few lakes only (17 and 13 respectively). No data from MED and ALP GIG were available.

TYPE OF DOSE-RESPONSE-RELATIONSHIP[2]

Since both N_TT:TP and N_ST:TP relationships were unimodal, a Spearman rang correlation test was used. The value of **R_{Sp}>0.60** was assumed as sufficient to accept a metric as a well performing one.

In all the lakes the Spearman correlation coefficient was significant, very low however, only in the case of N_TT (R_{Sp}=0.05, p=0.04) and non-significant in the case of N_ST.

When comparing the N_TT and N_ST response to eutrophication in different countries and lake types, excluding helophytes significantly improved the relationships in Central-Baltic lakes and reduced the strength of relationships in almost all Nordic types. However, in any of the countries or lake types neither the correlations N_TT:TP nor N_ST:TP reached a threshold value R_{sp}>0.6.

NATIONAL ASSESSMENT METHODS (OR PARTS THEREOF) RELATED TO THE COMMON METRIC(S)[3]

FEATURES OF THE RELATIONSHIP TO NATIONAL ASSESSMENT METHODS (OR PARTS THEREOF)[4]

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REMARKS

CONCLUDING REMARKS[1]

The use of species richness for assessing eutrophication process due to a relatively poor metric response is very limited. To some extent the number of all taxa may be used is some Nordic and number of submerged taxa in some Central-Baltic countries or lake types. However, the potential use of these metrics for IC purposes is doubtful.

[1] short summary of rationale for common metric selection, major findings, and overall discussion