Common Intercalibration Metrics

FACT SHEET

FUNCTIONAL GROUS

NO. OF CHARIDS (N_CHAR) AND NO. OF ISOETIDS (N_ISO)

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

Common Intercalibration Metrics

FACT SHEET

FUNCTIONAL GROUS

NO. OF CHARIDS (N_CHAR) AND NO. OF ISOETIDS (N_ISO)

SPECIFICATION

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

For testing the usefulness of functional groups in detecting eutrophication the number of charids (N_char) and number of isoetids (N_iso) were used. Life forms 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

FUNCTIONAL GROUS

NO. OF CHARIDS (N_CHAR) AND NO. OF ISOETIDS (N_ISO)

PRESSURES + ASSESSMENT SYSTEMS

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_char:TP and N_iso:TP relationships were non-linear, 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.

The overall relationships between number of characeans (N_char) and number of isoetids (N_iso) in all the lakes were statistically significant, very poor in the case of N_char (R_{Sp}=-0.07, p=0.008) and insufficiently strong in the case of N_iso (R_{Sp}=-0.46, p=0.000). In lakes of different alkalinity level N_char correlated best with TP in moderate and high alkalinity lakes (R_{Sp}>0.3), and N_iso in moderate alkalinity lakes (R_{Sp}=0.28). The only statistically significant relationships were found between TP and N_chara in two highly alkaline Central-Baltic lake types (CB1 and CB2), and between TP and N_iso in one low alkalinity Nordic (N5) and all three Central-Baltic lake types. None of the relationships achieved a threshold value of correlation coefficient R_{Sp}>0.6 established for well responding metrics.

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]

FUNCTIONAL GROUS

NO. OF CHARIDS (N_CHAR) AND NO. OF ISOETIDS (N_ISO)

REMARKS

CONCLUDING REMARKS[1]

Since the metrics response in most cases was insignificant or very weak only (in all the cases R_{Sp}<0.60) they cannot be recommended as promising and useful for the IC purposes.

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