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Common Intercalibration Metrics
FACT SHEET

ALPINE LAKE BENTHIC FAUNA ICM

GENERAL INFORMATION

BIOLOGICAL QUALITY ELEMENT

Benthic Fauna

WATER CATEGORY

Lakes

MAIN STRESSOR

Hydromorphology

GEOGRAPHICAL INTERCALIBRATION GROUP

Alpine

COMMON INTERCALIBRATION TYPES

L-AL3, L-AL4

COUNTRIES PARTICIPATING IN INTERCALIBRATION EXERCISE

Germany and Slovenia with methods, Austria, France and Italy with data

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SPECIFICATION

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

The common multimetric index has been developed in several variants. The suggested version is given here but the final version still has to be finally agreed on by all countries.

It is applicable to eulittoral macroinvertebrate samples, identified to mostly species level for all taxonomic groups except for Chironomidae and Oligochaeta.

It is calculated as the average of 4 normalised metrics: faunaindex, number of taxa, reproduction strategy (r/k) and % feeding type preference gatherer (percentage of abundance classes).

The common multimetric index is addressing the indicative parameters 'taxonomic diversity', 'ratio of disturbance sensitive to insensitive taxa' as well as 'taxonomic composition and 'abundance'.

A variant with ETO% (percentage of species number) instead of number of taxa is better correlated with the stressors but somewhat less strongly correlated with the national methods.

COMBINATION RULE FOR MULTI-METRICS

Average (FI is given double weight)

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

Specific software is not available. However, the metrics can be computed on the basis of the output the 'Asterics' software of the EU-projects AQEM and EUROLIMPACS.; within the GIG an Access-database with algorithms is used.

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

Not available yet

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

The eulittoral data set contains biological and abiotic data from 173 sampling sites in 19 lakes. It covers the countries Austria, Germany, and Slovenia. Eulittoral macroinvertebrates were sampled with handnets between 2006 and 2010. Stressor parameters comprised a variety of parameters for water chemistry, landuse of catchments, landuse of lake surroundings, and shoreline impairment.

TYPE OF DOSE-RESPONSE-RELATIONSHIP[2]

Significant relationships were found for a variety of combinations of metrics and stressor parameters. The strongest correlations of the common multimetric index were found for a combination of all morphology parameters and the landuse in the surroundings. R2 values depend on the final version of the multimetric index and the final setting of reference conditions as well as stressor parameters, country and lake type (0,2-0,4).

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

German Macroinvertebrate Lake Assessment (AESHNA), Slovenian ecological status assessment system for lakes using benthic invertebrates

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

R2 values depend on the final version of the multimetric index and the final setting of reference conditions as well as country and lake type (0,5-0,8).

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REMARKS

CONCLUDING REMARKS[1]

Due to regional and sampling differences the metrics differ in their response to stressors between the countries. Therefore the best multimetric index for stressors is quite different from the best multimetric index for the relations with the national method, and a compromise had to be found with satisfactory but not best R-values for both aspects.

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