Common Intercalibration Metrics

FACT SHEET

MACROPHYTE METRIC FOR WATER LEVEL FLUCTUATIONS

$WIC_{(N)}$

GENERAL INFORMATION

BIOLOGICAL QUALITY ELEMENT

Macrophytes

WATER CATEGORY

Lakes

MAIN STRESSOR

Water level fluctuations

GEOGRAPHICAL INTERCALIBRATION GROUP

Nordic GIG

COMMON INTERCALIBRATION TYPES

Low alkalinity lakes with ice cover

COUNTRIES PARTICIPATING IN INTERCALIBRATION EXERCISE

Not yet decided

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SPECIFICATION

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

The metric elaborated for Nordic countries is based on the relation of taxa sensitive and tolerant to water level fluctuations by using winter draw-down as a proxy.

COMBINATION RULE FOR MULTI-METRICS

Not applicable

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

Calculation sheet available

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

Deliverable D3.2-3: Report on the most suitable lake macrophyte based assessment methods for impacts of eutrophication and water level fluctuations

MACROPHYTE METRIC FOR WATER LEVEL FLUCTUATIONS

$WIc_{(N)}$

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

A total of 79 lakes from Finland, Norway and Sweden were used in developing the new waterlevel index (WIc). Of these, 37 were storage lakes (H3), 20 other regulated lakes (H2) and 22 natural or semi-natural lakes. We used winter drawdown calculated as a difference between highest water level of autumn and lowest water level of spring as an indicator of water level regulation amplitude. Method is applicable only in ice covered lakes soft water lakes typical in Nordic countries.

TYPE OF DOSE-RESPONSE-RELATIONSHIP[2]

Winter draw-down and species composition of real hydrophytes is the major dose-response-relationship. We suggested the following description of sensitive and tolerant species: Sensitive species: species which prefer or only appear in reference lakes. Decreased frequency and abundance (often disappearance) when increased water level fluctuations. Tolerant species: species with increased frequency and abundance when increased water level fluctuations. Often less frequent in reference lakes.

In addition, some of the sensitive species seem to be less effected by the winter drawdown. We call these species less sensitive species, due to the fact that they suffer at some extent of water level fluctuation.

Water level regulation index $WIc_{(N)}$ correlated very well with winter drawdown in the storage reservoirs (H3) for all countries, respectively r2=0.77, 0.67 and 0.73 for Finnish, Norwegian and Swedish lakes.

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

National assessment methods for WLF are missing

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

National assessment methods for WLF are missing

MACROPHYTE METRIC FOR WATER LEVEL FLUCTUATIONS

$WIc_{(N)}$

REMARKS

CONCLUDING REMARKS[1]

In addition to index, we defined preliminary boundaries for different lakes. As a reference value we suggest $WIc_{(N)}$=29. This represent 75th percentile of the index values for natural and semi-natural lakes (Finnish and Norwegian lakes, only). Further, we suggest a high/good boundary $WIc_{(N)}$=10, which is the 25th percentile of the index values for natural and semi-natural lake

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