



Common Intercalibration Metrics FACT SHEET

NAME OF COMMON METRIC

FISH ABUNDANCE METRIC FOR LAKES

Introduction

An important aim of the WISER project is to support the intercalibration process. One of the first steps required by the intercalibration guidance¹ is to derive “common metrics”, i.e. biological measures created for benchmarking² and comparison of national assessment systems. The WISER workpackages 3.1 to 4.4 have supported the development of common metrics according to the “Guidelines for indicator development”³.

About common metrics

Common metrics are a common yardstick for comparing national assessment systems and their classification of ecological status. They quantify the structural or functional attributes of biological communities, allowing for an assessment of ecological quality.

Common metrics relate to the results of the national assessment methods used in the particular intercalibration exercise and respond to the stressor (or combination of stressors) addressed.

Common metrics are not meant as pan-European assessment systems replacing national methods, which are usually much better adapted to the regional situation.

¹ Schmedtje, U., Birk, S., Poikane, S., van De Bund, W., & Bonne, W. (2010). Guidance document on the intercalibration process 2008-2011. Guidance Document No. 14. Implementation Strategy for the Water Framework Directive (2000/60/EC).

² Definition of trans-national (absolute) reference points in intercalibration based on data from near-natural reference sites or sites impacted by similar levels of impairment.

³ Hering, D., Birk, S., Lyche Solheim, A., Carvalho, L., Borja, A., Henriksen, P., et al. (2010). Guidelines for indicator development. WISER Deliverable 2.2-2.



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GENERAL INFORMATION

BIOLOGICAL QUALITY ELEMENT

Ichtyofauna

WATER CATEGORY

Natural lakes

MAIN STRESSOR

Eutrophication/general degradation

GEOGRAPHICAL INTERCALIBRATION GROUP

Nordic, Central Baltic and Alpine

COMMON INTERCALIBRATION TYPES

Not determined – Most of the lakes are out the current intercalibration types

COUNTRIES PARTICIPATING IN INTERCALIBRATION EXERCISE

All countries except those with only Mediterranean types i.e. Spain, Portugal, Greece and Cyprus



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SPECIFICATION

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

Derived from CPUE (number of fish caught per unit effort expressed in h.m² of gillnets) + BPUE (biomass of fish caught per unit effort) after transformation of both core metrics in EQR. Each core metric corresponds to the deviation from expected value in natural condition (site specific value computed with model)

COMBINATION RULE FOR MULTI-METRICS

Simple addition of the EQR.

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

Not yet

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

Deliverable 3.4.4. Pédrón et al., provisional report.



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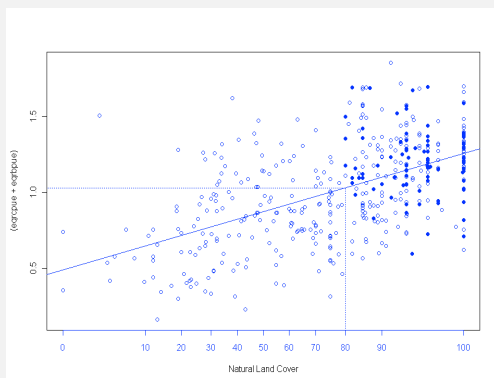
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DESCRIPTION OF DATA SET TO ESTABLISH RELATIONSHIP TO PRESSURE / NATIONAL ASSESSMENT SYSTEMS¹

Data collected with benthic multimesh gillnets following the CEN protocol EN14757
 Minimal level of information collected: species composition and abundance by total unit effort
 Number of lakes considered in each country: Denmark 41, Estonia 21, Finland 77, France 27, Germany 69, Ireland 34, Italy 1, ROI/ NI 3, Sweden 146
 Distribution of these lakes in GIGs: Nordic 260, Central Baltic 146, Alpine 12, Mediterranean 1
 Most of these lakes are not part of the intercalibrated types.

TYPE OF DOSE-RESPONSE-RELATIONSHIP²

Relationship between FAM (sum of EQRcpue and EQRbpue) and the opposite of the pressure (natural land cover in the catchment). Full dots corresponding to reference sites. Open dots corresponding to disturbed sites. The blue line is the regression line. $R^2 = 0.29$



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

Official : Finland, Sweden
 Not yet official: Slovenia, France, Estonia, Austria?, Italy, Ireland, Denmark
 Metric included but differences in sampling procedure that can browse the comparison: Belgium(Flanders), Poland and Netherland

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

Not available yet



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CONCLUDING REMARKS¹

REMARKS

BPUE or CPUE are both included in most of the existing or under development assessment systems. They should be easily used as a part of a common sub-index at the European scale if the CEN standard protocol is adopted. If we consider that few national systems based on fish communities are still approved (that is easily understandable considering the low number of lakes in most of the countries), the use of this metric can be encouraged.

The work shall be completed by:

- the selection of composition metrics for natural lakes. Some common metrics have been selected but combination rules with the abundance metrics have to be tested
- the selection of abundance and composition metrics for reservoirs.

Before starting these analyses, more data have to be collected.

- the selection of metrics responding to hydromorphological alteration.

Considering the existing data, this work will necessary be restricted to a subset of the existing dataset. Indeed, hydromorphological alterations of the lakes are seldom assessed in a common way.