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Advice concerning fish metrics in Flanders

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MOTIVE

Trauw company would like to obtain information about the fish-based metrics used to assess the ecological quality of lakes in Flanders.

REQUEST

I am working as an aquatic consultant at Tauw BV in the Netherlands, mainly on projects concering the Water Framework Directive. We are working on a project concerning metrics for lakes (Dutch M-types) in the Netherlands. Therefore we would like to know more of the metrics in other countries and we are particularly interested in the information of Fish in Lakes. In the library of CIRCA I found general information of the WFD intercalibration process, and also specific information on fish in lakes. In one of the reports (Status survey LakeFish IC CB-GIG) your name is mentioned as the representative for Belgium. We would like to recieve more detailed information of the WFD process in your country, to compare it with the process in the Netherlands. We hope you can answer my following questions:

- Which metrics are used in the BQE assessment?
- Which references (foreign and native lakes, ditches and canals) are used in the calibration of the BQE's?
- Which sampling methods are used to estimate the fish parameters in lakes, ditches and canals?
- Which management measures are taken in lakes which do not meet the *good status*?

Can you send me, if available, the appropriate reports, or tell me where I can find the background information in which these questions are answered? If not, can you send me the names/emailadresses of the contacts who can answer these questions?

Can I receive your answer within two weeks? Many thanks in advance. Please let me know in case of any questions.

COMMENTARY

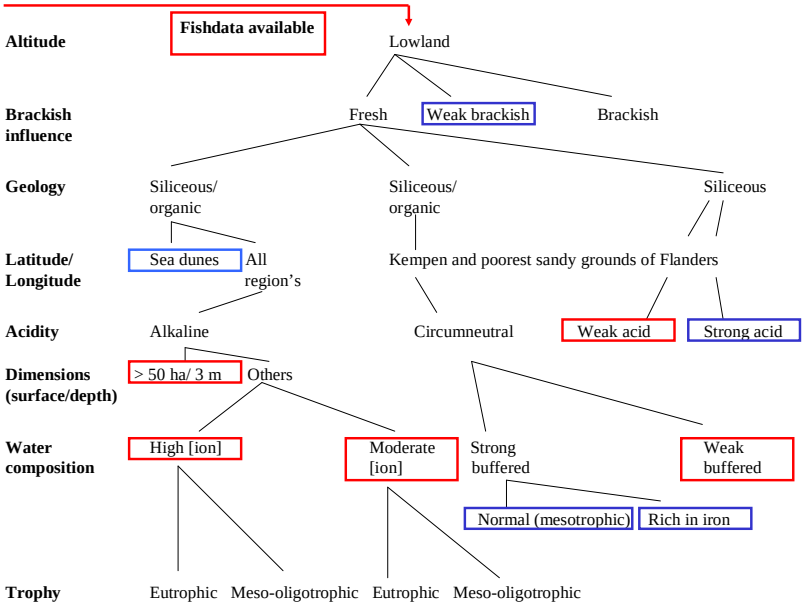
In Flanders we have different types of lakes, none is used in the calibration process since none is natural or is too small.

Flanders

Ecoregio:
Western Plains **(Illies)**

Typology (WFD): "System B"

10 lake types



To fish we apply different methods:
Fish assemblage data are obtained by electric fishing (at the lake banks or borders) using a 5 kW generator with an adjustable output voltage of 300 to 500 V and a pulse frequency of 480 Hz. The number of electric fishing devices and the number of hand-held anodes used is 2. The length of the traject is minimal 100 m and is repeated until at least 20% of circumference is sampled.
For the pelagic area we place fykes (double fyke nets (type 120/80).24 hours) minimum 4 per lake and per ha 1 fyke is added. The fykes remain for one or two days.
Fish data recorded included species specific fish densities, individual total lengths (TL) and wet weights (g).

Gill nets are used but results are not taken into consideration to calculate the index.
Seine nets are used but results are not taken into consideration to calculate the index.

Table below gives an overview of **metrics** and threshold values used to assess the ecological status of lakes in Flanders. Waters of the pike-tench-roach type, as described by OVB (1988a) and Coussement (1990), were adopted as reference sites for standing waters.

Definition of metrics and scores for the calculation of the IBI for Flandrian water bodies of type S1 (lakes, ponds and canals) (frome Belpaire et al., 2000).
* score is obtained by taking the mean of the species scores in italics
**: + recr. and - recr. stand for the presence and absence of natural recruitment.

Metric	Type S1				
Score	5	4	3	2	1
Total number of species	>15	15-12	11-8	7-3	<3
Mean tolerance value	≥2.4	2.39-2	1.99-1.6	1.59-1.2	<1.2
Type species*	≥4.5	4.49-3.5	3.49-2.5	2.49-1.5	<1.5
% *Rutilus rutilus*	*10-25*	*25.1-35* *9.9-7.5*	*35.1-45* *7.4-5*	*45.1-55* *2.5-4.9*	*>55* *<2.5*
% *Scardinius erythrophtalmus*	*≥10*	*9.9-5*	*4.9-2*	*1.9-1*	*<1*
% *Abramis brama*	*0.1-10*	*10.1-20*	*20.1-30*	*30.1-40*	*>40* *0*
Pike recruitment and biomass (kg/ha)**	≥20 (+ recr.)	10-19.9 (+ recr.)	<10 (+ recr.)	≥20 (- recr.)	<20 (- recr.)
Tench recruitment and biomass (kg/ha)**	≥15 (+ recr.)	10-14.9 (+ recr.)	<10 (+ recr.)	≥15 (- recr.)	<15 (- recr.)
Total biomass (kg/ha)	100-349	350-499 75-99	500-649 50-74	650-799 25-49	≥800 <25
Weight % of non-native species	<1	1-3.99	4-6.99	7-9.99	≥10
Weight ratio piscivores/non-piscivores	0.2-0.14	0.139-0.1 0.201-0.25	0.09-0.067 0.251-0.33	0.066-0.05 0.331-0.5	<0.05 >0.5

None of our lakes has a good status (based on fish survey data). However I've no idea about management issues concerning lakes.

CONCLUSION

In Flanders a system is used based on fishdata obtained with fyks and electric fishing. No lakes or natural or have the right dimension to be used for the intercallibration process.

REFERENCES (publications, databases, websites)

Belpaire, C., Smolders, R., Vanden Auweele, I., Ercken, D., Breine, J., Van Thuyne, G. & F. Ollevier, 2000. An Index of Biotic Integrity characterizing fish populations and the ecological quality of Flandrian water bodies. Hydrobiologia 434: 17-33.

Coussement, M., 1990. Praktisch visstandbeheer. Ed. Visserijfonds, Brussel. LI/DIC/PUB/90/11, 47 pp.

OVB, 1988. Beheer en bevissing van de brasem. OVB-bericht 4: 133-148.

ENCLOSURES