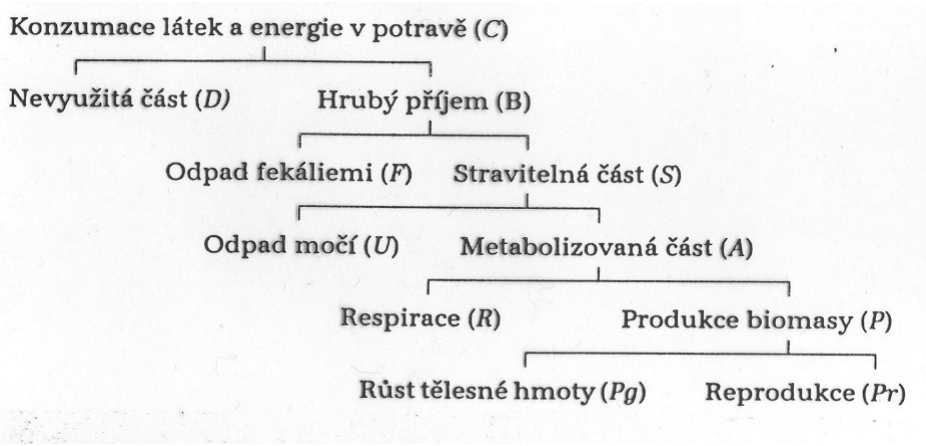
Akvatická ekotoxikologie

Ekosystémová ekotoxikologie

Druh	C
Asplanchna priodonta	0,5
Brachionus rubens	1,5
Linmodrilus neuneruis	0,01-0,04
Daphnia pulex	0,21-0,45
Daphnia longispina	0,12
Moina brachiata	0,25
Bosmina longirosrris	0,15
Cyclops sp.	0,12
Unio tumidus	0,00035
Sphaerium corneum	0,0044
Chironomus phanasus	0,007-0,024
Chaoborus crystallinus	0,033



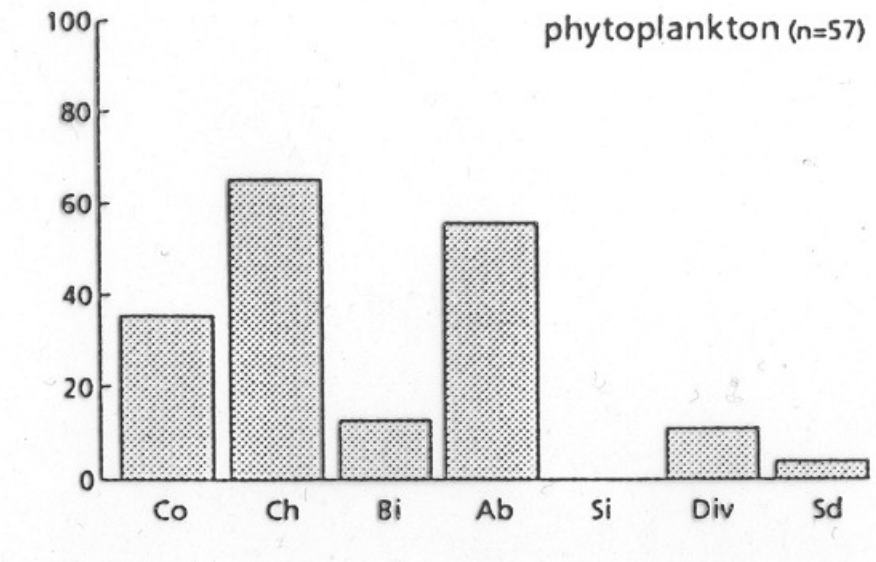
Produkce/ hrubý příjem jako ekologický parametr toku energie

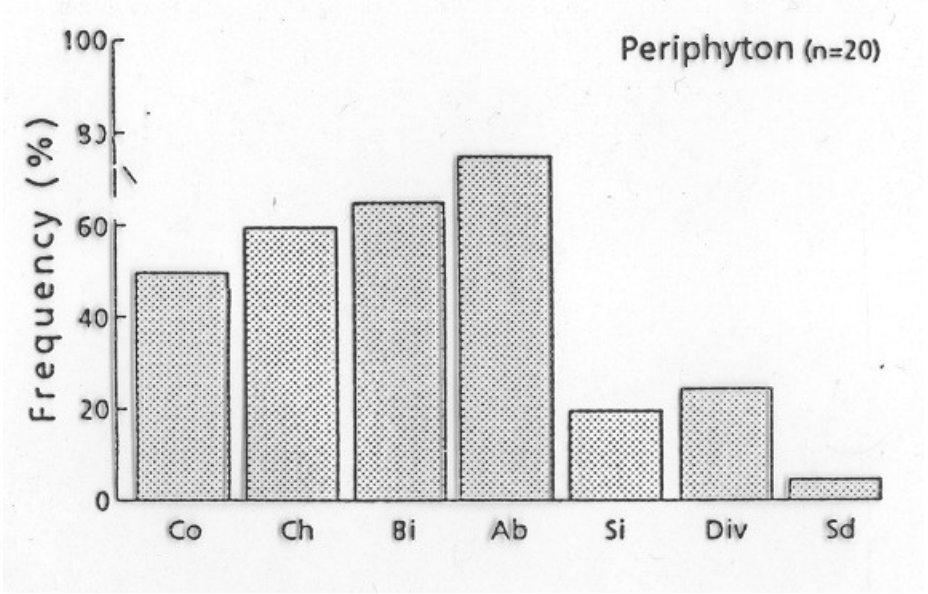
Průměrné hodnoty a rozpětí P/B koeficientů v různých trofických skupinách organismů sladkovodních ekosystémů (podle různých autorů sestavil Wetzel, 1963)

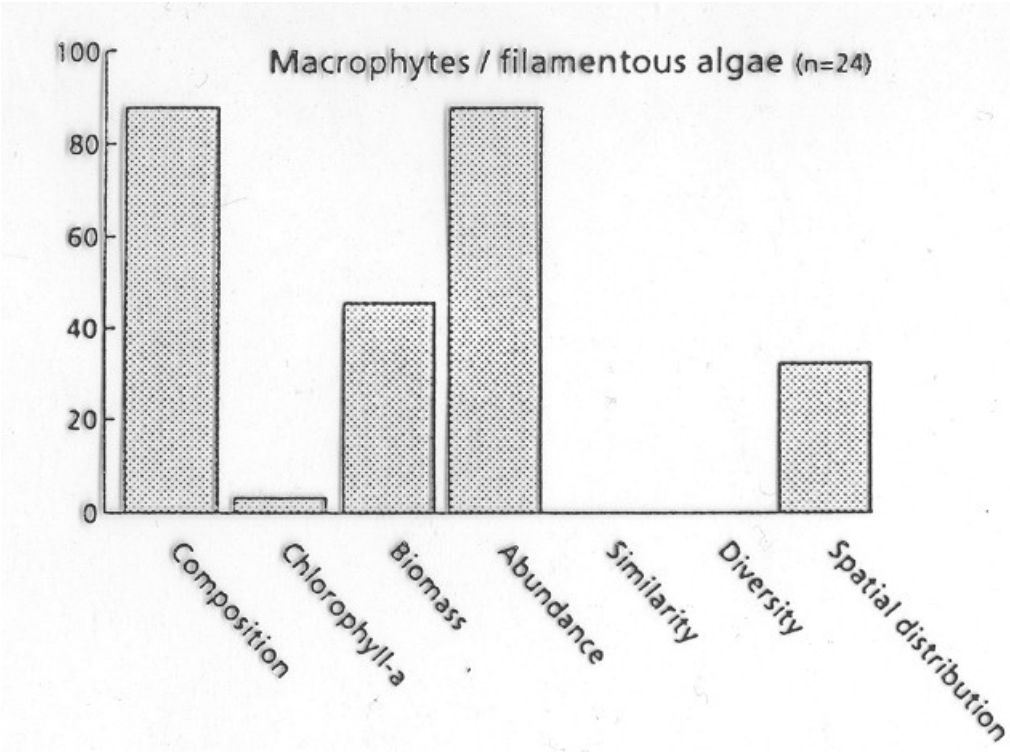
	Průměmá hodnota	Rozpětí hodnot
baktérie	141,0	73 -237
fytoplankton	113,0	9 -359
herbivorní zooplankton	15,9	0,5- 44,0
karnivomí zooplankton	11,6	1,5- 30,4
herbivorní bentičtí bezobratlí	3,7	0,6- 12,6
karnivorní bentičtí bezobratlí	4,6	1,0- 25,0

Table 4. List of recommended structural parameters in pesticide testing in lentic systems, after three guidance documents.

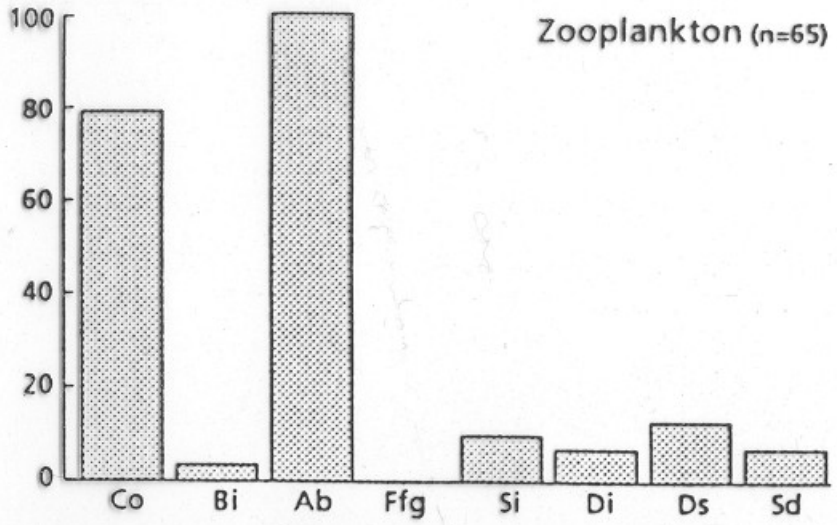
	Aquatic mesocosms, guidance document (Touart 1988)	Aquatic microcosms, guidance document (SETAC 1991)	Freshwater mesocosms, guidance document (SETAC-Europe 1991)
Phytoplankton sample frequency parameters	biweekly • chlorophyll-a/phaeophytin • identification dom. taxa	biweekly • chlorophyll-a • total density • density dom. taxa • taxonomic composition	logarithmic time series (6–10 times post-treatment) • chlorophyll-a • taxonomic composition • abundance (at least dom. taxa)
Periphyton (art. substrate) sample frequency parameters	biweekly • chlorophyll-a • ash free weight	biweekly • chlorophyll-a • ash free dry weight • total periphyton density • density dom. taxa • taxonomic composition	logarithmic time series (6–10 times post-treatment) • chlorophyll-a • biomass
Macrophytes sample frequency parameters	at least at end of test • species composition • % cover • dry weight	at least at end of test • species composition • % cover • wet and dry weight	logarithmic time series (6–10 times post-treatment), at least at end of test • % cover • biomass
Zooplankton sample frequency parameters	weekly collection, biweekly counts • abundance of dom. taxa (species/genus level) • length of muon of cladocerans	weekly • total density • densities of Cladocera, Rotifera and Copepoda • density of dominant genera • taxonomic composition	logarithmic time series (6–10 times post-treatment) • abundance (at least of dom. taxa) • taxonomic composition
Macro-invertebrates sample frequency parameters	biweekly • abundance of emergent insects (lowest practical taxon) • abundance of epifauna on artificial substrates (lowest practical taxon)	weekly • total abundance emergent insects • total abundance Chironomidae and dom. chironomid subtaxa • total density benthic macro-invertebrates • density dom. benthic taxa • taxonomic composition	logarithmic time series (6–10 times post-treatment) • abundance (at least of dom. taxa) • taxonomic composition
Fish (caged fish excl.) sample frequency parameters	beginning and end of test • abundance (per taxon) • length • wet weight • pathologic condition	beginning and end of test • abundance (per taxon) • length • weight	logarithmic time series (6–10 times post-treatment) • abundance (per taxon) • length • weight • sex

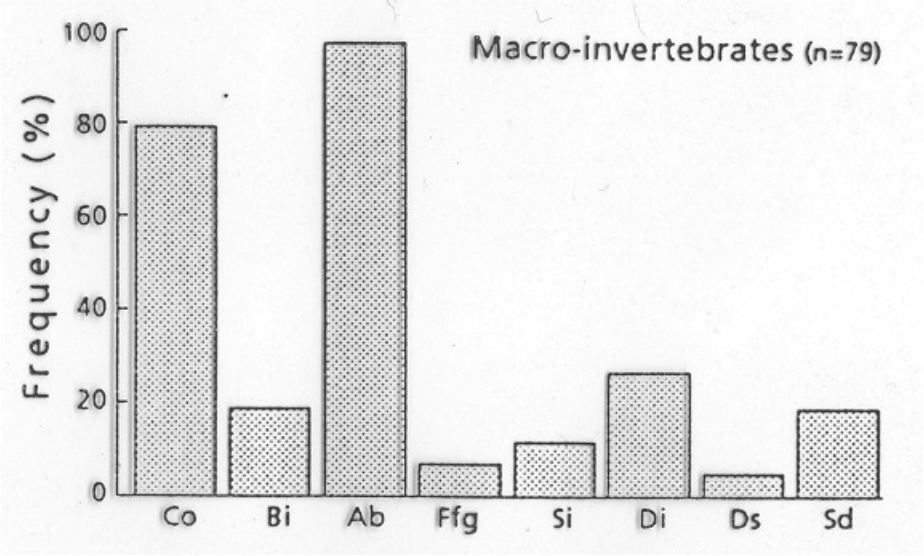


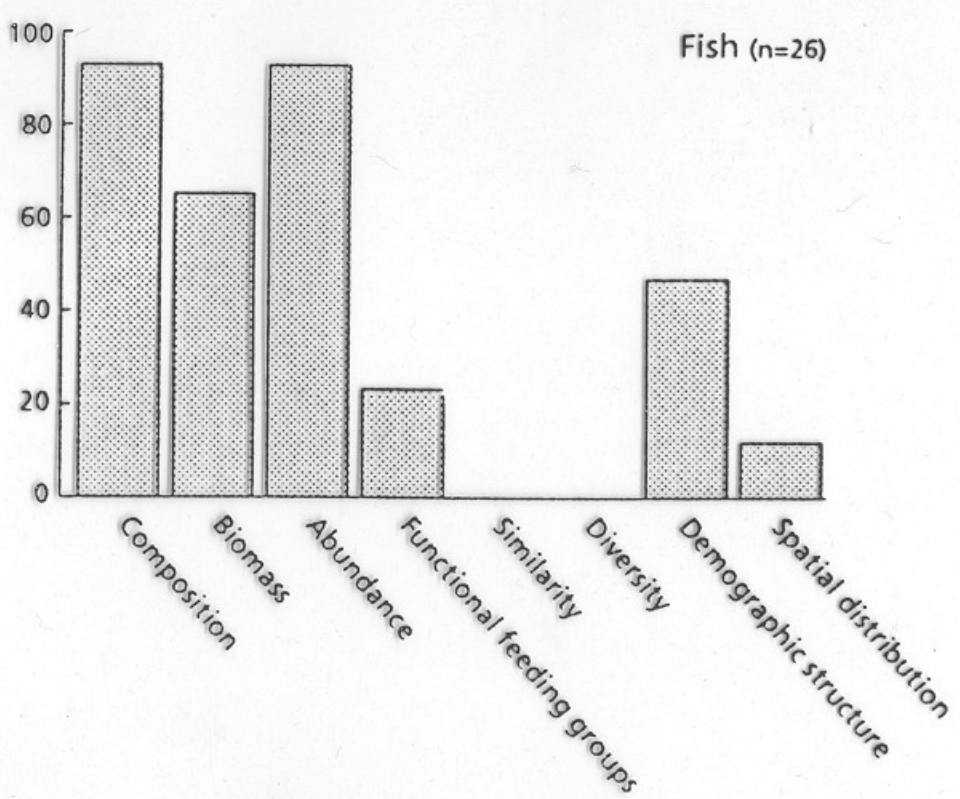




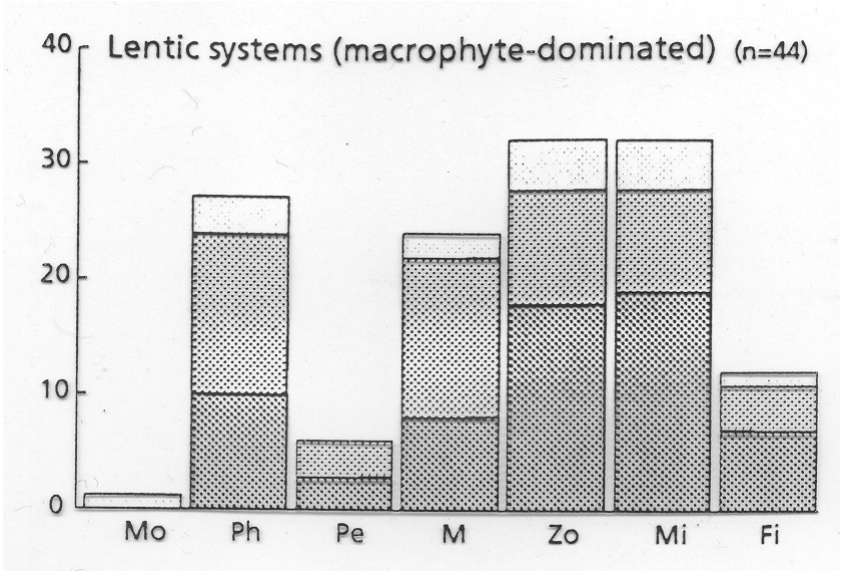
Relative frequency of the use of specific structural parameters to characterize the responses of phytoplankton, periphyton, and macrophytes, respectively (Co=Composition of lowest practical taxon; Ch=Chlorophyll-a; Bi=Biomass; Ab=Abundance; Si=Similarity index; Div=Diversity index; Sd=Spatial distribution.

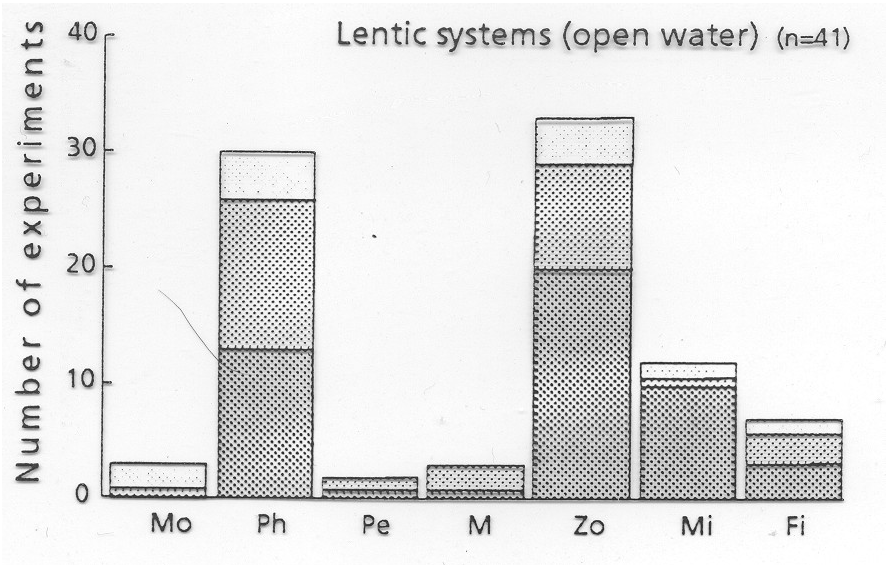


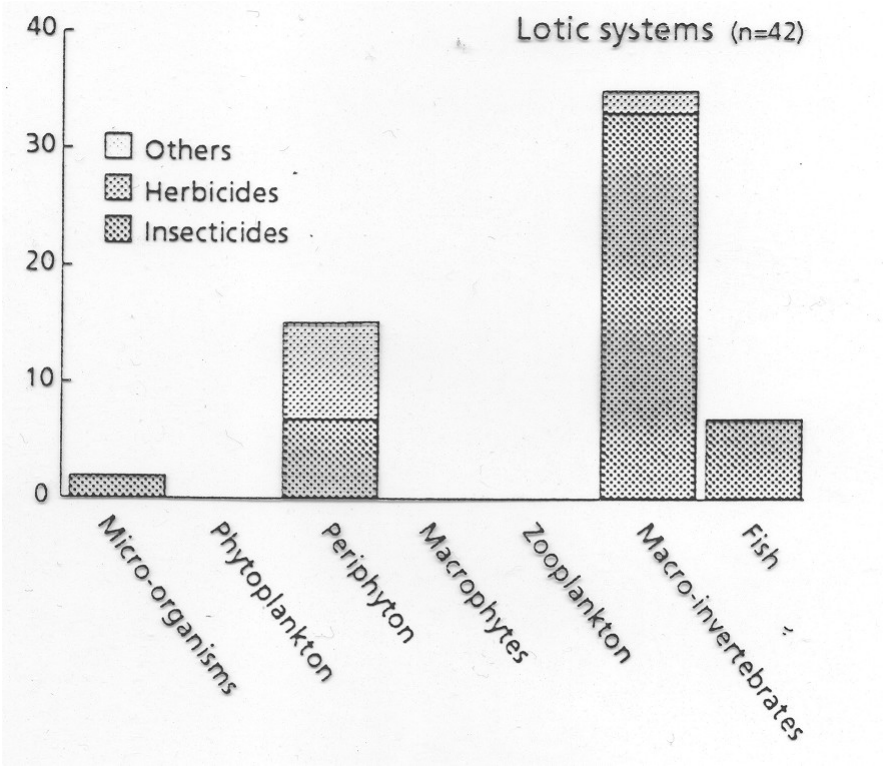




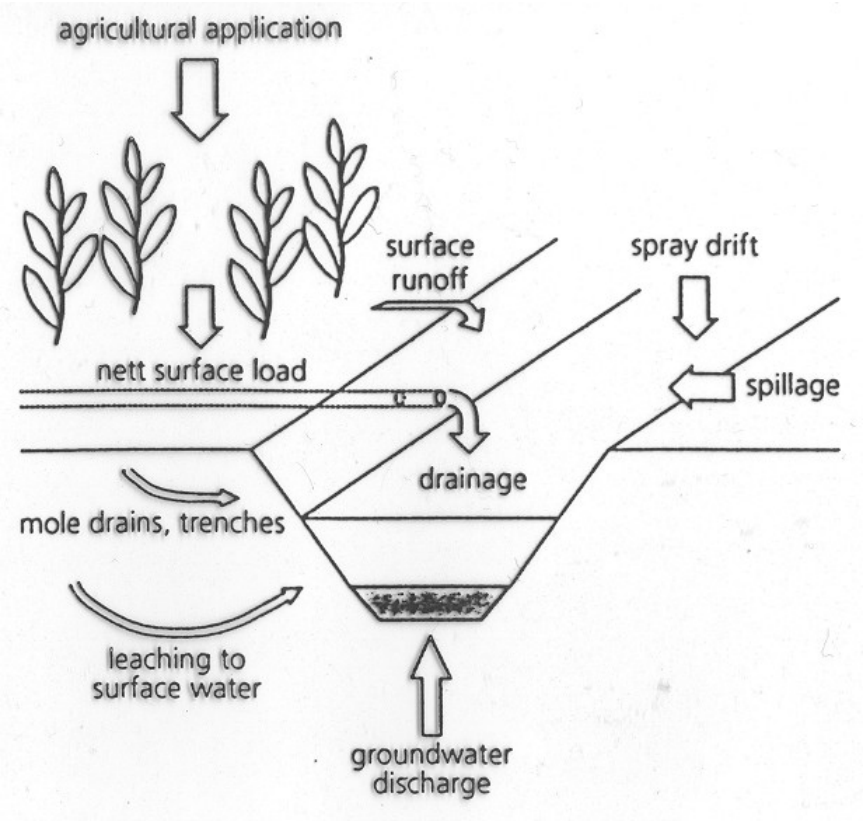
Relative frequency of the use of specific structural parameters to characterize the responses of zooplankton, macro-invertebrates and fish, respectively (Co=Composition at lowest practical taxon; Bi=Biomass; Ab=Abundance; Flg=Functional feeding groups, food choice and diet; Si=Similarity index; Di=Diversity index; Ds=Demographic characteristics; Sd=Spatial distribution).



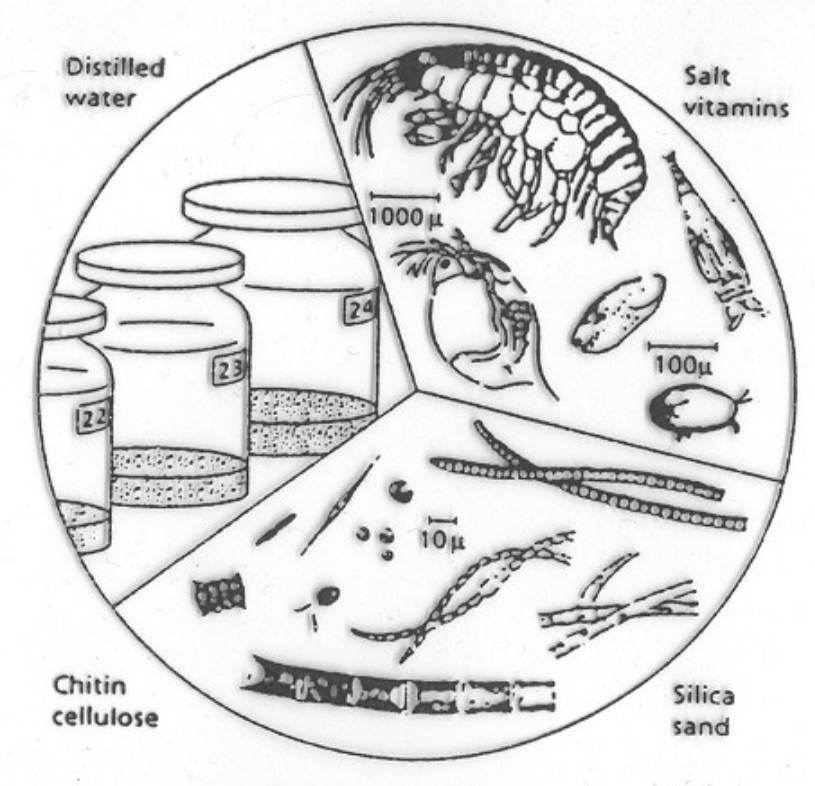




Numbers of experiments in which structural aspects of different (sub)communities have been studied, in the three types of aquatic (model) ecosystem discerned. (Mo=Microorganisms; Ph=Phytoplankton; Pe=Perinhyton; M=Macrophytos; Zo=Zooplankton; Mi=Macro-invertebrates, Fi=fish)



Design experimentu ovlivní spektrum sledovaných organismů



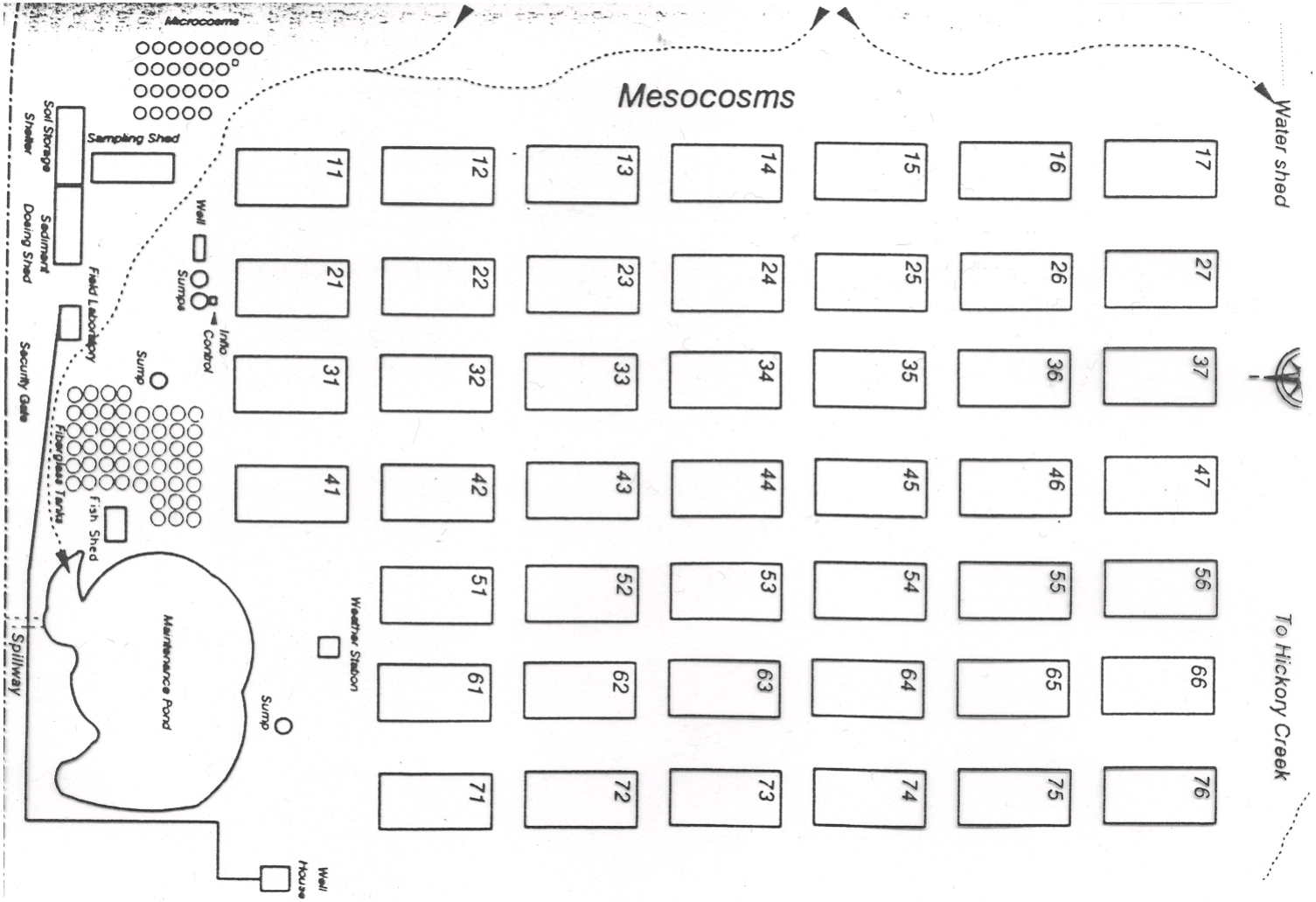
Komponenty standardního akvatického mikrokosmu

Taxa, volumes and endpoints appropriate for tests of circa three to six month duration in aquatic experimental ecosystem used in testing the fate and effects of agricultural chemicals. Taxa richness may be supplemented by indices or diversity, dominance and similarity. Chl a is chlorophyll a. From SETAC•Europe, "Testing Procedures tor Pesticides in Freshwater Static Mesocosms," Monks Wood Experimental Station,

Taxon	System size	Endpoint
Fish	≥25 m^3	Growth; condition
Zooplankton	≥25 m^3	Taxa richness; recovery
Macroinvertebrates	≥25 m^3	Taxa richness; recovery
Phytoplankton	1 - 5 m^3	Chl *a*; taxa richness; recovery
Periphyton	1 - 5 m^3	Chl *a*; taxa richness; recovery; biomass
Macrophytes	≥25 m^3	Biomass; % cover

Taxa, volume and endpoints appropriate for tests of circa one-month duration in aquatic experimental ecosystems used in testing the fate and effects of agricultural chemical. LC50 is the lethal concentration for a 50% reduction in test organisms. EC50 is an effective concentration, typically used for behavioral endpoint

Taxon	System size	Endpoint
Fish	1 - 5 m^3	LC_{50}; EC_{50}; % Mortality
Zooplankton	1 - 5 m^3	Taxa abundance
Macroinvertebrates	1 - 25 m^3	Taxa abundance
Phytoplankton	1 - 5 m^3	Chlorophyll *a*



Schematic diagram of the lentic mesocosm ponds at the Water Research Field Station of the University of North Texas. Smaller circles represent the location of fiberglass microcosm test systems