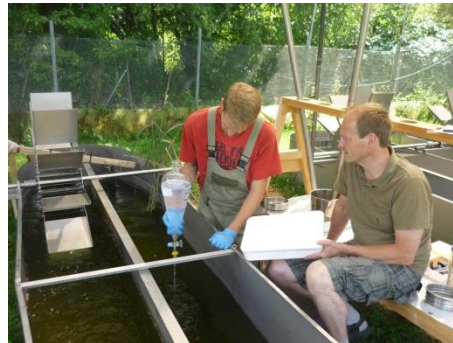


# artificial streams

- lotic mesocosm system
- 16 artificial streams
- length: 10 m depth: 30-50 cm volume: ca. 1500 - 2500 L velocity: 0,05 - 0,5 m/s
- inert material: stainless steel



# artificial streams

- special MASS (Macrozoobenthos Artificial Substrate Samples)-units for stream biota
- reference site for colonization of the MASS-units and biofilm-assays in striking distance
- representative stream biocoenosis in the mesocosms with abundant key species  
--> Gammarids; Ephemeroptera; Plecoptera; Trichoptera



# artificial streams

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## Example study with macroinvertebrates:

- lotic mesocosm study with artificial streams in early summer 2014
- replicates: 4    sampling occasions: 5
- 76 taxa --> 19 taxa fulfill MDD criteria (green labeling --> next page)
- 18 orders --> 11 orders fulfill MDD criteria (green labeling --> next page)

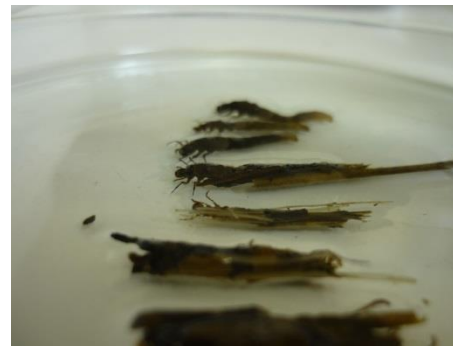


Table1: Lotic mesocosm study with artificial streams in early summer 2014. Replicates = 4; sampling occasions: 5. Green labeling = MDD criteria fulfilled.

order	species	mean abundance/sample
Acarina	<i>Acari</i> sp.	0.05
Amphipoda	<i>Gammarus pulex</i>	9.75
Amphipoda	<i>Gammarus roeseli</i>	14.2
Basommatophora	<i>Galba truncatula</i>	0.05
Basommatophora	<i>Lymnaea stagnalis</i>	0.2
Basommatophora	<i>Radix ovata</i>	1.9
Coleoptera	<i>Elmis</i> sp.	0.75
Coleoptera	<i>Gyrinus</i> sp.	0.1
Coleoptera	Hydroporinae sp.	0.05
Coleoptera	Laccophilinae sp.	0.05
Coleoptera	<i>Limnius</i> sp.	6.3
Diptera	<i>Antocha</i> sp.	0.05
Diptera	<i>Atherix ibis</i>	1
Diptera	<i>Bezzia</i> sp.	0.4
Diptera	Chironomidae sp. (pupa)	1.1
Diptera	Chironomini sp.	8.9
Diptera	Orthocladiinae sp.	5.05
Diptera	<i>Prodiamesa olivacea</i>	3.15
Diptera	<i>Psychoda</i> sp.	0.05
Diptera	Tanypodinae sp.	4.2
Diptera	Tanytarsini sp.	32.25
Diptera	Tipulidae sp.	0.1
Ephemeroptera	<i>Baetis fuscatus</i>	0.05
Ephemeroptera	<i>Caenis luctuosa</i>	0.45
Ephemeroptera	<i>Centroptilum luteolum</i>	0.1
Ephemeroptera	<i>Ephemerella ignita</i>	7.15
Ephemeroptera	<i>Habrophlebia fusca</i>	6.45
Gordiidae	<i>Gordius</i> sp.	0.15
Hirudinea	<i>Erpobdella octoculata</i>	15.85
Hirudinea	<i>Glossiphonia complanata</i>	0.05
Hirudinea	<i>Glossiphonia heteroclita</i>	2.7
Hirudinea	<i>Helobdella stagnalis</i>	0.95
Hydroidea	<i>Hydra</i> sp.	0.2
Isopoda	<i>Asellus aquaticus</i>	41.05
Megaloptera	<i>Sialis lutaria</i>	0.1
Odonata	<i>Calopteryx splendens</i>	0.25
Odonata	<i>Enallagma cyathigerum</i>	0.1
Odonata	<i>Platycnemis pennipes</i>	0.55

order	species	mean abundance/sample
Oligochaeta	<i>Chaetogaster</i> sp.	0.15
Oligochaeta	<i>Eiseniella tetraedra</i>	1
Oligochaeta	<i>Lumbriculus variegatus</i>	0.85
Oligochaeta	Naididae sp.	0.1
Oligochaeta	<i>Tubifex</i> sp.	2.75
Plecoptera	<i>Isoperla grammatica</i>	0.05
Plecoptera	<i>Leuctra geniculata</i>	14.25
Plecoptera	<i>Leuctra</i> sp.	6.3
Plecoptera	<i>Nemoura</i> sp.	0.1
Pulmonata	<i>Ancylus fluviatilis</i>	3.5
Pulmonata	<i>Bathyomphalus contortus</i>	0.05
Pulmonata	<i>Gyraulus albus</i>	0.25
Pulmonata	<i>Gyraulus</i> sp.	0.1
Pulmonata	<i>Myxas glutinosa</i>	0.35
Pulmonata	<i>Planorbis planorbis</i>	0.4
Seriata	<i>Dugesia gonocephala</i>	1.1
Seriata	<i>Dugesia lugubris</i>	0.05
Trichoptera	<i>Agapetus fuscipes</i>	0.05
Trichoptera	<i>Athripsodes albifrons</i>	0.05
Trichoptera	<i>Athripsodes bilineatus</i>	0.05
Trichoptera	<i>Athripsodes</i> sp.	0.05
Trichoptera	Chaetopterygini / Stenophylacini sp.	23.85
Trichoptera	<i>Glossosoma</i> sp.	0.05
Trichoptera	<i>Hydropsyche bulbifera</i>	0.05
Trichoptera	<i>Hydropsyche instabilis</i>	0.5
Trichoptera	<i>Hydropsyche siltalai</i>	2.55
Trichoptera	<i>Lasiocephala basalis</i>	6.2
Trichoptera	<i>Lepidostoma hirtum</i>	3.4
Trichoptera	Limnephilini sp.	5.8
Trichoptera	<i>Lype reducta</i>	0.35
Trichoptera	<i>Mystacides longicornis/nigra</i>	0.35
Trichoptera	<i>Polycentropus flavomaculatus</i>	7
Trichoptera	<i>Rhyacophila sensu stricto</i>	0.2
Trichoptera	<i>Rhyacophila</i> sp.	0.05
Trichoptera	<i>Sericostoma personatum/flavicorne</i>	0.55
Veneroida	<i>Pisidium</i> sp.	0.4
Veneroida	<i>Sphaerium corneum</i>	4.1
	<b>total</b>	<b>253.65</b>

# team

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Aquatic Ecotoxicology \* GLP \* Mesocosm Studies

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