

# MALSEMUSCHEL 2017



**Interreg**   
Rakousko-Česká republika  
Evropský fond pro regionální rozvoj

Ministerstvo životního prostředí



  
**Jihočeský kraj**



**VÝZKUMNÝ ÚSTAV  
VODOHOSPODÁŘSKÝ  
T.G. MASARYKA**  
veřejná výzkumná instituce

# Malsemuschel field activities (Czech side)

2017

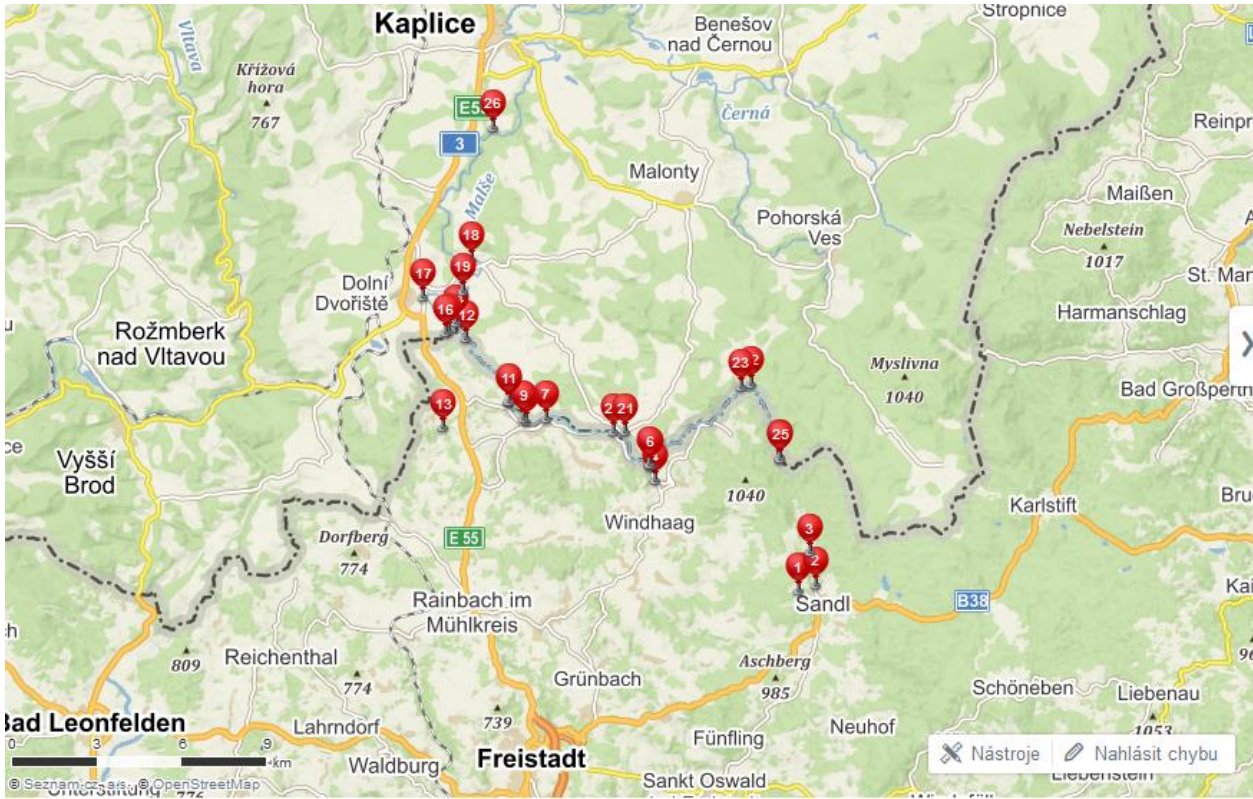
- Continual (monthly) [water chemistry monitoring](#) → detection of pollution sources
- River exploration – bottom and shore [stability mapping](#)
- [Bioindication](#)
- [Semi-natural breeding](#) – MM from Malsch (3 ex. *Salmo trutta* = 6000 MM juvenils)
- [Signal crayfish](#) 5 km up the MM colony, biohazard = *Aphanomyces astaci* → eradication - T.G.M. research institute
- [PR activity](#): kick-off event, meeting with stakeholders

2018

- Continual (monthly) [water chemistry monitoring](#) → detection of pollution sources
- River exploration – bottom and shore [stability mapping](#)
- [Bioindication](#)
- [Semi-natural breeding](#) (to be continued ...)
- Strengthening of [fish stock](#)
- [Electrofishing](#) (CZ + AT)
- [Phylogenetic study](#)
- [PR activity](#): meeting with stakeholders, [hand book](#) (data collecting)

# Water chemistry monitoring - the knowledge of the chemical parameters is essential prerequisite for subsequent management

- regular monthly monitoring on 26 locations
- measurement on site: conductivity, temperature, pH
- measurement in lab:  $\text{NH}_4^+$ ,  $\text{NO}_2^-$ ,  $\text{NO}_3^-$ , Pcelk,  $\text{PO}_4^{3-}$ , Ca, NL;
- randomly:  $\text{O}_2$ , CHSKCr, BSK5, KNK,  $\text{Cl}^-$ , Mg, Fe, Mn and other metals (Al, Ni, As, Be, Cd, Cu, Pb, Zn, Hg)



# Temperatures probes HOBO – obtaining of continuous temperature datas → important for capture of unpredictable events

- the location the same as for chemistry monitoring
- hourly records of temperature and lighting
- from August 2017 in the flow
- control and exchange in January 2018



# River exploration



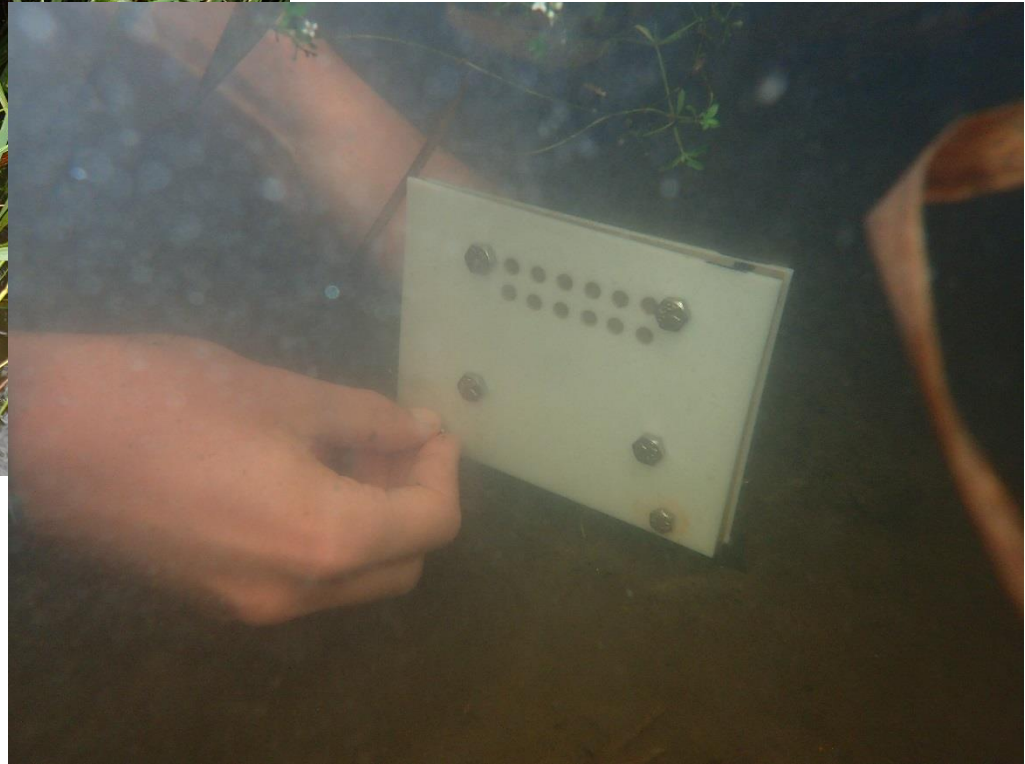
- bottom stability mapping
- empty shells and living MM
- selection of MM dropout positions
- adjusting mileage of flow

# Bioindication - determining the quality of the environment for juveniles

the bioindication plates are placed in the flow



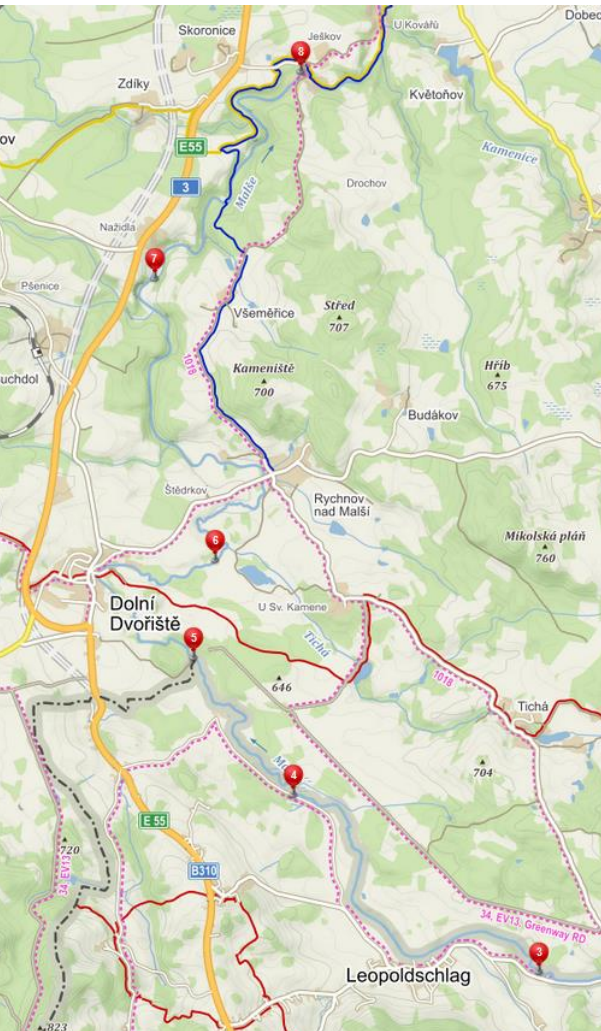
the bioindication plates are fixed in the river (each site 4 plates with 0+ and 4 plates with 1+)



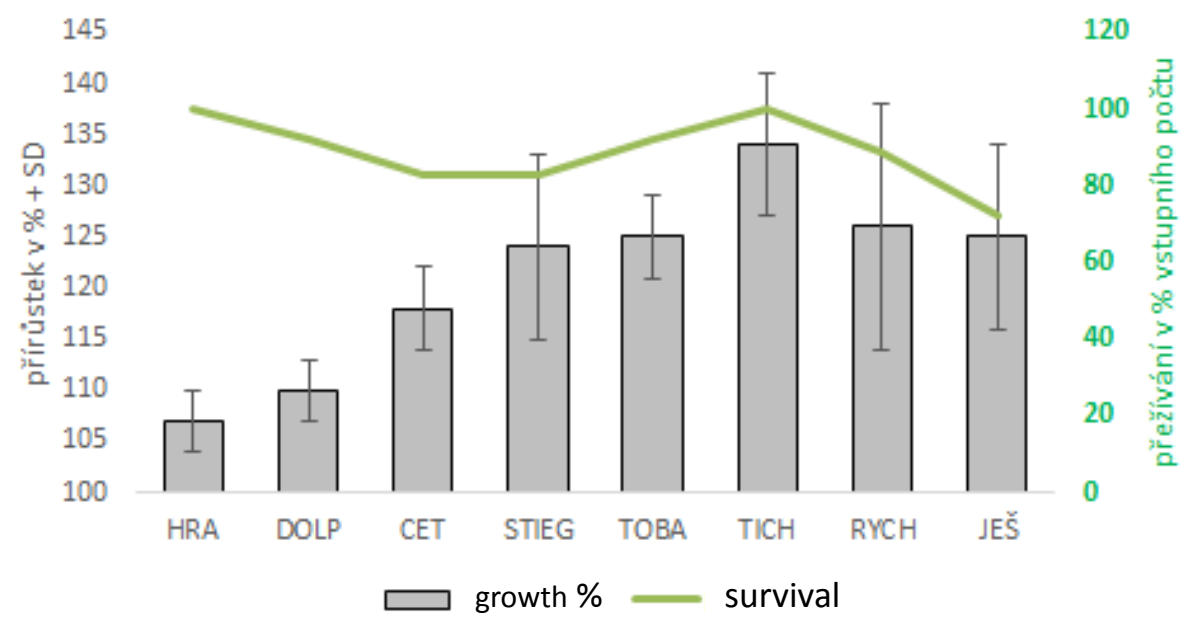
in each hole there is 1 pcs of *Margaritifera* in age 0+ / 1+ MM („Buddensieck“)

# Bioindication

## evaluation of growth in the laboratory



Malše 2017 srpen, přírůstky a úmrtnost juvenilů 0+ (FŽP ČZÚ, Švanyga, Simon a kol.) N=24, expozice 30 dnů



location of the bioindication plates

Random finding → glochidia collection in field → invasion (3 ex. *Salmo trutta*) → semi-natural breeding → now 6 300 juv. 0+ MM





# Finding the signal crayfish → eradication process (J. Svobodová, VÚV T.G.M.)

- non-native species
- positive detection of *Aphanomyces astaci* in Maltšch
- will be solved outside the project
- special management not only for owners



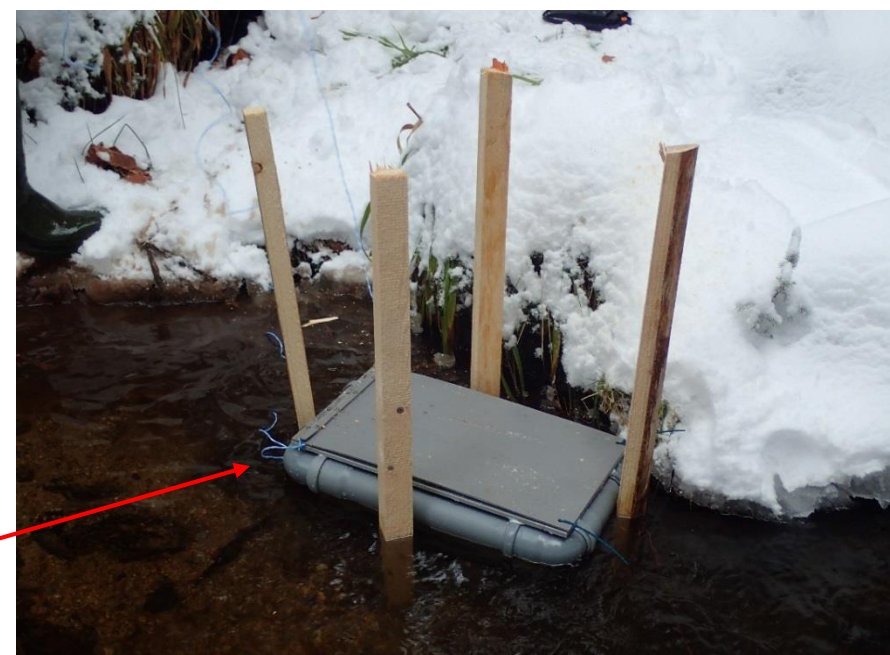
# Firzlaff's apparatus (apparatus for fry hatching)

→ support of population of *Salmo trutta*.



- location in Maltsh and tributary
- placed 18 apparatus

protected against the predators



- regular checking until fry hatching





Thanks a lot!

Photos from the Maltsch 07/2017 (photo: J. Horáčková, O. Simon)

