Block course „Sampling and Data Analysis in Fisheries Science“

Instructor: Prof. Dr. Robert Arlinghaus

Content: The goal of this practical block course is to learn how to sample freshwater fish communities in different habitats and ecosystems, with different gears, identify species, age fish and estimate growth, and statistically analyse and model data against pre-defined questions. We will likely differentiate four research questions to be tackled by groups of students in subteams. An example of the results produced in the previous year can be found here: https://www.ifishman.de/publikationen/einzelansicht/1191-influence-of-habitat-and-gear-type-on-assessments-of-fish-communities-their-size-structure-and/

The analysis will be based partly on data collected during the course and partly included analysis of raw data collected previously or in general projects of the working group of Robert Arlinghaus (in particular www.baggersee-forschung.de). The course will be a full two-week course (with presence) where key details of conducting and analysing a field study related to fish and fisheries ecology will be learned. This will prepare the student for assessments of fish community structure in rivers and lakes and of related fisheries questions.

Schedule: August, 31 – September, 18, 2020. Full working days with physical presence during the two working weeks 36 and 37 (Monday to Friday), of which the calender week 36 will be spent mostly outside of Berlin in the field sampling fishes. The calender week 38 is for report writing.

Localities and agenda:

- In the calender week 36 (August 31 to Sep 4) we will do several field campaigns to rivers and lake sampling fish in Brandenburg and Niedersachsen, a few nights will be spent outside of Berlin in hostels (on own costs, travel organized by instructor for free). We will meet Monday, August, 31 at 8:00 (s.t.) at IGB already geared up to leave IGB soon after an introduction for sampling fish in the River Spree. Other activities in the following days are yet to be organized.
- In the calender week 37 we will be at IGB and do data analysis.
- The calender week 38 is for finishing up the report; there is no mandatory presence at IGB, you shall work in teams at home or wherever.

Materials and Computers: For the field work in the calender week 36 please bring appropriate clothing (in terms of being warm and possibly dry, rubber boats are enough) and food, there will be very limited or no opportunity to go to restaurants or similar during the day during fieldwork. Fieldwork can also take look hours into the night.
For the laboratory work in calender week 37, it would be good if you bring laptops with the programs Excel and R installed.

Grading: The course will be graded based on a scientific report that answers a set of research questions (example: https://www.ifishman.de/publikationen/einzelansicht/1191-influence-of-habitat-and-gear-type-on-assessments-of-fish-communities-their-size-structure-and/).
Students will form groups of two tasked with specific questions and these subgroups will be responsible for writing up the respective sections in the report, and presenting the results orally. In addition, students will be part of the larger team and are expected to help out each other as needed. There is also a joint component of the overall report (e.g., introduction,

overall conclusion, formatting), so that the ultimate grade of the course will be based on 25% overall report, 75% individual contribution at the subgroup level. The document is due October, 16, 2020 thus there is time for completion after the block course.

Ideal maximum number of students: 8
Minimum number of students: 5

Possible Research Topics for Subgroups (final group structure will be done later):

1. Impact of habitat type (backwater vs. main channel) on fish density and fish assemblage composition in rivers: the example of river Spree
2. Impact of littoral microhabitat on fish density and fish assemblage composition in lakes: the example of gravel pits
3. Impact of sampling time (day, night) on the fish abundance assessed in the littoral of lakes
4. Comparing the size structure of fish assessed in the same habitat with different sampling gear

Student list with indication of thematic interest

Name	Matr. No and email (readable)	Preferred topic (1 to 4 from list above)
1.		
2.		
3.		
4.		
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6.		
7.		
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11.		
12.		