by dams in 1950-1970s. By analyzing recorded fish diversity data of 30 Yangtze floodplain lakes, we found that river-lake disconnection reduced fish diversity of Yangtze lakes by 38.1%, so that the river-connected lakes play an important role in maintaining the floodplain biodiversity. The minimum protected area of river-connected lakes was estimated to be 14400 km^2 by Cumulative species-area models. Therefore, we should not only protect the existent connected lakes of 5500 km^2, but also reconnect disconnected lakes of at least 8900 km^2 in the Yangtze basin. Species-area relationships are of importance in reserve design. We suggest that cumulative species-area model might be more suitable for ecosystems with high connectivity among regions such as floodplains. Since the Yangtze River floodplain is an integrative ecosystem, we suggest establishing a holistic nature reserve in the middle-lower basin for effective conservation of biodiversity.

OR A-04 Variation in fish community structure, richness and diversity of 56 Danish lakes with contrasting depth and trophic state: Does the method matter?

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The understanding of the variables that determine the structure and composition of fish communities is crucial for developing fish monitoring programs for lakes. Although electrofishing has long been recognized as an efficient method for quantitative investigations of fish populations, it has typically only been used as a supplement to various traditional trapping methods in monitoring of lakes. Using fish catch data from 56 Danish lakes with contrasting trophic state and mean depth, we describe how fish community composition, richness and diversity change along a chlorophyll a (CHLA) gradient (summer mean 5.7 – 374.6 μg.L-1) depending on the method used (electrofishing versus gill nets). Furthermore, we determine through a model selection approach (Akaike's Information Criteria = AIC) the best environmental variables predictors for some key fish species. The preliminary results of the research revealed that electrofishing captures more species in the littoral zone than the nets ($t = 2.68$ $p<0.01$), but if including pelagic nets the number was similar. The environmental variables that best explain the variance in species richness (nets + electrofishing) were CHLA, suspended solids (SS) and average depth (AVDEP). For electrofishing, AVDEP and SS were the best predictors selected for roach (Rutilus rutilus), tench (Tinca tinca), eel (Anguilla anguilla) and rudd (Scardinius erythrophtalmus), whereas for the littoral gill nets CHLA and SS were the best predictors for roach, perch (Perca fluviatilis) and bream (Abramis brama). For sinking and floating nets located ½ way between littoral and center of the lakes CHLA and AVDEP were the best predictors for roach, tench, bream and rudd. In conclusion, electrofishing could be a fast alternative to nets for monitoring fish species richness and composition in lakes, although some true pelagic species will be missing, such as pikeperch (Sander lucioperca) and smelt (Osmerus eperlanus). For a more comprehensive understanding of fish communities it is recommended that the monitoring combine electrofishing and gill nets, as some potential important species are not well caught in the gill nets such as eel, common carp (Carassius carassius) and stickleback (Gasterosteus aculeatus).

OR A-05 Effects of fish culture management on the composition and diversity of aquatic biota in ponds

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