

# Besiedlung von Fischen in Kleingewässern des Naturschutzgebietes Meerbruchswiesen am Steinhuder Meer, Niedersachsen, nach dem Winterhochwasser 2023/2024 und deren Einfluss auf die Amphibienfauna

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## Colonisation of fish in small water bodies of the nature reserve Meerbruchswiesen at lake Steinhuder Meer/Lower Saxony after the winter floods of 2023/2024 and their influence on the amphibian fauna

In the winter of 2023/24, an unusual flood event in the nature reserve Meerbruchswiesen west of Lake Steinhuder Meer in Lower Saxony flooded large areas and thus also numerous small bodies of water that were created to protect amphibians. In the summer of 2024, 100 selected small bodies of water were checked with water traps. 71 of these waterbodies had previously been inundated by floodwater. In 65 waterbodies fish, particularly common *Pungitius pungitius*, less common *Gasterosteus aculeatus* and in less than 10 waters also *Leucaspius delineatus*, *Pseudorasbora parva*, *Tinca tinca*, *Carassius carassius* and also *Carassius gibelio* can be proven. 61 of the bodies of water were probably newly populated by fish because of the flooding. Larvae of five amphibian species were found in 77 of the 100 water bodies examined: *Triturus cristatus*, *Lissotriton vulgaris*, *Hyla arborea*, *Pelobates fuscus* and *Pelophylax esculentus*. Amphibian larvae were also detected in 53 water bodies with fish. The proportion of water bodies used for reproduction by the five amphibian species was not significantly lower than that in the fish-free waters and was even higher for the pond frog. The number of great crested newts and tree frog larvae caught was significantly lower in the waters inhabited by fish. The number of larvae caught was not significantly lower for the three other species. The results show that fish have already an influence on the amphibian fauna in the first year after their immigration into small bodies of water, and it can be assumed that after their establishment and thus increasing fish density, the influence (predation pressure) will increase. This is likely to apply not only to the five amphibian species identified in the study, but also to other species that occur in the study area (*Rana arvalis*), but which could not be taken into account for methodological reasons. The results of the study underline the need to protect fish-free spawning waters that are important for amphibians and to take measures to prevent fish from settling there. It also makes sense to protect endangered fish stocks through appropriate structural measures, as shown by the strong spread of the invasive shad caused by flooding and the resulting undesirable hybridization with the crucian carp, which is threatened with extinction in Lower Saxony.

**Key words:** Small bodies of water, flooding, fish colonization, amphibian predation, *Triturus cristatus*, *Lissotriton vulgaris*, *Hyla arborea*, *Pelobates fuscus*, *Pelophylax esculentus*, management, amphibian protection.