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The effect of flow on interspecific interactions between native and non-native UK fish species

Invasive, non-native species are one of the leading causes of biodiversity loss in freshwater ecosystems. Of the large number of fish species introduced into Europe, the North American pumpkinseed (*Lepomis gibbosus*) is one of the most successful and damaging. The pumpkinseed has a wide range of negative effects on ecosystems, through interspecific competition with native species, introducing non-native parasites and causing significant declines in macroinvertebrate fauna. The present study examined competitive interactions and influence on growth rate of pumpkinseed and two UK native fish species: perch (*Perca fluviatilis*) and three-spined stickleback (*Gasterosteus aculeatus*). Whilst pumpkinseed showed moderate levels of aggression towards perch, sticklebacks (not in breeding condition) showed very high levels of interspecific aggression, which was highly detrimental to the pumpkinseed, leading to reduced growth. Although pumpkinseed have not yet dispersed far in the UK, their presence is predicted to expand due to climate change, though, the present study suggests that pumpkinseed may not have a negative impact on all native UK fish species.