

Abstract

Fish behaviour and the structure of fish communities in rivers are known to be affected by various environmental factors. Turbidity imposes a considerable environmental constraint by influencing visibility and reducing the distance at which a predator detects prey. Previous studies have shown that fish become more active and extend their diurnal movements and home range size during the high turbidity period. However, this effect may also be associated with a lower food availability in turbid water and various other environmental factors like are day time, water temperature, discharge or oxygen concentration may also have an effect.

This thesis present radio-telemetry study which examined factors influencing diurnal activity and home range size in common bleak *Alburnus alburnus* in riverine environment. The aim was to assess the response of bleak behaviour to various abiotic factors and prey availability, to establish the extent diurnal movements and home range size of bleak and to evaluate feeding strategy of fish. Four individuals of bleak were radio-tracked in the River Elbe during July - September 2007. The position of an individual fish was determined every three hours during one diurnal cycle, in total 10 diurnal cycles were recorded. During the same intervals, turbidity, water temperature, discharge and dissolved oxygen concentration were measured and samples of drifting invertebrates and fish stomachs collected. Bleak neither adapt their diurnal activity to prey availability, nor select a particular type of prey. Stomach content analysis has shownn that both individuals and whole population behave as a feeding generalists. Mean home range size was $197\,470 \pm 124\,700 \text{ m}^2$ and the extent of diurnal movements $827 \pm 580 \text{ m}$. Repeated measurements indicated that diurnal movements of bleak was influenced by abiotic factors, mainly by turbidity, water temperature and discharge. Diurnal movements of bleak increased with increasing turbidity, probably as a result of reduced foraging success in turbid water. Decreased visibility in turbid water may impairs the ability of bleak to encounter potential prey which may be compensated by the increased activity of fish. The extent of diurnal movements decreased with increasing levels of water temperature and discharge, probably due to effect of temperature on oxygen concentration and the increased energy cost of swimming in higher flow.

Key words: Common bleak, cyprinids, fish behavior, radiotelemetry, diel activity, home range turbidity