

THE SUMMER MOVEMENTS OF LARGE PISCIVOROUS FEROX TROUT (*SALMO TRUTTA*) IN LOCH GARRY, PERTSHIRE, SCOTLAND



FISHERIES RESEARCH SERVICES

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Introduction

Ferox trout (*Salmo trutta*) are the top predators in many Scottish lochs feeding on smaller trout and Arctic charr (*Salvelinus alpinus*) – their main prey species. Although once classified as a separate species, ferox trout are currently considered to be members of the brown trout species complex which have switched to a mainly piscivorous diet. This trophic switch is associated with rapid growth (the current UK rod caught record weight is 14.4 kg) and extended longevity (the oldest confirmed UK ferox was 23 years old). The main aim of the study was to investigate the summer (May-September) movements of ferox trout in their natural habitat.

Methods and Results

The horizontal summer movements of three ferox trout (Fish1-3) were tracked using radio and acoustic tags. The dominant swimming pattern was to move slowly and undertake frequent changes in direction. All three ferox had home ranges that extended over much of the loch (0.78-1.10 km²). To account for non-independence the data were analyzed using mixed models with autoregressive errors. The tracks for Fish2 and Fish3, which included their positions during darkness, indicated that both fish tended to move closer to shore at night ($p < 0.05$) (Figure 1).

Data storage tags were used to record the vertical summer movements (depth every 15 minutes) of five additional ferox (Fish4-8). These fish tended to remain in the top 5 m of the water column but undertook frequent dives to depths of 5 m to 20 m. The analysis indicated that at night all five fish became less active ($p < 0.05$) and, with the exception of Fish8, tended to be recorded higher in the water column ($p < 0.05$) (Figures 2 and 3).

Conclusions

The movement data indicates that during the summer months Loch Garry ferox tend to cruise through the surface waters of the loch undertaking frequent dives. At night the fish become less active and move into shallower water closer to the shore. We suggest that the ferox dive during the day to prey on Arctic charr and become less active at night to conserve energy.



Male ferox trout, aged 12+ yrs, 74cm, 4.9kg (Fish2)



Male ferox trout, aged 12+ yrs, 70.5cm, 3.7 kg (Fish5)

Figure 1: An example of the day and night positions for a 4.9kg ferox manually tracked during June 1999 (Fish2).

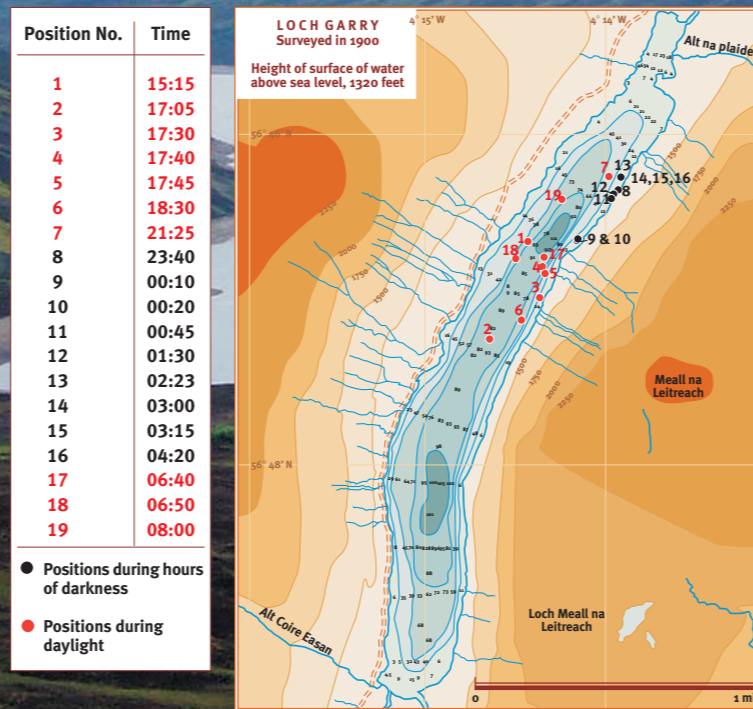


Figure 2: DST data illustrating the vertical movements of a 3.7 kg ferox trout in June 2002 (Fish5)

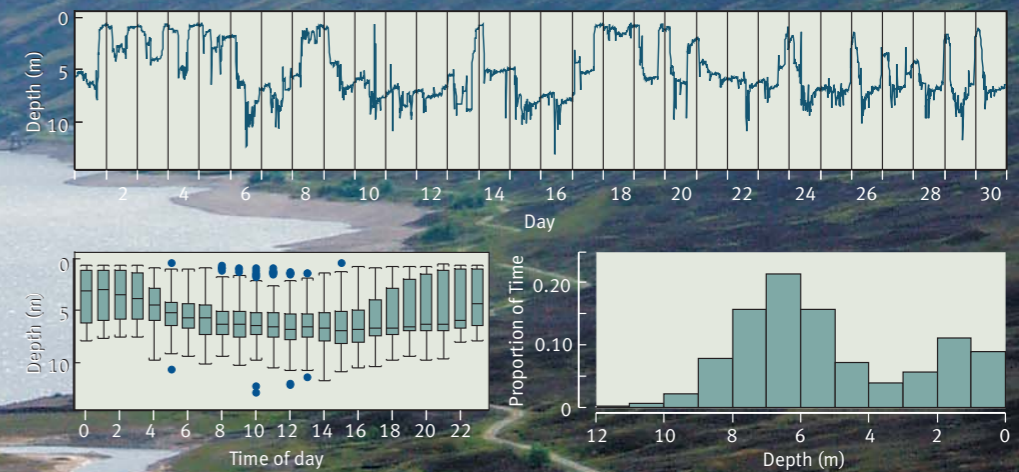
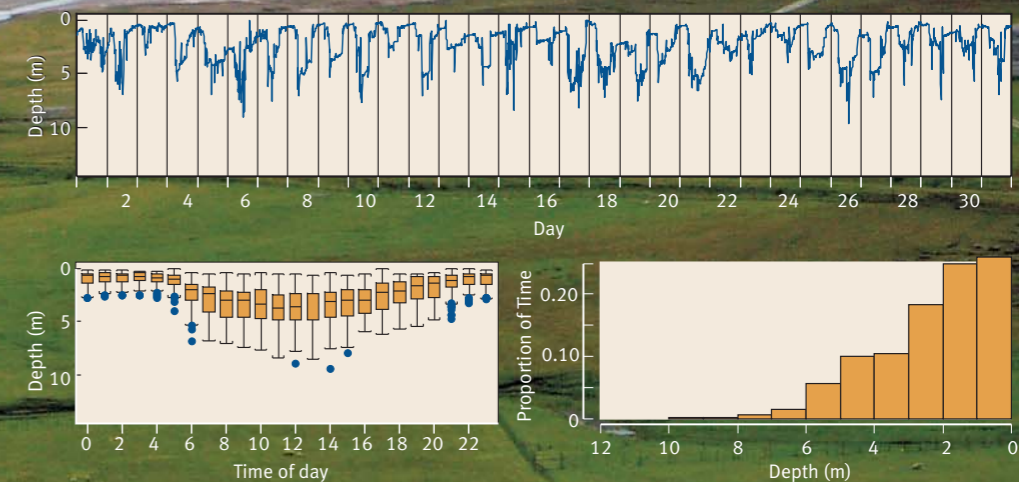


Figure 3: DST data illustrating the vertical movements of a 3.7 kg ferox trout in August 2002 (Fish5)



4.9kg ferox trout fitted with radio and acoustic tags – about to be released (Fish 2)