



THE MOVEMENTS OF FEROX TROUT, *SALMO TRUTTA*, IN A SCOTTISH HIGHLAND FRESHWATER LOCH

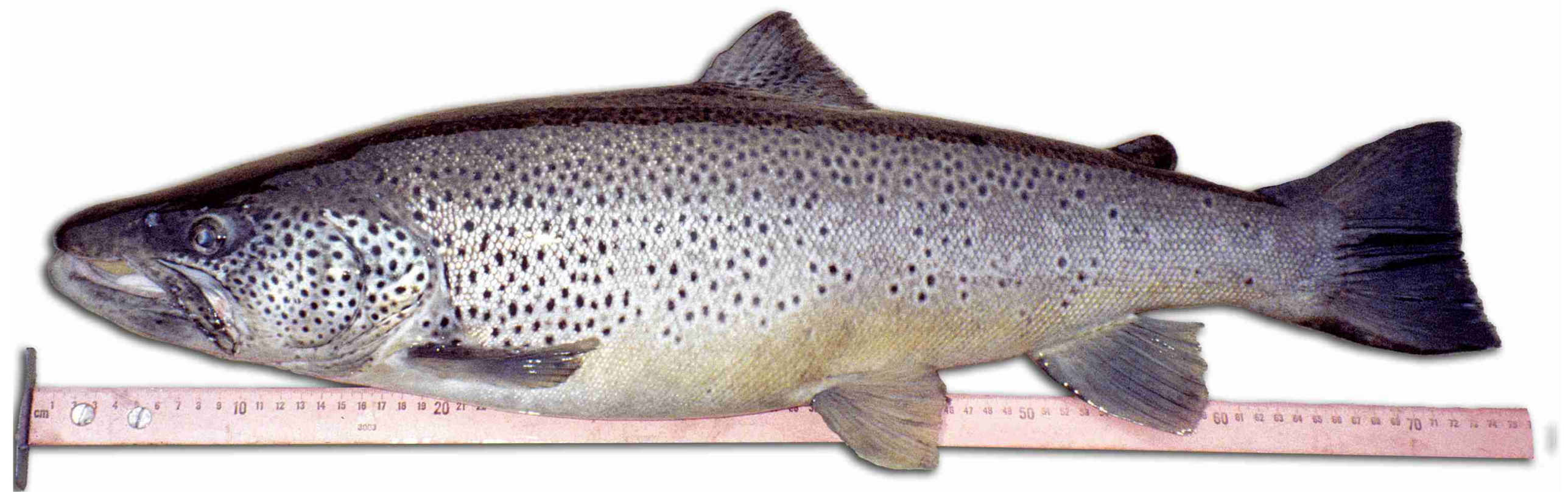
Alastair Thorne¹, Alisdair MacDonald², Joseph Thorley¹ and Alastair Johnstone²

INTRODUCTION

Ferox trout (*Salmo trutta*) are the top fish predators in many Scottish lochs feeding on smaller trout and Arctic charr (*Salvelinus alpinus*) – their main prey species. Although once considered a separate species, ferox trout are brown trout which have switched to a mainly piscivorous diet. The diet switch not only boosts growth (the current UK rod caught record weight is 14.4kg), but also adds to longevity (the oldest confirmed UK ferox was 23 years old). The main aim of the study described was to investigate the movements of ferox trout in their natural habitat using acoustic, radio and data storage tags.



Ferox trout with Arctic charr



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

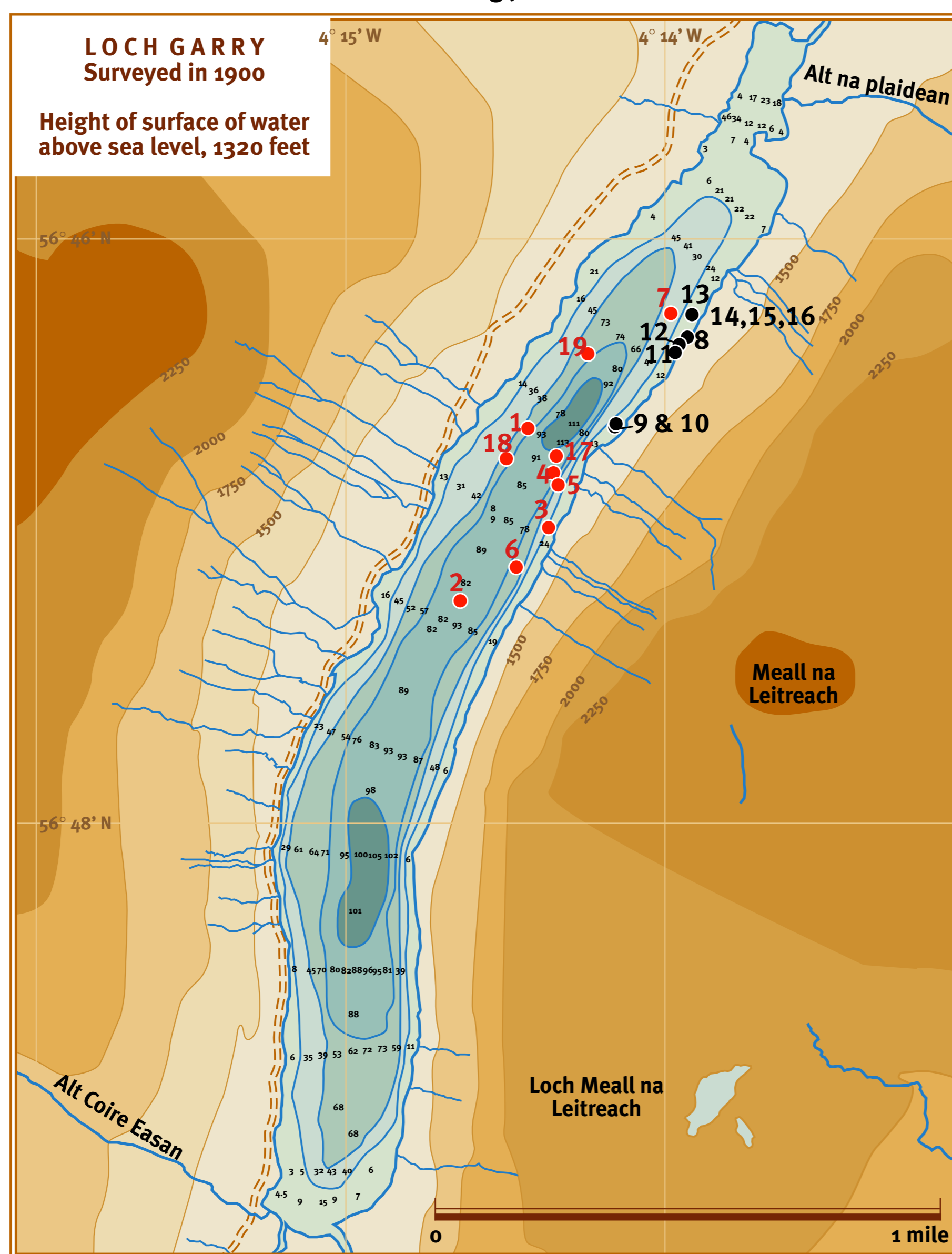
METHODS & RESULTS

In June 1999, the horizontal movements of two ferox (3.0kg and 4.9kg) were tracked using radio (HS Electronics) and acoustic tags (Vemco V8SC-5L). Both ferox made large-scale movements throughout the loch during daylight hours and did not appear to be territorial. Their movements became more restricted and closer to shore during the night (Figure 1).

From June to August 2002, data storage tags (Star-Oddi DST milli) were used to record the vertical movements of seven ferox. Tags from two fish (3.4kg and 3.7kg) have been recovered to date. The larger 3.7kg fish spent most of June in a depth of around 6m. During the day this ferox often undertook one or more short (<30 minute) dives to 11m while on approximately one third of nights it rose to within 2m of the surface (Figure 2). By August, this fish was, almost without exception, rising to the surface 2m every night. During daylight hours it would move to a depth of between 3 and 5m from where it undertook one or more short dives to a maximum of 9m. The box plot of depth against time of day clearly shows this diel pattern (Figure 3).

The smaller 3.4kg fish from the same study period (June to August 2002) showed only relatively minor changes in depth for long intervals until August whereupon it began undertaking short daytime dives to a maximum of 10m. A data storage tag (Star-Oddi DST300) from a 2.8kg ferox tagged in September 2001 has also been analysed. Similar to the 3.7kg ferox in August this fish spent most of its time in the top 2m and undertook short daytime dives, this time to a maximum of 16m.

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



Position No.	Time
1	15:15
2	17:05
3	17:30
4	17:40
5	17:45
6	18:30
7	21:25
8	23:40
9	00:10
10	00:20
11	00:45
12	01:30
13	02:23
14	03:00
15	03:15
16	04:20
17	06:40
18	06:50
19	08:00

● Positions during hours of darkness
● Positions during daylight



4.9kg ferox trout fitted with radio and acoustic tag – about to be released

CONCLUSIONS

The tagged ferox:

- appeared to be non-territorial within their loch habitat
- displayed diel and seasonal variation in vertical movements
- undertook short daytime dives – probably to prey on charr

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

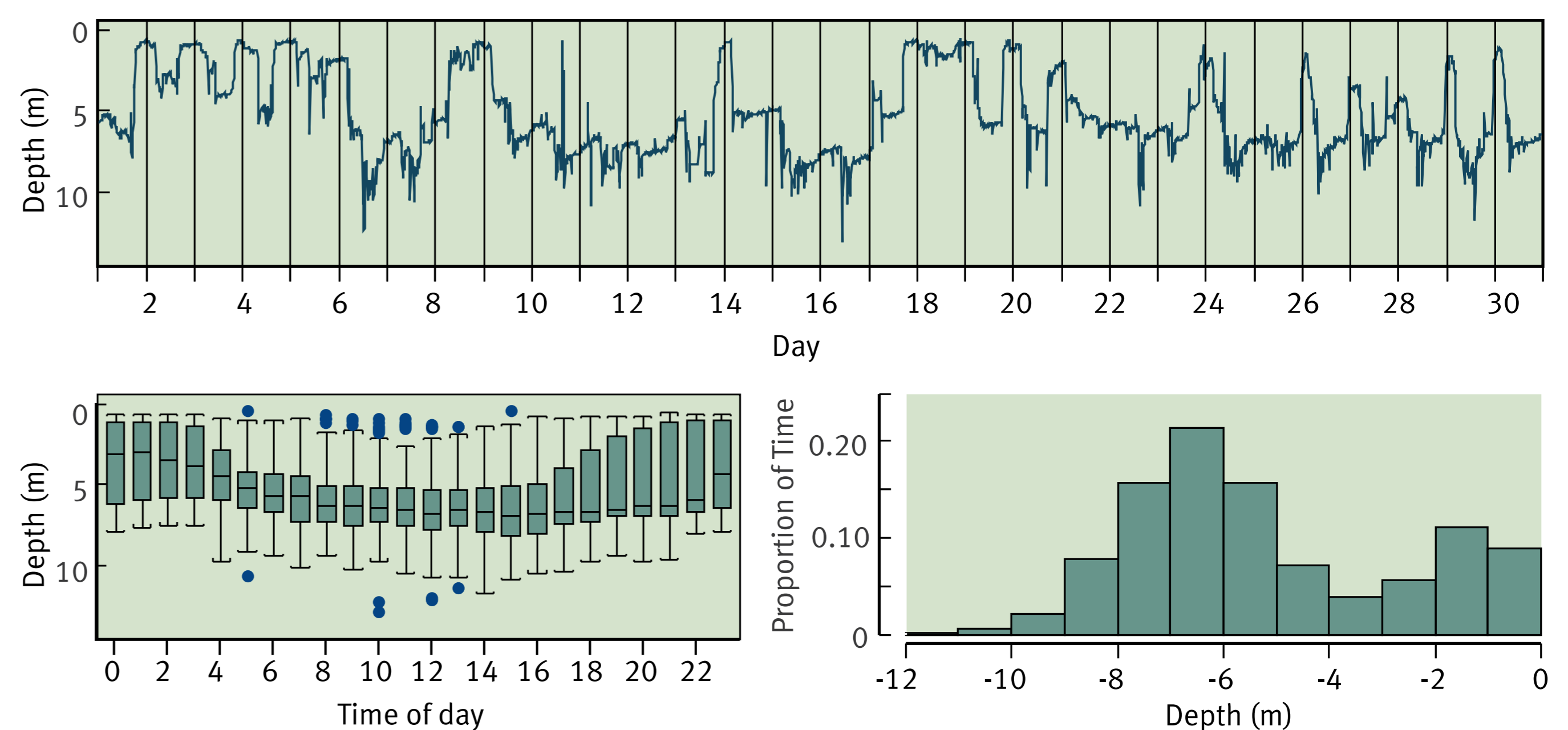
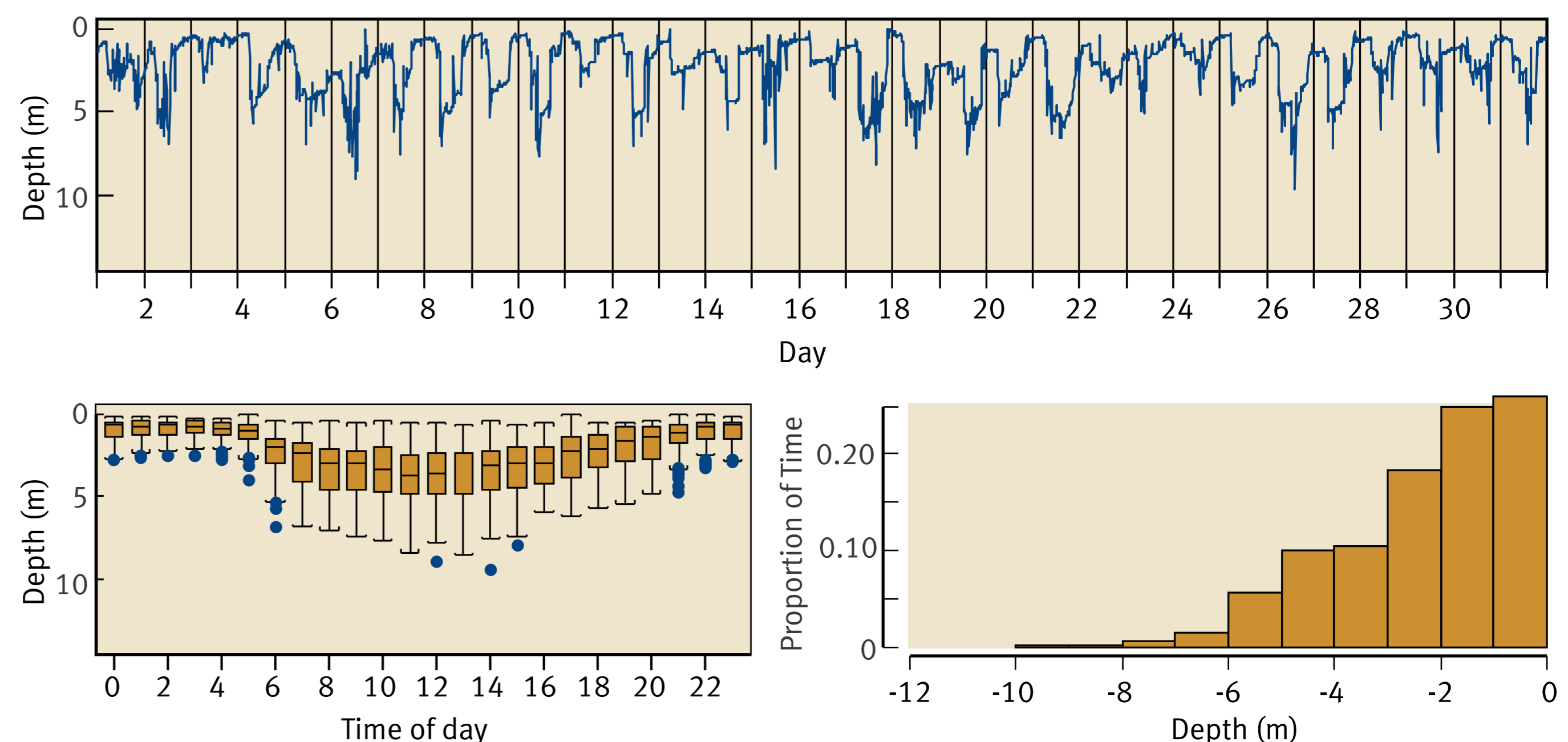


Figure 3: DST data illustrating the vertical movements of a 3.7 kg ferox trout in August 2002



Project sponsored by Scottish and Southern Energy, Wild Trout Trust, Turftech International Ltd

Fisheries Research Services is an agency of the Scottish Executive

FRS FRESHWATER LABORATORY FASKALLY PITLOCHRY PERTSHIRE
1 PH16 5LB UK tel +44 (0)1796 472060 fax +44 (0)1796 473523
enquiries@marlab.ac.uk <http://www.marlab.ac.uk>

FRS MARINE LABORATORY PO Box 101 375 VICTORIA ROAD ABERDEEN
2 AB11 9DB UK tel +44 (0)1224 876544 fax +44 (0)1224 295511
enquiries@marlab.ac.uk <http://www.marlab.ac.uk>