Appendix 4f Fish Survey Report (January 2010)

REPORT OF A FISH SURVEY AT PULPIT ROCK, LOCH LOMOND IN CONNECTION WITH REALIGNMENT OF A82 TRUNK ROAD

Background and rationale

As one component of road modification to the A82 it is proposed to construct a viaduct near Pulpit Rock, Loch Lomond to facilitate carriageway widening. This has the potential to impact on aquatic species of high conservation value: powan (*Coregonus lavaretus*) is listed in schedule 5 of the Wildlife and Countryside Act 1981 and Lomond holds one of only 2 natural populations in Scotland. Both the river lamprey (*Lampetra fluviatilus*) and the brook lamprey (*Lampetra planeri*) are listed in Annex II of the EC Habitats Directive (*Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora*) and the Lomond catchment supports significant populations of both of these lamprey species.

Certain life-cycle stages of these species are potentially vulnerable to littoral zone development. Powan spawning, egg incubation and hatching occurs in the littoral zone, thereafter larval fish are pelagic, inhabiting open water and therefore no longer vulnerable to shallow water activity. Habitat suitable for powan spawning is within the depth range 1 to 10 m and comprises well washed stony substrates containing very low levels of light sediments. Habitat surveys conducted previously by Loch Lomond Fisheries Trust (LLFT) in the vicinity of the proposed viaduct have shown that the littoral zone is characterised by a narrow rocky shoreline which plunges steeply into deep water. Substrates are composed principally of light sediment. This is poor quality spawning habitat for powan and unsuitable for lamprey.

However, the gravel spit at Rubha Ban directly to the south is a known powan spawning site. Previous surveys at this location indicated abundant high quality spawning habitat extending into deeper water. Powan spawn here annually in late December and January and the eggs incubate over a temperature dependant period - approximately 400 degree days - usually around 60 days in Loch Lomond.

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Such sites are of particular importance in the upper basin of Loch Lomond. The proximity of this site to the location of the proposed viaduct necessitated additional surveys to investigate habitat use in this area by powan during the spawning season.

Study site

The study site is located towards the northern end of Loch Lomond (Fig 1) and spans an area of the western shore line approximately 1.5 km in length between NGR 232310 714322 to the north and Rubha Ban (233010 713200) to the south.

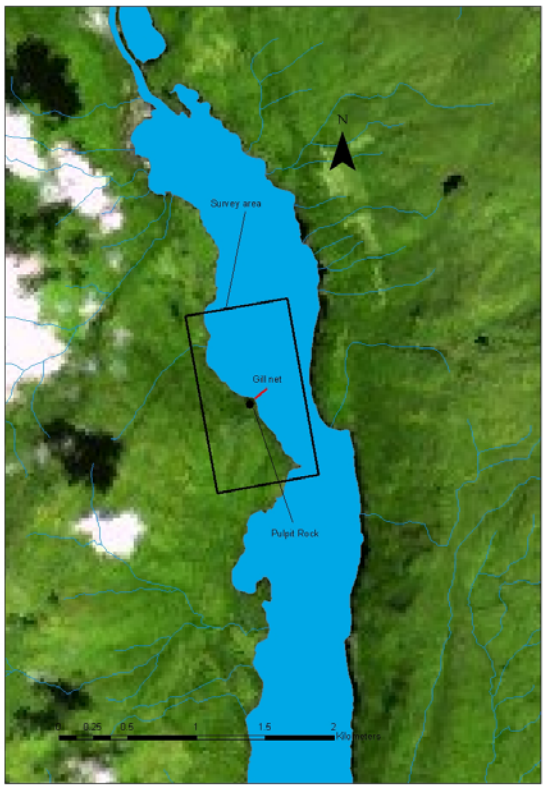

Fig. 1. Survey area showing netting site location

Field Methodology

Fish sampling was conducted on 17th/18th January 2010 using gill nets. Two nets were deployed. A single benthic multi-mesh net (mesh size ranging from 7 – 55mm) of approx. 60m length was deployed at NGR 232769 713652 in accordance with the standard NORDIC protocol for sampling fish communities in standing water bodies. A second benthic net of standard single mesh (c. 50mm) specifically suited to capture of adult powan was also deployed.

Both nets were set perpendicular to the shore line in order to give coverage of both littoral, profundal and benthic habitats covering a depth range of from 3 – 23 m (end to end). Nets were set for 24 hours from noon to noon in order to maximize capture rate and sampling efficiency.

Survey Results

Fish captures are summarised in table 1.

Easting	Northing	Net/depth	Species	fish numbers	Length (mm)	Weight (g)	Number of species
NET 1							
232837	713593	Benthic standard mesh 3 - 20m	Roach	1	210	139.5	2
			Powan	1	350	467	
NET 2							
232769	713652	Benthic multimesh 3.1 – 23m	Pike	1	377	360	4
			Roach	6	93		
					44		
					42		
					39		
					43		
					41		
			Ruffe	1	99		
			Stickleback 3sp	1	45		

TABLE. 1 Fish captured in nets on 17th/18th January 2010 near Pulpit rock

A total of 5 fish species were captured but only 11 individuals were caught in both nets combined. Roach were the most abundant. A single adult powan was captured (FL 350 mm; W 467g)

Conclusions

These findings suggest that powan are not utilising littoral habitats in the immediate vicinity of the proposed viaduct to any great extent during the spawning season. It is therefore reasonable to assume that disturbance to this species is likely to be minimal.

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