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THE IMPACT OF EEL FYKE NETTING  
ON OTHER FISHERIES

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The small fyke net was introduced to Ireland in 1963 and has been operated extensively in tidal water ever since. Experiments in freshwater began in Lough Corrib in 1967, conducted by the then Department of Agriculture and Fisheries. In 1970 operation by professional fishermen under special authorisations began. It has been effectively demonstrated by the Department's experiments, by information furnished by the professional fishermen and by observations by local fishermen and the Department's officials that fyke nets could be used for eel fishing without harmful effects on other fish stocks. As a result, the fyke net was listed as a "scheduled engine" in the Fisheries Act, 1980.

Concern has sometimes been expressed by Fisheries Boards regarding the impact of fyke netting on other stocks of fish and on the freedom of movement of anglers and boats. In the course of the Department's experiments, records of the numbers and species of other fish caught were gathered and are presented in detail in this leaflet. The overall picture establishes beyond any doubt that the impact of fyke netting is trivial. In lakes, large and small, rich and poor, a fishing effort of 4,690 nets set overnight yielded a catch of 15,000 eels, one salmon, 17 trout, 112 pike, 18 bream, 9 tench and some hundreds of perch. In rivers there were exceptional cases where several trout were caught overnight but in general the catches of game fish were negligible.

The great majority of all kinds of fish in the fykes were caught in the trap part of the net rather than in the leader. It was possible therefore to return them unharmed to the water. The conclusion is that, while the fyke-net fisherman can make a profitable catch of eels, the nets are ineffective for other species.

### Fyke nets in lakes

Table 1 gives the numbers of eels and other fish caught in fyke nets set overnight. Lakes of area greater than 1,000 hectares are classified as "large" and those with conductivity greater than 125 us/cm as "rich". These are the productive limestone lakes as opposed to the poor bog lakes. Table 2 gives results from an intensive survey in progress in Meelick Bay, Lough Derg (part of a large rich lake) in which netting takes place for one week every month from March to November.

The scarcity of other fish in the nets is remarkable. The only significant catches are of male perch in the spawning season. Trout were caught in two of the fifteen lakes, salmon in one. Bream, tench, rudd, roach and gudgeon were caught in slightly higher numbers than were trout. In two cases, Lough Corrib and Lough Finn (Co. Donegal), char were caught when the nets were set in deep water and the only substantial catch of trout was made in Lough Finn. This lake differed from all the others in having hardly any spawning or nursery streams and it is believed that the lake holds unusually large numbers of young trout.

### Fyke nets in rivers, lagoons and estuaries

Details of river and estuarine catches are given in Table 3. In the slow, deep rivers where the best catches of eels are made, trout and other fish are as rare as in the catches in lakes. One exception to this was observed when seven trout were caught overnight in six nets in the River Nore at Inistioge. Most of these trout were caught in the downstream-facing trap of each net while the majority of the eels were caught in the upstream-facing traps.

Experimental fishing in estuaries has been less extensive than in lakes and rivers. The by-catch is usually greater than in freshwater and is composed mainly of small flounder. In the case of the Blackwater, three salmon and seven trout were caught from a fishing effort of 489 nets in a narrow part of the estuary. In the Slaney estuary in Wexford Harbour, which is much wider than the Blackwater, observations on professional netting have indicated that salmon are rarely, if ever, caught.

### Fyke nets set for long periods.

Table 4 gives a summary of observations on nets serviced over periods ranging from 2 to 16 days. The usual practice is for fishermen to service the nets daily as there is little or no advantage in leaving them in one place for longer periods. A suggestion had been made that other fish species would be more susceptible to capture by

nets left in place for several days. Many of the nets in these experiments were operated in deep water in Lough Corrib which explains the high number of char. The significant result is that the catch of trout per net per night was almost exactly the same as when the nets were serviced daily.

#### Fyke nets set during smolt passage

In the spring of 1969 a train of fyke nets was set at the Galway weir immediately upstream of the smolt trap for two days and nights from 7 to 9 May. A total of 3,600 smolts swam past the nets and were subsequently released from the smolt trap. Two smolts were caught in the fyke nets. This experiment confirmed the view that the fyke nets do not pose any hazard to migrating smolts.

Further confirmation came from the total failure of an attempt to catch smolts in the River Slaney. In this case the fykes were set across the river, rather than in the usual position parallel to the flow. A shallow part of the river had been chosen so that the leaders of the nets would not be submerged. No smolts were caught and it appears that those that were migrating succeeded in swimming away from the leaders of the fykes and passing over the traps.

#### Boats and anglers

Anglers' lures fishing close to the lake or river bed are occasionally caught by fyke nets. Since the maximum permitted height of the fyke is 50 cm, the risk of such fouling is probably less than that of losing tackle amongst stones and weeds. In the case of Meelick Bay in Lough Derg, two lures were thus entangled in 1983 and none in 1984. This bay is popular for pike and mayfly fishing and the nets were in operation for a total of 31 days in 1983 and 38 days in 1984. Not surprisingly, as the nets are totally submerged, no mayfly tackle has ever been fouled.

In the course of 20 years of fyke netting there have been two reported instances of boat propellers entangling fyke nets. In both cases a number of nets were ruined while the boats were undamaged. Even if the nets were set without paying any attention to the needs of boat operators, few such incidents would be expected since the highest points of the nets are usually below the reach of the boats' propellers. In fact, fishermen take great care to avoid any contact with boat engines because of the high cost of replacing damaged nets, to say nothing of the loss of the catch.

## Conclusions

Fyke netting in Ireland is carried out at a very low intensity and there are clear indications that the eel stocks are being underexploited. The Department of Tourism, Fisheries and Forestry favours the maximum exploitation of eel stocks which is consistent with conservation requirements. Applications for authorisations to use nets for the capture of eels in lakes are examined with due regard to factors affecting the particular fishery. Applications for netting in rivers require greater circumspection. In these cases the numbers of fishermen may have to be limited since the area of river bed available is relatively small. It may also be found necessary to restrict fyke netting to deep stretches.

Table 1. Numbers of eels and other fish caught in fyke nets fished nightly. Large and small lakes are those greater and less than 1,000 hectares. Rich lakes have water of conductivity >125 us/cm. The effort is the number of nets multiplied by the number of nights fished.

	Effort	Eels	Trout	Pike	Perch	Others
LARGE RICH LAKES						
Arrow	194	281	0	0	16	
Carra	56	42	0	1	9	
Corrib, North	852	956	7	8	15	1 salmon, 57 cha 1 minnow, 2 stickleback
Corrib, South	107	379	0	11	15	
Derg	259	961	0	18	18	6 tench
Gill	116	142	0	2	8	1 gudgeon
Mask	108	102	0	2	4	
Total	1692	2863	7	42	85	68
SMALL RICH LAKES						
Cutra	152	345	1	1	1	
Fergus lakes	56	91	0	2	0	
Shannon lakes	208	370	0	9	17	14 bream
Erne lakes	240	472	0	6	34	1 bream, 2 rud 8 roach
Total	656	1278	1	18	52	25
SMALL POOR LAKES						
Ballinahinch	10	74	0	0	0	
Cloonee	12	12	0	0	0	
Feeagh	100	23	0	0	0	
Finn	30	26	8	0	0	7 char
Total	152	135	8	0	0	7
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Trout per 1000 net nights:						
		Large rich lakes	4			
		Small rich lakes	3			
		Poor lakes	53			

Table 2. Numbers of eels and other fish caught in Meelick Bay, Lough Derg. In addition to those listed, perch fry were caught from May to November.

	Effort	Eels	Trout	Pike	Perch	Others
March	160	25	0	0	40	
April	300	632	1	0	>300	1 bream
May	200	548	0	4	>200	1 bream, 2 tench
June	300	637	0	1	36	1 tench
July	600	1823	0	16	104	1 bream
August	520	1559	0	25	82	
Sept-Nov	210	267	1	5	6	
Total	2290	5491	1	52	>700	3 bream, 3 tench

Table 3. Numbers of eels and other fish caught in fyke nets set overnight in rivers, lagoons and estuaries.

	Effort	Eels	Trout	Pike	Perch	Others
RIVERS						
Barrow	39	278	0	1	4	4 rudd, 3 gudgeon
Blackwater	75	433	14	0	2	24 roach, 18 flounder, 8 dace, 4 gudgeon, 2 parr
Corrib	27	172	0	5	3	2 smolt
Nore	21	2500	7	0	0	4 parr, 2 gudgeon, flounder
Shannon	49	57	0	2	2	
Total	211	3138	21	8	11	
ESTUARIES & LAGOONS						
Blackwater	489	2221	7	0	0	3 salmon, 4parr, 1 roach 6 bass, 2 mullet, flounder
South Sloblands	36	382	0	0	0	369 rudd

Table 4. Numbers of eels and other fish caught in fyke nets set for periods greater than 24 hours.

	Effort	Eels	Trout	Pike	Perch	Others
Days 2	218	295	0	3	8	8 char
3-6	621	932	3	2	25	1 salmon, 29 char
10-16	551	81	2	0	36	11 char, stickleback
Total	1390	1308	5	5	36	

Trout per 1,000 net nights : 3.8