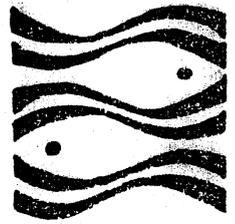




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Interaction Between Seals And Salmon
Drift Net Fisheries In The West Of Ireland

By

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Fishery Leaflet 126

May 1985

Department of Fisheries and Forestry, Dublin 2

The common seal Phoca vitulina L. and the grey seal Halichoerus grypus F. are both present in colonies along the west coast. The common seal inhabits bays and estuaries and inlets with sandy bars mainly in Galway Bay, Clew Bay, Co. Mayo, Ballysadare Bay, Co. Sligo and Donegal Bay. The grey seal is more widely dispersed particularly in the summer months and can be seen in bays, estuaries and offshore islands. Widespread complaints by salmon fishermen in Galway Bay of severe predation by seals on salmon caught in drift nets in 1978 led to a programme to study the problem.

In 1979 and 1981 direct observations on board two salmon drifters were made in Galway Bay and in 1980 and 1981 similar work took place on three boats in Sligo Bay. In addition, two crews were interviewed in port each evening. In 1980 salmon landed in Donegal, Galway and Kenmare were examined at market points and the number of seal damaged fish recorded.

This Leaflet gives the results of the study and concludes that effective control requires measures against the seals which are actually robbing the nets. Destruction of seals at breeding colonies is unlikely to have any positive effect on the rate of predation.

Methods

The criterion selected to evaluate seal predation or net robbing was the presence of damaged, partially eaten salmon or salmon heads in the net when hauled. In some instances the whole salmon is eaten, leaving no trace except the presence of salmon oil on the surface similar to a small oil slick. However, this evidence was not considered sufficiently reliable in establishing a predation rate and is not included in the results.

Galway Bay 1979 and 1981

From 1 to 28 June 1979 direct observations on board two salmon drifters were made (Table 1). In this period 292 salmon were landed by the two boats. Of these 238 were clean fish and 54 had been damaged by seals: a predation rate of 18.5 per cent. In 1981 there was an increase in the numbers of damaged salmon. From 16 June to 3 July, 229 fish were landed of which 59 were damaged leaving mainly heads: a predation rate of 25.7 per cent.

No direct observations were made on board smaller vessels, however, the predation rate was considered so severe that three of the six smaller (16-22ft) craft tied up in the third week of June 1981. Information collected either at sea or in port each evening showed that in the period 16 June to 2 July a total of 135 salmon were caught by the small boats. Of these 59 were damaged: a predation rate of 44.5 per cent. In most instances of net robbing in 1979 and 1981 seals were observed close to the drift nets and on a number of occasions were seen taking salmon from the nets and swallowing them whole, the seal rising up in the water to accomplish the task.

From direct observations of seals preying on salmon drift nets in Galway Bay, the species responsible were predominantly common seals and a small number of grey seal bulls. Occasionally seals became entangled in the nets and drowned, a number of these were examined and identified as common seals. This corresponds with the numbers of grey and common seals in the Bay recorded by Lockley (1966) and Summers et al (1980).

Sligo Bay 1980 and 1981

From 11 to 23 July 1980 an on board survey of the incidence of net robbing was made from three boats drift netting for salmon and a further two crews were interviewed in port each evening. A total of 439 salmon were captured by the five boats in the survey period, of these heads and partially eaten remains of 35 fish were recovered in the nets: a predation rate of 7.5 per cent. A similar survey was undertaken by Mr. C. Crowley, Forest and Wildlife Service, on six salmon drifters in June and July 1981. A total of 2123 salmon were landed of which 209 were damaged: a predation rate of 9.8 per cent.

The seals responsible for the net robbing in Sligo Bay from observations on board fishing vessels were predominantly common seals with a small number of grey seals. Ballysadare Bay, the next inlet south of the fishery is one of the main breeding sites of the common seal in Ireland (Lockley 1966; Summers et al; 1980).

Examination of salmon landed for sale in 1979-1980

In 1979 drift net caught salmon numbering 14 900 at Galway and Aran Co-op were examined. Seal damaged fish accounted for 64 of these or 0.43 per cent of the 1979 catch. This figure does not reflect the true predation rate in the fishery. The majority of the salmon taken by seals from drift nets are eaten from the meshed side and all that remains is the head meshed in the net. Damaged or headless salmon on the other hand are brought home by the fishermen or sold to local hotels and restaurants so very few damaged fish are sent to the co-op. It is assumed that the very low level of predation witnessed in other landing areas is also due to other outlets and poor prices for the damaged fish.

In 1980 25 455 drift netted salmon were examined in fishery Co-ops in Donegal, Mayo, Galway and Kerry. In Table 2 the numbers and percentage of damaged fish in relation to the catch examined is given. A very small percentage of the fish were damaged, agreeing with the results obtained in Galway in 1979.

Conclusions

The results of this study are disquieting, suggesting that predation by seals on salmon drift net fisheries is increasing and that both species of seal are responsible. In the experience of the observers on board drifters it is a race between seal and man for a salmon captured in the net and only for the alertness of the fisherman many more salmon would be eaten from the nets. In Galway Bay fishermen had little trouble from seals before 1979 but since then damage has increased each year.

It is known that illegal stake nets were used in Galway Bay up to the mid 1970s but since then they have been abandoned due to heavy seal predation. Salmon caught in nets such as stake nets and left in some cases for days, attract seals which in time have learnt to eat from the nets without becoming entangled.

The illegal kill in 1981 of grey seals on the Iniskea Islands, the main breeding colony in Ireland (Summers et al, 1980), illustrates the extreme frustration of the North Mayo salmon drift netmen. However, young grey seals are highly mobile, migrating distances of over 600 miles in the summer months to feed, (Lockley, 1966). The population of grey seals in the west of Ireland was estimated in 1980 as 2 000, (Summers et al 1980). The size of these herds is insignificant compared to the Scottish herds estimated at 43 000 in 1977, situated on the Orkneys, Outer Hebrides and North rona.

Seal tagging investigations 1979-1983 by the Sea Mammal Research Unit at the major Scottish grey seal breeding sites show that seals tagged in the Hebrides, Orkneys and North Rona were recovered along the north west and west coasts of Ireland mostly at sea in fishing nets. Hebrides:- 2 recoveries, Orkneys: - 3 recoveries and North Rona: - 2 recoveries. These results suggest a migration of immature feeding grey seals along the west coast of Ireland in the summertime at the height of the salmon drifting season. A further reduction of the main herd in the Iniskea's by culling during the breeding season is unlikely to have any significant impact on the predation rate in the area.

Acknowledgements

I would like to thank the fishermen who helped in the study:

Liam Flaherty and Sean Walsh, Spiddal and Harry Ewing and John Kilgannon, Sligo.
Paul Gleeson, James Carroll and Elizabeth Barnwall of the Fisheries Research Centre.
Charles Crowley, Wildlife Officer, Sligo Region and Michael O Brian, bursary student.

A special word of thanks to Miss Eileen Twomey, Inspector of fisheries, the Sea Mammal Research Unit, Cambridge for providing data on predation and tagging of seals and Dr. Chris Moriarty for his critical reading of the manuscript.

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Table 1 Results of seal observations from chartered vessels.

	Total Landings	Predation Losses	Predation Losses(%)
Galway Bay 1979	292	54	18.5
Galway Bay 1981	229	59	25.7
Sligo Bay 1980	439	33	7.5
Sligo Bay 1981	2123	209	9.8

Table 2 Incidence of seal damaged salmon landed for sale in Burtonport, Co. Donegal, North Mayo, Galway Bay and Kenmare, Co. Kerry in 1980.

Place	Origin of Catch	Dates Examined	Number of fish Examined	Number seal Damaged	Percentage
Burtonport	Donegal Drift net fishery	17.6.80- 11.7.80	7935	62	0.78
North Mayo	North Mayo Drift net fishery	18.6.80- 18.7.80	2803	39	1.2
Galway	Galway Bay Drift net fishery	24.6.80- 24.7.80	9644	64	0.66
Kenmare	Kerry Drift net fishery	19.6.80- 10.7.80	5073	-	-