National Survey of Sea Lice (*Lepeophtheirus salmonis* Krøyer and *Caligus elongatus* Nordmann) on Fish Farms in Ireland - 2001

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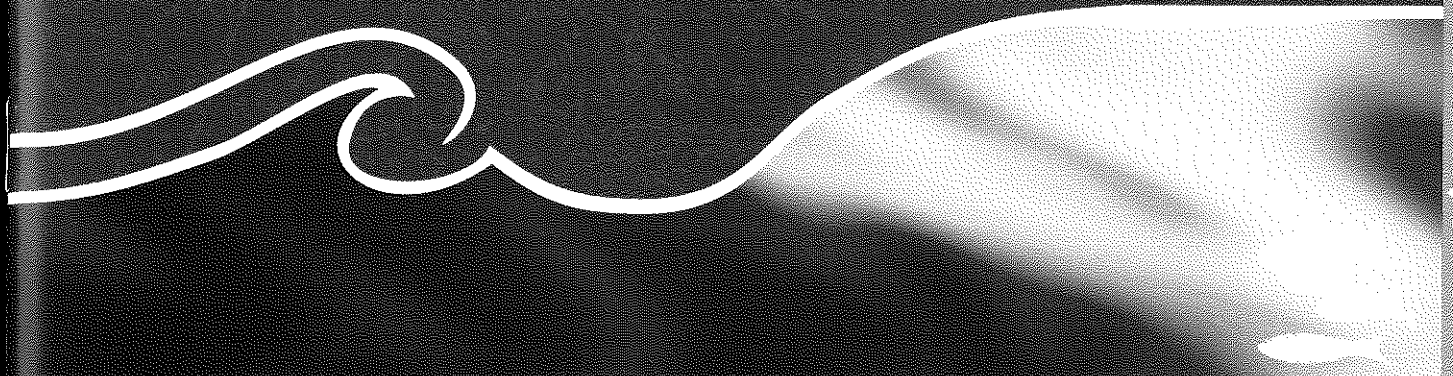

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NATIONAL SURVEY OF SEA-LICE (*LEPEOPHTHEIRUS SALMONIS* KRØYER AND *CALIGUS ELONGATUS* NORDMANN) ON FISH FARMS IN IRELAND – 2001

February 2002

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INTRODUCTION

Two species of lice are found on cultured salmonids, *Caligus elongatus* Nordmann, a species of parasite that infests over fifty different types of marine fishes, and *Lepeophtheirus salmonis* Krøyer, which infests only salmon and other salmonids. The Salmon Louse (*L. salmonis*) is regarded as the more serious parasite of the two species and has been found to occur most frequently on Irish farmed salmon (Jackson and Minchin, 1992). Most of the damage caused by these parasites is thought to be mechanical, carried out during the course of attachment and feeding (Kabata, 1974; Brandal *et al.*, 1976; Jones *et al.*, 1990). Inflammation and hyperplasia (enlargement caused by an abnormal increase in the number of cells in an organ or tissue) have been recorded in Atlantic salmon in response to infections with *L. salmonis* (Jones *et al.*, 1990; Jonsdottir *et al.*, 1992; Nolan *et al.*, 2000). Increases in stress hormones caused by sea lice infestations have been suggested to increase the susceptibility of fish to infectious diseases (MacKinnon, 1998). Severe erosion around the head caused by heavy infestations of *L. salmonis* has been recorded previously (Pike, 1989; Berland, 1993). This is thought to occur because of the rich supply of mucus secreted by mucous cell-lined ducts in that region (Nolan *et al.*, 1999). In experimental and field investigations carried out in Norway heavy infestation was found to cause fish mortalities (Finstad *et al.*, 2000).

Lepeophtheirus salmonis (Caligidae) has a direct life cycle, meaning it uses a single host. After hatching from the egg (which is extruded from the adult female louse in paired egg strings) two free-living nauplii stages are dispersed into the water column. A copepodid stage then follows during which a host must be located before the parasite can develop further. After finding a host the copepodid moults through four chalimus stages, which all occur while the parasite is attached to the host, before developing into a mobile pre-adult male or female. A moult then separates two pre-adult stages after which the fully mature adult develops. The adult female is capable of producing a number of batches of paired egg-strings during her life-span, which in turn hatch into the water column giving rise to the next generation. This gives a total of ten stages through which the parasite must develop to reach adulthood (see Figure 1) (Kabata, 1979; Schram, 1993).

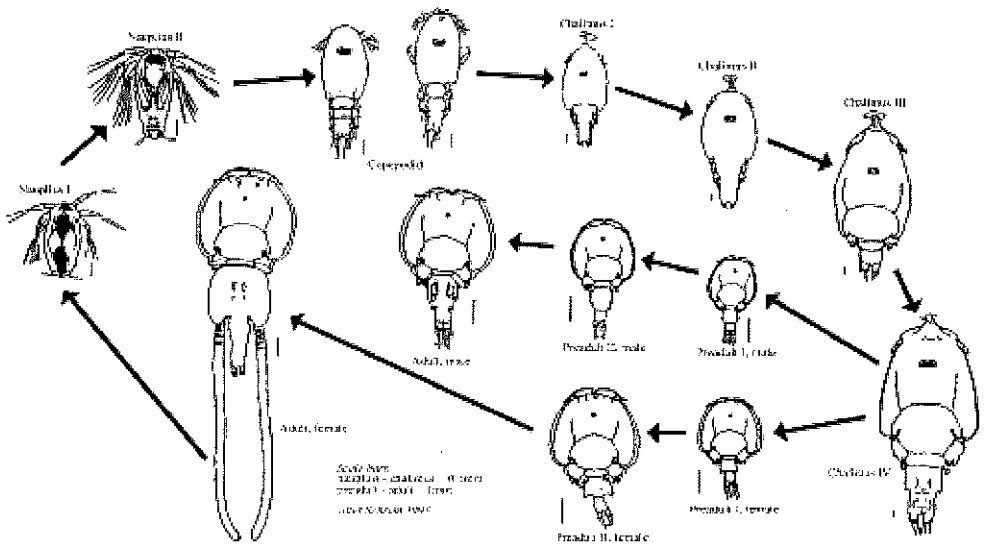

Figure 1 Life cycle of *Lepeophtheirus salmonis* Krøyer (Schram, 1993).

Caligus elongatus is a non-host specific parasite and can be found on many different fish species (Kabata, 1979). It has a similar life cycle to that of *L. salmonis* (Hogans and Trudeau, 1989).

Four groups of farmed fish were examined during sea-lice inspections in 2001. These include rainbow trout, salmon smolts (2001 generation), one sea-winter salmon (2000 generation) and two sea-winter salmon (1999 generation). S1/2's or half year smolts are fish which are transferred to sea in Autumn/Winter of the same year that they are hatched, they smoltify early due to a photoperiod manipulation (Willoughby, 1999). Their S1 siblings smoltify and are put to sea in early spring. S1/2's are included in each year class of fish for the purpose of analyses.

MATERIALS AND METHODS

Lice inspections take place 14 times a year on salmon farms. There is one lice inspection per month at each site where fish are being farmed, with two inspections taking place each month during the spring period March to May. During the months December to January only one inspection takes place. Two cages are sampled at each inspection for each generation of fish on-site. One of these cages is sampled at each inspection, with a second cage being chosen on the day of sampling. Thirty fish are sampled from each cage inspected. These are then anaesthetised in a bin, which in turn is also examined at the end of the sampling for any detached lice. Every fish is examined individually for all mobile lice which are removed using forceps and placed in 30ml screw top plastic bottles containing 70% ethanol, one bottle per fish. The mean figure obtained per cage is derived by adding the number of lice taken per fish and the number from the bin, and dividing by the number of fish examined.

The mean figure per visit used in this report is derived from the mean of the two cages sampled at each inspection. Mobile lice include both sexes that have developed beyond the attached larval stages of development. Total mobile levels estimate successful infection. Ovigerous lice are egg producing adult females, whose levels estimate the successful breeding population. Mean values are presented for both ovigerous and mobile lice levels per sampling visit (Appendix 1) for both species of lice. The regularity of the sampling allows the trends in the population at the site to be evaluated and rapid increases in these to be detected, and acted upon. Effective parasite control is characterised by a drop in lice levels in the subsequent inspection.

RESULTS

Rainbow trout

During the year 2001 there were four sites stocking rainbow trout. The fourth, a new farm in Waterfall, Co. Cork, stocked trout towards the latter part of the year. A total of 38 farm visits were undertaken during the year. Levels of lice of both species remained very low during the year. Slightly elevated mobile *Lepeophtheirus salmonis* were encountered at one farm but levels were always controlled for the next inspection. Mean values for each farm visit can be seen in Appendix 1.

Atlantic salmon 2001 (Smolts)

Thirty-three sites had smolts during the year 2001, including S1's and S1/2's. A total of 188 visits were undertaken during the year. Overall lice levels remained low. During the critical spring period mean ovigerous *Lepeophtheirus salmonis* did not exceed levels the treatment trigger level of 0.5 ovigerous lice per fish. Outside of the critical spring period 131 of visits showed mean ovigerous *L. salmonis* levels at less than 1.0. On 3 occasions lice levels were between 1.0 and 2.0 ovigerous females per fish and on only one occasion the mean ovigerous level was greater than 2.0. There were 13 occasions when mobile lice levels were slightly elevated at a level above 4.0 per fish.

Very low levels of *Caligus elongatus* were recorded throughout the year on this generation of fish. On only 1 occasion were ovigerous *C. elongatus* levels greater than 2.0, with the same visit showing mobile levels slightly elevated at greater than 4.0. There were 3 occasions when ovigerous levels were greater than 1.0. At every other visit ovigerous levels were below 1.0 per fish and below 4.0 mobile lice.

Atlantic salmon 2000 (one sea-winter growers)

Both S1's and S1/2's are regarded as the same generation and are referred to as one sea-winter salmon in the analysis of lice levels in the year 2001. There were 265 visits to 31 sites growing the 2000 salmon generation in 2001. In the main *Lepeophtheirus salmonis* levels were controlled throughout the year. Ovigerous *L. salmonis* levels were greater than the treatment trigger levels of 2.0 and 0.5 ovigerous lice per fish in a total of 43 inspections. Twenty-eight of these occurrences were within the critical spring period when lice levels are set close to zero, to be no greater than 0.5 ovigerous lice per fish. Fifteen of these occurrences were outside the critical spring period when ovigerous lice treatment trigger levels are set at a mean of 2.0 per fish. Slightly elevated mobile *L. salmonis* levels greater than 4.0 per fish were recorded on 45 occasions. Sixteen of these were within the critical spring period with 29 outside of this period.

A total of 31 sites in 13 bays contained one sea-winter salmon during the course of the year 2001. A total of 6 bays still had growers in November 2001. Three sites in the western region; Ardmore, Corhounagh and Clare Island, had sustained high levels of lice before harvesting was complete. Harvesting was concluded in August, October in Ardmore and Corhounagh respectively. Clare Island continued to harvest into January of 2002. Two sites in the northwest, Ocean Inver and Eany, showed poor control of lice during the critical spring period. The latter of these two sites achieved control

before harvesting out, while the other did not. Both Eany and Inver completed harvesting in July 2001.

Caligus elongatus levels were normally maintained at a very low level throughout the year. There were 11 inspections when ovigerous lice levels were greater than 2.0 per fish and mobile lice were greater than 4.0 per fish. There was also one other occasion when mobile levels were greater than 4.0. When examined together with *L. salmonis* levels there were 8 occasions when both species showed elevated levels (ovigerous or mobile) at the same inspection.

Atlantic salmon 1999 (two sea-winter fish)

There were three sites at the beginning of 2001 that had 1999 (or two sea-winter) salmon on site. One of these sites was Cuan Baoi, Bantry Bay in the southwest, and the other two sites situated in the northwest, Carntullagh Pt. in Donegal Bay and Lough Swilly. A total of four visits were undertaken to these sites before harvesting was completed. *Lepeophtheirus salmonis* and *Caligus elongatus* levels on these fish were elevated for one of these sites (Cuan Baoi) before harvesting was completed. On the second site (Carntullagh Pt.) there were two consecutive lice inspections in January and February where levels (both species) were kept at a very low level prior to harvesting. The third site (Lough Swilly) had elevated *L. salmonis* levels but *C. elongatus* levels were very low. There were no 1999 generation salmon at sea after March 2001.

Monthly Trends: *Lepeophtheirus salmonis* and *Caligus elongatus*

Mean ovigerous and mean mobile *Lepeophtheirus salmonis* and *Caligus elongatus* levels are shown in Table 1 for each month of sampling, per bay, during the year 2001, for one sea winter salmon. On five occasions during the critical spring period mean ovigerous *L. salmonis* levels were greater than the treatment trigger level of 0.5 per fish. These occurred in Bantry, Mannin, Donegal and Mulroy Bays. Two of these were successive visits to Bantry Bay, after which the level was reduced. Successive visits to the other three bays showed control had been achieved. Ovigerous *L. salmonis* levels greater than 2.0 per fish outside of the critical spring period were recorded in five bays on 10 occasions. Generally these occurred during periods when fish were under harvest. Outside of harvest time there was one occasion when ovigerous lice levels were greater than 2.0 per fish but these levels were controlled for the subsequent inspection. In Clew Bay there were three successive visits at which mean ovigerous lice levels were greater than the previous visits. Mobile lice levels greater than 4.0 per fish were seen in eight bays on 18 occasions throughout the year.

Caligus elongatus levels during the year 2001 were very low. There were five occasions when ovigerous lice levels were above 2.0 per fish and above 4.0 mobile lice per fish. On one of the above occasions lice levels were unusually high for both ovigerous and mobile levels and that was in the month of January in Kenmare Bay.

Regional Monthly Means

Monthly mean figures for *Lepeophtheirus salmonis* are shown in Figures 2 and 3 for each of the three regions inspected during the year 2001 for one sea-winter salmon. *Lepeophtheirus salmonis* levels have been decreasing steadily over the past three years (Copley *et al.* 2001). There was however, an increase in the western region during the months of September and October 2001. During these months harvesting was being carried out. Their rises in lice levels can be attributed to one farm in September and two farms in October and are not an indication that lice levels were rising as a whole. This is also reflected in the increase in the width of the error bars in September and October.

Annual trends

Figures 4 and 5 compare the lice level trends on one sea-winter salmon in the month of May from 1991 to 2001. The mean number of egg bearing (ovigerous) lice per fish, and the mean number of mobile lice per fish are examined. The May 2001 levels are lower for both ovigerous and total mobile lice than the previous year and continue the downward trend since 1998.

Table 1 Mean ovigerous and mean mobile *Lepeophtheirus salmonis* and *Caligus elongatus* per month, for one sea-winter salmon for each bay inspected in the year 2001.

Mean ovigerous *Lepeophtheirus salmonis*

	Bantry Bay	Kenmare Bay	Greatman's Bay	Kilkieran Bay	Bertraghboy Bay	Mannin Bay	Killary Harbour	Ballinakill Bay	Clew Bay	Bealacragher Bay	Donegal Bay	Mulroy Bay	Lough Swilly
January	0.23	0.57	0.28	0.46	0.01	1.10	0.18	0.20	0.88	0.00	0.24	0.65	7.67
February	1.04	0.29	0.24	0.37	0.10	0.24	0.02	0.20	0.31	0.01	0.38	0.21	Missed *
March	0.73	0.39	0.33	0.21	0.01	0.19	0.02	0.29	0.00	0.00	0.40	0.05	0.01
April	0.50	0.16	HO	0.04	0.00	0.92	0.03	0.02	0.12	HO	0.92	0.07	0.03
May	0.30	0.35	-	0.11	0.00	0.08	0.00	0.04	0.01	-	0.31	0.62	0.32
June	0.02	0.32	-	0.00	0.00	0.00	0.00	0.03	0.07	-	0.71	0.07	0.07
July	0.12	0.13	-	4.34	0.00	0.00	0.00	Fallow	0.13	-	0.05	0.36	0.00
August	0.09	0.47	-	4.00	HO	0.10	1.23	Fallow	2.61	-	0.10	0.10	0.57
September	0.20	0.43	-	HO	-	9.16	HO	Fallow	Missed *	-	0.79	0.33	1.26
October	0.60	0.52	-	-	-	7.92	-	Fallow	2.95	-	0.30	0.84	2.26
November	0.33	1.55	-	-	-	HO	-	Fallow	3.73	-	7.50	1.28	0.37

Mean mobile *Lepeophtheirus salmonis*

	Bantry Bay	Kenmare Bay	Greatman's Bay	Kilkieran Bay	Bertraghboy Bay	Mannin Bay	Killary Harbour	Ballinakill Bay	Clew Bay	Bealacragher Bay	Donegal Bay	Mulroy Bay	Lough Swilly
January	2.96	1.35	1.17	2.18	0.17	14.12	0.47	1.22	4.35	0.00	3.23	2.06	18.17
February	3.67	0.87	1.35	1.31	0.43	0.65	0.48	1.31	1.18	0.02	2.91	0.47	Missed *
March	2.96	2.62	2.12	0.90	0.05	2.72	0.14	1.67	0.02	0.07	2.62	0.08	0.38
April	3.31	2.37	HO	0.40	0.01	3.57	0.08	0.31	0.65	HO	3.50	0.27	0.39
May	1.45	2.98	-	0.73	0.01	0.55	0.00	0.17	0.06	-	1.12	2.76	1.23
June	0.03	1.88	-	0.23	0.01	0.03	0.00	0.10	0.17	-	3.79	0.54	0.17
July	0.54	0.78	-	13.72	0.00	0.05	0.07	Fallow	1.30	-	1.08	0.53	0.08
August	0.37	7.59	-	12.43	HO	0.60	9.17	Fallow	7.73	-	0.28	0.40	2.19
September	0.45	1.18	-	HO	-	27.67	HO	Fallow	Missed *	-	3.89	0.49	6.06
October	1.63	1.33	-	-	-	29.60	-	Fallow	26.04	-	1.36	4.48	6.80
November	0.80	4.58	-	-	-	HO	-	Fallow	11.46	-	34.15	5.84	1.25

Mean ovigerous *Caligus elongatus*

	Bantry Bay	Kenmare Bay	Greatman's Bay	Kilkieran Bay	Bertraghboy Bay	Mannin Bay	Killary Harbour	Ballinakill Bay	Clew Bay	Bealacragher Bay	Donegal Bay	Mulroy Bay	Lough Swilly
January	1.32	14.72	0.58	0.40	1.14	0.04	0.04	0.10	1.17	0.00	0.15	0.00	0.42
February	1.48	1.04	1.14	0.10	1.10	0.00	0.02	0.05	0.13	0.00	0.10	0.02	Missed *
March	0.35	1.68	3.13	0.05	0.00	0.01	0.00	0.05	0.00	0.00	0.23	0.00	0.00
April	0.31	0.28	HO	0.01	0.00	0.00	0.00	0.00	0.22	HO	0.36	0.00	0.02
May	0.20	0.13	-	0.07	0.00	0.00	0.01	0.00	0.03	-	0.04	0.47	0.20
June	0.08	0.03	-	0.02	0.00	0.00	0.10	0.03	0.38	-	0.19	0.00	0.00
July	1.52	0.04	-	3.55	0.03	0.00	0.03	Fallow	3.60	-	0.13	0.02	0.00
August	1.05	1.30	-	0.60	HO	0.09	2.17	Fallow	1.70	-	0.01	0.02	0.04
September	0.07	0.10	-	HO	-	0.12	HO	Fallow	Missed *	-	0.00	0.04	0.00
October	0.20	0.23	-	-	-	0.19	-	Fallow	1.08	-	0.00	0.07	0.03
November	0.33	1.20	-	-	-	HO	-	Fallow	0.03	-	0.12	0.10	0.00

Mean mobile *Caligus elongatus*

	Bantry Bay	Kenmare Bay	Greatman's Bay	Kilkieran Bay	Bertraghboy Bay	Mannin Bay	Killary Harbour	Ballinakill Bay	Clew Bay	Bealacragher Bay	Donegal Bay	Mulroy Bay	Lough Swilly
January	2.72	20.64	1.08	0.72	1.47	0.07	0.37	0.24	2.80	0.00	0.42	0.02	1.75
February	3.09	1.74	3.44	0.14	1.35	0.00	0.10	0.09	0.36	0.00	0.25	0.04	Missed *
March	0.82	3.50	5.46	0.15	0.00	0.03	0.02	0.12	0.00	0.00	0.53	0.00	0.00
April	1.13	1.00	HO	0.04	0.00	0.02	0.00	0.01	0.27	HO	0.63	0.01	0.03
May	0.53	0.18	-	0.13	0.01	0.01	0.02	0.00	0.07	-	0.08	0.92	0.35
June	0.29	0.06	-	0.04	0.00	0.00	0.14	0.10	0.96	-	0.57	0.05	0.00
July	2.68	0.06	-	7.31	0.05	0.02	0.03	Fallow	8.55	-	0.24	0.04	0.00
August	1.88	2.83	-	1.00	HO	0.19	4.00	Fallow	3.68	-	0.03	0.07	0.07
September	0.11	0.20	-	HO	-	0.18	HO	Fallow	Missed *	-	0.12	0.04	0.02
October	0.27	0.45	-	-	-	0.25	-	Fallow	2.82	-	0.00	0.35	0.05
November	0.40	2.10	-	-	-	HO	-	Fallow	0.10	-	0.34	0.37	0.00

* Missed due to adverse weather conditions HO = Harvested out

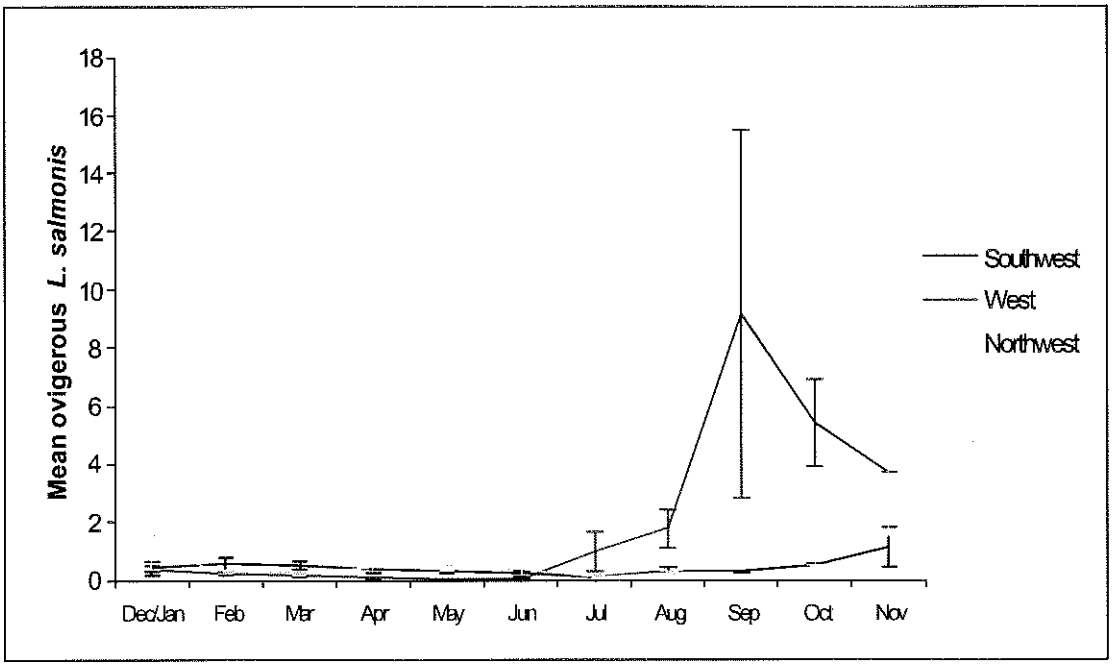

Figure 2 Mean ovigerous *L. salmonis* per month per region in 2001.

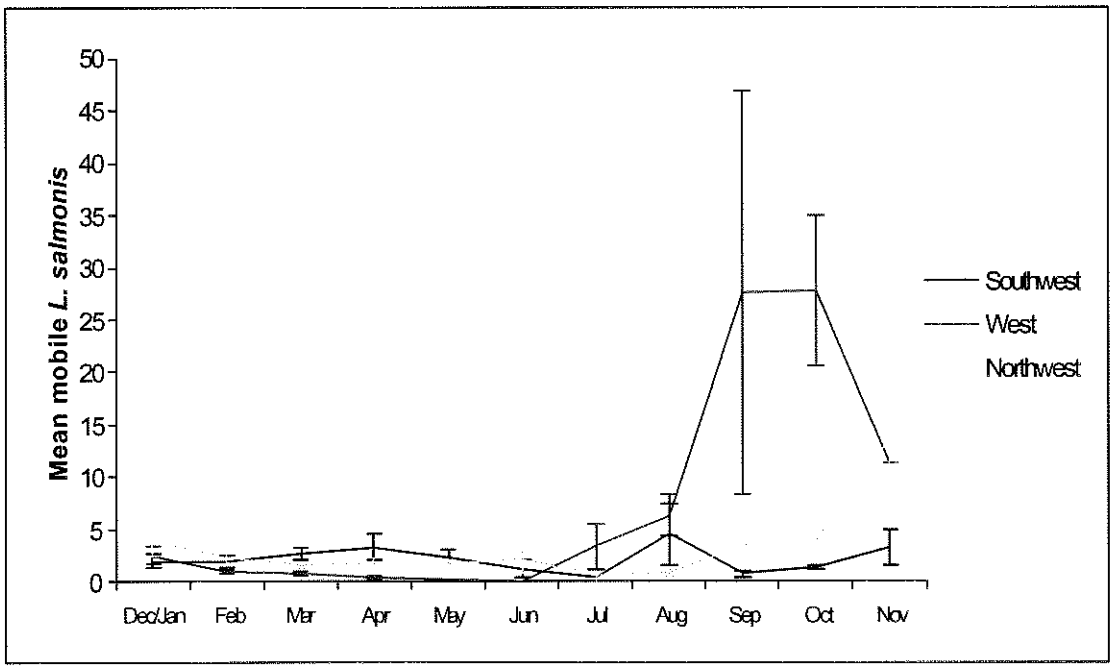

Figure 3 Mean mobile *L. salmonis* per month per region in 2001.

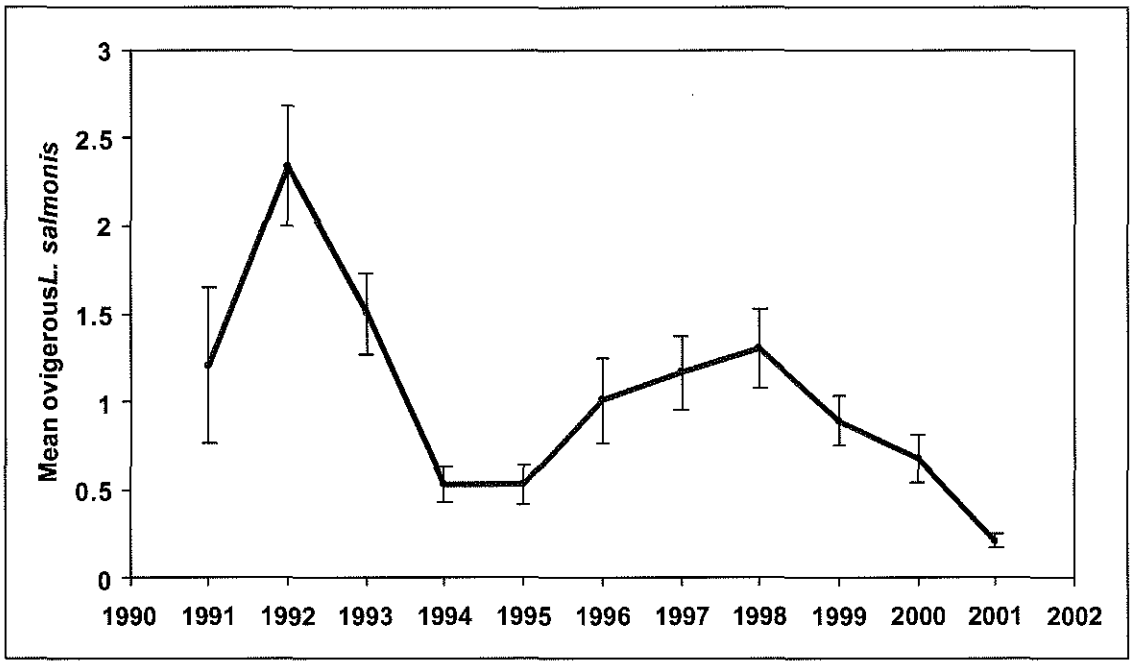

Figure 4 Mean (SE) ovigerous *L. salmonis* on one sea-winter salmon.

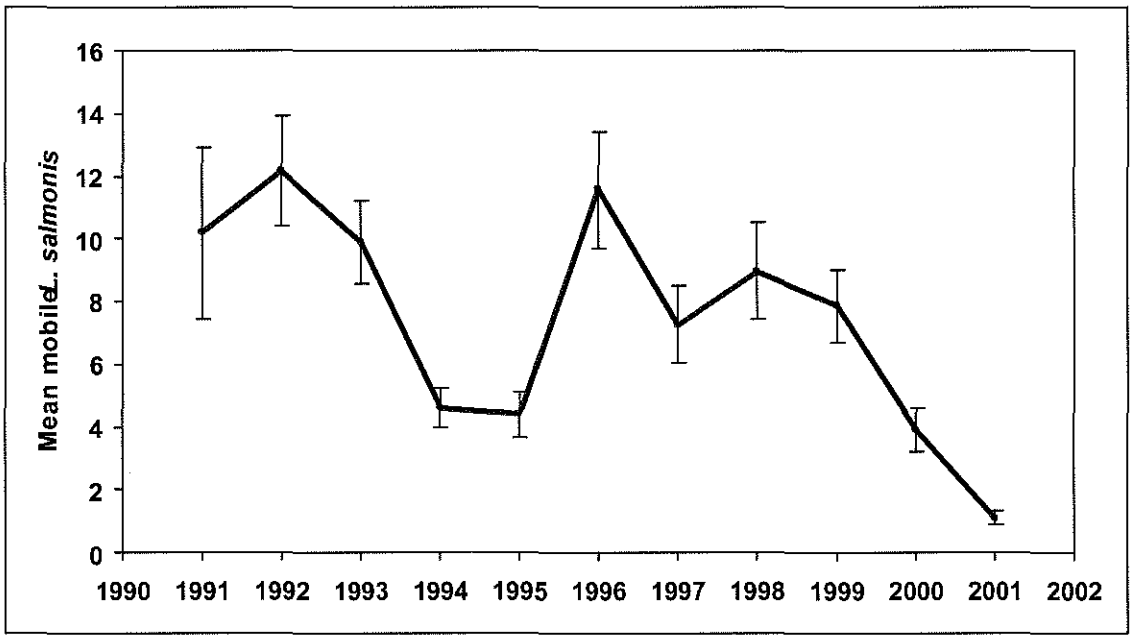

Figure 5 Mean (SE) mobile *L. salmonis* on one sea-winter salmon.

COMMENTS

The Department of the Marine and Natural Resources set in place the Lice Monitoring Protocol in May 2000 (Monitoring Protocol No. 3 for Offshore Finfish Farms - Sea Lice Monitoring and Control) in response to concerns being expressed that salmonid smolts journeying to sea for the first time were being negatively impacted on by high burdens of lice transferring from farmed salmonids (Jackson *et al.*, 1997).

Under the above protocol all finfish farms are obliged to monitor sea lice on an ongoing basis and to take remedial action when necessary.

There are four purposes of the National Sea Lice-Monitoring Plan, namely:

· To provide an objective measurement of infestation levels on farms

· To investigate the nature of the infestations

· To provide management information to drive implementation of the control and management strategies

· To facilitate further development and refinement of the control and management strategies.

The sea lice monitoring and control strategy has five principal components:
Separation of generations, annual fallowing of sites, early harvest of two sea-winter fish, targeted treatment regimes, including synchronous treatments and agreed husbandry practices

Together, these components work to reduce the development of infestations and to ensure the most effective treatment of developing infestations. They minimise lice levels whilst controlling reliance on, and reducing use of, veterinary medicines. The separation of generations and annual fallowing prevent the vertical transmission of infestations from one generation to the next, thus retarding the development of infestations. The early harvest of two sea winter fish removes a potential reservoir of lice infestation and the agreed practices and targeted treatments enhance the efficacy of treatment regimes. One important aspect of targeted treatments is the carrying out of autumn / winter treatments to reduce lice burdens to as close to zero as practicable on all fish, which are to be over-wintered. This is fundamental to achieving zero / near zero egg bearing lice in spring. The agreed husbandry practices cover a range of related fish health, quality and environmental issues in addition to those specifically related to lice control.

The setting of appropriate treatment triggers is an integral part of implementing a targeted treatment regime. Treatment triggers during the spring period are set close to zero in the range of from 0.3 to 0.5 egg bearing females per fish and are also informed by the numbers of mobile lice on the fish. Where numbers of mobile lice are high, treatments are triggered even in the absence of egg bearing females. Outside of the critical spring period, a level of 2.0 egg bearing lice acts as a trigger for treatments. This is only relaxed where fish are under harvest and with the agreement with the Department of Marine and Natural Resources or its agent.

Over the period since the initiation of Single Bay Management, treatment triggers have been progressively reduced from a starting point of 2.0 per fish during the spring period to the current levels which are the optimal sustainable at present. These trigger

levels are kept under review in the light of advances in lice control strategies. Triggered treatments are underpinned by follow up inspections and, where the Department or its agent considers it to be necessary, by sanctions. Sanctions employed include, peer review under the SBM process, conditional fish movement orders and accelerated harvests.

All fish farms operating in a particular bay are required to undertake appropriate synchronous sea lice treatment and control strategies through the Single Bay Management/CLAMS process. The Department of Marine and Natural Resources or its agent reserves the right to devise appropriate strategies for synchronous action by fish farms in any bay.

Single Bay Management in Kilkieran Bay in the last year has been very successful. Lice control was very successful with the exception of one site, Ardmore. This control of sea lice levels was brought about through the implementation of Single Bay Management, with synchronous treatments for the bay being arranged on two occasions, in March and May.

From Appendix 1 it can be seen that in the year 2001 lice levels were controlled in line with the DoMNR protocols. Only 46 of 495 inspections (all samples included) exceeded the treatment trigger levels throughout the year. Fifteen of the total occurred while fish were under harvest, in the ultimate and penultimate inspection before harvesting was completed.

SUMMARY

Good control of lice on one sea-winter salmon was observed in the year 2001. Where higher lice levels were recorded they were usually associated with harvest practices or in the preceding inspections before harvesting was completed. Control of higher lice levels outside of harvest periods was generally observed.

Lice levels on rainbow trout were very low throughout the year for both *L. salmonis* and *C. elongatus*.

Lice levels on smolts were maintained at a very low level during 2001. Elevated ovigerous *L. salmonis* levels outside the treatment trigger of 2.0 per fish was observed on only one occasion, at the end of the year.

Glossary of terms used:

Ovigerous lice:	egg bearing female lice
Mobile lice:	all lice that are mobile on the fish (includes immature and adult lice)
Std. cage:	the selected cage which is sampled at each sampling session
Ran. (R) cage:	a cage which is selected by the inspector on the day of sampling
Smolt (S1):	this is a stage in the life cycle of the salmon when it changes from a freshwater fish to a seawater fish during the process of smoltification, generally in the Spring approximately 15 months after hatching
S1/2:	this is a smolt which has had a faster development than an S1 smolt and is ready to go to sea the Autumn/Winter before its siblings
Grower:	a fish which has been at sea for one year or more

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APPENDIX 1. SEA LICE MONITORING ON SALMONID FARMS 2001

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
BANTRY BAY					
BEARA ATLANTIC SALMON					
Roancarraig					
Atlantic salmon, 2000	16/01/01	0.00	2.10	1.70	2.70
S1/2	15/02/01	0.67	2.40	1.63	2.67
	Mar (1)	Missed due to adverse weather conditions			
	21/03/01	0.87	3.90	0.63	1.03
Atlantic salmon, 2000	16/01/01	0.35	3.40	1.14	2.74
	15/02/01	0.89	3.45	1.19	2.82
	07/03/01	0.77	3.25	0.26	0.84
	21/03/01	0.20	1.19	0.02	0.04
	03/04/01	0.08	0.32	0.02	0.02
	19/04/01	0.07	0.18	0.00	0.15
	09/05/01	0.05	0.12	0.05	0.07
	23/05/01	0.23	0.29	0.04	0.04
	20/06/01	0.00	0.00	0.12	0.41
	11/07/01	0.00	0.12	0.59	0.88
	07/08/01	0.12	0.54	1.52	2.68
	11/09/01	0.21	0.55	0.10	0.17
LASINGERS					
Cuan Baoi					
Atlantic salmon, 1999	16/01/01	3.82	14.82	4.36	8.45
Atlantic salmon, 2000	15/02/01	1.73	5.37	1.90	4.07
	07/03/01	1.58	5.00	0.92	2.17
	03/04/01	1.75	6.50	0.75	3.00
	19/04/01	0.93	12.37	1.07	3.43
	09/05/01	1.20	7.47	1.00	2.87
	23/05/01	0.03	0.43	0.03	0.10
	20/06/01	0.07	0.10	0.00	0.07
	Jul	Missed due to adverse weather conditions			
	07/08/01	0.03	0.03	0.13	0.27
	11/09/01	0.17	0.27	0.00	0.00
	09/10/01	0.60	1.63	0.20	0.27
	13/11/01	0.33	0.80	0.33	0.40
Atlantic salmon, 2001	07/08/01	0.00	0.06	0.15	0.21
	11/09/01	0.03	0.06	0.03	0.03
	09/10/01	0.16	0.71	0.39	0.55
	13/11/01	0.10	0.50	0.27	0.67
JOHN POWER					
Waterfall					
Rainbow trout, 2001	13/11/01	0.00	0.29	0.31	0.98

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
KENMARE BAY					
BEARA ATLANTIC SALMON					
Deenish					
Atlantic salmon, 2001	09/07/01	0.00	0.00	0.05	0.10
	09/08/01	0.00	0.06	0.19	0.76
	21/09/01	0.13	0.28	0.60	1.24
	10/10/01	0.05	0.17	0.33	0.74
	14/11/01	0.05	0.36	0.98	1.91
Kealincha- Inishfarnard					
Atlantic salmon, 2000	17/01/01	0.12	0.54	0.12	0.27
	16/02/01	0.03	0.42	0.08	0.48
	09/03/01	0.14	1.12	0.35	1.23
	22/03/01	0.23	2.59	1.50	3.46
	04/04/01	0.18	1.06	0.65	1.24
	20/04/01	0.07	0.33	0.05	0.10
	10/05/01	0.02	0.05	0.00	0.00
	24/05/01	0.00	0.12	0.00	0.02
	21/06/01	0.00	0.00	0.04	0.05
	10/07/01	0.00	0.00	0.00	0.00
	08/08/01	0.08	0.92	2.37	5.05
	21/09/01	0.43	1.18	0.10	0.20
	09/10/01	0.52	1.33	0.23	0.45
	13/11/01	1.55	4.58	1.20	2.10
Atlantic salmon, 2001	10/07/01	0.00	0.00	0.03	0.13
	08/08/01	0.00	0.13	1.13	1.87
	21/09/01	0.17	0.50	0.47	0.80
	09/10/01	0.13	0.53	0.30	0.50
	13/11/01	0.03	0.10	0.10	0.13
Travara					
Atlantic salmon, 2000	17/01/01	0.17	0.43	0.33	1.23
	Feb	Fish transferred to Inishfarnard			
LASINGERS					
ST KILLIAN'S HARVEST					
Kilmacillogue					
Atlantic salmon, 2000	17/01/01	0.00	0.03	0.03	0.07
	16/02/01	0.34	0.61	0.13	0.15
	08/03/01	0.00	0.28	0.04	0.17
	22/03/01	0.66	3.03	0.86	1.50
	04/04/01	0.04	1.46	0.16	0.35
	20/04/01	0.37	6.90	0.28	0.51
	10/05/01	0.54	4.34	0.30	0.36
	24/05/01	0.84	7.43	0.23	0.35
	08/06/01	0.68	3.85	0.00	0.05
	21/06/01	0.27	1.80	0.07	0.08
	09/07/01	0.27	1.56	0.09	0.12
	08/08/01	0.87	14.25	0.24	0.60

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
Atlantic salmon, 2001	16/02/01	0.00	0.20	0.10	0.16
S1/2	08/03/01	0.00	0.50	0.09	0.15
	22/03/01	0.00	0.14	0.00	0.00
	04/04/01	0.00	1.29	0.06	0.53
	20/04/01	0.00	0.55	0.00	0.03
	10/05/01	0.00	0.32	0.03	0.10
	24/05/01	0.00	0.35	0.06	0.10
	08/06/01	0.03	0.66	0.06	0.16
	21/06/01	0.03	2.33	0.13	0.13
	09/07/01	0.03	1.42	0.09	0.18
	08/08/01	0.45	4.87	0.03	0.06
	12/09/01	0.00	0.33	0.00	0.00
	10/10/01	0.20	1.59	0.05	0.07
	14/11/01	0.59	5.95	0.20	0.47
Doon Pt.					
Atlantic salmon, 2000	17/01/01	2.00	4.40	58.40	81.00
	16/02/01	0.65	2.55	5.71	9.00
	09/03/01	0.63	3.57	3.03	6.37
	22/03/01	1.21	8.58	8.32	15.89
	04/04/01	1.87	10.40	4.63	7.93
GREATMANS BAY					
TBA TEO.					
Carraroe					
Atlantic salmon, 2000	23/01/01	0.28	1.17	0.58	1.08
S1/2	16/02/01	0.24	1.35	1.14	3.44
	02/03/01	0.33	2.12	3.13	5.46
Atlantic salmon, 2001	06/04/01	0.00	0.00	0.00	0.00
S1/2	23/04/01	0.00	0.00	0.02	0.02
	08/05/01	0.00	0.00	0.00	0.02
	24/05/01	0.00	0.00	0.10	0.14
	12/06/01	0.00	0.07	0.12	0.30
	17/07/01	0.08	0.82	0.04	0.10
	16/08/01	0.04	0.15	0.00	0.00
	07/09/01	0.02	0.10	0.02	0.03
	31/10/01	0.33	1.15	0.03	0.03
	28/11/01	0.30	1.88	0.15	0.52
KILKIERAN BAY					
MUIRACHMHAINNI TEO					
Daonish					
Atlantic salmon, 2000	15/12/00	0.15	2.36	0.07	0.66
	07/02/01	0.35	0.93	0.03	0.05
	01/03/01	0.47	1.82	0.10	0.34
	27/03/01	0.04	0.54	0.00	0.02
	09/04/01	0.08	0.29	0.00	0.00
	25/04/01	0.02	0.02	0.00	0.00
	30/05/01	0.02	0.07	0.04	0.07
	14/06/01	0.00	0.23	0.02	0.04

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
Atlantic salmon, 2001	16/10/01	0.30	2.12	0.07	0.08
	16/11/01	0.02	0.12	0.00	0.00
Casheen					
Atlantic salmon, 2000	01/03/01	0.15	1.14	0.02	0.05
	27/03/01	0.00	0.09	0.02	0.02
	09/04/01	0.01	0.11	0.00	0.00
	25/04/01	0.00	0.03	0.00	0.00
	11/05/01	0.00	0.02	0.00	0.00
Atlantic salmon, 2001	07/09/01	0.10	0.65	0.02	0.02
	16/10/01	0.87	1.97	0.03	0.07
	16/11/01	0.02	0.07	0.00	0.00
Red Flag					
Atlantic salmon, 2001	16/05/01	0.00	0.00	0.00	0.00
	19/07/01	0.00	0.02	0.04	0.04
	15/08/01	0.03	1.22	0.02	0.10
	Sept	Fish transferred to Daonish and Casheen			
MUIR GHEAL TEO					
Oilean Iarthach					
Atlantic salmon, 2001	14/06/01	0.00	0.00	0.00	0.00
S1/2	10/07/01	0.00	0.00	0.00	0.00
	24/08/01	0.95	4.98	0.00	0.00
	19/09/01	0.27	0.34	0.00	0.00
	Oct	Fish trasnferred to Cnoc			
Cnoc					
Atlantic salmon, 2000	30/01/01	0.02	0.07	0.00	0.00
S1/2	09/03/01	0.07	2.07	0.00	0.04
	28/03/01	0.09	0.30	0.00	0.04
	10/04/01	0.02	0.15	0.00	0.00
	30/04/01	0.00	2.51	0.06	0.12
Atlantic salmon, 2000	15/02/01	0.04	0.83	0.00	0.07
Atlantic salmon, 2001	31/10/01	1.95	7.82	0.03	0.07
S1/2	November	Missed due to adverse weather conditions			
Lettercallow					
Atlantic salmon, 2001	21/02/01	0.01	0.24	0.01	0.03
S1/2	09/03/01	0.00	0.47	0.05	0.05
	28/03/01	0.00	0.14	0.00	0.00
	10/04/01	0.00	0.08	0.00	0.00
	26/04/01	0.02	0.02	0.00	0.00
	14/05/01	0.00	0.00	0.00	0.00
	23/05/01	0.00	0.02	0.00	0.00
	Jun	Fish transferred to Oilean Iarthach			
TBA TEO.					
The Gurrig					
Atlantic salmon, 2000	23/01/01	0.44	1.19	0.00	0.02
S1/2	16/02/01	0.50	1.50	0.03	0.03
	02/03/01	0.18	0.50	0.04	0.07

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
Atlantic salmon, 2001	24/05/01	0.00	0.05	0.00	0.00
S1/2	12/06/01	0.02	0.95	0.07	0.17
	17/07/01	0.00	0.09	0.00	0.00
	16/08/01	0.08	3.54	0.00	0.05
	07/09/01	0.33	2.12	0.00	0.00
	31/10/01	0.27	1.44	0.02	0.12
	28/11/01	0.77	10.25	0.02	0.04
TBA TEO.					
Annaghbhan					
Atlantic salmon, 2001	16/02/01	0.00	0.00	0.00	0.00
S1/2	02/03/01	0.00	0.00	0.00	0.00
	26/03/01	0.00	0.00	0.00	0.00
	06/04/01	0.00	0.00	0.00	0.00
	23/04/01	0.00	0.00	0.00	0.00
	09/05/01	0.00	0.00	0.00	0.00
EISC UI FLATHARTHA TEO.					
Ardmore					
Atlantic salmon, 2000	19/01/01	2.41	9.12	3.00	4.06
	13/02/01	0.49	0.95	0.02	0.02
	13/03/01	0.88	2.44	0.35	0.82
	23/03/01	0.45	0.84	0.00	0.15
	03/04/01	0.12	0.22	0.00	0.05
	17/04/01	0.10	0.13	0.02	0.02
	25/04/01	0.03	0.07	0.02	0.03
	09/05/01	0.04	0.79	0.05	0.14
	17/05/01	0.05	1.14	0.19	0.40
	06/07/01	3.14	19.30	6.82	14.14
	27/07/01	5.53	8.13	0.27	0.47
	10/08/01	4.00	12.43	0.60	1.00
Atlantic salmon, 2001	24/10/01	0.91	2.55	0.07	0.07
	28/11/01	0.05	0.05	0.00	0.00
Birbeag					
Atlantic salmon, 2001	29/05/01	0.00	0.05	0.38	0.68
	28/06/01	0.02	0.63	1.12	2.51
	06/07/01	0.00	0.13	0.02	0.08
	10/08/01	0.10	1.29	0.22	0.37
	20/09/01	0.04	1.35	1.25	3.12
	Oct	Fish transferred to Ardmore			
GOLAM TEO.					
Golam					
Atlantic salmon, 2000	30/01/01	0.07	1.07	0.03	0.37
	14/02/01	0.49	2.34	0.43	0.52
	07/03/01	0.04	0.15	0.00	0.09
	22/03/01	0.00	0.02	0.00	0.03
	12/04/01	0.00	0.45	0.03	0.20
	11/05/01	0.35	1.32	0.08	0.08

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
BERTRAGHBOY BAY					
GAELIC SEAFOODS LTD					
Salt Pt.					
Atlantic salmon, 2000	24/01/01	0.02	0.17	1.15	1.47
	09/02/01	0.05	0.37	0.96	1.21
	12/03/01	0.00	0.02	0.00	0.02
	29/03/01	0.00	0.00	0.00	0.00
	11/04/01	0.00	0.02	0.00	0.00
	27/04/01	0.00	0.00	0.00	0.00
	18/05/01	0.00	0.00	0.00	0.00
	29/05/01	0.00	0.00	0.02	0.04
	15/06/01	0.00	0.00	0.00	0.00
	25/07/01	0.00	0.00	0.03	0.05
Atlantic salmon, 2001	20/09/01	0.02	0.05	0.00	0.03
	24/10/01	0.04	0.17	0.07	0.07
	20/11/01	0.05	0.28	0.20	0.49
Sealax					
Atlantic salmon, 2000	24/01/01	0.00	0.18	1.14	1.47
	09/02/01	0.15	0.49	1.25	1.50
	12/03/01	0.00	0.10	0.00	0.00
	29/03/01	0.04	0.10	0.00	0.00
	11/04/01	0.00	0.04	0.00	0.00
	27/04/01	0.00	0.00	0.00	0.00
	18/05/01	0.00	0.03	0.00	0.02
	29/05/01	0.00	0.02	0.00	0.00
	15/06/01	0.00	0.02	0.00	0.00
Atlantic salmon, 2001	24/10/01	0.00	0.07	0.09	0.20
	20/11/01	0.10	0.33	0.23	0.58
OBB					
Atlantic salmon, 2001	25/07/01	0.02	0.02	0.00	0.05
	30/08/01	0.02	0.08	0.00	0.00
	Sept	Fish transferred to Salt Pt. and Sealax			
MANNIN BAY					
MANNIN BAY SALMON CO. LTD.					
Ardbear					
Atlantic salmon, 2001	06/07/01	0.00	0.02	0.00	0.00
	Aug	Fish transferred to Hawk's Nest			
Hawk's Nest					
Atlantic salmon, 2000	10/01/01	1.10	14.12	0.04	0.07
	07/02/01	0.24	0.65	0.00	0.00
	02/03/01	0.15	0.58	0.00	0.00
	15/03/01	0.23	4.86	0.02	0.05
	Apr	Fish transferred to Corhounagh			

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
Atlantic salmon, 2001	03/08/01	0.00	0.16	0.00	0.05
	26/09/01	0.62	2.10	0.20	0.30
	23/10/01	0.70	2.10	0.00	0.00
	29/11/01	0.28	2.59	0.00	0.00
Corhounagh					
Atlantic salmon, 2000	18/04/01	1.09	3.39	0.00	0.00
	24/04/01	0.75	3.75	0.00	0.05
	14/05/01	0.09	0.87	0.00	0.00
	28/05/01	0.07	0.24	0.00	0.02
	11/06/01	0.00	0.03	0.00	0.00
	06/07/01	0.00	0.05	0.00	0.02
	03/08/01	0.10	0.60	0.09	0.19
	26/09/01	9.16	27.67	0.12	0.18
	23/10/01	7.92	29.60	0.19	0.25

KILLARY HARBOUR

KILLARY SALMON LTD

Rosroe

Atlantic salmon, 2000	10/01/01	0.18	0.47	0.04	0.37
	21/02/01	0.02	0.48	0.02	0.10
	12/03/01	0.02	0.24	0.00	0.03
	26/03/01	0.03	0.05	0.00	0.00
	09/04/01	0.02	0.07	0.00	0.00
	27/04/01	0.05	0.10	0.00	0.00
	18/05/01	0.00	0.00	0.00	0.00
	28/05/01	0.00	0.00	0.02	0.04
	12/06/01	0.00	0.00	0.10	0.14
	20/07/01	0.00	0.07	0.03	0.03
	31/08/01	1.23	9.17	2.17	4.00

Inishdeighil

Atlantic salmon, 2001	20/07/01	0.00	0.05	0.03	0.05
	31/08/01	0.00	0.33	0.02	0.20
	25/09/01	0.61	3.03	0.38	0.65
	23/10/01	0.20	0.84	0.00	0.00
	29/11/01	0.43	1.62	0.02	0.07
	Dec	Fish transferred to Rosroe			

BALLINAKILL BAY

GAELIC SEAFOODS LTD

Ballinakill

Atlantic salmon, 2000	11/01/01	0.21	1.34	0.09	0.11
	07/02/01	0.11	1.80	0.02	0.05
	01/03/01	0.58	3.12	0.07	0.13
	14/03/01	0.29	1.57	0.00	0.03
	09/04/01	0.02	0.49	0.00	0.00
	24/04/01	0.04	0.27	0.00	0.00
	04/05/01	0.09	0.26	0.00	0.00
	18/05/01	0.03	0.15	0.00	0.00
	25/06/01	0.05	0.10	0.02	0.10

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
Fraochoilean					
Atlantic salmon, 2000	11/01/01	0.19	1.10	0.12	0.37
	07/02/01	0.29	0.82	0.09	0.13
	01/03/01	0.17	1.25	0.09	0.29
	14/03/01	0.14	0.77	0.03	0.05
	09/04/01	0.02	0.15	0.00	0.02
	24/04/01	0.03	0.35	0.00	0.02
	04/05/01	0.00	0.12	0.00	0.00
	18/05/01	0.03	0.15	0.00	0.00
	25/06/01	0.02	0.10	0.04	0.10
CLEW BAY					
CLARE ISLAND					
Portlea					
Atlantic salmon, 2000	31/01/01	0.88	4.35	1.17	2.80
	23/02/01	0.31	1.18	0.13	0.36
	30/03/01	0.00	0.02	0.00	0.00
	11/04/01	0.00	0.04	0.00	0.05
	26/04/01	0.23	1.27	0.44	0.49
	15/05/01	0.00	0.03	0.01	0.03
	31/05/01	0.03	0.09	0.04	0.11
	27/06/01	0.07	0.17	0.38	0.96
	24/07/01	0.13	1.30	3.60	8.55
	31/08/01	2.61	7.73	1.70	3.68
	September	Missed due to adverse weather conditions			
	31/10/01	2.95	26.04	1.08	2.82
	30/11/01	3.73	11.46	0.03	0.10
Smolt Site					
Atlantic salmon, 2001	24/07/01	0.00	0.11	0.99	1.57
	31/08/01	0.19	2.22	3.27	5.99
	September	Missed due to adverse weather conditions			
	31/10/01	1.78	6.11	0.16	0.42
	30/11/01	5.22	23.59	0.98	2.24
SEASTREAM					
Rainbow trout, 2001	17/01/01	0.03	0.12	2.69	4.11
	28/02/01	0.00	0.03	0.03	0.05
	13/03/01	0.00	0.00	0.02	0.02
	30/03/01	0.00	0.00	0.00	0.00
	12/04/01	0.00	0.07	0.12	0.22
	25/04/01	0.00	0.08	0.00	0.00
	16/05/01	0.00	0.00	0.00	0.00
	30/05/01	0.00	0.15	0.08	0.08
	26/06/01	0.00	0.02	0.02	0.02
	25/07/01	0.02	1.05	0.32	0.82
	30/08/01	0.26	0.96	0.08	0.15
	25/09/01	0.00	0.00	0.00	0.00
	19/10/01	0.00	0.45	0.26	0.61
	22/11/01	0.00	0.02	0.00	0.05

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
BEALACRAGHER BAY					
CURRAUN FISHERIES LTD.					
Rainbow trout, 2000	26/01/01	0.00	0.04	0.00	0.00
	28/02/01	0.00	0.00	0.00	0.00
Rainbow trout, 2001	16/03/01	0.00	0.02	0.00	0.00
	30/03/01	0.00	0.00	0.00	0.00
	12/04/01	0.00	0.00	0.00	0.00
	25/04/01	0.00	0.00	0.00	0.00
	16/05/01	0.00	0.00	0.00	0.00
	26/06/01	0.03	0.23	0.03	0.03
	25/07/01	0.00	0.00	0.00	0.00
	30/08/01	0.06	0.16	0.00	0.00
	25/09/01	0.16	0.71	0.02	0.02
	31/10/01	0.05	0.07	0.02	0.02
	22/11/01	0.00	0.13	0.03	0.03
Atlantic salmon, 2000	28/02/01	0.00	0.00	0.00	0.00
	16/03/01	0.00	0.00	0.00	0.00
	30/03/01	0.02	0.03	0.00	0.00
Atlantic salmon, 2001	30/03/01	0.00	0.00	0.00	0.00
S1/2	12/04/01	0.00	0.14	0.00	0.00
	25/04/01	0.02	0.17	0.00	0.00
	16/05/01	0.02	0.14	0.00	0.00
	26/06/01	0.02	0.13	0.00	0.00
	25/07/01	0.00	0.00	0.00	0.00
	30/08/01	0.30	1.30	0.02	0.05
	25/09/01	0.62	1.68	0.00	0.00
	31/10/01	0.02	0.05	0.00	0.02
	22/11/01	0.05	0.14	0.00	0.00
Atlantic salmon, 2000	12/04/01	0.00	0.12	0.00	0.00
S1/2	25/04/01	0.00	0.02	0.00	0.00
DONEGAL BAY					
OCEAN FARM LTD.					
Inver Bay					
Atlantic salmon, 2000	18/01/01	0.68	3.50	0.27	0.40
S1/2	15/02/01	0.40	1.24	0.19	0.25
	12/03/01	1.03	3.38	0.38	0.54
	23/03/01	0.62	2.02	0.45	0.59
	06/04/01	1.09	3.61	0.92	1.21
	26/04/01	0.82	2.05	0.45	0.77
	15/06/01	2.37	6.50	0.43	1.07
Atlantic salmon, 2001	18/01/01	0.00	3.21	0.08	0.20
S1/2	15/02/01	0.16	1.63	0.12	0.32
	12/03/01	0.00	0.42	0.21	0.36
	23/03/01	0.00	0.33	0.33	0.03
	24/03/01	0.00	0.57	0.00	0.00
	06/04/01	0.00	0.23	0.00	0.00
	26/04/01	0.00	0.05	0.00	0.00

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
	09/05/01	0.00	0.00	0.00	0.00
	23/05/01	0.00	0.00	0.00	0.00
	15/06/01	0.00	0.00	0.00	0.03
	12/07/01	0.00	0.00	0.02	0.04
	07/08/01	0.00	0.00	0.00	0.00
	19/09/01	0.33	0.61	0.00	0.02
	09/10/01	0.30	2.91	0.02	0.02
	29/11/01	1.20	4.08	0.03	0.05
McSwynes					
Carntullagh Pt.					
Atlantic salmon, 1999	24/01/01	0.48	1.01	0.00	0.03
	14/02/01	0.10	0.40	0.00	0.10
Atlantic salmon, 2000	14/02/01	0.75	3.88	0.00	0.00
	20/02/01	0.44	2.80	0.00	0.00
	07/03/01	0.33	1.67	0.00	0.00
	23/03/01	0.00	0.48	0.00	0.00
	09/04/01	0.04	0.66	0.00	0.08
	19/04/01	0.86	2.43	0.00	0.14
	10/05/01	0.09	0.25	0.00	0.00
	22/05/01	0.00	0.10	0.00	0.00
	14/06/01	0.04	0.07	0.00	0.02
	19/07/01	0.02	0.07	0.00	0.02
	08/08/01	0.03	0.07	0.00	0.00
	20/09/01	0.18	0.34	0.00	0.03
Atlantic salmon, 2001	19/07/01	0.00	0.05	0.02	0.02
	08/08/01	0.00	0.00	0.00	0.00
	20/09/01	0.05	0.42	0.00	0.03
	10/10/01	0.18	1.12	0.00	0.00
	29/11/01	0.30	1.45	0.00	0.00
Castle Murray					
Atlantic salmon, 2000	20/02/01	0.06	0.31	0.00	0.03
	07/03/01	0.12	0.46	0.00	0.00
	19/04/01	0.17	1.29	0.00	0.04
	22/05/01	0.03	0.06	0.03	0.03
	08/08/01	0.03	0.23	0.00	0.00
	Sept	Fish transferred to Richie's Bay			
Atlantic salmon, 2001	08/08/01	0.00	0.00	0.00	0.00
	Sept	Fish transferred to Carntullagh Pt.			
Richie's Bay					
Atlantic salmon, 2000	10/10/01	0.39	1.86	0.00	0.00
	29/11/01	7.50	34.15	0.12	0.34
CREEVIN					
Inver Bay					
Atlantic salmon, 2000	23/01/01	0.04	0.40	0.00	0.00
	13/02/01	0.17	1.44	0.00	0.17
	08/03/01	0.07	2.73	0.17	0.63
	22/03/01	0.08	2.44	0.12	0.39
	18/04/01	3.64	11.21	1.12	1.79
	09/05/01	0.47	2.63	0.10	0.10

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
	23/05/01	0.22	0.91	0.00	0.00
	14/06/01	0.28	0.93	0.00	0.03
	13/07/01	0.13	3.10	0.40	0.70
	08/08/01	0.23	0.53	0.03	0.10
	20/09/01	2.00	11.00	0.00	0.29
	10/10/01	0.13	0.37	0.00	0.00
Atlantic salmon, 2000	23/01/01	0.00	9.67	0.33	1.67
S1/2	13/02/01	0.97	8.62	0.38	0.83
	08/03/01	0.43	4.93	1.21	3.79
Atlantic salmon, 2001	23/01/01	0.00	0.48	0.00	0.12
S1/2	13/02/01	0.00	0.02	0.00	0.00
	06/03/01	0.00	0.00	0.03	0.06
	22/03/01	0.00	0.07	0.00	0.00
	04/04/01	0.00	0.00	0.02	0.02
	18/04/01	0.00	0.00	0.00	0.00
	09/05/01	0.00	0.00	0.00	0.00
	23/05/01	0.00	0.00	0.09	0.14
	14/06/01	0.00	0.03	0.02	0.02
	13/07/01	0.04	0.39	0.15	0.23
	08/08/01	0.00	0.02	0.00	0.00
	20/09/01	0.33	1.00	0.00	0.00
	10/10/01	0.11	0.61	0.02	0.05
	28/11/01	0.77	6.50	0.00	0.00
Atlantic salmon, 2001	28/11/01	0.70	4.43	0.00	0.00
EANY FISH PRODUCTS LTD.					
Inver Bay					
Atlantic salmon, 2001	12/07/01	0.00	0.07	0.02	0.10
	07/08/01	0.00	0.08	0.00	0.03
	19/09/01	0.38	1.74	0.00	0.00
	09/10/01	0.30	0.62	0.00	0.00
	28/11/01	0.17	5.69	0.07	0.07
Atlantic salmon, 2000	23/01/01	0.08	1.84	0.07	0.15
	13/02/01	0.38	6.36	0.14	0.51
	20/02/01	0.00	0.00	0.00	0.00
	06/03/01	0.53	4.47	0.02	0.29
	23/03/01	0.67	4.39	0.34	0.49
	05/04/01	1.38	7.16	0.47	1.08
	18/04/01	0.32	0.94	0.00	0.06
	10/05/01	1.32	3.87	0.16	0.23
	22/05/01	0.24	0.88	0.06	0.29
	15/06/01	0.83	11.37	0.53	1.70
Rainbow trout, 2001	13/02/01	0.05	5.67	0.14	0.57
	06/03/01	0.00	2.13	0.03	0.30
	22/03/01	0.00	4.00	0.00	0.00
	05/04/01	0.05	2.42	0.29	0.40
	18/04/01	0.00	0.80	0.25	0.46
	10/05/01	0.04	6.09	0.23	0.37
	22/05/01	0.00	1.04	0.00	0.08
	15/06/01	0.10	4.13	0.10	0.23
	12/07/01	0.03	3.23	0.20	0.37
	07/08/01	0.03	2.76	0.32	0.38

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
MULROY BAY					
FANAD FISHERIES LTD					
Cranford A					
Atlantic salmon, 2000	11/01/01	1.53	4.50	0.00	0.00
S1/2	08/02/01	0.18	0.49	0.00	0.00
	14/03/01	0.12	0.13	0.00	0.02
	28/03/01	0.00	0.07	0.00	0.00
	11/04/01	0.08	0.09	0.00	0.00
	25/04/01	0.15	0.48	0.02	0.02
	15/05/01	0.04	0.73	0.00	0.05
	29/05/01	1.47	5.05	0.36	0.47
	20/06/01	0.15	0.75	0.00	0.05
Atlantic salmon, 2001	23/08/01	0.38	1.93	0.04	0.16
S1/2	26/09/01	0.45	1.14	0.02	0.10
	23/10/01	0.50	4.87	0.18	0.75
	13/11/01	0.24	0.85	0.04	0.10
Cranford C					
Atlantic salmon, 2001	11/01/01	0.00	0.15	0.00	0.00
S1/2	08/02/01	0.00	0.00	0.00	0.00
	13/03/01	0.00	0.00	0.00	0.00
	28/03/01	0.00	0.00	0.00	0.00
	11/04/01	0.00	0.00	0.00	0.00
	25/04/01	0.00	0.09	0.00	0.00
	15/05/01	0.00	0.48	0.00	0.00
	29/05/01	0.04	0.33	0.02	0.03
	20/06/01	0.00	0.02	0.00	0.02
	17/07/01	0.00	0.00	0.00	0.02
	Aug	Fish transferred to Cranford A			
Moross					
Atlantic salmon, 2001	12/01/01	0.00	0.41	0.00	0.03
S1/2	16/02/01	0.00	0.01	0.00	0.00
	13/03/01	0.00	0.02	0.00	0.00
	25/03/01	0.00	0.00	0.00	0.00
	10/04/01	0.00	0.02	0.00	0.00
	24/04/01	0.00	0.11	0.00	0.02
	15/05/01	0.00	2.10	0.00	0.00
	29/05/01	0.00	0.14	0.00	0.02
	20/06/01	0.00	0.03	0.00	0.00
	17/07/01	0.00	0.00	0.00	0.00
	23/08/01	0.13	0.42	0.00	0.00
	26/09/01	0.45	1.90	0.00	0.02
	23/10/01	0.43	2.11	0.00	0.06
	13/11/01	0.14	0.87	0.00	0.00
Glinsk					
Atlantic salmon, 2000	12/01/01	0.06	0.44	0.00	0.03
	09/02/01	0.24	0.46	0.05	0.08
	14/03/01	0.05	0.09	0.00	0.00
	28/03/01	0.05	0.05	0.00	0.00
	11/04/01	0.00	0.06	0.00	0.00
	25/04/01	0.10	0.57	0.00	0.02

	Date	*Lepeophtheirus salmonis*		*Caligus elongatus*	
		F + eggs	Total	F + eggs	Total
	16/05/01	0.18	1.83	0.31	0.96
	30/05/01	0.82	3.43	1.20	2.22
	21/06/01	0.03	0.44	0.00	0.05
	18/07/01	0.36	0.53	0.02	0.04
	24/08/01	0.10	0.40	0.02	0.07
	27/09/01	0.33	0.49	0.04	0.04
	24/10/01	0.84	4.48	0.07	0.35
	14/11/01	1.28	5.84	0.10	0.37
Millstone					
Atlantic salmon, 2001	18/07/01	0.00	0.00	0.00	0.00
	24/08/01	0.24	0.72	0.00	0.07
	27/09/01	0.03	0.25	0.02	0.05
	24/10/01	0.10	1.32	0.07	0.14
	14/11/01	0.09	4.39	0.10	0.25
Milford					
Atlantic salmon, 2001	18/07/01	0.00	0.00	0.00	0.00
	24/08/01	0.00	0.00	0.00	0.00
	27/09/01	0.00	0.00	0.00	0.00
	24/10/01	0.02	0.95	0.04	0.09
	14/11/01	0.02	0.50	0.02	0.12
LOUGH SWILLY					
MARINE HARVEST					
Atlantic salmon, 1999	19/01/01	4.08	7.62	0.00	0.54
Atlantic salmon, 2000	19/01/01	7.67	18.17	0.42	1.75
	26/03/01	0.01	0.38	0.00	0.00
	10/04/01	0.05	0.52	0.03	0.05
	25/04/01	0.00	0.19	0.00	0.02
	15/05/01	0.20	0.87	0.04	0.08
	29/05/01	0.44	1.60	0.37	0.61
	20/06/01	0.07	0.17	0.00	0.00
	17/07/01	0.00	0.08	0.00	0.00
	23/08/01	0.57	2.19	0.04	0.07
	26/09/01	1.26	6.06	0.00	0.02
	23/10/01	2.26	6.80	0.03	0.05
	13/11/01	0.37	1.25	0.00	0.00

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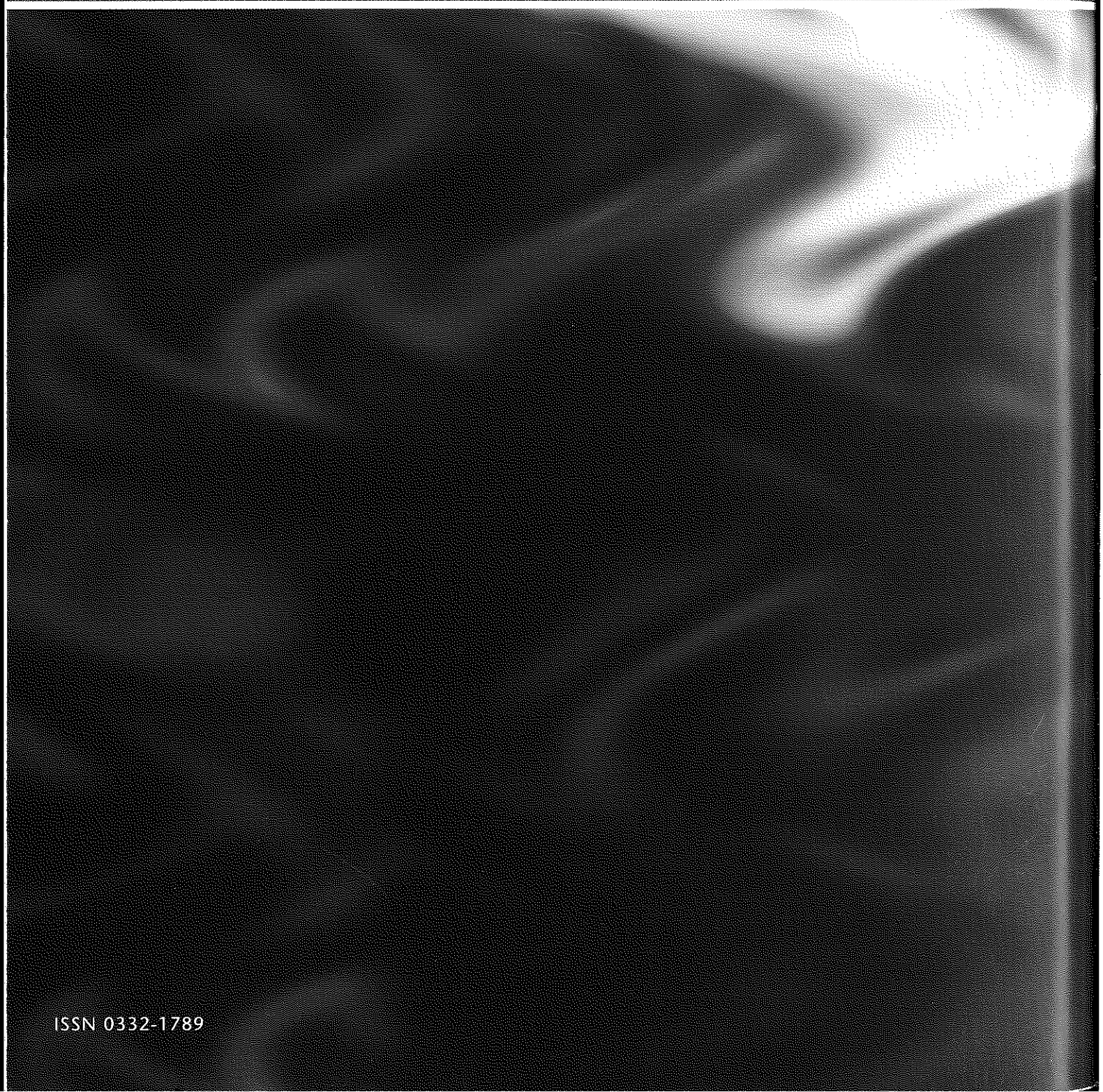

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