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Salmon in Haffjardara 2009

Parr survey

The salmon parr population in Haffjardara was investigated August 23 and 24, 2009. The main river was fished with electricity at 4 sites. The tributary Flatna was fished at one site. The parr were aged and density of the various year classes estimated. During the test fishing, water level was low and the conditions for electrofishing were good.

Table 1 shows the results from the parr survey. Fry (age 0+) was found in very high numbers at all sampling sites. Older parr, 1+ and 2+, were low in numbers, their growth was good, and the parr was in average condition.

				Age classes										
Site No.	Location	Date	Areal	0+		1+		2+		3+			Sum	Density
			m^2	no	ml	no.	ml	no	ml	no.	ml			Fish/100 m^2
1	Below Long Pool	24/8	50	8	3.7	3	6.4	2	8.7				13	26
3	Below Falls Pool	23/8	80	18	3.5	6	6.6	2	9.3	1	10		33	41
4	Home Pool	23/8	70	37	3.9	3	6.9	1	8.6				46	66
5	Above Sea Pool	23/8	70	26	3.9	3	6.9	1	8.6				30	43
6	Flatna	24/8	50	19	4.1	5	6.8						24	48
Total:			**320**	**108**		**31**		**6**		**1**			**146**	**46**
2008			300	68		54		25		6			153	51

Table 1. Mean length at age (ml), and number of salmon parr (no) caught at various sites in Haffjardara August 23 and 24, 2009. The total catch of parr in 2008 is also shown.

The salmon catch in 2009

The total catch in 2009 was 1622 fish. The catch of grilse and salmon since 1984 is shown in table 2. Out of the 1622 fish caught in Haffjardara, 1227 (76%) were released.

The catch of grilse (I SW fish) was 1344 fish and the catch of salmon (II SW fish) was 278 fish, 17% of the total catch (fig 3).

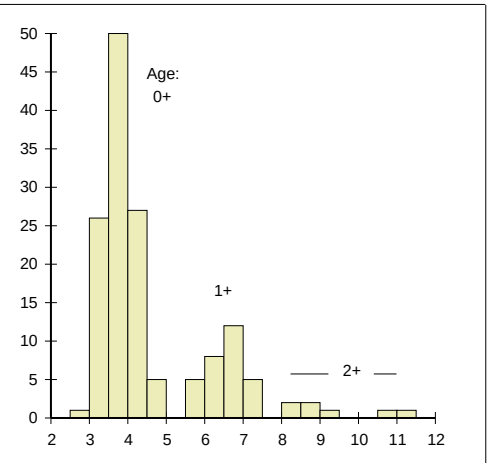


Fig. 1. Length distribution of salmon parr caught in Haffjardara and Flatna 2009.

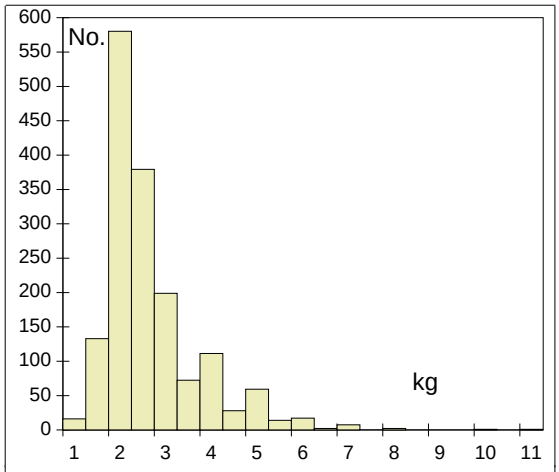


Fig. 2. Weight distribution of the salmon catch in Haffjardara in 2009. One 10 kg and one 11 kilo fish were caught.

Year	I SW	II SW	Total	Rel.	% Rel.
84	202	351	553		
85	364	215	579		
86	978	161	1139		
87	309	226	535		
88	744	130	874		
89	533	130	663		
90	475	148	623		
91	594	126	720		
92	703	122	825		
93	550	83	633		
94	567	103	670	4	1%
95	577	155	732	0	
96	533	69	602	24	4%
97	490	70	560	0	
98	678	74	752	193	26%
99	668	122	790	302	38%
00	612	60	672	278	41%
01	465	67	532	246	46%
02	847	96	943	493	52%
03	912	95	1007	525	52%
04	954	179	1133	616	55%
05	1075	215	1290	929	72%
06	874	203	1077	749	70%
07	899	141	1079	767	71%
08	1740	271	2011	1599	80%
09	1344	278	1622	1227	76%
Avg 84-09:	**719**	**150**	**870**		
Avg 99-09:	**945**	**157**	**1105**		

Table 2. Catch of grilse (I SW), salmon (II SW), number and percentage of released fish in Haffjardara 1984-2009.

Tagging from 1999

Since 1999, 838 fish have been tagged in Haffjardara. 128 (15.3 %) have been recaptured within the same season (table 3).

Year	No. tagged	No. recaptured	% rec.
1999	45	1	2
2000	0	0	0
2001	14	4	29
2002	91	17	19
2003	73	22	30
2004	96	18	19
2005	131	18	14
2006	76	13	17
2007	68	5	7
2008	156	21	13
2009	88	9	10
Total:	**838**	**128**	**15.3**

Table 3. Tagging results 1999-2009. Fish, tagged and recovered within the same fishing season.

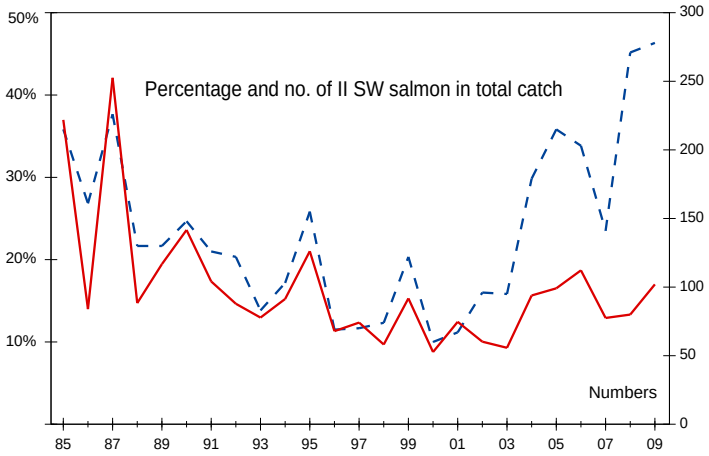


Fig. 3. Percentage (unbroken line) of salmon (II SW) in the total catch in Haffjardara 1985- 2009. Numbers of II SW fish shown by the broken line.

Tagging 2009

From 2/7 to 29/8, 88 fish were tagged and released. 9 fish (10.2%) from that tagging were recaptured. In addition, 3 fish tagged in 2008 were recaptured. Results from the 2009 recoveries are shown in table 4.

Of the fish tagged in 2008, one had grown from 60 to 67 cm, another from 67 to 80 cm. The third one was 70 cm at capture, length at tagging is not known.

Three fish, tagged in 2009, were recaptured above the tagging site, three below and three on the tagging site.

Tagged			Recovered			
Tag No.	Date	Pool No.	Date	Pool No.	Timeout Days	Up/Down N.of pools
94006	4.7.2009	23	11.8.2009	20	38	-3
94046	7.7.2009	24	18.8.2009	33	42	9
99888	15.7.2009	32	10.8.2009	30	26	-2
99894	16.7.2009	2	10.8.2009	7	25	5
99858	22.7.2009	36	1.9.2009	36	41	0
99831	24.7.2009	2	24.8.2009	22	31	20
99838	28.7.2009	7	26.8.2009	2	29	-5
99843	29.7.2009	10	3.9.2009	10	36	0
99845	2.8.2009	2	25.8.2009	2	23	0
94184	10.8.2008	31	30.6.2009	2	324	-29
94185	10.8.2008	22	20.8.2009	7	375	-15
85768	3.8.2008	33	21.8.2009	31	383	-2

Table 4. Tagged and recaptured salmon in Haffjardara 2009 where tag number could be related to sites. 'Time out' is the time between tagging and recapture.
'Up/down' is the movement of the fish, how many pools the fish moved up or down (minus sign).

Parr density

Mean density of parr in the years 1994-2009 is shown in table 5.

Catchability of parr depends on several factors; temperature, water flow etc. Each year, sampling conditions are different. Despite high numbers of young parr (0+ and 1+) last 6-7 years, older parr (2+ and 3+) are relatively few. Increased recruitment in the recent years has not lead to increased smolt production.

It is interesting to compare the densities of the year classes, as they represent the mortality on a yearly basis. Table 5 and figure 4 show the ratio of one and two year old fish from 1994.

The number of 0+ fish is vastly underestimated; they are small and are difficult to catch, some are still in the gravel. Estimate of the density of one and two years old fish is more reliable, but most of the 3 years old will have left the river as smolts.

Year	N.of parr / 100m^2					Ratio
Age:	0+	1+	2+	3+	Sum	2+/1+
94	3	4	3	1	11	0.79
95	4	12	9	1	26	0.76
96	6	13	11	1	31	0.89
97	7	18	9	1	35	0.51
98	13	13	13	2	41	1.02
99	8	16	4	2	30	0.24
00	10	14	8	0	32	0.59
01	18	31	14	1	64	0.47
02	3	16	10	2	31	0.63
03	30	15	17	2	64	1.16
04	14	16	9	0	39	0.53
05	42	5	6	1	54	0.24
06	16	18	4	0	38	0.20
07	31	27	8	3	69	0.30
08	23	18	8	2	51	0.46
09	34	10	2	0	46	0.19

Table 5. Mean density of parr in the years 1994-2009 and the ratio 2+/1+ parr. The 2+ parr are the smolt candidates for the following year.

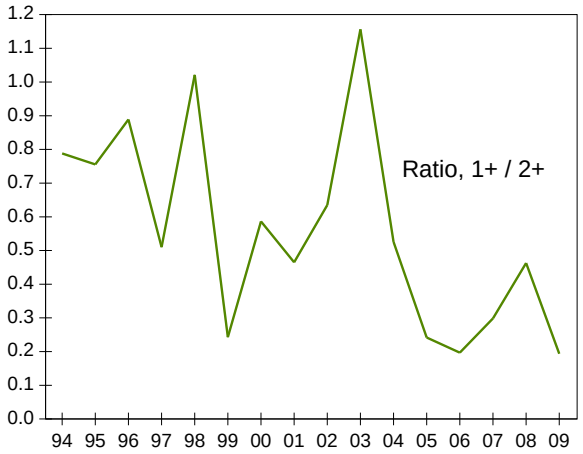


Fig 4. The proportion of two year old/one year old parr. This indicates declining smolt production in recent years.