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THE
SWEDISH FISHERIES

BY

PROFESSOR F. A. SMITT

ROYAL COMMISSIONER FOR SWEDEN TO THE INTERNATIONAL
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International Fisheries Exhibition

LONDON, 1883.

CONFERENCE ON THURSDAY, JULY 5, 1883.

LORD EDMOND FITZMAURICE, M.P., in the Chair.

THE SWEDISH FISHERIES.

THE CHAIRMAN, in opening the proceedings, said the object of this meeting was to have the pleasure of listening to Papers read by the delegates of foreign countries, who had kindly come to attend this International Exhibition, an Exhibition which had attracted the attention not merely of the inhabitants of this country, but of those of nearly all the nations of the civilised world. He had hoped that the chair to-day would have been taken by Lord Granville; it was unfortunately impossible for him to be present as he had wished, but he had his permission to state—as it was hardly necessary for him to state—that he took the greatest interest in this Exhibition, and considered it to be of very great importance. Lord Granville had great experience on these subjects, having been one of the Commissioners of the great Exhibition of 1851, when he believed it was universally recognised that there was hardly any one to whose exertions the success of that Exhibition was more due, Lord Granville being at that time Vice President of the Board of Trade, and taking very great interest in all questions connected with that department. This Exhibition was not a general, but a special

one, and the gentlemen who had come to this country, having a special knowledge of these subjects, had many of them attended previous Conferences in other countries on various fishery questions, of which they at the Foreign Office heard a great deal, because fisheries had not unfrequently been the cause of international difficulties and disputes. He had recently seen a statement to the effect that fish diet exercised a very cooling effect on those who used it, and that if people really wanted to be well, especially in warm weather, they should eat fish. He sometimes thought, at the Foreign Office, that perhaps fishermen did not eat fish themselves, and that some of these fishery disputes of which they heard there, and which gave them a great deal of trouble, might be settled if they were to suggest to the fishermen that they should all eat the fish which they caught ; perhaps then they would not engage in those disputes on the high seas which very frequently gave the Foreign Office of this and other countries a deal of trouble. Having thrown out this suggestion, he would call upon Mr. Davéy to read the first Paper, which was in the name of Professor Smitt, the delegate of Sweden, who did not consider himself sufficiently familiar with the English language to read it himself. He should also add that, owing to the number of Papers dealing with these foreign fisheries, some of them would have to be adjourned to a future occasion.

The Paper was as follows :—

During the last seventy years Sweden has enjoyed, under its present line of sovereigns, profound peace, and the exhortation of one of its poets, “to replace lost Finland within the boundary of Sweden,” has been the device of the country. And, indeed, it has made great progress towards that aim. In the arts and sciences the names of Swedish

men have more than once vied successfully with those of the most illustrious of their contemporaries. But a Berzelius and a Nordenskjöld have shown the practical tendency of Swedish science, such as indeed it should be in a country where the necessity of turning the natural resources to profit is so great, and where scientific research may be said, in a great part, to have taken its rise from the teachings of Linnæus. At the beginning of our century Sweden was poor and exhausted. Altogether regenerated since that time, it now presents the spectacle of a flourishing and well-cultivated country.

In the midst of this general progress, one branch of Swedish industry has, however, remained far behind. The Swedish fisheries are as yet far from what they naturally ought to be, viz. one of the most important trades of the country. If, however, not a little has been achieved, this is no more than ought to be expected in the country where modern fish-culture, based on the experience of natural history, has one of its most important sources in an essay on the cultivation of spring-spawning fishes, written by Mr. Lund, alderman in Linköping, and published in 1761, in the 'Transactions of the Royal Swedish Academy of Sciences.'

From the time of Linnæus, viz., in 1766, Sweden had inherited a Fishery Law, the terms of which, even at the present day, might serve as a model of what the aim and regulations of any well-directed fishing industry should be. But political changes and the modern development of manufactures and trade made a revision of this Fishery Law necessary; and in 1852 the present Fishery Law was promulgated, which has essentially retained the terms of the preceding one. Thus the development of the Swedish fisheries has, for a long time back, been directed by regulations founded on the results of scientific research and on

the actual knowledge possessed at the time regarding the life and habits of the fishes.

Two circumstances have, however, deeply influenced this development : one when, in the province of Bohus, on the western coast of Sweden, in the beginning of the present century, a herring-fishery richer than any other, as it seemed, suddenly disappeared, leaving after it only poverty and distress. The measures taken by the Government were then directed towards the encouragement of other sea-fisheries, and Swedish fishing vessels went to the banks west of Skagen (the reef of Jutland), and further to Jäderen and to Storeggen, off the coast of Norway, where the Swedes showed the Norwegians the way to a difficult but profitable occupation. It is only within the last few years (since 1877) that the herring has again commenced to find its way, in immense shoals, in amongst the rocky islands near the coast of Bohuslän. However, the fish does not come in there until the greater part of the shoals have spawned outside, and the object of the Government has, therefore, been to promote those modes of fishing by which the herring is caught on the open sea and while it is still in the very best condition. In this matter, Scotland has lent a helping hand to Sweden. A large number of Scotch drift-nets, ordered partly for the Government and partly for private persons, have been employed in this herring fishery ; and Scotch curers and smokers have, by private enterprise, been sent to Bohuslän.

The other circumstance which has been of the greatest importance to the development of the Swedish fisheries is the improvement of the means of communication, namely the introducing of railways during the last thirty years. It will be easily understood of what consequence this has been to a country like Sweden, whose extent is so large in comparison with the thinly scattered population, because,

through this means and by the aid of the present improved method of preservation, even fresh fish from Sweden can find a market abroad.

We see from these facts that the Swedish fisheries may anticipate a promising future, and it is, therefore, to be hoped that the approximate calculation given below of the yearly revenue of these fisheries, as compiled under my direction by the Fishery Assistant, Mr. Trybom, may only be a provisional one, especially as the statistical reports on the Swedish fisheries are very scanty and incomplete. It may be of value, however, as indicating what Sweden at present has to show in this respect.

A. The Herring and Sprat Fisheries. Calculation of the revenue of the herring fisheries on the Swedish shore of the Baltic, and in the Sound (Oresund), compiled by Dr. R. Lundberg, Inspector of Fisheries :—

Year.	Statements collected by	Government District.	Swedish Barrels.	Swedish Crowns=Kr.
1870	{Byström, Fishery Assistant . . }	Norrbottnen	3,202 at 15 kr.	48,030 {calculated.
1870	Ditto	Vesterbottnen	8,805 „ 15 „	132,075 „
1870	{Vahlberg, Fishery Assistant . . }	{Vester Norrland . . }	21,759 „ 15 „	326,385 „
1881	{Bergius, Inspector of Fisheries . . }	Gefleborg .	12,738	239,006
1881	{Lagerholm, Sub-Inspector of Fisheries . . }	Upsala . .	5,742	87,547
1870	Vahlberg	Stockholm .	10,372 „ 15 „	155,580 „
..		Södermanland	..	..
1880	Vahlberg	Östergötland	4,196	65,775
1880	Ditto	Kalmar . .	6,459	108,215
1881	{A. Flygare and A. Persson }	Blekinge .	62,391	392,175
1881	{Inspector of Fisheries . . }	Kristianstad	11,370	145,205*
1881	Ditto	Malmöhns .	25,750	495,986†
1869	{Rev. Dr. Th. J. A. Lyth }	Gotland .	29,815 „ 15 „	447,225
		Total amount	202,599	2,634,264

* The average for the last four years (1878–81) = 157,682 kr.

† The average for the last three years (1879–81) = 373,894 kr.

Dr. Lundberg in his report makes the following remarks :—

“The above calculation, being based upon reports from different years, some of which are quite old, cannot of course pretend to be complete, but it seems to me that all merit ought not justly to be denied it, as, in spite of its deficiencies, it gives an approximate idea of the value of this fishery, which cannot accurately be calculated from the reports hitherto obtained.

“A difficulty in making this estimate is caused by the different measures by which the fish is sold in different places. In the central and southern part of Sweden the greater part of the catch is sold fresh (by the ‘val,’ or batch of eighty fishes), while in the northern parts of the country it is salted and sold by the barrel. In order to calculate the quantity of fish caught a reduction must be made to one or other of these measures. The reductions are here made to barrels by computing the number of ‘valar’ (fourscore) of salt fish usually contained in a barrel. This number varies however, not only in different years but in different parts of the same governmental district. Where the statements have not been given in barrels, the following table has been used :—

	Score per Barrel.
“ For the district of Gefleborg (48 ‘valar’ =)	192
“ ” ” Ostergötland	} (30 ‘valar’ =) . 120
“ ” ” Kalmar and Blekinge	
“ ” ” Kristianstad (25 ‘valar’ =)	
“ ” ” Malmöhus (24 ” =)	96

“As to the price given in the table, this has either been estimated or is directly furnished by the various collectors. For the Government districts of Malmöhus and Blekinge the revenue for the years given in the table was above the average, but for the other districts it may be

safely assumed that the revenue is stated rather too low than too high."

As the amount just mentioned—2,634,264 kr.—does not include the value of the herring fishery of the district of Södermanland, the yearly revenue of this fishery on the coasts of the Baltic and the Sound (Oresund) may be estimated in round numbers at 2,650,000 kr.

According to the latest obtainable yearly reports of the Fishery Inspector of the Government district of Gothenburg and Bohus, the value of herrings and sprats caught in this district in 1880 was 354,298 kr., and for the years since that time the amount might probably be doubled.

When, finally, to this is added the value of the herring fishery of Halland, which in 1881 was estimated at "fully 60,000 crowns," the revenue of the herring and sprat fisheries of the whole country may be estimated in round numbers at 3,065,000 kr.

B. The revenue of the Salmon Fisheries of Sweden during the year 1881, according to the statistics received:—

	Weight in Ltt.*	Gross Income. Crowns.	Remarks.
<i>a. In the rivers—</i>			
Torne elf	6,548	67,584	Of these 240 Ltt. (4,800 tt.) salt.
Kalix elf	293	2,514	
Ume elf	2,104	18,168	
Öre elf	109	818	{ Of which 41,138 kr. from the Elfkarleby fisheries.
Ljusne elf	3,358	30,481	
Dalelven (as far as) Söderfors) . . }	5,210	42,529	
Motala Ström . .	589	6,480	{ Of which 1,600 tt. smoked, worth 1,450 kr. This is the revenue of the state fisheries. The private fisheries of the hamlet of Mörrum are not included.
Emån	250	2,770	
Mörrums ån . . .	1,020	15,220	
Helga ån (Vngsjö- ström) }	120	1,680	Return from one fishery only.
Lagan	2,518	44,875	
Nissan	183	3,660	
Klarelven	3,571	32,062	
Norselven	29	270	
Jösseforsen . . .	622	6,200	
Gullspångselven .	1,800	15,000	
<i>b. Along the shores—</i>			
The shore outside of Torne elf }	1,913	18,972	{ Calculated by means of returns from salmon dealers and others in Halmstad.
The shore outside of Ume elf }	1,346	11,402	
Outside of the mouth of Laga ån . . . }	150	2,625	
Outside of the mouth the River Nissan . }	1,392	27,840	{ Returns from the part of the coast of the Wener belonging to the government district of Elfsborg are wanting.
The shores of the district of Kris- tianstad }	1,324	13,082	
The shore of the dis- trict of Malmöhus }	331	4,596	
<i>c. In the Wener . .</i>	15,893	123,050	
Total	50,673	491,878	

* A Swedish Ltt. = 20 tt. ; a Swedish tt. = 485 grammes.

Now as the value of the private fisheries of the hamlet or Mörrum has been estimated to amount to 10,000 kr., answering to about 667 Ltt. of salmon, this sum may be added to the preceding table. Returns from many salmon fisheries are, however, altogether wanting. The above stated amounts—50,673 Ltt. and 491,878 kr.—therefore in no wise indicate the whole amount of the revenues of our salmon fisheries during the year in question. By including the reports that are yet to be received from several rivers and coasts for the foregoing year, a more accurate account can be got out. The following figures may therefore be quoted :—

—	Year of Report.	Weight in Ltt.	Gross Income. Crowns.	Remarks.
Angermanselfven .	1880	..	..	{ Returns from a few fishermen only.
Indalsselfven . .	1880	..	..	{ Returns from a few fishermen only.
Ljungan . . .	1880	..	..	{ Returns from six fishermen only.
Viskan . . .	1880	..	..	Returns from Åskloster.
The coast outside of the River Angermanselfven .	1880	..	..	Returns not reliable.
Ätran . . .	1879	..	..	{ Returns from a few fishermen only.
Lule elf . . .	1878	..	..	{ Of these only 60 salted.
Råneå elf . . .	1878	..	..	
Pite elf . . .	1878	..	..	{ Returns from the fishery of Fällfors only. 80 Ltt. salted salmon.
Gideå elf . . .	1878	..	..	
Göta elf (above Nyebro) . .	1878	..	..	
The coast outside of Kalix elf .	1878	..	..	{ Of these 605 Ltt. salted salmon.
The coast outside of Gideå elf .	1878	..	..	
In the open sea outside of Blekinge	1878	..	..	
Total amount .	..	11,903	96,694	

Together with the returns for 1881, these last amounts,

therefore, would show that the salmon fisheries of Sweden annually amount to 63,243 Ltt. with a value of 598,572 kr.

But not even these figures show the real extent of our salmon fisheries. As has been noticed in the remarks, the returns from many rivers and coasts are partly uncertain and partly incomplete, and from several salmon fisheries, on the coast of Pite, Skellefteelf, Gefle ån, the sea around Gotland, Rönneån, the Government district of Bohus, and that part of the Wener which belongs to the Government district of Elfsborg, no returns are to be had.

That those which are obtainable considerably fall short of the real value of the salmon fisheries of Sweden will also follow from a comparison with the same fisheries of the neighbouring country, Norway, the value of which is estimated by a reliable person at about 1,800,000 kr. The annual revenue of our salmon fisheries may therefore, without exaggeration, be estimated at 625,000 kr.

C. The Eel Fishery with traps on the shores of the districts of Östergötland, Kalmar, and the western part of Blekinge and the coasts of Skåne.

	Years of the Reports.	Ltt. of Eel Caught.	Gross Income of the Fishery.
The government district of Östergötland . .	1880	2,835	17,010
„ „ Kalmar . . .	1880	4,650	27,900
„ „ Blekinge (western part) . . . }	1881	1,830	12,450
„ „ Kristianstad . .	1881	4,924	35,445
„ „ Malmöhns . . .	1881	2,995	12,831
Total	..	17,234	105,636

The average gross income of this eel fishery on the coasts of Skåne from 1879-81 was 91,287 kr. When it is considered that no reports have been obtained of the eel

fisheries with traps from the Government district of Stockholm, the annual revenue of this entire fishery may safely be estimated at 150,000 kr.

D. *The Coast and Sea Fisheries*, with the exception of the fisheries cited above in A, B, and C.

Of this fishery there are returns only from the Government district of Bohus and from Skåne. In the district of Bohus it gave (together with the lobster and oyster fisheries, in 1880):—

	Kr.
A gross income of	1,339,480
In the district of Malmöhns in 1881	271,075
In the district of Kristianstad in 1881	37,506
In these three districts together	<u>1,648,061</u>

Estimated at a low figure, the fishery in question in the other provinces along the coast may be supposed to yield an annual revenue of about 350,000 kr., or an amount that makes the annual revenue of these fisheries in the whole kingdom, in round numbers, 2,000,000 kr.

E. *The Lake and other Freshwater Fisheries.*

It is scarcely possible to find the approximate value of the lake fisheries of Sweden by the official returns now at hand, and it is also very difficult to obtain complete and reliable statistics with regard to them. The statements concerning our largest lakes, viz., the Wener, Wetter, and Mälär, are the most complete; but in regard to the first they are wanting from the Government district of Elfsborg; in regard to the Wetter, there are no returns from the Government districts of Östergötland and Örebro; and finally in regard to the Mälär, they are wanting from the Government district of Stockholm. In those parts of the above-named three lakes from which returns have been obtained, however, the fisheries have amounted to the sums shown by the following tables:—

—	The Reports are for the Year.	Value for the Draught.	Total Amounts for the Lakes.	Remarks.
The Wener—district of Wermland . . . }	1881	47,000	..	{ Approximately according to Ch. Thorkildsen. Without the salmon fishery.
District of Skaraborg .	1881	110,333	..	
The Wetter—district of Jönköping . . . }	1881	20,000	..	
District of Skaraborg .	1881	51,149	..	
			71,149	
The Mälar—				
District of Nyköping .	1881	38,017	..	
„ Westerås .	1881	24,660	..	
„ Upsala .	1881	54,388	..	
			117,665	
Total . .	..	..	346,147	

If, with the knowledge of the above stated figures, we should venture to estimate the fishery of the Wener, in the district of Elfsborg, at 25,000 kr., the fishery of the Wetter in the districts of Östergötland and Örebro, at 40,000 kr. and the fishery of the Mälar, in the districts of Stockholm, at 25,000 kr., or nearly the same value as is stated for the district of Westerås, the revenue of the fisheries of the three lakes would be the following :—

Of the Wener (without the salmon fishery). . . .	Kr. 182,333
(Together with the salmon fishery 305,383).	
Of the Wetter	111,149
Of the Mälar	142,665
In the three lakes together (excepting the salmon fishery of the Wener). }	436,147

Except from these, our three largest lakes, there are official statistics to be found respecting the lake and other fresh-water fisheries in :—

The government district of Kronoberg for the year	1872	
„ „ Jönköping „	1873 and 1881	
„ „ Östergötland „	1881 „ 1882	
„ „ Westerås „	1874 „ 1881	
„ „ Kopparberg „	1881	
„ „ Gefleborg „	1881	{ and from that time.
The parish of Arjeplog for the year	1881	

These returns are, however, all incomplete, as they only state the fisheries of a (larger or smaller) portion of the lakes in the respective districts, and because the value of the fisheries in the lakes stated has been estimated in round numbers, which are generally rather low. The reports from the Government districts of Östergötland and Jönköping are the most complete; these are the only ones from which a tolerably true idea of the real revenue of the fishery may be obtained. Within the former district 21,548 Ltt. were caught in 1881, and the value stated was 50,969 crowns. The statements are from the greater number, or at least from all the most important lakes in the district; not from the Wetter however; neither are the salmon or eel fisheries of Motala Ström (the river Motala) included. The latter consisted in the year mentioned of 1113 Ltt., worth 11,130 kr., in addition to which is the eel fishery of Motala "Kungsfiske," the average value of which in 1860-70 was estimated to 775 kr.

The lake fisheries in the Government district of Jönköping—that of the Wetter excluded—yielded in 1881, according to the statements received, 72,730 kr., an amount which, however, is probably considerably too low. Returns regarding the crayfish fisheries, for instance, are to be had only from five lakes, and the amount stated is only calculated at 6100 kr., although crayfish are stated by trustworthy persons to have been caught in the district to many times that amount.

It is true that these two districts are among those which have the greatest number of lakes; but when the united fisheries, calculated at a low rate, yield an annual revenue of 135,604 kr., that in our three largest lakes fish is caught to a value of 436,147 kr., all the remaining lake fisheries might be estimated at 2,428,249 kr., or the

yearly revenue of the whole of our lake fisheries calculated at 3,000,000 kr.

As this sum, however—3,000,000 crowns—to a great extent is based only on estimates, it might be interesting to throw light on the real worth of these fisheries by means of the following calculations, made from some lakes in different parts of Sweden, from which statements in some degree reliable are to be had :—

	Extent. Swedish Square Miles,	Gross Income of the Fishery in 1881.	Calculated by means of the foregoing. The Annual Gross Income	
			Of 1 Swed. Square Mile of Fishing Water would be	Of the Fish- ing Waters of the whole Kingdom 294·6 square miles (without the 4 great Lakes) would be
		Kr.	Kr.	Kr.
Lake Womb (district of Malmöhns)	0·1084	1,202	11,088	3,266,525
The Nömm (district of Jönköping)	0·1296	6,750	52,083	15,343,652
The Glan (district of Östergötland)	0·6490	8,664	73,350	3,932,920
Lake Roxen „ „	0·8491	14,100	16,606	4,892,128
Lake Öje (district of Kopparberg)	0·1345	2,000	14,870	4,380,702
The Hornafva together with the Stornafva and Uddja (district of Norrbotten)	5·1742	5,095	985	290,181
The Boren (district of Östergötland)	0·2420	900	3,801	1,119,775

The average annual gross income of all the freshwater fisheries of Sweden, the three great lakes excepted, is therefore, according to these seven calculations, 4,746,553 kr.

Calculated according to the five of these lakes which lie in Götaland (the twelve southern Government districts) the average gross income of one Swedish square mile of fishing water there is 22,360 kr. In these districts there are

54,753 square miles of freshwater,* the fisheries of which ought accordingly to yield an annual income of 1,224,277 kr.

In Svealand (the seven central districts) there are 54,336 square miles of fresh water. Calculating according to the returns from lake Öje, situated in this part, the annual gross income of these waters would be 807,976 kr.

In Norrland (the five northern Government districts), containing 185,524 square miles of fresh water—the annual gross income of these, calculated in accordance with the returns relating to the Hornafvan and the lakes connected with it, would amount to 182,731 kr., or together 2,214,984 kr.

The object in calculating these amounts—4,746,553 and 2,214,984 kr.—has only been to show that the 3,000,000 kr. which was before stated as the probable annual value of the freshwater fisheries of Sweden—the salmon fisheries excepted—was by no means too high.

The value of all the fisheries of Sweden, estimated approximately, but judging from all appearances by no means too high, should therefore amount to :—

	Kr.
A. For the herring and sprat fisheries	3,065,000
B. For the salmon fisheries	625,000
C. For the eel-fishery with traps on the coasts	150,000
D. For other coast and sea-fisheries	2,000,000
E. For the lake fishery	3,000,000
	<hr/>
Total	8,840,000
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* The three great lakes are not included here.

INDEX.

BOHUS fishery district, 9, 13
 Bohuslän, herring fishery of, 6

COAST fisheries, 13
 Conveyance of fish, 6

DRIFT Nets (Scotch), 6

EEL Fishery, 12, 15

FISHERY Laws of 1766 and 1852, 5
 Fishing grounds, 6
 Fitzmaurice, Lord E., remarks by, 3

GOTHENBURG, fishery district of, 9
 Government encouragement of sea-fisheries, 6

HALLAND herring fishery, 9
 Herring fishery, 6, 7, 9

JÄDEREN, fishing grounds of, 6
 Jönköping fishery district, 15
 Jutland fishing grounds, 6

"KUNGSFISKE," 15

LAKE and other freshwater fisheries, 13-17
 Lobster fishery, 13
 Lund, Mr., Essay on Fishes by, 5
 Lundberg, Dr. R., Statistics and remarks by, 7,

MALAR, Lake, fishery district, 14
 Measures (fish), 8
 Motala eel fishery, 15

NORRLAND fisheries, 17

OSTERGÖTLAND fishery district, 15
 Oyster fishery, 13

RAILWAYS, development of fisheries by the, 6
Revenue (annual) of fisheries. See Value of Fisheries

SALMON fisheries, 10-12
Scotch, assistance of, in herring fishery, 6
Sea fisheries, 13
Skagen, fishing grounds of, 6
Skåne fishery district, 13
Sodermanland fishing district, 9
Sprat fisheries, 7, 9
Statistics relating to fisheries, 7, 10-15, 17
Storoggen, fishing grounds of, 6
Svealand fisheries, 17

TRYBORN, Mr., calculations by, as to revenue, 7

"VAL" (fish measure), 8
Value of coast and sea fisheries, 13, 17
,, eel fisheries, 12, 13, 15, 17
,, herring and sprat fisheries, 7-9, 17
,, lake and other freshwater fisheries, 13-17
,, Salmon fisheries, 10-12, 17

WENER Lake, fishery district of, 13, 14
Wetter ,, ,, ,, 13, 14

ZOOPHYTES, productions of, 9

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