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SESSION II.

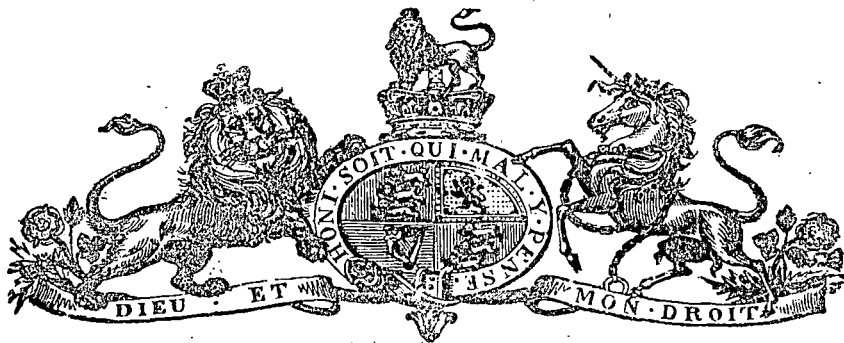
T A S M A N I A.

LEGISLATIVE COUNCIL.

SALMON COMMISSIONERS' REPORT

FOR THE YEAR 1876.

Laid upon the Table by Mr. Crowther, and ordered by the Council to be printed,
May 8, 1877.



To His Excellency FREDERICK ALOYSIUS WELD, Esquire, Companion of the Most Distinguished Order of Saint Michael and Saint George, Governor and Commander-in-Chief in and over the Island of Tasmania and its Dependencies.

MAY IT PLEASE YOUR EXCELLENCY.

SINCE the date of our last Report very satisfactory evidence of the establishment of the Salmon in the Derwent and its estuary has been accumulated.

During the year 1873 numerous Smolts were captured in various parts of the river; while large bodies of fish of great size were frequently seen in the Derwent through the whole course of its stream, as they had been for the previous six or seven years.

In the month of December of that year the reward of Thirty pounds, which had been offered by the Government for the capture of the first Grilse or Salmon, was claimed by Mr. Joseph Cronly, and paid to him on the recommendation of the Commissioners after the most careful inspection of the fish for which the claim was made, and after it had been subjected to the various anatomical tests relied on by the most eminent ichthyologists as a means of distinguishing the different species of *Salmonidae* from each other. This fish was captured in a pool on the mud flat immediately below the Causeway at Bridgewater, in which it had been left by the retirement of the tide, and was one of a shoal that had previously been observed rushing about in the same locality at high water.

During the year 1874 numerous other Grilses were accidentally caught, chiefly in the bays near Hobart Town, in graballs or hang-nets set for the capture of native fish. Some of these were minutely compared with the description of the *Salmo salar* given by Dr. Günther, the greatest living authority on this branch of science, with which they were found to agree.

If any doubt remained respecting the success of the enterprise in which the Colony had so long been engaged, it was dissipated by the capture of a large body of fish in a private seine in Sandy Bay on the night of the 13th January, 1876. This interesting event is thus correctly reported in the *Mercury* newspaper of date 24th January, 1876:—

On the night of the 13th January instant six dozen and four Smolts were taken in one haul of a seine net in that part of the estuary of the River Derwent known as Sandy Bay, about a mile below Hobart Town. These fish varied in weight from three quarters of a pound to one pound and a half; and judging not only from their general appearance, but from the fact that they were taken in water almost, if not quite, as salt as the ocean, it was manifest that they belonged to one of the two migratory species of the genus *Salmo* which have been introduced to the Colony. After subjecting several of these fish to careful examination, the Salmon Commissioners arrived at the conclusion that they were identical in species with the specimen in the same stage of growth which was caught in December, 1869, and sent to Dr. Günther, of which fish the learned doctor wrote that it presented all the characters by which the true Salmon is distinguishable from its nearest allies.

On the three or four nights following the 13th numerous other specimens were captured both in Sandy Bay and on the opposite shore of the estuary of the Derwent, more than three miles distant, the total number thus destroyed being probably over 200. These fish were sold in Hobart Town, and rapidly rose in price from 3d. each on the 15th to 5s. each on the 17th, when attention was drawn to the fact that, under the Salmon Act of Tasmania, the sale of these young fish subjected both seller and purchaser to a heavy penalty, and some check was thus placed on their wanton destruction.

The absolute success of one, if not both, of the migratory species, *Salmo salar* and *Salmo trutta*, is, therefore, now certain, and home readers who are in the neighbourhood of salmon rivers will easily appreciate the vast importance to the colony of this result of the experiment.

After this large capture, and up to the present time, numerous Salmon have continued to be caught in the bays, and in the manner above referred to, some of which have been carefully inspected and verified by the Commissioners. One of the most recent instances of the capture of a Salmon took place some weeks ago, and is worth recording. A person residing near Risdon Ferry, Mr. Sims, observing a dense shoal of fish close in shore, apparently pursued by a school of porpoises, seized a billet of wood and dashed it amongst them, when one was found to be so disabled as to be easily caught by the hand, and proved to be a true *Salmo salar* weighing 4½ lbs. From this incident the abundance of the fish in that locality may be inferred.

Notice having been given in the *Government Gazette* that the laws enacted for the protection

of the Salmon in the Derwent would, in future, be rigidly enforced; the boundary within which all fishing by net had been prohibited was, at the same time, by the Governor's Proclamation, extended lower down the estuary from One Tree Point to Droughty Point.

But the Commissioners believing that, in spite of these measures and of any mere threats of causing the law to be put in force, poaching would still be carried on and extended unless a rigid system of conservation was established, recommended to the Government the appointment of two additional bailiffs for the north and south shores of the estuary of the river.

With this recommendation the Government has not hitherto seen fit to comply; and the Commissioners have every reason to believe that, in the absence of all effective protection, many Salmon have been destroyed, and the continued stocking of the Derwent so far retarded.

They have no means of discovering to what extent seines have been unlawfully used in the numerous bays below Bridgewater, where it is well known the Salmon abound; but in the immunity from detection and punishment which now exists the facilities for the use of nets over that wide area of the Derwent, together with the high prices which are readily given for any of the three species of the *Salmonidæ* that have been introduced into the colony, there can be no doubt that poaching has already been extensively practised, and will be speedily extended unless better means of protection are provided. It is well known to the Commissioners that, in numerous instances, these fish have been sold at the rate of 5s. a pound, and that a keen competition always exists for them amongst hotel-keepers and others.

The services of the bailiff, who has been for some years employed at Glenorchy, and has the supervision of the river from Bridgewater to Hobart Town, have been of great value in the preservation of both the imported and indigenous fish, and have checked to a considerable extent the practice of poaching.

But the extent of water under his inspection is far too wide for an effective supervision by one person; however active and zealous, and for some time back his work has been impeded by the want of a good boat, the means of obtaining which have only lately been provided by Government.

The great aim of the Commissioners will now be to procure a supply of ova from the Salmon in the Derwent, for the purpose of their further propagation, and the stocking of the many other streams in the colony which are admirably fitted to be the homes of this valuable fish. This task the Commissioners anticipate will be one of considerable difficulty.

The spawning grounds have not yet been discovered, and are probably situated far up the Derwent near its highest sources, according to the habits of Salmon in other parts of the world, where there are few or no inhabitants, and where the river will probably be found full of impediments to the use of a net.

The Commissioners have much pleasure in recording their obligation to Myles Patterson, Esq., a native of this Colony now residing in London, and who has from the first taken a lively interest in the experiment of acclimatising the Salmon in Tasmania, by whom a costly net, expressly manufactured for their use in Scotland, has been presented to them.

The lease of the ground rented from Robert C. Read, Esq., for the construction of the Ponds and the Superintendent's cottage, expired on the 1st January, 1876, and proposals were at once made to that gentleman for its renewal, to which he readily assented, at the enhanced rent of £40 instead of £20, which the Commissioners consider reasonable and moderate. Great delay has unfortunately taken place in carrying out this renewed agreement, in submitting it for the formal assent of the Government, and preparing a fresh lease of the grounds and premises.

When the Breeding Ponds were first established, the Commissioners were under the belief that a period of 14 years would be amply sufficient for the completion of the work which they had taken in hand, and that at the expiration of that term the maintenance of the Ponds as a Government establishment might no longer be necessary; but experience has shown that the process of stocking a large river like the Derwent from ova is a much more tedious work than was supposed.

As an example of the time required for stocking a river from ova, the Commissioners would cite an instance which occurred in Scotland some time since, but has only recently come within their knowledge. A small stream in Sutherlandshire, in Scotland, contained only a very inferior variety of Salmon, which it was desired to supersede by the introduction of a superior breed from the Tay. For this purpose a supply of ova was brought from that river and carefully buried among the gravel in the smaller stream "in bucketfuls,"—an expression which implies millions, the greater number of which were probably hatched into living fish,—yet 11 years passed by without any of their produce being seen or captured. It was only at the expiration of that long period that the new variety of fish was found to be fully established, and they began to be taken in considerable numbers.

But even if the Derwent and the other streams of this Colony were all fairly stocked, it will still be desirable to maintain a Breeding establishment from which the supply of young fish, naturally produced from year to year, may be recruited, and the fisheries rendered greatly more productive and profitable.

This plan of maintaining and increasing the productiveness of the rivers is now generally pursued wherever the Salmon is regarded as a matter of national importance, as in France, the United States of America, Scotland, and elsewhere, with the most successful results. Last year at Huningue, the celebrated Piscicultural establishment in France, between three and four millions of fish were reared, and from thence distributed among the various rivers in that country.

That the fisheries of Tasmania will, at no distant date, become a source of much profit to the Colony, and materially promote its commercial interests, amply repaying all the care and attention that can be bestowed on them, does not admit of a doubt.

The task of distinguishing any one of the three species of *Salmonidæ* that have been introduced into this Colony from the other two is a far more difficult one than it is generally supposed to be, and is scarcely to be performed by any but by those who, to a complete scientific knowledge of the subject, have had the advantage of much study and long practice. Dr. Günther, of the British Museum, who more than any other English Ichthyologist is possessed of these qualifications, says in his Catalogue of the Fishes in the British Museum, when speaking of the *Salmonidæ* :—

There is no other group of fishes which offers so many difficulties to the Ichthyologist with regard to the distinction of the species as well as certain points on their life history as this genus. Moreover by far the greater portion of the voluminous literature on these fishes consists of descriptions giving trivial or general characters only, frequently confounding two or three species, or representing as species what are in fact merely variations of sex, age, &c., so that the task of giving an account of all the species noticed by authors has not been an easy one, and their history (in its present form) must form one of the most unsatisfactory portions of Ichthyology. The almost infinite variations of these fishes are dependent on age, sex and sexual development, food, and the properties of the water.

The colouration is, first of all, subject to variation; and, consequently, this character but rarely assists in distinguishing a species, there being not one which would show in all stages of development the same kind of colouration.

Yet, in spite of the difficulty experienced by Dr. Günther and other learned naturalists, there are many persons who confidently take upon themselves to decide from the colour alone, or from some other character equally trivial or varying, whether a fish is a Salmon, Salmon Trout, or Common Trout.

Mr. Morton Allport has drawn up in a few lines a summary from Dr. Günther's able and voluminous work, which will assist those who wish to qualify themselves for distinguishing one species from another.

The fish in the Derwent, whether Salmon, Salmon Trout, or Common Trout, have not hitherto shown much disposition to take the artificial fly; and it was therefore an event of some interest when, on 8th October, 1876, the first undoubted Salmon was captured in this manner by Mr. Matthew Seal, one of the Commissioners, below the "Falls" at New Norfolk, although it was only one of a numerous shoal that surrounded the boat from which that gentleman and Mr. Morton Allport were fishing.

The second fish captured by the same means, and weighing 8½ lbs., fell to Your Excellency's rod and line on the 10th of January following.

Large trout, reaching a weight of upwards of 16 lbs., have been caught by rod and line from time to time—one of that weight more than three years ago. In some of the tributaries of the Derwent the Trout has afforded good sport, and been so easily caught as to necessitate the closing of several of them for a season in order to prevent their further depopulation.

Many thousand ova and fry of the Trout have continued to be annually produced in the Ponds, and distributed among the rivers of this and some of the neighbouring colonies. Ova and young fish from the Salmon Trout have also been reared, in fewer numbers, from the small supply of the fish of that species which were originally detained in the Ponds or their descendants.

It has been found, however, for the last two seasons that an increasing proportion of the ova of the last named fish have proved infertile.

The cause of this infertility is probably due to the want of that food which is only to be found in the sea, or want of the annual change to salt water; and, if it should continue, may be remedied by establishing a fresh family of breeding fish by ova brought from the Derwent.

The cost of maintaining the establishment for the year 1876 amounted to £201 19s. 9d., while more than £100 has been received for licences to fish for Trout for the season 1876-7; and this source of revenue would, the Commissioners believe, if the law were enforced with any strictness by the police or other means, be sufficient to defray the whole cost even now.

The Commissioners think that they have reason to congratulate the Colony on the signal success of the great experiment of which they have had the direction. Although much more protracted than was anticipated, when experience and example were wanting, they now perceive that it has not been more so than the natural laws to which the undertaking has been subject demanded. It has been uniformly successful from the first, and has required only time and care for its full development.

ROBERT OFFICER, *Chairman.*
MORTON ALLPORT.
JOHN BUCKLAND.
THOS. GIBLIN.
HENRY BUTLER.
MATTHEW SEAL.
ROB. CAR READ.
W. A. B. JAMIESON.
W. LANGDON.

3rd May, 1877.

RETURN of the Distribution of Ova and Fry from the Breeding Ponds, River-Plenty, during the Years 1873, 1874, 1875, and 1876.

OVA.

Salmon Trout.

	1873.	1874.	1875.	1876.
Launceston.....	300	500	..	..
New Zealand.....	300	..	..	250
Victoria.....	200	..	..	250

Brown Trout.

Victoria.....	2300	3550	3000	2000
Launceston.....	7500	6300	..	..
New Zealand.....	600	800	..	..
New South Wales.....	250	250	250	250
North East Coast Rivers.....	..	..	..	500
Hobart Town.....	100	..	..	..
Western Australia.....	..	800	..	..

FRY.

Salmon Trout.

South Esk River.....	..	..	..	200
River Plenty.....	..	..	200	..

Brown Trout.

River Plenty.....	..	200	100	750
River Derwent.....	..	..	950	..
East Coast Rivers.....	..	..	620	..
River Styx.....	..	..	..	400
Hobart Town.....	1200	..	..	..
Launceston.....	..	..	280	..
Blackman River.....	..	..	..	300
River Forth and Tributaries.....	..	..	..	500

PHILIP S. SEAGER, *Secretary Salmon Commissioners.*

To distinguish the Salmon (Salmo salar) from its congeners Trout (Salmo fario) and Salmon Trout (Salmo trutta):—

1. Colour alone is no test.

2. The presence of teeth on the vomer (that is along a line in the middle of the roof of the mouth from the front backwards), after the fish has once been to sea, proves that it is no Salmon.

3. The absence of such teeth does *not* always prove that it is a Salmon, as undoubted Trout from brackish water (especially the females) lose the vomerine teeth with age.

4. The number of scales between the back of the adipose fin (the small fleshy fin on the back nearest to the tail) and the lateral line counting obliquely forwards is in the Salmon always less than 14; in Salmon Trout or Trout 14, or more than 14.

5. The number of Pyloric appendages (long fatty coeca attached to the alimentary canal) in Trout ranges from 30 to 45; in Salmon Trout from 40 to 55; in Salmon from 50 to 70.