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PARLIAMENT OF TASMANIA.

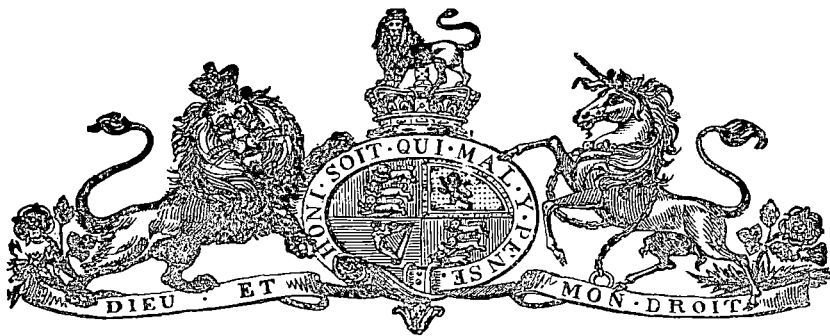
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FISHERIES BOARD REPORT:

NOVEMBER, 1887, TO JUNE, 1888.

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Presented to both Houses of Parliament by His Excellency's Command.



Hobart, 15th June, 1888.

SIR,

I HAVE the honor to present to you the First Report of the Fisheries Board, which was appointed on 6th November, 1887.

Regular monthly meetings have been held, at which many matters of interest relating to the Fisheries have been dealt with. Immediately upon the appointment of the Board it was felt that without the aid of legislation little good could be effected, and a short Bill was prepared for submission to Parliament, giving the Board power to frame by-laws, with the approval of the Governor in Council, by which means it was hoped that some good would have resulted, pending the preparation of a more complete code of Fishery Law. After the preparation of the Bill it was found impossible to introduce it in the then Session of Parliament, and the Board has consequently been unable to deal with many matters which otherwise would have commanded their attention. It must not, however, be supposed that no good has been done, as, by the aid of the Government and other bodies, measures have been taken in several important directions.

*Fishery Statistics.*

In order that the value of the fishing industry might be the better realized, it was felt to be important that reliable statistics should be procured of fish brought to market and sold, and boats and crews engaged in fishing. Such statistical information is considered of the greatest importance in the United Kingdom, and the returns form not the least valuable portion of the Annual Reports of the Fisheries of England and Scotland. In Ireland a special vote of money has recently been made for the collection of fishery statistics. Here in Tasmania, from various causes it is impossible to get complete statistical information in the direction sought. This, to some extent, is owing to the absence of any recognised official system of registration of boats and men, and of there being but one public fish market in the colony. For the information already obtained in relation to fish sales in Hobart the Board is indebted to the Municipal Council of Hobart, who control the market, and who have instructed the proper officer to supply the information asked for.

The returns supplied to date show the following results :—

| <i>Period.</i>   | <i>Fish.</i>  |          |           |           | <i>Crayfish.</i> |          |           |           | <i>Cockles.</i> |          |           |           |
|------------------|---------------|----------|-----------|-----------|------------------|----------|-----------|-----------|-----------------|----------|-----------|-----------|
|                  | <i>Dozen.</i> | <i>£</i> | <i>s.</i> | <i>d.</i> | <i>Score.</i>    | <i>£</i> | <i>s.</i> | <i>d.</i> | <i>Bshls.</i>   | <i>£</i> | <i>s.</i> | <i>d.</i> |
| March, 1888..... | 2277 =        | 568      | 8         | 9         | 252 =            | 50       | 8         | 0         | 8 =             | 2        | 0         | 0         |
| April, 1888..... | 2224 =        | 367      | 3         | 2         | 234 =            | 48       | 16        | 0         |                 |          |           |           |
| May, 1888.....   | 3430 =        | 421      | 13        | 3         | 235 =            | 58       | 15        | 0         |                 |          |           |           |
| TOTALS.....      | 7931 =        | 1357     | 5         | 2         | 721 =            | 157      | 19        | 0         | 8 =             | 2        | 0         | 0         |

Or a total value for three months of £1517 4s. 2d.

There being no market in Launceston, returns from that town cannot at present be supplied, but the members of the Board resident there have the subject under their consideration with a view of preparing a scheme by which the want indicated may be supplied. Many boats are also engaged in the fishing industry in the Tamar and other rivers and on the coast of the Colony, and until uniform registration of some kind is insisted upon, completeness of information cannot be hoped for. The information already supplied proves that the industry is of larger extent than is generally supposed, and is one which, with fostering care and encouragement, can be very much extended.

There are 56 boats from Hobart engaged in fishing, classified thus—

| 1ST CLASS.<br><i>Decked well-boats,<br/>deep-sea fishing.</i> | 2ND CLASS.<br><i>Large open well-<br/>boats, deep-sea<br/>fishing.</i> | 3RD CLASS.<br><i>Well-boats or others<br/>used for seining or<br/>river fishing.</i> | Total number of<br>Crews. | Total number of<br>Nets.                         |
|---|--|--|---------------------------|--|
| 13  | 19   | 24   | 115                       | 6 seines.<br>140 graballs.<br>460 crayfish nets. |

#### *River Netting.*

This is a subject to which considerable attention has been devoted.

*River Huon.*—The restrictions against netting in this river were above a line across the north end of South Egg Island. This left the narrow channel below this point available to the use of nets, which were set completely across the channel, about 40 being so regularly used, large numbers of *salmonidæ* being thus captured and destroyed; the protected water was also being extensively poached. The attention of the Board having been drawn to the matter, the Government was advised to extend the protected limit to a point from the southern side of Castle Forbes Bay to a point due east on the other shore. After much opposition this line has been adopted, and a more active supervision by the police in the protected area has led to the capture of several nets and the prosecution of the offenders. It is a matter of surprise that the value of the fish in the Huon is not more fully recognised by the residents of that District. The influx of visitors to the neighbourhood for the purpose of fishing, and the consequent expenditure resulting therefrom, must benefit the District; and it is surely a short-sighted policy which, for the object of a little temporary gain in fish to the local residents by illicit practices, would destroy or imperil what promises, in the near future, to become an important centre for a salmon fishery. It is to be hoped that better counsels will now prevail, and that the residents will appreciate the necessity for the restrictions imposed.

*River Derwent.*—Many complaints were made to the Board of injury caused in the Derwent by the use of graball nets, and it was proposed to extend the limit for the use of such nets to the same line as that fixed in respect of seine-nets, but the proposal met with most extensive opposition, and the matter was remitted to a sub-committee for consideration. This committee have taken evidence, and consulted with Sir Thomas F. Brady, and have submitted a Report dealing exhaustively with the subject. Their recommendations have been adopted by the Board, and have been submitted for the approval of the Governor in Council. The Report appears as an Appendix hereto.

#### *Salmo Salar.*

With regard to the fish last liberated we have nothing to report. Some of them should spawn this year, but there are no means of ascertaining if they do so unless they pass up the River Plenty and into the fish-trap erected there for the capture of gravid fish; this trap is, however, rendered useless when the river is in flood; and as the fish are generally awaiting a good fresh before ascending to the spawning-grounds, the salmon may pass up without being observed. The trap was covered with flood-water last year, and again quite recently. One of the most important proposals made by Sir Thomas F. Brady is that a fish-trap or cruiwe-weir should be constructed at a point immediately below No. 1 Railway Bridge, on the Derwent, by which means the movements of the *salmonidæ* would be accurately ascertained. It is only reasonable to expect that the migratory forms will keep to the broad main stream as long as they can readily ascend, and if this be so, comparatively few would be found in the Plenty. If the weir be erected, all fish passing up the Derwent would be inspected, with the exception of those which might prefer the Sorell Creek or the Lachlan. That large shoals of the salmon family do pass up the Derwent annually is well known, and it would be most valuable to ascertain whether these are annually increasing or diminishing in number. The weir can be constructed at a comparatively modest expenditure, and its maintenance for a year or two at least is most important. Sir Thomas Brady has suggested a method by which the proposed weir can be converted into an eel-trap, and if successful in that direction it would become a source of profit, and lead to the establishment of another industry; the Board trust that this proposal will be assented to. Models of the proposed weir and eel-trap are to be sent to the Board by Sir Thomas Brady on his return to Ireland.

Of the *S. Salar* kept in confinement at the ponds, about 300 fry were produced last season, and these fish were successfully conveyed north by the Hon. James Smith, M.L.C., and liberated in the Rivers Forth and Inglis.

To the generous act of the Hon. J. W. Agnew, who was Chairman of the late Salmon Commissioners, the Colony is indebted for another large importation of salmon ova. Dr. Agnew

had, before the appointment of this Board, placed a sum of money at the disposal of a Committee of the Royal Society of Tasmania, and the Committee entered into a correspondence with Sir Thomas F. Brady, in Ireland, who procured for them a very large number of ova, presented by R. L. Moore, Esq., of Molennan, Londonderry. The ova were kept in a hatchery until the eyes had developed, when they were shipped to Hobart in the s.s. *Kaihoura*, arriving there on the 18th April, accompanied by Sir Thomas Brady. The largest success has attended this shipment. The hatching is complete, and the fry, numbering, it is believed, several hundred thousand, are progressing well in the hatchery at the Plenty. It is proposed to retain these fish in the rills and ponds for a period of about six months, until they attain sufficient strength for their self-protection, when they will be liberated; their future home has not yet been determined, the Committee of the Royal Society being guided in this matter, as well as in the treatment, &c. of the fry, by the advice of Sir Thomas Brady.

*S. Trutta, S. fario, S. fontinalis.*

Many thousands of salmon trout have been sent from the hatchery during last season. Beyond the export of a large number of ova of brown trout to Victoria and New South Wales, the artificial culture of this species has for the present been abandoned. The fish is to be found in most of the rivers of Tasmania, and an increased stock is readily obtainable if required. The Californian trout continue to be in great demand, and several streams were supplied last season. A large number of ova have again been collected this year. This variety spawns more than a month earlier than the other varieties of salmonidæ, and reproduces when two years old.

*Cucumber Mullet—(Prototroctes macræna.)*

It was understood that the further cultivation of this fish was to have been continued by the Inspector of Fisheries, and it was not until the spawning time was well advanced that the Board was informed by Mr. Saville-Kent that the apparatus which he had used for the purpose at his hatchery at Battery Point had been erected at the Plenty hatchery by his orders, that it might be used under the direction of the Board. As it is now clearly understood that the Board is to undertake this work the necessary arrangements will be made for as large a supply of the next season's ova as can be procured from the northern rivers.

*Blackfish—(Gadopsis marmoratus.)*

The Board has not attempted the introduction of this fish into southern rivers, but if it be found desirable to do so, the fish are readily obtainable, and are easy to transport. The South Esk River in the north was stocked by means of a few small fish carried from another river in a common tin can.

*Eel Fishery.*

As previously mentioned, Sir Thomas Brady has advised the Board as to a method by which an eel fishery can be established in connection with the proposed cruive-weir, and has promised to furnish specimen nets used for a similar purpose in Ireland, where the eel fishery, which a few years ago was unknown, is now of great commercial value.

*Fishery Legislation, &c.*

Sir Thomas Brady has also advised the Board very fully upon fishery matters, the system of management, and the fishery laws of this colony. Reference has already been made to his recommendations for the construction of a cruive-weir and eel-trap. He strongly deprecates a dual control of the fishery, and suggests that the whole should be under a Board, as in Scotland and Ireland. In England the fisheries are under the management of inspectors, responsible to the Board of Trade; but this mode of management is found to be unsatisfactory, and the matter has quite recently been brought under the notice of the Government in the House of Commons by Mr. Birkbeck, M.P., and an amendment in the direction of Board management has been promised.

Sir Thomas Brady has met a committee of the Board in consultation on three occasions; has visited the Salmon Ponds on several occasions; has made recommendations for the improvement of the hatchery and ponds. He has given his special attention to a study of the existing statutes relating to fishery matters in this colony, and has drawn a Bill which, while consolidating the law, has enabled him to introduce such provisions as in his opinion are necessary to ensure proper management. His ripened experience of upwards of 40 years in the Fisheries Department of Ireland renders him peculiarly well fitted for work of this character, and the Board trusts that his Bill will be accepted by the Parliament, and enable them to effect much-needed improvements in the interests of the fishermen and the general public. The Board is aware that the fishermen are themselves anxious that their department should be regulated in some systematic manner, and it is anticipated that the more intelligent men will render their hearty co-operation in assisting the Board in improvements contemplated.

The Board has drawn the attention of the Government to the services rendered to the colony by Sir Thomas Brady during a long series of years, and more particularly to the hearty way in which he gave up his time during his stay in Hobart to advise and assist them in the work entrusted to their care. It is also due to R. L. Moore, Esq., to publicly record the indebtedness of the colony for his generous gift of so large a number of salmon ova as those brought out by Sir Thomas Brady—a gift rendered more valuable by the knowledge that this is the third occasion upon which his fishery has been used for the same purpose.

The munificence of Dr. Agnew's service in meeting the whole expense of the *Kaikoura* shipment of ova can never be forgotten, and is worthy of the highest commendation.

It is due to the Secretary to the Board (Mr. P. S. Seager) to acknowledge the very valuable assistance given by him at all times; services which are not measured by the amount of the small honorarium paid him, but which evince a deep interest in everything connected with the duties of the Board.

I have the honor to be,

Sir,

Your obedient Servant,

MATTHEW SEAL,

*Chairman Fisheries Board.*

*The Hon. the Chief Secretary.*

Appended hereto are :—

- (A.) Report Sub-committee on Netting in River Derwent.
- (B.) Report on Fisheries, by Sir Thomas F. Brady.
- (C.) Questions to Sir Thomas F. Brady, and his replies thereto.
- (D.) Return of Fish sold in Market, Hobart.

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## APPENDIX A.

### REPORT OF THE COMMITTEE ON NETTING IN THE DERWENT.

"We have the honour to present to the Board our Report upon the matters committed to us for investigation. We have held several meetings, and taken the evidence of several witnesses. In order that the subject might be considered from its various positions, we selected representative fishermen, anglers, and amateur graball-fishermen. We have also consulted Sir Thomas Brady upon the subject. As might have been anticipated, the evidence taken is of a most contradictory nature; and it is a difficult matter to reconcile the opinions expressed by the various witnesses. The professional fishermen contend that the use of graball-nets has a tendency to destroy spawning grounds by diverting fish, and driving them into the deep water. There is, however, nothing to confirm this opinion, which should be cautiously accepted without further evidence and consideration. The amateur graball-fishermen examined could only speak of their actual experience of the number of fish captured, but they could not testify to the spawning habits of the fish. The anglers complained of the annoyance caused to them, and the injury done to their pastime, by the setting of graball-nets in favourite fishing-grounds; but this practice applies more particularly to the vicinity of the wharves and the western shore of the river from the wharves to the existing limit at Cornelian Point. It has not been clearly proved that any actual damage is done to fishing in Sandy Bay by the use of graballs, as the number of fish so captured is small. Evidence has been given which tends to prove that this mode of fishing is more successful on the eastern shore of the Derwent than on the western shore. It may be contended that anglers, as such, have no right to protection, and that where fish are known to exist in numbers all legitimate means of capturing the same should be permitted; but this right should be exercised with the greatest caution. Experience of older countries has proved that it is absolutely essential to protect certain known breeding-grounds of fish, to prevent extinction; and the experience gained by the closing of certain portions of the Derwent is in accord with that view. The angler has, we submit, a right to some protection, where it is shown that his favourite pursuit is affected by the amateur graball-fisherman, who fishes also for pleasure. It has not been proved that the Derwent above Sandy Bay is netted by the professional fisherman in pursuit of his calling. As already mentioned, we have consulted Sir Thomas F. Brady on the question of netting generally; and, in addition to receiving his written replies to questions submitted to him, we have had a long conference with him upon the subject. His views are expressed in his replies to questions 1, 2, 3, 4, 5, 6, 7, 8, 12, and 24, and are strongly in favour of the limitation of netting, and the fixing of a standard mesh of not less than  $1\frac{1}{2}$  in. from knot to knot. After a most careful consideration of the whole question, we recommend that the

existing restrictions against netting in the River Derwent be amended as follows :—No seine-netting to be permitted above the line indicated in the existing regulations. That in lieu of the line from the northern point of the Cemetery at Cornelian Bay to the southern side of Geilston Bay, which is the present limit above which the graball cannot be set, a new line be fixed from the Semaphore at Battery Point to the first Bluff at Bellerive. That below this limit to the existing limit relating to seining from One Tree Point to Droughty Point, graball-nets may be used, between sunrise and sunset, of a mesh of not less than  $1\frac{1}{2}$  in. from knot to knot. That a graball-net, within the meaning of the regulations, be defined as a net set from the shore outwards, and not to be dragged in any way. We believe that the adoption of these limits will be satisfactory to all parties. We have also investigated the complaint as to the injury caused by tar in the river ; and we have every reason to believe that such a nuisance and injury will not again occur, as the Gas Company have undertaken to introduce every precaution to prevent the escape of tar, or ammoniacal liquor, from their works into the Derwent. We have specially to report that, taking advantage of the visit of Sir Thomas Brady, we submitted to him a series of questions upon fishing matters generally. He was good enough to give written replies to our questions, and has supplied a general report upon matters relating to our fishing. He has also considered our statute law, and has prepared a Fisheries Bill, introducing what he deemed to be necessary provisions, and amending and consolidating the existing laws upon the whole Fisheries, including oysters. The Bill is now in the hands of the Government Printer, and it is anticipated that it will be placed before the Legislature at an early date. The hearty thanks of the Board are due to Sir Thomas Brady, who gave up so much of his time during his stay here to the furtherance of the work entrusted to this Board. His ripened experience, resulting from upwards of 40 years' labour in the Irish Fisheries Department, gives to his views the greatest weight. Appended is the evidence taken, Sir Thomas Brady's replies to questions, and Sir Thomas Brady's report."

## APPENDIX B.

*Government House, 28th May, 1888.*

IN compliance with the request of the Committee of the Fisheries Board of Tasmania, that I should give them my recommendations and opinions upon any fishery matters not embraced in a series of questions sent to me by the Committee, and to which I have given categorical replies, I have much pleasure in stating, for the information of the Commissioners, that from what I have seen, and the information I have obtained from several persons and in several localities, I consider the whole of the Fisheries of the Colony—at any rate, of this portion of it—are worked in such a primitive and desultory form that they are not developed to such an extent as might be done to the great advantage of the public interests, and that, in fact, their value is hardly known. It is manifest to me that the Salmon Fisheries have not been developed in any form to ascertain what quantity of salmon are in what ought to be one of the most magnificent estuaries for such fish that I have seen,—in fact, quite equal to, if not exceeding, that great salmon-producing river in Ireland, the Shannon, from which hundreds of thousands of salmon are annually exported to England,—or in the neighbouring river, where His Excellency the Governor caught the large salmon this year ; while the eel fisheries, which in the mother country have become almost as valuable as salmon, appear to be wholly unworked and unknown, although, as it has been represented to me, the fry of this fish may be seen ascending the Derwent in countless numbers during the spring months.

The sea fisheries appear also not to be worked with energy, nor with improved modes of capture, such as are adopted in other countries ; while old fashioned and most injurious descriptions of nets are used in some places.

It is hardly necessary for me to point out to the Committee the advantages to be obtained to any country from the full development and protection of its fisheries. Scotland is an example of what may be done by proper and judicious modes of administration and development—so also Canada and America ; while, with regard to its salmon and eel fisheries, Ireland is an example worth following. These fisheries have increased, within comparatively a few years, to an enormous commercial value ; while there are few countries that will afford better sport in angling for salmon.

I cannot see anything in the waters of Tasmania to prevent corresponding advantages and wealth being realized. This cannot, however, be accomplished without the judicious expenditure of money, any more than it can be expected wealth should accumulate in any business without the expenditure of capital ; the difference being, that in the latter case the private individual realises all the benefits to be derived from his outlay, whereas, in the former, the public must share considerably in any advantages derived from such outlay. It is for the interest of the general public, and the wealth to be brought into a country under such circumstances, that its Government should, I think, contribute towards developing such a source of wealth as may be obtained from its fisheries, and not wait for that which seldom, if ever, occurs—the employment of private enterprise.

I would recommend that the whole of the fisheries, including sea salmon and trout, eel, and other fresh-water, oyster, and other shell fisheries should be placed under one Board, to be responsible only to Parliament ; that the present Acts should be consolidated and amended in such a form as to meet the requirements, if possible, of each case ; and that an annual sum of money should be voted by Parliament to enable the Commissioners to carry on such experiments as are absolutely necessary in the capturing of fish, with the view of finally determining or ascertaining the value of each description of fish inhabiting the waters of Tasmania.

The importance of leaving to a department, constituted specially for the purpose, either from the qualifications of its members or the knowledge of experts to be employed by it, the settlement of every question relating to every branch of the fisheries cannot be overrated. It should have all the powers mentioned in my reply to question No. 19, subject to the conditions and restrictions named, the Act only providing for certain general matters applicable to every case.

The present Acts are insufficient in many respects ; and instead of the Legislature passing another rider on laws which require amendment and extension, it would be much better to repeal the existing Act, and pass one Act which would embrace everything.

I cannot anticipate any good arising from either of these, unless sufficient money be provided to supply the wants which are now manifest.

Assuming that Parliament will not hesitate to provide funds, I will deal with the manner in which I think it would be of importance to expend them for the general public interests :—

1. The Commissioners should, having received authority from Parliament by the passing of the Act, erect, at a place I have examined on the River Derwent, immediately below railway bridge No. 1, New Norfolk, a weir for the capture of salmon ascending the river. This can be accomplished at this place without the assistance of any engineering skill. The weir may be erected of loose stones, rails, and brushwood, similar to the fishing weirs in Ireland and Scotland called a cruive-weir, and should embrace the whole contents of the waterway, so that no fish could ascend the river without going through the cruive or box in the weir. From this box all the fish caught can be easily lifted by a landing-net and placed in the river above the weir, first registering in a book all particulars respecting each fish—its appearance, description, quality, &c. By this means, not only the quantity of salmon can be ascertained, but the exact data from which the proper season for capturing salmon can be fixed.
2. This box can be adapted so that when eels are descending the river to the sea a coghill or eel-net may be placed in the eye of the box, the salmon inscales having been removed, and the eels caught. These may be sent to the public market. It will do no injury to capture them ; and the produce of their sale, if I have been properly informed as to the quantity of eel fry seen ascending, should be large, and might be applied towards the expense of the experiments. Wooden tanks, perforated so as to allow a plentiful supply of water to flow through them, should be fixed in some rather deep part of the river, near and below the weir, to keep the eels alive. They can be taken out through a trap-door lid at the top of the box by means of a landing-net, and sold only when other fish are scarce, or when there is a demand for them. The eels will keep alive for a long time in such tanks, provided the water flows freely through them, is deep enough so that they will not smother each other, and that the holes or slits through which the water flows is not large enough to allow the eels' tails to get into them. A similar cruive-weir should be erected at some suitable place on the Huon, where His Excellency killed the salmon this year, for a similar purpose. These experiments will test the questions as to the quantity of salmon ascending or eels descending. It must be borne in mind that eels will only run in any large quantity in dark tempestuous nights, and the nets for them should only be set from sunset to sunrise.
3. With regard to sea fisheries, the use of the beam or other trawl net ought to be availed of for trying for flounders or other flat fish, or for low swimming fish ; also spilletts, or long lines with a large number of hooks baited with several descriptions of baits—lugs, winkles, mussels, &c. The fish captured may be turned to profitable account to defray the expenses. If successful, the public fisherman would soon follow the example, and the experiments need not be further proceeded with. In the same way with the eels ; if successful, the right of capturing them by such a mode as I suggest could be let by public competition.

As regards Salmon, I would reserve the right of capturing them, save in tidal waters, by moveable engines such as drift or draft nets, in places not prohibited by a by-law, or by angling in fresh waters, until a plentiful supply was secured, when the propriety of letting them to a private individual might be considered.

With regard to the Oyster Fisheries, it would be important for the general public beds that Government Reserves should be kept, as at present in Spring Bay, but with more care than I observed in that place. In one of the Government Reserves in that place, to which I was brought for inspection, the oysters and everything connected with them were in a very dirty state, and would prevent spat adhering. Oyster Reserves should be kept perfectly clean, and maintained only in such places where there will be as small a deposit of dirt or mud as possible.

The young spat should be carefully removed from the shells and other collectors, and should be parked out according to their different ages or sizes, and sold to those persons who are cultivating oysters on private beds, or concessions granted to them.

In addition to the expense attendant on such experiments, there is the necessity of employing a sufficient number of Bailiffs or Inspectors to see that the laws are not infringed upon ; and, above all, that sufficient protection be afforded to salmon and trout during the spawning season. Unless this is done, it cannot be expected that either of these fisheries can be developed to the extent to which they are capable. Sufficient protection during this season is all-important ; and it is idle to think that the present system of having a constable to watch over a large district of country can be of much avail to prevent poaching.

In places like the Great Lake, where large trout have accumulated to a great extent, it would improve the fishing to thin them out by means of well adapted nets, of a proper mesh, to allow small fish to escape; and these large fish might be brought to market, or the right of taking such, under proper regulations and restrictions, might be let.

These are general recommendations and suggestions; but, from time to time, others might suggest themselves as the fisheries progressed, and should be dealt with by the Commissioners, by by-laws or regulations, which they should have power of making.

The answers to the questions of the Committee are annexed; and I have now only to suggest the draft of a Bill which would be of importance to have enacted into law.

The experiments I have recommended will not be costly. The erection of the weirs and providing proper appliances will be small; and the number of persons to be employed at these weirs need only be very few. The experiments for capture of salmon should be carried out this next spring and summer and well into autumn, and those for eels next autumn and winter; and, until the result of them is known, it will not be necessary to increase the number of Bailiffs for protection. If Parliament would vote a sum of £500 for these objects, I think it would be sufficient for the present.

THOMAS F. BRADY.

## APPENDIX C.

1. Is it a wise plan to permit netting in the known spawning-grounds of fish in the estuaries and bays of rivers?

If the spawning-grounds of sea fish are known, it would not be wise to permit netting in such places, particularly during the spawning seasons. However, it is right to say that the spawning-grounds of sea fish in general are hardly known. It is known where certain kinds of fish (such as the herring) spawn, but with regard to round fish there is, to a certain extent, some doubts involved, though the latest authorities state they spawn on the surface of the water, and in each ovum is a globule of oil, which keeps it in suspense. The presence of small fish on any ground is not a proof that fish spawn on that ground.

2. Where it is known that smolts congregate at certain periods in large numbers in certain localities, would it be well to prohibit netting altogether in such localities during such known periods?

Most undoubtedly; unless such an interdiction would interfere with a profitable fishing for large marketable sea fish for the public. In such a case the use of any net having a mesh less than  $1\frac{3}{4}$  inches from knot to knot, or 7 inches in the round, should be prohibited by a by-law in such places and for such periods.

3. Would you recommend the registration and licence of all nets? If so, what system of registration would you suggest?

Yes, certainly; and a penalty should be imposed on any skipper of a boat, or any person acting as skipper, or, in default of finding such skipper, on the owner, or, in default of finding the owner, on each and every one of the crew using a boat for fishing for sale without having the register on board.

All boats used in fishing for sale in Ireland are required to be registered, marked and numbered, and the register kept on board. As to the system of registration, I will deal with that hereafter.

4. Would it not be a proper plan to fix a standard mesh for both seine-nets and graballs? If so, what is the smallest mesh you would advise in both cases?

The standard mesh for salmon should not be less than  $1\frac{3}{4}$  or 2 inches from knot to knot on each side of the square, or 7 or 8 inches in the round, measured when the net is wet. It might be injurious to the public interests to absolutely interdict the use of nets for sea fish with meshes less than this, as in some cases, places, or times, it might interfere with the capture of sprats or anchovies, or other small but marketable fish. The use of seines or graballs for the capture of any fish in estuaries and bays with less meshes than these might, I think, be prohibited; and where nets of less mesh are necessary for the capture of small marketable fish such as I have mentioned, their use might be permitted by by-law of the Commissioners.

5. With reference to seine-nets, would you advise that they should be emptied in the water, and not be permitted to be drawn on to the shore?

No. It would not be practicable in all cases to carry this out. It would interfere in some places with the industry, and if purse seine nets ever came to be used, or if seines were hauled into a boat over the gunwale, which is in some places often the case, such a regulation could not be observed. If large-meshed seines only are permitted and used, the greater portion of the small immature fish would pass through the meshes before the entire net could be hauled on the shore, and little mischief would be done.



6. Will you express your opinion upon the seine net used recently in your presence for scientific purposes?

Such a net should be absolutely interdicted. If a net with so small a mesh were required at a certain time of year, and in a certain locality, for the legitimate capture of sprats, anchovies, or other small fish, its use should only be permitted by a By-law of the Commissioners.

7. Are you aware of any net by which flounders of a marketable size could be captured without injury to the smaller fish or fry, and if so, would you permit the use of such nets during the spawning season of such fish?

The only nets that I am aware of by which the flounders could be captured, without injury to the small fish, are large-meshed trammels; and I do not think their use during the spawning season would be injurious. Flounders could be taken by the trawl also, and if meshes of nets made large and mounted square so as when hauled taut they would open instead of close, the greater portion of the small fish might escape. Flounders, however, take, with us, bait greedily, and might be profitably fished for by means of hook and line in the shape of spilletts, or long lines—*i.e.*, laying along the bottom lines with some hundreds of hooks fastened on sneds or snouding of a sufficient length. This might be a more profitable mode of fishing for them than by nets.

8. Would you advise the reservation of rivers against netting as nurseries for fish in localities where known breeding-grounds exist?

I do not think this essential, unless probably at the times when fish are spawning, if the netting be carried on under proper regulations. See also my reply No. 1.

9. What class of nets would you recommend for use in bays and estuaries, &c. for the capture of *salmonidæ*?

Nets for the capture of salmon should not be allowed to be fixed or made stationary in any way. If drift nets are used they should have meshes of not less than  $2\frac{1}{2}$  inches from knot to knot; if draft nets or seines, not less than  $1\frac{3}{4}$  or 2 inches; and all nets should pay a licence duty.

10. When would you deem it a fitting time to begin to authorise salmon nets, having in view the early liberation of the salmon fry at the Ponds, and the fact of a large number having been liberated about two years ago?

Unless there be a large influx of salmon from the sea this next season from the ova sent out two years ago, I would not allow salmon nets to be used for at least four years, though if the regulations I suggest be carried out their use would not do much injury.

11. Will you advise as to the mode adopted in Ireland or elsewhere of protecting salmon or trout from passing into mill-races or artificial channels—what mesh of grating is used, and how are they kept free from leaves and other obstructions?

The mode is similar to that enacted by the 10th section of the 29th Victoria, No. 6. This section, however, should be amended so as to compel the erection of gratings at the end of tail races at their return into rivers, so as to prevent the ascent of fish into such channels. The onus of erection of all gratings, and keeping them free from obstructions, should lie on the owner or occupier or person having control of such streams. In cases where bucket-wheels are used for a mill it would not be necessary to enforce gratings at the upper end or mouth of the stream at its divergence from the river so close as to prevent the entry of salmon fry, as they will pass down safely through the buckets; but where turbines are used a wire lattice should be enforced so as to prevent fry entering the lead. Gratings, to prevent salmon entering, should not be wider apart than  $1\frac{1}{2}$  inches. In some places gratings might be unnecessary, and the Commissioners should have power to give an exemption in such cases from the necessity of erecting them. In all cases not so exempted they should be enforced.

12. What restrictions as to the use of graballs, size of mesh, &c.?

See my replies to other queries on this matter.

13. Would you advise the closing of all freshwater rivers against netting, or the setting of a net completely across the waterway?

Yes; all freshwater rivers should be reserved against netting, for nurseries, and purpose of angling. In large lakes, such as the Great Lake, where there is a large quantity of heavy trout, I think it would not only be not injurious but beneficial to allow netting, under proper restrictions as to mesh, and short open seasons. These nets should be duly licensed by the Commissioners and pay licence duty, and the rent for such a privilege should be fixed by the Commissioners. Nets stretched completely, or more than three-quarters across any waterway, should be prohibited.

14. Would you advise any regulation by which the mouths of rivers should be secured against netting, and what distance on either side of the river mouth should be protected?

Netting should be prohibited in all rivers frequented by salmon within half a mile seawards, or inland of their mouths, which should be defined by the Commissioners.

15. Would you recommend a uniform system of registration and licence of vessels and men engaged in fishing. If so, would you state the system you would recommend?

See reply to No. 3.

16. Would you prohibit the use of dynamite, or other explosives, in rivers, &c.?

Yes, certainly, in all waters. The Commissioners, however, should have the power of using such if they considered it necessary for experimental purposes.

17. Have you any suggestions to make with reference to fish markets and the sale of fish?

A wholesale fish market would be important, and I think would be beneficial to the fishermen if they could be prevailed on to use it for the sale of their fish. Statistics of the quantity of fish taken, and prices obtained, could then be obtained by the Clerk of the Market. I look on it as most important that statistics of this description should be taken, and so much has this want been felt in the United Kingdom that Parliament has lately voted a sum of money annually for their collection. I think all fishermen who fish for sale should be bound by law to make returns, say weekly or monthly, to the Commissioners, of all fish captured and the prices obtained.

18. Will you peruse the Tasmanian statistics relating to salmon and trout and other fishes, and express your views as to their fitness for the purposes contemplated?

I have perused them, and so far as they go consider them generally the foundation of a good code, but they require amendments and additions, and in making such I think they ought to be consolidated, and all amendments and additions embraced in one Act, which should also transfer to the Commissioners of Fisheries the absolute and entire control of all the Fisheries of the Colony, including oyster fisheries.

19. Would you advise the vesting of the Fisheries in a Board, and what powers should such Board possess?

I think the Fisheries can never be properly regulated without the aid of a Board, which should have full power to deal with them in promoting the public interests. This Board should have the power of making by-laws, rules, or regulations, fixing seasons, imposing licence duties on all engines for the capture of salmon and trout, &c., in the same manner as the Irish Fisheries Board—see 91st section, 5 and 6 V., c.106, s. 91, *et post*. The Board should not be obliged to appeal to Parliament for every change or regulation necessary. To prevent any act of injustice or grievance, all by-laws, &c. might be made subject to the approval of the Governor in Council, and an appeal to that tribunal given to any person feeling aggrieved by any such by-law—see 91, 92, and 93 sections, 5 and 6 V., c. 106, Irish Act.

20. Would you advise fixed laws, or would it be better to govern by regulations?—if the latter, would the regulations be made by the Board alone, or by the Board subject to the Governor in Council?

Certain fixed laws by statute, which might be considered fundamental. After them, regulations, &c., as recommended in my reply to No. 19.

21. What points in the fishery should be governed by regulations?

Every point that might arise and not dealt with by statute law. See also No. 19.

22. What system would you recommend for the supervision of the fisheries?

The General Board should have the power of appointing such officers and bailiffs as they might consider necessary for the supervision of the fisheries, the protection of fish during the spawning season, and the enforcement of the laws generally. They should also have the power of deputing committees of themselves to act for them in distant parts where necessary, such committees to recommend such by-laws or regulations as they might consider necessary; they should have power to hold general meetings of persons interested in the fisheries, enquiries, &c., to summon witnesses, to examine persons on oath, and to make any experiments from time to time they might consider necessary.

23. Would you recommend the Government voting a certain sum of money for the purpose of testing the waters on the coast by means of trammel and other nets?

Most undoubtedly. At the present stage of the fisheries, and from what has come under my own observation, I am strongly of opinion that a sufficient sum of money should be voted by Parliament for the use of the Board in making experiments even much more than are suggested. They should also have a sufficient sum of money voted by Parliament to enable them to employ such officers as I have already recommended, and without which the making of by-laws or regulations, the improvement of the fisheries, or the protection of the fish in the spawning season, would be next to useless. I look upon it that such an expenditure judiciously and carefully administered would amply repay itself in a few years by the increased wealth brought into the colony by the development of its fisheries.

24. Will you peruse the accompanying evidence, and express any opinion upon any fishery matters not embraced within the above series of questions?

I have perused the evidence. It is, like nearly all evidence on fisheries, of a conflicting character, nearly every witness either looking to his own interests only, or his knowledge being confined to his own locality; but I gather from it that in some places the use of the graball would be injurious, while in others it might not be so. This shows how difficult it would be to frame a general law applicable to the whole island, and to the various states and circumstances of the fishery of each locality. In the power to make by-laws, either prohibiting in the one case or permitting in the other the use of certain engines, each case and circumstance of each locality can be met and determined on to the benefit of the fisheries, not only of the locality referred to, but of the whole of the fisheries, and the advantage of the public.

## APPENDIX D.

RETURN of Sales in the Fish Market, Hobart, during the Months of March, April, and May, 1888.

| Fish.  | March.            | April.           | May.                | Total for 3 Months. |
|--|-------------------|------------------|---------------------|---------------------|
| Barracouta ( <i>Thyrstites atun</i> ).....     | 553 dozen at 9s.  | 200 dozen at 7s. | 420 dozen at 7s.    | 1173 dozen.         |
| Bream ( <i>Chrysophrys Australis</i> ) ....    | ...               | 6 " 8s.          | 3 " 14s.            | 9 "                 |
| Crayfish ( <i>Palinurus Edwardsii</i> ).....   | 252 score at 4s.  | 234 score at 5s. | 235 score at 5s.    | 721 score.          |
| Carp ( <i>Chilodactylus Allporti</i> ).....    | 23 dozen at 3s.   | 10 dozen at 5s.  | 12 dozen at 2s. 6d. | 45 dozen.           |
| Cockles ( <i>Venus sp.</i> ) .....             | ...               | 8 bushels at 5s. | ...                 | 8 bushels.          |
| Eels ( <i>Anguilla Australis</i> ) .....       | 3 dozen at 12s.   | 4 dozen at 12s.  | 3 dozen at 12s.     | 10 dozen.           |
| Flathead ( <i>Platycephalus bassensis</i> )    | 199 " 1s.         | 145 " 1s.        | 120 " 1s.           | 464 "               |
| Flounders ( <i>Rhombsolea monopus</i> )        | 258 " 5s.         | 112 " 4s.        | 106 " 4s.           | 476 "               |
| Garfish ( <i>Hemirhamphus intermedius</i> )    | 228 " 1s.         | 711 " 6d.        | 1524 " 6d.          | 2463 "              |
| Gurnet ( <i>Sebastes percoides</i> ) .....     | 1 " 3s.           | 12 " 4s.         | 9 " 4s.             | 22 "                |
| Kingfish ( <i>Thyrstites Solandri</i> ).....   | ...               | 3 " 60s.         | ...                 | 3 "                 |
| Ling ( <i>Genypterus blacodes</i> ) .....      | half dozen at 9s. | 1 " 15s.         | 10 dozen at 3s.     | 11½ "               |
| Mullet ( <i>Agonostoma Forsteri</i> ) .....    | 179 " 1s.         | 73 " 8d.         | 75 " 9d.            | 327 "               |
| Mackerel ( <i>Trachurus trachurus</i> ) ...    | ...               | 17 " 4d.         | ...                 | 17 "                |
| Perch ( <i>Chilodactylus macropterus</i> )     | 242 dozen at 5s.  | 348 " 4s.        | 323 dozen at 4s.    | 913 "               |
| Rock Cod ( <i>Pseudophysis barbatus</i> )      | 118 " 2s.         | 193 " 1s.        | 64 " 2s.            | 375 "               |
| Trumpeter, real ( <i>Latris hecateia</i> )...  | 29 " 24s.         | 39 " 34s. 7d.    | 36 " 24s.           | 104 "               |
| Ditto, bastard ( <i>Latris Forsteri</i> ) .... | 403 " 5s.         | 326 " 5s.        | 274 " 4s.           | 1003 "              |
| Ditto, silver ( <i>Latris Forsteri</i> ) ..... | 18 " 12s.         | 8 " 12s.         | 13 " 14s.           | 39 "                |
| Trevally ( <i>Neptonemus brama</i> ) .....     | ...               | 2½ " 6s.         | 32 " 6s.            | 34½ "               |