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The Newfoundland Fishery and State Intervention in the Nineteenth Century: The Fisheries Commission, 1888-1893

KEITH W. HEWITT

THE CURRENT CRISIS in the fishery has elicited widespread calls for government action. Indeed, the consensus appears to be not only that government has the right to act but also that it has the duty to do so. The common wisdom among historians is that this position represents a kind of doctrinal transformation. In the nineteenth century, we are told, the doctrine of *laissez-faire* precluded concerted public action either to regulate or reform a key sector of the economy like the fishery. As is so often the case, however, this type of broad generalization obscures more than it reveals. The fact is that in the last dozen years of that century the Newfoundland government made serious attempts to transform this important economic activity.

This paper, then, concerns itself with government intervention through a Fisheries Commission for the purpose of increasing and protecting stock size and of passing rules and regulations for the conduct of the cod, lobster and herring fisheries. It will be demonstrated that actions taken by the Commission, to a degree, mirror those being taken today, not only by government but by the private sector.

However, this Commission was preceded, in 1876, by a government expenditure of \$2,000 to chart the Labrador fishing grounds. Professor Henry Hind, an expert on the North Atlantic fishery, was engaged to draw up "Notes on the Northern Labrador Fishing Grounds." Hind examined the area of this fishery, with special concern for the types of boats and gear used; the physical characteristics of the coast; the relation of cod to stranded icebergs; the movement of cod along the coast; the length of the fishing season compared to

Fisheries Commission, 1888-93 59

Newfoundland waters; the climate and its affect on the fishery; destruction of young cod fry and ova; the effects of seals; the use of fish offal; and the source of food for cod. While the study was broad in detail and subjects studied, it appears to have been of little value as no practical policies derived from it.¹

Three years later, using part of the monetary compensation received in the Halifax Fishery Award, government agreed to appropriate "for the current year, \$4,000...towards the prosecution of a scientific inquiry into the fisheries of this Island."² However, there is no evidence to indicate that this amount was actually expended. During the same session a petition presented by the Society of United Fishermen of Twillingate called for the appointment of a Commission to carry out an inquiry into the Newfoundland fishery or a permanent Bureau of Fisheries as a governmental department. In response, Premier Sir William Whiteway approached F. Buckland and S. Walpole, Inspectors of Fisheries for Great Britain, to recommend a person to carry out this inquiry. On their recommendation, Charles E. Fryer, secretary to Buckland and Walpole, was engaged as Superintendent to head the inquiry. Once again nothing came from this attempt, perhaps because Fryer did not "possess that experience and practical acquaintance with salt water fisheries, which are required in any one undertaking the duties of Superintendent and investigating the condition of our fisheries."³ His expertise was in inland rather than saltwater fisheries.⁴

In an 1883 report on the fishery in the districts of Twillingate, Fogo, Bonavista and Trinity, a member of the House of Assembly, Richard P. Rice, recommended the establishment of local Fisheries Boards to be responsible for particular districts. Rice reported that this idea was acceptable to fishermen in his district because a local board would be familiar with the issues of concern to the area. These boards would put an end to "bickering which not unfrequently spring up among our fishermen, owing to the absence of any established and recognized rules for their guidance."⁵ In addition to resolving disputes among fishermen, they would monitor such factors as the size of catch and bait supplies.⁶ Though not conceived as a scientific body to study the fishery, the call for these boards reflects the recognition that in addition to government acting alone, progress and the protection of the resource could only be achieved by cooperation among fishermen. Nonetheless, Rice's suggestion failed to receive support outside the district or from government. This was later attributed to the scattering of fishermen in numerous bays.⁷

In 1887 the issue was raised once again in the House by the member for Trinity, Ellis Watson, who moved that a Fisheries Commission "be appointed, to inquire into, and report upon the Constitution and working of fishery departments in other countries, with a view to the establishment of a similar department in this Colony."⁸

Government agreed to establish a bipartisan Commission of Inquiry, with Augustus Harvey as Chair and Moses Harvey as Corresponding Secretary, to

examine the fishery and to recommend whether a more permanent body to manage the industry was required.⁹

The Commission of Inquiry set to work to obtain information on fisheries departments and related organizations in other countries. In particular, the Commission requested specific information regarding cod hatcheries. Circulars were sent to the United Kingdom, Canada, Norway and the US. The United States Fisheries Commission did not reply because no permanent successor had been appointed following the death of its head, Professor S.F. Baird, in August 1887. Nonetheless, the Commission was granted access to the annual reports of the United States Commission. The United Kingdom, on the other hand, did reply. British opinion was that the decline of Newfoundland's cod stock was caused by over-fishing and the migratory habits of cod. The proposed solution was simply to place restrictions on fishing rather than to develop cod hatcheries, most likely because the British had no experience with them. The Commission received a great deal of information from Canada about its fisheries legislation, the formation and organisation of the Canadian Fisheries Department, and reports on fish culture. On the artificial propagation of cod, S. Wilmont, Superintendent of Fish-Culture for Canadian Fisheries, responded optimistically to the Commission's enquiries concerning cod hatching. The Norwegians, who only a few years earlier had begun their own programme of cod hatcheries, reported that while such a venture was expensive, an abundance of young cod had been seen in fjords and bays where they had previously been scarce. Norwegian officials believed that their programme was successful because cod returned to the waters in which they were born for feeding and reproduction; this convinced them that it was feasible to establish hatcheries virtually anywhere as the basis of a local fishery. Norway therefore recommended that it should be possible to replenish cod stocks around Newfoundland through artificial propagation.¹⁰

To locate a suitable candidate with a scientific background in fisheries and to serve more permanently in either a Fisheries Commission or a Department of Fisheries, inquiries were sent to the countries with which the Commission had already established contact; no suitable person, however, was recommended for the position. In September 1888 Moses Harvey suggested that the position be offered to a Norwegian, Adolph Neilsen.¹¹ This recommendation was the result of a meeting between Harvey and Neilsen while the latter was visiting Newfoundland as one of two delegates sent by the Norwegian government to report on the North American and English fisheries during the summer of 1887.

With its success in acquiring information and a superintendent, the Commission of Inquiry recommended that Newfoundland not create a department of fisheries, but rather a Commission of Fisheries to initiate a program of cod hatcheries and to supervise and regulate the various fisheries. This proposal was based on the Commission's view that the organization of a department of fisheries would require careful planning and could only be

Fisheries Commission, 1888-93 61

accomplished gradually. Of more pressing concern was the introduction “of the proper means for carrying on the propagation of fish, especially codfish, with the view to the re-stocking of our exhausted bays and fishing grounds near the coasts.”¹² The Commission’s endorsement of this course of action was obviously influenced by the success of Norway and the US; in light of declining catches, it was deemed the most appropriate course of action. A department of fisheries as in the US and Canada could be established after cod stocks were rebuilt.

The Act creating the Fisheries Commission was read for the first time in the House on May 3, 1889 and received Royal Assent on June 1, 1889.¹³ Under the Act, the Governor was responsible for appointing a Board consisting of not less than twenty Commissioners whose duties were to include both regulation and research in relation to all matters connected with the “preservation, maintenance, improvement of the fisheries, and trade, commerce, and interests of the colony, so far as the same are connected with or relate to the fisheries and fishery questions.”¹⁴ To enable it to function, it was given the power to make rules and regulations for the inland and ocean fisheries on topics such as the length of the season, types of gear, and uses to which fish could be put. In addition, the Commission was permitted to fix and impose penalties for violations of its rules. To ensure public knowledge of the regulations, they were to be published in the Royal Gazette. Moreover, the Governor, on the recommendation of the Commission, could appoint fisheries’ officers as well as an Inspector or Superintendent of Fisheries and Fish Hatching. The daily management of the Commission’s affairs was entrusted to a seven-person Executive Committee, consisting of the Chairman, *ex-officio*, and six elected members selected by the Commission at its annual meeting in January.

On May 30, 1891, Section XVIII of the Act was replaced by a stipulation that nothing in the Act would affect the “rights and privileges granted by treaty to the subjects of any State or Power in amity with Her Majesty.”¹⁵ Obviously, this section was included to protect French fishing rights in Newfoundland. More importantly, from the Newfoundland perspective it meant that actions taken by the government to protect and develop the fishery would have no effect on French activities. In essence, this meant that Newfoundland did not have control over that portion of her fishery resource encompassed by the French Shore.

The Fisheries Commission was thus established on a firm footing. Its subsequent actions, on cod and lobster propagation, curing and packing of fish, laws and regulations, were based on practices modelled on other countries but adapted to suit Newfoundland. The colony thus created a Commission that, while responsive to local needs, was based on international input and standards. Indeed, it appears that international paradigms not only provided the motivation but also a kind of blueprint for future work. For example, through international contacts Newfoundland came to realize how far behind it was in scientific advances in the fishery. As the Commission of Inquiry admitted:

62 *Hewitt*

When we come to compare the intelligent guardianship over their fisheries exercised by the United States, Canada, England and Norway; their expenditure in connection with their improvement and protection...with the total absence of any arrangement of this character in this colony...the contrast is striking, if not humiliating.¹⁶

Concern was expressed about the future of the fishery and, more importantly, about its impact on those who depended on it. In particular, given that the island's population was increasing, there were fears about the declining per capita output. Based on past experience, the Commission of Inquiry concluded that "regrets regarding past negligences are merely waste of time. The question presents itself, what can be done to remedy existing evils."¹⁷ In response, the Commission proposed that:

this can only be done by following the example of other fishing countries...suited to our means and circumstances...in ascertaining the present condition of our fisheries, the causes of their decline, and the proper remedies.

In conclusion, it warned that "there is no longer any ground for hesitation, after the success achieved in other countries."¹⁸

In 1893 the Fisheries Commission was replaced by a formal Department of Fisheries. Although the Commission's lifespan was relatively short, it made a fair start at addressing some of the more vexing problems in the fishery. While its interests were broad, an appreciation of its work can be gained by examining the topics to which it devoted the greatest attention: the cod and lobster hatcheries and the future of the herring fishery.

COD HATCHING

The Commission was not initially concerned with locating new markets for fish or with cures or standardized cull. Instead, along with obtaining current information on the fishery, it adopted a programme recommended by the Commission of Inquiry to replenish dwindling cod stocks on Newfoundland's east coast through cod hatcheries. The rationale for this program derived from two factors. First, fishermen were experiencing poor catches along this portion of coast:

The steady decline, for years, of our shore cod-fishery which latterly became alarming, indicated that, from various causes, many fishing-grounds were partially exhausted, and were in danger of entire depletion unless active remedies were applied.¹⁹

The decline was attributed to the fact that since 1825 Newfoundland's population had more than tripled, thus increasing the number of fishermen.²⁰ Related to this were improvements in fishing gear, such as the cod trap, which made it possible to catch more fish than before.²¹ In the Commission's view, the lack of regulations covering the type and size of gear used and fish caught were partly

Fisheries Commission, 1888-93 63

responsible for the declining stocks. As Harvey pointed out, there was no minister or department of fisheries charged responsible for the supervision or enforcement of laws.²² Laws that were passed were often the work of men "utterly unacquainted with fish-life in any scientific sense."²³

Though partly correct, Harvey's explanation did not consider the possibility of a natural cause for the declining stocks. As a result, the solution, according to Harvey, rested in the hands of the Fisheries Commission, government and fishermen. He believed it was the lack of rules, the failure to enforce them systematically, the lack of a fisheries department, and carelessness by fishermen in keeping under-sized or "young fish" that had caused the mess. While the Commission would be responsible for initiating changes to rectify these ills, such changes would only be successful if adopted by everyone connected with the fishery. This type of cooperation was vital to the success of the type of programmes adopted, not only by the Commission but also, later, by the Department of Fisheries. Unfortunately, one of the themes that materialized in this period and continued, at least up to the outbreak of World War I, was a distinct lack of trust and hence a lack of collaboration.

The second rationale was an awareness of developments in cod hatching in Norway and the United States. Norway's achievements were especially important in that Newfoundland was facing increased Norwegian competition in foreign markets. It would appear that the Commission assumed that to compete with Norway, Newfoundland would require a guaranteed supply of fish. Observations by Norwegian fishery officials had shown that cod returned to the waters of their birth to spawn. Through artificial propagation, Norway had, in three years, hatched and released over sixty-seven million cod eggs.²⁴ In light of this success, and similar good fortune in the US, the Commission concluded that:

When such practical people as the Americans and Norwegians, who are far in advance of us in the arts of conserving fisheries, are engaged in the propagation of cod, we need not hesitate.²⁵

Impressive as this may sound, the Commission was not addressing the central problem faced by the fisheries. What was still being ignored was that in order to compete, Newfoundland fish would have to be at least as good as those produced by her competitors. If artificial propagation of cod had continued, it is possible that Newfoundland could have suffered from its own success in that increased output in the absence of new markets would have led to gluts in traditional entrepôts, thus forcing down prices.²⁶ From this perspective, stock replenishment was not the most serious problem that the Commission could have tackled. Instead, efforts should have been directed not only at improving quality but also diversifying output to keep abreast of changing demand.

But the Commission's fixation on cod hatcheries may be regarded as an example of foreign influence on Newfoundland decision-making.²⁷ While this ought not to be a damning criticism of the Commission, it does attest to one of

the flaws in its work. It becomes apparent that proposals supported by evidence from abroad stood a much greater chance of being endorsed by government than did those which were unique. After a while, this led both the Commission and the Department of Fisheries to recommend foreign initiatives as a whole rather than adapt them to local conditions. Nonetheless, to argue that Newfoundland should always have innovated would be equally fallacious. The colony certainly could learn and benefit from experiments carried out elsewhere. But the Commission soon learned that, for political reasons, foreign evidence was vital to having programmes adopted by government. On the other hand, government all too often forgot that what might have been appropriate for another country may not have been well suited for Newfoundland.

Regardless of what it might have proposed as a first priority, the Commission forged ahead with its programme of aquaculture, choosing Dildo in Trinity Bay as the site for its hatchery. Not only was it reported to have been the largest hatchery in the world but it also was fitted with "all the latest improvements in its apparatus." From the Commission's perspective, "its situation is unsurpassed, and it possesses every requisite to secure success and to render it one of the greatest cod-breeding establishments in the world."²⁸

Due to construction problems the hatchery was not completed in time to hatch ova as expected. To make matters worse, the Commission was wrongly informed by fishermen that spawning cod could be obtained at any time until the end of September. The reality, of course, was that spawning cod could only be secured during May and June, except in rare cases in Placentia, Trinity or Conception Bays.²⁹ Therefore, it was not surprising that although Neilsen continued his search for spawning cod until October, he was unsuccessful. Newfoundland's first attempt to hatch cod ova failed.

In one respect, this initial failure underscored the lack of scientific knowledge about the fishery on the island. Those supposedly familiar with the habits of cod were not sufficiently knowledgeable. For its part, the Commission passed over the failure with the solitary comment that "without the test of experience this could not have been ascertained."³⁰ One positive aspect of this incident was the demonstration that it was possible to learn from a mistake.³¹

Be that as it may, operations were hampered in 1891 by an outbreak of the gripe in the first week of June. Neilsen, his staff at the hatchery, and fishermen in nearby communities were prevented by illness from engaging in the fishery for about three weeks. In July, when the disease had run its course, fishing resumed, but too late to catch spawning cod. In consequence, the season again was not as productive as hoped.³² Still, the hatchery managed to produce over thirty-nine million cod ova as compared to seventeen million in 1890.³³

This improvement was, in part, attributed to the cooperation of area fishermen who, according to Neilsen, were "anxious to assist me in securing spawning fish, and were willing to sell me all the fish that would be of any

Fisheries Commission, 1888-93 65

service, at a moderate price, which many of them did not care to do in previous years." He credited this support to sightings of large schools of immature cod in waters surrounding the hatchery; because of these sightings, Neilsen suggested, fishermen were convinced that the hatchery would increase cod stocks and help to line their pockets.³⁴ He may have been correct, but assistance from local fishermen may have also been stimulated by an alternative economic speculation: the hatchery served as an alternative outlet for their catch which did not require processing.

To improve hatching facilities, in 1891 a forty-seven by twenty-three foot saltwater pond was built enabling fish to spawn naturally. A specially-constructed collector was also installed to allow ova to be retrieved after being released and fertilized and to be conveyed to the hatchery. The cost was to be paid through larger yields and a saving in manpower.³⁵ With this facility, Neilsen anticipated the success rate would increase to approximately sixty to seventy percent of the ova collected. It is noteworthy that the pond and collecting apparatus were copies of similar operations in Flødevig, Norway.

Another means of increasing output suggested by Neilsen was to utilize fish spawning off the coast from Port-aux-Basques eastwards in winter and early spring, allowing the hatchery to open at an earlier date. Another consideration supporting this proposal was that the size and quality of Trinity Bay fish could be improved by a process of cross-breeding with the larger variety caught along the south coast during winter and early spring. Despite these arguments, government failed to provide support.³⁶

A chronological discussion of annual operations at the cod hatchery would serve little purpose other than to provide statistics. More important is an assessment of the overall trends and success of the facility. Therefore, what follows is a survey of the hatchery and its work prior to its being taken over by the Department of Fisheries.

Table 1
Cod Ova Hatched, 1890-1892

Year	No. Hatched
1890	17,100,000
1891	39,650,000
1892	165,244,000
Total	221,994,000

Note: Although the hatchery was operational in 1889, no cod ova were hatched. The use of the spawning pond in 1892 may account for the high number of ova hatched in that year.

Source: Report, 1893, p. 237.

During the period 1890-1892, the hatching of cod was hailed as a success, both locally and internationally. As Table 1 shows, the number of ova hatched

66 *Hewitt*

increased almost ten-fold during the first three years of operation. At the same time, the Commission made major improvements in cutting the loss rate. The percentage of ova lost declined from just over forty-nine percent in 1890 to slightly under thirty-eight percent by 1892.³⁷

In evaluating the hatchery and its overall benefit to the fishery, annual reports of the Fisheries Commission portray similar assessments. The 1891 *Report* is a good example. In that year, the Commission concluded that the work being conducted in Newfoundland compared “not unfavourably with that of any other country, when our means and resources are taken into account, and its value and practical importance are fully recognized by the highest authorities in other countries.”³⁸ Professor Albert Bickmore of the American Museum of Natural History in New York visited the hatchery in 1890 and was impressed with the facilities. His advice to the Commission was to:

guard your fisheries, and bring science to bear on their protection and development. Your Fisheries Commission is a step in the right direction. All else should be secondary to the protection and restoration of your fisheries. These natural gifts, I can see, have been sadly abused.

Newfoundland, he concluded, was engaged in a solution to a problem of “momentous importance, not only to Newfoundland, but to the world at large.”³⁹

Local papers in the mid-1890s reported that bays which had been barren of cod for many years once again had an abundance of small fish.⁴⁰ In discussing the success of the programme several years later the Department of Fisheries reported that “a very striking increase of codfish...such as were never known before, in the head of Trinity Bay, during the last four or five years, can no longer be doubted.”⁴¹ The outstanding question, however, was whether the resurgence in the size of the stock was a result of the hatchery. The reappearance of small cod could have been the result of the life cycle or habits of cod; the result of climatic conditions; or the availability of food. Based upon the available evidence, perhaps the most reasonable conclusion would be that the hatchery was part, but not all, of the solution.⁴²

Stock replenishment was one measure to increase the potential of the catch. To protect immature cod and foster natural increase, the Commission proposed a series of regulations. One set of controls dealt with the type of gear used. Fishermen and politicians had voiced their concern that cod traps destroyed immature and spawning fish. Indeed, in 1888 an act had been passed banning their use. Any person convicted of violating its provisions was subject to a fine not to exceed \$400; in default of payment, the offender was subject to imprisonment for up to six months. Traps used in contravention of the act would be confiscated until the trial and sold at public auction if the individual were convicted. The proceeds, after payment of court costs, were distributed between the person prosecuting the offender and the Receiver-General.⁴³

After investigating the problem, the Commission, in 1890, decided that,

Fisheries Commission, 1888-93 67

while a continuation of the total ban on traps was too harsh, some limitations on their use were still required.⁴⁴ As a result, it became illegal to place a cod trap or mooring in Newfoundland waters prior to June 15 and off Labrador prior to June 25.⁴⁵ Significantly, these rules did not apply to "the fisheries on that part of the coast where the French have treaty rights, until the approval of Her Majesty has been obtained."⁴⁶

The following year the prohibition on the use of traps early in the season was extended, but in addition, regulations were enacted limiting the size of mesh. To protect immature fish, cod traps with mesh less than four inches were outlawed.⁴⁷ Even this measure, however, does not appear to have subdued opposition to traps. Neilsen continued to speak out on their destructiveness on immature fish and in 1894 traps were banned until July 20.⁴⁸ Despite these laws, some fishermen continued to use traps with a smaller mesh, thus destroying large quantities of small fish which were reported to have been "not worth handling nor the salt they are cured in."⁴⁹

Questions were also raised about the use of cod or gill nets. As with traps, this gear was also blamed for killing immature cod. Neilsen claimed that if they were abolished, "immature fish would have a chance to spawn and replenish the waters again."⁵⁰

These first endeavours by government through the Fisheries Commission to increase stock size and to ensure the survival of immature fish through hatcheries and regulations can be considered at least a partial success. While it is impossible to measure precisely the impact of these measures, it is significant that the long-standing debate on the use of traps and nets subsided after 1905, which suggests that some rejuvenation of the stock likely had occurred. Moreover, the actions spurred by the Commission had other benefits which, while less tangible, were nonetheless important for the health of the fishery. For the first time, issues relating to the fishery were addressed substantively, not only by government acting independently but also through collaboration. Not only did fishermen occasionally cooperate with government, but there was a greater degree of harmony among those involved in catching, processing and marketing. Though the programmes may not have been as successful as their advocates predicted, they did provide a valuable learning experience and a base from which future improvements could be made. Equally important, efforts made by the Commission provided a foundation upon which the Department of Fisheries could build. In the short term, the Commission demonstrated the potential value of both the hatchery and regulations in replenishing depleted stocks. The real test, however, would only come with the passage of time. Unfortunately, as the years advanced, the directions charted by the Commission came under fire, not only from opposition politicians but also from the general public.

LOBSTER HATCHING

Cod was not the only species for which the Commission investigated the possibilities of artificial propagation. The potential of lobster hatcheries soon assumed an importance equal to cod. Whether Neilsen had initially planned to hatch lobster is unknown, and while the possibility of artificially propagating lobsters was not raised by the Commission of Inquiry, attention was paid in its Report to the need for rules preventing over-harvesting. One possibility raised was the use of a closed season. Because lobstering was seen as a growth industry, the Commission of Inquiry believed that "there is need for prompt Legislative measures to save this fishery from lasting injury."⁵¹ In supporting this stance, the Commission cited the declining lobster catches in the Maritimes as an example of what could occur in Newfoundland if action were not taken.⁵² That the Report should discuss lobsters at all reflected a dramatic change in the attitudes of local fishermen toward lobsters. Previously, these crustaceans were regarded primarily as a menace to traps and nets; indeed, trap owners often paid bounties as high as fifty cents per hundred for their destruction.⁵³ Over time, however, fishermen came to recognize the economic potential of lobsters; as their importance increased toward the end of the century, the need for conservation became apparent. In 1874 the entire Newfoundland lobster catch amounted to only 119,370 lbs., a figure which soared to 7,152,540 lbs. by 1878 and 14,248,730 lbs. in 1897. Despite this long-term growth, the lobster fishery was highly unstable, with good years alternating with bad. Artificial propagation was seen as a means by which a degree of stability could be introduced.

The decision to begin a hatcheries programme in 1889 appears to have been related to the initial failure to obtain spawning cod. Although the Commission was unsuccessful in the early years at obtaining suitable cod because of confusion over the proper dates of the spawning season, Neilsen found it far easier to collect "berried lobsters" (lobsters with roe).⁵⁴ In 1889, 4,039,000 eggs were hatched and planted in the waters of Trinity Bay.⁵⁵ This, as the Commission reported, was an impressive beginning, especially since the hatchery was fitted for cod rather than lobsters. Due to the initial success, observers predicted a great future for this endeavour, which was perceived as a means of safeguarding the industry from over-fishing while also introducing lobsters to areas in which they were previously not found.⁵⁶ Indeed, the Commission reported that in no other country had lobsters been hatched on such a large scale as in Newfoundland. Testimony to this success took two forms: reference to the potential value which the lobsters represented to the overall fishery and the stream of inquiries from the Canadian Department of Fisheries seeking information on the methods employed in Newfoundland.

To demonstrate the economic potential, the Commission presented some hypothetical calculations. By assuming a twenty-five percent survival rate of all lobsters hatched in 1889, and an average export value for each lobster of 2.75

Fisheries Commission, 1888-93 69

cents, the value of the fishery was estimated at approximately \$30,000.⁵⁷ Canadian interest in Newfoundland's lobster hatchery programme must have been flattering. After some investigation, Canadian officials came to the opinion that their country indeed lagged behind Newfoundland in this area.⁵⁸ In 1890 S. Wilmont, Superintendent of the Canadian Fish-Breeding Department, visited the hatchery; his observations, published in the Commission's *Annual Report* and the *Annual Fisheries Report of Canada* for 1890, concluded that a similar operation in Canada would preserve her lobster fisheries from destruction. On his return to Canada, Wilmont selected a lobster factory near Pictou, Nova Scotia as a testing ground for Neilsen's innovative floating incubators.⁵⁹ A lobster hatchery established at Bayview, New Brunswick on the Northumberland Strait in 1891 was also based on the Dildo model.⁶⁰ Similarly, Royal Navy Lieutenant Gorden, commissioned to write a report on the Canadian Fisheries Protection Service in 1890, also visited Newfoundland, speaking highly of the hatchery programme and echoing Wilmont's sentiments about Neilsen's incubators.⁶¹ It is clear that Newfoundland was one of the pioneers in lobster propagation.

With the early success of propagation, plans were proposed to expand the program to cover a larger area of the island through a system of floating lobster incubator boxes developed by Neilsen in 1889. The Commission suggested that each lobster factory be given one incubator in which lobster ova could be ripened and hatched.⁶² The rationale was based on the destruction of lobster ova during processing in factories. Placentia Bay, where forty factories were in operation in 1889, was used as an example of the benefits. On the assumption that the average number of fertilized eggs carried by a single lobster was between twelve and eighteen thousand, Placentia Bay was considered capable of producing fifty million lobsters annually.⁶³ Another argument in favour of this programme rested on the premise that transporting lobster ova over long distances to the hatchery at Dildo would result in a high mortality rate.

In 1891 floating incubators were used at nineteen locations, an increase of five over the previous year. This resulted in an estimated 541,195,580 lobsters being planted, in addition to 10,274,300 from the Dildo hatchery.⁶⁴ Hatching at Dildo was below the previous year, when 15,070,800 were hatched and planted. This decline was attributed to a high mortality rate for ova, which was believed to have been caused by the need to transport the eggs from Long Harbour, Placentia Bay, a distance of approximately twenty miles.⁶⁵ The cost of producing lobsters in the hatcheries was calculated at one cent for every 2,760 lobsters.

As a result of the success of lobster incubators, several packers requested to work them at their own expense. In response, the Commission looked to government for assistance. During 1891 and 1892, 432 lobster incubators were in use; because of the success of the programme, the Commission requested that government provide at least two hundred more.⁶⁶ Yet for the 1892 season no new incubators were provided, since "the means at the disposal of the Fisheries

Commission did not allow...for any increase in the number.” Nonetheless, the Commission requested funding to provide an additional 200-300 for the coming season. In support of this recommendation, the Commission argued once again that the destruction of lobster ova because of the lack of incubators was enormous: “to prevent this, incubators ought to be operated at every factory.”⁶⁷ Nonetheless, the total number of lobsters hatched and planted in 1892 was 429,785,000.⁶⁸

In 1889 the Commission decided to expand its operations to ship live lobsters to the US and the United Kingdom.⁶⁹ This was not a new idea: in 1879 three tons valued at \$100 were shipped to Canada and 4,000 live lobsters were shipped to the US in 1887.⁷⁰ Nonetheless, nothing seems to have come of this decision, for in the Commission’s 1892 Report the prospect was raised once again as meriting further study. Apparently, the previous year Neilsen had been working on an “apparatus” for the shipment of live lobsters and turned his work over to G.C. Fearn, who planned to ship live lobsters to the United Kingdom.⁷¹ It does not appear that Fearn was successful in this initial attempt, as Customs Returns for 1891 and 1892 do not list live lobsters as an item of export. In 1893 \$20 worth (quantity was not listed) were exported to the United Kingdom. The following year one case valued at \$5 was shipped to Britain.⁷²

Artificial propagation of lobsters was but one measure adopted to replenish stocks and increase output; as with cod, regulations were also enacted.⁷³ In this regard, the Commission looked to Canada as an example. Because of declining stocks along the eastern seaboard, many American packers had moved their operations to Nova Scotia and New Brunswick (some came to Newfoundland as well). To prevent American packers from destroying lobster stocks, the Canadian government, in 1873, passed protective laws. Newfoundland decided that a similar approach was necessary if stocks were to remain healthy.⁷⁴

Laws to protect the lobster stocks were first enacted in 1878. That first act placed restrictions on the taking of lobsters during certain seasons and specified locations at which they could be caught. Violations were subject to a fine of up to \$100. In case of default or inability to pay, an individual’s property could be forfeited and the violator sent to jail for as much as three months.⁷⁵ Yet the act placed no size restrictions on lobsters that could be kept nor required individuals to take out lobster licences. Ten years later, this original law was amended in “An Act Respecting the Fishery of Lobsters,” which went a bit further in terms of locations, dates and size of lobsters that could be taken. As of January 1, 1889, it became illegal to keep lobsters under ten and one-half inches in length.⁷⁶ In addition, the law imposed a closed season from August 31 to January 1. Penalties consisted of fines not to exceed \$100 or ninety days in jail.⁷⁷

In 1890 this Act was revised slightly to compel those engaged in catching and canning lobsters to have a licence, obtainable free of charge from the Receiver-General or any Justice of the Peace, sub-Collector of Customs or

Fisheries Commission, 1888-93 71

Fisheries Prevention Officer.⁷⁸ Anyone catching or canning lobster without a licence was subject to a fine of up to \$400 in addition to having his gear sold at public auction.⁷⁹ Moreover, anyone convicted could be prevented from holding another lobster licence for as long as one year.⁸⁰ Revenue obtained through penalties and the sale of forfeited gear was divided equally between the "person prosecuting the offender to conviction" and the "Receiver General for the use of the colony."⁸¹ By 1893, renewal of a lobster licence was contingent upon factory owners returning a statement detailing the number of cases packed, employees, traps, etc., during the previous year.⁸² The logic behind this measure was the desire to obtain current information on the lobster fishery upon which government could base regulatory decisions.

In 1892 Neilsen called for stronger measures to protect lobster stocks, such as limiting the number of lobster factories, defining the fishing grounds for each factory and determining the closed season based on spawning and shelling times.⁸³ Neilsen's concern with closed seasons may, in part, have been a response to his discovery that lobsters have two spawning seasons: large lobsters spawn from mid-July until mid-August, while small and medium-sized lobsters spawn in late October and early November.⁸⁴ Neilsen suggested the current closed season be amended to run from April 1 to August 1 on the coast between Cape Ray and Cape Race and from April 1 to August 5 between Cape Race and Cape St. John's.⁸⁵

Neilsen also agreed with "a great many packers" that all factories be closed for a period of three or four years to allow lobster stocks to replenish and immature lobsters to grow. He realized, however, that to do this would bring hardship to many packers and fishermen who depended on this fishery. The number of small lobster factories worked by one or two individuals was also reported to be increasing. This, in part, was the result of declining stocks; as the number of lobsters decreased, larger lobster factories found it difficult to compete with smaller operations. As a result, some had no choice but to suspend operations. Soon a common practice developed in which a group of fishermen combined to pack their own lobsters, employing no salaried help but only members of their families. The extent to which this practice was adopted can be seen in that in 1891, 340 lobster factories valued at \$179,288 were operating in Newfoundland; by 1901 the number had risen to 1,479 factories valued at \$92,332.⁸⁶

The increase in the number of lobster factories would not have been a problem, of course, if lobster stocks were increasing through the efforts of artificial propagation. In this case, however, the size of the stock was not the issue. Instead, as Neilsen pointed out, the difficulty was that these factories were operated by individuals who:

enter into this business without the required knowledge of canning lobsters, and who care nothing about what kind of an article they manufacture, or what is inside

the cover, as long as they get the tin to weigh one pound.

The obvious effect of such practices in the long term was to diminish the quality of the pack and hence Newfoundland's attempts to obtain a reputation for quality. Indeed, Neilsen was quick to point out that the consequence of this type of operation was the production of an inferior cure which "result[ed] in numerous complaints...about Newfoundland canned lobsters."⁸⁷

To combat this problem, Neilsen proposed a new method of issuing licences for the packing of lobster. Under the system in place in 1892, anyone could obtain a licence free of charge. Neilsen suggested two alternatives for the future. The first was to charge a fee in the range of \$25 to \$50, while the second was to require managers of lobster factories to pass an examination demonstrating their competence. The second method was rejected on the grounds that it would be impractical. But Neilsen argued that the former would have the desired effect in that those who were qualified and had the proper facilities would purchase a licence while unqualified packers would not find it worthwhile to purchase a licence at the suggested price.⁸⁸ Opponents of this plan complained that it would effectively prevent an independent fisherman and his family, lacking the necessary money to purchase a licence, from engaging in the industry. This would, in turn, create a quasi-monopoly in that the industry would be controlled by those with the financial resources to enter the industry. To this Neilsen countered that for the benefit of the industry it would be better if only those willing and able to produce a quality product be admitted. Government in the end rejected both alternatives, preferring to avoid alienating lobster fishermen and packers.

This branch of the fishery had, for the first time, come under careful study and regulation and, like the cod fishery, the Commission's interest and action taken to protect stocks and improve output formed the basis upon which the Department of Fisheries would build. Indeed, lobster propagation proved more successful than cod propagation as the Dildo cod hatchery, amidst public opposition, suspended operations in the early 1900's.

HERRING FISHERY

While herring, traditionally regarded as a bait fish, did not have the same economic value as cod or lobster, during the late nineteenth century this perception began to change. This shift was not due to anything that the Commission of Inquiry recommended. Indeed, the Commission made no reference to herring in its *Report*. Considering the state of this fishery, such an omission was indeed surprising. An example of the manner in which the herring fishery was prosecuted was provided in 1885 by Thomas P. Withycombe, the Inspector of Pickled Fish. In the Bay of Islands, herring were not cured as well as possible since the tradition was to allow them to freeze prior to being covered in salt. As a result, the salt did not fully penetrate the fish. This Withycombe

Fisheries Commission, 1888-93 73

blamed on “lack of knowledge on [the part of] both curers and Inspectors.”⁸⁹ In Battle Harbour, Labrador, Withycombe reported that fishermen stored herring in anything resembling barrels, including tubs and puncheons, without being salted. Upon his return to Battle Harbour with salt and barrels, he gave strict orders to inspectors that no “bulk-tainted herring” were to be exported. It is obvious that problems with curing, as well as with packaging and marketing, were not confined to the cod and lobster fisheries.⁹⁰

As elsewhere, the Fisheries Commission attempted to remedy problems in the herring fishery. Like cod and lobster, Newfoundland herring enjoyed a poor reputation in international markets because of its imperfect cure. Unfortunately, the search for better methods of curing, packaging and marketing was not always successful.

The first *Report* of the Fisheries Commission concluded “that, by due care, the value of our herring fishery may be vastly increased.”⁹¹ This assessment was later supported in a survey of the Sound Island herring fishery conducted by Neilsen the previous year in which he found that many fishermen simply dumped their catches of herring overboard. Neilsen was concerned that this practice might cause permanent damage to the spawning grounds of other species. In his report, he concluded that no damage had been caused; his recommendations therefore were aimed solely at protecting the fishery from future injury. Significantly, he made no comment on the state of the herring fishery. But in 1890 the Newfoundland Chamber of Commerce enjoined all parties involved in the herring fishery to take greater care in curing their catch and to make use of better packaging.⁹²

As a means of addressing these problems and obtaining information not only about how to produce a higher quality product but also how to make fish for specific markets, James Moore, Inspector for Pickled Fish, left St. John's on July 24, 1890, for the French shore, Labrador, Montréal and Boston. While in Montréal, Moore received complaints concerning the short weight of Newfoundland barrels. Buyers were demanding barrels of 200 lbs. while Norway was shipping barrels of 220 lbs. In addition, Moore described some Newfoundland herring as arriving in a “condition which could not be worse.” Moore also reported a case of 1,500 barrels of herring from Halifax labelled as coming from Labrador. In Boston, a buyer refused to accept Newfoundland herring, as the contents of the barrels did not match the inspection brand which they bore.⁹³

Upon returning to Newfoundland, Moore received a letter from one of the firms he had visited expressing approbation “that the Newfoundland government is taking such an interest in the herring fishery, the importance of which they cannot overestimate.”⁹⁴ As a result of his trip, Moore put forward a number of recommendations to improve the quality of herring exported. His first suggestion was that Neilsen visit Labrador to determine when herring spawned, since

thereafter they were “almost unfit for food.” To improve marketing, Moore made several suggestions. First, he recommended that iron hoops be used to fasten the ends of barrels, since birch hoops, which were often employed, had a tendency to become brittle. He also advised that the “bulking” of herring be discontinued and that a limited number of quarter-barrels be produced for the trade to the western US. To improve the quality, he suggested that more attention be paid to the Norwegian cure, which had an excellent reputation. Finally, he made a series of recommendations designed to improve the consistency of exports. He believed that the grading of herring should be delegated to the Inspector of Pickled Fish; that inspections ought to be made more stringent, especially in St. John’s and other centres from which herring was exported; that a heavy penalty be imposed on shippers acting fraudulently; and that printed instructions about the size of packages, market demand, and methods of cure be distributed to fishermen. Nonetheless, he made it clear that the most important evil was herring receiving false grades without an inspector’s name being attached to the barrel.⁹⁵

As in other branches of the fishery, around the turn of the century the American market for herring was considered “well worth our best efforts to endeavour to secure at least a proportional share of the supply.”⁹⁶ With a population in excess of sixty million, the American market possessed an overwhelming allure. Moore concluded that without “the slightest doubt...the great future for our pickled fish industry is in the markets of the US and even at the present time, Montréal is but a distributing centre for the markets in the western States.”⁹⁷ From this observation he concluded that “no person can doubt the possibilities of expanding the herring fishery with the adoption of new methods such as drift-net fishing are almost illimitable.” Such statements were more often than not followed with an explanation of how Newfoundland could penetrate this market. In the case of herring, Moore blamed Newfoundland’s problems in the American market on “the looseness of colonial inspection, the cupidity or dishonesty of traders, the badness of fish, and the unsuitability of the package.”⁹⁸

There was certainly no immediate improvement. The Fisheries Commission *Report* the following year described the herring fishery as being conducted in “a most unsatisfactory character.”⁹⁹ As a result of the “slovenly and unskilful” methods of cure and packing, the reputation of Newfoundland herring had fallen even lower in foreign markets, resulting in prices which in many instances were “unremunerative.”¹⁰⁰ In addition to incurring losses overseas, it was also reported that the reckless and wasteful manner in which herring were being taken threatened to ruin the fishery “at no distant date.”¹⁰¹

Action to prevent this occurrence was taken in that year with the passage of regulations for the protection, prosecution and cure of herring. In addition, a problem-solving mechanism was introduced to resolve disputes between fishermen. To protect the stock, it was made illegal to catch herring unless it was

Fisheries Commission, 1888-93 75

likely that the fish would be used for either human food or bait. It was also prohibited to "barr" herring in a seine of less than seventy fathoms in a dry condition, in water less than three fathoms, for a period exceeding forty-eight hours, so tightly that there was a danger of the fish perishing or in waters where the bottom was fetid.¹⁰² To prevent the dumping of herring in bays or harbours, Harbour and Sanitary Commissioners were appointed in 1905.¹⁰³ Additional rules were drafted to facilitate the settlement of disputes between fishermen. For example, it became illegal to destroy other fishermen's gear; to set a seine too close to another; or to set nets in such a manner as to submerge others' nets.

The above regulations applied only to Sound Island, Placentia Bay. An additional ten articles in the 1891 Act covered the entire island. These included provisions to ban the catching of herring for manure, to place herring on scaffolds in warm or "soft" weather, or to throw ballast, sand or rubbish in waters herring were known to frequent. Penalties for violations varied from \$50 to \$100.¹⁰⁴

The following year the Commission basically repeated the previous laments over the imperfect cure and low prices in world markets. It would appear that Neilsen's pamphlet, *The Cure of Codfish and Herrings*, which was published in 1891, did not have an immediate effect.¹⁰⁵

Neilsen's 1890 suggestion that a search for the summer location of herring be carried out with the intention of establishing a drift-net fishery was also scheduled to proceed in the summer of 1891. The Commission received a letter dated June 5, 1891 from then Colonial Secretary, Robert Bond, stating that:

at the request of a number of merchants of Conception Bay, government had agreed to make some researches, during the present season, as to the deep water home of the herring, with a view to the establishment, in this colony, of such a fishery as is prosecuted from Norway...I am to request that the Fisheries Commission will place his [Neilsen's] services, for a month or six weeks, at the disposal of the government for this purpose.

This move was important, not only because it opened the possibility of gaining a greater understanding of the migratory summer habits of herring and the possibilities of expanding the herring fishery through the application of new modes of fishing, but also because the government's decision was a result of a direct appeal from merchants engaged in the fishery. To this end, government furnished:

in a most liberal manner everything that was necessary to equip the vessel and secure the success of the operation. In a vessel of forty tons, with a crew of nine, Mr. Nielsen left St. John's on the 15th of August and returned on the 19th of October, having in that time, circumnavigated the island.¹⁰⁶

The Commission reported that the study was "partially successful, and would require to be followed up by further researches."¹⁰⁷ Future investigations would in part be based on ichthyological and meteorological data which Neilsen had

collected. Nonetheless, Neilsen was able to report the presence of a “great bank 115 miles in length off the western coast, which is the resort of herrings of a good quality...and that here a drift-net fishery could be prosecuted during the months of June, July and August.”¹⁰⁸

In addition to his survey of Newfoundland coastal waters, Neilsen visited the Labrador coast to investigate the failure of the Labrador herring fishery during the previous few years. Indeed, for the 1892 season he described this fishery as “almost a total failure.”¹⁰⁹ Fishermen in the area suggested that for some unknown reason herring did not come inshore as in former years. After a two-day search offshore, Neilsen concluded that physical alterations in the sea affected the availability of fish upon which herring feed; if bait fish remained offshore, so did the herring. Since this conclusion was based on only a brief investigation, Neilsen admitted that a more detailed study was required to explain the scarcity of herring.¹¹⁰

Neilsen also took this opportunity to discuss the inferior quality of the Labrador cure and to offer solutions. The most important explanation that he advanced was insufficient inspection, which he felt could only be improved by making inspection compulsory.¹¹¹ Neilsen proposed that the coast be divided into four districts, each with its own inspector. In his closing statements on the Labrador herring fishery, he suggested that a similar inspection process would have to be adopted for the Newfoundland branch of the industry. This was of paramount importance in light of competition in the American and Canadian markets from the Scottish, Norwegian and Dutch fisheries.¹¹² Surprisingly, Neilsen made no reference to Canadian and American production.

In addition to compulsory inspection, Neilsen also proposed a higher standard for barrels. This he suggested could be accomplished through regulations on barrel size and construction.¹¹³ He suggested that by shipping herring in stronger barrels and by recognizing the different demands in various markets, the reputation of Newfoundland herring would rise.¹¹⁴ When exporters objected, however, government decided not to act.

The Commission’s work to bring about improvements in the herring fishery must be assessed similarly to the cod and lobster fisheries. While the Commission certainly attempted to address the major problems, its good intentions often foundered either because of lack of adequate enforcement mechanisms or because government chose to ignore the recommendations. The Commission was also stymied by geographical and seasonal characteristics of the fishery, which meant that fishermen, merchants and exporters were more concerned with quantity than quality. This latter trait was a thorn in the side of the Commission and would continue to bedevil later attempts by the Department of Fisheries to regulate the Newfoundland fishery.

In general, government’s efforts to carry out its three major endeavours – cod and lobster hatching and developments in the herring fishery – had mixed

Fisheries Commission, 1888-93 77

results during this early period. While by and large the signs were positive, the Commission would not survive to see the fruits of its labours realized, for it was soon to be replaced by a formal Department of Fisheries. These attempts at change clearly demonstrate that government was taking an active role in regulating the cod, lobster and herring fisheries, indeed, this role would expand with the creation of a Department of Fisheries. This change in attitude towards the fishery was a recognition that, if left alone, it could not manage itself in terms of stock size and output. Management principals pertaining to healthy stock size and rules for the prosecution of the fishery were deemed necessary if the fishery was to provide a living for future generations of Newfoundland fishermen and their families.

Notes

¹Newfoundland, *Journal of the House of Assembly*, 1877, p. 150. (Hereinafter JHA, date.) For Hind's report, see pp. 730-54.

²Newfoundland, *Report of the Fisheries Commission Appointed by His Excellency the Governor in Council to Investigate the Operations of Fisheries Departments in Other Countries*. p. 2. (Hereinafter all Fisheries Reports will be *Report*, date.)

³*Ibid.*, p. 3.

⁴Louise Whiteway, "Inception of the Newfoundland Department of Fisheries," *Newfoundland Quarterly*, 55, 2 (June 1956), p. 32.

⁵*Report*, 1883, pp. 751-60. Apparently disputes were arising between fishermen in Rice's district from the setting of trawls and nets along a line with the shore instead of extending from the shore seaward and the setting of trawls on principal fishing grounds prior to the arrival of fish.

⁶Concern was expressed over the destructive practice of trapping bait by obstructing small coves and inlets, thus preventing bait fish from escaping.

⁷It is interesting to note that this factor was not a problem with the organization in the later years of the Fishermen's Protective Union. On this issue, see Ian D. H. McDonald, "To Each His Own:" *William Coaker and the Fishermen's Protective Union in Newfoundland Politics, 1908-1925* (St. John's, 1987).

⁸JHA, 1887, p. 109; D. W. Prowse, *A History of Newfoundland*, (London, 1895), p. 648.

⁹Other members of the Commission included Robert Thorburn, Edward Shea, Augustus Goodridge, Patrick J. Scott, Thomas Hodge, A. Penney, Charles Dawe, M. Monroe and W. J. S. Donnelly. *Evening Mercury*, (St. John's) August 16, 1887. See also Prowse, p. 648; Whiteway, p. 33; *Report*, 1888, p. 38.

¹⁰Whiteway, p. 36.

¹¹*Report*, 1889, p. 615.

¹²*Report*, 1888, p. 29.

¹³*Ibid.*, p. 251.

¹⁴Newfoundland, "An Act to Provide for the Formation of a Fisheries' Commission and For Other Purposes," *Acts of the General Assembly of Newfoundland Passed in the Fifty-Second Year of the Reign of Her Majesty Queen Victoria* (St. John's, 1889), pp.63-

78 Hewitt

6. (Hereinafter references to *Acts of the General Assembly* will be given as *AGA [year] QV.*)

¹⁵Newfoundland, "An Act to Amend an Act Passed in the Fifty-second Year of the Reign of Her Present Majesty, entitled, 'An Act to Provide for the Formation of a Fisheries' Commission, and For Other Purposes," *AGA 54 QV* (St. John's, 1891), p. 136.

¹⁶*Report*, 1888, p. 27.

¹⁷*Ibid.*, p. 29.

¹⁸*Ibid.*

¹⁹*Report*, 1892, p. 5.

²⁰Moses Harvey, *Newfoundland As It Is in 1894: A Handbook and Tourist's Guide* (St. John's, 1894), p. 145.

²¹*Ibid.*

²²*Ibid.*, p. 146.

²³*Ibid.*

²⁴*Evening Mercury* (St. John's), August 3, 1887.

²⁵*Report*, 1888, pp. 31-2.

²⁶Over-supply of markets became acute when steamers were introduced into the fishery.

²⁷For a detailed analysis of foreign (especially American) influence in the catching and processing sectors, see William George Reeves, "'Our Yankee Cousins': Modernization and the Newfoundland-American Relationship, 1898-1910." (Ph.D. Thesis, University of Maine at Orono, 1987).

²⁸*Report*, 1889, pp. 7-8.

²⁹*Ibid.*, pp. 6-7.

³⁰*Ibid.* p. 10.

³¹In November 1890 the hatchery was hit by a tidal wave, destroying wharves and fish wells in which spawning cod were kept. These were rebuilt the following year. *Report*, 1891, p. 16; *Evening Telegram* (St. John's) October 19 and November 16, 1897.

³²*Report*, 1891, pp. 16-17.

³³Harvey, p. 162; *Report*, 1894, p. 3.

³⁴*Report*, 1891, p. 18.

³⁵*Ibid.*

³⁶*Ibid.*, p. 22.

³⁷*Report*, 1895, p. 397.

³⁸*Ibid.*, p. 28.

³⁹*Report*, 1890, p. 30.

⁴⁰Harvey, p. 165.

⁴¹*Report*, 1902, p. 352.

⁴²*Report*, 1888, pp. 29-30.

⁴³*AGA 51 QV* (St. John's, 1888), pp. 74-5.

⁴⁴"Report of the Select Committee to Consider and Report on the Rules and Regulations, Submitted to the Fisheries Commission in Relation to the Cod Fishery, April 21, 1890," *JHA*, 1890, pp. 100-01. The committee consisted of James Murray, W. H. Whiteley, William Duff, E. R. Burgess and Robert S. Munn.

⁴⁵"Rules and Regulations Respecting the Lobster and Cod-fishery," *JHA*, 1890, Appendix, p. 328.

⁴⁶*Ibid.*, p. 329.

Fisheries Commission, 1888-93 79

⁴⁷*Ibid.*, p. 328.

⁴⁸*Report*, 1894, p. 88.

⁴⁹*Ibid.*, pp. 44-5.

⁵⁰*Ibid.*, p. 43.

⁵¹*Report* 1888, p. 34.

⁵²*Ibid.* The *Report* contained extracts from the Canadian Department of Fisheries and the Fisheries Department of Prince Edward Island for 1886, as well as from a report by Professor Baird on the American lobster fishery; see p. 36 and Appendix, pp. xv-xix. See also *Report*, 1889, p. 12.

⁵³Whiteway, p. 39; *Reports of the Newfoundland Fishery Research Commission*, vol. I, no. 4 (1931), p. 15.

⁵⁴*Report*, 1889, pp. 10-11.

⁵⁵Whiteway, p. 38. See also *Report*, 1889, p. 11.

⁵⁶*Report*, 1889, p. 12.

⁵⁷*Ibid.*, p. 14.

⁵⁸*Ibid.*, p. 15.

⁵⁹*Report*, 1888, pp. 30-1.

⁶⁰Joseph Gough, *Fisheries Management in Canada 1880-1910* (Ottawa, 1991), p. 16.

⁶¹*Report*, 1890, pp. 32-3.

⁶²*Report*, 1889, p. 13.

⁶³*Ibid.*, pp. 13-4.

⁶⁴*Report*, 1891, p. 19.

⁶⁵*Ibid.*

⁶⁶*Ibid.*

⁶⁷*Report*, 1892, pp. 12-3.

⁶⁸*Report*, 1893, p. 6. Data on the number of lobster hatched and planted from floating incubators may be consulted in Appendix V.

⁶⁹*Report*, 1889, p. 54.

⁷⁰Wilfred Templeman, *The Newfoundland Lobster Fishery; An Account of Statistics, Methods and Important Laws*. (St. John's, 1941), p. 19.

⁷¹*Report*, 1892, pp. 13-4.

⁷²See Customs Returns listed in JHA, 1891-1893, Appendices.

⁷³*Report*, 1889, p. 12.

⁷⁴*Report*, 1911, p. 498.

⁷⁵AGA 41 QV (St. John's, 1878), pp. 75-6.

⁷⁶The size limit was retained until the end of 1928; it was decreased to eight and one-half inches the following year.

⁷⁷AGA 42 QV (St. John's, 1879), pp. 78-9. For details of the size limits, see Templeman, p. 28.

⁷⁸"Rules and Regulations," JHA, 1890, Appendix, p. 325.

⁷⁹*Ibid.*, p. 326.

⁸⁰*Ibid.*, p. 327.

⁸¹*Ibid.*

⁸²Templeman, p. 8.

⁸³*Report*, 1892, p. 76.

80 Hewitt

⁸⁴*Report*, 1890, p. 12. The *Report* did not provide measurements or any indication as to what constituted large, medium or small sized lobster, nor whether different size lobsters were found in particular bays or inlets.

⁸⁵*Report*, 1892, p. 77.

⁸⁶Templeman, p. 20.

⁸⁷*Report*, 1892, p.78.

⁸⁸*Ibid.*, p. 79.

⁸⁹"Report of Thomas P. Withycombe, Inspector of Pickled Fish, 1885," JHA, 1886, pp. 700-05.

⁹⁰*Ibid.*

⁹¹*Report*, 1889, p. 42.

⁹²*Royal Gazette and Newfoundland Advertiser* (St. John's), September 2, 1890.

⁹³"Report of James Moore, Inspector of Pickled Fish, 1890," Newfoundland, JHA, 1891, p. 440.

⁹⁴*Ibid.*

⁹⁵*Ibid.*, pp. 441-2.

⁹⁶*Ibid.*, p. 436.

⁹⁷*Ibid.*

⁹⁸*Ibid.*

⁹⁹*Report*, 1891, p. 4.

¹⁰⁰*Ibid.*

¹⁰¹*Ibid.*

¹⁰²JHA, 1891, pp. 118-21.

¹⁰³*Report*, 1905, p. 187.

¹⁰⁴JHA, 1891, pp. 118-21.

¹⁰⁵Permission to republish the pamphlet was granted to the Irish Department of Fisheries for the benefit of their fishermen. See *Report*, 1892, p. 7.

¹⁰⁶*Report*, 1891, p. 12.

¹⁰⁷*Ibid.*, p. 8.

¹⁰⁸*Ibid.*

¹⁰⁹*Report*, 1892, p. 63.

¹¹⁰*Ibid.*, pp. 64-5.

¹¹¹*Ibid.*, p. 65.

¹¹²*Ibid.*, p. 70.

¹¹³"Rules and Regulations for the Manufacture of Herring Barrels," *Report*, 1892, pp. 72-4.

¹¹⁴In addition to the above rules and regulations, it was reported in 1897 that a standard measure for the sale of herring was fixed.