

REPORT

UPON THE CONDITION OF THE

RIVERS IN NOVA SCOTIA

IN CONNECTION WITH THE

FISHERIES IN THAT PROVINCE.

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Printed by Order of Parliament



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RETURN

(134)

To an ADDRESS of the SENATE, dated 22nd February, 1884;—For Copies of all Reports made to the Department of Marine and Fisheries, between the 1st day of March, 1881, and the last day of December, 1882, by F. N. D. Veith, Esq., an Officer appointed to inspect and report upon the condition of the Rivers in Nova Scotia, and to perform other duties in connection with the Fisheries in that Province.

By Command,

J. A. CHAPLEAU,

Department of the Secretary of State,
2nd April, 1884.

Secretary of State.

DIARY.

IN PURSUANCE OF MINISTER OF MARINE AND FISHERIES ORDER OF 7th MARCH, 1881.

1881.—17th March.

Received in the afternoon my commission from the Minister of Marine and Fisheries, to inspect the rivers throughout Nova Scotia, and to communicate with Mr. Rogers respecting it. Wrote to Mr. Rogers, asking his opinion whether or not, being at New Ross, Lunenburg County, I had better begin with the rivers from Gold River westerly.

18th March.

While awaiting Mr. Rogers reply, being on the spot, determined to visit the head waters of the Gold River and ascertain whether the outlets from the different lakes above New Ross, flowing into the main river, were open for salmon to ascend. Spent the day in getting all the information possible concerning the dams and falls to visit, and in making memoranda of their locality and ownership.

19th March.

Visited Larder's River, half-way between Lance's mill and its junction, with Gold River, and found it much choked with *debris* from freshets. It wants clearing out thoroughly. Larder's River, a tributary of the Gold River, flowing out of Lake Ramsay, was once a very famous stream for salmon, and no doubt, from reliable information received from Mr. Ross, a resident on the Gold River for nearly forty years, was very much sought after by these fish, who ascended it in hundreds to spawn in Lake Ramsay, a very sandy and gravelly bottomed sheet of water. Larder's River is now completely stopped by a dam at Lance's Mill.

20th March.

Sunday.

21st March.

Visited a portion of the river above the cross-roads, then round the Lake to Ross's Falls a very heavy pitch or rapid about 16 miles from the sea; it is quite passable for fish and free from any stoppage. I have been told a mill is about to be erected here and a dam placed entirely across. It might be deemed necessary that when the dam is building a fishery officer should inspect its construction, so that a

proper pass be at once made for the fish. It is rumored, too, that a large steam mill is to be placed just below the bridges at the cross. This would require a fishery officer's supervision also, when the dam is being built. I saw, at the bridges at the cross, great quantities of sawdust coming down the river. This all settles at the head of the lake and in time will fill up that portion of it completely.

22nd March.

Early this morning, with Mr. Ross and Charles Pratt as guides (they offered their services gratuitously), I started down the Gold River from Ross's Falls. Found the river in good condition until reaching Skerry's Falls, 13 miles from the sea. There is a very abrupt pitch here, and although salmon, during a freshet, can leap it, it is inaccessible for either trout or gaspereaux. I would strongly urge the use of one or two blasts of powder or dynamite at the side of the fall; this would afford easy access for all kinds of fish and be but a very trifling cost to Government. I then proceeded with extreme difficulty, through burnt thickets and windfalls on the bank, to the Salmon Hole, a pool $11\frac{1}{2}$ miles from the salt water, about 200 yards long by 100 broad. Here the most nefarious netting is carried on both by Indians from New Germany and white settlers. From New Ross, I am told, in the season (May) this is so netted across and swept with small seines, that scarcely a salmon escapes.

Below the Salmon Hole, 10 miles from the river's outlet, are situated the Big or Middle Falls. These falls are fully 15 feet in height with, a slight break, and it is only when the water is very high that salmon can make the ascent. All other kinds of fish are here stopped, it being perfectly impossible at any season of the year for them to get above the fall. I would most strongly advise the use of dynamite here also; a few well placed charges would convert the precipitous descent of water into a cascade and enable all descriptions of fish frequenting the river to pass with facility to the waters above. By doing this, multitudes of fish would escape the dippers and spearers, for, at this place, dozens of Indians from the La Have, principally from New Germany, have their camps during the months the fish are running, and the most illegal means daily, and nightly, are used to secure everything that rests at the foot of the fall; with large dip nets by day and spears by night the most outrageous slaughter is carried on. It would be of the greatest service, say for a month in the right season, if a River Warden camped between this and the Salmon Hole above, so as to be on the alert at all times to check the nefarious captures that are made to such an injurious extent. But making the fall, by blasting, easy of access to the fish, the greater number would not rest here at its foot as they now do, but proceeding further (with the netting above prevented), would speedily reach the big lake below the cross in safety. Netting completely across the still waters above Big Falls is continually carried on; I have it from most reliable authority that this goes on not only at night but in broad daylight. I completed the inspection of the river for 8 miles from New Ross; the remaining 8 I visited from the salt water upwards on the 28th inst. I saw no slabs or sawdust in this part of the stream. I received, to-day, a reply from Mr. Rogers advising me to take the western rivers to begin with.

23rd March.

Visited Mill River, a tributary of Gold River, which it joins at the cross. Two and a-half miles up found a dam completely across at J. Boylan's mill. No fish pass and the river blocked with edgings, slabs, *debris* from the freshets, &c. This stream issues from Sucker Hole Lake, a sheet of water $1\frac{1}{2}$ miles long and about 1 broad, once a favorite spawning ground for fish, but now, by Boylan's dam, completely cut off. Immense quantities of sawdust is allowed to escape from the mill.

24th March.

Proceeded to inspect the dams at R. Boylan's and Alex. Meister's mills, 3 and 5 miles, respectively, from the cross, on the main river. I found the former impassable, it is in a tumble-down state and completely obstructs the stream. A proper and permanent fish-pass is necessary here, and the stones and *debris* removed from the

base of the dam. At present it is useless and entirely blocks the river. Above this is Harris' Lake with a bottom of sand and gravel. Here are the main spawning grounds, the nursery, in fact, of this river. It would be most important to have the fish's ascent made easy and secured to them. Salmon are scarcely ever seen above Harris' Lake, and Meister's dam is, therefore not in the way.

25th March.

Walked over to Lance's mill, $2\frac{1}{2}$ miles from the cross, situated on Larder's River, 4 miles from its junction with the main river, and immediately below Lake Ramsay (another sandy lake). Mr. Ross, magistrate of the district, informed me that before the mill was placed there, Larder's River teemed with salmon, and that they sought Lake Ramsay to spawn. I found, however, two dams at Lance's mill, completely across, and no fish-pass whatever. The river is choked with slabs, and banks of sawdust. No precautions whatever are taken to keep the latter out of the water; and I saw quantities from this mill passing into the main (Gold) river, at its junction 4 miles below. The small dam to the westward of the mill could readily be made a fishway and the river cleared at a small cost.

26th March.

Having finished the upper part of the Gold River, I spent the day in writing up my diary of the work I had done.

27th March.

Sunday.

28th March.

Left New Ross as early in the day as I could, after arranging for a conveyance to Chester Basin, which place I reached at dark.

29th March.

Started at 7 a.m., with a guide, up Gold River, from the tideway to where I had left off on my journey from New Ross, down stream, and found it in perfect order. I saw very little sawdust here, and no obstructions whatever. In the afternoon I took the coach for Bridgewater to visit the La Have, having carefully surveyed the Gold River and its main tributaries from Meister's mill to the sea, a distance of more than 20 miles. I wish to report here that no finer river than this can exist in Nova Scotia, for salmon and other fish. From the mill dam belonging to R. Boylan, to the tideway (over 18 miles), there are no dams whatever, the defects being the two natural falls I have mentioned, preventing the fish readily ascending, and the wholesale netting and dipping illegally carried on everywhere, up and down the stream. It will be seen, I trust, how necessary it is that these evils be at once remedied; more especially as the Indians on Gold River tell me that a large kind of salmon that used to frequent the La Have, being denied access to its waters, have, of late seasons, tried this river, and would, no doubt, be a valuable acquisition, were assistance and protection properly afforded them.

30th March.

In company with the overseer, Mr. C. E. Goddard, I proceeded up the La Have, to visit the mills owned by Mr. E. Davidson. At dam No. 1, I found two fish-passes—a large one, close by the sluice, for logs; the other at the western bank, evidently constructed with a view to affording a way for gaspereaux and other small fish. The latter had no water in it when I saw it; but I am informed, even when a stream is permitted to flow through it, the gaspereaux being in the river, it is quite useless, as they will not enter it. Millions, I am told, arrived last season at its foot, but would not, or were unable, to enter it. The larger fish pass was but built, I learn, by Mr. Davidson, under his own personal supervision, and the total failure and inutility of this structure is not so much owing to its grade or internal construction, as it is to its proximity to the log sluice, and the manner in which it is placed in the dam. I am of

opinion, from my knowledge of the habits of river fish, and of the most successful modes of passing them over dams, that it is in its present position, perfectly useless. When they are driving timber and logs down the sluice they must, to a very great extent, not only frighten away, but injure the fish, especially gaspereaux in shoals. They have, it is said, been here found in quantities on the shore, bruised and dead. And again, instead of the entrance to the fishway being close up to the foot of the dam and running backwards and upwards at a grade of 1 foot in 8 or even 7, it extends straight down stream from the dam, fully 30 feet. Thus, fish seeking to ascend, assembling close under the high obstacle in their path which spans the whole river, are in advance of and miss the entrance to the wooden pass 30 feet below them. This, doubtless, has hitherto been the case, and will go on, season after season, until the salmon, gaspereaux, &c., baffled in their ascent beyond this obstruction and forced to return again to the salt water, forsake "La Have" altogether for some other river. I have given the matter most careful consideration, and I feel positive the evil can be remedied if applied at once, and the numberless complainings of the settlers concerning this dam, and the want of a free passage for the fish, be put an end to, if the following plan be adopted: Let the present gaspereaux gate at the western side be taken away and the natural cavity there, widened inwards towards the bank about 12 feet and deepened from 4 to 5 feet, and allow a good stream of water to flow into it around the side of the dam in cascade form; this, with no detriment to the working of the mill, would make a natural and easy water course, up which all kinds of fish could readily reach the still water above. The cost would be about \$50.00.

Unless it be done, my experience most forcibly convinces me that this noble river must, per force, become very shortly altogether destitute of fish of any description.

I would add further, that against the law, immense quantities of sawdust are permitted to fall into the La Have. I saw the water for a considerable distance below Mr. Davidson's mill perfectly thick with it, and I am credibly informed that where a full rigged ship could, some years ago, pass safely, a schooner lately stranded. Tons upon tons are daily being added to the mass already settled at the bottom and the present navigation to the bridge for small vessels will soon be utterly destroyed.

31st March.

A heavy snow and rain storm rendered it impossible this day to continue my inspection up river.

FRED. H. D. VIETH, *Inspecting the Rivers of Nova Scotia.*

BRIDGEWATER, LUNENBURG Co., 1st April, 1831.

SIR,—I beg respectfully to solicit, at the request of many settlers, your consideration of the defects in the Gold and La Have Rivers, explained in my Diary, ended, 31st, with a hope that this season you will be graciously pleased to cause a remedy in each case to be applied.

I have the honor to be, Sir, your obedient servant,

FRED. H. D. VIETH, *Inspecting the Rivers of Nova Scotia.*

Hon. Minister Marine and Fisheries.

Fish Traps on Yarmouth Coast, &c.

DIGBY, 26th April, 1831.

SIR,—I have the honor to report that since the 17th of March last, I have inspected the fishing rivers in the Counties of Lunenburg, Queen's, Shelburne, Yarmouth and Digby, and that I have duly stated their condition in my Diary, which, on its completion for the present month, I will forward, through the Officer in charge of the Marine and Fisheries Department at Halifax, for your information, in compliance with your order of the 7th ult.

I beg to bring to your notice that while at Tusket, inspecting the rivers at that place, I had the following statements made to me by Mr. Moody, a prominent merchant of Yarmouth, and by John and Charles Hatfield, of Tusket, and by others.

That owners of the fish traps set between John's Island, off Barrington and Green Cove to the north of it, are all engaged in the illicit capture of large quantities of salmon, and that an extensive trade between Yarmouth and Boston is carried on in these fish.

I am informed that many thousands of salmon are illegally taken every season in these traps on their way to the various rivers on this coast, and that a still greater evil (if possible) exists in the ensnaring of multitudes of young salmon, commonly known as salmon fry, that have come down from some of the rivers into the sea.

These, together with young gaspereaux, instead of being released, are cast in with refuse fish that the trap owners make no other use of, than to sell at so much per load as manure for land.

The falling off each season in the number of salmon legally captured in the rivers on this coast for the last five or six years, viz, since these traps have been set, would appear to give a coloring of truth to the above statements, and I have deemed it my duty to lay the matter before you, more especially, as my informants tell me, they are all perfectly willing to come forward themselves, and to produce other parties in additional proof of their story being an authentic and reliable one.

I have the honor to be, Sir, your obedient servant,

FRED. H. D. VIETH, *Insp. ctng the Rivers of Nova Scotia.*

DIARY.

FROM 1ST TO 30TH APRIL, INCLUSIVE.

1st April.

Still storming in the morning. In the afternoon visited No. 2 dam, belonging to Mr. Davidson, a fish ladder is erected here, again placed side by side with the log sluice. I am more hopeful of this "pass," as it does not project so much from the dam down stream. The grade appears to be 1 foot in 9; I was put out on the fish ladder in a scow, and I saw nothing to find fault with in its internal structure, though were the entrance to it made close to the base of the dam and further away from the sluice it might be found to be more successful. I omitted to mention that both this and No. 1 fish-gate, are boxed in on top, thus rendering them almost dark, a plan I believe to be very bad and one I never heard of before. I understand it is done to prevent, during freshets, logs, &c., from getting into the trough. I would suggest that this covering be removed, leaving only two pieces of stout timber remaining lengthwise, to throw off any logs, &c., coming over. This would give ample light and answer every purpose otherwise, though it would be a still better improvement if the water-tight frame work at the top of the fish ladder were securely raised about 5 feet above its present height.

I next visited No. 3 dam above Davidson's some distance, at the Cook & Co.'s mill. I would strongly recommend that a natural fish pass round the side of the dam be made here. The eastern bank affords ample opportunity for doing so and it would be far better than a fish ladder for all kinds of fish. The proprietors are willing to do it at their own expense.

I then proceeded up stream for 7 miles and found the river clear of everything but sawdust. In every mill I have yet seen all sawdust is pitched into the water. I omitted to mention Davidson has a small furnace at mill No. 1, but it is quite inadequate to burn one-tenth of the sawdust made. It exists, however, but in name as it is rarely used, if at all, and he keeps one man beneath the mill whose sole duty is from morning to night to wheel sawdust in a large barrow and throw it into the river. How many tons a month this man deposits in the water I cannot exactly say, but it must be very many.

I next reached Hartlen & Co.'s mill, 7 miles from the tide-way, here a dam stretches completely across from side to side and no fish pass whatever, and although

it is but 4 or 5 feet high and during heavy freshets salmon might leap it, still they could not do so when the water is low or even half down. At no time could shad or gaspereaux get beyond it upwards.

Neither salmon, gaspereaux nor any fish from the salt water have been seen here for years. A proper fish-gate or ladder is badly wanted, and precautions taken to prevent such quantities of sawdust falling into the stream.

3rd April

Sunday.

4th April.

Drove to Wentzell's mill, 9 miles from Bridgewater, and found the river dammed completely across. There is no fish pass whatever, and no care is taken of the sawdust, the stream, however, is quite clear of slabs, edgings, &c., up to this.

I next proceeded up stream to Morgan's Falls, 7 miles distant, here there is a perfect waterfall fully 25 feet in height; but many years ago, part of this rock on the eastern side was blasted out and forms, when the water is high, a natural cascade. Neither gaspereaux, shad nor trout, I believe, ever at any time got beyond this barrier; but it could, by the use of dynamite at a very trifling cost, be made an easy pass. Above Morgan's Falls I found two dams stopping the river between that place and Lake Germany (2 miles), over which no means whatever are provided for fish to ascend. Lake Germany is about 2 miles in length by 1 broad, and has flowing into it two important streams, West Brook and Woodworths; these are perfectly clear of obstructions for 15 miles up. Above, are Lakes Spry and Cloud, to which there is free access (these are in Annapolis county.)

At Lake Germany I was 18 miles from the sea, and finished my inspection of La Have.

I would here observe that were Davidson, Cook & Co.'s, Hartlen & Co.'s, Wentzel & Co.'s and the two dams above Morgan's Falls, properly fitted with fish ladders or water courses, and the rock at these falls blown away in two or three places, salmon, shad, trout and gaspereaux could freely ascend from the tideway to Lakes Spry and Cloud, a distance of more than 40 miles. On my way back to Bridgewater, I visited a large tributary of the La Have, called Kiddy's or North East River, it joins the La Have 15 miles from the tideway, and I think that years ago to avoid Morgan's Falls must have been much sought by salmon, &c., to deposit their spawn, they had then an uninterrupted course up a fine river for 11 miles to the Great Lake at Dalhousie. This sheet of water is 9 miles in length and very broad, with bottom of sand and gravel.

I did not proceed up Kiddy's River to the Great Lake for a very great distance—it is choked with slabs and all sorts of debris in places, and full of sawdust—but the Magistrate at this part of New Germany informed me, that he had seen the whole of it recently, and that there are five mill dams obstructing the river, one immediately at the foot of the lake, 11 miles up and 4 between that place and its junction with the La Have. No provision being made for the fish and all sawdust freely thrown into the stream. I may mention that the mill owners up in this part are reluctant to open their dams when they know fish cannot ascend beyond Davidson's Mills.

No salmon or gaspereaux have been seen at Morgan's Falls for many years. I observed several small tributaries of the La Have on my return towards Bridgewater which would be frequented by gaspereaux, but a mill dam stops each. I visited one stream 3 miles below the bridge, flowing out of Rhodenheiser's Lake, which was last year filled with millions of gaspereaux, but they could not ascend further, two dams completely blocking the stream. Salmon do not frequent this, but at a trifling cost a way for the alewives could easily be made.

It would be a great benefit to all the settlers about here, if this could be ordered to be done this season. The fish arrive during next month. I enclose photographs of Davidson's dams and the fish ladders.

5th April.

In company with Mr. C. E. Goddard, the Fishery Overseer, I drove to Lake Conquerall and began my inspection of the Petite Rivière downwards from Hebb's mill, 16 miles from the sea. At this dam, at the head of Lake Conquerall, no fish-pass is visible, and sawdust and refuse are permitted to fall into the water. It is in a most discreditable state, and I learn that one of the firm, or a relative, one Eli Hebb, is a warden. At the foot of Conquerall Lake there are four mills, side by side. I saw no provision made for the fish, and the river choked with slabs and sawdust.

Further down are Crouse's mill, 3 miles from the sea; Jodry's mill, Sperry's mill, and Daniels & Hewy's grist mill.

I saw no fish ladders or open water courses at any of them, and no means are taken anywhere on this river to save the sawdust.

6th April.

Wrote up my diary and started for Mills Village, on the Medway River, in the afternoon.

7th April.

I proceeded up the Medway with the Overseer, Mr. John Fitzgerald, to the big dam, $\frac{3}{4}$ of a mile from the tide-way. It is owned by a Mr. Mack. There is an excellent natural water-course around the east side of the dam, easy of access for all kinds of fish. I next visited Tumbling dam, $1\frac{1}{2}$ miles up, at Norris, Mailman & Co.'s mill, and found on the east side an open fish pass, very well placed and in good order; and at Salter's Falls, 3 miles from the bridge, there is another open space at the west end of the dam, affording a free passage to the waters above. From this place upwards there is no obstruction whatever, and reaching Greenfield there is only a wing dam partially across. The stream to Brookfield, 12 miles above, is perfectly clear; but at this place the river forks, and on one branch there is a dam, unprovided with either ladder or water-course, but the other is perfectly clear, and a free access exists to the lakes, 40 miles above. The Medway, therefore, is in good condition, but I regret to state that I was informed by a gentleman, who happened to be on the river, that the settlers at the head waters mercilessly slaughter the salmon in October and November, while in the act of spawning.

8th April.

I visited Liverpool River with the Overseer, Mr. Sellon; Freeman & Son's mill, $1\frac{1}{2}$ miles from the tide-way. A fish-ladder is admirably placed in the dam here, and I am informed numbers of fish last year ascended it.

I next proceeded to inspect L. Barnaby's dam, $2\frac{1}{2}$ miles up from the bridge, and saw on the east side the fish-ladder. Salmon and gaspereaux have here been seen in the act of ascending. It is built, as is the one below, flush with the dam, and its entrance easily found by fish passing upwards. Salmon have been caught at the Indian Gardens, 18 miles beyond, and even found near the South Mountain, 40 miles away. Young gaspereaux came down this river to the sea last season in thousands. Mr. Wilmot was this day re-stocking the Mersey, and I would earnestly recommend that netting in this river and in the Medway, including the salt water to the headlands, be only permitted from sunrise on Monday morning until Thursday at sunset; and further, that all nets be taken up everywhere for the season after the 30th June, and thus prevent the destruction of grisle seeking the river, from July onwards. The people appear to wish that this local arrangement be allowed them.

9th April.

At a tide way at Jordan River, I found a mill dam stretching completely across (the mill is owned by Stewart, Freeman & Co.) A fish-ladder is placed in it about, 70 feet in length, projecting down the river. From the position in which it is placed, I believe fish pass the opening, as salmon gaspereaux, &c., have never been

seen in it, since it was built. Were it placed similarly to those I saw on the Liverpool River, flush with the dam, I have no doubt it would answer well, but in its present position, one can easily see it is useless. A natural water course could easily be made, by allowing the water to flow through a sluice already in the dam, though at present closed, but which, by opening and the passage cleared below, would save all the expense of moving the fish-ladder, and be more desirable in every way. Natural water courses are always preferable, when practicable, to wooden structures. Salmon are almost unknown here, but were at one time, before the dam was built, very numerous. Last year a large number of gaspereaux came to the foot of the fish-ladder (part of which is now carried away by a freshet), but went back again—none ascended.

I then visited Mullin's mill, 1 mile up, where I found a fish-ladder much better placed in the dam. The channel below it requires deepening and widening, and a small wall of stones (they are here in abundance) built on either side, to lead the fish to the mouth of the fish-ladder.

I proceeded further up for 7 miles, to the Big Falls. The dam here is totally across, and a permanent fish pass at the side is wanted, and the dam at the Big Lake requires a similar opening. I saw great quantities of sawdust in the river, and in places is choking it up.

10th April.

Sunday.

11th April.

I proceeded to inspect the Roseway or Shelburne River, and found large mills at the tide-way, owned by the Shelburne Mill Co. No fish-ladder is here in the dam. I saw a small sluice on the east side, it is on private property, other than the mill owners', and is at the mercy of the proprietor of the land, to keep it open or not. It is, however, of little practical use, as but a very few gaspereaux, perhaps, but no salmon can force their way up during a heavy freshet only. This dam requires either a proper wooden fish-ladder fixed in it, with its entrance at the base of the obstruction and running up stream into the mill pond about 50 feet, or a permanent open and natural fish-pass at the east side. Grievous complaints were made to me by very many of the settlers at the fish being stopped. They were a source of considerable profit to those living on the river. Now, that shipbuilding is no longer carried on to any extent, and no fish to be caught, the men are leaving this district in numbers to find a livelihood elsewhere. I would suggest that the natural water course be made permanently on the east side, to remain clear at all seasons, as the formation of the river bank is admirably adapted for it. The cost would be about \$50 or \$60, a small sum compared with the erection of a wooden fish-ladder, and would be much more preferable, and I would respectfully advise that this river be ordered to be put in proper condition at once, as the gaspereaux and salmon will soon now arrive, and the settlers are suffering much by the fish being prevented from reaching them.

I visited No. 2 dam, Bowers & Co. A natural fish-course is here on, the west side. I am of opinion that river fish of all kinds can readily ascend it. No. 2 dam is 3 miles from the tide way. No. 3, Robert Bower's dam, is 5 miles from the sea, and has a natural fish-pass also on the west side. It is in good order and accessible to fish ascending the river. No. 4 dam, Thomas Bowers', 7 miles from the salt water, is completely stopped; a fish-ladder is here needed. I found the river much choked with rubbish and sawdust.

At No. 5. dam, 10 miles up, there is no ladder, but a small quantity of water is allowed to trickle down beside the west side of it. No salmon or gaspereaux could ascend beyond this structure.

12th April.

At Clyde River, at Sutherland's dam, just about the tide-way, I saw a fish-ladder well constructed and situated. It has suffered considerably from the spring freshet,

and is in bad repair; but the Overeer, Warden and mill owners all guaranteed me that its restoration will very shortly be accomplished, and be made thoroughly effective before the arrival of the fish next month. The mill owners are endeavoring to prevent, as much as possible, the sawdust from falling into the river. I saw no edgings or rubbish deposited in the stream. Eighteen miles above this is George McCoy's mill, where there is a natural fish-way. Seven miles upwards is Davis & Co.'s mill-dam, which is accessible to fish, and beyond the river is free from any obstruction whatever. Numerous tributaries flow into this stream, on which no barriers exist.

13th April.

I visited Barrington River. It is quite unobstructed. This spring's freshet carried away its only dam, but I am informed it is to be rebuilt.

14th April.

At Tusket, 10 miles from Yarmouth. The first dam on the river is 12 miles from the tide-way, and the weather too unfavorable to admit of reaching it, but I have ascertained that the fish-ladder placed there is useless, and that no fish pass through it. Salmon are very scarce. I am informed, in this river that once teemed with them, and I have it from reliable authority, that the traps from John's Island, off Barrington, to the mouth of Tusket River, ostensibly set to catch mackerel, hering, &c., are fitted with immense long leaders, which turn salmon and all other fish into them, and that instead of permitting the salmon to escape, as the law enjoins, they are secured, packed in boxes with salt, and shipped from Yarmouth to the States. These engines of destruction extend from John's Island, off Barrington and Pubnico, as far as Green Cove. I am unable to state their exact number, but I learned, from a Mr. Chas. Hatfield, who has bought salmon from owners of traps, that fifty of these fish, averaging 15 lbs. each, would be a small percentage taken in each trap per week, and that these remain set during May, June and July—some a longer time. An estimate roughly calculated of the trade in salmon illicitly caught may be figured thus, say in ten traps for three months: In one week 500 fish, in twelve weeks 6,000, which, at an average of 15 lbs. each, would amount to 45 tons in weight, and this does not include the whole of the traps set. I was told, also, that among fish caught, which are not considered of value by trap owners, have been seen tens of thousands of young salmon and gaspereaux, and that all these refuse fish, as they are called, are used to spread over the fields for manure. And, further, I was assured that if an investigation were made, proof in substantiation of the above would readily be forthcoming. A Mr. John Hatfield, the Warden on Tusket River, one of my informants, mentioned to me that one of the shore Wardens, a Mr. Abraham Thurston, is a shareholder in a trap and engaged in the illicit traffic.

Whether these statements be true or not, one fact most prominently stands out, viz., that since traps have been set in any number, that is, during the past four or five years, salmon each season have been more scarce and now are rarely ever caught in Tusket River.

15th April.

Good Friday.

16th April.

I proceeded up the main river, at Tusket, to the Forks, 4 miles up, and found it clear of all obstructions. I then visited Raynard's mill, on the Carlton branch, and found the dam placed from side to side, across. There was no fish-ladder, but the overseer, Mr. E. Gardiner, informed me that when gaspereaux reached the barrier at the beginning of May, the dam is opened and a wide, free passage, under his supervision, is then made.

17th April.

Sunday.

18th April.

On again ascending the Tusket, I followed the tributary called Salmon River, and came upon Wood's mill, 4 miles from the sea. A natural open pass is here and an

swers every purpose. I then proceeded up stream for 4 miles, to Porter's mill, where I found that they used no ladder, but gaspereaux were admitted to the lake above, in a similar manner to that I have described as made use of at Raynard's mill, on the Carlton. Salmon are never seen now in this river that bears their name, and have not frequented it for four or five years. Further up, about 2 miles, I reached Durgee's saw mill. This dam is also opened in the fishing season, the warden personally seeing that it is effectually done. Two miles from this place I crossed the Salmon River and struck out towards the Carlton branch of the Tusket, to inspect the only other dam, besides Raynard's (already visited on the 16th inst.) The mills here, 13 miles from the tideway, are owned by the Messrs. Miller & Co. I discovered the fish-ladder in a most delapidated condition, the lower end completely broken away, and some of the compartments in its interior gone. It is quite useless in its present condition, and I am told does not, at any time, answer the purpose for which it was built. It stretches too far down stream from the dam, and, like others I have already described, is missed by the fish, which pass under and beside it. I am strongly of opinion it never was found adequate to its requirements, and as the owners are willing to bear the expense, it would be most advisable that they be ordered this summer to replace it with a ladder reaching upwards from the base of the dam.

19th April.

Crossed over in the morning from Carlton to the main river, coming out at Kentville. I then visited N. Travers & Co.'s mill, 2 miles beyond and 18 miles in all from the tide-way. There is no obstruction of any kind below this dam to the sea and above it; the one there is so constructed that the fish have a free passage. I saw, at Travers' mill, a ladder very well situated, having a good grade and appearing to be carefully looked after. I was told by the overseer, and others, that the fish experience no difficulty in ascending it. I believe it to be a very satisfactory structure. The river is in good order as respects sawdust, edgings, &c. Many hundred barrels of gaspereaux were taken on this river last year, and vast numbers of young fish were seen on their downward course to the sea, Salmon once abounded in this stream, but are now very scarce—a few only in the season are caught.

I cannot account for this falling off in any other way than the destruction by the trap fishing on the coast.

20th April.

I visited the forks of the main and east rivers, and proceeded some distance up. It is quite clear and accessible to fish.

21st April.

Left Tusket and took the stage to Yarmouth, then by mail coach to Upper Salmon River, in Digby County, 18 miles away. At the tide-way I found Raymond & Co.'s mill. It has a high stone dam, with a fish-ladder placed on the north side; it was not in good repair, but I should say from its situation and construction, it might be found to answer. (I may mention here, there is no Overseer for Digby County, and no Wardens for either this river or Metaghan, 10 miles distant) The mill was closed and I saw no person about who could give me reliable information as to the efficacy of the ladder. At the inn I was told, however, that scarcely anything comes into the river. Dipping has been carried on for years under the dam, and sweeping with nets has become a constant practice. Last season no fixed nets were set in the river; it was not considered worth while. The people attribute the failure of late years to the trap fishing outside. A few gaspereaux and one or two salmon only are now yearly caught in this stream, that half a dozen years ago was considered, both in the counties of Digby and Yarmouth, the most prolific on those coasts. I next visited Metaghan. There are seven dams on it within 15 miles, without any provision being made for the fish. It is choked in places with sawdust, edgings, &c., and I am told is utterly ruined. After leaving Metaghan I proceeded to Saulnierville, 5 miles distant, and slept there, and next morning reached Weymouth by train. In the afternoon,

with Mr. Journay, the Warden, I ascended the Sissiboo for $2\frac{1}{2}$ miles to the first mills. I found here a gigantic structure in the shape of a dam, upwards of 23 feet in height, which has hitherto been considered impassable and no attempt to assist the fish has ever been made. I believe, however, a fish ladder could be placed here on the north side by blasting some of the lower part of the rock and forming a natural broken cascade to the entrance of the ladder, and running that structure backwards up about 50 feet. In the dry season in summer this could be done, but its cost I am unable to compute. Seven miles from this I reached the Grand Falls. Here there exists a sudden drop of the river's bed of 60 feet. Nothing could have gone beyond this cataract at any time, and only by the aid of dynamite and at considerable cost could it be made into an available pass. Above this fall there are a vast number of lakes which would become most prolific fish-breeding grounds.

23rd April.

Took the train from Weymouth to Digby, where the Western Counties Railway ends. Arrived too late to continue inspecting to-day.

24th April.

Sunday.

25th April.

Drove over to Bear River from Digby, a distance of 10 miles, and $\frac{3}{4}$ of a mile from the bridge or tideway. I found the main and other rivers all stopped by dams. The mills on the former are owned by Mr. Vroom and E. Walsh & Co. Both places require ladders. The west branch (a tributary) is also dammed across by Rice & Co.'s mill. The stream never has been, nor could it, except at great cost, be made accessible to fish, owing to heavy falls over a steep cliff. Above Walsh's mill, 6 miles, is one owned by a Mr. James Thomas. The dam here is unprovided with a fish ladder and extends from bank to bank. Sawdust is freely thrown in everywhere, (except at Vroom's mill, where there is a furnace). There are neither Wardens nor an Overseer at Bear River; the millers do as they please, and the navigation is seriously impaired by the quantity of sawdust, &c., being deposited into it year after year.

26th April.

I walked from Digby to Joggin River, 4 miles distant, to inspect it. The principal mill-dam is at its junction with the salt water, and owned by a Mr. Burnham. It completely bars the stream and all kinds of fish are here stopped. Three miles further up the Joggin I came upon another dam. I failed to discover the owner's name, as there was nobody about to tell me; this is also unprovided with a fish-ladder. The river above this is open. I may mention I witnessed a great destruction of large herring in a weir, owned principally by some colored men, near here. They had, the night before, stopped about 150 barrels, and having neither a place to smoke them in nor any salt, after some white men who had shares with them in one portion of the weir, had taken away eighty barrels to cure, the remainder, with the exception of a few for their own immediate use, they sold to the farmers round for their manure heaps. I met cartloads of fine fish on the road being wheeled away for that purpose. The shore Warden, who lives close by this weir, is named Gavel.

27th April.

Took the steamer from Digby to Annapolis and arrived there in the afternoon. In the evening I walked over to the Lequille, a tributary of the Annapolis River, and found it clear of obstructions. The Indians and others were catching large quantities of Gaspereaux, but legally. Salmon are sometimes captured here, but not in any great number. It appears to be in excellent order. Numerous complaints were made to me about the sawdust in the main river.

28th April.

I ascended the Annapolis River for 18 miles. It is clear of any obstacle, though I saw a great quantity of sawdust floating down. This is made by the mills on

many of the small tributaries, there being but one mill on the main stream at Laurencetown, and that is not working. At Roundhill there is a fish ladder in the dam built there; it appears satisfactory.

29th April.

Visited the tributary at Paradise; a vast quantity of sawdust is permitted to fall into the water, and there is no ladder in the mill-dam here. I then went on to Laurencetown, where a large dam stretched across, without any means being taken to assist the fish over it since its construction, and all fish are debarred from further progress.

The mill is owned by a Mr. Morton, of Liverpool, but it has fallen into disuse and the dam obstructs the river for no purpose whatever. There are no barriers across the main stream, for 20 miles from this spot. Below it I saw great numbers of young salmon on their way down to the salt water. The weirs at the mouth of this river destroy vast numbers of these little fish.

30th April

Took the train at Paradise station for Kentville, to visit the Gaspereaux River, in King's County.

FRED. H. D. VEITH.

1st May.

Sunday.

2nd May.

As it was late when I visited the *gaspereaux* on the 30th April, I had no means of fully seeing the river, so I drove over this day to examine the means, if any, that were taken to save the sawdust, a quantity of which I had before seen high up on banks of the river. The owner of the mill has told me he used every means to keep the stream clear, but that sometimes sawdust, &c., accidentally fell in. I, however, saw for myself far below the mill, immense quantities of shavings, sweepings of the mill, &c., and I immediately wrote to the County Overseer and told him of this breach of the law. I should have called upon him personally, but he lived too far away from Kentville, and I wished to save the expense of hiring a conveyance. I, however, attach his answer.

3rd May.

Left Kentville for Halifax to have an interview with Mr. Rogers and to complete and hand over my papers to Mr. Johnstone, with bills of expense, &c., previous to visiting the rivers in the County of Halifax.

4th May.

Telegraphed my arrival in Halifax to Mr. Rogers, asking him if I should come to Amherst to see him, relative to my future inspection, or if he would appoint a place of meeting.

5th May.

Received a reply from Mr. Rogers, telling me a meeting was unnecessary, but to proceed as I had been doing. He was then about to leave Amherst. I afterwards received a letter from him which I attach, merely to show I have endeavored to consult Mr. Rogers, as directed by my instructions.

6th May.

Weather unfavorable for travelling; remained in Halifax.

7th May.

Weather unfavorable for travelling in the morning, in the afternoon visited Bedford River, where I met Mr. Wilmot who told me the river was altogether in his charge, so I returned.

Sunday.

8th May.

9th May.

Took the mail coach for Chester to visit the rivers from Gold River eastwardly from that place, which had not yet been inspected by me. I stopped first at the East River, 38 miles from Halifax, and proceeded to ascend it. This stream has but one mill-dam upon it, viz., at its junction with the salt water, but its machinery is worked by the aid of a portion of the river only, through a long sluice which has been cut in the bank, and so in no way impedes the fish seeking to get up; gaspereaux, salmon and trout have an easy opportunity of ascending until they are met, about a mile from the tide-way, by a very heavy, precipitous fall. At one time this was not the real channel of the river, but was made in order that the logs might more easily be driven down to the mill below. The old channel was a very circuitous and rocky one, and fish could only ascend it in heavy freshets.

Now, by the water being turned into the new passage where the heavy fall exists, the old channel is useless altogether, and the new almost inaccessible for fish. The cost of a proper channel would be but a trifling one, and would open up the main river, which is quite clear above this to the forks, 4 miles above, and to the sources of both branches.

10th May.

In the morning, early, I visited Little East River. Its mouth is much choked where it joins the sea with round loose stones. Salmon would scarcely enter so small a stream, but the expenditure of the labor of two men on it for three or four days would convert it into an admirably adapted river for gaspereaux and trout. I saw a number of nets for the former set in the small bay below, which are fairly successful, showing that the fish endeavor to ascend, and would do so to spawn were a channel made. There are no dams or any obstructions in the streams and ponds above.

I then took passage in the mail coach for Gold River, having been asked to go over to witness the excessive dipping on the lower part and to report to the Department the illicit catching of salmon in dip-nets and arrived on the river too late to go up that afternoon. I ascended it some 4 miles, however, the following morning.

11th May.

There were numbers of men ostensibly dipping gaspereaux, but on my way up and down saw no salmon landed. They took good care not to do so while the Warden and I were present, but I heard that after our backs were turned a great number that day and after dark were captured. The Wardens are quite powerless to stop the immense catching of these fish, for it would require almost a regiment of them on the watch night and day to check it. I was informed that last year hundreds of breeding salmon were thus illegally caught. The "dippers" use hoop nets, 3 and 4 feet in diameter (perhaps more), and it is well known on the river that gaspereaux are not what they are seeking.

A vast number of salmon, by these unlawful means, are prevented from increasing their kind in the upper portion of the stream, and so ruining the legitimate net fishing in the harbor and reducing yearly the stock of fish. It would seem most advisable, not only that the dip-nets should be reduced to a much smaller size for gaspereaux, but also if a law could be passed either to prevent all dipping for any description of fish everywhere on the main river, and its first tributary, for a period, say of three years, or to permit only on what is termed the "Branch," the use of modified dip-nets—the main river still to be closed to that purpose for the time specified above. This would very materially re-stock the river with salmon, while more than sufficient gaspereaux for everybody's use could be taken in this tributary, which enters just below the inaccessible fall already alluded to in a former report. In conversation with several of the settlers, I was told that a great number of people about this district earnestly wished for some restrictive regulation for two or three years to allow the salmon to increase and re-stock the river.

12th May.

I visited Middle River, which is situated a little over 2 miles easterly from Gold River, and found the river clear of all obstructions up to Whalen's mill, 6 miles from the tide-way. Here there is a pass, and fish experience no difficulty, I am told, in getting by it. Further up, $1\frac{1}{2}$ miles, is Hennyar's mill-dam, in a similar good condition. I then visited Millet's Brook (a tributary), where I came upon Millet's dam, which has neither ladder nor way for the fish. A proper fish-ladder, or pass, is much needed here. I saw large quantities of gaspereaux below the dam endeavoring to get up, and with the Warden, Mr. Bezanson, saw Mr. Millet, when the former ordered the miller at once to open the dam to allow the fish through. With Mr. Bezanson, I then went up the eastern branch to Corkum's mill-dam. There is an excellent pass made for gaspereaux here, a channel having been cut from a small sluice in the dam to the stream under the mill. Mr. Corkum and I believe the County Overseer, Mr. Redden, excavated this, and it is very carefully and efficiently done, and gaspereaux can easily ascend to their spawning grounds. Mr. Corkum, the mill-owner, is very careful that the sawdust is not dropped into the water, and seems to take a great interest in keeping his mill and dam from being an injury to the river.

13th May.

Took passage in the coach back to St. Margaret's Bay and on the way I visited Sankey & Co.'s mill, at Hubbert's Cove. There is here an excellent ladder and it appears to be kept in good order. I came quite unexpectedly into the mill and found it, as I have stated, well cared for.

14th May.

At St. Margaret's Bay, Nathaniel Mason, the Warden, whom I wished as guide, being away on duty visiting Hosier's River, I remained at his house writing up my diary from my notes taken on the rivers, banks, &c.

15th May.

Sunday.

16th May.

Early this morning, with Nathaniel Mason, I walked up the Indian River and saw, as I ascended it, that it was quite clear of any obstructions until I reached Sandy Lake dam. Here I found a long fish-ladder running down stream, of what Mr. Mason told me was the Government pattern. The water was very high and pouring into it and over the dam. The lumbermen then being engaged in driving logs, were obliged to keep this part of the stream very full and it was pouring over the ladder so that it could not be reached to see its interior, but I could see, from the bank, that it was very much broken and out of repair. I was told by the warden and many others that this ladder has never been a serviceable one, and that fish do not enter it, and I may state here that this has been said of every similarly placed ladder that I have seen throughout the country, since I commenced my duties, on the 17th March last; I do not remember a single exception. Walking further up round Sandy Lake for $3\frac{1}{2}$ miles I reached Rafter's dam, close by the old Annapolis road. There is here situated a sluice through which fish can readily pass into the lake above; it is kept always open, there being no mill here, nor indeed is there one anywhere on this river, unless it be far up on one of the tributaries near its source beyond Mount Uniacke station, on the Windsor Railway, (in Hants County). Proceeding still further up for $3\frac{1}{2}$ miles, I reached Meloin's dam. The mill that once stood here has long since crumbled away, but the dam has been kept in repair by Messrs. Todd & Co., of St. Margaret's Bay, for the purpose of driving down the logs for their mill. At this place I have found the remains of an old ladder, but there is no regular pass made to take its place. The Warden Mason told me he does what he can in his repeated visits here, during the season, to make a temporary opening, but it would be most desirable if a permanent ladder could be placed here.

From this dam, upwards, there extends a large lake, 9 miles, I am told, in length, which is dammed at its upper end where the North River enters. The Warden and myself searched about for the boat, but there was none there just then, and as he stated it would take days for us to walk around the lake and back again, I was obliged to give up my visit to the dam at the head. I was anxious to see this obstruction, as I was told it was quite across the river and that it has neither ladder nor fish-pass, but I was thus prevented from doing so. Leaving the Indian River at this point, 10 miles from the sea, I then struck in a north-west direction towards Davidson's dam on the Ingraham River, 6 or 7 miles distant, and crossed, on a logging dam, Reece's Brook, a tributary of the Indian River. I found no fish-ladder here, but the Warden told me the gates of the sluice were always raised as soon as the logs passed through. I at length arrived at Davidson's dam, on the Ingraham River, about $5\frac{1}{2}$ miles from Reece's Brook and 10 miles from the tide-way at St. Margaret's Bay. The fish can only pass here at times (as at other places) by lifting the gates. The water was extremely high in the river, as the lumbermen were running their logs through, but at low water I do not think the fish could easily make their ascent, if at all. There are three dams above this which I could not reach, one called Hand Lake dam, another at Long Lake, and a third at Fall Lake, some 3 miles below the great Margaret's Bay Lake. All these are unprovided with fish-ladders. Descending the stream from Davidson's dam, for 1 mile, I came upon Big Rolling dam; here there is no ladder, and 1 mile farther down Little Rolling dam stretches across, also unprovided with a fish-way; thence downwards 1 mile is Pokwok Lake dam, also without any means for the fish's ascent, except through the sluice. At the foot of Snake Lake, around which I had to walk for 3 miles, I reached the dam and saw an old broken and useless ladder on the south side; I think it is past repairing. Crossing over this dam I came to Webber's dam, 4 miles below and situated about 500 yards from the tide-way; here there exists a broad natural pass, as the dam does not stretch completely across, but is what is termed a "winged" one. During high water no inconvenience is experienced here by the fish in making their ascents, but in July, when the river is lower, the mill owners, in order to secure enough water to drive their machinery, are obliged to dam the pass, and this precludes the possibility of salmon, &c., getting up. There have been many reports for years regarding this place, but there appears no way out of the difficulty for to make a way, for the fish would prevent the miller from carrying on his occupation, as the mill would have insufficient water to drive it. I would remark here that it seems necessary that the proprietors of the dams on Ingraham and Indian Rivers, principally Messrs. Todd & Co., should make a better provision for fish than raising the sluice gates, as most of them are fitted with "aprons" and when the water is low it is impossible, in many cases, for salmon, &c., to get up at all. Mr. Mason, who is a most hard working, energetic officer, does all he can to enable the fish to ascend, but without ladders his efforts are unavailing. Five miles from Webber's mill I reached my starting point, having walked over 20 miles.

17th May.

Weather unfavorable for inspecting, and feeling very unwell with sore throat and heavy cold, from being caught in a severe rain storm the previous day, I returned to Halifax.

18th May.

In Halifax weather very stormy.

19th May.

In Halifax weather unfavorable until afternoon.

20th May.

Still wet, but not wishing to delay longer, I took passage for Hosier's River, to inspect and report on the fish-ladders placed in the dams there, and on my way visited the one at Boutilier's mill, on the Nine Mile River, and found it slightly out

of repair, and the channel leading from it to the main stream requiring cleaning and deepening, which the mill owner told me he was then about to put in order. Again storming this afternoon, preventing inspection.

21st May.

Weather most unfavorable, heavy showers continuing. At mid-day visited Hosier's River (Lower Ward, St. Margaret's Bay,) and at about $1\frac{1}{2}$ miles from the tide-way saw the ladder at Hubley's mill. It appeared to be in good order, with a sufficient supply of water flowing through it. The owner of the mill is very careful regarding the sawdust, and has it removed away from the water. I next visited Boutilier's mill, which is $2\frac{1}{2}$ miles from Hubley's, up the stream, and saw the ladder, which is placed in the dam here. From its situation in the river both trout and gaspereaux could readily, at this place, and at the one above mentioned, ascend over the dam. Sawdust is here carted away also.

I then proceeded up stream for a considerable distance, and found the river clear of all obstructions; there are no mills upon it other than those mentioned. Hosier's River flows out of Trout or Hubley's Lake, into which run Five Island and several large lakes. These are all famous for their trout, and are a favorite resort of a large number, not only of Halifax sportsmen, but of those visiting the city. This stream, in affording a free passage for the fish to and from the sea, is of the utmost importance in furnishing and keeping up a regular supply for the lakes referred to.

22nd May.

Sunday.

23rd May.

In company with the Warden, Mr. William Walker, I inspected the Little Salmon River, 7 miles from Halifax Harbor, which flows out of a large sheet of water, called Lake Major, into Cole Harbor. It is about 2 miles in length, and much sought by salmon, trout and gaspereaux. It flows through winding channels, through Cole Harbor sand flats, for 3 miles to the ocean, where, at its outlet, it is dyked across. In this dyke are large gates opening outwards, which rise and allow the current at falling water to pass through, but close by the pressure of the water at rising tide. These gates were placed in this structure to prevent the sea spreading over the immense extent of sand flats alluded to, and which are being rapidly cultivated. They were only completed the autumn before last, viz., that of 1879, and last summer, being the first season when they were in operation, large quantities of fish, such as skate, smelt, sculpins, clams and other, perished, the usual overflowing of the flats being denied them. These and vegetable matter, all decomposed, creating an unbearable effluvia, and blackening the water with their poisonous matter, so that both salmon and trout were turned back, and but very few fish, if any, reached the fresh water above. The gaspereaux, luckily, had gone up in early spring, and escaped before the intense summer's heat had created the defiling of the water referred to.

This season, however, by heavy freshets, &c., all this objectionable *debris* has been washed into the sea and the water is again pure. A large number of trout have already been caught inside the dyke, and salmon and striped bass have been seen, while a quantity of gaspereaux have been taken in the river itself, thus proving the present condition of the river through these flats to be quite good. About 500 yards from the tide-way I found an obstruction in the river, consisting of rocks, &c., which had been used in previous years as part of a wing-dam to a mill owned by a Mr. Black. The mill has long since been destroyed and the river left in its present state. A trifling outlay would restore it to its original formation. Proceeding further up for three-quarters of a mile, I saw what is termed Grassy Island, an accumulation for years of river *debris*, and which now, to a great degree, obstructs the river. A small sum expended here would render it passable for fish. Still, yet ascending, I reached Gravelly Hole, 1 mile up; this, as in the former case alluded to, is so banked up by the annual freshets deposit, as to almost completely debar fish from passing. On going 1 mile further up from this place, I reached Ernst's mill. Here a total obstruc-

tion presents itself, but about 200 yards before reaching it there runs a small artificial stream, from the lake above into the river, which obviates the necessity of a fish-ladder, and I am informed that gaspereaux, trout and salmon readily ascend it. A free intercourse, therefore, exists between Lake Major, which is about 7 miles long and $1\frac{1}{2}$ broad (into which also many lakes empty), and the sea. I found this pass obstructed in places by old logs, &c., evidently placed there to force the fish into narrow channels for the purpose of "dipping," and which the mill owner promised the Warden and myself would be removed. The dipping for fish by the residents at this place he also promised he would endeavor to prevent, and the Warden, who is energetically striving to carry out the laws, assured me he will see this carried into effect.

24th May.

In Halifax, at home, writing up my diary from notes.

25th May.

Drove to Shad Bay, the mouth of the Nine Mile River, 17 miles from Halifax, and hiring a boat and guide, visited the river entrance to the sea. Here I saw many nets set for gaspereaux, but all were placed according to law. There were no nets for salmon to be seen. I have been told this is a most noted place for poaching at night, but none went on while I was there. Their method, I learn, is to put a net above the piers of a bridge which crosses the water about half a mile from the river's mouth, and stop all salmon striving to enter. It would be most advisable if the Warden (who lives many miles away) was instructed to go and watch this place frequently during the season, as the arrest and punishment of one of the offenders would have a beneficial effect in deterring others from carrying on this nefarious practice. The people on the upper part of the river are making grave complaints at no salmon reaching them. No doubt exists but that much poaching must go on or the settlers here would be unable to bring such a vast number of salmon to market yearly as they have done and now do. I went many miles up the river, but found no obstructions whatever and no nets.

There are no mill-dams at all upon it, except the one near the Margaret's Bay Road, 12 miles above, alluded to in this report, which I visited on the 20th inst. Could the poaching be put a stop to, the Nine Mile River would be as prolific a one for salmon as it was in days gone by.

26th May.

I visited Prospect River which runs out of Fiddle and other lakes and stillwaters. It is very short from the first lake above to the sea, but it is yearly visited by large quantities of trout and gaspereaux, especially the latter, great shoals of which fish I saw from the road in the evening, entering the river. Salmon also frequent it, but not in very great numbers. The stream requires clearing out in places to make better passages. There are no mill-dams upon it. Prospect river so called is more properly a succession of very many lakes, with runs between, and all these (I visited for 4 or 5 miles up) require, I noticed, a little labor expended to clear them.

27th May.

I drove over to Cow Bay River, which flows into the Atlantic, about 10 miles from Halifax Harbor. It is now unobstructed by any mill for many miles up, and between this and the only one on it there are several good spawning lakes for gaspereaux. It is doubtful if the fish require to go up so far as the mill, for few have ever done so. I went up the river and found it stopped in places with pieces of net, and about a dozen men dipping. I followed it upwards to the still-waters above, and everywhere found it dammed by the dippers to facilitate their work. I immediately drove to the Warden's house and told him of it, when he informed me that the men were perfectly lawless, and do almost as they please. They have even threatened him with personal violence, and dip and set nets illegally just as they choose. Ha

further added that he had reported the matter to the Overseer of the county, Mr. Anderson, and that he had no definite instructions whatever, nor copy of the law, nor printed proclamation, naming the days only when it was lawful to fish, as had been customary heretofore. I advised him to take the names of the law-breakers and to report the matter at once to the Overseer, and ask him to visit the place and fine these men, and define the fishing days and the proper legal berths for the nets, which he promised to do. I then drove to the Cole Harbor dyke, already mentioned in my report of Little Salmon River. I found the gates sufficiently open at half tide to admit of any kind of fish, and it is at this time of tide they seek to enter. It was thought that the absence of fish in the river last year was owing to this structure, but I am convinced it was not, but caused by the putrified matter in the channel above of which I have already spoken. I learned since I returned from the dyke, from a reliable source, that eighteen salmon were counted passing through it last season in one day, an additional proof it is no hindrance as at first believed.

I then went on to Big Salmon or Crook's River, situated 12 miles to the eastward of Halifax Harbor, and 10 miles from the dyke, reaching Crook's house at sundown.

28th May.

At Salmon river I came upon a mill just above the tide-way on the west branch (the river is here divided by an island) but the eastern or main river is all clear. About half a mile above, on the main stream, is the Westminster Company's dam, now owned by Dr. Weeks & Co. There is here a natural pass by the eastern side, which is sufficiently large, and through which enough water passes to enable any river fish to ascend. From Westminster dam to Lake Echo is about a quarter of a mile. This lake is about 3 miles long, and at its head I came upon Thompson's dam, where a natural pass exists, also, which is quite serviceable. Above here, for 4 miles, there are no dams at all, until reaching Wisdom's mill, but between Thompson's dam and this there is a heavy fall over a steep bed of rock, fully 8 feet in height, beyond which no fish could at any time have ascended. Partridge River, a tributary of Crook's, has but one dam upon it (Joseph Townsend's). There is a passage made for the fish in it, and large numbers have been caught above; indeed, I may say, from enquiries I have made as I went up, all these natural passes have worked well this year, and many barrels of gaspereaux have already been taken.

A branch of the main river runs from Lake Echo ($\frac{3}{4}$ mile) easterly, and is a favorite resort for gaspereaux. I have examined it thoroughly and find it in good order; the only small dam on it has a fishway on it. It joins the salt water below the mouth of the main stream. From this point there is a long, narrow salt water channel, running for 3 miles through low marsh lands and at its termination near the ocean there is another dyke, similar somewhat to that at Cole Harbor. Its flood gates allow the current to pass through at the outgoing tide and close against that coming in. Fish have no difficulty in passing through this as there is a great depth of water when the gates are open. These flood gates have been built and kept in repair for more than forty years, to prevent the water from inundating the meadow lands and have never proved any barrier whatever.

29th May.

Sunday.

30th and 31st May.

Writing up my diary and preparing a fair copy for transmission to the Department, also furnishing duplicate expense accounts, in detail, for the past month and in making arrangements to visit the whole of the rivers to the eastward of Salmon River to Beaver Harbor, about 100 miles distant, which will occupy two or three weeks or more.

I purpose leaving by mail coach on Wednesday morning 1st June on this journey.

HALIFAX, N.S., 31st May 1881.

FRED. H. D. VEITH.

WOLFVILLE, N.S., 10th May, 1881.

SIR,—I am in receipt of yours of the 3rd inst., relative to the fisheries on the gaspereaux, &c.,

I very much regret that I did not meet you and it would have given me much pleasure to visit the river with you and explain some things that I think you ought to know.

I have frequently notified mill owners in regard to sawdust, &c., and am quite prepared to carry out any instructions I may receive from the Department however stringent they may be.

I am, dear Sir, yours very truly,
F. H. D. VEITH, Esq. REUBEN F. REID, *Fishery Overseer.*

AMHERST, N.S., 8th May 1881.

SIR,—Yours received. I expected to leave this morning for Brier Island, Digby *via* St. John, but was unwell, and now have arranged to attend to matters there by letter and will go to Halifax Tuesday.

I have seen your report on La Have, &c., and have dissected it. I would much sooner that you would do your work without any reference to me in any way, nor have I written a line to any Overseer informing them of your movements so that you will see things as they are and tell your own story uninfluenced by me. I will be called upon to explain discrepancies between my reports and yours, and they will be able to judge at Ottawa as to facts in the case.

Any information you may desire, in my power to give, you will be readily imposed at any time.

Yours very respectfully,
FRED. H. D. VEITH, Halifax. W. H. ROGERS, *Inspector Fisheries.*

DIARY.—1st June.

I proceeded by mail coach this day to visit Musquadoit River, 28 miles from Halifax Harbor, and arrived at mid-day and immediately set to work to gain all the information possible. I questioned some six or eight of the most intelligent residents on the river side, prominently so, Mr. Chas. Anderson, who has lived there all his life, and my enquiries resulted as follows:—

Before the dam was placed, in the months of May, June and July, the river, each year, was visited by immense quantities of salmon, shad, sea trout and gaspereaux. Now, with the exception of a few gaspereaux, none of these fish are ever seen, in the months I have mentioned, above the dam. All are unanimous in this, and they state most positively that none of these fish can get up during the season I have specified.

Chas. Anderson asserts that not one salmon or shad is ever now seen, but in the heavy fall freshets, the salmon, big with spawn, force their way up the inadequate fish pass in September and October, principally the latter month; but at no other time do the fish get up.

He, and all the residents I conversed with, tell the same story, and I accidentally, at one house, met a man from far up the river, who said they had not seen a salmon or a shad for years; in fact, since the dam was set up, and that no one all along the river ever thinks of setting a net now. They have long ago abandoned that and every other species of fishing as useless. In October, he stated, they see a good number of salmon, heavy with spawn, under the bridges, &c., up the river, but never at any other time. Shad, he said, have left the river altogether. Charles Anderson also stated he had formerly netted hundreds of shad, and that the river once abounded with them, but they were now unknown. He further told me, he had, before the dam was erected, caught, with rod and line, five and six salmon of a morning, but since the obstruction barred the river, he had frequently tried the same pools, but without raising a fish. The Musquadoit River is, I should say, about 40

miles long from its mouth to its sources, that is, followings its windings. I have, several times, of late years, travelled from the sea to the small rivers and streams at its head, and I know it to be free from any obstruction, the only one now being the high dam at the tide-way. It does seem very hard that such a monopoly should be accorded one firm to dam the river across, and deprive so many hundreds of settlers, all along the river, of the fish they had been, all their lives, accustomed to as food for themselves and their families, and that, also, was a great profit to them to sell, to enable them to purchase necessaries to carry them through the long winter months.

In company with Mr. Chas. Anderson, we tried some of the most celebrated of the pools above the dam, with rod and salmon flies, but I did not even see a trout. We then visited the fish-pass. I have marked it on the accompanying plan A. (*Not printed.*) It is situated on the west side of the dam and consists of a small passage cut in the rock by the side of the dam, with a small, narrow entrance into the mill pond. It is most inadequate in every way. The law distinctly lays down the fact, that every dam shall have a fish-pass. This is by no means suitable. I can characterize it in no other terms than a paltry apology for a fish-pass. Considering the immense body of water, I should say nearly, if not quite as much, as in Port Medway River, the provision made for the fish is in the highest degree meagre and insignificant. I am aware salmon late in the fall, when the river is very full and a freshet breaks over this passage, do force their way up (they are very heavy then with spawn and unfit for food). Mr. Wilmot has, I know, trapped them above the dam to extract the ova for breeding purposes, but at no other time of the year can salmon get up. They will not try such an insignificant dribble of water as that which escapes in this miniature fish-way. This, at least half a dozen people assured me, was the case. A proper fish-way, such as those around the side of Tumbling Dam and at Salter's Falls, on the Medway, is absolutely necessary. There, there is no difficulty and salmon have been very numerous this year in that river. A pass round the side of the dam on this stream, I would respectfully suggest, should be ordered to be made at once; it should be a permanent one, open at all sides, about 6 feet broad where it flows from the dam, and at least 18 inches of water flowing through it always. With such an immense body of water (the whole of this broad, deep river, with only one other small dam upon it), I cannot believe such a pass would effect the miller, especially if a small wing dam was run up from B to F, shown on the attached plan. If it can be done on the Medway, a river of very little greater size and volume of water, in three places, without affecting the milling interest, why cannot it be done in one on the Musquadoiboit?

I saw enough water breaking through the dam itself to make a large fish-pass. That the present fish-way is perfectly useless in the months when the early salmon seek the river, and when they are fit for food, every inhabitant along the river will attest to; every sportsman who has visited the river before the dam was erected, and since, will also attest to its unfitness. I have been fairly beset, both in Halifax City and on the Musquadoiboit, by people imploring me to press the Department to have justice done to Musquadoiboit River, and cause it to be made the fish river it once was.

Now, as to the fish coming down, there are gratings at C and D, on the plan, about 3 inches wide. Here, Charles Anderson showed me where the spent fish, in the spring, are killed. They are literally hanged at these places. They are caught in the grating, as if in a net, and die there, while the small fish pass through it, and are mercilessly ground up in the machinery beneath the mill. A fine grating, moveable on two uprights, should be placed here, so that it could be raised and cleaned at times. This would keep all fish coming down confined in the mill-pond, until the miller took an opportunity to raise it and stopping the mill, allow every fish, large and small, to pass down under the mill to the outlet, to the tide-way at E.

There is another grievance that ought to be attended to. This stream which passes out into the river at E should be protected at that point by a fine grating, also constructed as described before, that is, capable of being lifted to allow the fish, in their downward course, to pass to the sea; but it should, at other times, be kept closed, so as to prevent salmon and other fish from going up it, as I am told they often do, and they fall an easy prey to poachers, who dip them out under the mill.

I am informed many fish are thus illegally captured. There are no other dams on this river. Directly across there is a wing dam, 3 miles from the sea, but it does not interfere with the fish in any way, could they pass at all times at the big dam below.

2nd June.

Now, as to the sawdust. The miller has piled it all about his mill, and tells me he has no place now to put it, so lets it go into the stream. I took a boat and examined for myself the harbor. Down about the mill the river is full of it; piles of it all along the shore, and the bottom covered with it. I went down the harbor for 6 miles and saw sawdust everywhere. The boatman assured me it was to be seen even at the outlet of the harbor, 3 miles below where I was, or 9 miles from the mill. I should have gone the whole way, but it was blowing half a gale of wind, so I returned. I asked the boatman, who was a fisherman, if he ever caught codfish in the harbor, and he said not now; on account of the sawdust, they went outside to fish. I might here remark what is not generally known, that there is a kind of fish which frequents the harbors, called lump-fish. These fish come in from the sea in great numbers to spawn, and for a small fish (they seldom exceed 9 inches or a foot in length) they emit a wonderfully large quantity of ova. This the codfish are very fond of, and follow the lump-fish into the harbors to feed on it. I am told that when the bottom of the harbor is defiled with sawdust, that the lump-fish will not spawn there, and so in Musquodoboit Harbor, permitting the sawdust to escape in such quantities, has turned away the lump-fish and, consequently, the cod do not come in as formerly, there being no attraction in food to induce them.

I first learned of the lump-fish and the codfish's love of its spawn from Rev. Mr. Ambrose, of Digby, who is a keen observer of fishes' habits and a lover of the study of natural history. That sawdust does affect salmon, I believe there is no doubt. Mr. Stather, of the Audit Office, in Halifax, told me he had proof of salmon being found dead with sawdust in their gills. The law most distinctly forbids sawdust being thrown into any river, but there is a gross violation of it at Musquodoboit.

I have given the facts regarding this river as I saw for myself, and as I was told by most reliable authority. Musquodoboit, or Musquodoboin, the Indian name for it, properly signifies the "river of plenty." It once teemed with fish, and was, indeed, a river of plenty. I have shown what a deplorable state it is in now. I would most earnestly urge upon the Department, at the solicitation of many Halifax people and of the settlers on the river, that means be taken at once to restore the river to its former state. There is a cry everywhere of discontent at its present condition, no salmon being able to ascend it, except at a time when they are big with spawn and unserviceable for food.

3rd June.

I reached Tangier River, by coach, at 6:30 in the evening, 32 miles from Musquodoboit, and 60 miles from Halifax Harbor.

4th June.

Wet and unfit for inspecting.

5th June.

Sunday.

6th June.

Wet in the morning. In the afternoon I visited Tangier River, and found it clear for about $\frac{1}{2}$ a mile up. Here there is a dam of stones and brush, marked B B, on subjoined plan, from which a long sluice or mill-race runs to the crusher of the Pittsburg and Nova Scotia Mining Company. This supplies the water which turns the turbine wheel (at C) The sluice is over, perhaps, $\frac{1}{2}$ a mile in length. As the dam does not go completely across, the fish ascending have no difficulty in passing on the eastern side, but the young fry and old gaspereaux that have spawned are led into this sluice and are carried down into the turbine wheel, where they are ground

to shreds. The agents in charge of this property, Messrs. Torrance and Scaife, are most willing, however, to do all in their power to prevent this, and Mr. Scaife assured me he would not only put in a fine grating to prevent the fish from getting into the sluice, but when the fish assemble here, in their endeavor to get down, he will cause an opening to be made in the dam, close to the grating, and so allow everything to escape into the main stream. This will rectify the evil and place the river in good condition up to the Tangier Lake.

7th June.

I drove to Mooseland, 12 miles from the sea to the mills situated at that place. They are two in number and placed side by side. I found here a very good fish-ladder, indeed, erected some time since by Mr. Wm. Anderson, at his own expense. The mill people were all away at the time of my visit, and I found the fish-ladder full of sticks, logs and slabs. At the foot of the fish-ladder, which runs upwards under the mill on the east side, I saw large quantities of gaspereaux, so Mr. Hayes, who was with me, and myself, set to work and thoroughly cleared the ladder out—opened one of the slides at the side so as to let more water into the ladder. We had the satisfaction of seeing the gaspereaux take to it at once, and I have no doubt thousands passed through during the day after we left. We saw no salmon, but Mr. Hayes assured me he had seen a great many salmon pass through this ladder on a previous occasion—a statement I can very readily believe—the ladder being well constructed and placed. Tangier River, as soon as the grating at the dam below is completed, will be in excellent order, and as there are no more obstructions, the fish have a free passage now up to the score of lakes above, and will have, by Mr. Scaife's instrumentality, every facility to descend to the sea. I regret to state there is no Warden appointed for Tangier River. Mr. Torrance is only temporarily acting. There should properly be two—one for the lower part of the river, and one for Mooseland. About 3 miles from Mooseland, down stream, the river branches, and the branch so-called is celebrated for large trout. I should say salmon and gaspereaux went up it, too; it is quite unobstructed and in excellent order.

8th June.

Drove by express to save time (the mail coach only goes on this route every other day) from Tangier to Shet Harbor, 18 miles, and visited the Little West River first. There are no mills upon it, and it is in good order. I then went on to the West River. From the sea to a large lake on this stream is less than a mile, and I found it much obstructed by logs, &c., which had been carried there by the spring freshet, and there was a considerable amount of edging and old sticks in the pool below the bridge. I spoke to the principal of the mill here, and he told me that the following day he would put a gang of men on and have the whole river cleared from the lake to the sea. He appeared most anxious to do everything to comply with the fishery regulations, and I have no doubt the *débris* has long before this been removed. There was, however, nothing, when I saw the river, to prevent salmon, &c., getting up. Great precautions are taken at this mill to save the sawdust. A very large pound has been built, of edgings, in a circular form in the salt water, away from the river's mouth, and the sawdust is all carried by an endless chain of buckets, which is worked by the mill machinery, from the interior of the mill to a sluice which discharges into the pound, so that not a particle of sawdust is allowed to drop into the river and is confined in the receptacle made for it. It is not permitted to escape from this, and so does not go into the harbor below—a most admirable plan. The edgings are carried on a large truck, also worked by machinery, which runs on a small railway across the river, and are then thrown down and burned away from the water's edge. The salmon were running up when I was there, but I regret to state that this river, being composed of a series of cascades and falls, affords every facility to the law-breaker, and at night, I am told, they are all hard at work poaching and dipping the salmon as they come into the pools on their way up. The Warden, Hall, told me he has tried everything to prevent it, but they have scouts on

the watch, and on his approach, a signal is given and they all run into the woods and evade him; this is his story. However, dipping with large nets is, I am told, carried on to a disastrous extent. Once the salmon reach the lake they are safe, and have a free, unobstructed course for miles into the interior. The mill does not affect the river at all, being driven by water from the lake above through a long wooden sluice. Excessive poaching is the only detriment to this river.

9th June.

I visited the East River, of Sheet Harbor, six miles by the main road from West River. There is a very large mill and dam just at the tide-way, owned by a Mr. Chisholm, of Halifax, and there has lately been erected there a fish-ladder, which appears to be very well placed, but at the time I saw it there was no water on it, nor was there any mill pond above; it was almost quite dry and filled with logs. I saw the gentleman in charge, Mr. McKenzie, who explained that they were then getting the last of the logs down and that the lumbermen had closed the river above completely to facilitate their work, but that it was only for a day or two, when the whole river would be opened and the fish-ladder in working order. He was unable to give me any information, however, respecting the working of the ladder. I understood him to say it was placed there last autumn after the salmon season was over, and he could not determine whether the fish would take to it or not. From its position I should judge, however, that it would answer the purpose intended, but I am unable to make any positive statement concerning it. It was in good order as far as the interior was concerned. No precautions are here taken to save the sawdust; it is all thrown into the stream, and may be seen in quantities on the shore for miles down the harbor. The first dam, called a rolling dam, that is, one constructed to facilitate the driving down of logs, Mr. McKenzie informed me, was 12 miles up stream, the sluice he said, as was also the case with every rolling dam above this, again was invariably left open for the fish to get through as soon as the logs came down, and remained open the whole time after until the following spring, when they were river driving again.

10th June.

Drove by coach to Mosher's River, 24 miles from Sheet Harbor, and arrived there late in the afternoon.

11th June.

I visited the mill-dam at the tide-way of this river and examined the fish-ladder placed there. It is of considerable length and situated on the west side of the dam. I believe an error in judgement was made here when it was constructed, as a short portion of its lower end has been boarded in to keep out the dirt, &c., coming over the dam, from getting into the buckets. This must render it dark for a short distance, which is a pity. An improvement could be made by separating the boards a little which cover it, so as to let in more light. It would have been better, at the outset, to have extended the apron of the dam and made it project over the ladder. This would have carried off any *débris* and given more light. However, the ladder seems to be a very serviceable one. I could get no information as to fish being seen to ascend it, but I should say they would find no difficulty whatever in getting over the dam. I then proceeded, in company with the Warden, John Fraser, up stream from the head of the lake which is immediately above Troop's dam, just alluded to, to a new mill and dam which is being erected by a Mr. John Low. Both are still in an unfinished state, but the work is daily being proceeded with. Mr. Lowe informed me he is going to make a natural fish-pass here, which shall contain enough water, at all seasons of the year, to enable fish to ascend and descend, and he says he will personally attend to its always being kept free and open. The mill and dam and water-course, he stated, would all be completed this season. Fraser, the Warden, who is an intelligent officer, and seems to understand his business, assured me that he will see the fish pass is properly made. The river is clear above this for 7 miles, where

there is another dam, owned by a Mr. Troop, the proprietor of the unused mill at the tide-way. It quite obstructs the river, and has neither ladder nor fish-pass. This dam is useless just now, as is also the one where the ladder is placed. I am told the mill has not been worked for three years, and no prospect, apparently, of it being put to any use for some time to come, if ever. I visited, also, Smith's Brook, 2 miles beyond Mosher's River, and found it quite clear and unobstructed. It flows, as does also Mosher's River into Necum Teuch Bay. It is famous for sea trout and gaspereaux.

12th June.

Sunday.

13th June.

I drove this day to Liscomb River, in Guysboro County, 15 miles from Mosher's River and 6 beyond Halifax County line. There is a large mill situated here at the tide-way, with a dam stretching completely across, without either fish-pass or ladder, but on ascending the river above for about 1 mile I came to an abrupt rise in the river's bed, fully 50 feet in height. Even before the dam was placed here, this could never have been a good fish river, for nothing ever could have gone beyond this, and 1 mile of water would never make a fish-breeding stream. The owners of the mill, Messrs. Todd & Creighton, are quite willing to do anything the Department may require of them if called upon to do so, but I would suggest that they be left undisturbed, and not be put to the expense of a fish ladder, as the heavy fall alluded to utterly precludes the possibility of the river ever being of any value to the Province for fish.

I here ended my journey easterly, having reached 123 miles from Halifax harbor, and, as I travelled by mail coach all the way, except a few miles by express, I had, of necessity, passed by streams which ought to be visited, so I determined to see these on my homeward journey, and to make a fresh start from Halifax through Antigonish to Glenelg, at the forks, at the upper part of St. Mary's, the next river of importance eastwards of Liscomb, and so for a long cruise; thence along the Guysboro' coast to Cape Canso, around Cape Breton, and homeward by the rivers on the northern shores of the Province. The road, too, from Liscomb to Sherbrooke, at the lower part of St. Mary's river, is almost impassible, being little travelled on, and never repaired. I left Liscomb at mid-day and retraced my steps for 9 miles, when I arrived at a large river on the county line, called Ecum Secum. I ascended by myself, this stream, for about a mile and a-half from the main road, and came upon an old mill owned by a Mr. Leslie. It is all out of repair and falling into decay; the dam is a winged one and does not impede the fish's progress upwards; part of the dam has rotted away, affording a still larger passage. It is only a matter of a few years, when both mill and dam will have crumbled to pieces; both are old and decayed. I went up stream I should say another mile or mile and a-half and reached another dam of Leslie's. It once formed a complete barrier; but now the gates have mouldered away, and there is a free passage at all seasons. Ecum Secum is unobstructed. It is a famous river, and abounds, in the proper season, in salmon and all other kinds of river fish. It is, however, infested with poachers, who have it all their own way. The place is almost altogether uninhabited, and the Warden, Fraser, who lives at Mosher's River, 6 miles away, cannot always be on the spot to watch them. They carry on their depredations, I am informed, principally at night, with nets.

I reached Mosher's River late in the afternoon, and remained there all night.

I drove by cheap private conveyance to Salmon River, which runs into Beaver Harbor, and on the road stopped to inspect Moosehead Stream, 3 miles from Mosher's River, noted for trout and gaspereaux. Above the main road some distance there is a large solid stone dam, owned by a Dr. Campbell, of Sherbrooke, about 300 feet in length (see plan attached, A to B). This totally obstructs the river so that fish can neither get up nor down. Provision should be made by the owner of the crusher both for the ascent and descent of the fish, and a fine grating placed at C to

keep them out of the sluice leading to the crusher, where they would be destroyed in coming down to the sea.

The sluice has nearly ruined this stream, taking the water from its legitimate channel. I then came on to Quoddy, 10 miles from Mosher's River, and ascended it for some distance. It is a beautiful stream, unobstructed by mills or dams, and the inevitable logs that generally are found stopping any river on which there is a mill. I am told it is quite clear to its source.

On arriving at Salmon River, 13 miles from Mosher's River, at mid-day, I ascended it for 4 miles from the tide-way. I found the water extremely low, but soon discovered the cause. A very valuable gold mine has been discovered here, which is now being worked, and the prospects are so good that a company has been formed, and they are about to erect a crusher, so they have temporarily dammed the river across, in order to build a permanent structure to enclose water to drive their machinery. The river has two branches at this place, which join opposite each other, making three streams. I could not find out whether the crusher will require one or more of the streams, or where the permanent dam is to be, but it would be most advisable that a competent person should arrange for a fish-way in the new dam, while it is building, and so prevent any stoppage of the fish which now are striking the river, or will, the first heavy freshet. Salmon River was always noted for the great number of salmon and sea trout that yearly filled its pools for miles up. It afforded the best fly-fishing of any stream on the southern coast.

15th June.

Took the coach for Tangier, and arrived late in the evening, the coach going no further that night.

16th June.

Was taken ill with heavy cold, fever and severe rheumatic pains, from getting wet two days before. I had felt ill on my journey in the coach.

17th, 18th, 19th June.

Confined to my bed at a friends house, the Rev. Mr. McLeod's.

20th June.

Feeling a little better, I got a cheap drive over to consult Dr. Jamieson, at Ship Harbor, and after receiving medical advice and medicines, I managed to walk to the dam at the mill at this place, owned by B. Young & Co. I saw the fish-ladder full of gaspereaux; they filled the buckets full and were passing up in great numbers. I think 800 barrels they told me, had already been dipped in the river below the ladder, but I am not positive as to the exact number. I was informed by several of the residents that neither trout nor salmon have ever taken the ladder or been caught or seen about it since it was built. It is not well placed in the stream; it extends down the river too far from the dam, and I think they miss it. This is, I believe, the first year gaspereaux have taken to the ladder since it was constructed; at least, never were such quantities known to ascend it before.

21st June.

Too ill and in pain to continue a further inspection, I took the coach direct to Halifax, which I reached, having travelled over 250 miles by post road.

22nd to 30th June.

Confined to my bed at home and under the medical care of Dr. Cowie, M.D., who pronounced me suffering from fever and cold, induced by the cold, wet and inclement weather which prevailed during my tour of inspection. I attach the medical certificate.

I hope, in a day or two, to resume my duties and proceed around Guysboro' and Cape Breton coasts, and to visit also the rivers on the north shore of the Province.

FRED. H. D. VEITH.

HALIFAX, N.S., 2nd July, 1881.

I have attended professionally, F. H. D. Vieth, Esq., since June 22nd, who has been suffering from severe cold and fever, induced by almost constant exposure while travelling in the cold, wet and inclement weather which prevailed all through the month. He is still unwell, and will not, probably, be fit to resume his active duties for some days to come.

ANDREW J. COWIE, *M.D., &c.*

DIARY.

FOR THE MONTH OF JULY, 1881.

1st and 2nd July.

Confined to bed with cold and fever.

3rd July.

Sunday.

4th July.

Writing up diary for June from notes (still confined to my room).

5th July.

Preparing fair copy for transmission.

6th July.

Deposited copy of diary and expense accounts with Mr. Johnstone, and afterwards received a letter from the Acting Minister of Marine and Fisheries, directing me to confer with Mr. Rogers. Immediately wrote to Mr. Rogers, asking when I should be able to carry out the Minister's order, and enclosing copy thereof.

7th July.

Awaiting his answer; received this day a telegram, asking me to come to Amherst.

8th July.

Took train for Amherst, and spent some hours with Mr. Rogers discussing the fishery interests and consulting him as to my future route.

9th July.

Returned to Halifax from Amherst.

10th July.

Sunday.

11th July.

Took train for Windsor, to visit the Avon, Meander, St. Croix, Kennetcook and Hebert Rivers, in Hants County.

12th July.

I proceeded by morning train to Ellerhausen Station, 9 miles from Windsor, and with a guide reached the dam situated just below Ponhook Lake. It forms a complete barrier, without fish-pass or ladder. Returning, I found, 5 miles nearer the sea, Beckman's mill. It has a dam 17 feet in height, and no provision made for fish. Below it, about $\frac{1}{3}$ of a mile, is Ellerhausen's paper mill, in the same condition. Still nearer the tide-way is Spenser's lumber mill, about $\frac{1}{2}$ mile distant, unprovided with fish-way. Half-a-mile from this I reached Smith's woollen factory, and below it Dawson's cloth mill, both completely across. The whole river is blocked from Ponhook to tide-way.

Mr. Burnham, the Overseer, told me he knew of the condition of the river, and had reported it officially some time ago, and that he had received instructions from the Hon. Joseph Howe to abandon making it, for a time, a fish river. Since then he

states he received from the Department summonses, which he was to serve, and did so, on the principal millers whose dams obstructed the river; his instructions being to serve the summonses only and await further orders.

13th July.

With Burnham, the Overseer, visited Lyons' mill, on the west branch of the Avon River, 9 miles from Windsor, and at the tide way found the dam does not in any way interfere with the fishes' ascent, the mill machinery being driven by water, conveyed by a long sluice on the west side. One mile above this there existed, two years ago, a mill and dam, owned by a Mr. Morton, but the dam was swept away by a freshet, and the mill afterwards was burnt; from this, for many miles, the river is clear. Visited Hobert's mill, 9 miles from Windsor, on the east branch, and at the tide-way found a dam completely across; no provision made for fish, *i.e.*, no ladder or natural fish-pass. While there the men were at work endeavoring to raise some planking, which blocked a sluice through the dam, and which is about 7 feet wide, and through it the head of water in the mill pond is allowed to escape completely. This reduces the mill pond to the original river, and it is left open when the mill is not in operation. I would suggest (and the mill owner is willing) making a fish-way on the west side, which shall be permanently open, having an even flow at all times (regulated by a gate at top) of from 24 to 36 inches. This place was in years past, so Mr. Burnham informs me, highly spoken of by Mr. Venning as one of the best situations for a natural fish-pass he had seen in the Province. The miller would do this at his own expense, and do it effectually. I then proceeded up stream to Mr. W. Palmer's mill, 2 miles from Hobart's. I found there a natural water-course made on the west side of his dam, which is a low one, and though the pass is even now a serviceable one, he promised (on hearing the dam at Hobart's mill was to be opened) to enlarge and deepen it. An island here divides the river, and it is contemplated, at his own expense, to block the east side with logs and ballast, so as to turn the fish into what might be termed the main channel. Mr. W. Palmer assures me he will at once clear the channel and make a good "way" through the shallows from the deep pool below up to the pass in this mill-dam.

Visited Mr. Francis Parker's mill on the Meander. There are no obstructions between this and the tide way. The mill is about 9 miles from the sea, that is, following the course of the river's windings. Above Mr. Parker's mill there are only shallows and small brooks and swamps. I would suggest that his mill be undisturbed, as it is doubtful if fish would seek to ascend further, and there are 9 miles of good water for spawning purposes. The river, at best, is a small one, and above Mr. Parker's dam it is merely a good sized brook only. Parker's mill is 12 miles from Windsor. Too much sawdust is here allowed to go into the river and should be prevented, as the stream is, at places, very shallow, and it consequently chokes it very much. I then went on to Kennetcook and found the river in charge of Mr. Mosher (Warden) in good order and clear of obstructions. I ascended it for some distance, but not the whole way, as it is for 22 miles unimpeded and only at its very source, where it is but a small brook. There is a dam owned by a Mr. Hennigan, so the Warden informed me, but the salmon spawning grounds are below it. Sea trout, shad, and gaspereaux do not frequent this river, only salmon, and those never attain a great size. Mr. Mosher states, the people along its banks are very careful not to transgress the law and he has no trouble or difficulty in carrying out his instructions.

Visited the dam at Lochart & Cochran's mills, on the River Hebert. They are situated just at the tide-way and the dam stretches completely across the river. I should say it was about 15 feet in height; of course nothing can pass it. It would be impossible to make a natural fish pass-here, and a ladder of the old pattern running down stream, from the top of the dam, would be perfectly unserviceable. The most effectual, in fact, the only ladder that would answer here, would be after Mr. Rogers' patent, *viz.*: Beginning at the base of the dam and extending up stream into the mill pond. This is the only dam on the river of any importance, and the fish have a clear

run of 14 miles, to their spawning grounds, as soon as they pass this obstruction. I am strongly of opinion that the Hebert is superior to any other in Hants County as a fish-breeding river. It is wider, deeper and more suited for salmon than the Avon, Kennetcook, or any of the others.

16th Ju'y.

Returned by train to Halifax.

17th July.

Sunday.

18th July.

In Halifax, writing up diary.

19th Ju'y.

At the request of Mr. Tolson, the caretaker of the fish-breeding establishment at Bedford and Warden of the Sackville River, I accompanied him to see the big jam and to inspect the mills above. The former is situated about 5 miles from the tide-way. We found the river totally obstructed for about 100 yards. It has completely turned the main river from its proper course. A small channel has forced itself through on the east side, which if widened and cleared, would now afford a free passage and, in time, form itself into a regular stream, similar to the waters above and below it. The cost to make this channel would be about \$10, and the grant of the privilege to conduct it through private property conveyed to the Government by the owner, Mr. Richard Peverell, would not exceed \$20. Proceeding up stream $1\frac{1}{2}$ miles, we came to McKenzie's mill. There is here an excellent opportunity to make a suitable pass on the east side of the dam, and which the owner is willing to do at his own expense. He saves all his sawdust.

Further up, about 1 mile, we came upon four mills, the first and second owned by Mr. Thomas, of Hammond's Plains, the third by Nathan Ellis, and lastly, Hefler's, a few rods below the foot of the lake. All these have dams which totally obstruct the river, but the most formidable is the last named, where a ladder, with its opening at the base of the dam and running upwards (such as Mr. Rogers' patent) would alone remove the difficulty. All these mill owners are guilty of a breach of the law, there being not only no provision made at all for keeping the sawdust out of the river, but every facility afforded at each mill for it to fall into the stream. The water is thick with it for miles down, and the banks whitened with the quantity deposited by high water. Above these obstructions named, there are numbers of lakes with good streams running into them, affording excellent spawning grounds.

Drove to Chezetcook, 22 miles from Halifax Harbor, and saw the whole of the river, from the great Chezetcook Lake to the tide-way, and found the river clear from the lake to the head of the Long Pond.

21st July.

Proceeded to visit the lower part of the river from the tide-way to the foot of the Pond mentioned above, and found the stream, for some distance up, all stopped with stones, except one narrow passage, which I followed up for about 200 yards, until I came to two walls built high out of the water, extending on either side for about 25 or 30 feet, completely arresting the progress of the fish, except at a space left open in the centre of the current, about 5 or 6 feet wide. Here the guide showed me the remains of a wooden trap which had been taken out of this place, and destroyed three days previously by two gentlemen from the city, who found it set there. The wall of stone reached from the wooden trap to the shore, and guided the fish into it. They passed through an aperture about 18 inches wide in this destructive engine, and were then captured in a pound from which they could not escape. I examined the portions of the trap which were thrown on the shore, and saw on many of them quantities of green slime, showing, evidently it had not been of recent construction, but had, in all probability, been there the whole spring.

The Warden for this river, Donald McCleam, lives 5 miles away, and by the trap having been no inconsiderable time in the water, it would almost appear as if he had not visited the river the whole season. A more flagrant neglect of duty it would be hard to imagine. I omitted to mention that a resident on the river, Samuel Soles, wrote to McCleam, telling him of the existence of the trap three days before it was destroyed, but Soles told me no notice was taken by the Warden of his letter. Six days after that letter was written, I found the river all blocked and the stone walls standing.

22nd July.

Drove to Pennant River (18 miles), and that afternoon took a boat, and crossing the Grand Lake reached its outlet, at which point the Lower Pennant River commences. I followed its course the whole way down to the salt water, and found it quite clear of any obstruction. I believe a great deal of poaching goes on when the gaspereaux are in the river. Salmon are freely and openly dipped, and no law is observed with regard to days or hours for fishing; Sundays, as well as the other six are utilized. There is no local Warden, as far as I could learn, there on the spot.

23rd July.

I took the boat to the head of the Grand Lake and followed the river up to the Ragged Lake above, and found it quite clear. From the head of Ragged Lake it becomes, as one ascends it, little more than a good sized brook, but affords excellent spawning grounds. Pennant is frequented by a good many salmon, grisle and trout, and is noted, in the season, for shoals of gaspereaux.

24th July.

Sunday.

25th and 26th July.

Employed on urgent private affairs and preparing for a lengthened tour of inspection of some weeks' duration, through Pictou, Antigonish, Guysboro Counties, etc.

27th July

Took the train for Pictou and arrived there at 9 in the evening.

28th July.

Unfavorable for inspection; wet weather.

29th July.

Drove to River John, 18 miles from Pictou, and visited Duncan Wier's mill, 1 mile above the tideway. There is here a large dam which totally obstructs the river, and without any provision whatever for fish to ascend.

30th July.

Visited, with the Overseer, Mr. Chas. Henry, Robert Allan's mill, situated about 3 miles from the tideway. It is unprovided with a fish pass or ladder. We then drove over to the east branch of the River John, commonly known as Black River, and saw Wylie's mill dam, 6 miles from the sea, and found it in the same condition as the others, a complete obstruction. We then returned and I took the shore road for Pictou, visiting, on my way, Keeks' Brook, Toney and Cariboo Rivers. A Mr. John McCrea has a mill at the tideway on Toney River, 12 miles from Pictou, with dam across; the others are unobstructed for some distance up, but they are three very insignificant streams. The rivers I have visited in Pictou County, up to this date, are shallow, and salmon do not come up them until late in the fall to spawn. Shad are quite unknown.

31st July.

Sunday.

FRED H. D. VEITH.

HOPEWELL, PICTOU COUNTY, 3rd August, 1881.

DIARY.

FOR THE MONTH OF AUGUST, 1881.

1st August.

I took the morning train from Pictou to Hopewell station, and arrived during the forenoon. I immediately called upon the Warden, Mr. Dan. Fraser, and with him visited first McDonald, Bros'. mill, 6 miles from the tide-way on the west branch of the East River, and found a ruined, useless ladder on the north-west side. It is but a fragment now, and I should say had never been repaired since it was built. I then proceeded down stream to Mr. Grey's mill, about half a mile below McDonald's and $5\frac{1}{2}$ from the tide-way. Here there is an old fish-ladder broken and choked with rubbish, not worth the repairing. Both this and the one at McDonald's, must have shifted their positions in some way or they never could have been serviceable, as the grade is only about 1 foot in 3 or 4, while 1 foot in 7 is considered as steep as practicable for fishes' ascent. A short distance below Grey's mill, a Mr. J. W. Grant is about to erect a woollen factory. He does not appear willing to make any provision in his dam now in course of erection, and seemed determined not to build a ladder. Mr. Fraser and I then drove up the East River itself, arriving about 9 miles from the tide-way at Mr. Grant's mill-dam. There is a broken and useless ladder here on the east side, in a state that would scarcely warrant repair.

2nd August.

At Hopewell, writing up my report from notes for the month of July.

3rd August.

At Hopewell, writing up my report from notes for the month of July, and preparing a fair copy for transmission.

At New Glasgow. Drove with Mr. Ritchard, the Overseer, to Middle River, and found, at Thomas Connolly's mill, at about 1 mile from the tide-way, a fish-ladder; it is hardly serviceable, but during heavy freshets, when a great body of water is in the river, the dam is so low that fish easily get over it. From Connolly's to Fraser's first mill-dam, is about 7 miles. Here there is a barrier 11 feet high. Half a mile above Fraser's second mill stands, with a 12 foot dam without a passage. Still ascending to the district of Concord, 3 miles beyond, is built James Murray's structure, 12 feet in height, and then 2 miles away the forks are reached. Going up one of these, a dam is found at Wilkins' Grant, and on the other (the Glengarry one) 3 miles from the junction of the two streams, Hugh McArthur's dam stands. At Wilkins' Grant the dam is owned by Neil Mathewson, and is 1 mile from the forks; both are total obstructions and are from 11 to 12 feet high. It is stated, but I have no reliable means of personally ascertaining it to be a fact, that salmon spawn yearly about 1 mile below Fraser's dam. If so, it can only be because that barrier, for years, has prevented their going further. We then visited West River, 3 miles to the westward of Middle River. Up to 7 miles from the tide-way it is quite clear, but at that point a dam is placed at the top of the falls, which are 20 feet in length, and are in three drops (so to speak) of the river's bed. Salmon, it is said, never went beyond this fall, which I am very doubtful of, and a few shots of dynamite, and a ladder of Rogers' patent, would put their ascent beyond a doubt. They now have to spawn on a sandy beach 2 n i l s below. Sawdust was at one time thrown in abundance into this river and fish, especially trout, became almost unknown, but of late years it has, owing to the lumber being annually cleared been defiled less and less by the nuisance, and this season, for the first time for many years, sea trout have returned to the river. There is good testimony to establish this as a fact. I think that as the stream is rapidly, of itself, improving, nothing further need be done, should it be decided not to improve the falls or place a ladder.

5th August.

I drove to McClennan's Brook, a tributary of the East River and once a fine stream for trout, and 4 miles from New Glasgow, and found two dams obstructing it.

The lower one owned by Scott Fraser, the upper by MacKintosh; they are both very high; again, 3 miles above I found Daniel McDonald's, and I learned that 2 miles beyond (I had not time to visit it, having to go on to Sutherland's River) there is another owned by Donald McPherson. All dams on this stream are unprovided with fish-ways of any kind. I then returned to the cross-roads and went over to Sutherland's River, 5 miles off. I saw John McPherson's dam, 15 feet in height, a complete stoppage, and 1 mile below and 3 from the tide way is Park's dam, situate at the head of very heavy falls. The water here was so low that it was impossible to form any accurate idea whether this rocky formation has hitherto, as I was told, barred always the fishes progress, but I am quite convinced a few charges of dynamite, at a trifling cost, would soon enable any thing to reach the waters above. At French River, on its western branch, there is a mill-dam called Stewart's, which blocks it up. It is situated 1 mile from the tide-way, and 1 mile above it is a similar structure, barring the way. On the eastern branch again, 4 miles from the sea, is McDougall's dam without a fish-pass. I have not seen at any of the mills for sawing lumber, included in the above, any means whatever taken to prevent the fall of sawdust into the river.

6th August.

Raining heavily; writing up rough diary from note-book.

7th August.

Sunday.

8th August.

Took the train for Antigonish. Poured rain all day.

9th August.

I visited Barney's River (in Pictou County). About 6 miles from the tide-way is situated a mill, at the junction of the west branch with the main river; it is called Dewar's factory. Once there was a ladder here, but the railway has cut it off or filled it up, and there is now no passage for the fish, while slabs, shavings, sawdust, &c., are freely bestowed upon the stream. The dam is about 15 or 16 feet high and no opportunity whatever presents itself of making a natural fish-way, one of the new patent, is required, to be of any use. Proceeding up the west branch for 2 miles, I found Robinson's mill and dam; still ascending I reached Daniel Cameron's dam, and 5 miles above this is situated J. Dunn's; all these are total obstructions, without any way for fish, and sawdust, &c., is thrown in everywhere. I omitted to mention that on the main or middle river, 8 miles from salt water, is built Kenneth Cameron's dam, unprovided with fish-pass; the rest of the river is clear.

Salmon frequent this river and its branches in fair numbers in the fall I am told, but very many, while full of spawn, are mercilessly speared and netted by poachers, in spite of the Warden's watching. From the fact of salmon still visiting this stream, to meet their fate at the foot of the dam by poacher's spears, one can imagine what a prolific stream it could be made were assistance and protection afforded the fish.

Bailey's Brook, 6 miles from Barney's River, was very rarely frequented by salmon in its best days. It is now, however, obstructed in several places by dams, and an excellent trout stream is ruined.

10th August.

ANTIGONISH.—I visited in the morning Wright River, a tributary of the West River, and saw Trotter's, or Murphy's, dam. The ladder once placed here, has been cut off by the railway, but in replacing it, a Warden is badly wanted to guard the waters above it. There is no one there now, and poaching is, in the season, nightly carried on to an alarming extent. The dam is about 6 feet high and without any fish-way. I then drove round to S. Thompson's mill, and saw above it the dam. Although it stretches across from bank to bank, it is so low that salmon and gaspereaux, during the time that the water is high, and they take to the river, would have more than enough water to pass over it. Continuing up stream for 3 miles, I arrived

at J. Thompson's dam. It is similarly built with S. Thompson's, and in time of freshet would offer no opposition to fish. Above this the river has a clear open run. In the afternoon I drove to McDonald's mill, on the James' River, about 3 miles from its junction with the West River, and found it situated on a part of the river where it is divided by an island. The other side is open, and the dam affords no obstacle to fish ascending. Below it 2 miles are the Brothers McDonald's old mills and carding factory. A dam once existed here, but the mills are in disuse now, and have been so for a considerable time, and the dam has rotted away and been destroyed by freshets. The river James is, therefore, clear and in good order.

11th August.

I drove for 9 miles from Antigonish to McDonald's dam, on the South River, 5 miles from the tide-way. It has no fish-pass nor escape of water by the side of it, but it is so low that I should think when the river was full, as it invariably is in the fall when salmon seek it, that they would have no difficulty in getting over it. I then proceeded up stream for 3 miles to Fraser's dam. It is about 10 feet in height at low water, but in high freshets salmon might leap it. I saw the remains of an old ladder placed here some time ago by Mr. Rogers, but only a few sticks of timber are standing. It had never been repaired from the day it was built, and each year's freshet had cut away a portion, until now only a fragment exists. Donald McMullin's dam, 4 miles up, is a winged one. I then drove down the South River and across through St. Andrew's and Pomquet to Little or Bayfield River, and visited the three dams there. The one nearest the sea, James Randall's, is $\frac{3}{4}$ of a mile from the tide-way; George Irish's $\frac{1}{2}$ a mile above, and McChesney's $\frac{1}{2}$ mile beyond this. They are all provided with ladders, although at present very much damaged by ice and spring freshets, and require putting in order before the run of the salmon in October and November. All the people about, that I conversed with, told me the salmon take readily to the ladders every year. They are old fashioned make, of a very gentle grade and well situated.

12th August.

I drove to Little Tracadie, $6\frac{1}{2}$ miles from Little or Bayfield River, and visited its east branch, and at about 3 miles from the tide-way found Hulbert's dam. It is very old and partly broken away, and in all probability the next freshet or two will sweep it clear of the stream; however, it, at present, does not hinder the fish passing.

I drove over then to main Tracadie River, and found a fish-ladder on the Monastery's lower dam. It is very old, but would be serviceable were the grade not too steep. It is, I should say, only 1 foot in 4, and about 18 feet in length. Salmon arrive here late, as they do in all Antigonish rivers, that is, the end of October and November principally, and I learn that the heavy freshets that come down then cover dam and fish-way from 1 to 3 feet, so the ladder is useless for them. Gaspereaux, however, strive to get over this dam by the ladder in the spring, but are unable, on account of its too abrupt pitch. I then went on to Monastery dam No. 2, which is extremely and unusually high, being, I should say, at low water, 20 feet. Only a patent ladder could open up this barrier. Salmon go as far as its foot, but gaspereaux do not reach below the low dam. Above this 1 mile is Thomas Durney's dam, but it is harmless until the big barrier be opened.

13th August.

I drove back this morning to Pomquet and ascended the west branch, or Black River, and inspected Alex. Chisholm's dam, about 8 feet high, 2 miles from the tide-way, and saw no ladder or pass. I went up still further, for 3 miles, to Donald McDonald's dam, also an obstruction, about 8 or 9 feet high. Sawdust is freely thrown in the river, about both mills, as well as slabs, edgings and sticks of all kinds. I omitted to mention Alex. McDonald's dam, $1\frac{1}{2}$ miles above this, which stretches quite across. He neither saves his sawdust nor has provided any fish-pass. The main Pomquet River is clear.

14th August.

Sunday.

15th August.

CAPE BRETON.—Took the train from Antigonish to Port Hastings; embarked on board the "Clyde," and reached Sydney on the morning of the 16th, at 4 o'clock.

16th August.

Heavy storm of wind and rain all day.

17th August.

Still raining at intervals, but being unwilling to delay longer, I drove to Cow Bay, 22 miles from Sydney, and visited Martel's Brook, 2 miles from the village. I found there an old mill and dam, belonging to John Martel, but the dam has been broken away by freshets, and only part of it remaining standing, so fish pass by it easily. I then drove on towards Burke's, at the Albert Bridge, over the Mira (16 miles from Cow Bay), and reached Black Brook. This is a fine river, which flows into the Mira, about 3 miles from where Mira Gut empties into the Atlantic. It is much frequented by river fish of all kinds, and quite unobstructed.

18th August.

Drove to the Salmon River, which flows into Catalone Lake, that discharges into Mira Bay. It is of considerable length and size, and is unobstructed from its source to the tideway. I then proceeded to Grand Lake Stream, which runs into Loran Harbor. Between Grand Lake and the tideway are two smaller branches, which empty into it. Its principal tributary, however, is Six Mile Brook, which flows out of large lakes, called respectively, Stewart's and Morrison's. There are no milldams whatever. The next large bay—Gabus—has two rivers: Landing Cove Brook and Kennington Cove Brook, the latter running out of Twelve Mile Lake. Both are free from any obstructions.

[I must mention here that the word "brook" does not, in Cape Breton, always signify a small rivulet, for some of the so-called brooks are, in reality, rivers of considerable width and depth, and are salmon bearing; while streams called "rivers" are smaller than some of the brooks. For instance, McLeod's Brook has a greater volume of water, and is broader than Benacadie River. There are many of these taking their rise in low grounds, and fed by swamps and springs, that only salmon and trout frequent yearly, but which gaspereaux never enter; but this is easily accounted for, from the fact that gaspereaux invariably seek only those rivers that afford ingress to a sandy lake. Such a locality, it is well known, is their favorite spawning ground.]

I next visited the upper part of the Belfry lakes and streams. The whole of these waters are free and open to the Atlantic. Returned to Burke's, at the Albert Bridge over the Mira.

19th August.

Drove up the Mira, a broad, deep sheet of water, more resembling a succession of lakes than a river. Following its windings (on the main road that skirts it) for about 8 miles, I reached Trout Brook, a tributary of the Mira. It is a good sized stream, and famous for trout (and sometimes salmon, in the proper season), unobstructed by any mill dams. I passed other small streams, but they are frequented by a few trout only. Crossing the Marion Bridge, I drove to Ball's mill (10 miles up), situated on a small tributary of the Salmon River. It is built just at its junction, but that dam and McIntyre's above do not affect the main river at all. I next visited the Gaspereaux, which, with the Salmon, are tributaries of the Mira. Both are salmon bearing, but the latter only is yearly filled with gaspereaux. No dams exist on either streams. Leaving Ball's mill, I drove across Huntingdon's Mountains, for 10 miles, until I reached the head of the East Bay of the Great Bras D'Or Lake. There are numbers of large streams which, near here, empty into Forks Lake, on one of

which is McLean's mill, where there is total obstruction. This is about 4 miles from the Sydney Post Road, and about 2 miles from the head of East Bay, on Gillis & McAdam's Brook. There are situated Cameron's saw and fulling mills. The Forks or Spanish River opens into Sydney Harbor, and is perfectly clear. Other streams than those mentioned discharge into it, which are free and constitute fine spawning grounds.

20th August.

Drove from Sydney to Ball's Creek, 8 miles, and ascending it for about $1\frac{1}{2}$ miles, reached Roche's mill. There is a wide dam placed here, but no ladder. The owner informed me the one he had built was carried away, dam and all, by a freshet, but he is about to construct another fish-ladder at once. Mr. Wilmot is, I believe, to trap parent salmon here this autumn for the use of the breeding establishment now in process of being built at Sydney. The river is unobstructed from this to its forks at French Vale. On one of these only McDonald's dam stands; the other is perfectly clear. I then drove on to Leeche's Creek, 10 miles from Sydney, and visited Walson's mills further up, near the foot of Forester's Lake. Both are stopped completely by dams, without ladders or fish-ways. Returning to Sydney in the afternoon, I drove for 6 miles on the Glace Bay road, and walked by the mill road to Howley's dam, on the south-west brook, running into Lingan Bay. There is an excellent ladder here with a very easy grade.

21st August.

Sunday.

22nd August.

Left Sydney in the "Neptune," for Baddeck, on the Bras D'Or Lake, and arrived there at mid-day. I immediately engaged a conveyance to the Margarie River, distant 28 miles to the north-west, intending first to visit those streams and then see the Middle and Baddeck Rivers and their tributaries on my way back; reached Margarie at 9 p.m.

23rd August.

In company with Mr. David Ross, the Overseer, I drove for 7 miles, to the mill owned by Messrs. Burton & Tingley, on the Marsh Brook, a tributary of the north-east Margarie, which it joins about 3 miles from the tide-way. The brook is much choked with mill refuse and sawdust. I then returned to the main river and drove up to Levisy's mill, on a small brook which empties into it, but it is not of very great importance.

I then went on to Morrison's mill, on Ingraham's Brook. The dam is quite across, and no care is taken to keep the sawdust out. Morrison's dam is 1 mile from the main river and joins it 14 miles from the sea. Driving down stream I reached Burton's dam, $1\frac{1}{2}$ miles from the main river, on Egypt Brook. Sawdust, edgings, slabs, &c., are freely thrown in here and the dam is from side to side. It joins the main river 12 miles from the tide-way. Murphy's mill, on a small stream which empties into Leggalaw Brook, is obstructed, and fills this tributary with refuse of all kinds. The damage the mill does to the Leggalaw Brook is very great, and as this is a very important tributary, and yearly visited by salmon and trout, the former to spawn in it and the latter to pass on to the lake above, the miller should be compelled to keep all his mill rubbish out of it. As it is now, there is a large jam about 4 miles from its junction with the main river, and the cost of its removal is estimated at about \$20. This brook would be an admirable one on which to erect a fish-breeding establishment, as the parent fish would be so easily procurable. The Big Brook (a fair sized one), which joins the main river 4 miles from the tide-way, has also a mill upon it, about 4 miles from its junction, and the stream is in the same bad condition, and there exists a similar cause of complaint as with the others mentioned, as regards edgings, sawdust, &c. The south-west fork of the Margarie is in exactly the same state as the north-east respecting its tributaries, although both main rivers

are themselves happily free from mills. Most of these streams flowing into the south west have solid dams upon them, and their mill refuse all drifts downwards to the mother river. After careful enquiries, I am inclined to believe that the cause of salmon not being so plentiful now as in years past in the Margarie and its forks is as much due to the filling up of the tributaries they seek to spawn in with shavings, edgings, slabs, sawdust, &c., as it is to the poaching with spears and sweep nets at night, and besides, it is much overnetted in the estuary at its mouth.

Gaspereaux are not found in the north-east river, as it has no lakes upon it to enable them to spawn in, but they frequent the south-west branch and ascend it to Lake Ainslie, a large sheet of water about 12 miles long and 8 broad, where they find the requisite sandy bottom. Shad are unknown. Salmon arrive at the mouth of the Margarie early in June and go up the river as soon as the water permits. It is the only one in the Island of Cape Breton where they may be taken by fly fishing.

24th August.

Drove back to the Middle River. It is unobstructed from its source, 30 miles from the sea, to its exit into Lake Bras D'Or. It is situated exactly half way by post road between the Margarie and Baddeck Rivers, 14 miles on either side. There are upon it two falls, but in high water neither interfere with the passage of fish. Nearest the sea, flowing into the main river on the right bank or west side, is a brook with a mill and dam upon it, 2 miles from the tide-way, owned by Samuel Nicholson. A complete stoppage, with the usual accompanying mass of sawdust and edgings. On the same side, $\frac{1}{2}$ a mile above, is Indian Brook, on the branches of which are situated Duncan McKenzie's, Angus McDonald's and McRae's mills, in a similar condition to Nicholson's. Then, still ascending, I found, 4 miles above this, on the east side, a large tributary, called McLeod's Brook. It is a fine stream and of considerable length, but completely dammed across about $\frac{1}{2}$ a mile from the main river. Still ascending for 2 miles on the west side of Middle River, I found again a grist mill, owned by Kenneth McRae, on a large tributary called Mill Brook. Nothing can pass here, for a dam of 10 feet in height blocks the way. Again, on the west side, on another tributary, $1\frac{1}{2}$ miles up from Kenneth McRae's, there is another mill, owned by McRae & Co. These are all the principal streams flowing into Middle River on which are situated mills, and at each of which there is an entire absence of any pretensions either to allow fish up or to prevent sawdust, edgings, &c., from falling into the streams, and thus mill rubbish, &c., finds its way into the main river and is to the greatest degree detrimental. The practice of using spears and torches and sweeping with nets is carried on to a fearful extent, in spite of the Warden's watchfulness.

25th August.

I, this day, visited Baddeck River, a magnificent stream, perfectly clear from its source to the Bras D'Or Lake. In common with the Margarie and Middle Rivers it cannot be dammed, as the freshets rise to a great height, and the vast volume of water which comes surging down with irresistible force and immense rapidity, would sweep mills and dams before it. The tributaries are in reality the nurseries of these rivers, and they are in a deplorable bad condition. It seems as if every possible method was resorted to, to prevent salmon breeding there. I found the Baddeck River's tributaries and their mills situated as follows: John McDonald's mill, on Logan's Brook, is $\frac{2}{3}$ of a mile from the head of Kane's Pond (a famous resort of the gaspereaux); Harris' Brooks, 3 miles above, flowing into the main river, has a mill-dam on it, owned by McRae Bros. It is placed 2 miles from its junction with the Baddeck. Above this is Peter's Brook, into which runs Hunter's Brook, where Wm. Files has a mill and dam on a small stream. Further up still, Ambrose Rice's mill is erected on a good sized brook running into the main river. There are no mills from here to the forks, but on the south branch, about 1 mile from the junction, on McCauley's Brook, there is a mill-dam. Out of all these I have named, there is but one miller who keeps mill rubbish out of the streams, that is Wm. Files, and he was compelled to do so, not for the salmon's sake, but owing to the loss of a law suit, which

entailed heavy damages upon him for destroying a neighbor's meadows with sawdust, edgings and slabs. All the rest threw their refuse into the streams. Poachers, with nets and spear, hold high holiday on Baddeck River.

26th August.

Left Baddeck in the afternoon for Grand Narrows, 13 miles distant.

27th August.

Drove from south side of Grand Narrows for 7 miles, to Joseph Bryden's saw and grist mill, on the east fork of the Benacadie River, which flows into the East Bay of Bras D'Or Lake. His dam bars the whole of the upper part of the river, and is of considerable height. No care is taken at all to keep the worthless remains from the sawing out of the water; the stream is choked with it. The Benacadie Forks are about $1\frac{1}{2}$ miles from the mill. The north branch flows through Mill Brook Lake, the Sunacadie Lake, distant 2 miles to the north-east, being its source. This fork is yearly visited by shoals of gaspereaux, and is quite clear to its junction, as is also the main river, from the junction to Benacadie Pond, which opens into the Atlantic. Between Bryden's mill and the forks, are three large brooks within $\frac{3}{4}$ of a mile of each other, which are not dammed. Bryden's dam is the only one on either Forks, main river or tributaries, and to its pollution may be correctly attributed the fact that salmon do not seek to enter that branch at all. The poachers infest the main river, and the other branch also, and destroy many breeding fish. From this place I drove across the mountain to Escasoni, 5 miles distant. It is a much larger stream than Benacadie. There are no mill dams either upon it or its tributaries, but it empties into the centre of an Indian village, composed of about 30 or 40 large families, and is out of the way and difficult to protect. It would be needless to comment upon the fate of the salmon when they take to the river. The Indians say that gaspereaux do not visit it at any time, but I cannot vouch for the truth of this statement. There is a very large sandy lake, called McNeil's, at its head.

28th August.

Sunday.

29th August.

Writing up rough copy of report of progress or diary from note book.

30th August.

Copying fair report for transmission to the Department. Making up duplicate expense accounts for the Agent at Halifax.

31st August.

Completed the above and forwarded the respective documents.

P.S.—Referring to that portion of my report for the past month, which is descriptive of the condition of the streams I have visited in Cape Breton, I beg to add that I have not yet seen nor heard of a main river which is dammed across, as they nearly all are in other parts of the Province, and I believe I have explained the reason of its being impracticable in the body of this report. Saw and grist mills, &c., are invariably placed upon the tributaries, and with one or two exceptions, ladders are not needed at all. A temporary opening of the dam, while fish are seeking to get beyond it, would amply suffice. To insist upon this being done, as well as to enforce the law relating to mill rubbish being kept out of the water, are duties, I respectfully state, that can only be efficiently done by energetic Overseers and reliable men under them. There is but very little that an Inspector can do, except occasional supervision at such times as the fish are running for a few weeks each year. With regard to the prevention of poaching, I regret to state that the present system of permanent Wardens, with a yearly salary, has not proved to be beneficial. It would be found to be more effectual, in order to check these lawless practices, to have well chosen river police, who should be only paid during the season when fish are in the river, for the days and nights that they are actually employed. It appears

most desirable, in order that the work may be thoroughly done, that these men be select for their real worth without any reference to their political opinions, and, if possible, that they could be exchanged from river to river, so as to prevent the feeling, such as now exists with the present Wardens, of unwillingness to prosecute their immediate neighbors for breach of the fishery laws.

I respectfully offer the above suggestions hoping they may be deemed worthy of consideration.

I am, Sir, your obedient servant,
Hon. Minister Marine and Fisheries. FRED. H. D. VEITH.

REPORT OF PROGRESS.

GRAND NARROWS, CAPE BRETON, 30th August, 1881.

SIR,—I have the honor to report that I have this day forwarded to Mr. Rogers, for transmission to the Department, my report of progress for the month of August, in compliance with your order of the 10th August, 1881.

I have the honor to be, Sir, your obedient servant,
Hon. Minister Marine and Fisheries. FRED. H. D. VEITH.

DIARY.

FOR THE MONTH OF SEPTEMBER, 1881.

1st September.

CAPE BRETON (*Continued*).—I left Grand Narrows in the morning, and drove for 50 miles along the shore of the Little Bras D'Or to George's River, and in the evening visited McQuarrie's mill. It is situated at the head of a long, narrow creek, $1\frac{1}{2}$ miles in length, and is called here part of the river. The tide reaches the foot of the dam, which is about 14 feet in height. They have, this summer, repaired the ladder, which had been built at this place some years ago. The ladder is nearly 85 feet in length, running down the centre of the river's bed, with a grade of only 1 foot in 6. I was informed by a resident close by that sea trout yearly take to it, but that gaspereaux have never been seen to ascend. Salmon have forsaken this stream altogether. A Mr. Alex. Moore, who lives at the mouth of the creek, and has been a resident in that part of the country for forty-five years, told me that he had not seen one for thirty years. I have learned since I have been about the shores of the Bras D'Or Lake that gaspereaux will spawn in brackish or half salt half fresh water, a circumstance I was not before aware of. There are numerous small ponds or lagoons inside of the beaches of the flat lands, which are open to the sea by small passages, and these ponds are, for the most part, sandy, and are fed by small rivulets and springs, while the tide ebbs and flows into them. I have tasted the water, and find it saltish; but, nevertheless, it is a fact that gaspereaux are seen in them during the spawning season, and the young gaspereaux have been caught while escaping to the sea. There are: great number of these ponds all along the south side of the Little Bras D'Or; and Kane's Pond, at the mouth of Middle River, flowing into Great Bras D'Or, on the north side, is also a great resort of these fish.

2nd September.

I drove from Mr. Moore's, in the morning, to Johnstone's mill, which is situated $2\frac{1}{2}$ or 3 miles above McQuarrie's, and found his dam across the river. He has made no opening for fish to pass through, and I believe the trout must spawn in the mill pond above McQuarrie's. The river, however, dwindles down to a small brook above Johnstone's, and large fish would scarcely penetrate so far. Mill rubbish is plentiful about both mills and in the river. Rain prevented any further inspection this day.

3rd September.

I visited Rice's Brook, but it is very small, and large fish do not frequent it. I then drove from George's River back to Barasois (8 miles) and crossed it on the dam, which is built of stones, wood and earth, at McLeod's mill. The main post road

runs on the top of this embankment, which is perfectly solid, and extends the whole breadth of the river, except at one place, where the mill flume carries the water to the wheel that works the machinery; thus the river is completely closed. Not a fish could have passed beyond here for many years. A short distance above is situated McLean's mill and dam, but it can do no harm while the embankment stops the river below. Large quantities of sea trout yearly enter the estuary, and failing entrance to the fresh water, go out to sea again. Salmon are never seen. Gaspereaux find spawning grounds in many places along this part of the coast, in the brackish ponds. Leaving Barasois, I returned to Grand Narrows, visiting Sunacadie and Cameron's Brooks, at Beaver Cove. Both are unobstructed and the resort of hundreds of large sized sea trout.

The Hon. H. F. McDougall, M.E.C., mentioned to me that he wished me to say, in this report, that a Warden is badly wanted to look after these streams and to prevent the unfair and excessive netting of the gaspereaux which enter the ponds on this side of the Bras D'Or, in Cape Breton County, and he complains of great destruction of the fish for want of proper surveillance

4th September.

Sunday.

5th September.

Crossed the Grand Narrows and visited the Washabuk (7 miles distant) It flows into Bras D'Or Lake in a northerly direction. McKenzie's mill is the only one erected upon this stream, with a dam about 4 feet in height, during a freshet and at high tide combined. The latter flows to the dam itself. Salmon are seldom caught here. One only was captured in a net last year, and gaspereaux are rarely seen; but this season shad were found close to the mill wheel, seeking to ascend. These and two that were caught in a net at St. Peter's are the only ones, so I am informed, that, for many years, have been seen in the Bras D'Or. Shad are proverbially fond of muddy rivers, and as there is in the Washabuk, about 1 mile below McKenzie's dam, a large bank of sand and mud, which reaches across the whole breadth, it seems probable that this may be the attraction, perhaps, to spawn on. Washabuk is very short, being only about 4 miles in length, and is the outlet of the Plaster lakes. As these have a similar bottom, it is not unreasonable to suppose that before the dam was erected that shad were in the habit of breeding in these waters. The lakes are about 4 miles above the dam. It would seem very advisable for the Overseer, Mr. McRae, to be instructed to have a fish-pass made at this mill-dam, to be ready next spring, to allow the shad up and foster a small fishery here, that might afterwards, as these fish increase, become a valuable one. I returned to the narrows and drove for 30 miles westerly to River Deny. It is a large stream, and salmon, gaspereaux and trout resort to it in their season; but, I am told, not in the same numbers as in past years. The main river is free of all obstructions. Its first tributary, 3 miles from the tide way, on the south side, is McGregor's Brook, which is not dammed anywhere. Two and a-half miles distant, and upwards, is the Big Brook, also clear. Three miles above Cameron's Brook joins, on which is erected Cameron's mill and dam, $\frac{1}{4}$ of a mile distant from the main river. Chisholm's Brook enters $3\frac{1}{2}$ miles above Cameron's, on the south side, on which is situated, 1 mile from its confluence, his grist and sawmill. Above this brook there are numbers of others; but they are all small. On none of the tributaries of River Deny, where dams exist, is there a fish-pass, and all mill rubbish is thrown into the stream.

6th September

Took passage to Baddeck, *en route* for St. Anne's Bay. The North is the principal river here, which forks above the tide-way. Its north branch has a heavy fall upon it, $3\frac{1}{2}$ miles from the sea, which denies fish further progress. A mile above it, Mr. McLean has placed a saw mill, and his dam is another barrier. A great deal of mill rubbish may be seen for some distance down the river. There is, I am informed, another abrupt fall some distance above McLean's; but the first is the most important to break down or to erect a ladder upon.

The North-East River is quite clear. Salmon and trout are to be found, but no gaspereaux.

7th September.

Took passage on steamer for St. Peter's, to visit Grand and Black Rivers.

8th September.

I drove to Grand River, flowing into the Atlantic on the south side of Richmond County, about 15 miles from St. Peter's Canal. It is quite unobstructed in every particular for 6 miles from the tide-way, where one arrives at very heavy natural falls or dips in the river's bed—the first one, I should say, was about 25 feet; the second (18 feet above) about 6 feet; and the third or upper, distant from the second about 60 feet, is 8 or 9 feet in height. The first and third are perpendicular. Fish never could have passed from the sea beyond this natural formation. Passing upwards, 2 miles from this point, I reached Loch Lomond, a fine sheet of water, 10 miles in length, by 2 or 3 miles in breadth, and connecting with it are Loch Uist and another, whose name, if it have one, I could not discover.

At present these fine lakes are completely cut off from the sea, and it is a matter of regret that it should be so, for the small rivers entering on all sides of their shores would constitute admirable spawning grounds for salmon, which now are debarred from reaching them by the abrupt fall alluded to. I examined the solid bed of the river at this place and found it to be kind of soft sandstone, which I could cut with my knife, so that drilling it for blasting would not be an arduous or expensive process, but I was unable to estimate what the cost would be to break it away. A large sum was granted some years ago for this purpose (so I learn), but the money has never been expended. A ladder could (should blasting not be resorted to) be secured to the solid rock on the south side. Either of the two methods would overcome the present difficulty and permit fish to pass to the lakes and streams above. Salmon and trout are very plentiful in the Grand River, but gaspereaux invariably go up a long arm or creek, called Black River, which opens into the sea at the mouth of the main river, a little below the tide-way. A small brook enters at its head.

9th September.

With Mr. Duncan Cameron (Overseer) I visited the river Tier, which empties into the Atlantic some 4 miles or so from St. Peter's Canal. It has two branches, which join together about 1 mile above tide-way; both are salmon-bearing. The west fork flows out of Sutherland Lake, 7 miles from salt water; the north-west out of a large nameless lake, 9 miles up. Besides salmon, sea trout are found in great abundance, and gaspereaux, in the spring, are caught in considerable quantities. The latter leave the main river, about $\frac{3}{4}$ of a mile from the tide-way, for a tributary called McIntosh's Brook, running out of Kight or McIntosh's Lakes, where they yearly spawn. Last month thousands of young fry came down to this brook on their way to the sea. There are no dams anywhere.

10th September.

I drove to Black River, flowing into the Great Bras D'Or Lake, about 20 miles to the westward of St. Peter's. It runs north-east and south-west, and is unobstructed from its source to its mouth. Its first tributary is Smith's Brook, where there is a grist and saw mill. The dam closes the stream. Above it, $2\frac{1}{2}$ miles, I reached Cameron's Brook, which is clear along its whole course. Two miles further up, on a good sized stream, is erected Donald McRae's grist mill. These two dams are the only ones on any of the numerous tributaries of the Black River. The Warden, McRae, informed me salmon make their appearance in October, and that then the streams are full of them. Trout are earlier. I saw great quantities of the latter about the bridge, over which the main road passes. They were of a very large size.

11th September.

Sunday.

12th September.

I visited, this day, Salmon River and Robertson's Brook. The former was, at one time, so I was informed, much sought by salmon, but continued poaching with spears has effectually done its deadly work of destruction. The river is unobstructed. A few trout yearly ascend it; but the gaspereaux take to an adjoining stream of fair size, viz., Robertson's, which, all the residents agree, is one of the finest resorts of these fish on the whole of the Bras D'Or Lake. Last spring they were unusually numerous. It is at the present time without anyone to look after it, and people do pretty much as they please, and it would appear most advisable, that either some one on the spot should be paid to keep order or that Mr. Kyte, who is the nearest Warden (living at St. Peter's), should give a portion of his time to this brook; though the employment of some one living on the stream itself would be more effectual to check unfair practices while the fish are passing, Mr. Kyte being 7 miles away.

13th September.

The steamer being detained by a heavy storm, did not arrive last evening, nor until six this morning, when I took passage for Port Hawkesbury, to finish my inspection of the rivers of Cape Breton.

14th September.

I drove from Hawkesbury to Mabou Bridge, 40 miles, arriving there in the evening.

15th September.

With the Warden, Mr. Benvie, I drove to McDonald Bros.' mill, on McDonald's Brook, a tributary of the south-east Mabou, entering about 8 miles from the tide-way. There is but this mill upon it, with a dam about 10 feet in height. The brook is really a fair-sized river, and this dam prevents either trout or salmon from ascending further. Gaspereaux do not go up either branch of the Mabou, but spawn near the tide-way in the numerous brackish ponds that stud the intervals on both sides of the river. A fish-ladder is much required at McDonald's, and he takes no care to keep mill rubbish out of the stream.

I then proceeded to Benjamin Worth's mill, on the main river, about 10 miles from the tide-way. His dam is unprovided with a fish-pass, and completely bars the way. Nothing can get beyond it. He has, however, taken precautionary measures to save his sawdust, &c., from escaping, and hauls it out of the interior of the mill and deposits it in holes and ponds away from the stream. About 3 miles above Worth's, Archibald McDonald has a mill and dam which is another total barrier to fish, and he permits all sorts of refuse to drop into the water. On Mill Brook, about $\frac{1}{2}$ a mile from the tide-way, are situated John McKeen's and Thomas Fraser's mills. The stone dam at the former was carried away, some time ago, by a freshet, and never replaced, the miller running his machinery by the aid of a long wooden sluice, which leaves the brook open. Fraser's remains standing yet; but fish are rarely seen at any time in this brook. It is not of much importance, and as they save their sawdust, &c., is not detrimental to the main river. On George's Brook, which enters the main river about 3 miles from the salt water, are placed Francis Gasper's and Bryan Dwyer's mills. The latter is $\frac{1}{2}$ a mile from Gasper's. Both are unprovided with fish-passes. This river is spawned in by hundreds of salmon yearly, but the dams I have mentioned do not interfere, as the sandy beds where the ova is deposited are some distance below. The stream appeared clear of sawdust, &c.

I visited, also, Glendyer's Brook, running in near the tide-way. It is stopped by several dams, the first being at the cloth mills owned by McDonald Bros. The dam, which is about 12 feet in height, was built, at considerable expense, of heavy logs, and ballasted with earth and stone, and to place a serviceable fish-ladder here would not only cost a large sum, but could not be done without weakening this structure to a great degree, so much so that a heavy freshet, in all probability, would sweep it away. These factories, and the machinery they contain, are very valuable,

and do a large business throughout the Island and other parts of Nova Scotia, and the carrying away of the dam would entail, not only a heavy loss in repairs, but also in the breaking up of the establishment for a time. The few fish that might enter the tributary would hardly be an equivalent for enfeebling this industry, and I would suggest that the stream be permitted to remain in its present condition.

16th September.

I ascended the south-west branch of the Mabou and found it clear up to Donald McDonald's mill, 7 or 8 miles from the tide-way. His dam crosses the entire width of the river. It is about 8 feet in height and without any fish-ladder, but he opens a flume while fish are in the river to allow them to pass through. There is but very little sawing done here during the year, and the mill does no injury I find, as above this the stream becomes very small; besides, salmon are known to spawn on the sandy beds below. This is the only mill on the south-west branch. The gaspereaux spawn in the brackish ponds near the mouth.

On my way back to Hawkesbury I visited the Little Indique and Indique Intervale Rivers, and learned from Graham, the Warden, there were no mills upon either of them. They discharge into the Gulf of St. Lawrence, about 15 and 18 miles, respectively, to the southward of Mabou Harbor. Four miles on, by post road, I came to McDonald's Brook. There is a grist mill on it, about 4 miles from the road and $2\frac{1}{2}$ from the sea. Salmon and trout frequent all these streams. Three quarters of a mile nearer Hawkesbury is Graham's River; it is unobstructed and said to be the most prolific in salmon and trout of all the rivers on this coast, except the Margarie. It is 5 or 6 miles in length from the sea to its source, where it takes its rise out of numerous springs. Half a mile from Graham's I reached Campbell's Brook. Salmon and trout enter this stream also to spawn. It is clear its entire length, viz, 4 miles. Driving on for 2 miles from Campbell's stream, I came to Long Point River and found it stopped, about 2 miles from the sea, by Dr. Chisholm's mill dam, and $\frac{1}{2}$ a mile above by A. Chisholm's. Neither dams have fish-ladders nor passes, and are about 12 feet each in height. As this is a salmon and trout stream also, the millers should be compelled to open their dams or erect ladders, the greater part of the river being at present cut off.

17th September.

I drove for 8 miles over to River Inhabitants, a very large stream emptying into the sea, near the Straits of Canso. It is yearly visited by large quantities of salmon, trout, shad, bass and gaspereaux, and is of considerable length. The first tributary joins about $1\frac{1}{2}$ miles below the tide-way and is called the North-West Arm, at the head of which a Mr. Brown has a mill, 5 miles up, on a brook bearing his name. He takes no care to keep his sawdust, slabs, &c., out of the stream, and the rubbish has been, for some time, not only a detriment to the fish, but an injury to his neighbors intervale lands. The next tributary is McDonald's Brook, entering the main river $1\frac{1}{2}$ miles from the tide-way. It is clear and unobstructed. Two miles above is Cameron's Brook, also free and without stoppages. The forks are about 1 mile beyond. On the west branch there is a mill about $1\frac{1}{2}$ miles from their junction, owned by Donald McMaster. He appears to endeavor to keep his mill rubbish out of the stream, and I am told, when fish are in the river, opens his dam to let them pass up. On the north branch the only obstruction is the dam of the grist and saw mills belonging to Allen McCole, situated 5 miles from the stream's junction with the west branch. The sawdust is carted away.

Having finished the rounds of visiting the principal rivers and their tributaries in the Island of Cape Breton, I would beg to add, that on my way there, having heard a rumor that a special request was being pressed for a supervision, separate from the rest of the Counties of Nova Scotia, I was especially careful to give every stream within reach a thorough inspection, and to furnish my report thereon as fully as lay in my power. This occupied me but 35 days, at a cost of \$104.

That salmon are not so numerous as they were formerly, I can readily believe; but one has not to seek very far to discover the reason. I find the three principal causes of the decrease in fish as follows:—

First,—Poaching, that is sweeping with nets and spearing, especially during the spawning season.

Secondly,—Over netting in the estuaries, and

Lastly,—The stoppages by milldams, and the defiling of the tributaries or nurseries of the main rivers with sawdust and mill refuse.

Efficient and energetic Overseers and subordinates are, in themselves, the power to do much to remedy these evils, but so far as poaching extends, until the law is amended, and arrests permitted to be made of the offenders, little can be done.

Where disguises are invariably assumed by the law breakers, identification in nine out of ten cases is impossible at night. But should the fishery officer have power to detain the guilty party caught in the act, and examine him with his blackened or otherwise painted face, restored to its usual color, his false hair or woman's garb removed, without proceeding so far as incarcerating him, the poacher could be identified then and there and afterwards fined. A few thus caught would have a most salutary effect, and tend rapidly to break the poaching down. Again, the close distances permitted by law between set nets, especially in small estuaries, is in many cases injudicious; nor will the miller, until forced, take any care of his sawdust, open his dam, nor give any assistance to river fish, while he believes, indeed knows, that nine-tenths of them never reach his mill, but are secured by the nets outside and the poachers on the river, before they have a chance of getting there.

18th September.

Sunday.

19th September.

Return to Port Hawkesbury, and engaged conveyance to Guysboro'.

20th September.

In Guysboro', commenced inspection at once.

About 20 miles to the north-east, running into Goose Harbor, is a large river of that name, which is free from mill dams, but about 1 mile from the tide-way, there is a very heavy fall, about 15 feet in height, beyond which no fish have ever passed, and where a ladder is much needed, or it could be made accessible by blasting. It is a fine river and worthy the expenditure of a moderate sum to put it in proper condition. Eight miles nearer Guysboro' is the Clam Harbor River, on which, distant from the main road 1 mile, is also a fall or drop of the river's bed, which denies the fish further progress. It is about 10 or 12 feet in height, and could be easily surmounted by a ladder or blasted away, similarly to that described on Goose Harbor River. At present the stream is useless.

Milford Haven, at its head, is entered by a stream called Intervale River and has two forks, the north one being clear and frequented by salmon. The Middle Branch or Middle Valley River is very small. It has a dam open it near its junction, but the river is not of sufficient value to warrant the expenditure of a ladder. On the south branch, close to where it joins the main river, are situated first, Cameron's fulling mill, with Hughe's sawing mill a short distance above; both dams require ladders, or, failing those, an opening should be made round the sides, which I think would answer the purpose, and the banks are favorable to its being effected. At present fish cannot pass. Not more than an eighth of a mile above these mills, there is a small natural fall which could be improved by blasting. There are many lakes at its source, and the river is worthy of being cared for.

21st September.

Ascending Salmon River, which runs into the head of Chedabucto Bay and is clear for 12 miles up to Neal's Lake, I visited Chisholm's mill on the northwest branch about $\frac{1}{2}$ a mile from the lake. I found here a very serviceable ladder, kept in good order, and was told that gaspereaux freely take to it. I saw a great deal of

rubbish about the mill in the stream, but the owner had been ill for some time and unable to attend to it. I then walked across to Kenny & Kennedy's saw mill, distant about 4 miles from Chisholm's, on the north branch, also flowing into Neal's Lake. The dam here is from 12 to 15 feet in height and the stream is in a very bad state, with sawdust, slabs, &c. The fall or cascade a short distance up above, would not interfere with the fish were a ladder placed on the dam, as before the latter's existence salmon have been seen 4 miles beyond it. The Giant or Joint Lake settlement, a tributary of the Salmon River, is clear for nearly 20 miles, where McPherson's mill dam stops the way.

The northwest and northeast arms of White Haven River are unobstructed, Dover Bay, Cole Harbor and Larry's River running into Tor Bay are all perfectly clear. New Harbor River, abounding in all kinds of river fish, takes its rise in Ocean Lake and empties into the bay of that name. The lake is fed by many small streams. There are no obstructions anywhere.

Isaacs' Harbor River is a magnificent stream, of quite 30 miles in length, its source being near the Salmon River road. The mill which stood near its mouth at the tide-way has been removed and the dam cut away to allow fish to enter. Mr. Tory, the Overseer of the County, informed me that it is a famous salmon river, and that in nets in the estuary this season salmon have been taken at a very much earlier date than before known. These fish are supposed to be of the St. Mary's River breed, and as the fish, of late, have not frequented the latter river in anything like such numbers as before, it is conjectured that they are driven away to other streams by the pollution of the water in the harbor by lobster factory refuse.

22nd September.

Before visiting St. Mary's, I went up Country Harbor River and saw Mason's mill, situated, on Cross Roads Brook, a tributary running in about 2 miles from the tide-way. It has no ladder and the stream is choked with sawdust, slabs, &c. On the West Brook another Mason's dam, 15 feet in height, blocks it, and I saw a pile of mill rubbish below it, 10 or 15 feet in height and about 25 feet in length, and the whole river further down filled with slabs and sawdust. This was one of the most famous spawning grounds of Country Harbor River. The mill dam is $\frac{3}{4}$ of a mile from the main river and about $3\frac{1}{2}$ from head of tide. Hearing there were a number of mills further up, I took the road into Goshen and, on the way, crossed North East Brook, flowing into Country Harbor Lake. Close to the main road I saw Geo. Sinclair's old mill dam; it is now in disuse and should be opened.

Six miles from the cross-roads is situated Polson's mill dam, on a brook running into Polson's Lake which discharges into Eight Island Lake. It is about 300 yards wide by 15 feet high and shuts out everything. Sutherland's dam, at the foot of Polson's Lake, is also a barrier. Further on, Nichol's dam and Sinclair's, both on brooks emptying into Eight Island Lake, are in a similar condition. This lake may be considered the source of the Country Harbor River. It is about 10 miles from the sea.

Crossing over from Goshen I came upon Murray's Brook, a tributary of the east branch St. Mary's, and passed Stewart's mill dam, which obstructs it about $1\frac{1}{2}$ miles from its junction, and descending the east branch reached Fisher's Mills situated about 2 miles from where it joins the east fork of St. Mary's River. There is a good ladder here, but it was full of rubbish and somewhat out of repair, and the river below much choked with logs, edgings, &c. Still going down stream I arrived at McKeen's mills, on a tributary of the East River, and found the fish ladder placed here, in good order and the stream free from rubbish about it. Many gaspereaux, I was told, took to it last spring. The East River is clear for 20 miles up, but some of the tributaries at its head have mills upon them.

I drove up to the West River, to Archibald's mill, 7 miles from the forks on Glencross Brook. Gaspereaux have, of late years, taken to this stream, and last spring there was, so I was informed, a very great number, and the miller was forced to open his dam. A short ladder is much needed to give a proper passage. The dam

is a low one, not exceeding, I should say, 5 feet. There is another mill, owned by Archibald, on a brook, bearing his name, about 1 mile from the forks; but it is a very insignificant stream. Proceeding further up the West River, I reached Hatlie's Brook, about 12 miles from the forks. It requires a fish-way. Above this the main river is clear for 17 miles, where one meets a rolling dam, owned by Alex. McDonald, or McDonnell, of Sherbrooke, and he has a waste-gate placed in it, which is movable. It is unobstructed from this to its source, where a good many large streams enter, on which are situated dams; but as soon as the river-driving is over, the waste-gates are opened to allow fish to pass up. Below the forks there are no mills, but poaching on all these streams is carried on to a lamentable extent, the most difficult to detect being the sweeping at night with nets, as no torches are used. The Wardens assure me it is impossible to prevent it, as they cannot, during the time the fish are running, remain up watching every night, and their districts cover many miles of water. There are numerous complaints of the practice of the lobster factory hands depositing the offal in the harbor, and of the trap set between Island Harbor and Goose Island. It is said the wing of the trap reaches, seaward, $1\frac{1}{2}$ miles, and is never cleared of the dead fish from the time it is set, in May, until taken up, in October, and that these, decomposing, drive salmon from the shores.

24th September.

Drove to Antigonish by coach, and took passage in the train for Halifax, having been absent nine consecutive weeks.

25th September.

Sunday.

26th, 27th, 28th, 29th and 30th September.

Employed at home in writing up my rough report from notes, making fair copy of report of progress for transmission, and furnishing duplicate expense accounts for the Agent.

Hon. Minister Marine and Fisheries.

FRED. H. D. VEITH.

HALIFAX, N.S., 1st October, 1881.

FORWARDING REPORT OF PROGRESS.

HALIFAX, N.S., 1st October, 1881.

SIR,—I have the honor to report that I have this day forwarded, through Mr. Rogers, my report of progress for the past month.

I have the honor to be, Sir, your obedient servant,

FRED. H. D. VEITH.

Hon. Minister Marine and Fisheries.

DIARY.

FOR THE MONTH OF OCTOBER, 1881.

1st October.

In Halifax.

2nd October.

Sunday.

3rd October.

I took the train for Londonderry Station, Colchester County, on the Intercolonial and thence by stage to Great Village.

4th October.

Drove to Economy. I visited first, with Mr. Davison, the Overseer, the new mill now being erected by Messrs. McKeen & Miller. The dam they propose having there, near the tide-way, will be, I was informed, a low one, covered by several feet of water at high tide, and, therefore, no detriment to fish passing. I then ascended the river for 2 miles and reached Murphy's mill. There is a ladder here which they

were repairing. One mile further up I came to McKeen & Mullin's mill, where there is also a ladder in a fair state of repair. I observed a great deal of mill rubbish about both mills and no precautions taken respecting sawdust.

5th October.

I drove on to Harrington's River (13 miles), which runs into Cobequid Bay, at the extreme west of the county, intending to visit that first and take all the other rivers on my way back to Economy. I found, 3 miles above the tideway, on this stream, Thompson's grist and saw mill. His dam is unprovided with a fish-ladder. Above this the river is clear.

6th October.

Returning, 1 mile east of Harrington's river I came to North River, and ascending it $\frac{1}{2}$ a mile from the tide-way I came to Boyd's saw mill, where there is a ladder in good preservation, and $\frac{3}{4}$ of a mile up stream, Thompson's saw mill stands, where, also, a ladder is placed.

Still returning easterly, I reached Bass River (Five Islands). It is quite unobstructed, and I am told a great many salmon go up it. One and a-half miles nearer Economy, I reached East River, where a Mr. Corbett has a mill and dam at the tide-way, furnished with a ladder of the down-stream pattern.

7th October.

Seven miles east of Economy, Bass River runs into the bay; a fine stream, upon which are situated the mills of the Union Furniture and Merchandise Company. A fish-ladder is built here, close to the mill. It was damaged and full of rubbish when I visited it, but the foreman promised me it would be immediately put in order, an undertaking which Mr. Davison, the Overseer, said he would supervise. I visited, also, McGlossen's mill-dam, 1 mile from this—a very low one—and I should say, in time of freshet, would not interfere with fish passing. I visited Port au Pique River, $3\frac{1}{2}$ miles from Bass River. It is unobstructed by mill dams. Also, the Great Village River, 6 miles beyond which is clear up to the Londonderry mines (this river is now useless to the fisheries from its pollution by mineral substances).

8th October.

I visited the Folly River, which is not dammed anywhere. It is 4 miles to the eastward of Great Village. The De Bert River joins it at De Bert Village. There is a very low dam at McCulloch's mill, but it is no impediment to the fish while they are running. Five miles from De Bert River the Chegana se enters the bay. No mill dams are visible for many miles up, though I was told there were several on small streams near its source.

9th October.

Sunday.

10th October.

Weather unfavorable for inspection.

11th October.

The morning still storming. In the afternoon, with Mr. Blair, the Overseer, I drove to Richard Christie's mill dam, on the Salmon River. It is about 5 miles from Truro and 4 from the tide-way. One mile above it is George N. Christie's. Both are in no way detrimental to the river; but there are great quantities of edgings, &c., thrown about and filling up the river.

12th October.

Visited, with Mr. Blair, Scott, Hengley & Son's mill, 16 miles from the tide-way, on the Salmon River. The dam is harmless, being a winged one; but for some distance down the river, there are piles of e'gings. Sawdust and other mill rubbish appear to be freely thrown in at the mill.

Immediate action on the Overseer's part is very necessary, as the first freshet will carry all this down the river everywhere. One mile below is situated McMullin's mill. The dam here is about 10 or 12 feet in height, and a good fish-ladder is badly wanted. Nothing at present can get beyond this dam, and there are good spawning grounds above. The river, about the mill and below it, is in a very dirty state, with sawdust and piles of slabs and edgings.

13th October.

Drove over to Tatamagouche, 30 miles.

Visited Waugh's River, running into Tatamagouche Bay, and ascended it for 6 miles, until I reached the rolling dam (belonging to Messrs. Mathewson & McKay) of the Balfron mill. It is about 12 feet in height and 200 feet in length, or rather width, of the old Government pattern, stretching down stream. It is said that salmon have never been seen above it, but that I cannot vouch for. It is, however, similar in structure to many, or nearly all, I have seen throughout the Province, in which, I regret to say, I have very little confidence. Between the dam and the tide-way, extending about 2 miles, are good spawning grounds. Above this mill the river forks, and on the south branch, 2 miles up, there are very heavy falls, beyond which fish never pass. On the north branch, again, there are also impassable falls, 3 miles from the junction of the branches. They are estimated at 70 feet in height. Poaching is carried on to a very great extent, so Mr. Gass, the Overseer, informed me, during the months of October and November. It is checked as much as possible, but I am told not to any great degree. The poachers go in gangs, and while one party is being watched the others are securing the fish. They are disguised as well, and identification rendered out of the question. Mr. Gass thinks, and with some reason, perhaps, that it is as well that the salmon do not get to the upper part of the river, as watching there would be impossible, and the salmon would suffer to a greater extent than at present, when only the lower spawning beds have to be cared for.

I visited also French River, running into Tatamagouche Bay. It is clear to Porteus' mill, 6 miles from the tide-way. The dam is about 6 feet in height in time of freshet. There is no ladder. Between this dam and the head of the tide there are also good spawning grounds, and Mr. Gass told me that poaching is not so much carried on as at Waugh's River. The people are more law-abiding and open to being reasoned with. Neil's Brook enters on the west side of the French River, and salmon have been known to spawn here also. As there are 3 miles of spawning ground on the main river besides, this brook, affording a large and sufficient breeding ground, I am inclined to think, with the Overseer, that perhaps it is better that salmon should not be permitted to ascend higher, as they are thus brought more under the officer's immediate protection and care during their spawning.

15th October.

Returning to Truro, I visited Geo. Nelson's mill, on the west branch of the North River, about 10 miles from the Forks. The dam is about 15 or 16 feet high, and has no ladder. Sawdust, slabs, edgings, &c., in fact, every description of mill rubbish is thrown into the stream, and may be seen down to McCallum's mill, 2 miles below, where there is another dam 10 or 12 feet in height. There is no ladder or any convenience to enable fish to get up. This miller also deposits all his refuse in the river and it is choked and dammed everywhere. Reaching the Forks, I ascended the south branch, and visited Marshall's mill, 2 miles up, and 3 above it again, Stewart's. Fish-ladders are not required on either of these dams, as they are very low and covered when the river is high. The same evil, however, exists here, with regard to mill rubbish. There are piles of it all about the mills themselves and down the stream. That salmon could spawn below some of these dams, with a mass of sawdust, slabs and edgings continually coming down over them, is difficult to believe, but in the streams where no dams exist, such as some of those flowing into Cobequid Bay, I hear on all sides, what I very readily credit, viz., that they abound in salmon every fall.

All the fish-ladders I have hitherto seen in this county are of the old pattern, a description of make unsuited in every way to Nova Scotia rivers, and in nearly every

case useless, because they lack the necessary wings to guide the fish to them, that are added in other countries where heavy ice and timber-driving are unknown.

Down-stream ladders require guides or wings, but they would not stand an hour against a spring freshet in one of our rivers.

16th October.

Sunday.

17th October.

Writing up rough report and expense account from my note book.

18th October.

Violent storm of snow followed by rain.

19th October.

Took the train to Amherst, to visit the rivers in Cumberland County.

20th October.

Thanksgiving day and general holiday.

21st October.

I drove from Amherst to Oxford, to visit River Phillip, the Black and Little Rivers, arriving in the evening.

22nd October.

I visited R. A. Woods' saw mill on Black River, a tributary of River Phillip, which it joins about a mile from the tide-way. I found there was no ladder or fish-pass in the dam built across, and no provision made against sawdust dropping in. Edgings, however, are kept free of the water.

Going up stream for 2 miles, Woods' saw mill was reached. Here there is neither a pass for fish nor any care bestowed to keep out mill rubbish.

There are no other mills on this stream, and I only mention these on account of the sawdust they contribute to the River Phillip. Of itself the river is worthless for breeding purposes. The mines at Spring Hill and the salt springs that empty into it together render it too unhealthy, and in its best days, I learn, fish passed it for the purer waters of the main stream.

I then visited the woollen factory dam, at the junction of the Black River with River Phillip. Although this structure is by no means high, and it is said that salmon have been known to leap it, still, seeing it, as I did, under favorable circumstances, with what is termed a good head of water, I felt certain, from its protruding apron, a salmon's getting over it would be, if not an impossible, yet a difficult feat. The capture of parent fish is here, now, in full operation, and the officials of the "Breeding Establishment" do not, at present, desire that the salmon pass upwards out of their reach; but, when it is contemplated to open up the river, the first ladder built should be here placed.

I then went on to Rufus Thompson's mill dam, $1\frac{1}{2}$ miles beyond. It is very wide, and not more than 5 or 6 feet in height in full freshet season. On the west side is visible a neglected and most unpretentious fish-ladder, the solitary one on all the dams from the tide to source of the river. Its position is most unfavorable, and grade too steep ever to have been worthy of being classed as serviceable. It is said that salmon have at times leaped the dam, but that is scarcely possible; the water appears too shallow below it. Gaspereaux do not now get beyond the woollen factory, and many complaints are made to me by up-river settlers of the unfairness of their deprivation, by the millers, of these fish for their families' use.

I proceeded, next, to Weatherhead Bros.' dam, $\frac{1}{2}$ mile up stream. It is about $3\frac{1}{2}$ feet in height, without any ladder or fish-pass. The mills themselves are harmless, being situated about 200 yards from the river's brink. Further up and about 5 miles from tide-way, Richard Black's mill is situated on a tributary of the main river, called Tilley's Creek. The dam is about 6 feet in height and impassable. It stands about 50 yards from the main stream. Sawdust is thrown in, but nothing else. I learned that not much sawing is done here, the timber being nearly all cut away.

One mile above Black's mill, on a tributary called Polly's Brook, and about 250 yards from the main river, I found Hugh McLellan's mill. This year he took down the old one and erected a new building, and in doing so permitted an immense quantity of old slabs, edgings, &c., to flow down the stream. These have now blocked the entire space from the mill to the main river, and will, if not removed soon, be driven there by the high freshets. A mile distant from here is built on the main river, Messrs. Oxley and Bros.' mills. The dam is about 8 feet high. It possesses no ladder, sawdust is freely thrown in, and the mill is kept in a most disgraceful state with edgings, slabs, &c. Rupert Duncan's mill stands $\frac{3}{4}$ of a mile above, with a 7 foot dam, without ladder or pass. Although he plentifully bestows all the sawdust upon the stream, I noticed some care was taken to keep it clear of other refuse. Still ascending, I reached within $\frac{3}{4}$ of a mile Davison's Brook, on which tributary, about 250 yards from the main river, is situated Duncan & Hegg's factory. The water about it shows the absence of all mill rubbish, except sawdust. That goes into the brook. A Mr. Schurman has built his mill 1 mile from Duncan's, on the main river, the dam being about 7 feet in height. His sawdust also drops into the water. There is no fish-ladder or pass. The river forks $\frac{1}{2}$ a mile from this place.

On the west branch, 1 mile from its confluence, is situated Sherman's saw mills and Philip Stonehouse's grist mill, with dam of 8 feet; no ladder. Above it the river is clear for 15 miles. On the east branch are the following dams: Thomas Taylors, being nearest the junction of the forks (2 miles). Its height, I should say, was about 9 feet. Half a mile beyond is Thomas McAlman's, of same height, $\frac{1}{2}$ a mile from this Johnston and Ripley's, and 1 mile further up, Jackson's. Two miles distant, Stewart's is built, and $2\frac{1}{2}$ from Stewart's, Purdeys stands by the side of his grist and saw mill. The whole of these obstructions are destitute of any provision either for fish to ascend, or for keeping the sawdust and grain husks out of the river. Edgings and slabs are everywhere thrown in. Above the last named mill there is clear water for more than 10 miles.

River Phillip is thus obstructed in 17 places by mill-dams, and its only spawning grounds are some $\frac{1}{2}$ mile of gravel beds, between the head of the tide and the woolen factory.

I next visited Little River, joining River Phillip, at the tide-way. It was not considered a good fish river before the mills on it were built. On none of the dams are there fish-ways, and sawdust and other refuse are plentiful in and about the stream. The first mill is owned by Edward Thomson, $\frac{1}{4}$ of a mile from the salt water. Two miles above, Black Bros.; 1 mile beyond, Thompson Bros.; a quarter of a mile distant, Messrs. Johnstone & Co's.; and a $\frac{1}{2}$ mile further on, George Thompson's. The rest of the river is clear.

23rd October.

Sunday.

24th October.

Drove from Amherst to Pugwash (30 miles).

25th October.

I went up the Pugwash River for 5 miles, until I came upon McPherson's saw and grist mill. They are situated just at the tide-way. The dam, which is 8 feet high, has no ladder or other means to enable fish to get beyond it, and I saw a considerable quantity of edgings lying about the mill, which a freshet will soon sweep down stream. I believe, some years ago, Mr. McPherson did have a ladder in his dam, but it was broken away by ice, and never replaced. There are 8 miles of good water between this point and McArthur's saw mill, at the foot of McArthur's Lake, but at present, denied both to salmon and gaspereaux. Large shoals of the latter, I am told, were seen in the tide-way last spring. I cannot think they could spawn below the mill, for the water, when I saw it, was thick with sawdust and buckwheat shells. McArthur's dam is without a ladder.

Leaving Pugwash River, I drove to Wallace village, 10 miles distant.

26th October.

With the Warden, Mr. Murphy, I visited the Wallace River. I found, at the tide-way, a saw mill owned by a company, but commonly known as Carr's. The dam is about 10 feet in height and 300 feet in width, with a fish-ladder, in apparently good repair, placed on the west side close to the bank. I questioned the Warden and others who had closely watched the ladder during the time the gaspereaux and salmon, in past seasons, were running, but no one had ever seen or heard of any fish being in or above it. The heaviest flow of water is naturally towards the centre of the dam, and I can readily believe that the ladder would not answer where it is, for the current to draw fish upwards to it is very slight. The river is a fine one, and would be largely visited by salmon, &c., but to attain that end, a better contrivance than that I have mentioned, to overcome this obstacle, would be necessary. With respect to the saw-lust, all that is made is thrown in the river, and the edgings deposited outside of the mill, in the same careless manner as at McPherson's, on the Pugwash.

I would suggest, as a remedy to this barrier, which is a very important one to surmount (there being good gravel beds between it and the next dam), that one of the new ladders, of Mr. Rogers' patent, be built in the centre of the dam. It is the only pattern that can be of any benefit, the existing one proving to be of no service whatever.

I drove $1\frac{1}{2}$ miles above Carr's mill, to Messrs. Howard's saw and grist mill, with dam 15 feet in height and 60 yards in breadth. I saw a portion of a ladder on the bank, at the west side, the greater part having been broken and carried away some time since. The dam is a complete obstruction at present. Sawdust and the refuse of the grist mill are all allowed to escape into the river, but it is comparatively clear of edgings and slabs.

Above Howard's, 6 miles, a Mr. McLean has a saw and a grist mill. The dam is without any fish-way, and the rubbish from both buildings is permitted to reach the water or is thrown in. Just above McLean's the river forks.

On the east branch, 1 mile from the confluence of the two streams, Amos Purdey's disused mill stands, and I hardly think the dam could be classed as an obstruction, for it is very low, and would be covered during a freshet. There are no others above. On the west branch or fork, about 2 miles up, a Mr. Hunter's dam stretches across from side to side, without a fish-way. There is nothing of any consequence higher up to prevent fish ascending.

27th October.

Heavy rain, followed by a violent gale, deterred me from continuing my inspection, and I was detained all day at Port Phillip, the ferryman considering it unsafe to attempt crossing in the scow. The bridge is down.

28th October.

I visited this day the Shinimicas River, with the Warden, Thomas R. Smith, first inspecting the dam of Timothy Brownell's mill, at the tide-way. The ladder which was formerly erected here has been carried away, and never rebuilt. Rubbish from the upper portion of the river blocks up the pond and jams the stream all about the mill. The dam is about 8 feet high in moderate water, the tide flowing nearly to its base. Salmon are reported almost extinct, but gaspereaux, in small numbers, still come as far as the mill, and unable to proceed further, it is said, are forced to spawn in the brackish waters. Bass are seen here also. Good ladders are wanted on all the mills up to the forks, as above that point there are extensive spawning grounds; but it would be useless to re-stock the river with salmon in its present state, all the dams on it being complete obstructions.

Ascending for 2 miles, I reach a grist mill, with a 10 foot dam, belonging to Samuel Somers. Great quantities of shells of buckwheat, &c., are thrown in from this establishment, and thicken the water everywhere. It is said fish dread this

foreign matter more than they do the sawdust, and I believe the practice of sweeping it in to be most injurious, and should not be permitted.

Within 2 miles of this, Messrs. Smith Bros. and Messrs. Mathewson & Dickie have each built their saw mills, with 12 or 13 feet dams, and Smith & Doyle's, 3 miles above, is about 10 feet in height. The river here forks at the mill pond, the south branch being clear to its source, with the exception of the stoppages at Geo. Gilroy's and Robert Morris' dams, which are 1 mile apart. It is a broad stream, with sand and gravel bottom, the precise locality for spawning.

On the north-west branch there is but one barrier, about $1\frac{1}{2}$ miles from the junction of the two streams, viz., at John Beherrel's mill. It is 12 feet in height. Two tributaries enter the Shinimicas, some $2\frac{1}{2}$ miles from tide-way. The western one is clear to Foadley's dam (5 miles), the southern one to J. Smith's saw and grist mill, the latter doing much injury both to their own, and the main river, by sawdust and buckwheat husks.

29th October.

Drove from Amherst to Young's mill, on the Hibbert, 23 miles distant. There is here a fish-ladder, of considerable length, by the side of the mill, and from its interior construction, grade and situation, I should say, would be very serviceable for gaspereaux, though I am strongly in favor of a greater width than this possesses, to succeed well with salmon. Although I cannot deny these fish can, and have ascended ladders of 5 feet in breadth, still I feel certain one of 7, or even 8 feet width, with the buckets proportionately farther apart, on large rivers, would be found doubly successful.

At this mill the edgings are burned away from the water, but quantities of log bark and sawdust are shovelled in. There are many mills on the creeks and brooks that enter this river, all of which permit their sawdust to escape. They are as follows:—

On Mill Brook	R. Christie.
“ West Creek.....	T. Christie.
“ Mcfatt's Creek.....	Landall Bros.
“ Mill Creek.....	Kelley.
“ Lallas Brook	Lallas.
“ Woods' Creek.....	Woods.
“ Barnes' Creek.....	Barnes.

The great body of sawdust which flows from Young's mill, on the main river, and from those on the creeks and brooks, is, it is everywhere said, destroying the shad and gaspereaux fisheries. At Minudie, especially, a resident informed me, the favorite feeding grounds of the former are covered with a deposit of some inches, and that of late seasons, *i.e.*, since these mills have been in full operation (Young's averages 3,000,000 of sawn feet yearly, to say nothing of all the others), the catch has dwindled down to a mere nothing. In casual conversation with one who had lived for a number of years at Machias, a small town in the State of Maine, he stoutly asserted, and referred me to the Commissioner of Fisheries of that State to corroborate his statement, that their famous shad river at that place was, soon after the large saw mills were erected, abandoned altogether by those fish, a circumstance solely attributed to the sawdust on their feeding grounds.

I cannot exactly say with certainty what it is shad delight in feeding upon that attracts them so powerfully to our shores; but I believe it to be the spawn of the other fish (most likely herring) which now object to the sawdust-covered bottoms, and just as the cod, already spoken of in a former report, from the inability or unwillingness of the rock fish to deposit the ova they once greedily hunted after and devoured in Musquadoit Harbor before sawdust was so thickly strewn there, have left it altogether, so shad forsake the old feeding grounds at Minudie and elsewhere, the inducement to resort there no longer existing.

The decrease in gaspereaux is owing, no doubt, to the pollution, hitherto, of their spawning beds in the mouths of the creeks and brooks, &c., the river before being impassable beyond Young's mill.

I drove from Young's mill to Parrsboro', a distance of 17 miles, to visit the rivers in and beyond that locality, arriving the same evening.

30th October.

Sunday.

31st October.

I drove from River Revelle, flowing into the Bay of Fundy, 14 miles from Parrsboro'. It is said that salmon never was in any number, owing to a heavy fall a short distance up (about 2 miles), and so the mill-dams upon it have been unmolested. I saw, however, large quantities of sawdust coming down, and the same complaint is, on this part of the coast, also made of the great destruction of the feeding grounds by its deposit, together with that of Fox and Ramshead Rivers. That the fisheries on this side of Cumberland County have deteriorated seriously is an undoubted fact, the causes being attributed, and with much reason, to sawdust and trawl fishing—the latter wrongly capturing too great a proportion of cod and haddock heavy with spawn; and not only that, but the owners neglecting to take away the fish caught, leaving them either to rot off the line of themselves, or remaining, become too far decomposed to be of any use, are cast off, and thus pollute the water and frighten other fish away.

Fox River, about 12 miles from Parrsboro', has two mills upon it, to its great injury—Charles Smith's, 1 mile from the salt water, and Robert Carrs', 1 mile beyond. At the former I saw the remains of an old ladder, useless from its steep grade when first erected, and at the latter no provision attempted to be made whatever—the stream full of sawdust and, in places, choked with old logs, &c., which had come down. On visiting Ramshead River, 8 miles from Parrsboro', I found that a Mr. DeWolf, who, in addition to his old mill-dam, where I found a decayed and moss-covered portion of a badly constructed ladder, has built a new dam at the mouth; but this, I am glad to say, will prove no detriment, as the tide ebbs and flows over it. His foreman assured me the old dam was shortly to be removed, and when that is done the whole river will become perfectly open for fish to ascend.

Diligent River, 1 mile to the eastward, is a very small, insignificant stream. It boasts of but one mill (Robt. Ward's) 3 miles up which stops it. Its contribution of sawdust is, however, clearly visible.

I returned then to Parrsboro' and drove 8 miles to Moose River, on which, in the tide way, is situated Jones' mill. The tide here rises to within a few feet of the top of the dam, and the miller tells me he opens a large log sluice, I saw in the centre of it, at high water, and permits any fish below to pass into the mill pond. Should the miller do as he states, and the salmon be spared, at the foot of the dam, from spear and net, I do not think any further assistance to them would be necessary. It never can be of much value as a fish breeding river, as a short distance above the mill there are very heavy natural falls, one 100 perpendicular feet in height.

The inspection of the Parrsboro River itself will be shown in my report for November.

Hon. Minister Marine and Fisheries.

FRED. H. D. VIETH.

HALIFAX, N.S., 5th November, 1881.

FORWARDING MONTHLY REPORT OF PROGRESS.

HALIFAX, N.S., 5th November, 1883.

SIR,—I have the honor to report that I have this day forwarded to Mr. Rogers, for transmission to the Department, my report of progress for the month of October.

I have the honor to be, Sir, your obedient servant,

Hon. Minister Marine and Fisheries.

FRED. H. D. VIETH.

DIARY

FOR THE MONTH OF NOVEMBER, 1881.

I visited the Parsboro' River and found the mills upon it as follows: Nearest the tide, which flows to its base, stands Fred. Yorke Dickie's, with its delapidated, broken ladder; never at any time serviceable, but now represented by a few decayed boards. The miller stated to me that salmon always leap it; but I cannot readily believe this assertion, especially as the mill pond above is so blocked, from end to end, with old logs and *débris*, that a fish could only land on that, instead of in the water. The next two above are close together, and are, respectively, owned by Mr. Newcomb and Messrs. Viccory & York. The dam here is 8 feet in height, and on the far side, from the mill propped against the stringer of the dam at an angle of 45 degrees, is a more feeble representation of a ladder than Mr. Dickie's.

These mills have been forced to save their rubbish, and but little is seen in the stream. Mr. Smith's saw mill above, however, is less cared for, and I saw a good deal of edgings, slabs, &c., about in the water. Salmon, so I am intormed by an old resident, seldom, if ever, went up beyond this point when no mill-dams existed. The rest of the river is clear for many miles up. Leaving Parsboro' River, I drove back, on the Amherst road, to Southampton, and visited Messrs. Atkinson & Co.'s dam at the woollen factory, on the Maccan River. It is in height about 10 or 12 feet, and unprovided with a fish-ladder, or any other means of allowing fish to ascend further. Below this place, 1 mile, Mr. M. L. Tucker, has erected his saw and grist mill; although the dam is a low one, it requires a ladder upon it, for, at present, salmon could only surmount it with difficulty, on account of its protruding apron. Descending the Maccan further on, I discovered, about 2 miles below Tucker's, a new mill in course of erection. The dam is not yet built, and it might be deemed advisable to order the miller to put in a suitable ladder while it is in the course of being constructed, and to be under the supervision of a competent person to avoid any difficulty hereafter. W. C. Filmore is the proprietor of the new mill, and proposes erecting his dam either this fall or next spring.

River Advocate, flowing into Advocate Harbor, is entirely free from obstructions, as are also Nassau, Laplanche and Missiquash, the latter visited yearly by thousands of gaspereaux.

2nd November.

Returned to Amherst, and having completed my inspection of the rivers of Cumberland County, I returned to Halifax.

3rd, 4th, and 5th November.

Employed in writing up my rough report from notes and in preparing duplicate expense accounts, and copy of report of progress, for transmission.

6th November.

Sunday.

7th November.

At home, in Halifax.

8th November.

I took the coach to visit Mush-a-Mush and Martin's Rivers, two good fishing streams, in Lunenburg County, that I was unable to inspect before, and to carry out a request of Mr. Rogers, that I would proceed to Bridgewater and see that the fish-ladder at Cook's dam, which he had given orders, sometime ago, to be constructed there, had been properly built, and further, that on my return to Halifax, I was to visit the ladder at Hubert's Cove, which had been reported to him out of repair, and ascertain its condition. Mr. Rogers asked me to attend to these duties in his stead, he being anxious to have the matters at once attended to and unable, himself, to proceed thither, owing to the Restigouche Fishery Commission requiring his attendance.

9th and 10th November.

At Bridgewater, in company with Mr. Goddard, the Overseer, I went daily to Cook's dam, where Mr. Calder was at work, constructing the ladder on the east side. He has made it with a grade of 1 foot in $8\frac{1}{2}$ or 9, and $5\frac{1}{2}$ feet in width in its interior, and about 18 feet in length. The locality chosen is an admirable one, and the material used is of the strongest description. It was finally completed, and the water turned on into it on the night of the 10th. I visited it for the last time on the morning of the 11th, when it appeared to be in capital working order, and I must state, has been built with much care and skilful workmanship.

11th November.

I visited, with Mr. Davison, the proprietor, his first dam (at his own request), and he showed me how he had built, over the whole of the space, where the old ladder had been making, it a solid platform with a passage in the centre, which can be now converted into either a natural fish-pass or fitted with a new ladder, and I gathered from him he has completed it so far, awaiting for further instructions to finish it.

12th November.

I drove from Bridgewater to Mahone Bay, and visited the Mush-a-Mush. There was a good body of water in it, and a famous natural fish-way round the east side of the dam, at Messrs. Kolpes & Kiddy's mill. The water course, which all speak here in praise of, is constructed on the same principle, precisely, that I advocated and strongly recommended might be applied last April, in the case of Mr. Davison's first dam, beginning some 5 or 6 feet above the dam and running around its end in almost crescent shape. Salmon, trout and gaspereaux all find their way up this pass or water course of Messrs. Kolpes & Kiddy's. A quarter of a mile beyond, Nichol & Zwicker have a saw mill, and about the same distance beyond, a Mr. Ernst has a grist mill. Both have made provision for fish to get up, and beyond there are no mills whatever on the stream.

I then went on to Martin's River. It is too shallow near the mouth to be a favorite with large fish, but the people about catch what they require of the alewives, that visit it in abundance yearly. Langel's saw and grist mill stands just at the tide-way, but fish can pass and find a clear, unobstructed run of about 5 miles up stream.

13th November.

Sunday.

14th November.

Took passage in coach, and on my way back to Halifax, I stopped at the mill at Hubbert's Cove, to carry out Mr. Rogers' instructions about the ladder, but I found the Overseer, Mr. Fitzgerald, had been before me, and that he had seen to the defect in the ladder, which was then in good running order.

15th and 16th November.

In Halifax, writing up my last week's work, official correspondence, &c., &c.

17th, 18th and 19th November.

In Halifax. Urgent private affairs.

20th November.

Sunday.

21st November.

In Halifax. Urgent private affairs.

22nd November.

Left Halifax by train for Stewiacke, Colchester County, and visited the Stewiacke River. It is a very large tributary of the Shubenacadie, and upwards of 30 miles in length.

There are no mill-dams or other ob-tructions upon it, from its source to the sea. I learned from many of the settlers, and from the Overseer, Mr. Pollock himself, that salmon have, of late years, been steadily decreasing in this river, and it appears very difficult to define exactly the cause. The poaching that at one time was extensively carried on near its upper waters has almost ceased to be practised altogether, and very legitimate netting is done. The only two causes to which may be attributed the falling off, at least, as far as I can gain any knowledge of, are—first, the extraordinary quantity of eels that yearly frequent this river, in numbers far beyond any thing known in other streams, and, which it is said, devour the salmon spawn, and, secondly, to the shoals of large bass that seek the mouth of the river at the tide-way when the young fry or smelt are coming down to the sea, and prey upon them. After making searching enquiries in every possible way in my endeavor to account for the decrease in salmon, I am unable to point to any other causes for it than those given, nor can I suggest any means to adopt as a preventive. Time, however, may perhaps alter the present unfortunate position of these fish.

23rd November.

I drove from Lower Stewiacke to Little River, on which there is a dam, owned by a Mr. Graham. It is situated about 5 miles from its junction with the Stewiacke River. The miller here has built a small ladder in his dam. It is about 35 feet long, with a grade of 1 foot in 10, and about 3 feet in width. There are not many fish visiting this stream. Sometimes small salmon (grilse), shad, or a few gaspereaux are seen at this dam, but they soon find the ladder and pass above it.

The manner in which this ladder is placed is on precisely the same principle as that adopted by Mr. Rogers in his new model. It is built in, not below the dam, and I have it from the reliable authority of eye-witnesses that every fish which arrives at its foot continues its upward course, without difficulty, into the pond above. This is one of the best proofs of the fact that the only method to ensure success is to make the opening of the ladder flush with the dam itself. I have repeatedly urged this in my former reports, and I can point to this ladder in evidence of the correctness of my advocacy. I may mention that the large ladders built on this plan, by Mr. Rogers, at the mills on the Liverpool River, have this year been most highly spoken of, thousands of fish having gone through them.

24th November.

I visited the lower part of the Shubenacadie River, below the mouth of the Stewiacke. Gaspereaux are deprived of their old haunts by mill-dams on a tributary called Green's Creek, which enters the main river 9 miles from Stewiacke Station, and which takes its rise in Otterhouse Lake. There was once, so the old settlers told me, a very fine fishery in this stream; but it is now destroyed by these obstructions. It is possible a few gaspereaux might yet yearly seek to ascend, and perhaps by assisting them at these barriers the lake may again become the favorite breeding place for these fish, it was formerly. The first mill-dam I found is situated in the tide-way, which flows up against it to the height of 7 or 8 feet. It is owned by a Mr. Sanderson. The second 5 miles up, is at the foot of the Three Mile or Otterhouse Lake, and belongs to the Messrs. Short. I would suggest that these millers be at once notified to place suitable ladders in their dams. They would have ample time to build them during the winter, and put them in before the heavy freshets come in the spring. I believe a splendid gaspereaux fishery could be here revived.

25th November.

I left Stewiacke this morning for Shubenacadie Station, and from thence drove 8 miles to Gay's River, the largest tributary, next the Stewiacke, of the Shubenacadie River, and visited Cook & Anand's saw and grist mills. The dam at this place is about 8 feet in height, and has never had any fish-way placed in it. As the whole of this beautiful stream, with this exception, is unobstructed its entire length, and could be restored and made a valuable fish river, I would suggest that the

millers be notified to place a ladder in their dam during this winter. In conversation with Mr. Cook, he expressed his willingness to fulfil the terms of the law in this respect, if it were required of him, and a model or some such guide given him to go by, as he was ignorant of the proper method of building a ladder. One and a-half miles above this, a Mr. MacKay has a mill and dam on a stream bearing his name, but the amount of sawing done by him is very small, and I do not think it affects the river at all, nor do I think it necessary, with such extent of water before them, to allow the fish to enter this tributary. I visited another tributary of the Shubenacadie entirely, about 2 miles from Milford, upon which Messrs. Woodworth & Annes have a mill; but I saw that they were removing the machinery and all other mill-gear from it, to use in a new steam saw mill they have erected near the large bridge which spans the Shubenacadie on the Gay's River road. The dam they propose throwing open at the old mill site, and thus leaving that brook. At the head of the Gay's River there are two other mills on tributaries, but there are vast breeding grounds throughout the river's length before reaching there.

I proceeded this day to visit the upper portion of the Shubenacadie, including that where the canal locks formerly stood. At Barney's Brook, where the last one nearest the tide was situated, I found, not a vestige was left, the river was quite open, and a large body of water was pouring through. Ascending the river 4 miles, by road, I reached the old Elmsdale Lock. Here I saw the remains of the dam, and learned that the clearance was made by the settlers in the vicinity. In cutting away a portion of this obstruction and leaving the greater part of it remaining, it is evident that those who operated had an eye to their own interests, for, as it stands now, it affords the greatest possible facility for poaching; in fact, there being no official within 5 miles, to prevent it, every shad or bass could be secured, by a net, as soon as it reached the narrow entrance to the water above. I would suggest that a small sum be granted to enlarge this passage, and as there is no Warden for this part of the Shubenacadie, that an assistant be appointed, whose duties should include the supervision of the netting, from this obstruction to the "run out" of the river, at Grand Lake. The Overseer, Mr. Colter, does what he can, but has too many miles to superintend, and while visiting one end of his beat, poaching is actively carried on at the other. I proceeded further up stream, until I reached the old Enfield Lock. Here, a clean sweep of all the obstacles that formerly stood, has been made, and the river is perfectly clear. I then visited the site of the fourth lock, at Horne's settlement, about $\frac{1}{2}$ a mile from the Grand Lake itself, and found the old dam that had remained at this spot for so many years, to the detriment of the river, had been destroyed completely and carried away. This locality, from its remoteness from the main road, is extensively used to carry on poaching operations against any fish arriving on their way to their favorite haunt, the Lake, and great complaints were made of fishermen from Halifax, during the season, making the place the scene of their Sunday depredations. I noticed, however, that the Overseer had posted placards, in conspicuous places, warning people of the penalty they are liable to, for breaking the law, and he tells me, that since they have been put up, he has had few, if any, complaints made to him.

With regard to the fishing, by the use of nets, along the river, I am convinced, from the position of the stakes driven in, in numberless places, to attach the head lines to, that it is by no means legitimately carried on. Fences are built out from the shore, of impenetrable stick and brush work, and, in many cases, extend a third of the way across; the stake on the other side, showing that between these two points the net is set, and of course stops every fish. In other cases, the net stakes are driven in, thus taking up one-half of it, instead of one-third. In fact, the Overseer should have the greater number of these either taken up or placed as the law permits, and the brushwork fences removed altogether. I would again strongly urge the appointment of an assistant to Mr. Colter, especially to look after these waters, between Elmsdale and Grand Lake, where the Overseer cannot make a daily visit, living, as he does, from 8 to 10 miles away. Bass and shad have been more numerous in the Shubenacadie this season than for years past.

27th to 30th November.

In Halifax.—The winter having now set in, and the inclemency of the weather rendering it imperative to close river inspection for the season.

HALIFAX, N. S., 1st December, 1881.

FRED. H. D. VIETH.

FORWARDING REPORT OF PROGRESS.

HALIFAX, N.S., 1st December, 1881.

SIR,—I have the honor to report that I have this day forwarded to the Inspector of Fisheries my return of duty, performed during the month of November.

I have the honor to be, Sir, your obedient servant,

Hon. Minister of Marine and Fisheries.

FRED. H. D. VIETH.

HALIFAX, N.S., 3rd August, 1882.

SIR,—I have the honor to state that, accompanying my report for July, I have added two rough plans of the country through which I have passed, but although these are made from actual survey, yet they are not drawn to any scale nor were any measurements taken, but I append them so as to give a general idea of the position of the dams, and also of the proposed cutting at East River.

I have the honor to be, Sir, your obedient servant,

Hon. Minister Marine and Fisheries.

FRED. H. D. VIETH.

REPORT OF PROGRESS.

PREPARED PURSUANT TO ORDER OF ACTING MINISTER OF MARINE AND FISHERIES,
DATED 22ND MAY, 1882.

1st, 2nd and 3rd June, 1882.

Having been requested by the member for Lunenburg to report to the Department the condition of Larder's River, as it now is, and the cost of clearing it out, I proceeded thither as soon as my commission reached me.

I briefly referred, in my diary, on the 19th March, 1881, to this tributary, but I have now made a thorough examination of it, and beg to report as follows: It is about 5 miles in length, from its exit at Lake Ramsay to its junction with the Gold River, and formerly, I gather, furnished the residents, at what is termed the Lake Settlement, at New Ross, with abundance of salmon and trout, both for sale and domestic use. For upwards of 20 years, by a grant from the Crown Lands Office, this river has been closed by a dam, originally erected by a Mr. Lance, and his sons are the present proprietors of it and the adjacent saw mill. These are placed just at the "run out," as it is termed, of Lake Ramsay. From the time the mill was erected to the present day, no precautions have been taken to prevent the sawdust and other mill rubbish from entering the stream, and so an accumulation exists, not only immediately below the mill, but the piles of old edgings, &c., blocking the stream, are traceable all down to the main river, and in some places form impassable barriers to fish. I have made as accurate an estimate of the cost of clearing this river, its entire length, as I have any means of doing, and I should say, to open it up properly, a sum not less than \$200 would be necessary. After reaching the main river, which is called Gold River, I descended it to the Big Falls alluded to in my diary of 22nd March, 1881, in order to form an estimate of the cost of blasting them away, for unless the main river is put into proper order to allow fish to ascend, the opening up of the tributary would be useless. The cost of blasting away the falls, so as to permit the gaspereaux, which hitherto have never been able to reach the upper portions of Gold River, would entail an expense of not less than \$250, and until these natural obstructions are removed on the main stream, I cannot urge the necessity of clearing out Larder's River, which is but a tributary. In fact, if any money be granted for this district, the requirements of the main river should first demand an expenditure. Gaspereaux never, at any time, got over the Big Falls, they sought a tributary about

7 miles from the sea, called the "Branch," and it would be a great boon were means taken to allow these fish to reach the settlers about New Ross, for at present they derive no benefit from the river whatever. The gaspereaux being all secured by the residents on the lower portion of its waters, and the salmon, which only arrive there to spawn, are not only unfit for food, but it is against the law to catch them at that time of year.

I would suggest then, in order to give satisfaction to the whole settlement at New Ross, and its vicinity, that the first money granted for the improvement of Gold River, or its tributaries, should be expended upon putting the main river in an accessible condition by blasting and breaking down these falls, and permitting that valuable fish, the gaspereaux, to reach its upper waters. This done, Larder's River might be taken in hand to be cleared, and a ladder placed at Lance's mill to open up the way to Lake Ramsay.

The distance from either the tide-way up or from New Ross down to the Big Falls is from 8 to 9 miles, there is no road or path, and in places by the river's side it is almost impassable, so that this inspection occupied me several days altogether, and one night in the bush.

I have not suggested placing a ladder at the heavy natural obstruction referred to, on account of its remoteness from any habitation, for unless a watchman was camped, during the season, close beside such a contrivance, it would be converted by the poachers on the river (and their name is legion) into a trap to secure every fish entering in, while by blasting a channel the fish could pass straight on with little chance of being stopped owing to the formation of the cliff on either side.

4th June.

Sunday.

5th June.

Drove from New Ross to Chester Basin to catch coach next day.

6th, 7th and 8th June.

Took coach for the head of St. Margaret's Bay. In my report for last year I mentioned my inability to proceed further up Indian River than the foot of Indian Lake, but I determined now to visit the whole of the obstructions upon this river, especially that above this lake, and, therefore, prepared for a hard tramp of 18 miles and a nights camping out (I append a rough topographical sketch to give an idea of the country). The upper rolling dam is an obstacle that has given much trouble. Mr. Samuel Murphy, the Game Warden, complained of this place, and stated to me that he had, after much trouble, succeeded in getting young salmon put in the North River; but that the dam, at the head of Big Indian Lake, stopped their return. I was anxious, therefore, to see this place, and I found it almost similar to the rest of Mr. Todd's rolling dams, built with an apron on the sluice-way, and perfectly inaccessible to fish. I opened the gate of sluice-way, and crossing the dam returned by north-west stream and Welche's Brook. These are quite open. The Mr. Todd alluded to is owner of the large mills at Margaret's Bay, and of the whole of the dams on both Indian and Ingraham Rivers. Meloin's dam (so called) I found completely closing the river, though by this date, Mason, the Warden, has, as he intended, cut an opening through it I have no doubt.

At Rhino's dam, $3\frac{1}{2}$ miles from the sea, a fragment of the old ladder remains. We met Mr. Todd, Overseer, here, and, by his permission, we cut away a portion of the dam sufficiently large to permit the salmon to get up.

9th June.

Returned in coach to Halifax.

10th June.

In Halifax.

11th June.

In Halifax. Sunday.

12th June.

Took the train for Kentville, having been specially requested by some of the principal people of that locality to visit and report upon the existing state of the Gaspereaux River. The fisheries of which are, it is said, ruined. Before doing so I consulted the Inspector, and he approving, I went.

I visited the lower part of the Gaspereaux, from the first fresh water pool upwards to Benjamin's mill, and I found, as described, the river banks and bottom covered with sawdust and shingle shavings. While the mill is in operation between six in the morning and six in the evening the water more resembles porridge than anything else I can compare it to. The inhabitants here make most grievous complaints. They say their gaspereaux fishery is destroyed, that, whereas at one time, before this mill was erected, they had multitudes, both for sale and domestic use, of these fish; now they can get none. It does appear most unjust that one man should have such a monopoly, and to be permitted to drive his mill without any care for the rubbish, daily falling from the saws, being kept out of the water and destroying a most valuable fishery.

I inspected, also, the fish-ladder. This has been a bone of contention ever since its erection, and there are numbers of people who still disbelieve in its efficiency. I can only say that I can see no fault to be found in the ladder itself, for I, having a guide with me who carried his rod and line, killed a salmon between 2 and 3 miles above it—a positive proof that salmon do ascend by its aid. Still the fact of their being so many mill hands about, who poach, makes me more than suspicious of its being used as a means to trap fish while ascending, and I know that much poaching does exist, for I have had a reliable statement made to me of a party of men, whose names were withheld, sweeping with nets in the upper pools. It would be very desirable to place one of Mr. Rogers' new ladders in this dam of Benjamin's, and so prevent the unfair catching of fish, for it would be placed in mid-stream, and not easy to get at, while the present one is quite close to the bank.

I, this day, ascended the river as far as Lane's mill, about, I should say, 8 miles from Benjamin's, or the White Rock Mills. Here fish can pass, but, I think, salmon can spawn below this structure. There are good and ample grounds for that purpose, before reaching it.

Between Benjamin's mill and Lane's, I found two rolling dams, used only for stream driving, but when the gates are lifted, there is nothing to hinder fish coming up. Salmon have been caught in former years at Lane's mill and above it; but I can get no information of their being seen there recently. They were in those days found late in the fall of the year, far above Lane's, spawning on the gravel beds. Very few gaspereaux, this year, came into this river. They have been decreasing, year by year, without doubt. It is believed, and with good reason, that they are abandoning the locality on account of the sawdust, &c.; and I am told that a numerously signed petition is on foot, begging the Department to enforce the law against the pollution of the water, and to assist in restoring to the residents on the river their fisheries.

15th June.

I visited the Cornwallis River, which I had to om't last year. There is but one mill upon it, called West's. It is situated about 5 miles from the tide-way. Salmon ascend the Cornwallis River for about 7 or 8 miles, where they reach good spawning grounds. Gaspereaux do not frequent this stream.

16th June.

I returned, by train, to Halifax.

17th June.

In Halifax.

18th June.

In Halifax. Sunday.

19th June.

I, to-day, took the train for Bedford, and then drove up to the mills at the head of Sackville River, which have been so much complained of. I saw a considerable quantity of sawdust in the eddies and laying along the banks. I notified the millers that I was instructed and empowered to bring upon them the full penalty of the law, if they did not take measures to prevent their sawdust from falling into the river. They professed their willingness to comply with the regulations, and promised to make receptacles for the mill rubbish, so as to keep it clear of the water.

20th June.

In Halifax.

21st June.

I again visited the mills on the Sackville River, and found a marked improvement; there was nothing like the quantity of sawdust discernible, and I noticed they had been taking steps to comply with the law, in so far as lay in their power. These mills are situated about 5 miles from the tide-way. I will, by frequent visits, cause this nuisance of sawdust to be stopped. When the millers see that it is determined they shall respect the law, they will give up resisting as useless.

22nd June.

On receipt of instructions from Mr. Rogers, a complaint having been made to him by a Mr. Nickerson, that the gaspereaux ascending the Shubenacadie River, were prevented, by a fall, from proceeding further than the old lock at Fletcher's Bridge, I took the train for Shubenacadie, intending to make a complete survey of the river, and see for myself this obstruction as well as whether the reported excessive netting was actually carried on as letters to me represented.

23rd June.

I, this day, visited the whole of the lower part of the Shubenacadie River, and saw no actual violation of the law. The season for gaspereaux is passed, but the nets for shad appear to be fairly set. There is a practice of sweeping carried on in this river, as in many others, that is most destructive, but it is a very difficult matter to catch the poachers in the act. The river is a long one, and while one part of it is being watched, the poachers, who have means of finding out where the warden's whereabouts may be, sweep the other part, and quantities of fish are thus unfairly caught.

24th June.

Having seen the whole river from the tide-way to Hornes', at the run out of the Grand Lake, I came on to Wellington and made my survey from there. I have appended to this report a rough outline of a map, showing the number of lakes in this vicinity. The dam is marked and shown as Fletcher's Lock; the fall of water about 4 or 5 feet over sticks of timber, bolted with iron rods, to the heavy rocks at the bottom of the water-course. When this is removed, the gaspereaux will have a free passage to all the lakes I have described. King's Lock is quite open and clear, and so are all the others, except the one at Fletcher's. One or two parties monopolized this place last spring and the fish congregating below the fall, and unable to get further on, were all secured by them, hence the complaint made to Mr. Rogers in reference to it.

25th June.

In Halifax. Sunday.

26th and 27th June.

I started again for Wellington Station, and, on arriving, made arrangements with Mr. James King, and his son, to assist me in clearing away the obstruction at Fletcher's Lock already spoken of. I was anxious to do this to prevent a numerous signed petition, from the inhabitants about here, being forwarded to the Department, and by removing the obstacle, save the office a useless correspondence.

I took a boat and rowed on the Grand Lake, to where the shad and bass nets are set all along the eastern and western shores, but I saw nothing illegally placed; all seemed quite legitimate and in accordance with regulation. On the morning of the 27th, Mr. King, his son and myself, with necessary tools, drove to the dam and commenced the work of clearing it out. We cut through the timber and floated it down stream out of the way. We then took part of the old stone walls on each side of this waste gate and threw in heavy rocks and smaller stones, and so converted what, after the dam was cut away, was a rapid, unbroken sluice into eddies and miniature pools, so that it makes a most perfect fish-pass, while dipping is next to be impracticable.

Lakes Thomas and Charles are about the centre of the chain, and from them the water runs in both a northerly and southerly direction; that to the north emptying into Grand Lake, which becomes the Shubenacadie River from its outlet, and the southern issue discharging into a small creek at Dartmouth. This year, I may mention, the gaspereaux struck up this place, but were stopped by a heavy fall below the "Skate Factory." Were this opened up by a ladder, the residents of Dartmouth, and those about the lakes I have described, could have gaspereaux not only entering these waters from the Bay of Fundy side, but from the Atlantic side as well, and a valuable fishery could be fostered, worth probably, thousands of dollars to the district.

28th June.

Returned in the morning to Halifax.

29th and 30th June.

In Halifax, writing up reports, making out disbursement (duplicate) accounts &c., &c.

FRED. H. D. VIETH.

Hon. Minister Marine and Fisheries, Ottawa.

HALIFAX, N.S., 4th July, 1882.

REPORT OF PROGRESS FOR JULY.

I have the honor to state, as a preface to this Report, that my wife's dangerous illness precluded the possibility of my being away from home for a lengthened period for the first part of the month, and so in order not to be idle, I investigated sundry complaints made to me of the violation of the Fishery Laws, visiting the rivers near Halifax where salmon were then running, and aiding the Wardens in carrying on their duties.

LIVERPOOL, NOVA SCOTIA, 1st August, 1882.

1st July.

In Halifax.

2nd July.

In Halifax. Sunday.

3rd July.

I drove this day to Prospect, to visit the river there, a report being made to me, that they had blocked up part of the lower end of the river with stone, in order to secure the fish ascending. I found that the story was but partly true. The settlers had placed an obstruction across, in order to dip gaspereaux, but it had been ordered to be taken away by the Warden, just before I reached Prospect, and the river was clear when I saw it, I ascended it for some distance, and found everything satisfactory. I then returned to Halifax.

4th July.

In Halifax.

5th July.

I drove to-day to Shad Bay, into which flows the Nine Mile River. This year I learn from sportsmen and others, that a very unusual quantity of salmon had entered it. The Bay is too much netted, but I saw no nets illegally set. I went up the river as far as Shad Bay Pond. This is a noted place for poaching, but it is not carried on in the day time. The mischief is done with sweep nets at night. The Warden lives 7 miles away, and cannot be always watching this place, and it would seem very advisable if another Warden were appointed, who would live on the lower part of the river, as its protection at this place is most necessary. Gaspereaux were very numerous during the past spring, and large catches were made. I saw nothing wrong during my visit.

6th July.

In Halifax.

7th and 8th July.

I drove to Pennant River, and crossing the lake in a boat, went down its east side all the way to the sea. This is considered one of the best little rivers all along the south coast of Nova Scotia, and furnishes abundance of both gaspereaux and salmon. A great many of the latter were taken this season in the nets which I found legitimately set in the Bay, and also by sportsmen, with the fly. Strange it is that the gaspereaux, this year, were not found in the river in anything like the numbers in former years, and the fishermen do not know in what way to account for it. Having seen that all was well on the lower part of the river, I went next day up to the head of Sheen's Lake, where a branch of the Pennant River runs in. This is a famous stream for gaspereaux, and in the season an excellent fishery is carried on here. Salmon frequent it also. I found everything in good order. I then went up the other branch, which exits from Scraggy Lake. Many barrels of gaspereaux are here yearly taken, and I think the main body of the salmon take to it in preference to the eastern stream. I saw net stakes driven in here against the law (but no nets), I destroyed them. I ascended the river to the foot of Scraggy Lake but observed nothing further illegal.

9th July.

Sunday. In Halifax.

10th July.

Went this week to Bedford to visit the Sackville River, in compliance with my instructions, and found things very satisfactory at the mills. They are saving their sawdust; at least, I saw none that was quite fresh, in the water. The fishery in Bedford Basin has been steadily declining for some years, and can only be accounted for by the fact that the spawning beds have been so polluted by these mills, salmon could not or would not spawn there. It is hard to make the fishermen believe the falling off is not due to the hatchery being there. This is the common belief.

11th July.

I received a note from Mr. Howe, the Auditor, in Halifax, stating a man living in Herring Cove was ruining the lake called Pine Island, and MacKintosh's Runs above it, by taking all fish entering, with a net, with which he completely stopped the river. Mr. Howe asked me to see to it. I drove down there this day, and visited the place indicated; but on this occasion there was no net set. Knowing my being on the spot would be soon made known to the man, and that it was useless to try, by waiting, to catch him in the act, I came away, but on my way homewards I met the Overseer, who, it seems, had heard of this depredation too, and he promised to see to it, and, if possible, fine the man, if guilty.

12th July.

I drove down to Jittle Salmon River, and inspected it from its source, at the foot of Lake Major, to the sea. Although Mr. Wilmot has put some thousands of

young salmon here, there has not, I learn, appeared to be a very marked improvement. From where the fresh water meets the salt, there extends a long channel, running through sand flats, for about 3 miles, until it meets the sea-coast.

There is no place where poaching can be carried on with greater facility. I allude to what is termed sweeping. The Warden lives about a mile and a-half up the river, and although he has tried several times this season, he has not been able to catch the poachers; but vast numbers of salmon are caught here and sent to Halifax, where they are shipped to the States. The river is in a very clean condition. I visited its whole length, and found no obstruction, such as drift timber, &c., nor is there ever any netting or spearing in the pools. But to the excessive catching in the channel, I am sure, is due the scarcity of salmon. There was a fair number of gaspereaux passed up in May last.

13th July.

I visited, to-day, the upper portion of the Nine Mile River, and descended it some 10 miles. There were a great many salmon and grisle in the pools. One gentleman took, with rod and fly, 5 large salmon in one day, at the Grand Falls. There does not appear to be any poaching done, or, if any, it must be only in a slight degree, hardly affecting the river. But there are too many nets set now in the bay, which, if continued, must be detrimental if pursued many years without restocking. The river is clear of debris, and in good order.

14th and 15th July.

In Halifax, writing up notes, &c.

16th July.

In Halifax. Sunday.

17th and 18th July.

I stated, in my Report, last year, my inability to reach and return from, in one day, the upper portions of the Ingraham River, which is distant from Indian River 5 miles westerly, and is about 26 miles from Halifax, from which place I drove down to the river's mouth.

Here I engaged a man as guide, and purchasing some provisions as we would be obliged to camp out for one night, we began ascending the river and crossing the dam at Snake Lake, took the eastern side of the lakes upwards and camped at the Rolling dam, 14 miles from the sea. I have drawn a rough topographical sketch of the position of the lakes we passed until we reached the foot of the Great St. Margaret's Bay Lake; here we could go no further, and indeed it was hardly necessary, for salmon are seldom ever seen beyond the Big lake, into which flow a vast number of small brooks at the mouth of which salmon are frequently seen spawning. At some of the rolling dams we found the gates lifted, but others we were obliged to open to let up the fish then in the river. These dams are partly owned by Messrs Todd & Polley, of the Margaret's Bay saw mills, and are similar to those I have described owned by the same firm on the Indian River. A better provision for the fish is necessary, as in some places at such times as the water is less than a full flood, fish could not get beyond. We came out by a wood road in the morning of the 18th and returned, where I found an order awaiting me to proceed to East River and report upon a proposed cutting between it and Hubbard's Cove River.

19th July.

I took the coach for East River, and immediately set about procuring a man to accompany me, but failed to get one to go alone, so I took an old man and his son and purchased some provisions. This was all I could do to-day.

20th July.

We started very early and went up the river and camped that night at the foot of the Bad Lake. The walking was so bad that we only reached this place in time to pitch camp for the night.

21st July.

We started again at sunrise and reached the proposed cutting between Coolan's Lake and Dauphiney's Lake. It is about $\frac{1}{2}$ a mile across, as shown on the maps I have drawn, and about 10 miles from the post road. The object of this cutting is to divert the whole of the water of the upper part of East River, including Coolan's Lake, Westhavers Lake, Timber and Indian Lakes, with others above them, by this trench or canal, into Dauphiney's and so into Hubbard's Cove River, by damming the foot of Coolan's Lake. This will destroy East River and in doing so would greatly injure the coast fishery in its immediate neighborhood. It would, I am sure, be an injustice to the settlers and fishermen near here, were Mr. Todd, of the Margaret's Bay mills, permitted to make this cutting and build this dam.

We then came down the north side of Dauphiney's Lake and camped at Dorey's Lake for the night.

22nd July.

We came out of the woods early this morning and so by the main road back to East River again, where I paid off my men up to the night before.

23rd July.

Sunday. East River.

24th July.

In compliance with directions from Mr. Rogers, I took the coach for Bridgewater, reaching there the same night.

25th July.

At Bridgewater, writing up rough report, &c., from notes.

26th July.

I visited the La Have River and saw the new ladder placed in the dam by Mr. Davison. It appears to be a very good one, but it is very narrow, not more, I should say, than 4 feet in width, but ought to take gaspereaux up easily. The salmon ladder is in the same serviceable state of repair as it was in last year, but no alteration has been made in its position. I made enquiries of the Indians who live near here, and white settlers too; but they tell me there were scarcely any gaspereaux this year; not a half barrel full was taken by all hands dipping, and but three salmon caught altogether. The general opinion seems to be, and I have conversed with several intelligent men, that the salmon have left the river altogether, and that the larged-sized salmon that for two or three years back have been caught at Gold River are La Have salmon. I visited the ladder on Davison's upper dam; it is in the same condition as when I last saw it. I then went up to Cook's dam and found the ladder Mr. Calder put in, in good order; I made all the enquiries I could, but could find no one who had seen fish about here.

27th July.

I drove up the river some 10 or 12 miles, and asked everybody I could have any conversation with if they had seen either gaspereaux or salmon as high as that, they all replied: "Not for many years." I think it now an established fact that the La Have ladders do not answer, and as Mr. Wilmot this year has put some thousands of young salmon in the upper portion of the river, it would be most desirable to erect patent ladders in the three lower dams. They require one each of Mr. Rogers' ladders, while on the remaining dams above an ordinary ladder would suit, as the river is not so wide nor the dams so high. I did not visit Petite Rivière for any distance down. I saw the upper dam at Hebb's mill, but there was not much water there, and fish had ceased to run. Mr. Jost has a long and tedious journey of 20 miles to visit this stream. Mr. Goddard, the other Overseer, has but 8. It might perhaps be deemed advisable for the interests of the river (in his being near to protect it) if Petite Rivière were added to Mr. Goddard's district.

28th July.

Took conveyance to Greenfield, and on reaching there visited all the upper portion of the Medway to the Ponhook. At night I took a man and boat and went down as far as Bear Falls. It was said men used to sweep the pools at night, but I saw none on this occasion, and we went at midnight too. Thousands of salmon and gaspereaux came into the river this year, and the catch was considered very good.

29th July.

Drove all down the Medway for 14 miles to Mills Village. The river is kept in excellent order, and the passes at the different falls are all open. There is a dam being erected at Salter's Falls for the pulp mill. This year it was only a temporary one, and had a small opening in it, so fish got through; but if it is in contemplation to place a high structure here, the company should build a ladder in it at the time of its construction.

30th July.

Sunday. Drove over to Liverpool.

Drove with Mr. Sellon, the Overseer, to Milton, and saw the ladders placed in the dam by Mr. Rogers some time ago. One was a little out of repair, but the fish got through with ease. I personally saw a salmon in the upper bucket of the upper ladder, and the people about tell me large quantities of salmon and gaspereaux went through. The ladders are built in the dam, and are admirably adapted for gaspereaux; but I am of opinion that in large rivers a much wider ladder, on the same principle, would be found an improvement for salmon, although these do their work very well. Salmon have been seen this season many miles up the stream, and gaspereaux were everywhere. These ladders are similar in their principle to Mr. Rogers' patent, and it would be a great benefit to the fisheries of the Province if they could be placed in all the high dams we have. There would be no complaint of fish not getting up. The efficiency of them is no supposition on my part. I speak positively, and my opinion of them last year has been verified by the number of reliable people who have witnessed fish going up. A great number of salmon were taken with the fly during the run; one gentleman succeeded in killing five in one day above the fish ladders.

Hon. Minister Marine and Fisheries.

3rd August, 1882.

FRED. H. D. VIETH.

FORWARDING ADDITIONAL REPORT FOR THE MONTH OF JULY.

HALIFAX, N.S., 7th August, 1883.

SIR,—I have the honor to enclose, as an addendum, a statement which could not be finished at the time I sent up my last report, and for the completion of which I did not think I was justified in delaying the other papers, as it refers to one item only, viz., the East River, Lunenburg County.

I would respectfully ask that the enclosed may be attached to the monthly documents already forwarded.

I have the honor to be, Sir, your obedient servant,

Hon Minister Marine and Fisheries.

FRED. H. D. VIETH.

NOTE.—With reference to the cutting from Coolen's to Dauphiney's Lake, proposed by Todd & Polleys, I have to say that this firm own a large tract of timber land at and about the upper lakes which empty into East River, and they will either have to bring their logs down that river and raft them along the coast some 20 miles to Margaret's Bay, or build a mill at East River to saw them. In either case the fishery of the river would be seriously damaged, because the continuous stream of logs coming down that small river at all times, when there would be sufficient water to float a log, as is the case on many other rivers in the Province, would not allow the fish to ascend, or leave enough water unoccupied for a sportsman to throw a line.

Instead of this, Messrs. Todd & Polley propose to construct a dam at the foot of Coolen's Lake in order to raise the lake some 8 feet, as the cutting necessary (not to throw East River into Hubbard's Cove River, but to float their logs from the former to the latter) will cost very much less, and as they would only be using, say 2 or 3 feet of water off the surface of Coolen's Lake during the spring months, and the necessary cutting would discharge but a small body of water, and would not decrease the supply in the East River to any appreciable extent. As soon as the logs are through, the gates in the dam will be opened and the cutting become dry, or, if necessary, a good fish-way may be put in the dam.

I cannot see how these men can be prevented from making this outlet for their logs. If, after it is done, it is found that they are seriously injuring the East River, the dam can easily be removed at their expense; but until that is proved, I think they can proceed.

W. H. ROGERS.

CONTINUATION OF REPORT FOR THE MONTH OF JULY, 1882.

20th July.

On going up East River on this date, on my way to Coolen's Lake, I passed again the falls mentioned in my report for the month of May, 1881, and I found the water there very low in the old channel, and fish could not ascend it, while the heavy fall in the new channel is always inaccessible. I beg to quote my description of this place from the former report alluded to.

"Fish have an easy opportunity of ascending, until they are met, about a mile from the tide-way, by a very heavy, precipitous fall. At one time this was not the real channel of the river, but was made in order that the logs might more easily be driven down to the mill below. The old channel was a very circuitous and rocky one, and fish could only ascend it in heavy freshets. Now, by the water being turned into the new passage, where the heavy fall exists, the old channel is useless altogether and inaccessible to fish. The cost of a proper channel would be but a trifling one."

I believe the best plan would be to blast out the old channel sufficiently large to give a free passage and place a small dam across, with a movable gate, so that the water could be turned off completely from it and allowed to flow over the fall at such times as the logs were being driven down, and so not interfere with the miller, and then to be opened and the water diverted from the fall and turned into this fish-pass when the logs had all come down. By these means the difficulty would be obviated, and fish could get up readily, and the value of the river for salmon and gaspereaux breeding be greatly enhanced.

The cost of this would be \$30, a man living near having already offered to do it all for that amount.

If it should be determined to grant this sum, I would submit that it be expended this month; the water being lower now than at any other time of the year, the work could more readily be executed.

A plan descriptive of the old and new channels is herewith attached. (*Not printed.*)

Nets set in the immediate vicinity of the mouth of East River.

I had pointed out to me, before leaving East River, the position of the berths of the nets set near its mouth, a rough sketch of which I append, and I was requested to submit to the Department that the following regulations may be made and ordered to come into force. I beg to endorse the correctness of the views taken:

That no nets be set within the estuary, from Frail's berth, on the one side, and SprucePoint, on the other, and that the present berths, viz., that near the Marsh and the other at Prescott Rocks, may be no longer considered legal.

This would afford a much better chance for the salmon to reach the river, the present berths being considered too near the mouth.

FRED. H. D. VEITH.

NOTE.—On looking over Mr. Vieth's accompanying addendum to his report, I saw on glancing at his sketch, that it entirely misrepresented the locality, and was against the interest of the resident fishermen, and that what he proposes is not only unnecessary, but entirely in the interest of sportsmen. I, therefore, before reporting upon the case, visited the locality, in company with Mr. Redden and Warden Hayes. Two rough pencil sketches will be found enclosed, one made by each of them, on the spot. By comparing these and my own with Vieth's, you will readily see how the latter's misrepresents the place. The nets are not over 30 to 35 fathoms in length, while, according to Veith's plan they would be 150 to 200 yards long. The estuary, also, according to his plan, would be 300 to 400 yards wide, while it is really from 900 to 1,200. The nets being short, there is ample room for the fish to enter. Moreover, the fish are caught on the upper side of the net, as they are passing outwards, as can be seen by the hooks on the nets, even as made by Veith.

Mr. V's plans are very unreliable and misleading. Such modes of conveying information should be accurate, or they are worse than none, for obvious reasons.

W. H. R.

REPORT FOR THE MONTH OF AUGUST, 1882.

HUBBARD'S COVE, ST. MARGARET'S BAY, 1st September, 1882.

1st August.

In Liverpool, writing up reports, correspondence, disbursements, accounts, &c.

2nd August.

I drove with Mr. Sellon, the Overseer, to the licensed fish-traps some little distance back of the town. It is a very large affair, and placed only a short distance from the shore. We took a boat and were rowed all round, and inside it, inspecting it thoroughly, and I can vouch for the cleanliness, neatness, and absence of decaying fish that characterizes this, and which is so objectionable a feature in others. It is a remarkably well managed trap, and reflects not only credit on Mr. Sellon, who supervises its being properly kept, but on those who lease it.

3rd August.

Again, continuing in the morning, writing up from notes, reports, correspondence, accounts, &c. Day very unfavorable; heavy rain and thunder and lightning in the afternoon.

4th August.

Took the mail coach *via* Mill's Village to Bridgewater, *en route* back to Halifax, having finished thus far west. We reached Bridgewater very late at night, being detained three hours on the road by a forest fire, which we could not pass through.

5th August.

The coach did not leave here until 6 o'clock this morning, when we again proceeded towards Halifax, reaching there at 7.30 in the evening.

6th August.

Sunday. In Halifax.

7th and 8th August.

At home, writing up important and necessary additional reports, drawing maps, correspondence, &c.

9th August.

I went to Bedford. I found in the Sackville River no fresh sawdust. The mills were only running on short time, and not making much refuse, the men being engaged in getting in their respective hay crops; but I could see plainly the millers are making an effort to retain the sawdust in bins beneath the mills' flooring. I am told by a Mr. Jack, a resident on the river, that sawdust is "still plentifully bestowed upon the waters."

I must, perforce, not take this quite literally, for Mr. John Fitzgerald, the Overseer, and Francis Tolson, the Warden and Assistant Caretaker at the hatchery, visited these mills and down stream below them, only a day or two previous to my being there myself, and Tolson reported to me, at Bedford, and Fitzgerald, when I met him a day or two after in Halifax, that everything was quite satisfactory when they saw it. A small quantity of mill refuse will escape, no matter how much care be taken; but there is a marked improvement in the condition of the river this year, compared with last. I would earnestly recommend, while speaking of these mills, that a ladder be placed this season, while the water is low, at Hefler's dam, to allow the fish to reach the lake and small streams above, where they could find spawning grounds unpolluted by any sawdust whatever. The want of one has long been felt, and the dam at this mill, debarring the fishes' progress, has much to do with the deterioration of the river complained of. I strongly advocated a ladder being built here, in my report of last year (July 19th)

10th August.

In Halifax; weather unfit to attempt inspection.

11th August.

I again went to the Sackville River, as I wished to learn whether it be true that the mill refuse is, as stated to me since my visit on the 9th, in the day time saved, when people are on the watch, only to be thrown in at night, when the fishery officer is not expected, and there is no one about to see. To do this I was there at daylight in the morning, and travelled for some miles along the bank up towards the mills, in search of fresh signs, but everything was, apparently, satisfactory enough, although Mr. Jack, and a Mr. Black, both living a short distance from the river, mentioned to me that they suspected the evasion of the law, just before daylight, to be really the case frequently. I wrote a brief note to these gentlemen on my return, telling them my instructions were to prosecute any of the millers against whom proof could be brought of actually putting the sawdust in, and begged of them if they were able to have any of these millers caught in the act, they would at once let me know, and I would see that the offenders were brought to book and punished.

I find it necessary, owing to the owners of these mills being very poor, to ask that assistance may be given, by a grant of money to build the ladder, I have before alluded to, at Hefler's dam, which is the uppermost on the river below the lake (the other dams are easily surmounted). I have no doubt they would all join in contributing the wood material, were only part of the labor and spikes, nails, &c., provided them free of expense.

I find a great many salmon and grilse have been seen in the Sackville River during the past two months, especially the latter, which says something for it, after all, in spite of so many dismal prognostications; and, although the fishermen in the Bedford Basin still complain of the dearth of the salmon, compared with former years, yet with constant watching, combined with Mr. Wilmot's yearly adding fresh stock, I believe even this complaint will, in a year or two, no longer be made.

12th August.

Last year I visited only the lower part of the Annapolis River and its tributaries; but I went no higher than the Lawrencetown Mills. I had been called away to King's County, and intended to return and visit the upper portion, together with its magnificent tributary, the Nictaux, but was prevented, and went to other counties and to Cape Breton, and so never reached my purposed destination there. I, this day, took passage in train for Middleton, near which is the junction of the Nictaux with the Annapolis, but found the train went no further than Kentville Station that night, so I was obliged to remain until Monday morning before I could proceed.

13th August.

Sunday.

14th August.

I arrived at Middleton Station in the afternoon and, after driving across to the hotel, on the post road, some distance away, I set about gaining all the information possible to facilitate my inspection, and made arrangements for conveyance, &c., the following morning.

15th August.

The junction of the Nictaux and the Annapolis River is about 9 miles from the tide-way. I began to-day at this point and found the Nictaux quite clear of edgings and sawdust, up to and about the first mill, which is situated $1\frac{1}{2}$ miles from the confluence. The dam here is not a high one, being only 3 or 4 feet in time of heavy freshet, and salmon and grilse have been observed jumping over it, but as both this tributary of the Annapolis, and the Annapolis River itself, are frequented by shad, a ladder of simple and inexpensive structure would be of much benefit to assist these valuable fish. The conformation of the bank on the south-east side is admirably adapted for such a purpose. I should mention that the water falls here very rapidly, and at no other time than the high freshet do salmon and grilse succeed in getting over.

A resident here informed me that this season, when the water fell some 2 feet, he saw the fish trying to jump it; but most of them fell back, unable to do so, and became an easy prey to the night poachers with their sweep-nets. This mill and dam is owned by a widow, whose husband, J. Rogers, died a short time ago. She is in very indifferent circumstances, and barely ekes out a living in trying to conduct her late husband's business, and it would be a charity if some assistance were given her to enable her to have this ladder erected.

I proceeded upwards from here, and 1 mile above, came upon the dam where Chipman and Beale's mill stood. It was destroyed some little time ago by fire, but the dam remains intact. It is situated at the Nictaux Falls, so called, from which the settlement near here takes its name. These falls are about 200 feet long, and in time of freshet, must be very formidable for fish to attempt ascending. They could be much improved by a small outlay in blasting. Two or three good shots, judiciously placed, would be all that is necessary to remedy their abruptness. The dam is 10 or 12 feet in height, and I saw, in the centre, the remains of an old ladder, now broken, decayed and useless. Indeed, it must have been always the latter, for, on measurement, I found the grade was only about 1 foot in 4 or 5, at the outside, which is, notably, too steep for any description of fish. It appeared almost upright. A good ladder is much needed here—one of the new patent would be the best in a dam of such height.

I then went on to Ward & Gate's grist, carding and shingle machine mill. It has a dam 10 feet in height, and has never been supplied with a ladder. But, on crossing over the dam to the west side, I found a gate cut in it, and a small, most inefficient, channel cut round into the bank, and joining the river some 10 or 15 feet below. It is possible that, were this much widened and deepened, it might be made to answer; but it is too accessible to poachers. I learn this firm is very well to do, and, I should say, could not well object to build a proper ladder in the centre of the dam, which would last for many years and open up this formidable barrier to both salmon and shad. I fear their run round, as it is called, was never sufficiently large to have been of any service. Some considerable distance up, I should say over a mile, I reached Samuel and Robert Nickson's saw mill, with a dam about 10 feet in height. There is here no provision made for fish to get above it—neither fish-pass nor ladder. Should a proper one be erected, there would be then a clear run of nearly 7 miles of good water, without any hindrance to shad and salmon, until they reached the gang saw mills belonging to Freeman & Mitchell, formerly owned by Pope, Voce & Co. I may mention here, that gaspereaux are unknown to either the Nictaux or the Annapolis, at least so far up as this, from the latter's junction with the salt water. But besides the shad and salmon, there is a very large species of trout, attaining sometimes 4 and 5 lbs. in weight. I observed, at all the mills I have just described,

that a great deal of care seems to be taken in keeping the water free from mill rubbish. Edgings, &c., are carted away for the residents' firewood, and the sawdust is in some cases taken away and spread as manure over the fields, and in others, piled in great heaps, sufficiently far away from the river's bank to ensure its not falling in. At the grist mill, which was not working when I arrived there, they told me they make a compost heap of the shells on husks, and they find them too valuable to top-dress their land with, to allow them to be thrown in the river; a in practice too common in many other grist mills throughout the Province, and which is more fatal to the fish than even sawdust. Rain setting in, I was obliged to return to the inn, deferring my inspection of Freeman & Mitchell's mills, 7 miles above Nickson's, the last mill visited.

16th August.

Before going up any further on the Nictaux, I determined to see the main river at Lawrencetown mills, which are 6 miles below the mouth of the Nictaux, to ascertain in what condition the dam was, for it would be necessary to make this barrier accessible to fish, before it became necessary to open up its tributary. I visited this place on the 29th April, 1881, and then found the mills in disuse, the gear all removed from them, and everything about them out of repair, while the dam remained intact, and totally obstructing the river. I determined then to make this inspection to-day, and so drove over. I found that a great change had taken place since I had last been there. The property had fallen into other hands, and Mr. Brown had become the purchaser, and intending to run these mills again, had begun to repair them and refit them with new waterwheels and other gear. He had rebuilt and raised the dam some feet, and I found was then employed, when I arrived, in making a cutting or sluice-way on the side nearest the south shore. He contemplated making it 5 feet in width, and proposed driving piles at intervals on either side, which would not only act as braces to secure the dam, but also make breaks, something after the manner of a ladder's buckets. The idea was an ingenious one, and I could not help approving of this measure, assisting, as it would undeniably, the fall run of salmon. I remained all day here, advising him as he proceeded, and by night fall we had the job nearly completed. A false dam had to be made above the cutting as there was a good head of water on. I left him, with a promise to return next day and superintend the finishing, and returned to Middleton.

17th August.

Immediately after breakfast I started again for the Lawrencetown dam, and with Mr. Brown, the miller, and a couple of his men, we made the following work complete, as follows:—The sluice was cut 5 feet in width down to the actual bed of the river (we allowed no flooring), five piles being driven in on either side of the interior to brace everything. Finding the piles did not succeed in checking or breaking the water sufficiently, I directed that one large piece of rock, of suitable shape, should be carried on a raft he worked with and dumped just at the entrance. It settled firmly at the bottom and was a great success, making a considerable eddy and back water, and allowing a passage for fish to pass on either side. This done and acting on the same principle, we here and there, all down the sluice, placed very heavy, irregularly shaped rocks, which broke up the rapid course of the water into innumerable little eddying pools, and at the foot we threw in a pile of rock which made a breakwater into the sluice and so completed a very reliable fish-pass, rigging a boom as well round its upper end to stop all dirt and debris from stopping it up and to keep it clear. I further directed that in case of too much water, in high freshets, rushing through and in danger of displacing the stones, that the upper end should be planked across, leaving only a 14 inch aperture at one side. Next year, when the mill is in operation and he is able to saw the material, Mr. Brown will, I am sure, if called upon to do so, erect at this place a good wooden ladder as a fixture. I returned to Middleton in the evening.

18th August.

I drove, to-day, to Freeman & Mitchell's mills, 10 miles above Middleton, on the Nictaux River. There is here a large gang saw mill, and extensive operations are carried on. I found that they burned their sawdust and edgings, and the river about and down from the mill is cleanly kept. The dam is 12 feet in height, and has no ladder or fish pass. I did not go beyond this place; but I learn that the river is clear above for 11 miles, and that then one reaches a rolling dam at the foot of McGill's Lake, which is of great extent. By small streams into the Nictaux empty, also, respectively, Shannon's and Waterloo Lakes, into which, also, run a number of good-sized brooks, affording good spawning grounds.

19th August.

Returned to Halifax.

20th August.

Sunday. In Halifax.

21st August.

In Halifax, writing up reports, accounts, correspondence, &c.

22nd August.

I visited again, to-day, the Sackville River, reaching the mills by conveyance from Bedford. I found that Hefler, the miller, had permitted the bin which I instructed him to prepare for the reception of the sawdust beneath the mill, to be removed, while some men were carting the rubbish out, and this had not been replaced. He excused himself by saying that he had not been sawing nor near his mill for some days, and that he had given strict orders that it should be put back on the completion of the job of removing the sawdust. However, I saw none falling from his floors, and I left him with a caution, that the receptacle must, positively, be a permanent one, and if I saw any more of this neglect, he would have to incur the full penalty.

This was all that appeared at all wrong. I left instructions with the Warden to visit this place again in a few days, in my absence at Hubbard's Cove, and see that Hefler complied with his directions.

23rd August.

In Halifax.

24th August.

I took coach this morning to proceed to Hubbard's Cove, St. Margaret's Bay, in order to carry out Mr. Rogers' request, that I should supervise the erection of a fish-ladder at Shankle's mill, the old ladder, running up under the mill, not having proved as serviceable as at first considered; the new ladder to be built, as much as possible on Mr. Rogers' principle, at the north-west side of the mill, Mr. Rogers furnishing me with a model to guide me in the work. On reaching my destination, I immediately saw Mr. Shankle, who at once, as the water was in a most favorable condition, gave orders for his men to make the cutting in the dam, remove the old ladder, and commence the foundation of the new.

25th August.

Still at Hubbard's Cove. I find the building of the ladder and ballasting its upper end with heavy stone, in the mill pond, will occupy some time. I shall, however, unless directed to the contrary, remain on the spot to supervise its erection daily.

26th to 31st August.

At Hubbard's Cove, superintending the ladder and writing up my reports, disbursement accounts, &c., &c.
Hon. Minister Marine and Fisheries.

FRED H. D. VEITH.

 REPORT FOR THE MONTH OF SEPTEMBER, 1882.

1st and 2nd September.

Still at Hubbard's Cove superintending the erection of the fish-ladder at Shankle's Mill.

3rd September.

Sunday.

4th and 5th September.

Superintending the erection of the fish-ladder at Hubbard's Cove.

6th September.

Finding that some days would elapse before the ladder would be thoroughly completed, and on Mr. Rogers' inspection and approval of the work I had carried out so far, I determined to save expense, by returning to Halifax, until such time as it would be necessary to make a final visit and see that the unfinished ballasting of the upper end of the ladder in the mill pond was properly and effectually done. I returned by coach.

7th, 8th and 9th September.

In Halifax (at home.)

10th September.

Sunday.

11th September.

At Hubbard's Cove. I saw the ladder in a still further advanced state. The buckets were all in, properly secured, and finished. The ballasting was being vigorously carried on and the pier, built of logs and filled in with heavy stone, promises to be of such weight as to be able to withstand not only any pressure of ice, but also to resist the buoyancy which a great head of water occasions. In some cases it has been found that when the head of a ladder has been insufficiently ballasted or weighted down, that a heavy head of water has had the tendency both to lift up the head of the ladder and the pier bodily, and forcing it onward, ruined the ladder and made great havoc with the dam itself. This I particularly impressed upon those building, and from the means now being taken I am satisfied no such result will ever happen at this place.

12th September.

A violent storm of rain and wind raging all day.

13th September.

On visiting the ladder again to-day, I found the men at work finishing the pier, carrying large stone on a raft, and hoisting it inside. They complete to-day. The ladder is built at the north side of the mill, and in directing its erection, I was governed as much as possible—as to its interior construction—by a model which Mr. Rogers lent me, of his patent ladder. The total length of this structure is 82 feet, including the neck, or turn, which brings the mouth of the ladder directly in front of the large mill wheel.

Here the gaspereaux assemble, following the current which makes from it, and I have placed the entrance for them, in such a position, that it would be impossible for them to miss it. To guard against the possibility of their passing under the end of the ladder, I caused a dam to be built of stone, which will stop their progress in that direction, and guide them to the proper channel. Fearing that there might not be light enough, as the flooring of the mill is but 8 feet above, I directed that a large pile of old edgings and rubbish should be removed, which occupied a space just outside of the mill, and adjacent to the mouth of the ladder; and further, should that not be sufficient, that an aperture should be cut both in the side of the mill and the flooring, to throw the light down. Each of these particulars the miller agreed to carry faithfully out.

Of its 82 feet, the ladder runs some 15 or 18 feet into the mill pond, and at its extreme end, where is situated one of the openings for fish to pass out, there will be, in ordinary water, in May—the time when the gaspereaux strike the stream— $3\frac{1}{2}$ feet head. At its lower opening, immediately above, and close to the dam, there will be $5\frac{1}{2}$ feet, thus allowing for a considerable fall of water, without, in the least, preventing the fish from ascending. The width of the ladder is 5 feet, and the distance between the buckets, 6 feet. The grade is an easy one, being but 1 foot in nine: I have seen the water turned on, and I have every confidence in the ladder proving a success, and from the fact of its being so strongly built and secured, I believe it will last many years.

14th September.

On arriving home last evening I found a letter from the Warden of Salmon River (Dartmouth), reporting that the small dam on the water-course (marked A on the sketch), which runs out of Lake Major into the river, was not sufficiently opened to be satisfactory. That it was constantly being choked with sticks and other *débris* and debarred fishes' progress. As the miller had promised me last year, that this place should be enlarged and put in perfect order, and had not kept his word, I determined to go up and cause it to be immediately done, as the Warden also reported that the fall salmon were making their appearance at the mouth of the river, and further, that the young gaspereaux were now on their way down to the sea. On arriving and speaking to the miller, he agreed to make the cutting then and there, while I was present, and under my direction he cut about 8 inches more of the side of the aperture in the dam, making an opening about 2 feet wide.

This will prevent, by its permitting small sticks and rubbish to pass down stream, any jam at this place, which, the Warden tells me, was a constant occurrence. Observing a considerable amount of saw-dust on the side of the stream running from his mill into the first pool, I pointed out to him that it was contrary to law, and cautioned him that a continuance would inevitably lead to his being fined. He promised it should not again occur, and I showed him how by a box or bin built immediately under the saw the dust could be confined, to be ultimately carted away. I append a rough sketch of this place, to show the position of the water-course and the mill. I may add that owing to very heavy freshets, at the customary time, when gaspereaux last spring caught this river, that "dipping" became impracticable to a great extent, and large numbers succeeded in reaching not only Lake Major, but ascended both the east and west brooks at its head, to the Sandy Lakes above, and the result of these fishes' success in attaining to their favorite haunts for reproduction, was seen by myself and others at the head of the water-course. Thousands of gaspereaux in great shoals passed down in rapid succession during the time I was there. I anticipate an immense supply in this river next or the following year.

15th September.

Violent storm of rain and wind to-day; unfit altogether for out-door work.

16th September.

I left Halifax early this morning to visit the Sackville River, having determined to inspect that part of it where the mills are situated at least three times during the month, or a fourth if necessary, my last journey thither being on the 22nd of August. On the present occasion I was accompanied by Mr. Black, a resident near the river, one of the loudest in complaints of the sawdust nuisance, and who promised to show me banks of it. The latter he did point out to me, but they were the accumulation of years past; indeed, I may state that on examination I found the bed of the river, especially in the less rapid places, some inches deep with the dust from the saws; so thick is it lying on the bottom, where it has yearly gathered, that I am convinced no salmon could spawn, and its removal, if not an impossibility, would be an expense not to be thought of. The difficulty, I submit, can only be overcome, to enable fish

to breed, by erecting ladders and so assisting the fish to fresh and pure waters above the mills.

I went to-day up a tributary of the Sackville River, called Peverill's Brook. It is a fair-sized stream, and until the mill-dam on it was erected, by one of the brothers Peverill, the gaspereaux which came out of Bedford Basin and went up the Sackville River, took to this branch of it. Residents tell me this was invariably the case yearly, and on going up the stream some distance, I reached Sandy Lake, a fine sheet of water, with a clean bottom of sand and fine gravel. I can readily understand the fish seeking this route, for here would be the great attraction for their spawning beds. Now, however, Peverill's dam, stopping the way the few gaspereaux that each season reach the dam, unable to get further, have been seen returning. A ladder at this place also, is much needed, in fact indispensable, and as the dam is but 5 feet in height, and the bank on the west side very suitable, the cost of one would be very small, especially as the miller is willing to provide all the necessary wood material. I showed Peverill how to save his sawdust, by a very simple mode, and he stated to me his intention to keep it free of the water.

I passed McKenzie's mill on my way upward. He burns all his sawdust and sells the ashes for manure. At the four mills above, I found but little sawdust dropping into the stream. At each they have now a receptacle beneath the mill to catch it, but at Heffer's, the miller who gives the most trouble of any of them on the river, I found the box or bin too full, so I ordered its contents to be removed before sawing more. This he commenced to do, and I waited to see the greater part removed before leaving. I saw nothing, however, to warrant the imposition of a fine.

17th September.

Sunday. In Halifax.

18th September.

I left Halifax this morning by train for New Glasgow, purposing to drive from thence to the head of the east branch of St. Mary's River, a place I was unable to reach and report upon last year. I arrived at New Glasgow in the afternoon, but it rained too hard to proceed further.

19th September.

Still heavy showers falling at intervals; unfit for travelling.

20th September.

I procured a horse and waggon and drove to-day over to the head of the East River St. Mary's. The place here is called the Garden of Eden, 22 miles from New Glasgow. I visited the Moose and Garden Rivers, and went some distance up them both. On the former, about $1\frac{1}{2}$ miles from the point where it enters the Garden Lake, is situated an old mill, owned by a Mr. Sutherland, in the dam belonging to which a pass about 12 feet wide has been cut, affording an ample passage. The river above the place, for 6 miles, and below it to the lake, is remarkably clean, unpolluted water. The bottom is all that can be desired for salmon spawning grounds, being composed of white sand and fine gravel. I have never, during my inspection through the Province, seen any better. The bed of the lake is of similar formation, and the water so clear the bottom may be seen at the depth of many feet. The Garden River, the other tributary, though not carrying such a volume of water, is also an excellent salmon-breeding stream, and I have no doubt that these, and the Garden Lake, were formerly the nurseries of the east branch of St. Mary's River for salmon and gaspereaux, before Cameron's mill-dam (of which I shall write further on) had cut them off. Indeed, it is known that gaspereaux penetrated up the Garden River into Burra's Lake, 6 miles from its junction with Moose River. Into Burra's Lake flow three good-sized streams, and the lake itself has a bottom similar to that of the Garden Lake already described. From the junction of the Moose and Garden Rivers to the Garden Lake is about 1 mile, and they, together from that point, form a good-sized stream. The lake itself is about 2 miles in length and $\frac{3}{4}$ of a mile in breadth,

and from its course, joining the West River at Glenelg, in Guysboro' County, and flowing onwards through it, into the Atlantic, compose the main river of St. Mary's, the third of importance in the whole Province of Nova Scotia.

21st September.

I drove down the East River below the lake, until I reached Alexander Cameron's mill, with its dam, about 7 feet in height. I saw, on the west side, the remains of a ladder, built on the old principle, running down stream. It is broken up badly, the side and many of the buckets being out, and it appears never to have been repaired since it was erected. I was unable to measure it correctly, but I should say it was, originally, about 50 feet in length. Several people came to me, and stated most positively, that since the erection of the dam and ladder, neither gaspereaux nor salmon have been seen above. That, before this stoppage existed, there was an abundance of both—a statement readily to be believed—as below this place, for 40 miles to the sea, there is no obstacle whatever. I descended the river for 3 miles, to the only other dam upon it, viz., Thomas Cameron's. A different mode for securing the water to drive the mill is adopted here, the dam being situated $\frac{1}{2}$ of a mile from the mill itself, a channel having been cut through the land to take the water to the main wheel. I have stated above that there is no obstruction below Alex. Cameron's, and I am right in doing so, for this dam is so low (being only 2 feet or $1\frac{1}{2}$ in time of freshets.) Salmon would think nothing of it; and on the east side, there is a passage, 3 or 4 feet in width, to admit gaspereaux. There is no difficulty here whatever.

Both the Warden McKenzie, and others residing near, tell me that salmon have abandoned this river altogether. None have been seen for years; in fact, since the 7 foot dam was built across. That fish do forsake a river after repeated unsuccessful efforts to surmount a formidable barrier is unquestionable. We have instances, in the La Have, and in other rivers in the Province, and I find that as far back as 1868, the Commissioners of Fisheries, in the Annual Report for the States of Maine, New Hampshire, Vermont, Massachusetts and Connecticut, mention the following facts: "Salmon, owing to an obstruction, have quitted the Natashquan, and have entered the neighboring Kegaska, where they were recognized by their superior size." (The Indians on the Gold River first noticed the large La Have salmon entering their river), and again, from the same report, it is stated: "When the Merrimac was closed by the Lawrence dam, the alewives, finding their path barred at that point, faced about, descended the river, coasted along shore to the Ipswich River, and to the astonishment of the inhabitants, suddenly filled that little stream almost solid."

At Cameron's mill-dam, the first year the ladder was placed there, gaspereaux came up as usual, in vast numbers, and were seen circling round, vainly endeavoring to find an entrance. McKenzie, the Warden, asked the owner at the time, as the fish would not take to the ladder, to open a sluice which was placed in the dam and allow them to get up, but this was refused by the miller, as he had done—as he stated—all he was called upon to do in furnishing the ladder. Since then, year by year, their numbers have been perceptibly fewer, until last season, none were seen. I would respectfully ask that attention be given to this river during the ensuing spring and summer, and would recommend as follows:—That a new patent ladder be placed at Camerons as soon as practicable, in the early part of next summer, and that in the interim the miller be compelled to keep the sluice open for an hour or two each afternoon or evening during the time in May when gaspereaux ordinarily visited the river, to permit any straggling gaspereaux that might, perhaps, make another attempt here to pass through; and further, that Mr. Wilmot be directed to place, in the Moose River, at least 10,000 young salmon.

McKenzie, the Warden, has intimated to me his willingness to take his tram over to the station at New Glasgow, and carry the cans of fry to this locality, free of all expense.

As the habit, at both mills, has been to throw all refuse into the river, I pointed out to the Warden the illegality of the act, which he appeared to be unaware of.

22nd September.

Returned to New Glasgow; but, on the way, owing to the bad roads, from the heavy rains, my horse cast two of his shoes, and the delay at a forge by the roadside caused me to miss the down-train for Halifax (2:35 p.m.), and obliged me to remain all night at New Glasgow.

23rd September.

Returned in morning train to Halifax.

24th September.

Sunday. In Halifax.

25th September.

I again visited Sackville River, and inspected all the mills. The millers, with the exception of Hefler, appeared to try to keep the sawdust from escaping into the water. I found the receptacle which he had according to my directions, placed beneath the mill, full to running over of sawdust.

His mill, fortunately for him, was not going, or he would have been liable to a fine. He commenced shovelling it out at once, on my arrival, and stated the carts did not come for it as usual, and made other excuses. I then directed him to make the receptacle larger, and never to permit it to approach overflowing.

This man, Hefler, earns but a scanty living. He is the poorest of the millers on the river, and I am unwilling, on that account, to have him fined, unless, by his neglect to obey the law, he forces me to do so. I have little reliance in anything he says, and if I find, again, the sawdust receptacle overflowing, I shall have no alternative left me but to call upon the Overseer of the district to inflict the proper penalty.

26th September.

Storming all day; unfit for inspection.

27th September.

Having just received reliable information that salmon had been openly sold in Truro, Colchester County, during the week ending the 16th, I proceeded thither to investigate and report the particulars, and to put a stop to a continuance of such illegal acts. On reaching Truro, I sought out Mr. Blair, the Overseer, who told me he knew and had heard nothing of this law-breaking, and together we enquired at the hotels if any had been brought in for sale. At one, we learned that two or three persons had brought both shad and salmon to the door, wishing to dispose of them, and that the salmon had been taken with shad, in the shad nets. We also discovered that these fish had come from the Basin of Minas, and had been taken while drifting. I could obtain, however, no clue to the offenders, so I determined to go on to Great Village and Economy, and consult with Mr. Davison, whose district extends along the whole west coast of Colchester, from Mass Town to Five Islands. While at Truro, Mr. Blair spoke to me about McMullin's mill (or Hamilton's, sometimes called), on the Salmon River. I reported upon this dam last year, and stated the necessity of a ladder. He mentioned to me the great slaughter of salmon that has taken place, each year, at this barrier, which is nearly 12 feet high, and the impossibility to prevent the poaching, unless a man were present night and day on the spot.

Salmon lately are becoming very scarce in this river, in spite of Mr. Wilmot's exertions in re-stocking, and Mr. Blair attributes the falling off to the stoppage and the poaching at this mill. Were a ladder placed here, the salmon could go right on upwards and reach fine spawning grounds, some miles above, where the banks of the river are wooded down to the water's edge, and the stream is pure and cold, and with faultless breeding beds of gravel and sand.

Without a ladder at McMullin's, both supervision and re-stocking can bring about no beneficial result whatever.

I am happy to say Mr. Blair tells me that the millers on the river, instead of throwing in their mill rubbish, as they did before I visited last year, have now kilns

to burn it all in, and the river in this respect is improved. North River remains in the obstructed state I last year found it and reported on. Ladders are much needed here also.

28th September.

I to day took passage by rail to Londonderry, and drove in to Great Village, and thence on to Upper Economy, where Mr. Davison resides. On my way I examined the Port au Pique River. It is all clear of obstructions, and is considered the best salmon stream on this side of the county. The fish have an uninterrupted run up to the falls.

I stopped also at Bass River and inspected the ladder at the Union Company's Furniture Factory. It is old and somewhat out of shape now, but its grade at the outset was made too steep. I found it to be but 1 foot in 5, and built on the old principle, running down stream from the top of the dam. The length is quite 30 feet. The buckets are but 3 feet apart, placed at that limited distance, I should say, on account of its steep pitch, but inadequate, in distance from each other, for a serviceable salmon ladder, as it makes the turns too short for good sized fish, and gives but insufficient room in passing round. I trust it will soon be replaced by one of Mr. Rogers' patent. The other dam is $1\frac{1}{2}$ miles up, owned by Mr. McLaughlin, and very low, being only from 2' to 3 feet in height at time of freshet, which salmon would think nothing of leaping over. It only remains, then, for a good ladder to be placed at the Furniture Company's dam to put the Bass River in perfect order up to the natural falls, 6 miles from the sea. I reached Mr. Davison's house this evening.

He told me he was positive that no salmon or shad had been caught for many weeks between Five Islands and Great Village—that he should have known of it, were it so; but he strongly suspected some of the people about Mass Town being the culprits. On his advice I went no further towards Five Islands, and he further requested me to leave the affair in his hands, as he thought he would have more certain means than I of tracing the parties who caught and sold the salmon. I consented to do so, and directed him to use every means to discover the offenders and, in the event of success, to report the whole matter to Mr. Rogers, for his instructions in dealing with the case. This I did, believing it the best thing to do under the circumstances, as his duty constantly takes him among the fishermen at Mass Town, while my appearance there alone might excite suspicion.

I find that it is most unusual for shad to be found at such a late season of the year in the Basin of Minas, such a thing not having occurred for a considerable time; but, in any case, there are neither instructions concerning shad in the Fishery Act in the Revised Statutes of Nova Scotia, chapter 95, nor in the local regulations for Colchester County.

I hope to be permitted to bring forward for approval, in next month's report, necessary alterations and additions in the printed circular issued for the guidance of the officers of that county.

30th September.

In Halifax, writing up disbursement accounts, &c., &c

FRED. H. D. VEITH.

Hon. Minister Marine and Fisheries,
4th October, 1882.