14th November 1919.

Dr. H. H. Smith,

Bureau of Fisheries,

Washington, D. C.

Dear Dr. Smith:-

I have recently received a copy of the Treaty agreement re the Puget Sound-Fraser River fishery and note by same that abolishing purse seine fishing in the area which Sockeyes pass through in Puget Sound waters, and a close season for a part of July, are the only immediate measures which are likely to be enforced. Any other steps to safeguard and build up the industry are left for a committee of four to work out and submit for further consideration.

You will remember that when I was giving evidence before the International Commission I based my argument on artificial propagation being the paramount necessity for restoring the Fraser Sockeye fishery. I am more than ever convinced that this is the crux of the situation, and I consider it a duty to emphasize this phase as much aspossible. As I stated to the Commission I have no investments in this fishing area; consequently my views and recommendations are entirely disinterested, save a natural desire to see a great industry restored, and a valuable asset of both our countries placed on a stable foundation.

You, as the head of the fishing industry of the United States, have a particular interest in this question. You have given valuable time and study to devise ways and means of combating the threatened loss, andrestoring the industry to its former greatness. You must therefore be willing to hear any suggestions

which would assist you in solving the problem, and it is with this in mind that I am venturing to lay my ideas before you.

When you were in Vancouver, I told you what we hoped to accomplish through our private hatchery operations at Namu; that 1919 was the first year we could look for results; and that success would be demonstrated by (a), a large increase in the number of sockeyes at Namu this season, or (b), the presence of a distinctive type which had not previously appeared in those waters. You were kind enough to ask that I apprise you of the results attained, and this I promised to do.

Under separate cover I am mailing you a copy of an article I wrote for the Vancouver Province, and enclosed herewith is copy of a letter to Dr. Gilbert, under date of 9th Sept. last. I deferred sending these earlier in hopes of being able to also forward the results of Dr. Gilbert's examination of the scales sent him, but up to the present I have not received this information. Following the above I had some correspondence with Mr. Robertson of the Harrison Lake hatchery and on the 4th inst., I again wrote Dr. Gilbert. As all these letters deal with the Fraser River sockeye question I enclose copies of them as well since they elucidate some of the points I dwelt upon in the two first mentioned documents.

I presume Mr. Babcock has already sent you a copy of the Report of the Commissioner of Fisheries for 1918, but in case it has not yet reached you I am mailing you a copy. This Report contains Dr. Gilbert's latest paper and I have marked certain passages in same which I think support my viewpoint.

It is needless for me to enlarge further on the the subjects dealt with in these letters and documents, but there are two features of the proposed Treaty I would like to touch on. The first of these is:-

PURSE SEINE FISHING.

As I said in my last letter to Dr. Gilbert I think "purse seine fishing may be a blessing in disguise". When sockeyes enter the Straits of Fuca, on the return journey to their spawning grounds, they assemble in compact masses. When trap fishing first started, and when it was believed purse seines could not be successfully employed to capture sockeyes, it was a common sight to see large schools of this species travelling through the Sound waters. They swam close to the surface and, since traps are stationery appliances, there was nothing to alarm or disturb them in their progress. The leaders entered the trap openings without fear, and the masses behind followed on blindly; and thus the traps exacted an enormous toll. But with the advent of purse seines all this was changed. The seiners went out to meet the fish before they entered the trapping area; the casting of the net, and the noises and disturbance of gasoline boats alarmed them; and the multitude of purse seines employed broke up and scattered the schools. The sockeyes'natural instincts taught them to seek greater depths, and, as the seiners followed the onward pathway of the fish, and continued to disturb and scare them whenever they appeared near the surface, they soon

learned that quietness and safety lay only in the deeper waters. They no longer travelled in enormous bodies but each individual looked out for itself, and while still keeping in touch with the Fraser fresh water influence, they journeyed on over a wide area and in a more scattered formation. In this departure from their normal habits they but emulated the birds of the air and the beasts of the field that in closed seasons lead a community life, but which scatter and seek shelter when hunters are around.

As evidence of this scattering of sockeyes and of their deeper swimming habits I would point out:-

(a). the absence of the compact schools of sockeyes formerly noticed in the trapping area.

(b). the decrease in the number of trap caught fish despite the increase in the number of sockeyes reaching the "lower" Fraser spawning grounds, and

(c). the better gill net catches made in English Bay and the North Arm of the Fraser (t.s., the more outlying B. C. waters of the Fraser River) since purse seines have been employed on Puget Sound.

If, as is now proposed, purse seines be shut out of the sockeye area of Puget Sound waters, the natural result will be that sockeye will follow their normal mode of progress; the traps will increase their catches so their total take will exceed the present total of purse seines and traps combined; and the fish entering B. C. waters will swim nearer the surfact and increased numbers will fall victims to the gill net fishermen. These are my views, and while I make no claim of infallibility, I would hesitate

long before condemning purse seines when there is no direct positive proof that to them more than to any other appliance, or cause, is the decrease in the Fraser River sockeye fishery attributable.

The second feature of the Treaty I would point to is:-

A closed period in the middle of the fishing season.

Dr. Gilbert in several of his reports, especially the last one, has pretty conclusively shown that every tributary of the Fraser River that sockeye salmon frequent has its own distinctive individual run of fish. And not only do the sockeyes of these tributaries differ in the age at which they return from the sea, but they also have a distinctive time for making the homeward journey. It might therefore follow that open fishing until 20th July would exterminate the "upper" Fraser runs; the closed time from 20th July to 1st August enable the entire Lillooet Lake (Birkenhead) run to proceed unmolested to their spawning beds; and the open season after 1st August intercept all the sockeyes bound for Harrison Lake, Pitt Lake, and the other spawning areas of the "lower" river. Granting thatsuch an extreme result did occur, what would be the situation? You would have complete extermination of Fraser River sockeyes, except in the Lillooet Lake area.

This viewpoint is not as far fetched as one might imagine. In the early days of the Fraser River sockeye fishing there were two or more heavy runs of sockeyes. July fishing was profitable and a goodly portion of the total annual pack was se-

cured in that month. In 1899 the early July run on Puget Sound was quite heavy; some of the packers had their season's preparation of cans filled out of this early run, and about 25% of that year's total for Puget Sound was packed by the middle of the month. The run ceased; and packers were just about concluding there would be no more fish when another and larger run made its appearance.

Up to this time separate runs of sockeyes were generally recognized features. But with 1899 two things happened. First, while Puget Sound had the early and late runs, the Fraser canners only participated in the latter. Second, never, to my knowledge, since that year has more than one run been experienced even on Puget Sound. It would appear that the traps had secured all the early run of spawners, and it was from that time on the Fraser entered its period of decline.

In the old days of the fur traders while salmon on the "upper" Fraser were generally scarce every even numbered year such as 1810, 1812, 1814, etc., - the odd numbered years very rarely failed. But since 1899 only in the year of the "big" run has the "upper" river enjoyed plenty of fish. It probably is largely due to the Puget Sound traps that the early runs are things of the past, and all the closed time after 20th July would never help to restore them.

Some 25 years or so ago, when the Columbia River fishing industry was passing through its period of alarming decreases, one measure adopted to prevent a catastrophe was the stopping of all fishing during part of the months of April and

August. It was thought that by so doing a greater number of fish would proceed to the spawning beds. At that time I was in close touch with the Columbia River fishery, and I argued that while such steps might build up the April and August runs it would not help out the runs of May, June, and July. Since the same closed seasons still prevail there in the two months mentioned I cannot say how they have benefited, but I have never heard that the intervening three months have profited by the closure. The runs on the Columbia today are largely to areas where hatcheries and other protective measures have been employed to benefit them; Snake River and other interior waters, which were the objectives of the early running fish have not today a tithe of the runs they formerly enjoyed. Closing early fishing was not the cure for their ailment. Closing the Fraser fishery from 20th July to 1st August will not restore the early July runs. And closing the entire fishery for a period of four, five, or six years will not build up any tributary where the runs from which they should be stocked have already been exterminated.

To my mind artificial propagation, and artificial propagation only, will build up and restore the "upper" Fraser River sockeye runs. Until this is done, and done on Nature's lines, things will go from bad to worse. Every year's delay will make this harder to accomplish because the spawning stock is becoming less and less. Salvation now is only possible by securing eggs from outside sources. For years I have been urging hatchery installation on the "upper" Fraser tributaries, but the jealousies of the Sound and Fraser canners and fishermen prevented their seek-

ing any concerted action; it was beneath the dignity of our Government to permit American packers or fish culturists to assist in propagation work; what was everybody's business was nobody's business; and until these ideas give place to a broad intelligent co-operative policy it is useless to look for any restoration of what was one of the grandest assets any two countries ever possessed.

Yours sincerely,