29th December 1920.

Mr. Ray W. Clough,

c/o Messrs National Canners Association,

Seattle, Wash.

Dear Sir;-

I am just in receipt of your favours of the 27th inst., and thank you for the trouble you have taken regarding my quest for information.

I heartily agree with you that it will be of great assistance to have Messrs Clanton and O'Malley discuss ~~xxxx~~ the Fraser spawning ground situation with those who visited those grounds last fall. Climatic and water conditions were so very different at the time of your visit than they will be in the spring, when melting snow water will fill all the streams, that it is in fact almost essential that the conditions which prevail at both times of the year should be known to us before we advance too far with our undertaking.

I am mailing you the Vancouver Province of the 22nd inst, containing an interview I gave them on the Fraser propagation proposition. This will advise you of the situation up to date. You will notice that in this article I lay particular stress on the fact that our operations will not be in the lower Fraser area, i.e., not in territory tributary or adjacent to the hatcheries at present operated by the Dominion government.

There are several reasons for this. In the first place nature apparently furnishes salmon with oil reserves of quantities proportionate to the distance they have to travel in fresh water before reaching their spawning beds. The farther up a river the fish travel the richer they are in oil. Canned salmon possessing the most oil commands the highest prices; hence it should pay best to produce fish of the most marketable qualities.

In the second place the finest spawning area of the Fraser watershed - judging by the number of sockeyes that frequented its waters when the river was at its prime - is the Quesnelle Lake area. To-day its spawning beds are practically empty in three out of four seasons, and even in the "big" year it to-day only receives 10% of what it formerly did. If we can restore the run to this section so that the natural propagation will have a chance to develope along with our artificial accomplishments we will succeed in restoring the fishery sooner than if we did our work in a section where the

hatchery work might be easier, but where there would not be as good a chance for natural propagation to assist.

A third reason is that all those who are assisting me in this project share my belief that the methods at present employed by the Dominion government, i.e., releasing the young fish in their fry stage, will never restore the river, and that the government should abandon their system in favour of the rearing pond system. "Large bodies move slowly" however, and government officials are loath to admit that their past efforts have been practically useless. Should we operate in the same section of the river that they are working in, and if our operations are as successful as we hope for, they might claim the increased runs were due to their work, and thus feel justified in retaining their present system. On the other hand if we do our work in a section of the watershed so remote from them that there can be no question of who is responsible for any success achieved, public opinion will shortly compel them to change their system to ours. Thus we not only would be restoring a different section of the river, but we would be getting our methods applied to the present hatcheries quicker than would otherwise be the case.

I have dwelt on this matter at length because in the second annual report of the N. C. A. on Pacific Fisheries Investigations I notice the short review you gave to this subject rather suggested any artificial propagation work attempted should be done "in the lower part of the watershed where the winters are mild and the climate much more favourable for hatchery operations than in the headwaters." There is no doubt whatever but that it would be easier and cheaper to carry on our operations in the lower part of the river system, but I think the ultimate good to be accomplished, and the superior sockeye that would be produced, fully warrants the more expensive initial operations in the upper regions. To my mind the great fault of the Oregon operations is that the have "all their eggs in the one basket", and if anything destroyed their rearing ponds in the early spring when both fry and yearling fish were being retained, their propagation work would be at a standstill for two whole seasons. Had they a number of smaller stations - particularily in the headwaters - they would avoid the danger of a total loss and would probably produce a finer quality fish.

I will be very glad indeed to get your report, and should I visit Seattle before Messrs Clanton and O'Malley come up will make it a point to call on you.

Wishing you the Compliments of the Season,

Yours very truly

HD/P.