

*Supply—Fisheries*

several. Any one who is an engineer knows that when you have a spring flow of 280,000 cubic feet per second, and a winter flow of 12,000 cubic feet per second, and you have to provide industry with power all year round, you have got to modify the spring flow and raise the winter flow. So, there is not such a thing possible as one dam.

Another thing that must be considered: what government is going to say that you can have one dam on the Fraser, but after that, no one can have any more? That is not democratic psychology, if you will pardon that expression. Once it starts, it needs full development of the Fraser river, and coincident with the full development is the destruction of salmon. I could take half an hour to tell you why, but I can assure you, gentlemen, that there can be no such thing as dams and salmon on the main Fraser river.

He then went on to explain that negotiations had been proceeding with the British Columbia power commission in respect to the development of certain power resources in the Fraser river system which can be developed without damage to the salmon industry.

Later on, on page 19, he says:

If you can get the Columbia river development, by agreement, isolating it from all of these international ramifications, then everyone will be willing to develop the Columbia river, and to bring the power to wherever it is needed—whether it is to the Kootenays—to the lower mainland—or even Victoria. But, it is important that the agreement be settled, because they are going to need power.

Now, I am not going to suggest that either atomic energy or gas plants is the answer today, but I am going to say this; that if you read the technical literature of atomic energy, you will know that Canada and the United States are producing 30,000 tons of uranium a year now.

Further questions were asked Dr. Royal by members of the committee and on page 19 he says in answer to a question:

When you put a series of dams on the Fraser, you will be interfering with the normal migration. You are dealing with fish, and all the ingenuity of man cannot teach a fish to swim over a vertical flow without hesitating, nor will it teach a fish to swim into water that has suddenly been lowered 10 degrees lower in temperature than that which he has an inherent ability to accept as normal. If for instance you lengthen the migration period of the Stewart lake race, which migrates a distance of 850 miles at a rate of 30 miles a day without eating, for three days it will seriously interfere with the fish's ability to propagate itself. If the time were lengthened to six days they would not even get there.

Then, he goes on to describe some of the plans which have been discussed to put dams on the Fraser river, and he has this to say:

There is not a fish in the Fraser river which would get to the spawning grounds if delayed 12 days. Some of them will in six days but none in 12 days. Even then we have the problem of downstream migrants. We have a tremendous river, we have debris, and a huge volume of water. These fish are coming down the river just like chips following in the current. They have no shore line or bottom to orient themselves and you have to put something there to say, no you do not go there you go here. But every instinct that a fish has says,

[Mr. Barnett.]

I have got to go with the current, there is something wrong here but I must go with the current. There is your problem.

You will hear a lot about easy ways of solving the fish problem, but if they ever do develop the Fraser river I am saying here on record that it cannot be done and have the fishing industry as you knew it in the past and as you know it today.

Those remarks of Dr. Royal to the committee are certainly borne out by the opinions that have been expressed at various times and in various places by our Canadian scientists, and I certainly agree with the minister in the praise that he gives to the fisheries scientists of Canada. It is from those people that we have been able to derive the knowledge that this is no simple problem. I know that even if one considers a relatively small problem of attempting to accommodate fish and power the complexity multiplies almost beyond imagination.

Over on Vancouver island, in the area in which I live, there has been a good deal of discussion about a possible power development. I hold in my hand the preliminary report on the fisheries problems relating to the proposed power development of the Somass river system which, after all, is a relatively minor river and actually, speaking in terms of the size of our salmon fishery in the province as a whole, involves a relatively small proportion of our salmon stocks. But even to deal in part with the problems of maintaining those fish runs and at the same time carry on a power development involves even to a layman like myself some almost insurmountable complexities. How vast then must be the problem from a scientific and engineering point of view if one is to think in terms of the main Fraser river system. I have deliberately introduced evidence into this discussion which I think is the best scientific evidence available to us in the world, because this is perhaps one of the major matters of public concern in the province of British Columbia at the present time.

I noticed that in his introductory statement the minister did not give us any clear-cut policy declaration on this matter as to the position of the government of which he is a member. As I recall it, the policy in this respect stated by the previous minister of fisheries was fairly well known. He made it quite clear that as far as he was concerned no salmon stream in the province of British Columbia, on the basis of our present scientific knowledge, should be developed for power until we had used all of our non-salmon streams, and that even after that had taken place the whole question of the use of salmon-spawning streams for power purposes was one which would have to receive very careful assessment and review. Before