

The CHAIRMAN: I think we should finish up with your questions first before proceeding with Mr. Barnett.

Mr. HOWARD: At the bottom of page 2, relating to cellulose fibre pollution, it talks about certain monitoring of waters in certain places, one of which is Ocean Falls (Kitimat). What is the reference to Kitimat?

Mr. LUCAS: Mr. Chairman, I cannot take the responsibility for that statement. I have no explanation either. There of course is a pulp mill at Ocean Falls and there is a pulp mill proposed for Kitimat which is not yet confirmed. I have no idea what is referred to here.

Mr. HOWARD: It is immaterial. I just wondered about it. On page 3, dealing with fish tolerance studies, in the third paragraph it states, that "when a dam is built on a river it creates a lake in which the water is usually warmer than it was in the unobstructed river. Research has been done to forecast this temperature increase and research on migrating salmon has been done to determine its effect on their well being, behaviour and ability to cope with the obstructions". It is the last part of this in which I have an interest namely, what have you discovered about the effects of the increase in water temperature upon migrating salmon, except that it is an obstruction.

Mr. LUCAS: I could become very scientific here if I were a scientist, I am a bystander; too, when the physiologists get going. This, of course, refers to the physiological research which is being conducted both in the Fisheries Research Board laboratories in Canada and also in the laboratories of our neighbours to the south. Certainly, one of the big difficulties this. A fish, of course, is a cold blooded animal and let us say, a slave to his temperature environment and the efficiency of a fish for swimming can be impaired by too high or too low a temperature. For instance, a fishway over a dam, if the waters coming over a dam were very warm and the waters in the fishway were very warm, a fish may actually be inhibited from going up that fishway and, there have been cases, I know in the United States, where a fishway became a block to migration because of high temperatures.

Mr. HOWARD: Well then, research is leading to biological instructions to engineers how to construct these obstructions in such a way that they will have the least possible effect on migrating salmon. This is what it is getting at.

Mr. LUCAS: Right. The situation here is that the biologists have given us an understanding of the tolerance limits of a fish and in applying this information, of course, we will be able to design structures which were passable. We could predict a problem which would occur with certain structures.

Mr. HOWARD: The other item that I had, Mr. Chairman, related actually to the question which I posed yesterday about an explanation of the types of forest cutting permits or tenures which would contain the stream protection clauses and the types of tenures which might not contain them. I raised this earlier and I think Dr. Logie and I who had the interchange of words about it.

The CHAIRMAN: Who is going to attend to this Mr. Lucas?

Mr. LUCAS: Mr. Chairman, I can attempt to answer this question. This refers to the points made on pages 204 and 207 in the earlier minutes. Mr. Howard asked the question: "What did these stream protection clauses apply