

a low ebb within the last century, and they increased again. It is very difficult to assess the extent to which these natural fluctuations are responsible for the scarcity. It might be unjust to commercial fishermen, who make their livelihood from fishing, to assume that the reason salmon are scarce is because they are catching too many in the sea. Statistics of commercial fisheries and angling when taken together—though they are not as good as they should be—indicate that the two go up and down together, rather than being complementary to one another. Of course, they might go down because too many fish are being caught and still fluctuate together. However, we are left with the fact that at one time in the past, when the fishery was at a lower level than it is now, the salmon became scarce. Then they came back and later became scarce again. So it remains an open question.

Hon. Mr. ROEBUCK: Dr. Needler, what is your opinion on the suggestion that rivers are being polluted by big companies, such as pulp companies, who dump effluvia into the water?

Dr. NEEDLER: I think it is undoubtedly true that the rivers may be polluted, and that it is well established that in some cases it has done damage. The big problem in approaching any case of pollution is to decide which of the two alternatives is the more costly to the community. It is a question of whether it is more beneficial to the community to prevent pulp companies—and they do not want to lose pulp in the water—from dumping substance into the water, or to preserve the fishing. In other words, is it a greater loss to the community to lose the angling or the pulp business. I think a fair analysis of the situation would show that it might cost the community as a whole considerable to force the pulp people to cease their operations and keep fine materials from going in the water.

Hon. Mr. ROEBUCK: I do not think it is pulp but rather chemical by-products that are being dumped.

Dr. NEEDLER: That is true: it is sometimes pulp and other times chemical by-products and certain large materials. Continual effort is made to keep pollution to the minimum which the traffic can stand.

Hon. Mr. ROEBUCK: I am told that if the companies would dump their by-products into sand, to be filtered before reaching the water, that would be a solution to the problem.

Hon. Mr. PIRIE: Dr. Needler, there are a great many outboard motors being used on fresh water rivers where salmon spawn. Do you think the operation of these motors is a hindrance to the life of the fish?

Dr. NEEDLER: Do you mean that it makes them less likely to take the hook?

Hon. Mr. PIRIE: No, I mean would the fish go to rivers where there is a considerable noise from these motors and an oil scum forming on the water from exhaust?

Dr. NEEDLER: I have no definite knowledge of this subject, but I would think that the noise from an outboard motor would not be a serious factor.

Hon. Mr. PIRIE: Do you not think that the pollution from oil dripping from the motors and smoke from the exhaust would have a detrimental effect on the life of the fish?

Dr. NEEDLER: I think it is usual that when outboard motors are used, the streams are fairly large, and I would doubt that the volume of pollution would be great enough to be detrimental.

The CHAIRMAN: Would the committee wish to discuss the fish question further, or should we now hear from Mr. Dolan? We have one or two others from whom we could hear later on. What is the wish of the committee?

Hon. Mr. PIRIE: We will hear Mr. Dolan now.

The CHAIRMAN: Thank you, Dr. Needler.