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RURAL AND REGIONAL AFFAIRS AND TRANSPORT
REFERENCES COMMITTEE

Reference: Importation of salmon products into Australia

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SENATE
RURAL AND REGIONAL AFFAIRS AND TRANSPORT LEGISLATION
COMMITTEE

Monday, 22 November 1999

Members: Senator Crane (*Chair*), Senator Forshaw (*Deputy Chair*), Senators Ferris, McGauran, Mackay and Woodley

Substitute members: Senator O'Brien for Senator Mackay; Senator Calvert for Senator Ferris

Participating members: Senators Abetz, Bartlett, Boswell, Brown, Brownhill, Calvert, Chapman, Coonan, Eggleston, Faulkner, Ferguson, Gibson, Harradine, Hutchins, Knowles, Lightfoot, Mason, McKiernan, Murphy, O'Brien, Parer, Payne, Schacht, Tchen, Tierney and Watson

Senators in attendance: Senators Calvert, Crane, O'Brien and Woodley

Terms of reference for the inquiry:

The effectiveness of the legal and regulatory regimes governing the Australian Quarantine and Inspection Service (AQIS) and the need to ensure transparency, consistency, scientific rigour and the highest standards of protection of the environment, the local fish population and the fishing and recreational fishing industries of Australia, having regard, in particular, to the administrative procedures and decision-making processes involved in the recent AQIS decision to allow the importation of salmon products into Australia.

WITNESSES

BUCKE, Mr David, (Private capacity) 365

Committee met at 8.38 p.m.**BUCKE, Mr David, (Private capacity)**

CHAIR—Welcome. Firstly, thank you for your patience and for agreeing to talk to us. I declare open this public hearing of the Senate Rural and Regional Affairs and Transport Legislation Committee. The committee is meeting this evening to continue its inquiry into the effectiveness of the legal and regulatory regimes governing the Australian Quarantine Inspection Service, known as AQIS, and the decision to allow imports of salmon products into Australia.

The committee has authorised the recording, broadcasting and rebroadcasting of these proceedings in accordance with the rules contained in the order of the Senate of 23 August 1990 concerning the broadcasting of committee proceedings. Before the committee commences taking evidence, let me place on record that all witnesses are protected by parliamentary privilege with respect to submissions made to the committee and evidence given before it. Parliamentary privilege means special rights and immunities attached to parliament or its members and others necessary for discharge of functions of the parliament without obstruction and without fear of prosecution.

Any act by any person which operate to the disadvantage of a witness on account of evidence given by him or her before the Senate or any committee of the Senate is treated as a breach of privilege. While the committee prefers to hear all evidence in public, witnesses may seek to give evidence in camera and if the committee accedes to such a request the committee will take evidence in camera and record that evidence. I remind the committee and those present that it is within the power of the committee at a later date to publish or present all or part of that evidence to the Senate. The Senate also has the power to order production and/or publication of such evidence. Mr Bucke, are you happy for what you are going to say to us to be heard in public.

Mr Bucke—Yes, I am happy.

CHAIR—I should add that any decision regarding publication of in camera evidence or confidential submissions would not be taken by the committee without prior reference to the person whose evidence the committee may be considering publishing.

We are meeting tonight to hear from Mr David Bucke, freelance consultant specialising in fish and shellfish diseases. As you are well aware, Mr Bucke, we are inquiring into the decision in Australia by AQIS to allow the import of salmon into the country under certain protocols. I now invite you, if you so desire, to make an opening comment or raise any issues you wish to put to us as a committee. I will then invite the members of the committee to ask questions. If you cannot answer them now or you would like to add to an answer, you are welcome to do that at a later date through email, in writing, or however you choose.

Mr Bucke—I am sure I understand all that. I do not think I have any particular problems. I would rather just hear your questions and take it from there.

Senator O'BRIEN—Have you had an opportunity to read the Australian Quarantine and Inspection Service report *Import risk analysis on non-viable salmonids and non-salmonid marine finfish*?

Mr Bucke—Yes, I have read the 1995 assessment.

Senator O'BRIEN—What about the 1999 assessment?

Mr Bucke—No, I have not read the 1999 one.

Senator O'BRIEN—Are you aware of any changes in the science of fish diseases which would justify a change in the AQIS position?

Mr Bucke—I am aware of some changes that have occurred since 1995 and also since the Canadian reply to the 1995 AQIS report, which was in 1996, I believe. First of all, the disease ISA has been identified in Scotland, including the Shetlands, in 1998 and again in Canada in 1997. Bacterial kidney disease has been identified in Denmark in 1997. Pancreas disease, a virus disease of salmonids, has been reported throughout western Europe, including Norway, and North America. Other diseases that are spreading or have been reported to be spreading include piscirickettsiosis, which has been reported in North America and Europe, but it is only still severe in Chile. There have been new vibrio species reported in Atlantic salmon, reported by Brian Austin at the 1999 European Association of Fish Pathology Conference. They are the changes that I know, but there are other things that have happened. For example, proliferative kidney disease, a problem of trout, is now considered to be a problem in wild trout, particularly in Switzerland, Estonia and parts of North America. More is known about the life cycle of proliferative kidney disease—we now know that the host or organism is a bryozoan. They are the new things that have changed since the last report I read.

Senator O'BRIEN—Is there anything in those changes that would justify allowing the importation of fish in any form from any countries around the world that you have mentioned—United Kingdom, Canada or other parts of Europe? Have any of the changes made it safer for Australia to import their fish products?

Mr Bucke—In my opinion, the answer is no. I think nobody really understands how these diseases have got to the different countries. It is not known how ISA or infectious salmon anaemia, for example, got into Scotland. It is not known how it got into North America. Maybe it was always there, but nobody knows. It was stated for a long time that Denmark did not have bacterial kidney disease; now it is just a matter for speculation how it got there. They import very little salmon product into Denmark, certainly not live fish and rarely eggs. I think there are still a lot of unknowns, particularly about those two diseases.

Also, there are other things that seem to be happening now. In the case of VHS or viral haemorrhagic septicaemia, there are different viruses found in marine fish in European waters and nobody really knows whether these are virulent for salmonids, so I think a lot of things are happening. It is still, I think, a dangerous thing to import. Of course, it does depend how the import product is treated, but I think that that is all spelled out in your different risk assessments.

Senator O'BRIEN—I know you have said you have had a look at the AQIS import risk analysis of 1995. Given that AQIS has now published a new import risk assessment, would you give us the benefit of your views as to the scientific rigour of that analysis and any deficiencies that you perceive or, in fact, make any other comment about that analysis?

Mr Bucke—Yes, I would. It is a bit unfortunate that I have not actually seen it. I did ask if there was anything else I needed to have but, obviously, that was something I did not get. I would like to have a look at it.

Senator O'BRIEN—I am sure we can make sure that you can get a copy. It may well be that is available on the Internet. I am sure that the committee secretariat will give you an Internet address if you want to look at it quickly. If not, we would be able to send by international courier a hard copy to you fairly quickly.

Mr Bucke—Okay, thank you.

Senator O'BRIEN—Thank you, Mr Bucke.

Senator CALVERT—There are a few Calverts floating around up in the Yorkshire area—that is where my family is supposed to have come from anyway. David, I have got some information here that next year there is going to be an international conference on risk analysis in aquatic animal health in Paris on 8-10 February.

Mr Bucke—Yes, I know about it.

Senator CALVERT—There are scientists and people making contributions from right around the world. Is this something that normally happens or is this as a result of the sorts of things that you have just told us that are happening. As a result of that, do you think countries will be assessing their risk analysis and quarantine protocols in a much more stringent fashion because of what has been happening over the last two or three years?

Mr Bucke—I think things are moving pretty quickly. I think that risk analysis is a very new area and from the last two European Association of Fish Pathology meetings, we have had actual meetings and workshops on risk analysis. I understand that most of the OIE's rules on risk analysis are very much orientated to Europe or to countries that have the diseases; they are not really orientated to countries that do not have them. I do not think people have enough experience about risk analysis. A lot of it is very subjective. I am not guessing, but you are surmising. Nobody does any research on fish products, for example, because nobody is really prepared to fund this sort of work. So I would imagine this meeting has come about because of the ignorance in this particular field.

Senator CALVERT—We understand that there are very few, if any, reliable tests available to test for a whole host of diseases, like BKD and VHS and ISA in particular, some of the things that you have talked about. Although Senator O'Brien and I are from the opposite sides of politics, we both come from the state that has a virtually disease-free industry—certainly it is free from any northern hemisphere diseases. We are just wondering about the appropriate level of protection that we, as a government, should be setting. I think that is where the problem is.

I do not think anybody argues about the science of the diseases that are around—there seems to be more and more knowledge becoming available every day—but we are concerned about what level of protection we should have, because of our clean, green industry.

Mr Bucke—My experience goes back to the 1960s when I first started working in fish diseases. I have seen a lot of changes in diseases occurring in those 30 years. Most of it, as you all well understand, has come from introductions of fish or fish eggs, or whatever—but not all of it, I do not think it is possible that every case could be put down to that. Some of it is just the result of intensification of an industry and perhaps having naive fish in a situation. Possibly some diseases exist in the wild, such as the HS, which I mentioned earlier. Perhaps it is and has always been there in marine fish and now that we are intensifying the salmon industry, for example, there is more build up virulent organisms.

I think that there is a lot of unknown evidence, if you like, about the way disease is spread around. I would think in a country like Australia and particularly Tasmania, which is a world heritage area, you should try to maintain a disease free area. In the UK we introduced the Fish Diseases Act in 1937—which is the year I was born—to stop the spread of furunculosis into the United Kingdom. It was probably quite a good act at that particular time, but it did not stop all the other diseases coming in. You are a country which has very few diseases and certainly not many of the northern hemisphere diseases, so I think you should try and maintain that status. Once you get a disease in, you will be like Chile, where you will have the disease and then you will have to spend lots of money trying to work with it, or eradicate it. I do not believe you can eradicate diseases once they are there.

Senator CALVERT—One of the problems that has been identified—and you will be aware of this—is the fact that our water is somewhat warmer. Even though we stock at a lot lower rate, the warm water—which seems to be getting warmer every year—does create more virulent strains of these diseases too, I believe. Would you agree with that?

Mr Bucke—Yes, I think that one disease that you do have in some of your cyprinid fish is the atypical aeromonas salmonicida.

I have had quite a bit of experience with atypical aeromonas salmonicida. In salmonids it is called furunculosis but in other fish we do not call it furunculosis. My experience is that this particular organism responds very much to temperature but it is also very species specific, which does not come out in a lot of the literature that I have been reading in these risk assessments. I have been involved in, for example, perch disease. As you know, perch is a wild fish in Europe—I believe you have them in Australia from Europe—and the aeromonas salmonicida atypical types have been found in that fish. The fish die, but other fish—all kinds of other species—do not die, do not even get infected. What I am saying is that some of the organisms are species specific.

The temperature is also going to make a difference. A lot of these diseases do not clock in until 15 degrees, 18 degrees, 20 degrees. If you are trying to grow salmonids at perhaps 20 or 22 degrees, you are right at the extremities of temperature. If you push any fish to its extreme limits—and not just in temperature—you are going to get more chance of disease. In the Gulf of Bothnia which is between Finland and Sweden they have aeromonas

salmonicida in flounder there because the flounder are probably at their extremity as far as salinity goes. I am sure temperature acts exactly the same. Have I put that across clearly?

Senator CALVERT—My final question for this round is: one of the criticisms by Canada of our protocols is that they are too strict. Yet, the Australian Quarantine and Inspection Service requirements rely on visual inspections for lesions and whatever of fish before they leave the processing country. In your experience with any of these diseases like furunculosis or IHN or whatever, just how readily can you see these lesions? We have had evidence that they are possibly hidden in the flesh and they can remain hidden in the flesh and you would not see them visually. Is that a reality?

Mr Bucke—Yes. I am a histologist. That is a person who looks at the tissues under the microscope. You can obviously see a haemorrhagic lesion with your eye. Whether you would see one underneath the skin if the skin was on, is another matter; I do not think you would see it in the muscle if it was a very small lesion. But when you start looking at histology sections of the various organs and muscle and things, you can actually see clumps of bacteria in the muscle bundles, very small foci of bacteria. You would not see these by eye at all, it is just not possible. You are talking of something smaller than a pinhead, much smaller. You can only see some of these lesions with the aid of a microscope. You would not see viral lesions, you only see haemorrhages really and you could easily miss tiny little specks of blood.

Senator CALVERT—One of our quarantine experts in evidence last week said that they were very concerned about ISA because it is not only a very serious disease but the nature of the agent is that it can be distributed in multiple tissues. Are there any other diseases that you are aware of that can be distributed in multiple tissues?

Mr Bucke—Yes, bacterial kidney disease, for example, furunculosis you certainly can, as I have just mentioned. I do not have a lot of practical experience with IHN as we do not have it in the United Kingdom. Any work I have ever done has only been on an experimental basis which is not quite the same as a natural outbreak of disease, so I could not really comment on that. Of course, there are other things like kudoa and other parasites that would certainly be in any tissue.

Senator CALVERT—So, you could have four or five diseases that could be distributed in multiple tissues, similar to what happens with ISA?

Mr Bucke—Yes, I believe so. Not every single fish is going to be diseased, obviously—

Senator CALVERT—It only takes one thought, doesn't it?

Mr Bucke—It only takes one, yes, that's right.

CHAIR—Mr Bucke, our committee research officer will send you a copy of this latest *Import risk analysis on non-viable salmonids and non-salmonid marine finfish* as quickly as possible so you can have a look at that and we will contact you again on that.

Mr Bucke—Thanks very much.

CHAIR—My first question follows on from the questions from Senator Calvert. We have been told in evidence before the committee that the greatest risk from the import of fish is if you send in the whole fish with nothing done to it. That risk gradually is reduced so that if you send in the head, the gills and the whole fish, but washed, gutted and cleaned, the risk is less. That is the situation we have got with Canada. Under the new protocol we have with Canada, it can come in in the form of steaks or cutlets from the salmonid.

We are told that when you get down to the steak level you actually reduce the disease risk by something in excess of 90 per cent. But having just told us that the bug, for want of a better word, can come in in multiple tissues, is that an accurate and fair assessment? Is it correct, that by taking it from the gutted and cleaned fish with the gills still in, down to the steak stage, that you actually reduce the level of risk by that much, particularly when we now know—and we were given this in evidence last week—that if fish come in from Tasmania that some of them will be coming in from disease affected areas?

Mr Bucke—Yes, the risk would go down. And if you are then talking about freezing as well, it would go down even more. It would be a very small risk, but nevertheless a risk.

My theory—because I do not have proof and I do not think anybody has proof—is that you can put all these units down about so many million organisms and things like this but I do not think diseases happen like that. What happens is that you get a very low level and it builds up very slowly. Maybe it takes years to build up virulence. Of course, it has to have the right host, et cetera, before a disease outbreak can occur.

So the risk is less, but I would not like to say whether it is 80 per cent less or whatever. I just do not know how you can come up with that figure. The only thing I can say is that if you have the viscera in and the brain and everything else, you are going to have more chance of organisms being in those soft tissues.

CHAIR—So, in effect, while it is less, nonetheless there is a real risk in terms of bringing in the cutlets or the steaks off the fish?

Mr Bucke—This is the big question. There is a real risk. You cannot quantify the word ‘real,’ it is just an unknown. I think it is a risk. I would not like to say a ‘real risk,’ I would just say ‘a risk.’ I do not know how I can say it any differently.

CHAIR—Okay, that’s fine. In terms of the actual protocols, one of the things that we are grappling with now as a committee is the fact that we are going to actually accept these cutlets or pieces of fish from fish farms from Canada, yet with out meat protocols, meat has to come from disease-free areas. There are no ifs or buts in terms of the import of meat into Australia. Can you tell us whether or not the protocols of other countries allow fish to be imported into their countries from areas that are known to have disease?

Mr Bucke—The answer is, no, they do not allow it—not for certain diseases. They would for furunculosis; that would be allowed, but not bacterial kidney disease or any of the viruses that we have been talking about today and probably not for piscirickettsia, but I do not think that anybody in the United Kingdom would be too worried about kudoa or whirling disease or any of the other sort of lower type diseases because we already have them.

As far as I understand, it still is the same rule that you export your fish to a country if they have those diseases and there is not such a problem. But if you have the diseases and they do not, you would not be allowed in, certainly not in any of the European Union countries and also Norway as well.

CHAIR—If there was a disease in Britain, the European Union countries would not accept fish with that disease from Britain?

Mr Bucke—No, they certainly would not. We have very strict rules about that and it is not just salmonids; it is carp and other fish. We have three different categories of diseases and, if any of those are in the fish, they would not be allowed to be imported—certainly not from third countries.

CHAIR—Do those same rules apply to the US, Canada, Asian countries and, I guess, South America and Africa?

Mr Bucke—Yes.

CHAIR—They are consistent across the board?

Mr Bucke—Certainly from North America and Canada. I do not know about Africa. Did you say Africa?

CHAIR—Yes.

Mr Bucke—I do not know about Africa.

CHAIR—Thank you. Senator Calvert raised the issue of the increased activity of various diseases in warmer water. A couple of years ago, we did a similar inquiry into the import of chicken meat into Australia. We found during the inquiry from some work that Dr Alexander did for us in London on Newcastle disease, an infectious bursal disease in chickens, that a number of these had broken down to heat treatment. In fact, it required heat treatment to the level that the chicken that was treated was inedible when it came out the other end.

I asked you the question because you said earlier on that in fact the freezing of the fish once again reduced the risk. Are you aware of any evidence that there is a resistance building up in any of these diseases to cold—the exact opposite to infectious bursal disease in chickens?

Mr Bucke—No, I do not know of any. I do not know that there is a resistance to cold. You do not find some organisms or you cannot detect some viruses in the cold. I do quite a bit of work on one carp virus and you do not see that disease in fish until the water temperature gets to about seven or eight degrees. Then it disappears again if the water gets warmer. But I do not know if that answers your question. I would think that some organisms can certainly withstand freezing.

CHAIR—So you could not rule out that there may be some of these strains that lie dormant in the cold and then, when they get into a warm situation, are revitalised?

Mr Bucke—Yes, I would think that anything that forms spores would stand freezing. Some fungi can withstand freezing and I would think it is quite likely that some viruses would stand freezing.

CHAIR—My next question is on the work done by Mr David Gibson from Gibson Information Sciences in New Zealand. Are you familiar with the work that he has done?

Mr Bucke—No, I do not know it. It is on fish?

CHAIR—Yes.

Mr Bucke—I know most of the people in New Zealand but I do not know him.

CHAIR—His speciality is risk analysis.

Mr Bucke—Okay.

CHAIR—He has done a paper—we can send it to you—on the actual protocols that have been put in place now, the reduced level of protection and protocols. Maybe I should ask you one other question first. We were told in evidence from ‘experts’—I say that in inverted commas—in Australia that our protocols with regard to the import of salmonid products were very high, in fact, some of the highest in the world.

Senator CALVERT—The highest.

CHAIR—The highest—I have just been corrected by Senator Calvert. I would like you to comment on that, but it would seem to me that if we are going to allow in fish from diseased areas in Canada, and if in Europe, as you have told us, fish are not allowed to be shipped from one country to another if the country receiving the fish has none of that disease, then that is a somewhat spurious claim.

Mr Bucke—Just to qualify that, if you are talking about fish products, which you are, presumably, it is possible with fish products, but I do not think they would be able to come from an infected farm—I am sure that is not allowed. But I know that with ISA at the moment they have to kill out and, of course, this is causing a lot of concern to the salmon growers because they are having to kill their fish. What they are saying is that it is a political thing that is causing the problem. If they were given some time to sell their fish they would be quite happy, but they cannot because they do not have the time.

CHAIR—I am talking about the actual raw product.

Mr Bucke—Yes.

CHAIR—Imported tinned salmon, for example, is allowed into Australia.

Mr Bucke—Yes, that is no problem.

CHAIR—I would like you to address that particular question, if you could, when you have had an opportunity to look at this risk analysis, and come back to us. We will also send you a copy of this work done by Mr Gibson. I will quote from his report, but there is also a general question here. The first part is for information; the question is in the second part. It says:

The report lacks any in depth discussion on the population biology of diseases where such topics as stochastic death and endemic fade should be brought out.

The question relates to this next sentence:

There is a strong tendency to focus on diseases at the individual or small group level ignoring the more important wider issues.

That is a general statement. Would you agree that that is the general process in terms of assessing salmonid diseases?

Mr Bucke—I would agree, yes. I would like to see that written down.

CHAIR—We will send it to you. It is in the abstract at the beginning of the document. I now want to move to the conclusions, where he says:

There does not appear to be any clear evidence of any large-scale problem with fish diseases caused by trade.

That is his general statement. Then he goes on and says:

I think this supposition should be tested and the place to test it is in Japan where any problems would have to be published in Japanese.

Prior to those two sentences I just read to you, he refers to the fact that world trade now almost certainly exceeds two million tonnes per annum, with Japan being one of the largest importers.

What I am trying to get to in asking you this question is whether or not to do such an assessment or seek literature or information on it, whether Japan is the correct country or a good country to go to, and whether or not, in your view, there are other countries where we might be able to collect further scientific research or information or data.

Mr Bucke—Japan has a lot of diseases. They do not have ISA but they have pancreas disease, BKD and IHN, et cetera, and lots of other ones. I am not sure whether Japan would be the best country. Maybe one of the islands somewhere might be free of the disease and that might be a good place, but I do not think anybody would allow any testing to be carried out in such a place. There might be literature available but I have certainly not read any from Japan. I do not know of any other country that might be useful to test.

CHAIR—Okay. I will leave my questions tonight but we will send this to you. We would obviously like a response and possibly we could have another hook-up and a chat on some of these issues when you have an opportunity if you are agreeable.

Mr Bucke—Yes, I would be agreeable.

Senator CALVERT—Getting back to my first question about the international conference—the OIE conference—one of the critical areas they say are the diagnostic techniques and the environmental impact to pharmaceuticals for which research is lacking, and risk assessment can be used to highlight research priorities for these topics. One of the concerns I have about our situation in Australia is, of course, because we do not have disease, the quarantine service is putting in place what they call their AQUAPLAN, their veterinarian plan, to prevent the spread of disease, to establish disease containment and eradication. I do not believe that diseases can be eradicated—I do not know what you think. Perhaps you might like to comment on whether disease, to your knowledge, can be prevented from spreading and, in fact, just what is happening in the UK, in particular with all this use of pharmaceuticals for vaccinations. Furunculosis is a good example.

Mr Bucke—I think it is highly unlikely that you could ever get eradication of a disease, particularly if you have wild fish. You might be able to clear out a cage like a hatchery site that is inland but I do not think you could ever clear a site that has access to the open water. I think that is impossible because you just do not know what organism it can carry.

For example, I was at the Rhodes conference of the European Association of Fish Pathology and there was a poster on piscirickettsia—you are familiar with the name? It is a particular problem in Chile. They found that the organism lives in mussels and they think it probably has a resting stage in mussels and that it can be transferred. That is just an example. It would be impossible with salmon cages because you are going to have all sorts of organisms around. We already know that furunculosis in salmon farms gets spread to wrasse and other fish that are living in the vicinity. In Norway they use wrasse for cleaning the cages and they have found that they have a problem because the wrasse got the furunculosis from the salmon. I think it is not easy.

I was involved some years ago in trying to establish disease-free trout farms in the UK—hatcheries which could sell eggs from disease-free stock to other trout farms. We set up a program that ran for five years and there were all sorts of different criteria.

Every one of those trout farms had been disinfected, been cleared out and used only certified eggs. At the end of the day, all of them got one of the diseases—IPN, bacterial kidney disease or whirling disease. I think it is not possible to eradicate. In Denmark they have had a program of stamping out VHS and that means you kill every single organism in a river. That is okay if your nature conservationists would allow that but I do not think that would be allowed in many countries. They have the problem now with bacterial kidney disease and they are not going to try stamping out programs. They think it is too widespread, so that is that.

The other thing is on furunculosis and drug resistance. Certainly furunculosis cannot be controlled by drugs, not to 100 per cent. For a start they build up resistance and the other problem is that there are not many drugs that are available that you are allowed to use. In the UK there are four. I understand in Australia there are only two and they are only on special licence. Even in the UK the four are going to be reduced to three or two shortly. So you cannot use drugs.

Then you come to vaccine which would be the ideal but there are problems with vaccinations unless you can find an oral vaccine. That does not seem to be successful so most of the vaccination is done by injection. That is time consuming and it is not always possible to do it. You get side effects in the vaccination such as adhesions and other such changes. Also there is a risk, even in automated vaccination, that sometimes the people that do the vaccination can get injected themselves and that can cause a problem. I do not know whether that answers all the questions you have asked me but I hope I have answered some of them.

Senator CALVERT—One of the other problems of course is finding a reliable test. If I run through a few of these diseases, could you tell me whether there is a reliable test for them? Is there a test for BKD?

Mr Bucke—No. The reliable test is to culture the organism and it takes about eight and sometimes even 20 weeks to do it. That is the only really reliable test. There are PCR—these are modern tests if you like—that are coming on line. They are being tried. It is still at the experimental stage. They are all being tested, though there is nothing that is reliable for BKD.

Senator CALVERT—Furunculosis?

Mr Bucke—Yes, you can identify furunculosis certainly in the clinical and sub-clinical stages but what you call the covert carrier stage is very difficult to identify.

Senator CALVERT—IPN?

Mr Bucke—That would be similar. You can identify it when it is virulent but not in the covert stage. It is more possible with IPN because more work has been done on IPN than perhaps any other of the serious fish diseases. I think that there are some quite good tests around now for IPN but I do not know whether you could say they were 100 per cent.

Senator CALVERT—VHS?

Mr Bucke—Again there are some very good tests now for VHS. I would think that you are talking about 70 per cent or something like this. They are not 100 per cent anyway. They are getting much better.

Senator CALVERT—And, of course, our good friend whirling disease?

Mr Bucke—I have a lot of experience with whirling disease. I was the first person to find that in the UK and it caused a lot of headaches in 1981. I would say it is not easy particularly in older fish. There are very few publications on survivors of whirling disease. I found fish like rainbow trout that had been brood fish of two or three years, and as part of my own research I actually looked at the histology of the skull on some of these older fish that had come from infected stock but had lived and you could still see spores in fish that were two or three years old. Normally whirling disease is a disease of fingerlings. So there is not a reliable test.

You would want only one of those old fish that could carry a spore in the cranium or in the vertebrae. They are not always only in the cranium; I have seen them in the vertebrae as well, so you could have a spore there. They have whirling disease in New Zealand—so how did that get there?

Senator CALVERT—How did it get from America to New Zealand? That is a good question.

Mr Bucke—Yes, that is right. How?

Senator CALVERT—I have left the worst until last. ISA is causing so much trouble in the Northern Hemisphere in Scotland, wiping out huge farms. I believe they have a vaccine for that but the only problem is it affects susceptibility to other diseases. Is that so?

Mr Bucke—Yes.

Senator CALVERT—It wipes out the resistance to other diseases?

Mr Bucke—The problem with vaccination is that whenever you vaccinate fish there is a stress on the animal. With some vaccines you have to vaccinate every six months or something like that so it is obviously costly and time consuming, et cetera. But it is the stress that is placed on them which is probably the point that you are making—it lowers their immune response to other things. As soon as a fish is handled it loses mucus. If you are handling that fish for vaccination in some way—even if it is mechanically handled—it will still be stressed in some way. So, yes, it could predispose it to another disease.

Senator CALVERT—David, I have mentioned half a dozen diseases and any one of those diseases, if it got into Tasmanian waters, given the warm water and the fact that our fish have not been exposed to any of these diseases, could result in expected mortality rates up to 80 per cent—perhaps even worse. Is that so?

Mr Bucke—Yes. I would think so in the first instance. It would take some years to come to terms with a disease, and whether the industry could actually accept that, I do not know. The other worry is the wild fish that you have there—the salmoniformes. We do not know much about them as far as resistance. One time we had a lot of Australian fish here in this laboratory where I am now for testing. I think it was part of a carp eradication scheme back in the mid-1970s.

Senator CALVERT—They have changed the name. It sounds better if you change the name.

Mr Bucke—Yes.

Senator CALVERT—That is one way of getting out of it.

Mr Bucke—You know what I mean.

Senator CALVERT—Yes, I certainly do.

Mr Bucke—We have some here. We were testing them for SVC virus at the time. Of course, they were negative to that, but we did not test them for anything else. I would think that any naive fish would be susceptible. That is how diseases get around. That is how whirling disease in North America affected fish that came from Europe and how furunculosis came to Europe from North America—or so it is said—in the last century.

Senator CALVERT—I have only one more question and it is a general one. I do not know whether you have any contacts in Canada, but do you get any feedback from the Canadians about the fact that we are trying to stop salmon coming into Australia?

Mr Bucke—Yes. I purposely kept away from this laboratory last week because Mike Kent and Ron Hederick were here from North America at a conference. I was not invited to the conference. I would normally have come in and spoken to them, but because I was involved with this, I thought I had best keep well away.

Senator CALVERT—Fair enough.

Mr Bucke—And I know Trevor Evelyn very well. These are colleagues that I have worked with over the years or have discussed diseases with. They are aware that I am involved—they were in 1995. I do not know whether they are now. I expect they will hear some way or another. Whether they will discuss anything with me, I do not know. They were quite open at the time in 1995 when I was first got involved in risk assessment.

CHAIR—At that time what was your involvement? Were you advising the Tasmanian Salmon Growers Federation, or were you advising it at AQIS level? What did that fit into?

Mr Bucke—I was advising the Tasmanian salmon growers. Owen Carrington-Smith came over here and interviewed me in my home, and we took it from there.

CHAIR—In terms of the 1999 protocols, have you been directly involved in those?

Mr Bucke—No.

CHAIR—Mr Bucke, the secretariat will send to you a copy of the *Import risk analysis on non-viable salmonids and non-salmonid marine finfish* as quickly as can get it there. We will also send you a *Review of the import risk analysis on non-viable salmonids and salmonids marine fish*, the David Gibson report which I quoted from, for you to have a look at. When you have had a look at them, would you address the differences that exist between the 1999 protocols and the 1996 protocols and say how much they have increased the risk with the new protocols that have come in? You will need this material to do that.

Could I wind up by sincerely thanking you on behalf of the committee. If you ever come to Australia, my committee would be most delighted and grateful if you could join us at Parliament House to have dinner and a general discussion. We could talk about the cricket or such things.

Mr Bucke—Yes.

CHAIR—Are you a cricket follower?

Mr Bucke—Yes, all sports, and even at my advanced age I still take part in athletics.

CHAIR—We beat Pakistan today due to the largest left-handed partnership ever in the history of cricket.

Mr Bucke—Brilliant.

CHAIR—Once again, can I say thank you very much. Goodnight from here. I guess it is good morning over there. We look forward to speaking to you again and getting a response from you.

Mr Bucke—Thank you very much.

CHAIR—Goodnight.

Committee adjourned at 9.32 p.m.

