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THE LEGISLATIVE COUNCIL SESSIONAL COMMITTEE GOVERNMENT ADMINISTRATION A MET IN COMMITTEE ROOM 2, PARLIAMENT HOUSE, HOBART ON MONDAY 17 FEBRUARY 2020.

FINFISH FARMING IN TASMANIA

Mr TIM BAKER, ACTING SECRETARY, **Ms CAROLE RODGER**, **Mr JOHN DIGGLE**, **Mr COLIN SHEPHERD**, **Ms FIONNA BOURNE**, **Dr LLOYD KLUMPP**, DEPARTMENT OF PRIMARY INDUSTRIES, PARKS, WATER AND ENVIRONMENT, WERE CALLED, MADE THE STATUTORY DECLARATION AND WERE EXAMINED.

CHAIR (Ms Webb) - Welcome to these public hearings for the Government Administration A subcommittee inquiry into finfish farming in Tasmania.

The evidence we are going to take today is all protected by parliamentary privilege and I remind you that comments you make outside the hearing may not be afforded such privilege. There is a copy of a witness information statement if you require it. I am going to ask each of you to read a statutory declaration at the beginning, before giving evidence. All evidence given will be recorded in *Hansard* and made available on the committee website when it is ready. Committee proceedings are also being broadcast today. If there is anything you feel needs to be heard in camera we can consider that request at the relevant time.

Mr BAKER - Thank you for the opportunity to appear here today to answer the questions the committee may have about our submission.

The department welcomes the inquiry and welcomes the opportunity to talk about our role in how we manage finfish in Tasmania. I also want to be very clear that we are a department that concentrates on continual improvement. We look forward to the outcomes of the committee and any recommendations we will, of course, consider. While we think from our point of view that we manage our finfish in a sustainable manner, any recommendations will be welcome.

Most of you will know I am the Acting Secretary of the Department of Primary Industries, Parks, Water and Environment but today I am accompanied by a number of staff who are specialists in their representative fields. I will say at the outset they will most likely be best placed to answer your questions particularly as they pertain to details. Today I have with me Carole Rodger, Deputy Secretary for DPIPWE; Fionna Bourne, General Manager of Water and Marine Resources; Dr Lloyd Klumpp, who would be known to many of you - he is the GM of Biosecurity Tasmania; John Diggle, Director of Inland Fisheries; and Colin Shepherd, Coordinator for Aquaculture in the department.

Subject to your agreement, I would like to break from tradition and give a very short preamble and then, given the terms of reference and additional information you have requested, I would like Fionna to briefly outline the current planning process undertaken to develop marine farming development plans using Storm Bay as an example. I would also like Lloyd to give an update on our salmonoid biosecurity program and, of course, we will be happy to take any questions.

DPIPWE has responsibility to both the Minister for Primary Industries and Water and the Minister for Environment and Parks for the administration of the legislation that governs finfish

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farming in the state. Originally industry development was administered under the Fisheries Act 1959 and that was replaced with the Marine Farming Act 1995.

DPIPWE's involvement in managing the salmonoid marine farming is principally through the administration of the Marine Farming Planning Act, the Living Marine Resources Management Act, the Nature Conservation Act, the Threatened Species Act, the Inland Fisheries Act and the Biosecurity Act, noting, of course, that in 2017 responsibility for managing the environmental impacts of finfish farming was transferred to the independent Director of the EPA. I understand that Wes is coming along later in the week. What that says to me and what is plainly obvious is that we operate under a complex legislative framework. All this legislation forms part of the Marine Farming Planning Act and is part of Tasmania's resource management planning system.

The other key factor in our management of finfish in Tasmania is that in 2017 the Tasmanian Government released its sustainable industry growth plan for salmon. The salmon plan details the Government's vision, priorities for the industry and provides community with surety along the way forward for the current policy framework. It also maps grow and no grow zones in Tasmania.

Since the salmon plan was developed in 2017 considerable progress has been made against the initiatives contained in the salmon plan particularly in the areas of biosecurity, transparency, environment regulation and the reduction of marine debris.

That is all I wanted to say at the outset and I was hoping -

CHAIR - I just want to pick you up there, Tim. Both those things you suggested Fionna and Robert will cover will be covered by our questions. Given you have provided us with some excellent extra material that we requested about the process, I know there will be questions about that, but I don't think we need to use our time running through an overview until we get to the questions.

We are quite mindful this is a very complex area and there is a lot that we would like to cover with you. As you can imagine, we would like to cover material from the department's submission, but also there will be things we wanted to cross-check and discuss from other submissions. We have tried give ourselves a bit of guidance by having a series of categories to ask those questions under, which will flowthrough but will also probably skip about a bit naturally because some things come in different spaces. If it is all right, we will make a start with it and we will certainly cover those two areas as we get to them.

I want to begin with a more generalised question. It ties into the sustainable growth plan. I note the plan mentions commissioning new economic research to quantify better the full impact of the industry on the state's economy. I am interested in whether that has previously been assessed. Do we have, or have we had, at some point an assessment of this industry's full impact on the state's economy?

Mr BAKER - Sure. I will respond first and then I will flick it to one of the experts. That work was definitely done in putting together the plan. A lot of work was done in managing and in assessing the economic impact for the industry. Over time - probably by not our department, particularly by the Department of State Growth or the Department of Economic Development, as it was at the time - that work has been done. I am happy to provide some of that for you; I can take that on notice.

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CHAIR - That would be great, thank you.

Mr BAKER - I am aware it has happened. Carole, I don't know if you have anything?

Ms RODGER - I haven't been directly involved in any work undertaken in relation to that since I have been with DPIPWE, which was in 2016, but prior to that I was with what is now State Growth and we certainly did a lot of work as part of the economic development plan and the like in looking at the sector's current and future state. There was input modelling done by an economist at the time, I remember, as part of that. I think there is material we can get for you.

CHAIR - The new economic research mentioned in the plan is not mentioned in the review document. Is there still an intention that new economic research will be commissioned? If so, when and how shall we expect that to proceed?

Mr BAKER - Yes; as I said, a lot of that economic research happens through State Growth, so the best thing I can do is to undertake to get the historic research and give you an answer on whether research is planned. I am pretty sure the answer is yes and this work is being undertaken, but it is not being undertaken within our departments.

CHAIR - It's in your plan but it is not your responsibility, but you would be monitoring it as part of your plan, I presume. Any other overarching questions from people before we go into the plan in more detail?

Mr VALENTINE - Just the reason the transfer occurred. It might be written somewhere, but can someone enlighten me as to why it was taken from State Growth and put under DPIPWE?

Mr BAKER - I can answer that. State Growth does a range of economic modelling across a range of industries. That modelling would be done as part of its broad economic modelling, but it is not in our department so it is a bit hard for us to answer.

Ms RODGER - Both departments have always had interest in all primary industry sectors, so there is a regulatory function and there has always been an industry support and industry development function - we know how it goes through the value chain from the growing out of fish but through into the processing sector and into markets. By default, the two agencies - in best practice and to get best value for the state, the economy and the community - always work together across those various functions.

Ms FORREST - Tim, I know you made some undertakings to come back with that, but do we need to contact State Growth ourselves to hear more directly or are you confident you can get all the information we are requesting?

Mr BAKER - I am very confident I can get the information. I will get both the historic information and the plans for the future.

CHAIR - I am going to move on and talk a bit more about the sustainable growth plan if that is all right. Because it is not documented in the plan, I am interested to know how it was developed and which stakeholders were originally involved in drafting it.

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Mr BAKER - The plan was put together in 2017 and broad stakeholder consultation was undertaken.

CHAIR - I am interested to hear more about that, Tim, because that statement is easy to make and I would like more detail than that.

Mr BAKER - I would describe it as that there were three broad areas of consultation undertaken. First, a number of key stakeholders were directly contacted; they included the three salmon companies, relevant stakeholder groups like the recreational fishers, the abalone council, the rock lobster peak group and TARFish - they were all brought together and there was an initial discussion with them directly.

Second, a series of workshops was held. I am happy to table the document. We held workshops with a range of other stakeholders; here is the list and I am happy to table that list today. That includes entities like Australian Maritime College, Institute for Marine and Antarctic, William Adams, TotalRubber - basically all the people who were in the end-to-end supply chain and then any other interested parties.

Ms FORREST - Are there individuals on that list at all, Tim?

Mr BAKER - I will get to the individuals list. We went out and spoke to the companies; we spoke to relevant key stakeholder groups one on one. We held workshops to which we invited a range of people and we talked about what should be in the plan - that is that list, which I will table. We then did a public consultation where anyone was entitled to provide feedback, so that is where we had the individual feedback. Some stakeholders whom we spoke to in the first instance also provided submissions.

Colin, you might be able to help me out with the number of submissions we received. We had strong interest; again, we can get that number. We did a draft, we went out for consultation and, based on that feedback, we put out a final version.

CHAIR - What consultation fed into the draft initially, without public consultation at that stage?

Mr BAKER - We put a draft out first.

CHAIR - Was that developed with those direct stakeholders you mentioned and the workshops?

Mr BAKER - And after the workshops.

CHAIR - Was the scientific community involved in those workshops or in the direct stakeholders' workshops?

Mr BAKER - They were involved in the workshops and they had an opportunity along with everyone else to provide feedback. The other point is, in coming up with the plan, DPIPWE has a broad range of scientific information that it used to determine where finfishing could take place and where it could not. All of that was pulled together and put in the draft. DPIPWE obviously carries

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a huge amount of scientific research information internally, which we use for a range of things. All of that was pulled together in putting the plan together.

In total, 69 feedback forms were completed and 28 submissions were received. Twenty-eight submissions were mainly from interested organisations, including two of the main salmon farming companies and one of the small leaseholders and peak bodies in the wild and recreational fishers, as well as tourism. There was a handful from several environmental organisations.

Ms FORREST - You mentioned that also developed the map of the no grow and potential grow zones. Can you give us more detail about the actual process around that? It seems that to date it has been very difficult to identify how those decisions were made. Some of it is pretty obvious; down the west coast you wouldn't want to be out there and access is impossible, really. Some of those are pretty obvious, but some of the others are perhaps a little more contentious. Can you go through that process and the consultation on that, and who was engaged in that decision making?

Mr BAKER - First, the salmon plan itself is not a planning document - it is a strategy document. It was never designed to be the final decision on whether, if an area were available for future growth, it would obviously still have to go through the full planning process. We used three broad steps in coming up with the map. The first one was by obtaining and incorporating advice across government and industry about what areas could be suitable or not suitable for marine farming based on the physical and environmental reasons, as you have just described.

The second was by talking to industry about its plans and where it considered it would be going to grow salmon and where it could grow it in a way that had strong environmental and biosecurity outcomes.

Third, we listened to the concerns of the community and where it felt marine farming was not appropriate for a range of reasons. If you look at what happened, the draft plan went out with a map; we did the full consultation - we went out to the public and then the map was changed to reflect the feedback that we received. They were the steps, as simple as that.

CHAIR - Was anything specifically changed in response to the community feedback you had about where or -

Mr BAKER - There were things specifically changed in response to the feedback we received.

CHAIR - You can't tell me whether specific community feedback was provided at that point about where sites should or shouldn't be that then influenced where they ended up on the final version of the map?

Mr BAKER - What I can tell you is that feedback was received from the community and a range of stakeholders and, as a result of that feedback, the map changed.

CHAIR - Thank you. We've heard that there are independent ways that assessment is made about site selection for where marine farming or industry would go in other states. Why was that not undertaken in this instance if you were having a significant look at where future development might happen or not happen in Tasmania? Why was that not put out to an independent process to be determined, or at least to be the main informant of final decision-making?

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Mr BAKER - I suspect I am going to get a number of questions like this today. The overarching comment I would make is that it's the department's role to implement the rules as per the legislation and government policy - it's not our role to comment on what the government's policy should and shouldn't be. All I can tell you is that what we do is implement the government's policy and the rules in the legislation. For a question like that put to us, my honest answer to you is that's a policy decision for government. Our job is to implement the rules. I've read most, if not all, of the submissions and I understand that has come up. At the end of the day, it's not the department's role to make an assessment on whether that should happen or not.

CHAIR - We're talking about a plan which you have described as a strategy document, so it's also your role to engage in planning -

Mr BAKER - Sure. Yes.

CHAIR - and strategy and that's the sort of process we're talking about in terms of identifying site selection but I hear what you're saying. You're suggesting we would ask the Government why an independent process wasn't commissioned to undertake that kind of analysis rather than an in-house -

Mr BAKER - Sure. At the end of the day -

CHAIR - Thank you.

Mr BAKER - Okay.

CHAIR - We might come back to site selection later. I'd like to go back more broadly to the plan. I note that the plan sets out an industry target of growth to being a \$2 billion a year industry by 2030. We can ask industry, but are you able to give us an insight into how that figure was arrived at by industry?

Mr BAKER - No. At the end of the day, again, it was a target founded on discussions the Government had about likely growth and talking to industry but, ultimately, it's an aspirational target set by the Government and not by the department.

CHAIR - In terms of that being a government-supported target, was assessment made at the department level on the appropriateness of that or the reality of that aspiration for growth prior to adopting that?

Mr BAKER - In coming up with a target, the department provided data around likely growth and where growth could be. We spoke to industry as well but it's an aspirational target. It's a target set by the Government and the advice that we provided was broad in nature around the likely growth of the industry and from discussions we've had with industry.

Mr SHEPHERD - My understanding is that the previous target had been \$1 billion by 2030 and in light of where the industry was at this point in time, given that they were already approaching close to that one billion, the target was then revised to take into account, as Tim said, some of the future growth that was likely to happen.

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CHAIR - I understand the industry revised that target. I am most interested in the Government's decision, and the department's informing of that decision to support the target. Would it be fair to say that the department deemed that to be a sustainable figure for the industry in this state?

Mr BAKER - Yes, based on the advice we had at the time and based on talking to industry, looking at where potential water could be and where appropriate finfish farming would be.

Ms FORREST - The department determined it was sustainable, based on advice. On what advice were you, or DPIPWE, basing that decision?

Mr BAKER - By talking to industry about what their goals and what their likely growth path would be, by looking at the state and making broad decisions around where salmon could potentially be grown and by talking to community and community expectations.

Mr SHEPHERD - It's down to some of the growth plans that were already in train. We know what the current production for the industry is. It is sitting at around 60 000 tonnes and we knew we had Storm Bay, which had been approved. That was coming online and obviously there was potential there to grow the industry to a certain amount, which, conservatively at the moment, is up to 30 000 tonnes. Knowing that, plus what is in the salmon growth plan, the aspirations of the industry and some of the work been done in some of those areas currently subject to exploratory permits in the event that, through the proper planning processes, those areas became marine farms and were operating there was additional growth there, it is just looking at what industry's growth is at the moment and projecting how it might grow into the future. You could see that a doubling of the industry was potentially possible and the normal planning processes would apply and, therefore, we wouldn't allow farming in any areas unless we consider it would be done sustainably and we are quite confident that would be the case.

Mr VALENTINE - Turning to your plan, 'Maintaining public confidence in the salmon industry', identifying areas where salmon will continue to be farmed is mentioned. Will you be reassessing the areas that are currently being farmed, where it is demonstrated that pollution is occurring and whether it is appropriate to continue to farming there over and above any assessment for biosecurity reasons?

Ms BOURNE - In relation to reassessing the existing planning areas and in relation to the environmental management of the existing farms post-2017, that is now the responsibility of the EPA through the adaptive management framework in place. They manage and look at the ongoing environmental impact to ensure that continues to be sustainable within the overarching objectives of the marine farming development plan and the existing legislation, being the Living Marine Resources Management Act and the Environmental Management and Pollution Control Act. In relation to biosecurity, I might throw that answer to my colleague, Dr Klumpp.

Dr KLUMPP - I might just start, with the indulgence of the Chair, although my first name is Robert everybody knows me as Lloyd. If you say Robert, I might not answer. We are currently in the process of developing a set of draft standards to be underpinned by the new Biosecurity Act. That will take into account the current structure of the industry and where things are, but also some of those standards may result in some requirements to change some of the structure of that industry for biosecurity reasons. All of that is still being worked through at the moment. The draft standards are close to being complete but there is still a bit of work to do.

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Mr VALENTINE - My question was about maintaining public confidence and it is not so much public confidence. I suppose a fair bit of it might be public perception. A lot of submissions we're receiving are saying this is not perception, this is happening and we have concerns and issues.

Given the responses we are receiving that current inshore leases and licences should be withdrawn as offshore sites are allocated thereby freeing up inshore areas, do you have a comment on that aspect? Is that something that's been discussed - that as offshore or ocean sites are allocated, corresponding areas of inshore activity might be showing pollution levels that are reasonably high? I say 'might' because I'm not a scientist. Has that been discussed and talked about?

Dr KLUMPP - I can't talk to the pollution aspects of it. Certainly, biosecurity has been considered in that process.

Mr BAKER - I think this is the classic point where we move into what is now the operations of the EPA and the ongoing management of leases. That is a good one, to be honest, Mr Valentine, for the Director of the EPA who provides that service unless Colin or Fiona wanted to add anything?

Mr SHEPHERD - I think it certainly sits in the remit now of the EPA. What I'd say is there is a statutory requirement to review management plans every 10 years so there is a continuous review process.

I would say that the industry is very highly regulated in terms of its environmental monitoring -

Mr VALENTINE - I've read one of the leases. It's pretty significant.

Mr SHEPHERD - There is both near-farm and broadscale monitoring. We now have some very long time series of data in relation to those farms' operations. I think, without putting words into Wes's mouth - he'll provide his own comment - that DPIPW, prior to the EPA taking on that role, has a history of assessing that monitoring data. I think we're quite confident that the industry is operating sustainably regardless of its location in terms of where those farms are.

Mr VALENTINE - The environmental performance is one thing but what is also happening here is the take-up of inshore coastline which people like to do their own recreation - sailing and all of those sorts of things. It's not just about pollution levels or whatever.

I am interested to know whether that has been considered broadly, that's all. Not just from an environmental perspective but from access and all of those sorts of things.

Ms BOURNE - If I may, when a plan is developed or an amendment is done, one of the requirements the Marine Farming Planning Review Panel has to consider is other interests and other activities ongoing in the respective area. They have to make that call and balance the interests of the respective different activities that are all wanting to operate within the same environment so they are considered as part of the planning process.

As Colin said, as part of the ongoing statutory review process that the plans go through, those things are further reconsidered when we do the review.

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Mr VALENTINE - I think we get to that a bit later.

CHAIR - Also to pick up on that at a slightly higher level, are not plan-to-plan, but in terms of a growth target for the industry and expectation of expansion that's implicit in that growth target there is agreement, I believe, that the best practice is now regarded as offshore or on-land contained. That is not reflective of a large proportion of what we have happening in this state.

When the department has contemplated the target and the growth to get to that target, has there been an expectation or perhaps an anticipation that the shape of our industry would change to reach that target in terms of transitioning from inshore to the two other more broadly recognised best practice arrangements? Or is the expectation that we retain all those inshore elements and add on perhaps those other elements that are more reflective of best practice?

Mr BAKER - I think it is fair to say that in producing the plan the expectation is, and was, that the growth would be more offshore than it was inshore.

Taking up Colin's point, these plans are reviewed every 10 years. So, yes, the expectation is that is where growth will be. In terms of existing closer to shore leases or plans, ultimately they have been through the full statutory process and, as has been described, not only for environmental assessment but also for social impact and other activities around those areas and they will continue to exist for as long as they continue to meet those requirements. Having said that, I guess my key point to you with these is I am not in a position to talk about what the industry and the salmon companies' views are and where they are going to be moving and what they are going to be doing with their existing leases.

CHAIR - No, I am mostly interested in this instance the department's views or the Government's views, which we can speak to the Government about, in terms of the appropriate shape and features of our industry here overall. Again, not lease-to-lease or plan-to-plan, but in terms of an expectation looking to the future what that industry looks like in this state. Does it retain inshore and expand into offshore?

Mr BAKER - In response to that, I would say we will continue to assess applications for finfish farming wherever they are and make those decisions and provide the panel and the minister with information based on the best science available at the time and the best information we have about the likely impact.

Mr FINCH - Regarding onshore farming, is there much discussion taking place at this stage? Does it represent a positive future for the industry?

Mr BAKER - That one is definitely one I will pass on.

Mr SHEPHERD - Obviously that is probably a question best posed to the industry, but what we are starting to see are some developments where the industry is looking to increase the size of the smolt before they introduce those into marine waters. We are starting to see onshore facilities now where the smolt are grown to a larger size than they were traditionally. There is definitely that happening but in terms of the viability of full production being land based, I think that would have to be a question for the industry.

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Mr FINCH - Do you have an understanding of whether the fish can go from the young stage right through to being processed on land?

Mr SHEPHERD - My understanding is that there are potentially examples of that happening overseas but again it comes down to the viability of that being able to be proven economically. At the moment, from what I understand in this state, it would not be a viable option.

CHAIR - Just to follow up on that, in regard to hatcheries, we have a mixture of flowthrough and recirculating hatcheries presently in the state. Does the department have a directive to industry or an expectation that industry transitions to fully recirculating systems, given it is understood that would be more a best practice and more sustainable model to use?

Mr BAKER - I do not want to appear as if I am not going to answer your question, but I am not because that is a question for the EPA. Specifically its role is the management of hatcheries. That is part of the transition that is happening.

CHAIR - I am not interested in the management of hatcheries; I am interested in the forward-looking planning and strategy for the state when it comes to that aspect of this industry.

Mr BAKER - I am saying that, as described, is the responsibility of the EPA and those questions are best addressed to Mr Ford later this week.

CHAIR - He would be responsible for setting the state's policy on future features of that whole aspect of this industry?

Mr BAKER - The Government would be responsible for setting the state's policy but implementing that policy and comments around the science are best directed to Mr Ford.

CHAIR - Just sticking with the growth plan for a tiny bit longer, I note that originally a reference group was going to be formed, a broad-based reference group to develop milestones and track progress on the implementation. That seems to have gone by the wayside through to the time of review of the plan. I am interested in why the decision to step away was made, whether milestones in fact were developed and, if not, how is progress being measured in terms of this plan?

Mr BAKER - The decision to set up the reference group was one for the Government and they have elected not to do that. What we do have is a pretty comprehensive one-year review with a series of actions and their status. To answer the second part of your question, I think it is well demonstrated in the one-year review that the Government is tracking the actions set out in the plan and that they and the department are progressing quite well against those actions.

CHAIR - I note that the actions don't have milestones or timelines attached, so how is their accountability in terms of progress against those actions?

Mr BAKER - The accountability comes from the Government and the department on behalf of the Government providing annual reviews and how we are tracking against what they say and what we said we would do in that plan. As for the make-up of the committee, it would be reviewed every two years, I am being told, not every year.

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CHAIR - It is interesting to review but not have milestones or time lines against which to review the actions undertaken in the plan so that is what I am inquiring about - the absence of that, especially because the intention appeared to have been to develop such things with a broad-based reference group with a range of stakeholders, including the ancillary sector and the scientific community.

Mr BAKER - In response to that and what has replaced that is, first, a one-year review and then two reviews after that.

Ms FORREST - Regarding the one-year review, if you look at action number 6, adoption of a new zero-tolerance approach to marine debris and related boating safety issues, I understand someone has had the task of reading all the submissions, as we have. It was an issue raised frequently by other waterway users in these areas. I accept that marine debris is not only related to finfish farming, it comes from many sources, but it seems that perhaps that is not working according to the information we have. Can you provide some information about what you are doing about that and what progress is being made? It is noted to be green, which means that it is underway or working, doesn't it, performing to plan?

Mr BAKER - I will ask Fiona to answer this as she lives and breathes this every day.

Ms BOURNE - In relation to marine debris, significant work has occurred. We have been implementing the Government's zero-tolerance approach to marine debris. We have officers authorised at both Marine and Safety Tasmania and within the department who are authorised to issue infringement notices when it comes to marine debris and we work closely with Marine and Safety Tasmania to make sure it is a coordinated approach. We have been working with industry through the development of gear registers, marking of gear that occurs so that we can track it when it does go off farm.

We take an approach in trying to identify the reasons why things are going off farms. There are some things that are just unavoidable - for example, a storm event. We are taking actions to ensure that as soon as the debris is identified, it is collected and removed. There has been a greater emphasis on the notice to mariners when something is seen in the environment, so that people are immediately aware of the potential risk. The companies have been working with us to the point where the nearest available company when something is found can go out and collect and they often do. We have been working closely with industry and with the farm managers to develop programs and procedures to ensure, as best as we are able in an active environment, that gear stays where it should be and reduces.

Ms FORREST - In terms of the expansion plans, and this is what this is about, the growth plan particularly, it seems to me that if there is already a problem and the zero-tolerance approach is not being as effective as it needs to be for the safety of all water users, how are you possibly be going to manage growth when you are going to potentially allow more marine farms to be put in the water?

Mr BAKER - We have upped the resources already in terms of compliance officers. I think it is a fair expectation that as the industry grows there will be a continued need to continue to resource it. That resourcing will have to continue as the industry grows, which Fiona will be very happy to hear me say, no doubt.

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CHAIR - In terms of the allocation of resources with the MAST and DPIPWE authorised officers, is it your assessment that this is an adequate coverage of the state to undertake the role they are tasked with?

Ms BOURNE - My assessment is that the resourcing we have available is appropriate for a rolling and ongoing program that is, in effect, in partnership with industry as we go along. They are also increasing their vigilance as to what is on their farm and what is not on farm. The companies are also conducting regular shoreline clean-ups and publishing data on their individual websites as well. Marine debris is not a solely a regulatory response. It is a partnership between the Government and industry to ensure that best practice is put in place to manage marine debris and to try to prevent it.

CHAIR - Action point 6 in the plan notes that in enforcing the zero-tolerance approach, the Government will establish deadlines for the universal adoption of best practice tracking technologies and simple ways to identify the source of debris. There is no mention of that in the review at the one-year mark. Have such deadlines been established for that universal adoption of the technologies?

Ms BOURNE - We are working with industry over a different range of various different technologies. Some are quite simple around the gear registers and identification. The policy document, it is fair to say, was envisaging using potentially new and emerging technologies that may be available to assist with tracking, GPS locators et cetera. As that technology is developed, we will be working with industry to try to roll that out.

CHAIR - Are we no longer setting deadlines for this?

Ms BOURNE - At this stage we are working as we go, when the technology becomes available.

Mr FINCH - From the evidence we have heard so far during this inquiry, we could be forgiven for linking marine debris mainly to the salmon industry. Is that fair? Is this debris we are talking about a new development over the past couple of decades because of the salmon industry? Has it always been there, and what evidence do you find that a lot of this debris is from the salmon industry?

Ms BOURNE - It is fair to say that whenever you have human interaction on land and the coastline, there has always been a level of marine debris. It comes from a variety of sources. Marine farming is but one of those. As you have had more intensification of human activity in and around the marine environment, unfortunately, there has been an increase in marine debris but the salmon industry is being particularly responsible in trying to make steps to avoid it as much as possible and remediate and collect when things do end up in the marine environment.

Mr FINCH - It seems to be a big concern for people who want to make complaints about the industry. Do you have any idea of the percentage, how much you would track back to the salmon industry? Is there any sort of figure from the evidence you are receiving about marine debris that is collected?

Ms BOURNE - I would have to take the exact number on notice. I am aware that when we have shore clean-up days, assessments are made around what the quantity of the debris is and what the likely source of that debris is, but I do not have that number with me right at the moment.

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CHAIR - Some of those figures are on the data portal but it only relates to industry-conducted shore clean-ups and particular areas. It is hard to extrapolate that, but I would think, broadly, the question of marine debris across the whole environment -

Ms FORREST - That data relates to shore-based debris, but a lot of debris doesn't get to the shore or it might not for a while in transit from wherever; whether it's off a ship - a ship unrelated to salmon farming - or whether it's off a lease site or a ship related to that, it spends some time in the marine environment where it can foul engines and things like that. Do you actually collect data? If someone reported their propeller being fouled with a rope or some other pipe or something like that, do you collect that data as well?

Ms BOURNE - Yes. That data is collected through the marine hotline and also now through the marine debris app developed by industry. So that data would be available through those two mechanisms.

CHAIR - Is that data reported publicly?

Ms BOURNE - I will have to take that question on notice,; I'm not sure.

CHAIR - I'd quite like to know that.

I'm interested in the app and the hotline. Why would the app not be something that's facilitated independently or by government? The reason I ask is that when I've gone on to look at the app - and I would be required to sign in and give my personal details including contact details - if I were somebody in the community who did want to report about issues like marine debris, I would probably prefer not to report it directly to industry. I would probably prefer to report it to an independent or government-related entity, especially if I have to give my contact details. Could you comment on the decision made not to have that be independent?

Ms BOURNE - It's my understand the marine debris reporting app was an initiative of industry to address the issue of marine debris. The exact nature and contents of that app - you would have to ask the industry around why it chose to develop it that way.

CHAIR - How does that then correlate into your system in terms of collecting the data from the app and publicly reporting on the data from the app?

Ms BOURNE - I would have to take that on notice, I'm sorry.

Mr BAKER - Can I just make the point, though, picking up on what you said, if a member of the public felt any concern whatsoever about reporting via the app, they can contact the department directly and they can do so in an anonymous way.

CHAIR - Then would there be a follow-up process back to them in terms of the response to their report?

Ms BOURNE - We don't individually report back to an individual who makes a complaint about marine debris. We are more focused on collecting the marine debris and making sure it no longer stays in the environment and conducting any necessary compliance action that needs to be

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done as a result of that marine debris. We don't then report back to the individual to say it's been collected. However, if it is marine debris that has resulted in the need for a notice to mariners when it is no longer in the marine environment, that notice to mariners is cancelled and that is a public process.

Mr VALENTINE - In submissions we're receiving, there are calls for a one-stop shop, if you like, for reporting. People get the run around a bit - 'Oh, no, there's not much point talking to us, you need to talk to this body or you need to talk to that body'. Marine debris reporting is one thing but there might be lots of other different aspects. Has there been any discussion about having that one-stop shop?

Mr BAKER - Yes. To be honest with you, Mr Valentine, it's feedback that the department has received, but it's not uncommon in a complex regulatory environment, whether it be finfish or it could be a range of other industries across the state.

Mr VALENTINE - I can appreciate that but -

Mr BAKER - What I would say is that it is very complex. It's multijurisdictional and it is an issue, but the fact that it is multijurisdictional and complex is also a strength of the regulatory environment we've put in place. What I would say is, yes, there has absolutely been discussion about the one-stop shop and how we could do that in the department. Equally we have found that the community wants to communicate with the department in different ways. Some want to write the letter, some want to call the number, some want to speak directly to the person in the EPA, others want to do it via the app. I think the one-stop shop makes sense but as the acting secretary, I'm also very keen to ensure there are multiple channels so that if someone has an issue, they are able to get to us.

The challenge for me and my organisation and the people sitting at the table is making sure when we get that, we action it appropriately and that we communicate well across the multiple channels that are the department. The department is probably one of the broadest in scope and scale in the state and it's always going to be a challenge for us how we best communicate. What I'm keen to do is ensure that if someone in the community has an issue or a concern, they can get it to us however they want and that we action it appropriately when we get it.

Mr FINCH - What is the track record of the department in respect of handling complaints? What's your understanding of the track record?

Mr BAKER - I would like to think it's very good. I have 1500 very dedicated staff who do their absolute best to manage across a broad range of areas and industries. As I've said, we've always acknowledged that this is an issue - the challenge for myself and my senior team who are sitting here is to make sure that when we get those complaints that we action them as quickly as we possibly can, and that we communicate with each other.

Sometimes an issue is raised that might be a biosecurity issue and it might also be an issue from the EPA. The one-stop shop makes sense but we also have to make sure we have as many channels open as possible so that the community feels they can come and talk to us.

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Mr FINCH - Is this a review that is taking place? Is this an assessment that's taking place under your leadership that the outcome will be a better system and a better operation for the general public and people who are concerned to make complaints about these issues?

Mr BAKER - Mr Finch, I am acting in the role and I've been here for two weeks, but I would say that in the time I've been involved with it, which is now at least five to six years, my department has always been about continual improvement. We don't need to do a separate review.

We are always looking at ways we can communicate better. The bloke sitting next to me ran the fruit fly response and, as a result of the fruit fly response, there is a whole of range of things we're now doing better across all of our department that we learned from that.

It doesn't matter what the issue is, we are always looking to improve. I am telling you that as the acting secretary, I know we can improve the way that we communicate to the public and how the public communicates with us. It's the same problem every large organisation has with multiple issues running at once and it is an issue that is constantly talked about around my senior management table.

CHAIR - I'm going to take you back. You mentioned that the idea of the one-stop shop is quite a sensible one in many instances. I will put it to you that having a single place of contact still allows for multiple avenues through which to make contact. The single point of contact provides you with - I would think the most valuable thing - is the ability to communicate one single message out to people about where they should, through whatever avenue they choose, make contact.

At the moment, I'm wondering: What does the department do in terms of educating the public and in terms of putting public information out there about how to contact and who to contact when it comes to marine debris or other issues relating to the industry? What does that look like in terms of information and education to the public?

Mr BAKER - I am going to let Fionna answer that, but I want to comment upfront that I agree with you about the one-stop shop. It doesn't have multiple sources into the one place. That's what we try to do. Fionna, I will get you to talk about what the practical reality of that is and how that works.

Ms BOURNE - As you said, there are multiple ways of entering into the department. We have on the salmon portal the contact details for the marine farming branch, which is the first point of call for operational matters that relate to the salmon farms. Marine debris would be inclusive within that context.

We often get through that mechanism information or requests for information around stuff that is within the purview of the EPA so as soon we get it we forward that straight to the EPA. The EPA has its contact details clearly on its website around what people need to do.

As Tim said, as a large organisation it is quite difficult to manage it in the one space and the one time but we do have the options around there and the salmon portal has quite clear contact details about salmon farming, in the first instance come to the marine farming branch.

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Ms FORREST - On the data portal, when the plan was first established and set the intention at the time was to put the data portal into IMAS or some independent body like that. It's now sitting with DPIPWE. Can you explain the decision-making around that?

Ms BOURNE - The decision was a decision of the government of the day. When it started to look at the implementation of developing a salmon portal, it realised, and it was clear, that there was already in the public domain a significant amount of information from the EPA on its website about environmental compliance and management.

IMAS had quite an extensive website of its own about where its science was at. The gap, what was missing, was more in the operational and regulatory space. The decision was to increase the transparency around there, because those are the data that needed to be made more visible. As the data rest with the department, it was more appropriate that the portal rested with the department as well.

Ms FORREST - The information on the portal is one of the things the industry and the community were crying out for before the salmon plan was put in place. It is great that it is now operational.

One of the problems identified by witnesses at our previous hearings and in the submissions is that the data are not necessarily comparable. There are different measures. It is not a consistent dataset. It makes it difficult for users, or people who would like to look at the data, to make a determination.

I am not saying everyone has the skills to assess these data, but when they are made in different units of measure, for example, and things like that, it makes it impossible if this is intended to be an open and transparent process to help the community feel more confident that the industry is being managed sustainably and environmentally sustainably as well.

Do you have a comment about that, and are there actions to be taken to address those concerns?

Mr BAKER - I guess this is another one of those ones where we are all about continual improvement. We have the data up; we have met the requirement. Are there ways we can improve the data and how they are displayed? Absolutely we can, and we will continue to work through that as we go.

It is not a 'set and forget'. I have read most of the submissions. On the information I saw in there, I think there is opportunity for us to look at how we can improve the dataset. The big milestone was getting the data up there, which we have done now. Now Fiona and her team will be progressively improving those data, based on the feedback that came back through this process and also the feedback we have received directly.

It is certainly not the intent, and I wouldn't want anyone to think that it is the intent, of the department to confuse or to make it difficult. There are a lot of data and a lot of data being put up there. As we go, we will continue to improve the way we display it and the consistency of the data sets.

Ms BOURNE - I think Tim has covered it. In designing the portal, we looked at how best we could try to break down what is quite a complex dataset. Which is why, when you look at the portal,

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some of the data are reported by way of plan area because we thought that was most appropriate, and it was the easiest to understand and gave a significant level of detail.

The others are reported in a more industry-wide area for various reasons, including some commercial sensitivity reasons and needing to make sure that in providing those data we don't in any way compromise the companies from their respective reporting requirements to the ASX, for the companies that are listed.

That is then provided in more industry-wide, holistic data rather than at the plan area. We did look at a very complex dataset.

Ms FORREST - And that works ongoing, obviously, to make it more user friendly? That is the commitment?

Ms BOURNE - Yes, we are continuing to look at that.

CHAIR - I'm interested in what input you sought and from whom, in determining what data you would present on the portal.

Ms BOURNE - The data we presented on the portal - as I said, we identified the gap - were the regulatory data. The missing data were data reported to the department by way of their licence conditions. That is the information that went on to the portal.

CHAIR - Have you mapped out then the data and the different sites in which it currently sits for public access? Do you have that mapped out in some way that also could be a resource for people to navigate and understand where to find different aspects of data relating to the industry?

Ms BOURNE - We don't have that publicly available, no. As Tim said, we are making efforts internally to try to improve our data; it's a continuous improvement. We are also looking at ways we can have a backend black box of the different data inputs that come in so it can go out in a more unified way. That is more of a technical internal data management process that we are going through.

CHAIR - So that's available to the public?

Ms BOURNE - Yes.

CHAIR - I am interested in that because in many instances the data presented in the portal is limited: it's a yes or no, or a tick or a cross. When I look at it, I can't then interrogate it further for detail - in fact, in some instances I was sent to a link that may be historical data, which is actually broad and generic and doesn't actually give me historical data for the thing I was looking at. I am just wondering, in terms of reviewing and improving as you go, which I understand is your intention, how will you go about getting feedback from the relevant stakeholders who may use that portal to inform improvements or further developments?

Ms BOURNE - In part that would be through the submissions made to this inquiry. As Tim indicated, it's quite a common theme we have picked up through looking at the submissions. Also, any recommendations from this inquiry, but we are also continuing to look at our data and how best to display those in a way that is meaningful.

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Mr BAKER - We have received individual feedback on the data and as we get those and we have a look to see if it is possible to accommodate the requests.

CHAIR - Given that the data portal on went live at the time we were seeking submissions for this inquiry, it is not that many of them are tailored to give feedback on the portal, so it is probably worthwhile to seek that feedback from some of those relevant people, I would have thought. Are you aware that one of the groups that had made an submission to us and presented to us last week, Neighbours of Fish Farms, had actually done a review of the different data availability through various websites and has some substantial comments and feedback to be made?

Ms BOURNE - Up until seeing the submission I was not aware of that, no.

Mr VALENTINE - I am interested in where you talk about competitive tendering for access to any proposed new and untried farming areas in the plan, where it says the criteria for success are to be determined by government. I am interested to know what they might look like. Do you have any understanding as to what the criteria for success would be when looking at those tenders and what proportions are likely to be focused on community aspects, environmental aspects as well as other suitability for farming?

Mr BAKER - I think in some ways you have answered your own question. It is a matter for government to determine those criteria, not for the department. Broadly speaking, it has to be consistent with the principles set out in the plan, but ultimately those criteria are for government to determine, as it says.

Mr VALENTINE - Okay, it's a question for the minister. I will ask that question of the minister.

Under 'Efficiency, effectiveness and transparency', it talks about an industry-funded fish farming compliance and monitoring unit in the EPA. I am interested to know how that might structurally be managed. Obviously, there are a number of possibilities but presumably it is EPA-staffed and at arm's length from industry - can you - ?

Mr BAKER - I don't want to sound like a broken record, but that is a good question for the Director of the EPA, given that the resources will be in the EPA. I don't really want to be in the position -

Mr VALENTINE - I realise the resources may well be there, but I am just looking at the principle and it is in the growth plan, which is under your remit. You have only been there two weeks, I appreciate that, but I wonder if someone can tell us what it is likely to look like.

Mr BAKER - Notwithstanding that the question is best directed to Wes, I can tell you that they will be completely independent and sit in the EPA.

Mr VALENTINE - Is it funded through a levy?

Mr BAKER - That's right.

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Ms FORREST - In relation to the growth plan, I think, Tim, you said earlier that this was an aspirational target set by Government based on advice from industry et cetera. The one-year review section talks about this as well. When you look at number 15, 'Marketing and export development support linked to Tasmanian brand development', my question is - and this has been raised by a number of submitters and in the broader community - the rate of growth being proposed here is an almost mass-produced product as opposed to a niche product, which Tasmania's brand revolves around: how do you see that linking to the Tasmania brand if growth to that extent occurs in what could be a fairly rapid process? That may be a question for the Premier's Office but you came from there, so you may be able to give some insight.

Mr BAKER - I did, but I am not going to be drawn into answering questions about the Tasmanian brand other than to say that we are confident that the target set, as described, is sustainable and that it is consistent with the Tasmania brand. In terms of questions to do with brand, Todd Babiak is your man. He is the head of Brand Tasmania. Our job is to implement the rules as set in government policy and the legislation, not to make comments on what will affect the brand other than what I have said consistently this morning and others have, that we feel that the target is sustainable and, on that basis, shouldn't impact on the brand. In terms of broader conversations around the Tasmanian brand whilst I worked in the Premier's Office, I don't any more.

CHAIR - In terms of that terminology of 'sustainable', do you have a ready definition you are using when you utilise that term in this context?

Mr BAKER - I do in the context of what was put in the plan, which is to meet those three objectives: to continue to deliver tangible benefits to Tasmania through sustainable growth; remain an industry Tasmanians can be proud and confident of; and be the most environmentally sustainable salmon industry in the world. We believe the target in there will meet that requirement. Colin has helpfully put a piece of paper in front of me that he can read himself, if he wants.

Mr SHEPHERD - As has been described before, all the legislation DPIPW administers is based on the resource management and planning system, which talks about sustainable development. There is a definition within that I can read out but I am sure you are probably aware of. That is the mantra we are operating under and the one we would use to describe sustainability.

Ms FORREST - When we look at the historical impact on Macquarie Harbour, which I take a great interest in, clearly that didn't work. We have since changed arrangements for the environmental controls for that, but that was a blinding example of the potential of real harm to our brand. The number of fish in the harbour has had to be significantly reduced. The EPA is responsible for reassessing this and it will be a matter I will take up with the Director of the EPA as well, but it has real potential to directly impact Tasmania's brand if such a disaster, and I call it a disaster because it was a disaster in Macquarie Harbour, occurs again. How can we be sure that such rapid growth, which is what happened in Macquarie Harbour with the rapid increase of stocking levels and, based on evidence available at the time, allegedly, would not have a similar result if we have a massive expansion say in Storm Bay or any other part of Tasmania?

Mr BAKER - I will make a few comments on that and then I will let Colin or others make some comments. The first thing I would say is you use the word 'allegedly'; the decisions were made using the best science that we had at the time. I think everyone involved acted in good faith in providing that science and making the recommendations that they did.

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My second point is this is exactly why we have the adaptive management approach we use, that we have talked about and that Wes will talk about later in the week. When the science changed, we changed the approach. That is completely reasonable and completely understandable and what people would expect.

The third thing I would say is that Macquarie Harbour is a unique piece of water and very different to any other areas where salmon is being grown in Tasmania. They are the three points I would make, Colin, I don't know if you wanted to add anything else?

CHAIR - In terms of that, any piece of water is going to be a unique piece of water and Storm Bay would be unique in its own fashion. Leading into Macquarie Harbour and what happened there, would we have been describing ourselves as a sustainable salmon industry?

Mr BAKER - We use the best science available at the time to make the decisions we made and we then applied an adaptive management approach and modified our approach based on science. We operate based on science.

Ms FORREST - What it took was the industry, the industry themselves, to raise the alarm before the Government acted and before the EPA or DPIPWE acted to deal with this. Is that right?

Mr BAKER - No, I would not agree with that. I will let Colin speak but, again, I would say, the department has had an adaptive management approach in place for some time and, based on the changing circumstances in that piece of water, we change the regulatory approach and that is what you would expect.

Mr SHEPHERD - I can't add too much to that other than to say that we've got an attendant monitoring program in place in all of the growing regions and that allows us to track performance through time. That program was showing there were problems in Macquarie Harbour and, as a result, as Tim has said, actions were taken to mitigate those problems.

Ms FORREST - Who first raised the concern about what was happening in Macquarie Harbour?

Mr BAKER - I can't answer that. I wasn't in the department.

Ms FORREST - Can we find that out - who first raised concerns about Macquarie Harbour? I have heard a lot of concern from the locals, the old-timers who had been there forever and saw the harbour really sick. Was it them? Was it the industry? Who was it?

CHAIR - Perhaps you could point to the particular aspects of the adaptive management approach in place in Macquarie Harbour at that time that drove the response to it in terms of alerting, triggering a response and making a response in agreed or appropriate time lines. That way we would understand how the adaptive management approach worked, or otherwise, in that instance.

We have heard commentary about the precautionary approach and adaptive management approach in a range of submissions. We will have more questions around that, so we understand the department's perspective on it. The precautionary principle is explicitly in the range of legislation that underpins the way this industry is regulated. Do you believe we would see that principle applied throughout the regulation and management of this industry?

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Ms BOURNE - In relation to the planning element, the Marine Farming Planning Review Panel, in acting under the act and providing advice to the minister, is bound by those sustainability objectives in schedule 1. In framing their advice to the minister around whether a development plan should be approved or whether an amendment should be made, they do have that front of mind, the issues they need to balance. They are obligated by the act to consistently apply the sustainability objectives when they are making decisions and providing advice.

CHAIR - As the regulatory environment developed over time, at what point was adaptive management built into the regulatory system, particularly the formal approval process?

Ms BOURNE - It is my understanding that adaptive management has been involved in the management of approvals of the whole industry from day one. It has been part of it as we have built the marine farming development plans; they have had management controls contained therein that have been aimed at minimising and ameliorating any impacts that have occurred as and when they've occurred. They've provided the framework to do the marine farm licences and now also we have an environmental licence on top of that. They have always had conditions in them relating to managing the environmental impact and adaptively managing as you go.

CHAIR - Can I put to you a comment from the Environmental Defenders Office submission and have you reflect on that comment for us? The submission on page 19 said -

Adaptive management does not lend itself to scenarios where the environmental impacts of the activities are potentially serious or irreversible such as the loss of an endangered species or where too little is known to reliably anticipate the risks.

Could you comment on the accuracy of that as an assessment of adaptive management?

Ms BOURNE - I would say that is the Environmental Defenders Office's quite clear view and that's their statement. My view is that the sustainability objectives in the act and the precautionary principle has never been one that is illustrated that you are not to act in the absence but you are to act in accordance with the best available science that you have. Adaptive management will allow you to continue to adapt your approach as and when science becomes available.

Mr BAKER - It's important to recognise that the department doesn't seek to manage finfish farming with adaptive management alone. There is an enormous amount of work that goes into the environmental impact statements in the first instance which go to the panel.

It's really important to understand that there is a huge amount of work - and we're talking about over an extensive period of time - that goes into those environmental impact assessments which then go to the panel before they make a recommendation. I think sometimes gets lost in the mix.

Fionna, I don't know if you want to add anything to that?

Ms BOURNE - I think you've covered it.

CHAIR - In terms of that, we've had a reasonable amount of feedback through the submissions around what some people are describing as the inadequacy of baseline data at that early stage in the approvals process for areas being considered for expansion. The gaps in that baseline data then

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indicating that wasn't necessarily a suitable spot for expansion or not knowing yet whether it was with those gaps present.

Can you comment on those sorts of assertions about the gaps in baseline data? Generally, what's being talked about here is the Storm Bay considerations that have been made in recent times.

Ms BOURNE - As Tim said, in the preparation of either a draft plan or a draft amendment a significant amount of pre-work is undertaken including baseline assessments of the area in question, that the development is occurring. That information is contained in the EIS which is publicly available and released when either the draft amendment or the draft plan is made available for public comment.

That information is very extensive and EIS documents have become more and more complex as the years have progressed. One of the most recent ones was one for the Huon proposal in the North Bruny area and that totalled 700 pages of information in relation to their proposal and the environmental, including baseline data.

Mr BAKER - I was going to make the point that it is literally next to you.

Ms BOURNE - I have a copy of that EIS here to table for your information if you're interested.

CHAIR - I appreciate that a great deal of data is collected and involved in the preparation of those. The question which we are asked you to contemplate is whether the right data that is needed to make the right assessment is part of that, regardless of whether it's 700 pages or seven pages, or 7000 pages. That's why, I believe, when we spoke with IMAS last week they did indicate that potentially there wasn't a full suite of baseline data available at the time of considering approvals for the Storm Bay expansion, for example.

They also acknowledged that a large amount of data was available but potentially not all the bits that are now areas of interest.

Mr BAKER - Can I just take it back it a step to remind committee members that this is why we have an independent panel that assesses the EIS, the environmental impact statement? If there are things in there from their point of view, independent to government, that they want to see in that EIS, if there is baseline data missing or if there is work that hasn't been done, they can kick it back to the proponent and the proponent has to do the work. That's why we have the system in place we have so that they do work, the panel looks at it and if there's not enough information there or if the information isn't right, or there are things missing, it goes back and that is done at arms' length to the department and to the Government and the minister.

Ms FORREST - On that -

CHAIR - Let's talk about the planning system.

Ms FORREST - With regard to those comments, Tim, you said that that's the reason you have this panel and I'm sure you've read the submissions from former members of the panel who resigned expressing concern that there wasn't enough time and in particular the scientific evidence wasn't available. So, can you comment further? I am sure probably other members have questions as well with regard to this.

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Mr BAKER - I'm not going to comment about decisions made by an independent panel - a panel that is independent of the department and the Government. What I would say is that it's a nine-member panel. The process that was followed was consistent with the rules, as set out in the legislation. Anyone who's been on any board ever will know that there's going to be a divergence of views around the table but ultimately the information that was provided to that panel was acted upon and a recommendation was made to the minister. I'm certainly not going to comment on individual comments of members on an independent panel.

Fionna, do you want to add anything else, or Colin?

Ms BOURNE - There is already an existing extensive body of work that is involved in Storm Bay. There were various models et cetera that were prepared. The Connie3 model is one that is there. It's not a complete absence of science in Storm Bay.

CHAIR - No-one is asserting that.

Ms BOURNE - As Tim said, if there were questions that the panel required additional information on, they can and did ask for further information to be prepared and be provided for their consideration while they were considering the prospective proposals.

Mr VALENTINE - Can I just go to the point of saying it's an independent panel and you're not going to comment on that? I can appreciate you mightn't want to do that or should do that but it's not recorded anywhere. If you have a planning appeal or you have something like that that goes through the RMPAT - all of those sorts of things are open to the public and available. So, one would expect that maybe this is something - and I'm saying this because it's been brought up in our submission so it's not an open process and it needs to be recorded. Do you have a comment on that and the fact that members of the public really don't have access to the reasons behind the decisions that are made by the panel?

Mr BAKER - The panel does make a report, Mr Valentine, at the end of the process, which goes to the minister and which is made public. Actually, we have a copy of one we can table today so it's not done in complete isolation -

Mr VALENTINE - I appreciate there's a report but in terms of deliberations, councils have to deliberate in the open. As I say, other aspects of the planning process for land-based, so one might expect that the same should occur in this instance.

Mr BAKER - Two points: one they can also hold hearings, as I'm sure you're aware which I think in this case they did, and the second point I would make is the point I have a few times today which is any enhancements or changes to the legislation are a matter for the Government. From our point of view, the process followed was consistent with the rules as they are set out and the minister received a recommendation from an independent panel and made a decision based on that.

Ms BOURNE - As Tim said, a number of documents end up in the public domain as a result of the deliberations. For an amendment, a section 40 report is prepared. That report contains the submissions that we've received and comments around whether the amendment needed to be modified in light of those submissions.

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If the panel were to receive, as part of the public process, a request to conduct a public hearing, they are obliged to do so. In the Storm Bay instance, requests were made and public hearings were made available on the process. The panel also provided quite a detailed report on its deliberations and its recommendations, and that also was publicly released.

CHAIR - Is there a public record of the hearings?

Ms BOURNE - Do you mean a transcript of the hearings?

CHAIR - Yes, so that we could go back and look at it on a later date.

Ms BOURNE - Not publicly available, no.

Ms FORREST - This is a public document now, and a submission from two former members of the panel.

I am quoting directly from their submission and they say -

The flaws in the legislation have directly resulted in environmental harm of Macquarie Harbour, which is unlikely to fully recover.

Poor functioning of the Marine Farming Plan Review Panel includes the inability to apply sound science and unwillingness to discuss and learn from changes, e.g. Macquarie Harbour and the emergence of POMV.

Further, they say -

We were not allowed to consider the previous salmon industry issues in Macquarie Harbour as they were considered irrelevant by other members of the panel.

...

We were not allowed to apply biosecurity recommendations from the Global Salmon Conference 2017, Carter et al. 2019, to assess MFDP. This inability to take into account the latest information and policy recommendations jeopardises the sustainability of the Tasmanian salmon industry.

You would agree that these are quite genuine and legitimate concerns about a panel making a decision about a future expansion when they couldn't, according to their evidence, reflect on what had happened in Macquarie Harbour, which we know was based on the best available science at the time. This is the point now: we are basing this expansion plan on the best available science at the moment.

There was also biosecurity recommendation. That was also a concern.

I would like you to comment on those concerns raised by the panel. You probably had staff watching our hearings last week. There are people who have presented to the panel in a public hearing that they have been required to hold, who felt that they weren't listened to or weren't heard.

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I know you can't comment specifically on that, but it is difficult for us to make any assessment of that in the absence of a transcript or anything else.

I would like you to comment on those particular concerns raised about the inability to use past experience to guide future decision making in terms of preventing environmental harm and ensuring a sustainable industry, and the biosecurity recommendations of the Global Salmon Conference.

Mr BAKER - A few points. You are right, I am not going to be drawn to get into a back and forth about what individual members of the panel said, other than to say I am also aware that those views aren't consistently held by everyone who was on that panel.

On past experience in biosecurity, I will pass over both ways.

I reinforce the point I made earlier, which is: this is an independent panel, with independent views; all that demonstrates to me, as acting secretary, is that we have a robust system with panel members who have different views. That is what you would expect when you put nine experts in a room together.

I am not going to comment on whether what they have said is correct or incorrect, wrong or right. They are entitled to their views. What I do know is that their views aren't consistently held by everyone who was on that panel, but I think they are entitled to those views.

In terms of the ability to consider, we focus on the issues rather than the individuals.

CHAIR - That's exactly what we are focused on.

Ms BOURNE - In relation to those matters, when the panel was looking at the original draft amendment that was prepared, it went out for public comment that the submissions were received on and the public hearings were conducted on. The panel did actually make changes to the proposed draft amendment before recommending it to the minister. Those changes did relate to strengthening the biosecurity management arrangements that were in the draft, to reduce biosecurity risks; the changes related to providing additional reporting requirements to the type of therapeutants that are used -

Ms FORREST - What does that mean?

Ms BOURNE - Antibiotics and other therapeutants.

Ms FORREST - Vaccines and things like that? The public needs to understand what we are talking about here. Let us try to avoid language that may be difficult for members of the public to understand.

Ms BOURNE - Antibiotics, vaccines et cetera. They provided the Director of the EPA with the ability to impose a remediation and monitoring at the cessation of marine farming; they reduced the maximum stocking density to a level more in line with industry practice; they required provision of evidence that the system securing the marine farming equipment was appropriate in relation to the expected risks of the more active environment; and they also further strengthened the requirements of leaseholders to notify the appropriate authority when navigational hazards occur in

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relation to activities conducted. The panel did make amendments to what was originally proposed based on the submissions and the input.

Ms FORREST - Before you go on to the biosecurity issues, you may not wish to comment at all but I wanted to ask if you want to make any comment on the comments made by some of our witnesses in the way they were treated by the panel. They felt like they weren't heard.

Mr BAKER - My answer to that is no, I won't be making any comment about the way a panel that is independent of government and of the department has acted, other than to say that the department is confident that the process followed was consistent with the legislation and the recommendation was sound to the minister.

Dr KLUMPP - I can't talk about the panel at all because it's not appropriate. Second, I don't know anything.

CHAIR - Can we come back to biosecurity later? We have still have some more to talk about the panel. We would like to talk about biosecurity matters because that is definitely on the list. Can we come back to that presently? Is that okay?

Ms FORREST - Unless Lloyd wants to make any specific comments about the comments that were made here in relation to the biosecurity conference findings.

Dr KLUMPP - Can we come back to it later?

Ms FORREST - To the conference findings?

Dr KLUMPP - I can make one comment and come back to it later, about the recommendations from the global symposium. We have certainly built those into the process we are currently undertaking now.

Ms FORREST - Of what, sorry?

Dr KLUMPP - We have built those recommendations, and a whole lot of other material, into the process we are undertaking now in the development of the salmon industry biosecurity program to be underpinned by the act.

Ms FORREST - Will that then apply to this lease?

Dr KLUMPP - Sorry?

Ms FORREST - As I read in the submission here from the former panel members, they were not allowed to apply the recommendations. You are saying that in the future in the biosecurity program, which we will come to, that will be considered. You are adopting those things.

Dr KLUMPP - Not considered, we are adopting them, yes.

Ms FORREST - So how will that apply retrospectively to existing farms?

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Dr KLUMPP - That is a complex matter. The answer is yes, we will introduce a set of standards for biosecurity in the salmon industry in this state, underpinned by the legislation which will apply universally.

Ms FORREST - We will come back to that perhaps. That was the concern though, that once this is approved, these are the guidelines and rules around this particular expansion or whatever, and whether the plan that follows will apply retrospectively. We will get that in more detail later.

CHAIR - Back to the panel and some structural matters around that, which you may or may not be able to comment on. We have heard from some submitters concern that, on the mix of expertise and skills on the panel that is required or that is possible under the legislation, there is no requirement for any of the appointed panel members to hold specific qualifications in environmental marine resource management, there is no requirement for any panel members to have expertise in marine ecology or hydrology, and there is no community representative required on the panel. Were those particular areas of expertise and representative roles considered when drafting the legislation that outlined whom the panel needed to consist of? Or is there any suggestion now that it would be appropriate to have those skills required to be on the panel? It may be that they are there, but they are not required to be there at the present time.

Mr BAKER - My answer to that is the same as to a number of questions today, which is that ultimately our job is to implement the rules as set out in the legislation. A number of roles are set out in the legislation. I am unaware of any plans for the Government to change those as set out, but I am not really in a position to comment other than to say that the positions set in the legislation are currently filled with people who meet those requirements. I can read those out.

CHAIR - That's fine, I am more interested in requirements that don't appear to be there. I am also interested in a quorum on the panel. How does that function and is there a requirement that particular expertise is present within a quorum if decisions are made?

Mr BAKER - I don't know the answer to that question. I might have to take it on notice.

Ms BOURNE - The act sets out the quorum requirements for the panel. It is five members of the panel, which I will confirm in the act. It does not, as far as I am aware, say which five members it needs to be.

CHAIR - You could have a quorum engaged in a decision-making process on behalf of the panel that had a predominance of industry representatives or, potentially, a dearth of scientific representatives.

Ms BOURNE - The current membership of the panel, as set out in the act, and the individuals contained therein have a broad range of skill sets. None of them is directly employed by any of the industry representatives. Some members are appointed for one particular heading, but they have a range of experience over several fields, so they would be equally suitable to have appointment against one or other of the other skill sets required by the panel. The full breadth of knowledge of all of the members are brought to the table at all times, not just purely this specific headline they are appointed for.

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CHAIR - Noted, but in terms of what we could be given comfort with externally, through the legislation, there is not a requirement that there is a particular skill set or experience present in the quorum at a decision-making moment, just to be clear.

Ms BOURNE - I would have to go back to the act to double-check.

Mr VALENTINE - It's in schedule 3 and it simply says that the quorum at any duly convened meeting of the panel is five members and it doesn't have any other statements. A duly convened meeting of the panel at which a quorum is present is competent to transact any business of the panel. It doesn't have any riders, as far as I can see.

CHAIR - In terms of what transpired with the two panel members who resigned from the panel, we have heard some quotes and received submissions from those two members. Given that is quite a significant act to have occurred and the concerns put into the public domain by those two individuals, was a review conducted, or some sort of assessment of the composition of the panel and the way that panel conducts its decision-making functions, prompted by those resignations?

Ms BOURNE - If you are talking about the specific decision, the panel -

CHAIR - No, I am not talking about the specific decision. I am talking about the things those two individuals have highlighted in their assessment to be deficiencies of the way the panel operates, broadly. Did that prompt at that level, not at a specific decision level but at a whole-of-panel level, contemplation of whether the panel was appropriately configured under the legislation and was able to fulfil its function given those issues raised?

Mr BAKER - I think I am best placed to answer that. As far as I am aware, the Government has no plans to change the configuration of the panel. As I have said a few times, from the department's point of view, the recommendation in the report that went to the minister was consistent with the legislation. As far as we are concerned, our strong view is that it was consistent with the legislation and was sound.

Ms FORREST - Can I ask that you provide to the committee a current membership of the panel, with their expertise?

Mr BAKER - I will take that on notice.

Mr SHEPHERD - It is in the submission.

Ms FORREST - Is that the most current?

Mr BAKER - We can also give you a bit more on each member.

CHAIR - I want to take you back to my question. I heard you say that the Government does not have any intention to change the way the panel is configured or how it functions. My question was, was there a review triggered by the resignation, some form of formalised review or consideration of the concerns raised at the time?

Mr BAKER - I wasn't in the department at the time, but as far as I am aware, no.

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Mr VALENTINE - In section 3 of the schedule, meetings of the panel -

- (3) A question arising at a meeting of the Panel is to be determined by a majority of votes of the members present and voting.

Three members that could carry a vote with a quorum of five.

CHAIR - Three members out of the nine.

Mr VALENTINE - Out of a minimum of five that might be present.

CHAIR - The total number of members of the panel is nine, a quorum is five and a decision could be carried by three as a majority of the five. One-third of the panel could be in favour of a particular -

Mr VALENTINE - That is according to the schedule 3 of the act.

Ms FORREST - Panel members should turn up.

Mr BAKER - I would note that I would be very surprised if that were not reflected in the report, which is made public, that goes to the minister.

Mr VALENTINE - It is a question we might put to the minister.

CHAIR - It would be interesting to see a table of panel configuration in terms of decision-making and how many panel members were present at decision-making points, even across the most recent few years of decisions made by that panel.

Mr BAKER - We can get that.

CHAIR - That would be great. Do you want to talk about biosecurity now? Lloyd has been waiting.

Under the sustainable growth plan, action point 3 talks about the biosecurity plan to be progressed. The one-year review says that analysis by industry and the department of the marine farming development plan areas is progressing to inform the biosecurity program. Is that analysis still underway? Is anybody other than industry and the department involved in that? For example, are there independent scientists or entities and when will that analysis be completed to move through to an outcome?

Dr KLUMPP - I might more fully answer that question by going back and giving a little bit of history as well. This whole process started around 2014 when the industry and DPIWWE collaborated in the development of a salmon biosecurity plan for the state held by the TSGA but the technical input into that was by the technical experts from industry and the department. That program formed the basis of agreements between the companies and the government about how biosecurity was managed.

However, the advent of what was called salmon orthomyxo-like virus, which we have now characterised as pilchard orthomyxovirus, demonstrated to us that the risks were increasing. As a

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result of that, some actions were taken. One of those was the Director of the EPA and I touring other salmon-producing countries to look at their regulatory frameworks, understanding that they had been through major biosecurity events. We looked at the way their industries were structured, the way they were regulated and the mechanisms from a biosecurity point of view, for me, that they used to reduce the risk. That was 2016.

In 2017-18 we saw the Global Salmon Symposium, where a range of people got together, coordinated by IMAS but very heavily engaged in by the industry and the department. We invited international experts to come and talk about the issues with the salmon industry, with biosecurity being one of the major discussion points at that symposium. They provided a whole lot more information, so that analysis you talk about is actually this ongoing development of understanding, knowledge and information as to how to best manage a salmon industry biosecurity program.

The Biosecurity Act gives us the mechanism to do that much more effectively than what we've had in the past with the complex arrangements between the Animal Health Act which were designed for terrestrial biosecurity - the Living Marine Resources Management Act, Inland Fisheries Act et cetera.

We have been working on developing a salmon industry biosecurity program - and I use those words in their legislative sense now because the Biosecurity Act provides for the implementation of programs. The salmon industry program is a government program that will hold the standards for the operation of the biosecurity system for the salmon industry.

It is being built upon all the information and knowledge accumulated over that time and current technical expertise. At the moment we're at the stage where it's a whole bunch of vets, aquatic vets including the Chief Veterinary Officer, providing all the technical information to develop those standards.

There's a further process yet to go through in terms of broader consultation with other sectors, with other scientists, and then the regulatory process to go through where there'll be public consultation.

We're at that point now where we've almost got it drafted by the technical experts. That then needs to go to broader considerations.

CHAIR - Just to be clear, you've almost got a draft of the biosecurity program, the standards?

Dr KLUMPP - Yes, the standards.

CHAIR - Is there a documentation that sits above the standards that outlines the program?

Dr KLUMPP - There is.

CHAIR - Is that already in existence and is it available to see?

Dr KLUMPP - It is required under the new legislation. The new legislation prescribes what any program details so in that act it has a whole set of things which must be built into any program.

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That front piece addresses some of those things. That is also subject to consultation and the regulatory process. It's not available yet but it certainly will be in the consultation process.

CHAIR - Soon that program and the standards will both be available for public consultation. What's the ultimate time line for these being finalised?

Dr KLUMPP - We are hoping for June but, understanding the regulatory process, there may regulatory impact statements required and other delays that result from the consultation process or from the legislative process.

Ms FORREST - It is regulation that's being made though, isn't it?

Dr KLUMPP - Yes, it's regulation. One of the advantages of a program is that the program will be enabled by regulations which are fairly straightforward. That shouldn't take long. That's about naming up the biosecurity zones, for example, that the program refers to.

The actual program is then signed off by the minister and the standards within the program are signed off by the minister to become law.

Ms FORREST - By order, or how does that happen?

Dr KLUMPP - By the minister's signature.

Ms FORREST - How will that be made public then?

Dr KLUMPP - We'll do that through our own public consultation process.

Ms FORREST - I'm talking about the final document - the signed-off ministerial document - what happens?

Dr KLUMPP - Quite apart from our communications program around here's the new legislation and the new standards that must be abided by once it's law. Another aspect of which is in the -

Ms FORREST - The regulations make it a legal requirement to adopt and abide by?

Dr KLUMPP - Yes.

Ms FORREST - This is the whole regulatory thing. It's all a bit around the wrong way in my view sometimes. The regulations will not describe the program. It will set up the head of power for the program which will make the program legally required to be complied with as it relates to a particular zone - an industry within that zone?

Dr KLUMPP - Yes.

Ms FORREST - The regulations won't contain the program?

Dr KLUMPP - No, they won't.

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Ms FORREST - The regulations are expected when?

Dr KLUMPP - Hopefully well before June because we want the whole process.

Ms FORREST - They'll be made and then the program will be consulted on beyond the making of the regulations?

Dr KLUMPP - We'll do the whole thing together. The regulations are fairly straightforward but that consultative process will be a comprehensive process for both the regulations and the program.

Ms FORREST - Lloyd, you said you may need a regulatory impact statement.

Dr KLUMPP - We may do, yes.

Ms FORREST - At what point are you going to identify that? The regulation is a fairly simple process, you said.

Dr KLUMPP - There's a process in the making of regulations.

Ms FORREST - Yes, I understand that.

Dr KLUMPP - We will have to provide all the information about the impact, including the program. That decision will be made by the economic reform unit at that time.

Ms FORREST - But the program is not part of the regulations?

Dr KLUMPP - Not directly part of the regulations but they are interlinked.

Ms FORREST - I am interested in how it has its head of power to be a legal requirement.

Dr KLUMPP - The act says.

Ms FORREST - So that is under the act?

Dr KLUMPP - Yes.

Mr VALENTINE - Does it have to be advertised in the *Gazette* and things like that and things like that?

Dr KLUMPP - I believe it is. I think the minister does need to publish. Yes, it is, sorry.

Ms FORREST - It was a big act.

Dr KLUMPP - Yes. That particular piece does need to be gazetted.

Mr VALENTINE - The regulation or the program?

Dr KLUMPP - The program.

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Ms FORREST - The program, is it required to go through a subordinate legislation process? Is it a statutory rule?

Dr KLUMPP - I would have to check that.

Ms FORREST - I cannot remember this in the debate. I was away for some of this debate too so I missed some of this.

Mr BAKER - It would be highly irregular for the regulation to come in without the program being there as well. That is how we have done with the Heritage Act. The new changes had a similar control in it. Otherwise, to be blunt, it would open us up to the possibility of it being disallowed on the basis that you do not know what the program looks like. You would have them together or you would have the program available at the time you were bringing the regulations in.

Ms FORREST - A draft program we are talking about though?

Mr BAKER - Yes, a draft because it is not finalised until the regulations are passed and then the minister would then sign off on the program and my recollection, and we will get this checked, is that it does have to be gazetted but we will check that.

Ms FORREST - If you can clarify the process around the program. Any member can always do a motion to note it, but it would be something that would probably warrant some scrutiny.

CHAIR - Can I take us back one step because it sounds like this is progressing well and will furnish something that is quite robust. What do we have now that is governing biosecurity given that the industry is in operation, given that new approvals are being made for expansion? What biosecurity protections are in place at this moment? I do not mean specifically the rules and regulations; I mean: what is governing that?

Dr KLUMPP - Despite some challenges which are very specific to aquaculture, the principles of biosecurity are still the same about prevention and then management and response. We have much the same sort of system for the salmon industry as we do for our terrestrial industries and other sectors. We have a range of pre-border and border mechanisms to prevent the entry of pathogens into the state, import requirements et cetera. We have border measures for inspection of risk material into the state. We have post-border surveillance programs in order to find something really quickly, including the Tasmanian salmonoid health surveillance program, which is a really good and comprehensive program providing data around fish health through laboratory submissions et cetera. That surveillance is there for early detection and for understanding the disease profiles in the state.

Mr VALENTINE - Just for clarity, does that only cover the salmonoid -

Dr KLUMPP - We also have an oyster surveillance program.

Mr VALENTINE - or is it across others?

Dr KLUMPP - That particular one is about the salmon industry but we have other surveillance programs. At the animal health laboratory in Launceston we have considerable expertise in fish

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health in terms of diagnostics. Our senior veterinary pathologist is a broad certified pathologist in aquaculture health. We also have what used to be called the fish health unit but is now called the Centre for Aquatic Animal Health and Vaccine Production, which has some of the best expertise certainly in the Southern Hemisphere around aquatic animal health. That scientific basis and the diagnostic capability we have up there allows them, if something is found that is unusual - and SMV later called ERMV is one of those examples - to work in collaboration with IMAS in terms of fish health and that sort of science.

After that we have a set of response mechanisms. If we do find something, there is a set of response mechanisms to understand what the risks are and to put in place mitigating actions to that risk. So that's effectively the same principles for any biosecurity system. We have them in the aquatic space as we do in the terrestrial space, and have had for some time.

CHAIR - Is that documented in this space at the present time? Are we operating under a previous version of biosecurity plan that is still determining how it comes into consideration during the approval process, how it comes into consideration during setting management controls and what not on leases or licences?

Dr KLUMPP - All that information is available and for the planning process would be available to the panel.

CHAIR - One of the things I note and I'm mindful we're running out of time. We will certainly have a range of other things we will need to talk with you about so it's likely we will have to have a further conversation.

Ms FORREST - The terms of reference which we've already got to.

CHAIR - Yes. I appreciate your time today. Let's just try to wrap up the biosecurity bits we have, if that's okay?

Certainly, one of the things raised is the question around - maybe not so much now in the current process but in the one that you're developing that will be brought in shortly - is that going to deal with not just diseases but also matters such as toxic algal blooms, jellyfish, warming ocean temperatures and ocean heatwaves that impact then on salmon disease?

Dr KLUMPP - If those things have an impact on the biosecurity, they will. They are not biosecurity elements per se themselves but in the consideration of programs and plans and responses and all we do in surveillance, those things become factors that are considered.

CHAIR - In the Sustainable Industry Growth Plan, one of the things in the original plan talked about was that the Government would consider proposals from industry to improve biosecurity by adjusting lease locations and exchanging leases between companies or consolidation proposals. I think that was to do with the recognition that biosecurity is well-served if there is separation of companies, separation of year classes of fish and fallowing periods. It's not mentioned in the review what occurred in relation to that proposition. Has there been, to your knowledge, any voluntary kind of actions taken by industry in this space to improve biosecurity arrangements along these lines? Have they brought forward any proposals that were posited in the plan?

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Dr KLUMPP - I can't go into detail around structures but I can say that, yes, we've talked about it as part of this process - about what may be required. What are the practicalities, understanding that we want standards that are evidence-based, they're clear, they're enforceable but they're also practical and they actually achieve the outcomes that we want to achieve? All of that may require some restructure of industry over time. That has to be done in a practical way, of course, and so we certainly had some of those conversations.

Colin, do you want to add anything?

Mr SHEPHERD - I think the industry is being very proactive in this space. It is taking steps but, as Lloyd says, these things can take time. They are looking at year/class separation, single species on their leases, agreed fallowing times, agreed vaccination of all fish entering into the water - these sorts of things. I think they're being really proactive. The industry is doing a great job with regard to recognising the issue and taking positive steps to improve on the way they've done stuff in the past.

Mr VALENTINE - You're an honest person, obviously, and you might answer this. With respect to a major event: if it were to occur, where is our weak point at the moment without this new program coming forward? Do we have one? Are we exposed in any particular area that you can talk about?

Dr KLUMPP - Indeed, which is exactly why we're doing this work. There are two possibilities - one of them is an incursion from a highly pathogenic disease that gets here and creates a biosecurity issue. An infectious anaemia is one of those - it is unlikely but that's one.

Mr VALENTINE - Is this through marketable product or through inadvertent -

Dr KLUMPP - Just through pathways that are not zero risk but which we can't control to 100 per cent. So that's one possibility.

The other possibility - and this is the POMV story - are emerging diseases. There are a number of viruses in particular that are able to jump from one species to another. Coronavirus is a very good example.

That's always a possibility, particularly in the aquatic environment, that is also a risk. They are two very high risk areas for us. What we need to do is have the systems in place to ensure the risks are minimised. Things like single year classes in bodies of water or synchronised production systems, those sorts of things which will help us mitigate the risk, movement controls.

Those sorts of risk mitigation measures to prevent it and to minimise the impact if something does happen and allow us to respond quickly. All that is why we're doing all this work.

CHAIR - In terms of the respond part - the mitigation part is one thing and hopefully that heads off any untoward events. However, if there is an untoward event and there's the response to it, at the moment do we have robust arrangement in place to deal with the response to some of those issues? We can think of instances in last little while, whether it be salmon needing to be moved to a clean area, into a hospital pen or whether it's dealing with a large fish death event and what to do to deal with that.

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Do we have something documented and formalised to manage that while we wait for your plan to come on board?

Dr KLUMPP - Yes, we have the 2014 program which was a fairly good biosecurity program, understanding that, as Tim said, we're a continuous improvement organisation but we're also aware of changes in risks and changes in challenges.

To be honest, I think that we are at risk. That's why we're doing this, but are we perfect yet? A long way from it. Are we hoping to get there? We're trying to get pretty close.

We do have, I must say, really good and strong relationships with the technical experts in the companies. The company vets and our vets work really closely together in working through many of these issues.

We also have very good and solid relationships between the bits of the department and the bits of the department are involved in the development of these systems, processes and laws as well.

Mr VALENTINE - We can testify to the fact that the companies themselves certainly have biosecurity arrangements when you go and visit. Forever washing your hands and changing your footwear and all of those sorts of things. They're very keen on that.

CHAIR - It's certainly in their interests to do that.

Mr VALENTINE - It is in their interests to do it.

Ms FORREST - This is something that I will definitely be following up with the Director of EPA - one of the biosecurity risks, as I see it, is a mass mortality. When Macquarie Harbour was overstocked and that was a very genuine risk - that was one of the reasons the EPA director acted to get some fish out of that harbour before that occurred, but we did see some deaths. What is the plan from a biosecurity point of view for a mass mortality in Macquarie Harbour?

Dr KLUMPP - That's considered in the standards.

Ms FORREST - We don't have one at the moment?

CHAIR - What about right now?

Dr KLUMPP - Through the EPA. The EPA manages that aspect of it so you'll need to talk to Wes about what the arrangements with the EPA are right now but we will have a couple of standards in here about disposal of mortality.

Ms FORREST - I assume then the biosecurity program will detail the actions for a mass mortality in Storm Bay?

Dr KLUMPP - Not to that sort of specifics but it will require a signed off plan by the CVO.

Ms FORREST - The who?

Dr KLUMPP - The Chief Veterinary Officer.

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Ms FORREST - In terms of the existing fish farms in other areas, like in the D'Entrecasteaux Channel and the Huon area, what's the plan for a mass mortality there from the biosecurity point of view?

Dr KLUMPP - In terms of the handling of the mass mortality, again, the EPA is responsible for that. We don't have a regulated requirement at the moment.

Ms FORREST - That's one of the holes in our system.

Dr KLUMPP - That is regulated by the EPA.

Ms FORREST - Okay, we'll follow that up with the EPA office.

Mr VALENTINE - Is there any concern with regard to hatcheries, in particular, given the flowthrough situations? Is there any major issue there?

Dr KLUMPP - Inland Fisheries regulates the hatcheries but, again, in cooperation with the Chief Veterinary Officer.

Mr DIGGLE - We have individual fish farm management plans for each of the hatcheries and those plans outline the measures the companies are taking to address those issues.

Mr VALENTINE - Thank you, John. There was a reason you came today.

CHAIR - I am mindful we have gone over time and it was a lengthy session. Thank you very much for your time. We might have got about halfway through so we will no doubt have another chat with you.

Mr BAKER - Can I also thank my staff for all the effort that goes into getting this together today? A lot of effort was put into skilling me up after a while out so thank you very much to everyone not just at the table but those who are behind as well who I know have done a lot of work. I am happy to come back and answer some more questions, Chair.

CHAIR - Thank you for that and I will also note we haven't talked about it in detail yet but the material we requested to be provided laying out the process and the visualisation of that was particularly helpful and would be useful for our further discussions. Thank you for the effort that went into that.

Mr BAKER - Just one last one from me on a practical point of view - there were a number of things we said we would come back with. Will you write to us and let us know?

CHAIR - We will write to you on that.

THE WITNESSES WITHDREW.

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Ms CHRISTINE COUGHANOWR WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

CHAIR - Welcome, Christine, thank you very much for coming in. This is a public hearing; the evidence will be recorded on *Hansard* and available afterwards on the committee website. We are broadcasting today. All the evidence you give here is protected by parliamentary privilege, but once you are outside of this room that may not be the case. I ask you to be mindful of that. If there is evidence you feel needs to be given in camera and make that request at the relevant time, the committee will give it consideration.

Ms COUGHANOWR - Thank you for inviting me to speak today. I am a scientist; I have over 35 years of experience in water quality management, with a focus on southern Tasmanian rivers, estuaries and coastal waters. In particular, I established and managed the Derwent Estuary Program from 1999 to 2018; that is a partnership between the state government, six councils and five industries. The mission of that organisation is to clean up and promote the Derwent Estuary.

During that time, I also worked closely with scientists from IMAS and CSIRO, as well as community and conservation groups on specific studies and projects. In 2010 the Derwent Estuary Program was awarded Australia's most valuable environmental award, the National River Prize, and that was based on strong collaborations, good science and positive outcomes.

I moved on from the Derwent Estuary Program about two years ago. I am semiretired; I do a bit of consulting, I serve on several committees and I also do a fair bit of pro bono scientific advice for community and conservation groups.

I am a well-respected professional. I am not ideologically opposed to salmon farming or indeed to any other primary industry. In fact, I didn't pay much attention to the salmon debate until late 2017 when a proposal to more than double the state's production of salmon aquaculture just in Storm Bay came onto my radar.

At the time, I was director of the Derwent Estuary Program and had spent many years working to reduce nutrient loads into the Derwent. It was important to understand that possible inputs from farms proposed in Storm Bay because Storm Bay sets the background water quality for the whole of the Derwent Estuary. I needed to understand what implications that could have for the Derwent.

I spent the better part of the Christmas holidays of 2017 reading literally thousands of pages of environmental impact statements. I was, frankly, blown away by the potential nutrient loads that were involved with the production of whether it is 40 000 or 80 000 tonnes of salmon, or 30 000 as the case may be, as well as the lack of a combined assessment for the three proposals. I wrote the submission, which is included as attachment B for the Marine Farming Development Panel, and I have since written a related editorial, which was also included as attachment C, that summarises the key points.

I am also a part-time resident of the Tasman Peninsula, where I kayak regularly. I have been very concerned about a serious algal bloom at Port Arthur and Long Bay since 14 large pens were installed there in 2017.

On the positive side, a number of proactive steps have been taken over the past few years. That includes the separation of approval and regulatory functions, greater investment in science and some improvements in access to information. However, I remain very concerned that the scale and pace

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of development is now well ahead of the science needed to guide sustainable growth, and that the regulatory framework and the processes are also struggling to catch up.

I believe it is essential that community is consulted in a genuine and respectful way, and that the full range of interests is considered in this matter.

I believe our coastal and freshwater resources are too valuable to risk for short-term profits, and that there are also serious biosecurity risks that need to be addressed in the industry's own self-interests. I would support a pause in further expansion of the industry for approximately two to three years, which seems to be the time that is needed to address these outstanding issues.

My apologies for the lengthy submission. It is very wide-ranging and covers a lot of topics. I am happy to address whatever questions the committee has, but my main areas of expertise include the Derwent Estuary and Storm Bay, the algal blooms at Port Arthur and the water quality impacts related to hatchery and small production, particularly those in the Derwent catchment.

I would like to add one additional piece of evidence which is related to potential heavy metal risks, which I wrote several weeks ago in response to a fact sheet released by Huon Aquaculture, about which I had some scientific concerns. I did send it to them and the response received was that this was something that would be undoubtedly explored at the Legislative Council hearings, so I would like to table that as an addendum to my submission.

CHAIR - That is fine. You can table that.

Ms COUGHANOWR - I haven't got a copy but she said she has a copy to print out.

CHAIR - Thank you for that. No need to apologise for the length of submission. I think we might have had a similar Christmas holiday experience this year that you might have had in 2017 reading many pages.

Mr VALENTINE - Thanks for coming and presenting, Christine. Obviously you have had a lot of experience. I know when the Derwent Estuary Program commenced.

Do you think that, given the many aspects that are dealt with in an environmental licence, we can actually get to the point of being sustainable? Can you identify an example where this has been achieved perhaps?

Ms COUGHANOWR - Sorry, in terms of the environmental licences themselves?

Mr VALENTINE - The industry operating under the licences it is expected to operate under. Do you see us getting to a point where it can be truly sustainable, or do you think that a lot of the locations are not suitable or are suitable? Just give me an understanding of what your thoughts are in that space.

Ms COUGHANOWR - I guess my feeling is that progress is being made, but there are still two to three years to go. The division of regulation and approval of licences has been now divided between DPIWE and EPA. That is a good thing. I know that EPA has been working to try to upgrade licences. There are a number of people I quite admire within the EPA, who are doing really good work. The salmon standard on which the consistency will be based is still 12-plus months away. The salmon standard has not been finalised. I have looked at quite a few different licences.

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The more recent licences tend to have a lot more rigour in them. The older licences tend to have very little. None of the licences I have looked at so far includes, for example, limits on biomass. To me, that is quite a concern.

There is quite a large biomass of fish in Port Arthur. It is a very poorly flushed embayment. It has 14 large salmon pens in it. There have been serious issues with algal blooms since those salmon pens went in, but the licence says nothing about the allowable biomass of fish that can go into that bay. I reviewed the licence. I actually sent my concerns to the EPA about that and asked that a limit be put on biomass. In fact, Tassel have indicated they would have a much lower biomass in the second year of production. I asked, 'Why don't you at least start by putting that lower number into the licence conditions, since it's something they have agreed to anyway?' That was apparently something that couldn't be done. I feel that more rigour, more clarity and more transparency are needed in those sorts -

Mr VALENTINE - Can you paint a picture as to what sort of things need to be happening in the two or three years you mention?

Ms COUGHANOWR - There is the science to inform management. Again, there is some excellent science going on, both between IMAS scientists and CSIRO. The biogeochemical model, however, I believe, is at least two years off. The whole of the Storm Bay monitoring program was signed off over a year after the three new lease areas were approved. It has just been signed off, I think, in December. Doing baseline monitoring after the fish have gone in the water is clearly problematic. For baseline monitoring, the research on the biogeochemical model, which is supposed to actually set the carrying capacities for first Storm Bay, is another area that is going to take another two years, minimum, to complete.

Ms FORREST - What was that monitoring?

Ms COUGHANOWR - It is a biogeochemical model that CSIRO is developing, which basically looks at your inputs, how those are circulated around the bay and what impacts you might predict from that.

The third is the regulatory process and the salmon standards within the EPA. Another is the biosecurity plan, which has not yet been finalised. A whole range of things are in the works that really could add a lot of rigour, clarity and sustainability, but they haven't progressed as fast as the expansion of the new salmon leases have.

Mr VALENTINE - I am interested in this heavy metal resuspension. Can you describe that for the layperson who might be listening, and for us as well? What happens, why is there an issue or why do you see it as an issue?

Ms FORREST - Could you also mention the evidence to support that?

Ms COUGHANOWR - I'll try to do that. A particular concern of mine is the Derwent Estuary. The Derwent has some of the highest heavy metal levels in the world, particularly in the sediments. I spent the better part of five years with the Derwent Estuary Program and over \$1 million in grant funding to develop a water quality improvement plan for the Derwent Estuary with the specific goal of managing heavy metal contamination. That included scientists from IMAS, CSIRO, some national universities and a number of local consultants. That study included a lot of monitoring, experimental work and modelling similar to the type of modelling CSIRO is doing for Storm Bay.

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There were two key outcomes. One was that there was a need to continue reducing heavy metals from remaining sources discharging into the Derwent, particularly the zinc works, which has serious groundwater metal contamination. They have spent a lot of money to try to reduce those sources. The second was managing contaminated sediments in the Derwent to prevent the release of metals from the sediments back into the water column and into fish and other things that live in the estuary. That turned out to come very much down to managing both dredging activities and also managing oxygen status of the estuary. It turns out that in order to manage the oxygen status of the estuary, you have to manage nutrients, because there is this whole cycle where nutrients promote algal growth, algae blooms - it dies, it sinks to the bottom and when it degrades, it draws down oxygen at the bottom of the river. When that happens, the metals tied to the sediments can be released back into the water column.

We had some very interesting work done with a PhD student through the University of Tasmania who actually took Derwent sediments, did experimental controls where she reduced the oxygen level and found that zinc and other metals were then released back into the water column. Working with CSIRO, through this modelling work that they did, we came up with a recommended limit on nutrients in the Derwent. For the last 10 years we have spent much effort and our partners have spent considerable funding to remove nutrients from sewage, from stormwater and a whole range of different sources.

Most recently, the Blackmans Bay sewage treatment plant has been rebuilt and a large part of that was to remove nutrients from the Blackmans Bay effluent . That was a \$50 million project. Even if only 5 per cent or less of the projected nutrients from the salmon expansion were coming into the Derwent, that would cancel out that reduction from Blackmans Bay sewage treatment plant. The concern is about continuing to maintain and reduce nutrients in a situation where you have expansion of salmon aquaculture near the mouth of the Derwent Estuary, making sure that is taken very carefully into account.

Mr VALENTINE - The hydrology of the Derwent: Can you explain whether would it be moving up into the Derwent or moving across? Can you describe what that issue might be and where the nutrients end up?

Ms COUGHANOWR - Storm Bay sets the background - any salt water that gets into the Derwent comes from Storm Bay. The Derwent acts, essentially, like a conveyor belt. You get salt water from Storm Bay and it travels all the way up the Derwent Estuary to New Norfolk. In fact, the bottom of the river at New Norfolk is quite salty. You actually get juvenile marine fish that swim all the way up to the Derwent at New Norfolk in that bottom water. At the same time you have fresh water from the catchment, which is lighter and more buoyant than salt water and it floats over the top of the salt water.

Essentially, you get almost a conveyor belt all the way from Storm Bay up to New Norfolk and then it moves back down the length of the Derwent, then that water moves around to the east and you can see the effect of water from the Derwent as far away as Pipe clay Lagoon. It travels on the Tasman Peninsula and into Pipe Clay Lagoon. You can see that in zinc, which is picked up by shellfish and you can trace it all the way round that peninsula.

Mr VALENTINE - Is there a major difference between human effluent from sewage farms and this sort of effluent from salmon farming? Is the impact likely to be the same? The quantum is much larger from the salmon farming, but what are we dealing with?

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Ms COUGHANOWR - I would say they are similar in terms of the bio-available nutrients, particularly nitrogen, which is considered the nutrient of concern in marine systems. If anything, the nutrients in fish waste are more bio-available. It's ammonium and it is very readily taken up by marine plants.

Mr VALENTINE - Does it have a different impact on the heavy metals?

Ms COUGHANOWR - No, it would be a similar impact.

Mr FINCH - You have mentioned the situation with algal blooms. You can sheet that back to salmon farming as far as the development of algal blooms are concerned or could it be other reasons, like effluent coming off land or something like that that might also contribute to that situation?

Ms COUGHANOWR - There are a couple of things that keep being brought to attention around algal blooms. One is that there are other nutrient sources as well. There are fish farms but there are sewers, there is stormwater runoff, there is a whole bunch of different nutrient sources - that is correct - but I would say that in areas with significant numbers of pens, salmon would be by far the largest source of anthropogenic or human-derived nutrients, particularly in summer when the systems are at the most vulnerable.

This is backed up, for example, by the 2015 Huon-Channel report card which found that over 90 per cent of non-oceanic nutrients in the Huon-Channel system are derived from fish farms. Similarly I have done calculations for Port Arthur that suggest it is at least 90 per cent, probably 95 per cent. I am happy to provide those calculations. Sewage and stormwater run-off and catchment run-off in areas where there is a high concentration of salmon farms is a really very, very small proportion.

The ocean is also a significant source in wintertime. In winter we get nutrient-rich water coming up from Antarctica and in the spring you tend to get algal blooms in coastal waters when you get elevated nutrients from the Southern Ocean; you have longer days, you have warmer water temperatures and plants tend to grow at those times.

Ms FORREST - This is in the absence of salmon farms?

Ms COUGHANOWR - In the absence. You can get those sorts of effects broadly in southern Tasmania. The issue is that in summer those nutrient-rich Antarctic waters retreat from the coastline and you get nutrient-poor waters coming in particularly from eastern Australian currents. Those blooms then tend to die off. They are springtime blooms - they boom, they bust, they are gone. But where you have sustained nutrient inputs from salmon farms, those nutrients keep those blooms going and they persist for a much longer time and over much larger areas. That then can have flow-on impacts on seagrass communities, on reef communities and also just on amenity in terms of smell and visual and so forth.

It is a big concern of the community and I guess part of the problem in dealing with that is that historically those filamentous slime communities have not really been included in the monitoring or the modelling. There is some good work at IMAS and they are starting to look at that. There is one researcher in particular who is doing some really good work on that and it is starting to be picked up in some of the newer licences. The models also do not really deal with that aspect of nutrient enrichment.

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Mr FINCH - Christine, if I might, the food nutrients, the nitrogen or the excrement - are they combined causing the issue in your mind about the heavy metals and about the algal blooms? Are they all equally responsible or is one of those more environmentally damaging than others?

Ms COUGHANOWR - Salmon produce basically fish poo and fish wee. Fish poo is more organic and it sinks and it tends to accumulate below the pens. That is what a lot of the sea floor monitoring looks at. Also, when basically the fish poos degrade, that can pull down oxygen levels. A lot of that is what was happening in Macquarie Harbour. It was around that organic waste in the fish poos. The fish wee is very high dissolved nitrogen. It is essentially similar to a liquid organic fertiliser or a liquid fertiliser and that causes plants to grow and that impact is spread much more broadly than just the fish poo impact. The fish waste that is dissolved, it is fish wee. It is widely spread, it is quite mobile and it contains those high-nitrogen, high-nutrient compounds that cause plants to grow.

Mr FINCH - Christine, are you aware of any measures that the industry is taking to counter that? To maybe protect against that sort of drop-out from their operations? I think also of food nutrients. Surely the fish don't catch it all and that probably gets to the bottom as well.

Are they taking measures to guard against that?

Ms COUGHANOWR - The less food that's wasted is a good thing both for the salmon companies and for reducing the amount of material that accumulates under the pens. That is probably only a few percent of that organic load from the fish farms.

I think there have been efforts to capture some of that waste in Macquarie Harbour. I'm not familiar with the details of that, but I know that was quite controversial because it's new technology and was installed in an area that has very high waves, winds and storms. How you keep that in a system underneath a pen is questionable. You have to balance the nutrients and the organic matter coming from salmon pens with the capacity of the area that it's in to accommodate that.

There will be an impact. I think the question is how broad is that impact, how severe is that impact and is it acceptable to the community? To say that you can have a salmon lease with no impact outside a 35-metre distance from that lease is wishful thinking.

Mr FINCH - Is that why you think there should be a moratorium - to perhaps understand that a little bit more?

Ms COUGHANOWR - I think to better understand that and to be able to set what is the carrying capacity, what are the impacts, what are the consequences and how are we regulating? How do we know that this isn't having effect and, if it is, what do you do? What steps can be taken to reduce that?

Again, I'm not saying shut down the salmon industry in any way. I'm saying we have an existing industry but there are clearly some issues with it. Let's sort those out. Let's make sure that we have the science, the biosecurity, the regulations to manage that sustainably before going to a very significant expansion. Doubling production in a period of 10 years is fairly extreme.

Mr GAFFNEY - You mention about it broadens from where the activity takes place for the fish, poo or the urine or whatever, are there any studies around that you know, say, the distance

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from the source? Even though it gets broader, does the impact become weaker the further away it is from the source? Like on the blooms and stuff?

At this level it's concentrated so that bloom or that creation is perhaps more negative, I suppose, than something that occurs another 300 or 400 metres or a kilometre down the coast where it's diffused more. I am interested if there are studies in that area.

Ms COUGHANOWR - I think that's a lot of the work that IMAS and CSIRO do and what the models should be able to predict. Clearly, it depends on the scale of the source - how big is the pen or the series of pens and the sensitivity of the environment? You can put more pens in an open environment and you would get better diffusion than in a sheltered environment, such as the Channel, Port Arthur or Nubeena, for that matter.

People keep saying. 'Storm Bay is stormy; it's well-flushed, it's a low risk so we'll go for it'. Something pointed out in IMAS's reports as well is that Storm Bay is naturally a very low nutrient system. It's not developed and adapted to elevated nutrient loads so it is early days to predict how it will respond to that.

The other aspect of Storm Bay is its storm [reaction to storm events?]. The early research on Storm Bay showed that it responds very much to storm events, so stuff filters down, sits on the bottom of the bay, you get a big storm, it stirs it all up and that's when you get algal blooms and things happening.

A lot of the background research and the baseline research also needs to take into account what will happen in a storm. Will the storm stir it up and then potentially push it over into Frederick Henry Bay and Norfolk Bay? I don't know. Monitoring hasn't been done in Frederick Henry or Norfolk Bay, and I don't know if the modelling would include those areas either. Those particular areas are a real gap - sheltered waters, which have very high value seagrass beds and reef systems, and are also heavily used by the recreational fishing community.

CHAIR - I have a few questions that I'll get cracking on, just following up on some things you've already covered.

First, there is that concept of Storm Bay as a high-energy flushing system and it would appear to be defined as being offshore as opposed to inshore. You've made some comments about that already. We've also heard from IMAS that its scientific information and data has been collected in the Storm Bay area for an extended time - I think they mentioned since 2009. They admitted it hasn't covered all the areas that may be of interest at the present time in relation to expanding salmon there. Could you talk about the adequacy or otherwise of what we had available to us when expansion into that area was being contemplated and what may have been the key missing gaps?

Ms COUGHANOWR - The baseline studies of Storm Bay included broadscale monitoring of water quality, I think at five or six sites, around Storm Bay. They were a fair distance apart from each other. That [monitoring] looked at nutrients and microscopic algae, and a number of other parameters. That information is very valuable, particularly for populating models because the models need that kind of information to look at the system as a whole. However, that Storm Bay water quality monitoring work did not monitor water quality in Frederick Henry Bay or Norfolk Bay.

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Other missing elements from that baseline would include comprehensive and consistent monitoring of rocky reefs. Some monitoring has been done, but a lot of that information has not yet been published so it's difficult to say how comprehensive that is at this point. Seagrasses have almost completely been left out of the picture. Yes, there has been some good monitoring but it is not comprehensive. It didn't start, for example, with a basic map of 'Here are the key resources in Storm Bay; here is where the rocky reefs are; here is where the seagrass beds are; here are the valuable recreational fisheries', and then setting the monitoring to the then-baseline conditions so we could know, once the expansion started, how they've responded to the additional nutrients.

CHAIR - Could you comment on categorising that area as offshore for this industry, knowing that broadly, in best practice, that's one of the directions internationally that's pointed to as being a more sustainable way for this industry to farm?

Ms COUGHANOWR - It's hard to say - 3 kilometres, 6 kilometres, 100 kilometres. I can't really comment on what is the proper definition of 'offshore', but I think the important thing is understanding the impacts on the near-shore environment, assets and communities.

CHAIR - Can I just clarify and take you back to where you talked about the things in progress at the moment which will provide valuable information and guidance, such as the biosecurity program that's coming, the standards and some more science and modelling, and that that's all due in about two years or so? You are proposing that it would have been appropriate to have a moratorium across that time until we had that in place. Just to play devil's advocate, what's wrong with then just incorporating those things at the time they arrive with us in two years time, or whenever it might be, then retrofitting and incorporating them back into the existing arrangements going ahead in those areas?

Ms COUGHANOWR - I guess you run the risk potentially of damning sensitive habitats and environments. Biosecurity is another key aspect of that. There have been basically meltdowns in many places around the world when regional biosecurity plans have not been developed. Legislative and regulatory gaps: there is a lot of work to do just to bring the existing licences and standards up to a high level. Adding a whole bunch of additional work that requires resources and attention, again, is really starting to stretch regulators and others very thin.

Public consultation: it does seem it has reached a critical point. There are a lot of people, certainly well outside the environmental movement, who are very concerned about this. At some point that starts to tarnish the brand and the reputation of Tasmanian produce.

CHAIR - Can I also take you back to something you were discussing with Robert earlier around licences and the fact they don't contain biomass limits? Are there other ways that biomass limits are allocated or imposed on the leases or the companies other than specifically and explicitly in licences?

Ms COUGHANOWR - At the moment, certainly for Storm Bay, it appears that is the call of the Director of the EPA, but how that is imposed, without stating that in some way in licences, I don't understand how that can be clearly defined.

CHAIR - It is documented somewhere that the EPA does document those limits somewhere, just not in the licence itself.

Ms COUGHANOWR - Presumably.

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CHAIR - But you are not aware of where that is documented?

Ms COUGHANOWR - I don't know where that would be and I think certainly to inquiries about how many fish are either stocked or will be stocked in specific areas at specific times, that information has not been provided.

Ms FORREST - I was just rereading your new table. About the biomass and the limits, in Macquarie Harbour, the EPA sets limits and has had to drop them a number of times over recent years to try to deal with the challenges there. That is an example, in my view, where limits have been set for biomass. I am not sure about dissolved nitrogen, for example, but is that the sort of model you are talking about that should be applied to new farms or other existing farms in other parts? We hear the argument that Macquarie Harbour is a different body of water and all that, but every body of water is different from another body, I would imagine, around the coastline.

Ms COUGHANOWR - Yes, clearly either biomass or nitrogen or feed limits should be and are being set in a number of instances for specific areas, particularly in the newer permits and lease areas, but you have to take that on faith. It is not written into permits; it's not in the public -

Ms FORREST - The biomass limits?

Ms COUGHANOWR - Biomass limits - for example, for Storm Bay, we have been told they won't exceed 30 000 tonnes in the short term until some period when apparently enough information will be available. But where will that biomass be located? Will it be located at the mouth of the Derwent Estuary adjacent to Bruny Island? Will it be located off West of Wedge, the island? Trying to get a sense for where the impacts are likely to be seen is difficult to know without some sense of where those fish will be located.

Ms FORREST - I just want to clarify what you are actually suggesting is necessary. There are biomass limits set in Macquarie Harbour, so what are you suggesting is needed outside of Macquarie Harbour?

Ms COUGHANOWR - I suggest, for example, in Storm Bay, where there has been discussion about biomass limit of 30 000 tonnes over a year overall, that the lease areas for North Bruny would say in the licence that this particular lease area gets, say, 5000 tonnes per year, this lease area get 10 000 tonnes per year, the one off Nubeena gets so many tonnes.

Ms FORREST - Are you talking about lease-specific biomass limits?

Ms COUGHANOWR - Yes, so there's clarity and transparency about where the fish are being grown.

Ms FORREST - When you made an inquiry about this, I think you said earlier that the EPA said they couldn't put a limit on -

Ms COUGHANOWR - This was for Port Arthur, in particular. Port Arthur currently has no limits on biomass that can be put into Port Arthur.

Ms FORREST - Do you understand why that is the case, why they can't put a limit on it? Have you been told why?

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Ms COUGHANOWR - I don't understand why that is the case. I guess the limits on production in Port Arthur are based on what is happening beneath the pens but that is not public information. It is also based on some broadscale monitoring but none of the broadscale monitoring sites are actually in the sheltered areas where the algal blooms are happening. It is based on a compliance point actually located over in Storm Bay. It is not even located near Port Arthur. I have raised these issues with EPA. I have also raised them with Tassel. The answer I get is that these will be eventually picked up when new licences are issued, but they are still waiting on the salmon standard to be developed, which is still some time away.

I guess I get frustrated. Where there are clearly issues, we can't deal with them now rather than waiting for an upgraded standard, which will clearly improve things, but how long do you wait?

Ms FORREST - Coming back to our terms of reference, we are getting into the area of data collection and publication. You mentioned in your last comment that the data, the records of conditions under the pens in that area around the Tasman Peninsula, are not available. What information do you believe should be publicly available and in what form, that should be accessible through the data portal?

Ms COUGHANOWR - I requested the video data at 35 metres, beyond 35 metres from the lease boundaries, which is in public waterways. I was told I had to file a freedom of information request for that data. I feel that data relevant to public waterways should be available to the public. It documents that good performance is being undertaken and documented.

Ms FORREST - Is that data being collected?

Ms COUGHANOWR - It is being collected.

Ms FORREST - You know it is being collected but it is not being made available?

Ms COUGHANOWR - Correct.

CHAIR - Is it being collected through the EPA?

Ms COUGHANOWR - Yes, through the EPA.

CHAIR - The EPA does have some data available via its website and documents, but not that data?

Ms COUGHANOWR - Correct.

Ms FORREST - I hear your request for the need for further data to be made available before such an expansion occurs in terms of understanding the body of water and the impact on the Derwent Estuary. You said the salt water goes all the way up to New Norfolk. Are you saying that the nutrient load that comes, particularly from the Antarctic in the spring, will go all the way up to that point and, thus, contribute? Is an increasing the nutrient load anywhere along that Derwent Estuary to New Norfolk an issue, as well as what is coming down the river? You have done extensive work on the underlying level or baseline. If additional salmon farms are to be put in Storm Bay, do you believe more work needs to be done on the whole Derwent Estuary? If there

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are other contributors who should also tighten up their game, it shouldn't, potentially, all fall to the salmon industry?

Ms COUGHANOWR - Yes. The Derwent has what we call a flushing time of two weeks. From the time water comes into the top of the estuary to the time it gets out, it circulates around in the estuary and gets out in about two weeks time. As to impacts, we can actually very clearly see the winter natural nutrient increases throughout much of the Derwent, related to the Storm Bay. Summertime nutrient levels drop way down in many areas of the Derwent. Salmon hasn't really been on the radar for the Derwent Estuary Program in terms of the nutrient budget because it has been limited largely to the D'Entrecasteaux Channel. The most recent modelling CSIRO has done suggested that it came up, turned the corner and left again.

Ms FORREST - It did not go into the Derwent Estuary?

Ms COUGHANOWR - It doesn't accumulate much into the Derwent Estuary from the Channel. Regarding the salmon off North Bruny, it is an open question as to where that will go. I do feel that the modelling that has been done very much needs to take into account the Derwent Estuary. Will there be a 2 per cent increase in nutrients, will there be zero, will it be 10 per cent? How much of the nutrients off North Bruny will make it into the Derwent and will that cancel out the other work that has been done to try to cut back on nutrients from other sources, such as Blackmans Bay and other sewage treatment plants? It is something that needs to be carefully examined and included in that modelling and in the monitoring.

Ms FORREST - What about all the other activities all the way up the Derwent?

Ms COUGHANOWR - Up the Derwent catchment?

Ms FORREST - Yes.

Ms COUGHANOWR - That can all be put into the budget as well and that is monitored. There is quite a lot of information in here. This report is published very five years. I suggest something similar for Storm Bay, to be honest. The document is called the 'State of the Derwent Estuary 2015; A review of environmental data from 2009 to 2014'. The work that has been done for the Derwent Estuary looks at sewage, industrial loads, catchment loads from the River Derwent, other industries, stormwaters and so forth, and it does a nutrient budget for all those different sources.

Ms FORREST - If they have done that for a number of years, wouldn't there be a level of baseline data in relation to the nutrient load in the Derwent Estuary?

Ms COUGHANOWR - There is. There is excellent baseline data. The question is about expansion of aquaculture in Storm Bay, will that add to that load in the Derwent system in itself and, if so, how much? If it is a significant amount, how could that change the condition of the estuary, the potential release of heavy metals and other aspects of estuarine health. It is a big question that needs to be considered as part of the Storm Bay extension.

Ms FORREST - Most of us agree that climate change is a thing and it is impacting on our oceans, our waterways and broadly on our environment. Have we done any work to model the impacts of climate change on our waterways like Macquarie Harbour, Storm Bay, the Derwent Estuary and near Bruny Island?

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Ms COUGHANOWR - It is a good question because climate change suggests that as we have a more warming climate, we will get more water from eastern Australia that will come down the east coast of Tasmania. That water tends to be nutrient poor, very low in nutrients and we may get less of the nutrient-rich water coming up from Antarctica. That is something certainly in the longer time frame that needs to be considered both for the salmon industry and for other potential impacts of climate change.

Ms FORREST - We don't know enough about it yet, is that what you are saying?

Ms COUGHANOWR - I think that is an area that CSIRO is working pretty carefully on, but it is an open question in terms of how that may affect their model predictions. I don't have access to the model design, so it is hard for me to answer that question.

Mr VALENTINE - It has been suggested that having salmon farms in place and using the adaptive management approach is possibly the best way forward because it allows real-time measurements to take place to see exactly what the affect and the impact is. What do you say about that notion?

Ms COUGHANOWR - I would have to see what the design looked like.

CHAIR - Looking at our term of reference about application of the Marine Farming Planning Act and the first point there, the approval process, can I ask you a bit about your experience participating in the approval process that takes place for the new areas being considered and interacting with the review panel that is part of that process?

We've had it put to us that it's an independent panel and I note that in your submission you assert that there are questions around the independence of that panel. Would you like to speak about that a little bit please?

Ms COUGHANOWR - I probably won't go into a great deal of detail in terms of individual people.

CHAIR - No, I would prefer you didn't. In terms of the way that panel is structured legislatively.

Ms FORREST - Whether it should stay the same or change perhaps?

Ms COUGHANOWR - I think in terms of the panel, I suggest that it's not necessarily fully independent nor broadly representative. There are no community or environmental organisations represented on that panel and furthermore a number of panel members have had certainly close relationships with industry and/or state government, or have sat on the panel for a very long time.

I guess my experience with the panel: I presented concerns I had to the panel about the Storm Bay expansion from the perspective of the Derwent Estuary Program. I felt my presentation was listened to with interest and respect. Particularly two of the panel members asked a number of very detailed questions. One of those actually thanked me for putting all of the information for the three developments into a single document because that was the first time they'd seen that information put in one place.

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Then the two panel members who seemed to be taking careful note of my concerns subsequently resigned from the panel so that left me with some real concerns as to whether my submission had been carefully considered by the panel.

None of the recommendations I made in my submission were taken on board as far as I can tell into the final approvals.

CHAIR - How would you know that? Did you see the report the panel provided to the minister with its recommendations?

Ms COUGHANOWR - The panel did do a summary at the end of all the submissions received and whether the concerns were deemed to be of a substantial nature and how those might be addressed.

The concerns I raised - most of them suggested they could be addressed through improved research, improved monitoring and adaptive management. I guess I'm seeing again that the expansion has progressed but the progress on the improved science, the improved monitoring and the adaptive management and regulatory processes have not kept up with that expansion.

Ms FORREST - The growth plan is flagged, I guess, over a 10-year period. You said in your opening comments that you believe another two to three years would be needed to address and assess outstanding issues where the CSIRO is doing some monitoring and the regulatory process.

We heard from DPIPWE today and from Dr Klumpp, head of biosecurity, that they're working on both the regulations and the biosecurity program. They expect that to be completed by the end of the year.

Ms COUGHANOWR - It is 2020.

Ms FORREST - Yes. Regulatory processes are a little bit uncertain. It depends on what they have to do in terms of regulatory impact statements and things like that.

As the industry is not about to suddenly put 40 new pens in the water, do you think an approach where there's a gradual rollout rather than having a massive rollout with this continual assessment of the marine environment can be undertaken would be adequate?

Ms COUGHANOWR - I guess what I had suggested in my submission to the Marine Farming Development Panel was a staged and precautionary growth, during which certain milestones and deliverables might be required before different stages of expansion.

The first might be that the model and the monitoring program commence. You might start with 10 000 - some smallish expansion and that, subject to the first [inaudible] stage 1 monitoring being completed, you might then go to a second stage and a third stage. I am not necessarily opposed to staged growth but I think the problem right now is we're talking 30 000 tonnes, which has been picked as a number. Is that conservative, is it not conservative? I don't feel it's particularly conservative, others certainly may differ in that view. However, it's very unclear what the current level of development and the rate of development is.

My understanding from Huon Aquaculture's environmental impact assessment was that their intent was certainly to expand up to 15 000 or 20 000 tonnes by about this time. I don't know what

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the current levels are - I've heard somewhere in the order of 10 [000?] to 15 [000?] tonnes in the near-to-short term. I think Tassal also is putting their pens out in the fairly near future so I guess just a bit of clarity about what is the current level of growth, where is the biomass being stocked and what are the potential impacts and monitoring going on around that?

Mr FINCH - Christine, tell me - 35 years experience as a marine scientist - through the whole process of the development of the salmon industry, was your advice ever sought or have you had to submit your advice in recent times?

Ms COUGHANOWR - I have had to submit my advice in recent times and I have done that whenever there's a formal opportunity to do so. I have also offered, for example, to provide my assistance and advice on the technical advisory committee for the Storm Bay research projects but that has not been welcome. I guess my intent is as a knowledgeable scientist and also as someone who works closely with the community as a conduit of information from the community to the research scientists and back the other way. I have cordial and respectful relationships with government, with industry, with the scientists whom I work with. I write letters. I do get responses. Sometimes, it takes a while. I get some additional information but rarely do I see that anything has been changed as a result of the efforts that I've made.

Mr FINCH - Why do you think your offer has not been welcomed? What do you put it down to?

Ms COUGHANOWR - Well, hard to say. I guess the status quo is how people prefer the situation to be but I don't know. That's a good question.

Mr FINCH - In your submission, you talked about the community must be consulted in a genuine and respectful way and a full range of interests considered so you're suggesting that's not the case?

Ms COUGHANOWR - I feel in some ways because I'm a scientist, I get a higher level of respect perhaps and I can talk the science. It's been interesting to try to provide scientific advice to the community because I think they feel that's an area that they just haven't been able to participate in the process and because they don't have the science, their views are generally discounted. I think that's a real shame because people's views do need to be respected and their observations over time - whether they're scientifically documented or not - are often quite reasonable observations.

Mr FINCH - That's why you suggested public consultations should be more highly valued?

Ms COUGHANOWR - Yes, I think so.

CHAIR - I am mindful that we are pressed for time and we haven't touched on that element in your submission around inland waterways and concerns you have around catchment areas for drinking water supplies and things that you have raised.

Can I just ask you then briefly to touch into that point - the recommendation that there should be a review of the impacts of hatcheries and smolt production facilities on inland waterways, and it is urgently needed. Who would be responsible for that review and to conduct it? Has such a review been done before, to your knowledge?

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Ms COUGHANOWR - That is kind of a big issue, inland waterways. There are at least 15 active fish hatcheries in inland waters. Many of them were set up many years ago and they're flowthrough systems with very poor water quality treatment. These have recently been taken on by the EPA and there is the intent to gradually bring those up to a higher level of standards. At the same time, it is taking quite a long time and there are significant risks to public waterways. I think particularly on the Derwent, which I am most familiar with, you have a whole series of Hydro lakes, and you have salmon hatcheries and small production facilities which are gradually getting larger with time because of the increased smolt size. I think there is a real risk, with a series of still lakes with increasing water temperatures and with the nutrient loads that are going into those lakes, that you could end up with a severe algal bloom, possibly blue-green or even toxic algal bloom, in those lakes. That is upstream of our water supply and I really think it needs urgent attention to bring those hatcheries up to accepted modern technologies.

CHAIR - Would it be the responsibility of the EPA to undertake that sort of review?

Ms COUGHANOWR - That would be a responsibility of the EPA and certainly the intentions are there to do that, but I think they are under-resourced to do that and a real push is needed to make that happen sooner rather than later.

CHAIR - Would that review be not necessarily a location-by-location review of individual sites but a broadscale review of the totality of a region, for example, like you spoke about the catchment area of the Derwent? Is that what you mean?

Ms COUGHANOWR - Probably setting a standard that's saying flowthrough hatcheries are no longer acceptable as accepted modern technology, and the setting of very short time lines to either bring those up to accepted modern technologies or to phase them out. There are some very large recirculating aquaculture facilities that produce huge numbers of smolt. One thing is to say let us move to those higher level technologies. It is not acceptable to keep putting these high levels of nutrients into our inland waterways.

Mr GAFFNEY - This possibly might be in the reading somewhere, but what is the difference in water temperatures between the ocean and estuaries and lakes and its impact on algal bloom? I imagine that our lakes are colder waterways than the estuaries and the ocean. If that is the case, is the algal or the toxic bloom the same sort of variety or is it a different one? For example, if the lakes are 5 degrees colder than the ocean, the algal bloom has still got more time - do you know what I mean? Could you give us a quick-

Ms COUGHANOWR - No, they are completely different species. The freshwater species are completely different from the marine species.

Mr GAFFNEY - Any increase in the water temperature in either body of water would have the capacity to increase the flourishing of either species of toxic algal bloom?

Ms COUGHANOWR - With algal bloom species in freshwater systems, different lakes would respond to different series of conditions. You could tweak up your temperature and tweak up your nutrients and flush it through and maybe nothing would happen. You need to look at each system carefully.

Mr GAFFNEY - That is the part of the work that you are saying needs to be done if they were going to expand into those areas?

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Ms COUGHANOWR - I think it is pretty clear that accepted modern technology in hatchery and small production is no longer a flowthrough system. A flowthrough system is basically where you take water from your river, you run it through a series of pens, sometimes there will be quite a small settling pond but often they are too small to settle out the materials, and then the polluted water goes back into the river downstream. That is a flowthrough system.

A recirculating system would recirculate that polluted water through a series of filters and other pollution reduction systems to remove those nutrients and other biological material before it goes back into the river.

Mr VALENTINE - Well-boats have often been raised in submissions about hypersalinity. Given your understanding as a scientist of what happens in the Derwent, where you have a freshwater and saltwater mix is hypersalinity likely to be a big issue or not?

Ms COUGHANOWR - It depends how saline it is, how much it is and where it's being discharged to. Hypersaline water is just extremely salty water, and some marine life can't cope with that. They need a certain salinity range that they can live with.

I guess the issue with hypersaline water is, again, where is it being discharged. It's something that could potentially be readily addressed, but I think that the concern is that because the information is not available about where the well-boats are operating, what the discharges are and where they're being discharged, it raises a lot of concern about what's going on with those.

CHAIR - Thank you very much for your time today, Christine. We appreciate it very much and the effort that went into making this submission. It's been useful for us to be able to talk with you more about some of those details.

THE WITNESS WITHDREW.

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Ms LEANNE MINSHULL, THE AUSTRALIA INSTITUTE TASMANIA, WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

CHAIR - Welcome to the committee. Thank you for coming in and speaking to us in this hearing. It's a public hearing and all evidence taken is covered by parliamentary privilege, but once you step outside this room you won't necessarily be covered. We are recording the evidence today, which will be available in *Hansard* on the committee website. We are also broadcasting the hearing. If there is material you believe should be heard in camera, we are happy to consider that request, so please make the request at the time you feel it is needed. You'll be able to make some opening comments if you would like to, and then we'll ask you some questions.

Ms MINSHULL - Thanks for inviting me to expand a little bit on my submission today and thank you to the committee for holding the whole inquiry. I think it's such a useful and required thing to do, given the size of the expansion of the industry that we're looking at.

I might spend maybe three or four minutes with an opening statement. I looked at the salmon industry probably about seven or eight months ago just to have a look at how it was regulated here from a financial perspective - what the state receives from the industry and what the state gives back to the industry - particularly because at that time we were starting to talk about the rapid expansion that was going to occur.

I outlined four things in my submission: How big is the industry currently? How much does it contribute to the state? Third, how much does the state support the industry? Finally, I ask the question: is this an opportune time to look at the financial frameworks for regulating the industry and could we be doing it in a better way? In particular, should we be moving from something that's more of an inhouse state-based negotiation between government and companies to a more open market-based system? The one that I looked at was the one they use in Norway.

I will touch on quickly again the top-line things. In Tasmania in 2017, the farmgate value for salmon was about \$739 million. Jeremy Rockliff, in August 2017, said ...

Ms MINSHULL - (cont) - for salmon was about \$739 million.

Jeremy Rockliff in August 2017 said that he wanted -

... to see this world-class industry continue to grow sustainably from its current position of \$730 million in annual revenue and supporting 5,200 jobs...

The profits to Tassal are certainly growing. I just picked that out as one. I had a look through the company reports and, in the submission I go through the growth in the revenue for Tassal between 2013-14 and 2017-18. Also the taxable income and the tax paid are obviously a good way to have a rough idea of what their profits are - if you just deduct, if you look at those three streams, you can see that it is definitely increasing. That is something we all like to see: Tasmanian companies doing well.

The subsidies given to the companies, we calculated at about \$9.3 million in 2017-18. This included a federal government grant to Tassal for the Triabunna processing plant of \$3.85 million. Why that stood out to us was because that was actually about three-quarters of the price of the entire facility. In what is considered to be standard in terms of a subsidy, that is actually quite high. That is a big stake the federal government was putting in.

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The point I would make on subsidies is I am actually agnostic about them. I think that subsidies are a good thing. We subsidise things all the time - schools, health, companies. I think the question for parliaments is, in our limited pie, what subsidies do we want to go, to what places?

Also, you would know that the companies don't have to pay council rates. The legislation was changed to not allow councils to put council rates for the water area that the leases are on when they floated the idea of doing that.

Ms FORREST - They do pay for land-based assets.

Ms MINSHULL - That's right, and there has been an increase. We put that our calculations of what a subsidy is.

The other one was: are the jobs growing? As I mentioned before, the deputy premier put the jobs at 5200 or something similar to that. There is disagreement within the industry itself about how many jobs. We have the International Salmon Farmers Association calculating 1500 jobs. That is about 0.7 per cent of the Tasmanian workforce. KPMG put it at 1.2 per cent. That was in 2015. That was including the direct and indirect jobs.

We went through the reports of the three companies and added them all together, and it came out at 2184 or around 1 per cent. That included employees in other states.

I guess my point there is that any job is a good job, and the jobs provided in the industry are more likely to be full time and well compensated than some of our other industries. But overall, as an industry it is small in terms of the people it employs. It is very hard to get exact numbers, because of the way the industry itself actually can't agree.

Do you want me to stop?

CHAIR - No.

Ms MINSHULL - In the submission - I won't go through it now. We have some little graphs on what most jobs are in Tasmania - in the service industry, 77 per cent. The service industry includes health, and is very broad range. Of that 77 per cent, 21 per cent are in goods-producing industries, and the remainder are mixed, like electricity, gas, water, waste. Less than 1 per cent are in aquaculture.

We then looked at: what does the industry provide to the Government? The indicator we looked at was gross state product. I think the way of looking at that actually has its limitations because again, any economic activity that occurs in the state is included in GSP, and I know you will know all this.

For me, this is a good thing to touch on again, because if somebody in Singapore puts in an order with somebody in Tasmania, and that transaction ends up having a financial, or economic, activity, that is counted as our gross state product. It is not that gross state product is what the companies, or economic activity, pay in wages or taxes or direct actual money that we can put our hands on.

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Having said that, the salmon industry contributes about \$190 million to GSP. Again, this was on 2017-18 figures. At the time, that was about 0.6 per cent of total GSP and that figure was from the International Salmon Farmers Association.

By contrast, tourism that year was \$1.4 billion or about 5 per cent of GSP. We had a look at the leases - I would note that since we put this report out Huon has put up more information about their leases and licencing regimes; from the perspective of a researcher, let alone a punter, I would still say it is quite opaque. I cannot easily find out as an industry what the total number of licence and leases are.

When we looked, again, before Huon put up some more of that information, we calculated that it was around \$801 000 for the entire industry and that was made up from farming, licence fees of \$2765. Not all of Tasmania's 44 leases necessarily at the time had current licences. However, if they did, we calculated it would amount to about \$121 660. In total, the estimated lease and licence fees came out at about \$923 000; that represents about 0.1 per cent or 1000th of the total farmgate production of the salmon industry in Tasmania and 0.02 per cent of total state revenue.

Those figures may well be, or I would expect that they would be, refined by the companies themselves. These are our best estimates given the information that was easily available publicly. We then had a quick look at the revenue stream for licences in Norway. Norway went through a massive expansion after 2016 and they decided that they would do their licencing regime in a very different way so it was a market-based regime and the companies have to go and all of the licences get put up for auction. It is very public because it is a public auction and where the leases are, who bids on them and the money that they get back is all put up on the website.

In 2017, an auction of licences raised kr 2.9 billion - to us that is about \$468 million - and that was for licences covering 14 945 tonnes. The interesting thing for us as well was that 80 per cent of that revenue went directly back to the communities that were going to be impacted by the expansion of the industry.

Ms FORREST - Just on that point, it is interesting that the financial benefit went back to the communities impacted. Some could argue that those communities who had a positive impact because of the increased employment and other things so it is a double thank you very much by the community.

Ms MINSHULL - I reckon they would be pretty pleased that is for sure. I did not look into how the decision was made by the parliament to direct the money back to there but, yes, you are right. I guess they are getting support for their community in terms of the jobs and then they are getting support by sharing in the profits that are made.

Ms FORREST - It is pretty hypothecation of a lease to a particular part of the country. I am trying to flesh out whether you think this is a suitable way to even consider it for Tasmania. Admittedly some of them are not in such hard done by areas in terms of the economic status of the communities but certainly the west coast finds it pretty tough. Do you believe there is an argument in Tasmania for hypothecation to that extent or should the government get its money in whether it is from any state revenue base and that is used for the greater good of the whole community or should it be narrowed?

Ms MINSHULL - It is a good question, I haven't really thought about it. That did strike me. I thought about the issue around hypothecation of the taxes and then I thought: how would you

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decide what community gets what? At the moment, we are so far away from arguing over what happens to that money. I would think the best thing to do would be to have some sort of mechanism where the community could come together and talk about the possibility of what extra revenue could be sourced and where it should go. That is a really long way of saying I don't have a strong opinion on it. I have nearly finished my statement.

We had a look at using the Norwegian model in Tasmania and its salmon-stocking density of between 10 and 28 tonnes per hectare that had been reported at the time. If the 2257 hectares of salmon leases in Tasmania were valued the same way as the Norwegian biomass licences - the other thing to mention is that the government sets the biomass limit every year, and what you buy when you are bidding at auction is for a percentage of that biomass limit - they would have been worth between \$707 million and \$2 billion at a government auction. The other thing to mention here is that those leases are in perpetuity. That is not an annual lease. Once you've got the lease, you've got it.

Between \$707 million and \$2 billion is a lot of money that would probably see us for quite some years. The other point I would make there is that because it is at auction you are only going to get the price the market can bear. The companies are only going to bid to the point they can afford. The one problem with Tasmania that you would have is that it would be quite a concentrated market if you had three companies bidding against each other. There is always the possibility that the government sets a base price or puts a reserve on it.

Mr VALENTINE - Aren't they looking at tendering and a growth plan?

CHAIR - There is mention in the growth plan of tendering new areas. That is for another conversation, I think.

Ms MINSHULL - Yes. The other thing on the tendering is that I couldn't find information about how long current leases last for, what their terms were, and there is also a possibility to go to this auction system once the current leases run out. There are people that know a lot better than I do about the current leases, if they run out and how long they are for.

Mr FINCH - My question would be in this comparison you have made with Norway. You have mentioned trying to get information but it is not readily available to you. In some of our submissions there is talk about the lack of transparency in the overall scheme of things. Is that your observation? If you compare Norway with what we do in Tasmania, is there openness about what happens in Norway and a lack of openness in Tasmania about the way we are operating?

Ms MINSHULL - As an outsider from the industry, that is very much my observation. Norway is based on a far more deregulated open market system. The idea behind it is that you have a government resource and you want to maximise the profit you get back for it having exclusive use for exploiting that resource, so you put it out to market. It is a very deregulated market-based process and the way it is done in Tasmania is not. We just don't have those options. You can type 'Norway salmon leases' and the information immediately comes up for you in English.

CHAIR - As you were doing the economic analysis for this report in recent times -

Ms MINSHULL - About 12 months ago -

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CHAIR - were you aware or were you able to access any economic modelling or reports done by the Tasmanian Government into the impact of the industry in this state?

Ms MINSHULL - No, we had to look in various places, so we trawled through the state budget, we had a look at various government departments and there was nothing that showed us in one place. That is the point we were trying to make in terms of the assessment of how many jobs are there and what the GSP is back to the state. Even within the industry itself, there's no agreement between KPMG in 2015 and the International Salmon Farmers Association in 2018.

CHAIR - Is that largely around the jobs that flow in a secondary sense?

Ms MINSHULL - No. The flow-on jobs are always difficult. In fact, if you took out every industry and added together the jobs they claim are indirect, we'd have about 10 times the actual workforce we have in Tasmania. It just doesn't add up. That's important but, even using the same methodology, people come up with different numbers. I don't know how the deputy premier came up with 5200.

CHAIR - There's now a data portal on the DPIPWE website. There are questions about what's on that and its usefulness but it's there as of a fairly short time ago and they do have employment numbers on that data portal. They have employment numbers for each of the three companies. They have it broken down into full time and casual. I pulled those numbers from that portal recently and they have some historical figures from the last three years. That's a development that's moved in the right direction by the sound of it. It still doesn't answer any questions about the secondary flow-on jobs but it appears that there's more openness to share that data in a way that's comparative and straightforward, so updating might be easier.

Ms MINSHULL - Just one quick point on that. That's the base level that you would accept, just to get employment numbers shouldn't be too hard. The other thing I noted in the submission, although it was slightly out of it, is the question of whether there will also be an expanding workforce in an expanding industry. There was a leaked report from Tassal that was put in the 2015 federal inquiry, where they were promoting to their investors that automation would actually reduce the workforce. I don't know if that's happened or not, but it was their own speculation to their investors. If we're going to look at a growing industry, we need to look at whether there will be a concurrent growth in the workforce: does that stay stagnant or does it reduce? I don't know. It's a question, not a statement.

CHAIR - Good question. In the sustainable growth plan that the Government has put out, they suggest they are going to commission a report on economic impact of the industry. In terms of that, are there particular aspects from your work or the work of the Australia Institute of Tasmania that you think they need to be taking into consideration if they do that?

Ms MINSHULL - Yes, they should look at our report in terms of looking at alternative economic frameworks or financial frameworks for the industry. That's really a 'no-brainer'. Don't try to recreate the wheel, look around the world at where other countries have maximised their income. I would also, as in most government reports, really urge the Government to put out its terms of reference and give people the opportunity to have input into them. The answer is always defined by the questions that we ask, so it's actually at the point of asking the questions that I would suggest that the Government look for input. It's very hard to say, I would suggest, that you put this in a report when you don't really know what the report's about. Any opportunity to input into that delivers a far more robust outcome and also one that the community will have more faith in.

PUBLIC

Mr FINCH - You touched on subsidies. How do you feel about this \$9.3 million in quantifiable state and federal government subsidies for the salmon industry? Is it over the top? Is it luxuriant to have that sort of money come into the industry?

Ms MINSHULL - Well, as I said, some of the subsidies, like the one that went to the processing plant, are high. We put the subsidies in there as an indication of the level of support from the state, so when you look at the level of support coming from the companies back to the state I guess it would be minus that subsidy. I am a little bit agnostic about subsidies. I think they are a good thing, but you really need to look closely at the subsidies when you are thinking about expanding the industry. I suppose, going back to the former point from the inquiry Chair, that would be the type of thing that you would want to see in any inquiry from the Government, on the future economics of the industry.

Mr FINCH - A big picture question from me: in your investigations and the work you have done for this submission, which is very good, do you see the forward projection for this industry as being on the money as far as Tasmania is concerned. Is it good for us to be involved in and promote the expansion of this industry?

Ms MINSHULL - At the moment, if you compare it to other industries, it is not returning as much to the state so the thing that I would look at is how much is it going to return to the state by the expansion of the industry, and weigh that against the cost-benefit around the risk that you will have because of the other areas that people have spoken about that are not my area of expertise, such as the environment. Will it impact at all on sectors like the tourism industry, which returns a lot more to the state?

I would have a look at also where the actual money goes in terms of the profits to the shareholders. I think around 4.4 per cent of Tassal's shareholders have a Tasmanian postcode and together they hold 1.1 per cent of the company. If you look at just where the profits are going, a majority of them are going to the mainland or institutional investors - some of whom may have people living in Tassie, that's for sure. We only looked at the individual shareholders. I think that type of projection needs to be looked at really seriously, and have a look at the cost-benefit. How is it impacting or has the potential to impact other industries? At this point, given that it is such a small amount of the Tasmanian economy, even if it doubled it is still going to be a small amount for the Tasmanian economy. Look at the potential risks around it. I don't see it as a big employer or money maker.

CHAIR - Some of the submissions made to us have talked about the idea of remediation, the industry paying for remediating areas they have been using, like a bond. Is that something that happens in those other jurisdictions, like Norway, that you looked at? Is it part of that requirement around the way leases are allocated and managed?

Ms MINSHULL - It is a very good question and I don't have an answer, sorry. I haven't had a look. What we have looked at before is bonds that have been put on old mining leases. If you look at that, even in Tasmania the amount of money that is held, even though our mining industry is quite small, the amount that is held in bond for the remediation and clean-up goes nowhere near. We are underfunded basically, if you are looking at it from an insurance perspective. I have never thought about it but as a general principle, any extractive industry or any industry that has an environmental footprint should have a bond.

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Mr VALENTINE - When you said you visited Norway and you talked about the amount of money that goes back to the community, did you have any insight provided to you as to how the communities dealt in with the management of aquaculture facilities over there? Did you go into that at all or was it just about the financials?

Ms MINSHULL - It was mainly about the financials, but what we did have a look at in a previous piece of research was the public consternation with the aquaculture industry and how much people were concerned. We found a greater support of the industry in Norway than what we found in Tasmania. I didn't look at the process that they went through or how they got to where they were, no.

Mr VALENTINE - Or why that support is there. It may well have been because money was coming from the companies flowing into the community, mandated by government. I am not suggesting that companies were trying to buy people's interest. I was interested to know whether you looked at those aspects and it sounds like you didn't.

Ms MINSHULL - No, I didn't. I was really just looking at the difference - the main point for me is: how do you want to maximise the return for the exclusive use of a public resource? That was the basis of the research we did.

Mr GAFFNEY - I found this really interesting. You have a small section in your paper about council rates. You mention that councils charge rates to cover a lot of the work they have to do with companies on the land - roads and services and that sort of thing. Do you have a point of view about rating marine areas?

Ms MINSHULL - I don't understand why councils are not allowed to charge rates. I understand the legal and legislative mechanism which has taken us to that point, but from a rational perspective, nobody has explained to me why the companies don't have to pay rates on those waterways. I don't understand that at all. I think we have the Local Government Act and local councils are in place and are voted for by local residents to look after the local area, to charge rates and then spend that money they get from the rates accordingly. To me, it makes absolutely no sense that one industry has been excluded from having to pay rates in a particular area just because there is the difference between marine and terrestrial.

CHAIR - Thank you so much for your time today, Leanne. We really appreciate it and your submitting the report. It covered areas that hadn't necessarily been covered in other reports, so it was quite useful in that way.

Ms MINSHULL - Thanks very much.

THE WITNESS WITHDREW.

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Mr JAMES GARDE, CEO, SEAFOOD AND MARITIME TRAINING, WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

CHAIR - Welcome. Thank you for giving us your time and coming in. You sent us through a brief letter and made yourself available to have a talk with us today.

I need to let you know about a few details relating to the hearing. It is covered by parliamentary privilege but comments you may make outside this room will not be covered by that same privilege necessarily so you need to be mindful of that. It is being recorded. We will have the *Hansard* of it available on the committee website once it is ready and we are also broadcasting the hearing today. If there are elements of your evidence you would like to give in camera, you can make that request and we will consider the request as relevant.

The way it is going to go is I am going to ask you to make a statutory declaration and then you have an opportunity just to give us some opening remarks if you would like to then we go through and ask you some questions in relation to that.

Mr GARDE - That you very much, Chair, for the opportunity and thank you to the committee for giving me the opportunity to give this verbal submission.

To put it in context, I suppose, where I am coming from, Seafood and Maritime Training, is a not-for-profit training organisation which has been around for 30 years providing training to the industry. It's really grown up on the back of the seafood industry and over the last 15 years as our industry has grown to become the largest in Australia. We've also grown our business from being an organisation that employed a handful of staff to one that now employs over 30 staff to support the industry.

We're in the game of training so we see a lot of the people who are entering into the industry or supporting the industry. What we've noticed over the last 10 years is there has been an increase in the number of people or students coming to us to undertake training to service the industry as opposed to be just primary producers.

It brings to the point that we're noticing this increase in what we call the service industry for the seafood industry. These people come from diving companies, research agencies, feed manufacturing companies, environmental consultants right down to training providers. They all form a significant part of what I call the seafood community which steps outside the industry a little bit and takes into account what the seafood industry is for Tasmania and that's more of a community than just an industry.

This relationship with the seafood community also means that they're impacted by rises and falls in the seafood industry and also the views and comments made by the wider community about the industry. Because of this, Seafood and Maritime Training as one of these service providers, really encourages the open transparency you get from a science-based, risk-based regulatory framework currently adopted by the Tasmanian Government to regulate the finfish industry.

For us it's the only means of having a measurable, transparent discussion about how the industry is sustainable but it also allows the opportunity to make sure that opinions aren't heard over facts because it's really important. These opinions sometimes damage the community and the people within the community and it impacts on their day-to-day life.

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Thank you very much for taking the time to discuss this further and I'd like to encourage you to think about the seafood community and the service providers within it when you talk about regulating the finfish industry.

CHAIR - Thanks very much, James, that's great. I'm going to start with a question and then my colleagues will no doubt have some as well. We know from the growth plan for the industry and the industry itself that they have an aspiration to grow to a \$2 billion industry by 2030. In terms of your part in that, do you similarly anticipate a growth in the training needs and a growth in the employment and that collateral industry around the seafood industry, alongside that growth plan? Is going to be like-for-like in terms of a similar magnitude of growth or does it not work that way?

Mr GARDE - I see it more like, not alongside of us, what I see is more surrounding or supporting the industry. If I think of the Tasmanian seafood industry - the primary production side of it - it's like a bubble, if I can use the phrase but it is, and the surface area around the outside of it is where the service providers work.

As the industry grows a little bit, the surface area increases quite a lot and you'll increased service providers come into the market. You'll see hopefully increased training for us but the whole seafood community will grow around the outside of the industry and sometimes at a greater rate than the industry itself does as a percentage.

CHAIR - Is that something that you've made an assessment of in terms of that growth target for the industry, growing to a \$2 billion industry by 2030? Have you made a prediction or an assessment about what that means to your business in terms of growth?

Mr GARDE - I guess if the industry grows, from what we've learnt historically, we'll grow too. We are dependent on the industry growing for any future growth in our organisation and, as I said, we've grown up with the industry. So as it grows, we'll adapt and grow with it. If it's not growing, we'll provide the services as we are. If it's shrinking or contracting, we will too.

CHAIR - Given that growth in the industry doesn't necessarily equal employment growth due to other factors like automation, and there'll be some discussion around the degree to which that is the case, but even if those factors don't increase, do you still anticipate that you will be growing, given that you're a training provider?

Mr GARDE - The way that we look at the seafood training market is more if you look at about getting on the water. We have a community of people who are trying to get on the water and have employment, be it your researchers, be it your feed manufacturers - they're all out there.

Even if the industry automates, would be more service providers out there servicing the automation, which will then increase our training as they try to get access to the water. This is that main service we fill as well as helping the industry grow for aquaculture-type training.

Mr FINCH - James, are you growing or developing, looking to the future, in concert with the industry players?

Mr GARDE - Yes, our board is made up of industry representatives who keep us informed of what their movements are so that we can plan our business around them, to make sure we are there to provide the training they need and when they need it. A lot of times, most industries will tell you

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the day they want the training is the day they want it, so we are in continual consultation. We intend to ensure we are ready for the next trend or the next need.

Mr FINCH - Do you have a representative or representatives from the salmon industry?

Mr GARDE - Yes, in our membership. Our membership makes up a significant portion of the seafood and maritime industry, to make sure the board is getting enough information to make decisions it needs.

Mr FINCH - What about on the board?

Mr GARDE - Yes, we do on the board as well.

Mr FINCH - How many?

Mr GARDE - Currently we have got a board membership of four; it is up for an AGM, which will increase it after that.

Mr FINCH - I might have misunderstood you. How many do you have from the salmon industry on the board?

Mr GARDE - Currently on the board, none. Currently we have an oyster representative on the board, a maritime representative, a marine research representative and a wild catch rep.

Mr FINCH - Should there be somebody from the salmon industry seeing that they are looking to be progressive and to develop their industry? Would that not be a good voice to have there, to let you and the other board members know what is going on in their industry?

Mr GARDE - Yes, it is and we have just changed our rules to ensure that will occur at the next AGM coming up in March.

Mr FINCH - Is there only one addition from the salmon industry or do you have other sections of the industry making up a bigger board?

Mr GARDE - The board has stipulated that there would be one salmon and one aquaculture representative on the board, so they could both be for salmon, but we want to make sure the views of the oyster industry are also heard.

Mr FINCH - I might try another line of questioning. We have heard in a lot of evidence that has come to us through the submissions the talk about marine debris. Obviously, that is a problem out there in our waterways and it is linked up to this inquiry into finfish farming. I am trying, in my own mind, to ascertain whether that debris can be sheeted back to the salmon industry when I would have thought the operators within the salmon industry are good operators who would do their best to ensure that they don't contribute to the marine debris. What is your take on that, James?

Mr GARDE - This would be my view based on not any facts, but I am an ex-fish farmer myself. I know from the early days of the salmon industry towards today, I think the salmon industry wants to make sure it maintains its relationship with the community. Most people who join the aquaculture industry do it because they like working on the water and being on the water and they are trying to protect the environment they farm. Every effort is taken to minimise the

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impact of debris, as you put forward. Different farms have put different procedures in place that I am aware of to be able to identify their own impact, control it and manage it and are active with clean-up programs as well.

Mr FINCH - Do you train for that?

Mr GARDE - No, but we do support an NRM project looking at it. It is a bit difficult to talk about it. Most of the training involved in debris clean-up would be about doing it safely and they just manage that as an in-house procedure.

Mr VALENTINE - I am interested in the structure. You say it is not for profit; is that fully funded by the industry or is it simply training services provided for certain dollars, which is user pays?

Mr GARDE - Yes, we attract a combination of full fee to partial fee paying to subsidies from the government that are apportioned to participants. We tender on the Skills Fund contract. Also, the seafood industry has what we call a seafood pledge, which is a three-yearly contract to provide us with subsidies for subsidised places only. When we train a student, the seafood industry can get a representative amount of training subsidy as it would have got if it were in the public system. Currently, we are unique in Tasmania. We are the only state in which seafood doesn't fall under TAFE.

Mr VALENTINE - Is it federally funded or state-funded?

Mr GARDE - State-funded, purely on training subsidies.

Mr VALENTINE - In all the training needed, are there any particular things that you can't train people for, where there is a need for training, such as maybe some of the specialist diving that might be different? Is there anything you can't cater for?

Mr GARDE - We're not the sole training provider. There are other service providers that cater for the diving side of things. The gaps that we tend to not be able to cater for would be also covered by the Australian Maritime College. There is a raft of training that the seafood industry does now which doesn't directly relate to seafood: management, leadership, risk management, project management. They are sourcing other training providers to be able to provide that for the staff.

Mr VALENTINE - How many providers are in the game?

Mr GARDE - It depends which industry that's servicing.

Mr VALENTINE - No, in the training game, in your line of work, if I can put it that way.

Mr GARDE - The ones that primarily service maritime aquaculture-type training, there is the AMC and us, and there is one other private provider out there.

Mr VALENTINE - A rare species.

Mr GARDE - We're kind of unique because we grew up with the industry. Normally, it would be filled by TasTAFE, but we fill that gap in the market.

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Mr VALENTINE - There are 200 training courses - that is quite a lot of training courses to have to provide. How do you staff that area, delivering the training courses themselves? Do you go to certain industries that have expertise in certain areas? Do you contract with them? Do you have the staff that actually deliver that?

Mr GARDE - We have the staff. We manage it on a structure of 10 permanent staff. Some of them are in training, some in admin, some in management.

We have 25 casual staff we bring in and out to make sure we can meet the needs. There is a really diverse range of needs for the industry: everything from high-risk slicing to food safety, to driving boats, to management. We will just manage it by our casual staff members we have, or we will bring more in to do it. Mostly we try to make sure these people are still industry current and working in the industry.

Mr VALENTINE - It sounds like a real task and you are addressing yourself to it.

CHAIR - James, you mentioned the fact that your business and your part in the broader seafood industry is affected by the views the community holds toward the industry, and you talked about the fact that you want to see facts prevail over opinion in that space.

How do you think that could happen better in this state, given that there is some consternation in the community about the industry? To see that outcome that you are looking for, to counteract some of those opinions or views that may be put out there, what do you think needs to happen in this state, or happen more, to best achieve that?

Mr GARDE - I think we already had the right framework in the regulation setup by government and its agencies. Being able to access that information in a responsible way might be able to avow any opinion which isn't true.

It is always going to be difficult to manage opinions of people who maybe don't want to look at the facts. Every industry suffers from this. I haven't a silver bullet for that one, except to make sure the information can be accessed and assessed by individuals to make their own judgment.

However, evidence and facts are normally assessed by scientists. Taken in isolation, they may come up with a wrong result if they look at it from the view of somebody who doesn't understand what they are looking at.

CHAIR - There is certainly a strong call in many of the submissions to this inquiry for more accessibility and openness to data and details about the industry and the regulation of the industry. There is a real call from the community for that.

I think what you are talking about aligns well what others think would achieve a good end in terms of the community having confidence in and feeling comfortable about the industry.

Mr GARDE - I think the key is for the relevant agencies to make information available that they have, because the industry is trying as much as it can to put its public perception at the forefront of being open and transparent, but where there's a lack of trust people will tend to trust government over an enterprise. The more -

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CHAIR - Perhaps it requires an independent location to access information, which people might feel comfortable with.

Mr GARDE - Yes. The industry is doing all it can to put out the right perception but there has to be an independent means of putting it forward so there's no argument about what was put out.

Ms FORREST - In some of the training you provide, is a component of that helping people understand the regulatory framework? Do you have to teach it?

Mr GARDE - Yes, we do, just at a base level; things like environmental impact assessments and the steps taken to get a lease. This is mainly taught to the trainees of the industry so that when they enter the industry, they understand what licensing arrangement goes around their lease and what they have to do to maintain that licence and maintain that lease. That really underpins a lot of the environmental processes they have. Added to that, they are primarily there for growing the fish. Therefore, their expectations for the lease will sometimes be much higher than the regulations because good water means good fish and they will be striving above that to get the best water they can.

Ms FORREST - There must be a range of courses that you provide. Do you have a list of your courses?

Mr GARDE - I can get it for you.

Ms FORREST - It would be helpful to see the breadth of it. You indicated it was mostly entry level, or do you do more senior management-level training as well?

Mr GARDE - Yes, it is a bit of a pyramid. There are a lot more people doing entry-level training. When you talk about your coxswain-type courses, sea safety courses or Certificate III in Aquaculture, the majority of enrolments are there, but as you move up to your high-level maritime, like Master 24 or Master 35, it lowers, or if you move up to the Certificate IV in Aquaculture or even Diploma of Aquaculture, it lowers again, obviously because there are fewer opportunities for people in those positions and the demand tapers off. We do have a -

Ms FORREST - Do you provide those? I thought MAST provided some of those.

Mr GARDE - No.

Ms FORREST - It is private enterprise that has to provide all of these, to get a coxswain's ticket and everything like that?

Mr GARDE - The Australian Maritime College does provide some. However, because of their location, we tend to attract the major enrolments for the industry.

Ms FORREST - You are based in Hobart. What about the north-west coast?

Mr GARDE - We will deliver on the north-west coast. We deliver regionally as well for things like coxswains because there is a stronger oyster industry on the north-west coast. We annually run coxswain courses over there, food safety courses and waiter safety to make sure they are covered for their demand.

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Ms FORREST - It would be helpful if you would give us a list of the training programs you provide and the regional breakdown. I accept it doesn't relate to the terms of reference, but it is of interest.

Following up on a question Meg asked, my question, and you have basically answered it, is that you said that a science-based and risk-based regulatory framework is what we have and is necessary. Do you have a view on the ministerial power to basically ignore the Marine Farming Planning Review Panel's decision and go against their recommendation?

Mr GARDE - I don't know enough to have a view on it.

Ms FORREST - That's fine. In terms of the overall regulatory framework, that is one of the powers, obviously, and you talked about the importance of a science and risk-based approach, which is something the Marine Farming Planning Review Panel has to look at. Are there any other areas you think may need review or tightening up? We are looking at the regulatory framework and I would be interested to know, as a trainer, have things come up that you think may need further clarity or may need loosening or strengthening of the regulations in order to ensure we have a sustainable and safe industry that is safe to work in?

Mr GARDE - My view is that the industry and the agencies are trying to work together to create a sustainable platform for the future. I'd probably take on their advice as to where they suggest things can be strengthened to enable that transparency we are talking about to be able to quell public perception or negative public perception about the industry and they are the ones who would probably be getting the best advice about where things can be improved, strengthened or relaxed in some instances.

Ms FORREST - In terms of the programs that you provide, you said Tasmania is unique and these training opportunities are not provided by TasTAFE and it does seem a bit of an oversight in many respects, but TasTAFE has had an interesting journey of late. Have you ever had any discussions or are you aware of any discussions about putting some of these training programs into TasTAFE because some of the training I assume you do, and that is why I am keen to see the list, would cross over industries. They would not only relate to the marine environment, or do they? Are they completely aligned with marine workplaces and not relevant to any other?

Mr GARDE - The Tasmanian aquaculture industry is in a very unique position in the way of its training demand. I don't know too many other workplaces that require so many licences to be able to work on the water or do the job. For instance, if you work in a factory, you have a forklift licence; if you drive a truck, you have a truck licence - but if you work in the salmon industry, you will have a forklift licence, a crane licence, a coxswain's ticket, current first aid and a marine radio licence.

Some of them can be passed over to other training providers, but the industry tends to try to manage that packaging of its people into a cohort of their own development. Even though it can be transferred across to other training providers, they tend to stick with us to deliver all of it. They could go for other training providers for some of the high-risk licensing stuff which is out there, but generally the relationship we have with them over time means they support us and we make sure it is available when they need it.

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Ms FORREST - Do you think it is better that it stays under the current model rather than being considered a part of TAFE's offerings? I don't even think that is part of the discussion, but do you think it is a better model to be in this sort of framework?

Mr GARDE - Our success is due to the fact that we have been flexible and we are able to move quickly. The aquaculture industry is a bit like the agriculture industry on steroids. It is progressing so quickly that you cannot be stale in your approach to training and what you do. You need to move very quickly. We have filled that market because we have been able to meet each demand as it has come up. I am not certain whether a public provider could move as quickly as we do due to the requirements around running large institutions that you don't have with small ones.

Ms FORREST - What quality control is there on your training programs and how are they measured?

Mr GARDE - We, like all RTOs, like TasTAFE, are audited under ASQA. We are also audited by the state government for our contracts we had with them and we are also potentially audited by AMSA, being the marine regulatory authority, as well your normal audit processes that apply to high-risk licences. There are plenty of people looking at us and poking at us and making sure that we are doing it right. We try to manage our way through all those compliance issues and provide the training.

Ms FORREST - You must have a nice risk matrix for the board to consider.

Mr FINCH - I am very impressed, James, with the information that you have sent through of 1600 students and being the largest provider in the seafood industry in Australia; it is a feather in your cap. Does this mean students are coming from interstate to train in Tasmania and what would the percentage be?

Mr GARDE - We get a very small number coming from interstate. They tend not to come directly for us for education. They will go to the industry for a job and then we will get them. Most of our students are employed. If you looked at the total, probably about 95 per cent already have a job by the time they walk in the door. It is industry choosing to train them, not them choosing to get trained, which is also how we are quite unique compared to the TasTAFE or any TAFE scenario.

Mr FINCH - I see you are a not-for-profit association. Where does your funding primarily come from?

Mr GARDE - About 55 per cent would come through subsidies. The rest is what employers and students pay.

Mr FINCH - When you say subsidies, what do you mean?

Mr GARDE - There are three main subsidies we can attract through different incentives. They are subsidies paid to us based on training a person so it is linked to the student and that is one of those user choice for traineeships. There is a skills fund which is a six-month contract as well as what is called the seafood pledge which is a three-year contract that industry secured through TISC.

Mr FINCH - It is interesting that you are able to get 1600 students a year to come through your services. You have mentioned here a couple of times in your presentation today you have also talked about sustainability. What is your view when you see the expansion of the salmon industry

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and the discussion about the projections that it will expand even more? What is your view about sustainability? Do you chat amongst the seafood industry leaders in respect of how this is being developed?

Mr GARDE - I talk mainly in my submission about sustainability. I am talking about a sustainable industry, one which is sustainable within the community and itself, so as one part of that they have to be sustainable in their own environment. If we are talking about fish farming, it really does rely on them managing their water to be able to get the best production they possibly can so there is a driver within themselves to be able to have farming practices which enables it to be sustainable otherwise it impacts on their profit. Either by them wanting to be more environmentally secure or wanting to make more money they are always going to put their water first and making sure it is as clean as they possibly can so they can grow the best fish they can.

From my perspective, it is almost self-regulating; however, you need to have a regulatory framework to make sure that when the community looks at it, they can see the facts they need to see, all the evidence they need to see to make them feel comfortable with how it is.

Mr FINCH - Are you aware of the regulatory requirements for the salmon industry?

Mr GARDE - No, I am aware of them. I would not be able to tell you all of them.

Mr FINCH - Okay, thanks.

Mr VALENTINE - Have you any comment on the use of technology in the industry since it started? I suppose you have been there for most of that by the sound of it. Has that moved dramatically differently to other industries, like general agriculture, that you might be aware of?

Mr GARDE - Without getting myself in trouble with agricultural land base, but, like I said before, the Tasmanian salmon industry is a world leader in technology in what they are doing and implementing. From my days as a fish farmer when everything was done by hand to now where virtually people can step on the water and drive ROVs to cleaning nets, to feed fish from centralised feeding systems in town to the size of the well-boats progressing out there at the moment, it is a whole other industry.

Mr VALENTINE - Of those 200 training courses, does a significant proportion of them do have some sort of technology involved?

Mr GARDE - Technology is something the whole of the seafood industry is grappling with at the moment.

Mr VALENTINE - It is the digital space I am talking about here.

Mr GARDE - I am sure there are parts of these salmon companies that now are more about IT departments than fish farmers and that will tend to be trained by another organisation in IT because it is a specialty that we do not do. As a [inaudible] technology, they also become different types of roles or vocations within their business but we do not see all of them.

CHAIR - Thank you for your time today, James, we really appreciate it. It is good you got in touch and you were able to come in and give a verbal presentation and answer our questions. Is

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there anything finally that you would like to say or touch on that we haven't covered with our questions or in your opening for us?

Mr GARDE - I suppose getting back to my final point of my opening address, we see this as a seafood community, not just an industry. We need to consider the people who are impacted who work in this community as opposed to just the impact on the industry itself.

CHAIR - Thank you for your time.

THE WITNESS WITHDREW.

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Dr ROSALIE WOODRUFF, TASMANIAN GREENS, WAS CALLED AND EXAMINED, AND **Senator PETER WHISH-WILSON** AUSTRALIAN GREENS WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

CHAIR - Welcome, Rosalie and Peter. Thank you for your time today in coming in to speak with us to your submissions. We appreciate you have made them. As you would be well aware, parliamentary privilege applies to this process but once you are outside the room that may not necessarily apply. We are being recorded and the *Hansard* will be available via the committee website. We are also being broadcast today.

Would you like to make some opening statements, either each of you or jointly? What would suit?

Senator WHISH-WILSON - I might make a brief opening statement and then hand over to Rosalie. Thank you for allowing me to appear here today. I felt it was important to put in a submission I suppose on behalf of myself as a Tasmanian senator who has been down the process of doing exactly what you're doing as a committee.

I initiated a Senate inquiry into finfish farming in 2015. The reason I did that was with a manila folder that was stuck under my door. Inside that manila folder were some leaked emails from CEOs of two of the three of Tasmania's big salmon companies. The email has been tabled in parliament. I think it was 4 March 2015. Kim Booth tabled it in parliament so it's in *Hansard*. It's available for you to have a look at.

The email very clearly was saying that the industry wasn't being well regulated in Macquarie Harbour and there were serious concerns about the lack of regulation. It was quite damning to the premier and to the minister. It was quite damning of the lack of a biomass cap in Macquarie Harbour, overstocking particularly by Tassal and I felt the interpretation was very clear. It was also damning of Wes Ford, who was managing the process at that time.

I initiated an inquiry following that. Following the Senate inquiry, there was a *Four Corners* exposé into the salmon industry that -

Senator WHISH-WILSON cont - I initiated an inquiry following that. Following the Senate inquiry there was a *Four Corners* exposé into the salmon industry that also came from those emails. We are happy to talk more at length about what the inquiry did and didn't discuss around the state of the salmon industry.

Suffice to say, when the Senate inquiry happened, the salmonid association presented and I wasn't able to compel the CEOs to attend because Labor were chairing the committee, not the Greens. They appeared to all be on one page, said everything was fine and that email was a point-in-time correspondence. Not long after the Senate inquiry, the salmon companies essentially went to war and they went to court.

I put it to councillors that there are two unusual things about that, to start with. First: two companies asking for more regulation. Companies don't often ask for more regulation, often they ask for less regulation. There were certainly concerns from the companies themselves that the future sustainability of their industry was at stake if the government didn't do its job. Second,

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tongue-in-cheek, they were leaking it to the Greens. It shows you that they obviously felt that there was no-one else they could go to except for us to get this information out there, which we duly did.

Following the Senate inquiry, I wrote to the federal Environment minister and asked him, under EPBC law, to intervene. There was no controlled action when the Macquarie Harbour expansion occurred in 2012 but that could be revisited if there were material evidence of a change in Macquarie Harbour, and we felt there most definitely was. I confirmed at Estimates in 2017 that the department had come down to Tasmania and had visited and worked with the EPA at the time, about a month after my letter to Mr Frydenberg. I think it was Wes Ford at the EPA who said that they were reducing the biomass cap in Macquarie Harbour and it had taken it, essentially, nearly three years to get to that point following the leaked emails. The leaked emails were from September 2014. They weren't put under my door until nearly six months later in 2015. Clearly, there was correspondence going back some time but two of the three companies hadn't been able to get any kind of settlement with the government as to what was going on in Macquarie Harbour.

The last point for me is that I would recommend to the committee the recommendations in my dissenting report in the major Senate report. It is actually an extension of three recommendations made by the Senate majority report but they were very sparse on details so we provided a blueprint with 28 recommendations of what we felt the industry needed to restore public confidence, to have a social licence and to operate independently. We made it very clear in our dissenting report that we supported the salmon industry, we weren't opposed to it, but if it were to have any future in this state, it needed to go down a different road. In the five years since then I have been extremely disappointed with the lack of the action. Literally none of those recommendations have been implemented. One or two of them have in a half-cocked way and I have personally lost faith that this industry can be properly regulated by the government as they stand.

Dr WOODRUFF - Thanks, Peter. I will make a statement in addition to the submission I made on behalf of the Tasmanian Greens, and that is in light of having read the submissions and looked at the evidence presented.

There are so many things I could say about the salmon industry. The Greens have represented people as constituents and we have been involved in many of the issues that have come up around the state because of community concern, environmental issues raised and the role of scientists as independent people and their ability to be heard. Fundamentally, I will constrain myself to talking about legislation and thinking of it from the point of view of what can meaningfully be done by this Government to make the changes it needs to make so that we can draw a line and fix this industry.

What Peter has said is absolutely true. In the last five years there has been no change in the regulations or legislation that has improved governance of the industry. It has become worse, going by most of the relevant measures. I will go into some detail. It has become worse from an approvals and assessment point of view for new developments or expansions to leases, and it has become worse because of the rapid expansion. The currently proposed doubling of the industry from the Macquarie Harbour biomass levels will have huge impacts on so many communities, and they haven't had a say, and they haven't been listened to, as well as the environmental concerns.

A few things have happened since 2015. The industry made a statement on the back of the Senate inquiry and really disastrous community views, that they were going to get out of inshore areas. This was trumpeted as a really important step and it was going to be a world-leading best practice step to go offshore.

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But 'offshore' has never been defined by the industry. It has never been defined in regulations so there is no definition of offshore.

Offshore is a marketing term used to go on ads before SBS and show pictures of deep water, but the reality is almost every site that has been proposed, or has been approved, is within short singing distance from the shore. In full eyesight, and noise of communities, like barely 100 metres away. Some of them are a bit further, but you would really be stretching a long bow to call it further inshore, let alone offshore.

There has been, as well as that, no abandonment of productive inshore leases. It was suggested at the time that they would go offshore, so people believed and hoped they would relinquish inshore leases.

Yes, some of them have been relinquished - in the upper reaches of the Huon and the D'Entrecasteaux. They are all the nonproductive ones, the ones that had dead zones underneath, the ones used as parking bays for pens that didn't actually have active fish production in them. They were kept as parking bays or reopened, as is the case at Brabazon Point on the Huon River.

Many of the inshore leases that were originally abandoned have been quietly reopened as time has gone by, and Brabazon Point in the upper reaches of the Huon has had a substantial increase in fish numbers after being dormant.

There are also very shallow leases off Tinderbox. The production levels in those leases have been massively increased.

The second thing that has happened since 2015 is that a whole bunch of new developments have been approved, or expansions.

I won't go into details about each of them. I am sure you have heard, and read, the submissions. Clearly, Oakhampton Bay has been the most public. Brabazon Point in the Huon River, Tinderbox, as I have just mentioned, has had an expansion proposed. Then there are Long Bay and Stingaree Bay on the Tasman Peninsula, which are incredibly shallow and it beggars belief when they were first proposed that Tassal would go back into what effectively was an ancient lease that had had nothing in it. It is 18 months later and that's already choked with a slippery, slimy algal mat. That has been a short time for that to go downhill.

We have had Storm Bay, of course, with Huon Aquaculture off eastern Bruny Island, Tassal off Wedge Island, which is off the western side of the Tasman Peninsula, and Petuna being approved for off Betsey Island, so that whole circumference of Storm Bay.

Norfolk Bay was never considered, or thought possible to be a fish farm site by the local communities until they found out that, without any consultation at all, that was going to be used as a sort of biosecurity hospital site. It was used without any opportunity to look at the environmental impacts. It is still open for use again, I understand. It hasn't been closed off at all. It is just sitting there.

Expansions, of course, were proposed right up to King Island, Three Hummock Island, Hunter Island and Robbins Island, none of which had the ability, under the current regulation for serious

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consideration of community impact or serious consideration of environmental concern. I will go into that.

The last one I want to mention is the hatcheries, the flowthrough hatcheries. A huge flowthrough hatchery has just been approved at Meadowbank, which will flow the waters in that lake into the upper Derwent catchment; there is also the Wayatinah and the Florentine hatcheries that flow into the upper Derwent River and the Russell River, which is down in the Huon. All of these are flowthrough hatcheries which have a massive sewage nutrient load that flows from the hatchery site into the water downstream. That has been noted as a big concern for TasWater and has incurred costs in the upper Derwent.

Mr VALENTINE - Just for clarification, you say the Meadowbank one has been approved. I thought that might have gone to appeal.

Dr WOODRUFF - It may have gone to appeal and I haven't got up to date with that detail. It was approved by council. It may well be under appeal; I don't know that.

Mr VALENTINE - Okay.

Dr WOODRUFF - So what does each of those developments have in common, those new ones I have listed? Each of them has had the industry, the community and the scientists at loggerheads, often publicly, and the issues are unresolved. Nothing material has changed in the legislation since Macquarie Harbour in the Senate inquiry and the same flaws that oversaw the Macquarie Harbour situation and the damage to the basin remain unaddressed.

In each development that has been approved in the last five years, the industry got everything it asked for. It got its preferred sites and it got preferred stocking levels. There was no reduction in those things that I am aware of. No absolute limits were ever set on fish numbers or on the nutrient pollution that could be produced by each site. Compared to a sewage treatment plant on land, just imagine the sort of regulations you would have over something like that.

There was also no comprehensive baseline assessment of the sites that was scientifically credible. You would have heard from Storm Bay and the scientists from the Marine Farming Planning Review Panel who recommended cumulative baseline assessments. They were dismissed; that wasn't done.

There was no access to information about the industry's operations that was easily available. RTIs are typically refused or heavily redacted. Ministerial questions usually go unanswered. Parliamentary questions on notice are unanswered. The industry and the Government, although they do produce information on a data portal, decide what information they will release and what form and timing they will release it in. So there is no opportunity for community or independent scientists to get questions asked.

That is the summation since 2015. The problems with the current system that I see are that we have three decision-making bodies for fish farm approvals and for the monitoring and compliance of operations - we have the minister, we have the EPA and we have the Marine Farming Planning Review Panel. The legislation governing the EPA and the Marine Farming Planning Review Panel means they are not able to operate independently of government. All their decisions are influenced

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and formally directed by government policies and priorities as well as formally overseen by ministers who can make final decisions.

The rot set in in 2011 when the one and only marine farming planning development application that has ever been refused was refused to Tassal at Soldiers Point on the D'Entrecasteaux Channel by a very plucky and eminent scientist Dr Lois Koehnken, who refused it on the basis of her ecological experience and the impact it would have on the reef there. When that happened, then Labor deputy premier Bryan Green introduced an amendment, the Marine Farming Planning Amendment Act 2011, to remove the power of the panel to refuse a draft amendment to a marine farming development plan and give the minister the ultimate decision in respect of proposed amendments. Bryan Green subsequently overturned the decision made by the panel and Dr Koehnken's contract wasn't renewed despite her excellent credentials.

The Liberal Party, when coming to government, has retained that legislation and hasn't made any changes to those powers so ministerial oversight comprehensively influences the processes of the Marine Farm Planning Review Panel. You have heard and read the testimony of Dr Louise Cherrie and Professor Barbara Nowak about their experiences and their ultimate resignation from that process.

I want to pay my respect to the history here of three independent scientists, all very excellent in their professions, who, on principle, resigned or took very principled scientific positions to ensure that the evidence they had the experience to provide was listened to. They were not prepared to suffer being part of a decision that didn't take that evidence at its face value.

The first problem with the current situation is ministerial overreach on the marine farming panel, and the second one is that there is no ability to challenge or appeal decisions made by either the marine farming panel or by the EPA. The Marine Farm Planning Review Panel makes decisions about development approvals for publicly owned waterways. In a local council situation, planning appeals or rezoning challenges go to the Resource Management Planning and Appeal Tribunal or to the Tasmanian Planning Commission if it's a zoning issue - there is a pathway.

For the EPA's decisions around environment licences, the Director of the EPA, Wes Ford, has the discretion to send these licence applications to the full board but if he does not, and he has not, there is no capacity for community input and there is no capacity to challenge by appeal.

The proposed current environmental licence amendment bill, which was tabled last year, has not addressed the community concerns around these issues.

Mr VALENTINE - Excuse me, could you clarify what you just said then about the Director of the EPA having the discretion to send or not send licence applications to the board and that there is no capacity to challenge or to appeal it? Are you saying the marine farm applicant is not allowed to challenge or members of the public aren't allowed to challenge?

Dr WOODRUFF - Members of the public aren't allowed to challenge. There was a bit excitement amongst the community and scientists about the move to make the EPA more at arm's length from the department and to take it to the EPA and the prospect of being able to go to the full board of the EPA, which would have brought in the Environmental Management and Pollution Control Act, which prescribes community consultation and enables appeal rights.

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Mr VALENTINE - Sorry, Chair, I just needed to clarify that.

Dr WOODRUFF - That little problem for the industry of maybe having to be opened up to those processes was got around by instead giving the director the discretion to decide whether it goes to the board or not.

The last thing I want to say, and I'm sorry I'm taking so long -

CHAIR - Yes, we have some questions.

Dr WOODRUFF - This is probably the most important thing; it is about the notional independence of the EPA. People in the community believe the EPA to be an independent body. I spoke to many people about the Norfolk Bay situation and the development at Okehampton Bay. People expected the EPA to be like a knight on a white horse and to be there as a backstop for them, to be able to provide some independence and rigour in the situation.

The fact is that it's not an independent body because it has not been established as an independent statutory body in the same way as the Tasmanian children's commissioner or the ombudsman or the auditor-general or the Integrity Commission.

Mr WHISH-WILSON - Or the EPA in other states - in Victoria and Western Australia.

Dr WOODRUFF - Okay. Each of those, as you would be aware, has an act that stipulates their independence, and decisions are outside ministerial reach and unable to be affected by government policy. Instead the EPA as it's been constructed in Tasmania should have legislation which stipulates the minister doesn't interfere with it, but instead the EPA's legislation actually stipulates that they must comply with the directions of the minister.

Section 15 of the EMPCA says the minister must provide the EPA board with a statement of expectations, and section 15C says the board must not act in a way that is inconsistent with that statement. The statement of expectation issued to the EPA includes taking into account published Tasmanian government policies as well as policies advised by the minister in writing. This means the minister can effectively direct the EPA on any matter at any time through policy statements.

On page 3 of the EPA statement of expectations it overtly says the minister expects the EPA to facilitate affluence and productivity. The concern the Greens have always had is that this obviously does not put the environment first, it puts business productivity first.

Senator WHISH-WILSON - We often call it the 'economic protection agency' rather than the Environment Protection Authority.

Dr WOODRUFF - This kind of repeated non-enforcement of penalties for fish farm companies is what can happen when a director of the EPA has discretion and doesn't enforce penalties for breaches.

CHAIR - Can I ask you to explain that more fully, and can you demonstrate that claim you've just made of repeated non-enforcement?

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Dr WOODRUFF - I can give examples. Tinderbox, for example, when there are repeated and demonstrated breaches of licence conditions operating outside the hours where farm employees are allowed to operate. This is a problem in communities where people are kept awake or woken up in the middle of the night because boats are working late or working at non-prescribed times. These can be logged and reported to the EPA - nothing happens. At Tinderbox, this is something which I have been following with that community and hearing from them. Also, on the Tasman Peninsula trying to get any breaches of the licence conditions - and you would have seen the slime and the pictures of that from Long Bay - no action is taken, no penalties are exacted for that behaviour so there's no downward pressure. There might be a chat but there is nothing in writing, no downward pressure and the penalties themselves are so small that they don't provide any deterrence. We saw that in Macquarie Harbour when the EPA failed to check the companies when they were exceeding their fish limits, when they didn't remove the fish from the pens in the months they were told to do it. It just went on and on. There was nothing stopping them.

Mr VALENTINE - You say there are no penalties, but how do you know there are no penalties? If they're not published, how do you know the companies aren't being charged? Have you had a look at the summations or something? How do you verify they're not being charged for a breach?

Dr WOODRUFF - I don't have the figures to hand; I could get them but we've done right to information requests about penalties for different licence breaches and we haven't been able to find evidence that penalties are being exacted for many of these things. I could give the example of Tinderbox, where things are being logged and logged and no change happens. It was suggested to the community that they log it again, have another go and write another letter. It is the same for Brabazon Point, same for Long Bay - no apparent action taken, nothing recorded anywhere or whether there has been a penalty. We have applied under right to information about penalties in relation to seals -

Mr VALENTINE - We have to operate off facts; that is why I am asking the question.

CHAIR - Peter, thinking back to the time that has elapsed since the Senate inquiry process, you mentioned that some actions have been taken. Can you point to those you feel have been positive actions taken out of that Senate inquiry? I will also ask you to reflect on the key, really important remaining things you feel have not been acted on from the time of that inquiry.

Senator WHISH-WILSON - We had a half win about six months after the inquiry. One of the key recommendations was that the regulation of this industry went to the EPA and was to be taken away from DPIPWE. The Government did do that, at least in principle and in name, but, as Rosalie has already pointed out, it is apparently independent on paper but not even on paper. Of the recommendations we put in place, there were seven or eight recommendations on water quality monitoring, the techniques that could be used and the way those kinds of things could be disclosed.

The key issue, and I would recommend you look at this as a blueprint for what could help establish confidence in this committee's recommendations, was that recommendation 14 was that decisions of the marine farming panel are appealable to the Resource Management and Planning Appeal Tribunal and that the Tasmanian Planning Commission is empowered to make regional plans and provide statewide guidance for marine aquaculture activities. I am sure Rosalie would want to expand on those two.

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I would like to see the Commonwealth play a much more active role when there are EPBC-listed species, as there was in Macquarie Harbour with the skate. With Storm Bay, there are handfish in that vicinity, and these are one of the most critically endangered species left on the planet. I would like to see the federal government play a more active role. In a nutshell, the situation we have in Tasmania - and it is not just with salmon, we have seen it with other industries - is you can't have a government that is a champion for the industry. We could all have different views in here as to whether that is a role for government, to be championing and promoting an industry. We may not agree on that, but you can't have a champion of an industry on one hand and on the other hand that same government as a regulator of that same industry. That is an inherent conflict of interest.

This needs to be structured by having a properly independent EPA, a statutory authority that has the confidence of the public. It may take some time to happen, but you have your work cut out for you as a committee to get support for any recommendation along those lines from the Labor and the Liberal parties, which are very close to the industry and have been for some time. That is the simple conflict of interest and that has not changed - you need an independent regulator of this industry.

Ms FORREST - In terms of a regulatory framework, there have been other suggestions. I don't know how many submissions you have read, you probably have other things you are more focused on, but Rosalie may have looked at them. A number of submissions have recommended along the lines of some of the recommendations here, that the land use planning approach be adopted for marine farming with the process of appeal to RMPAT and the Tasmanian Planning Commission taking a greater role. Aside from the Government not wanting to do it, what barriers or challenges might there be in trying to adopt this sector to that? Even if you did that, the EPA still sits under its act that doesn't provide that independence that Victoria and New South Wales, I think you said, had.

Senator WHISH-WILSON - Yes, Victoria and Western Australia.

Ms FORREST - Where there is that independence, wouldn't you need more than that? It is more than simply changing the planning arrangements. It is also revising the framework under which the EPA is established. Do you want to talk more about that?

Senator WHISH-WILSON - I think Rosalie should answer that. In principle, what people forget about the salmon industry that makes it unique, and there are a lot of parallels to the forestry industry here, is that you have private companies that are essentially farming the commons. Whether they are leases in the ocean or whether they are forest owned by the Tasmanian and Australian public - the taxpayer - it is the government that actually provides those arrangements to the individual companies. Whether it is a land-based scheme or an ocean-based scheme, the principle is the same and that is why I think these are very risky business models for companies in that they have to rely on the whims of government and they have that issue where they need to seek a social licence to be able to access these resources. They are not on their own private land with their own industry and infrastructure. They have their own infrastructure on public land and on public leases.

Ms FORREST - In terms of answering this question, Rosalie, the other risk, if you like, is that we get a Greens minister who says no to everything. Under the current arrangement, the minister has the overarching power to ignore the Marine Farming Planning Review Panel and the EPA and

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say that we are going to say no to any expansion of marine farming, we don't want any of it. I am not saying you guys are saying that. You said you support a sustainable industry, but isn't it important we get legislation that balances that, to enable the science to be the basis on which decisions are made? Would you like to talk about that regulatory framework?

Dr WOODRUFF - I think you have answered the question as I would answer it back to you. Yes, we do need to have independence in making these decisions because they have millions, if not billions, of dollars at stake, if not today, over years to come. There is a lot of money and there are a lot of jobs involved. A lot of communities are impacted and a lot of vastly and quickly changing marine environmental conditions are affected. There are some huge tectonic plates at play and what we have at the moment is non-independence in how the decisions are being made. We have ministerial influence over the two decision-making bodies, the EPA and the Marine Farming Planning Review Panel.

All we are asking for is independence. All we are asking is for science to speak, and the way that needs to happen - without drilling down into the detail of each act - is to remove the power of the minister to have unconstrained power to overturn decisions of the Marine Farming Planning Review Panel and put the scientists back on that panel because it has been debased and has a whole lot of industry representatives and other things. Industry can make application. If you are sitting on a council and you are making a decision about a development application, you don't have the developer sitting in there making a decision with you. They provide statements, the evidence, the assessments and the reports, but you need independent people making the decision.

CHAIR - Are you saying there are current panel members who are connected to the industry?

Dr WOODRUFF - Correct.

CHAIR - I believe they are not employed by the industry. There is no-one on that panel who is employed by the industry.

Dr WOODRUFF - There has been. I don't know if they are there today.

CHAIR - We can check up on that.

Dr WOODRUFF - I will send you a statement I made in parliament about this and at budget Estimates two years ago about conflicts of interest on the then Marine Farming Planning Review Panel. There were people who had been working in the plastics industry that provided parts to the salmon industry, people who benefitted through their business interests. Tasmania is a small place. This is why we need to work harder to construct an independent system that deals with conflicts of interest in a meaningful way. At the moment, all you need to do is simply say that you have a conflict of interest and keep going - you don't get removed. It's like, okay, conflict of interest noted, keep going.

Ms FORREST - Are you saying that the legislative framework could be changed to remove that ministerial power and amend the Environmental Protection Act to make the EPA an independent statutory body and you wouldn't necessarily need to then go down the path of adopting the whole of the land use planning approach? Am I right or are you saying that wouldn't work?

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Dr WOODRUFF - As I understand it, Tasmania back in the 1990s - and I don't have the year; someone else here might know it - removed fishing, forestry, and mining from the Land Use Planning and Approvals Act. I believe they used to be in LUPAA and they were extracted to have their own because they were considered to be super industries.

Ms FORREST - Before my time too, so I don't recall that.

Dr WOODRUFF - The precedent in Tasmania is they used to be there, and they certainly are there in other states, and in other places. So yes, I am agreeing with you.

The first and foremost thing to do is to revert back to a pre-2011 change to the Marine Farming Planning Review Panel. Reinstate it with proper terms of reference that have scientists on there and also includes social values and the impact on other businesses as valid criteria for that panel to look into.

At the moment, for the whole Storm Bay hearings people came and talked about the real impacts of having an industrial operation sitting on the water outside their house, within cooee. They had no standing to that panel, because the panel has no basis to consider their evidence. They are not interested in hearing that.

The way it has been constructed, they have utterly narrow information they are prepared to look at about the impact of the development. That has to be expanded.

Ms FORREST - It may not be prepared. It may be legislated. They have to work within their legislative framework.

Dr WOODRUFF - That is what I mean. They have no standing. The community has no standing to present its views.

I am not holding that up as a gold standard, and I am not saying that is perfect, but that is where we need to start or reset the conversation.

CHAIR - Prior to the minister being given at large discretion on all the decisions.

Dr WOODRUFF - Prior to the Labor Party changing the rules. Yes, sorry, Ruth, I agree with you, and then there is creating the EPA as an independent statutory body, as per the ombudsman and the Audit Office.

CHAIR - Given that that is quite a task, as you indicated before, to change the arrangements of the EPA in that dramatic way, would it go reasonably far towards the intention if the change that was made would be to rather than at the director's discretion where things were assessed, it was actually mandated that it be the EPA board? We know then would involve community consultation and a third party review.

Would that serve the function sufficiently even if it couldn't be made into an independent statutory authority?

Dr WOODRUFF - Well, it can be made into an independent statutory authority, I suppose is my answer.

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When the Storm Bay proposal was being mooted, and there was community outrage that the decision was going to be made within the department, and the Government said, 'That's okay, we'll move it to the EPA'. So they have created an EPA that is under the minister, off to the side.

All that work was done, so there is no problem with writing the legislation to create a sham EPA. So, let's write the legislation to make a proper EPA. Let's do the job. That would be a step in the right direction. I am not advocating that step. I think we should do the job properly.

Mr VALENTINE - I'm interested in this concept you are talking about, a separate EPA. Then perhaps people might say, 'Oh they are unelected, they are not accountable'. How do you see such a mechanism, or a structure being put in place that actually gives comfort that indeed the community has input and a say? At the same time the industry has input and a say, and we get a fair outcome.

Dr WOODRUFF - Well, I suppose I would say -

Mr VALENTINE - That will be the thing they say; they are not elected. That is quite often -

Dr WOODRUFF - The children's commissioner is not elected so we shouldn't take this -

Mr VALENTINE - I am asking: how do you set it up to make it so that it has integrity and the community is accepting of it?

Dr WOODRUFF - I think there are plenty of models in place for that to happen. At the moment we have a system which has no integrity in it because the industry gets everything it wants. We can simply go back, I can reference that statement with the evidence of what they asked for in the first place and what they ended up getting - same sites, same stocking amounts. We have a system -

Mr VALENTINE - Is it appeal rights that need to be there?

Dr WOODRUFF - Yes, there must be appeal rights and there must be rigorous processes for community consultation. Imagine the sort of hearings the TPC does. Imagine that sort of process.

Senator WHISH-WILSON - I will also give you some federal examples. It's worth keeping in mind that independent regulators, while they're one step removed from what we're discussing now, are not perfect but they're a much better model than what you have in place here in Tasmania.

ASIC - the Australian Security Investment Commission - and APRA are the kinds of bodies you hear about a lot that are statutory independent bodies. Rob, they're not elected by the people yet they perform - the Reserve Bank of Australia, a critical function in holding governments to account.

I know that there's certainly politics involved in those bodies, but there's a whole heap - the DPP - there's a whole bunch of these groups that you would say are beyond direct ministerial reporting lines and discretions. We could give you some examples you could use in that case.

Mr VALENTINE - They have the accountability mechanisms around them that keep them -?

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Senator WHISH-WILSON - Politics is still involved. It always will be in those kinds of bodies but, nevertheless, they will push back on government as they often do. Around funding opportunities and those kinds of things, they work very closely with government as well.

Mr VALENTINE - One other question: you talk about moratoriums and you say that there needs to be a moratorium put in place. At the bottom of the first page of the submission -

... it must be placed on the approval of new fish farms or expansion of existing fish farms ...

That's not going to address the problem if there is a problem like the Port Arthur situation where you have reportedly Long Bay and Stingaree Bay that are somewhat polluted. Wouldn't there have to be some other actions being taken to at least investigate or address some of the current problems or issues that might exist?

Dr WOODRUFF - What I've done is detail what the problems are with the failure to regulate the industry properly since 2015. We've been calling for a moratorium for years now because we can see the damage that is happening and only one side is getting a say - the industry - and the community and scientists are getting no say. We believe a moratorium should be put in place because things are trucking along as though there's no tomorrow.

I'm assuming there are more things in the pipeline. We've certainly heard of exploration up in the north-west. So, what's happening there is that we can be confident that if there's something elsewhere around the state, the process will be exactly the same as what has happened in Macquarie Harbour et cetera. There's no change. There should be a moratorium so that the things that we have recommended - an independent EPA and so on - are put in place.

Ms FORREST - On the point of Macquarie Harbour, if I might -

Dr WOODRUFF - Yes, there is more to do. There are compliance and monitoring issues. The fact that the EPA appears to be disinterested in going and doing the investigation that should be done at Long Bay is really concerning.

Mr VALENTINE - I am just repeating some of the things that have been coming to us through submissions. I'm not advocating it should happen.

Senator WHISH-WILSON - If you fix the systemic problems - the reason we don't want any expansion is because if you look at history, it's not a good guide to what the future holds. I think history, especially with Macquarie Harbour when in 2011-12 the government was warned about the potential risks of expansion without doing the baseline studies et cetera, you'll do both.

You might hold up expansion but you're also going to fix some of those systemic problems hopefully for any future expansion.

Ms FORREST - On Macquarie Harbour, as I understand it, it took the industry to raise the alarm bells around what was really happening in the harbour. Community voices weren't being really heard there either but the EPA did act in that case, albeit slowly, but they have since imposed a limit and dropped it further. At one point - I'm not sure when we will have the director in on Friday - I will be asking him where he is planning to go with this now.

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When you talk about the independence of the EPA, I don't know if there was any suggestion from either government at the time - the Labor government then or the Liberal Government since - that it wasn't an appropriate thing to do to reduce the biomass. It was reduced quite a lot because it was heavily overstocked.

Senator WHISH-WILSON - Ruth, if I can go back to the beginning, the fact that two CEOs had to leak emails to the Greens to get anything done should tell you that it wouldn't have happened otherwise. There was a discovery process when it went to court that would have led to a lot of documents being tabled. Nobody wanted to see that happen within the industry. I believe the federal government made an intervention to get that biomass cap reduced; in other words, to tighten up on the regulations.

Ms FORREST - You don't have any evidence of that, Peter, you just believe that occurred?

Senator WHISH-WILSON - I don't believe in coincidences in politics, I am sorry. The EPA did meet with the federal department; they did come down here several times and it was around the same time that we wrote to them asking them to intervene. They did have the power to do so. On notice, I will see what I can provide to you to give you more.

The question you are going to need to think about as Legislative Councillors when you write your report is the recommendations the Greens have made, for example, in the Senate report, which are all very reasonably based on the evidence we received in our Senate inquiry from very credible witnesses on how to improve water quality monitoring and how to make it more transparent. Why hasn't this stuff been done? That's the question that needs to be answered here. Why hasn't the EPA been made independent? That's the elephant in the room. They obviously don't trust the fact that they are going to be able to proceed with expansion if they go down that road of being more transparent and being more independent. That's the question: why is that the case?

Mr VALENTINE - I'd like to ask a question on your dissenting report. In your opening remarks, you said that little had been done to address some of the issues arising from the inquiry. Have any of the recommendations in the main report of the inquiry been taken on board?

Senator WHISH-WILSON - Two of the only three recommendations, and I was very disappointed with that. I am happy to say that was a Labor and Liberal report. Of those recommendations, one of them was to provide more transparency and more data, but no explanation as to what that would be. The other one was to give more resources to the regulator - that was it. Once again, no detail was provided in that at all so we actually did provide that detail in our report. In a way, our dissenting report built on the very weak and broad recommendations of the Senate inquiry. It was a very big document and it was probably one of the best summations of data that you will find on the salmon industry. It is a few years old now, but there was no political will there to provide anything prescriptive at all.

Mr VALENTINE - I just wanted to clarify what you meant. Thanks.

Mr FINCH - Questions are being bowled over one by one as we have gone through this, but there are a couple of points I want to raise. You are in Franklin: what size of the salmon industry do you have in your electorate; what numbers do you have?

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Dr WOODRUFF - I don't know the numbers, but it certainly has been a large and important part of different parts of the waterways in Franklin. It's an employer in Huonville and in Dover, and there are some leases scattered up and down the Huon River and extensively in the D'Entrecasteaux Channel and Bruny Island.

Mr FINCH - Has your community been active constantly through the process of the development of the salmon industry of recent years or since it's been established?

Dr WOODRUFF - Before Huon Aquaculture floated and before Tassal was taken over and changed, there was a real willingness to engage with the community on environmental issues. There were community outreach people and they were good and had great community will and spirit to try to resolve some of the issues about shooting birds and seals, and noises, industrial operations all hours of the day and night - that sort of stuff was much discussed and there was a movement on some of those issues.

However, when the companies were floated and went big corporate, where the bottom line was profit for shareholders, everything changed. Within a year, with both of those companies there was a totally different feeling - spin, PR, not interested, lip service, ticking boxes, definitely not interested in hearing concerns from locals anymore.

Since then, groups like Neighbours of Fish Farms have established, precisely because the industry doesn't care two hoots about the impact on local residents; it doesn't care at all about Tinderbox residents who are awake all hours of the night because the industry just doesn't need to rein itself in because no-one else is going to do it for them. That's the problem: there's no independent umpire. Also, marine debris and the number of people in boats and craft on the waterways in the south of the state who respond with real concerns seeing massive life-threatening big plastic objects floating around in the water. That's another thing for which there are penalties but those are hardly ever enforced for marine debris.

Mr VALENTINE - You found it out through right to information?

Dr WOODRUFF - Yes.

Mr FINCH - Given that development of negativity in your community and from what we're hearing here today in respect of the work that has not gone on that people would appreciate, is there a sense of negativity on your part, Peter and Rosalie, for the future of where this industry is going?

Dr WOODRUFF - I would like to say something. I think Peter would like to say something about that.

What frustrates me and angers me so much is that there is a prospect of resolving so many of these issues if there were some sort of a fair body and a fair hearing for people, but it doesn't exist. People contact me because they can't sleep, because their bay is now full of green slime, because everything has changed. There's effectively nowhere for them to go. There will be no penalty if they complain to the EPA. Nothing will happen. They won't get the information that they should be able to have access to. We will send in right to information requests and we will write letters, we will do media, we will ask questions in parliament - almost none of those will be answered and we will have to patch it together. It is making people increasingly angry, as you would have seen from farmers in the Midlands who are now being affected by the Meadowbank Hatchery. I think

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people in the state realise that when big industry collides with anything else, the Government will back big industry, no questions asked. All we're asking is that questions are asked and it shouldn't be a cost-free exercise.

Senator WHISH-WILSON - Ironically, in my view the biggest threat to the future of this industry is climate change. We talked about Macquarie Harbour here today. Around the time of the inquiry there was a mass fish mortality of around 80 000 fish, which we thought was extraordinary at the time. Only a few years ago we had 1.3 million fish killed in the same harbour. The losses that aren't declared in mass fish mortalities are still substantial in other places. Warming of the oceans here is a big threat - not just to aquaculture for salmon but to other forms of aquaculture. I believe that the only long-term sustainable industry, for jobs and for the brand itself and for Tasmania, is to move these things onshore, to use renewable energy. There's potentially going to be some big renewable energy projects in Tasmania. There will be all sorts of access to hydrogen power, a whole range of different things. There was talk a few years ago around the Senate inquiry moving the pens way out to sea; there was even talk about a federal research grant to essentially make giant tankers into outriggers, to have the nets on the side of the tanker so they could go 50 kilometres offshore and be self-sustaining in their use of water, power and resources. But what we're doing now in shallow waters that are continuing to warm, with all the other pressures we have on our oceans - we are the pollution sources - it's just not a sustainable industry, in my opinion.

In terms of being negative about the future, it's ironic that it's not activists or the Greens or anyone who is the threat for this industry, it's actually climate change, and they are going to have to adapt by going onshore, in my opinion.

Mr FINCH - Just on the subject of a land-based industry, are you suggesting that we reinvent the wheel and see how adaptive management might bring that on in Tasmania, or is there an exemplar in the world that we could perhaps copy or embrace to make it the industry you suggest it might be for the future?

Senator WHISH-WILSON - No, I want to put it on record - it is not a Dorothy Dixier - but I do have an example for you that someone had texted me this afternoon -

[TBC]

I wonder if you get a chance to mention Ziggy Pyka of 41° South in Montana is producing salmon in land-based ponds with effluent filtered successfully through wetlands. I know there has been pushes here.

There are other examples we can provide you on notice where those where salmon farms have gone totally onshore.

The energy issue is a serious one for them. They need to have access to energy and it is a large footprint. What has already happened where they are keeping salmon in their ponds for a longer period of time at certain stages of their development, which is a good development. I hope all the industries will adopt that because it is at least reducing their biomass in the ocean at different points of time and it is heading more toward a land-based operation.

When I toured with the Senate inquiry we spent a day with the salmon companies. We went out to all their operations. We went to the hatcheries, we talked to all the executives. I asked Tassal

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why they didn't have an onshore operation and the response was that a key part of their marketing is that their fish are grown in the fresh, clean waters of Tasmania and they thought an onshore operation would not necessarily be good for their brand. To me, that is not a good enough reason. They may provide other data to you around costs and those kind of things, but that is the way of the future in this industry. I can't see any other way they are going to be sustainable.

Ms FORREST - I have had discussions with the industry about onshore farming and they have put the question very clearly: why would you do it in Tasmania? You are so far from the markets, you may as well take it to Sydney and Melbourne, not in the city but outside. It would be possible for hydrogen energy use and developments around that may provide a cheaper alternative for them but that is still a long way off. It is certainly not part of their consideration at the moment. I accept the points you made around the broader impact of climate change. You noted earlier, Rosalie, offshore and the lack of a definition. How would you describe or define offshore?

Dr WOODRUFF - I am not the person to ask. A scientist is the person to ask. This is what was discussed in the Marine Farming Planning Review Panel. This is work that can be done by qualified scientists. It is not something for politicians to sit around and make up figures for, which is what the media did with their unit, when Jeremy Rockliff stood in parliament one day and said, 'Here are the areas that are going to be offshore and here are the areas we are going to farm around the state'. No, we need science behind that. That is what we don't have and that is what we should have had before we started the project of putting pens just off Wedge Island and just off Bruny. It needs to be developed.

Senator WHISH-WILSON - With the marine heatwaves we have experienced in the last five years, which are unprecedented, you may be aware that Tasmania is a global hotspot and our waters are warming at four times the global average. It doesn't matter how far out you would have put those pens in some of the years where we had the heatwaves, like 2016. Even if you put them hundreds of kilometres off the coast they would still have been impacted by the warming of the oceans.

Mr GAFFNEY - Peter, you are aware of the funding the federal government has given to the Blue Economy Cooperative Research Centre. Listening on the radio the other day, a lot of their discussion was about going further offshore and investigating that as an option. Do you have any comment to make regarding that? I was interested to hear what you said and that seems to be in direct contradiction to the purpose for the significant funding that has been given to that group. I would appreciate your point of view on that.

Senator WHISH-WILSON - That CRC, as you are probably aware, is looking at a range of different projects, from some wave energy through to a commercial kelp industry, even the potential connection between salmon farming and the commercial growing of kelp. I was not aware they were looking at any specific application of where they could go in the oceans. The technical challenges for salmon companies are in having the pens strong enough to be in the open ocean, and they also have to wash the fish and have all the resources they need out to sea, so that may well be something they are looking at. I would support them funding research into that. My point can't be denied. Unfortunately, marine heatwaves that cooked and killed nearly half the Barrier Reef and, essentially, have been responsible for the loss of our giant kelp forests are unprecedented and the currents are still warming. You can run but you can't hide.

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Mr GAFFNEY - I'm not sure who was in charge of that but they were investigating the science behind being able to do that. If the scientists came back and said, yes, there is a capacity to do this offshore, a lot further out, that would have minimal impact, would you be adverse to that as a way of operating?

Senator WHISH-WILSON - Not at all. I spoke to the salmon companies, as I mentioned earlier, when there was potential for a significant grant from the federal government to look at those tanker-style options. I know Huon was quite actively looking at that at the time. If the science says it should be 100 kilometres to sea and they have a much better chance, it's much better than having it in the shallow waters of Tasmania around communities that are already low in oxygen, already polluted and in close proximity to people and infrastructure. To be honest, the industry has shot themselves in the foot with the way they've acted. More to the point, the Government has shot them in the foot by not regulating them, and I think they've already lost their social licence.

CHAIR - Thank you both very much for your time. We appreciate you coming in to speak to your submissions and answer our questions.

THE WITNESSES WITHDREW.

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Mr DAVID WHYTE, CEO, BIOMAR PTY LTD WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

CHAIR - Thank you so much for coming in today. We appreciate your time. The evidence being given is protected by parliamentary privilege while you are here, but comments you might make once you step out of this room are not protected by that same privilege.

Mr WHYTE - Thank you. I would like to make a short statement, if I could. We did put a submission in, and there is not too much overlap between it. It was quite a small submission.

Good afternoon, everyone. Thanks for the opportunity to present today.

My name is David Whyte. I am the CEO of BioMar Pty Ltd in Tasmania. I have worked in the aquaculture industry since 1986, having spent the last 19 years here in Tasmania.

As you would be aware, in late 2017, BioMar Australia unveiled plans to develop a \$56 million world-class state-of-the-art fish feed production facility at Wesley Vale in the electorate of Mersey. I am grateful for the support that the local member, Mike Gaffney, has provided to our development, which is bringing jobs obviously into that north-west area of Tasmania. The construction of this facility is now nearing completion, and we are currently going through commissioning with commercial production to start in April, and an official opening planned for later in May.

Included on site is a best-practice aquaculture feed quality laboratory which has just come on line. At every step during construction we have complied with appropriate planning approvals and will operate under strict environmental requirements from council and the EPA.

So far, we have employed 38 staff, and are well on our way to creating some 55 full-time skilled jobs here in Tasmania. In addition to this investment, we are spending some \$1.5 million over the next five years in research and development with local research providers, including the University of Tasmania at the facilities in Tarooma, which I believe is in the Chair's electorate of Nelson, supporting research jobs and developing local expertise here in Tasmania.

Just a little bit of background. BioMar Australia is the Tasmanian-based wholly owned subsidiary of BioMar Group, a Danish firm founded by a group of Danish fish farmers in 1962. Our company is a world leader in research and development of sustainable feeds, providing high performance feed for more than 45 different fish and shrimp species in more than 80 countries. We pride ourselves on providing responsibly sourced and environmentally sustainable aquafeed solutions and were recently named a top rating salmon and sustainability fish feed company in the world.

The Wesley Vale project will bring the very latest in manufacturing technology and innovation to Tasmania, and represents a significant investment in the state and its aquaculture and seafood industries.

After assessing a number of potential sites across southern Australia, Tasmania was chosen for as a site for our Australian operation for a number of reasons, not least because the Tasmanian aquaculture industry matched objectives with BioMar's commitment towards sustainability.

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Once operational the facility will produce up to 110 000 tonnes of specialist aquafeed products annually, underpinning the Tasmanian Government's Sustainable Growth Plan and ensuring sufficient sustainable feed is available to meet future needs.

With one in three farmed Tasmanian salmon already fed on BioMar products imported from Scotland, having a dedicated Tasmanian facility will allow us to better service our existing and new customers in Tasmania, Australia and New Zealand.

We welcome the Tasmanian Government's vision to be home to the most environmentally and sustainable salmon industry in the world, as outlined in the Sustainable Industry Growth Plan for the salmon industry. BioMar recognises the important role aquafeed plays in achieving this goal and we are wholly committed to ensuring we play our part in helping the Tasmanian salmon industry grow in a sustainable manner. Importantly, from a global corporate citizen perspective, setting operations in Tasmania will also reduce the environmental footprint of importing feed from across the globe.

Without going too deeply into technical specifics, I would like to provide an overview of what goes into the feed we supply the growers. First, and above all else, we ensure the feed we produce is safe, healthy and responsibly sourced so our customers can produce healthy, sustainable and great tasting food. Based on our demonstrated commitment to sustainability, globally BioMar sources 100 per cent certified Pro Terra soy from no deforested areas, 100 per cent certified palm oil, 100 per cent certified krill and 100 per cent certified grain ingredients for Australian operation.

We will seek to source locally grown ingredients for our Tasmanian feed production wherever possible and are currently working with local farmers to achieve the same. We work globally with our current and perspective suppliers to find better nutritional solutions and innovative ingredients that positively contribute to sustainability - for example, using microalgae instead of fish oil as a source of the marine oils EPA and DHA that our customers and their customers require, and by using insect meal and soy derivatives instead of fishmeals.

Ms FORREST - What was that last bit, sorry?

Mr WHYTE - Using insect meal and soy derivatives instead of fishmeals.

I am prepared to talk about any particular ingredient or group of ingredients that we use when we come into the questions if you would like.

There are also a few misconceptions about fish feed that I would like to address. The first is around the use of so-called dyes. Every fish species has a certain nutritional requirement that can vary with the stage of life and environmental conditions. Our research and development over the last 40 years has allowed us to develop a deep understanding of the needs of the fish. Our feeds are a blend of dry ingredients that match the fish's requirements. These are cooked and formed into a biscuit-like pellet and then a nutritionally correct blend of oils is coated onto the pellet to match the nutritional balance that the fish needs. This feed must contain everything that a healthy growing fish needs to thrive during its time on the farm, including all vitamins and minerals.

One of the things that salmon need as part of their normal diet is access to carotenoids. These are antioxidant compounds found extensively in nature. For example, they are what turns leaves red in the autumn and a flamingo's feathers pink. Carotenoids are stored in the muscle of salmon and imparts the characteristic red colour to the flesh. In the wild, the store of carotenoids is used as

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a very efficient antioxidant during growth and most notably during breeding by the male where it moves into his skin to advertise his prowess as a hunter, while the female will mobilise entire eggs for a much more practical reason - to act as a sunscreen for the eggs and an antioxidant for the growing fish embryo.

These carotenoids are part of the natural diet a wild salmon would encounter. The carotenoids are produced by single cell algae and then amplified up through the food chain into crustacean, smaller fish, wild salmon and then us. We use carotenoids in our bodies too as antioxidants. In fact, astaxanthin, the most common of the carotenoids found in salmon, is sold in health food shops as a dietary supplement.

I am giving this as an example of how certain facts and certain views can polarise people and we find that sometimes it helps to try to explain those things to the wider group. So this is a tremendous opportunity to make ourselves available to answer questions.

Another misconception we encounter is that it takes 10 kilograms of wild fish to make one kilogram of farmed salmon. This ratio is actually for wild fish, which are incredibly wasteful when it comes to converting [inaudible] protein. If a fish eats another fish, it is not really getting a balanced diet so it could easily take 10 kilograms of wild fish to produce one kilogram of wild salmon. With farmed salmon, because we have done all the farm research and development to work out what blend of ingredients need to be, we have a diverse basket of ingredients we can use that reduces our reliance on marine raw materials. This has been a huge focus of the industry for the last 20 to 25 years and what that means now is it can be less than one kilogram of wild fish to produce one kilogram of farmed salmon. Over time I would expect this figure to reduce even more.

In terms of that wild fish raw material, often grouped together, it is forage fish. These are normally fast-growing pelagic fish - for example, anchovies. All the fisheries we draw from our certified as sustainable to globally recognised standards. For example, again, the Peruvian anchovy, the world's largest forage fishery, has in place strict quotas, vessels are licenced and tracked by satellite technology, the fishery stock is managed by sovereign governments, and ultimately it is a sustainable fishery and it passes the test of being a sustainable fishery.

The fishery is further independently audited and certified under international standards. Put simply, we will not accept any fishmeal material that is not internationally certified. That means our customers, when they buy our feeds, know they are taking part in that environmental management chain.

These are just a couple of examples of our commitment to developing global aquaculture in a responsible and sustainable way which, as I have said before, has seen us recently named the top rating salmon sustainability fish feed company in the world by seafood intelligence.

Other bigger picture examples of BioMar's global commitment to sustainability include that we are a signatory to a statement of support for the Cerrado Manifesto. This statement, along with 20 other free global brands, recognises the need to further prevent deforestation in Brazil's Cerrado to mitigate further risks associated with climate change and agricultural resilience in this region. In December 2019, the members in this value chain, including BioMar, all signed a letter urging Brazil to maintain the ban on deforestation that was set up then.

BioMar has contributed to collective action through the value chain for palm oil and soy groups and more multi-stakeholders in issues such as the roundtable on sustainable palm oil under the

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auspices of the WWF and the roundtable on sustainable soy. We have made strides in efforts to turn the tide on unsustainable supply chains.

We were also part of a collective that established a marine protected zone in the Antarctic for krill harvesting. This zone is not protected by law and serves as an example of how BioMar, and the aquaculture industry more generally, acted ahead of government when it came to sustainability. Essentially, aquaculture is an inherently sustainable industry especially when compared to red meat production. In big picture terms of climate change and carbon emissions aquaculture has been identified as a solution to continuing to feed the world's growing population as the viability and sustainability of other food sources are stretched to limits.

The World Resources report created by UN and World Bank, which is a global food supply analysis, suggests fish consumption will rise 58 per cent from 2010 levels by 2050. Likewise, the Tasmanian salmon industry has set goals of doubling its worth by 2030. All growth, and this is very important, in the world's fish supply since 1990 has come from aquaculture. Whilst capture fisheries are at exploitation or in decline in the same period, aquaculture needs to continue to grow to meet demand.

Generally speaking, the global aquaculture industry as a whole is deeply aware of our responsibility to do this safely and sustainably. We are starkly aware that if we are to remain viable and profitable, sustainability must be at the core of our operations.

This is no different in the Tasmania aquaculture industry. BioMar and the customers we serve are all on the same page. When investment today in Tasmania is just over \$60 million, this investment of capital effort and people would not be made without a vibrant, well-managed, well-regulated and growing finfish farming industry in Tasmania. By choosing to set up in Tasmania we have voted with our feet. BioMar has given a green tick of approval to the local salmon industry and brought with us global leading industry knowledge. We look forward to continuing to support the local industry as it grows its world class operations.

Thank you very much for that time.

Ms FORREST - This is one of the areas that often has received a lot of criticism as you alluded to in terms of what is in the food. Tasmania has a GM moratorium continuing in place. What assurances can you give that none of your supply chain contains any GM base?

Mr WHYTE - As I say, we source Pro Terra soya, which is effectively certified non-GM and we audit our suppliers regularly and ruthlessly to ensure they are matching the quality standards that we need, which includes the use of things like GM feedstock into their processes. The customers will mandate that with us, and we will have to demonstrate that through our traceability systems. It is not only what we say; we can also evidence it on every single bag of feed that any customer buys.

Ms FORREST - You have mentioned the locally sourced ingredients. Obviously we do not have soy here; we do not have palm oil here. I do not know how much in the way of krill there is around. You touched on it briefly and I would like you to go into a little bit more detail into the locally sourced ingredients. What they are and where you get them.

Mr WHYTE - Obviously wheat is a good place to start. Wheat is a component of the diet. It offers structural stability to the product, which stops it breaking up. If it broke up quickly, it would

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be a bad thing environmentally and a very bad thing operationally for the farmers. We need a certain grade of wheat. That wheat has to be evidenced about how it is grown, where it is grown, pesticide use, all those things. We are actually working with some farming people at the moment locally -

Ms FORREST - Locally in Tasmania, you mean?

Mr WHYTE - Yes. To get their systems up to speed on what we actually need because the standards that we impose on our suppliers are higher than national legislation in Australia in terms of the documentation that needs to follow. The same thing could be said for any crop that you can grow down here, whether it is a legume crop, a soy bean crop, a pea crop or a lupin crop. All those potential ingredients have to be verified right from the get-go. A big part of what we are doing with the farmers is the same as what we do with farmers all over the world, which is actually to try to give them insight into what they need to do in order to qualify as suppliers for us and help them develop their businesses to do that.

Ms FORREST - In terms of the protein sources, you talked about insect meal. Are they Tasmanian insects and how do you -

Mr WHYTE - There is increasing interest in using various species of insects to convert organic waste into protein. For instance, food waste at the moment is a huge issue around the developed world. We throw away a huge of proportion of the food we actually buy. Finding a species that can intercede for us, reclaim that as protein, and we can then turn that into a feedstock for fish, is a really positive way forward.

CHAIR - There is at least one business in the state doing that.

Ms FORREST - I am just asking for them.

Mr WHYTE - We are working with those projects and those potentials. We will also look with anyone who effectively - for instance, poultry abattoirs, we will look at working with them to see whether we can take a by-product meal that they would produce by cooking the fresh parts of poultry that people don't generally buy, then turning that into a substitute for fishmeal to reduce our reliance on well caught fishmeal. It's a by-product of human food so it is very safe, it is sustainable, its farming chicken so therefore you can actually add some value and it's the whole UN circular economy goal as well.

Ms FORREST - If they were Tasmanian-sourced chickens, they would be fed GM-free grain.

Mr WHYTE - I think they would be fed GM-free grain because you couldn't bring GM grain into Tasmania. Again, we would look at who can provide the best, which is the best quality, the best safety, the best traceability of ingredient to come in. Then we would be looking at what volume they could have. For instance, at the moment we might source some of our poultry meal from the mainland simply because some of the businesses on the mainland are geared up for the type of documentation and traceability systems we might need.

Ms FORREST - Are those chickens fed GM-free food

Mr WHYTE - I doubt that those chickens would be fed GM-free food; certainly not all the chickens would be fed GM-free food. But, if you are a chicken and you eat GM-free food or GM

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food, it doesn't actually matter because you are going to turn it into chicken. So there is no lingering taint. You wouldn't be able to work it out. But from that point of view we would know what those chickens had been fed so if a customer came to us, for instance, and said, 'I only want to source poultry meal from chicken that had been fed in a particular way', then we absolutely could engage with the supplier all the way back through the value chain to get hold of that material for them. Whereas with the wild fish, you don't really know what you are getting.

Ms FORREST - I accept that. In terms of your customers in Tasmania - I appreciate we are getting into some commercial stuff so I am happy to hear what you can provide in this - you can specifically formulate a feed for Petuna that is different to Tassal, that is different from Huon?

Mr WHYTE - It is fairly common that companies will have their own particular nutritional focus, or want a certain type of end product to be made. For instance, as you said about GM. Some customers might want to see something and some might not. Again, from that point of view, it is very common. It is more common that we have bespoke diets than standard diets.

Ms FORREST - Do you have contracts with the local Tasmanian producers?

Mr WHYTE - I would rather not discuss individual producers. But yes, there are a couple of ways of selling feed. One is that you sell it on contract and the other one is you sell it on the spot market. Generally speaking, most companies of any size like to have contracted feed suppliers just from a security point of view, a reputational point of view, being able to add value to their product by being able to control a bit more of the value chain. So yes, the vast majority of fish farm companies in Australia and New Zealand would have contract-type arrangements with their feed providers.

Mr VALENTINE - Further to that, you were saying that in the process you have the pellet and it is coated in oils. Is canola oil part of that? One of their concerns was that canola might not be GM-free.

Mr WHYTE - I understand. Again, it is about specifications. There are no restrictions against bringing canola oil that has been derived from GM seeds in because it doesn't contain any DNA, any viable material. But again, that is a matter of specification between us and the customer. From our point of view, if the customer said that they only wanted to use canola oil in their oil blend that was of a certain type from a certain place, absolutely. In our case -

Ms FORREST - Tasmanian canola oil?

Mr WHYTE - Tasmanian canola oil or a canola oil which is from non-GM canola. So it could be canola oil from the mainland, it could be canola oil from anywhere in the world; as long as we can evidence that it is from a GM feedstock and it's got good traceability, it's got chain of custody, it's basically a properly managed product. Then if a customer says to us, 'I don't want a GM ingredient or a GM-derived ingredient' - absolutely, that's catered for.

Mr VALENTINE - The processes and procedures you go through with those sorts of products you are importing go through the proper chain of custody or whatever, and you can verify that there's no possibility of GM product ever escaping into the environment?

Mr WHYTE - Absolutely. When a product comes in from overseas, as you know, it's subject to the federal department of Agriculture guidelines. That includes, in most cases, a formal permit

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process so various risks from biosecurity to all sorts of things are assessed. We must work with our potential supplier and the government to agree to a set of controls that are implemented on every single shipment of that particular product. Those ingredients are renewed on roughly a two-year basis and subsequently there's also for some products a further biosecurity test when they arrive in Tasmania. It's very well managed.

Mr VALENTINE - The Tasmanian Government is satisfied with the product coming in that you use -

Mr WHYTE - That it's not a risk to Tasmanian agriculture or a risk to the environment here.

Mr VALENTINE - One of the submissions mentioned feathers. You mentioned chicken, so presumably carcasses and feathers?

Mr WHYTE - Yes, feather meal is a separate product but it can be a very useful ingredient. I'm not for a minute suggesting this is what the panel thinks, but a lot of people think it's actually feathers that we're shovelling into the machines. Effectively, what happens is the feathers - they would be indigestible just like if we tried to eat a feather - would be removed at the abattoir and they will be cooked and treated to make them more digestible. Then they'll be dried and then they'll be milled so it will look like a light-brown powder. It's quite good - a couple of different amino acids make up the protein that's in feathers and those nutritionally are quite good for certain things in fish. It can be quite a useful raw material. Of course, we use domestic poultry sources only. We don't import poultry products into Australia.

Mr VALENTINE - Do you only provide product to fish farms, or do you provide other product to other industries in Tasmania?

Mr WHYTE - Just aquatic animals, so fish and shrimp. We are solely an aquatic animal group so when we start up, we will be fish only and we'll stay fish only until maybe we get into shrimp.

Mr FINCH - Clarify for me, David, do you supply only Tasmania with your product?

Mr WHYTE - No, we supply Australia - the big island - and also New Zealand. That's in our operating region.

Mr FINCH - You mentioned palm oil. I missed a bit of the detail of what you were saying. Where do you source your palm oil from?

Mr WHYTE - It's sourced from a variety of different locations - mostly in South America. There's an organisation which is under the auspices of the WWF - I need to check that but I think it's under its auspices - but basically it's called the Roundtable on Sustainable Palm Oil. This is a way of actually growing palm oil that doesn't threaten ecosystems. We have all heard a lot the orangutans and deforestation in some parts of the world but, effectively, this is a way to deliver palm oil to the market in a much more sustainable, much more controlled way, so we will use that. We don't use a lot of palm oil in a product. It has some functional benefits for us. Yes, we do use palm oil.

Mr FINCH - Indonesia or Malaysia or Borneo - those areas?

Mr WHYTE - I don't think we source from those areas.

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Mr FINCH - Thanks. There's a lot of talk with respect of people who have made submissions to our inquiry. They talk about a moratorium. How would that impact the operations of your organisation?

Ms FORREST - A moratorium on expansion.

CHAIR - Just to be clear, calling for a two- or three-year period in which no further new areas or leases were given, so the existing industry is still there, just a pause while other things come into play before further expansion?

Mr WHYTE - That's clear. I'm not across what the benefit of a moratorium would be as in I don't know what problem a moratorium solves, what question a moratorium answers. Speaking personally and as BioMar, the reason we're here is because the industry here is very well regulated. The environmental work that's done, either as part of the broadscale environmental monitoring program, as part of the work that IMAS and CSIRO have done over the years of the movement that farmers are making into a hybrid of growing fish for slightly longer on land and moving out to more exposed farms. That is all underway right now.

I'm not sure what imposing a delay on them transitioning into those areas would do for the industry other than keep it where it is. The purpose of the inquiry, or one of the details in the inquiry, seems to be that there was a perception that the current farming effort was not favoured in the particular locations that it's currently in.

I think a moratorium would be very counterproductive to achieving the industry's stated aim and the Government's stated aim of moving farms away from where they currently are.

CHAIR - Just to be clear, our understanding - albeit we're yet to clarify with industry and potentially government - is that expanding into new areas would result in coming out of current areas. Our understanding so far, which we're happy to continue to clarify, is that it's in addition to current areas. It's not about a transition. It's about an expansion but we can clarify that further with others.

Mr GAFFNEY - David, since you've been here with BioMar, I am interested to know what are your biggest costs coming to Tasmania? We're an island far away from a lot of places. I'm interested to hear from an organisation's point of view, what are your biggest costs and challenges you have to make a profit in this space?

Mr WHYTE - I think it's a competitive space. Profit is one of those things that's the score on the door at the end. If you do everything properly, you get the profit thing but you can't bank on your profits. I think from our point of view, the capital cost of building a factory, taking a derelict site that we took and basically reinvigorating it, has obviously been a significant capital cost.

Operationally, moving forward, our biggest costs are our ingredients - what we put in the food. They need to be very high quality ingredients and, as we've discussed before, very well and responsibly sourced with very good documentation. All that costs money.

From our point of view, it's about trying to do the best job we possibly can with those ingredients to provide performance for the farmers. For us, it's always about the ingredients on the shelf, the ingredients in the kitchen.

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Mr GAFFNEY - A bit off to the side, what about the energy and transport of the product, how do you find that? We hear a lot of people don't come to Tasmania to set up because of the energy costs across the Strait with the flow of goods.

Mr WHYTE - Certainly energy costs could always be less but at the end of the day we are in a state where a large proportion of the energy is renewable so that's a positive thing. In Tasmania we're closer to what's effectively the heart of Australian aquaculture. This is where the goals are being kicked in that sense so from that point of view, that helps.

We have to have a global sourcing policy because we need to get the very best materials and because of that, a lot of stuff is going to come into Australia and Tasmania as part of that until we get the local suppliers up to scratch effectively.

Inbound logistics, yes - outbound logistics in Australia are troubling. Australia's quite a big place and coastal freight is quite expensive by vessel so that again challenges it. That is a pass-through cost to our customers but, ultimately, I think we'd all be a bit happier if we spent a little bit less money on outbound freight.

Mr GAFFNEY - At the moment, what percentage of your product to make the meal do you have to import and eventually - best-case scenario - three, four years down the track when you have your local suppliers up to where you want them, what amount of percentage would you need to import? What are you trying to increase from at the moment to where?

Mr WHYTE - At the moment, at start-up we would probably take something like 25 per cent of our ingredients locally as in Tasmania or the nearest bits of Australia. We would hope that we can work that up to probably closer to 80 per cent. There will always be products and ingredients we use that are just not available here.

Mr GAFFNEY - What would be the time frame? Four or five years?

Mr WHYTE - It is basically a couple of things. It is how confident we can be that the suppliers can get there and how willing they are to invest in some of the technology they would need to invest. For instance, if you wanted to take a treated canola, a canola meal, and use that as an ingredient, it would be a lovely ingredient to have, but a lot of the canola gets exported for processing in Egypt. There is not enough volume in Australia, on the mainland, to justify that industry being set up there. There will always be things that we just cannot get in Australia because no-one can supply them and there might not be anyone interested in supplying them. That does not stop us looking and developing that with the suppliers if we can.

Mr GAFFNEY - Last question from there, has the Government been able to support you in that research and development sector of locally developing some of those products and assisting people to look at that? What has been the Government's role in that?

Mr WHYTE - I think the Government is always very keen to try to help us make connections with people that might potentially be interested in working with us and also through things like the FRDC, the Fisheries Research Development Corporation, the Green Research Development Corporation. There has been quite a lot of work done on taking crops either in Tasmania or in Australia and trying to generate a higher value add by utilising a by-product of regional production or by modifying the varieties grown. There are, if you like, bottom-up initiatives where we go and

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see suppliers through to, say, the Western Australian Government saying we are going to do something with lupins and then try to get those into aquafeeds. There is a lot of intention, I guess, and action in this area and that is consistent.

Things like the fly meals, the insect meals, we have talked about. A lot of interest in those right now. A lot of government interest around Australia but, again, it is going to be one of those things of translating that into a practical, safe, sustainable product and companies feeling comfortable enough, not just us, but companies that would be investing in the technology to do that actually doing it.

Ms FORREST - Around that question of the R&D, you said about modifying product inputs. We are talking about breeding as opposed to GM modifications.

Mr WHYTE - Well, anything really. It might be a different variety. For instance if you look at the lupin question, there are some varieties of lupins - all plants try to protect themselves with anti-nutritional compounds, otherwise animals would eat them to pieces - which fish do not really get on that well with. Again, it might be something as simple as speaking to the farmers and saying, 'We would like you to grow a different variety at a different time of the year', or it might be a different yield that you are after, or it might be a different oil content, or something like that.

Ms FORREST - But it is through plant breeding?

Mr WHYTE - Absolutely. Conventional plant breeding is a key part of what we would look at.

Ms FORREST - That is some of the R&D you are doing?

Mr WHYTE - Yes, we will work with people who have a concept or a business plan almost at some stage as we engage with them on that.

Mr VALENTINE - I am sure it was mentioned in the opening remarks about antibiotics. Could you, for my benefit, because I am sure you mentioned it, confirm no antibiotics are added to the meal?

Mr WHYTE - We have no facilities to add antibiotics to feed in our operation.

Mr VALENTINE - That is all right. It is a common thing that keeps coming up.

Mr WHYTE - It is one of those things. As I say, you probably engage with the farming companies on that. They have a lot of pain to go through with making sure the fish are well and in terms of the efforts they put in every single day, not just when fish are sick. We have specific ranges of products we use to help boost the fish's natural immune system and help it cope with stressful situations but we don't add antibiotics to the feed.

Mr VALENTINE - Thank you.

CHAIR - It's been great to talk with you today. I hope you have found the opportunity to talk about your business, what you do and how you do it to be useful and valuable as well. As you said, you mentioned our terms of reference, and I think it is good to dispel misconceptions as well and

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address that sort of thing. Most of our terms of reference are focused on the regulatory system that sits around the industry, particularly approvals and the decision-making aspects of that.

We are looking at a whole range of matters that relate into that system. Some of the things that come up relate to where the authority lies to make decisions, who participates in the decision-making, what data come into that, and where that data are available and visible. That just clarifies where our main focus lies. Do you see a particular intersection with your part and your interaction with the industry that links that side of it that we should have in mind when we look at the things we are looking at?

Mr WHYTE - What we touched on a little bit was world's best practice, and also the fact that businesses generally in our area of operation in aquaculture and aquaculture feed grew up with sustainability. Our industry is 40 years old and from our point of view sustainability has always been an issue. It's not like we are an old industry that is having to catch up.

From our point of view, I would say a couple of things to you. One, all the jurisdictions where salmon is farmed in the world have environmental regulations - every single one of them. All of them mandate that you have to do baseline assessments. All of them mandate that you must use the best possible science available. All of them, as that science evolves because that is what science does, adaptively manage the farming. Generally speaking, it has been wildly successful. You can always pick out times where it hasn't been successful, and the trick then is what has happened next - has it been wound back; have changes been made, have lessons been learned?

The reason we are in Tasmania - remember, if we were going to put a mill down here, to be frank, the rest of Asia is an awful lot closer to where we come from than here and there would have been possibilities that could have seen allocation - is because the jurisdiction here is well managed, the industry is sustainable, it has a growth plan that's been communicated and, generally speaking, it is working through its issues in an open way.

The strength of an inquiry like this is exactly that: that you, as the elected officials, get to ask all sorts of people all sorts of questions, and we get an opportunity to appear before you and discuss our businesses and where we are coming from. It is that thing between responsible countries' legislation, the speed of the science and incorporating the science into things as we go forward is really important. Tasmania has quite a nice balance of those three things we think.

CHAIR - Thank you very much for your time today and sharing that with us. We really appreciate it.

Mr WHYTE - You are very welcome.

THE WITNESS WITHDREW.