

W803 79/00 JMG-DI

NEW SOUTH WALES STATE CORONER'S COURT

STATE CORONER: J ABERNETHY

MONDAY 20 MARCH 2000

5

5/98 - EVENT OF THE 1998 SYDNEY TO HOBART YACHT RACE

INQUEST INTO THE DEATHS OF JAMES MICHAEL LAWLER

MICHAEL BANNISTER

10

BRUCE RAYMOND GUY

PHILLIP RAYMOND CHARLES SKEGGS

JOHN WILLIAM DEAN

GLYN RODERICK CHARLES

15

Mr A Hill assisting the Coroner

Mr R Stanley with Mr P Santamaria for the Bureau of
Meteorology

Mr R Weber for The Cruising Yacht Club of Australia

20

PART HEARD

<CHARLES ROGER BADHAM(10.33AM)
RESWORN, EXAMINATION CONTINUED

25

STANLEY: Q. Doctor Badham, were you able to find the
documents that I asked you to bring back today, in
particular were you able to find the additional page to your
notes that you say you gave to each of your yachts?

30

A. Yes, in fact there were several pages that were missing
from that document.

Q. Several pages missing?

35

A. On the one that you had.

Q. Would you mind showing me those pages please?

Dr Badham, do you say that these pages that you handed to me
were all comprised or contained in the notes that you gave
to each of your 20 or 22 yachts?

40

A. That's correct.

Q. You mentioned on Friday that there was an additional
page that you had prepared which showed wave heights?

45

A. That's correct.

Q. Whereabouts is that?

A. I think that's in one of those.

50

Q. Would you mind just showing us which one that is? Would
you mind holding it up just so I can identify it? What does
that show?

A. It shows sea or wind generated waves and some swell.

55

Q. Does it show wave heights?

A. Yes.

Q. What heights does it show?

A. On which particular day?

Q. On 27 December?

A. The 27th it shows 2 to 3 metre waves increasing 4 (5).

5

Q. What time was this prepared?

A. That was prepared on - the waves I did about, from memory, about midnight or lam on the morning of the start.

10

Q. I thought you told the Court when you were giving your evidence in chief that you'd not had time to do the waves because you were so pressed?

A. No, I said I did the waves but I wasn't happy with them and I was going to do them again and I just ran out of time.

15

Q. From anything you learned between the time you did the waves up until the time that you were on board the boats talking to your clients, did you learn anything that would make you alter the wave heights as shown in that document?

20

A. No, the only thing that perturbed me in the morning was when I had the new run of the aviation model, the US model, which was showing 45 to 50 knot winds and I thought, you know, I just - in fact I use that model usually to generate - get the winds to generate the waves and it was too strong, so therefore I couldn't run what I usually run because I looked at the winds and I think as I said in previous evidence, that I rejected those - although it was a possibility I personally rejected that as being the solution to the event so therefore I couldn't run - I didn't want to come up with waves that were going to be excessive compared to what I was forecasting in the winds so I didn't do it and I was running short of time.

25

30

Q. If I got the impression from your evidence in chief that what in fact had happened was that you had prepared - you told the Court on Friday that you had prepared an additional page that you then stapled to the pages that were, or notes that were given to the competitors, is that correct or not?

35

A. No that's not correct. I said - I'm sorry but what I did was I prepared a wave page which was not that particularly good actually and I had thought about doing a new one and it was there and usually that wave stuff goes at the end of the document. I would also--

40

45

Q. So it would be quite wrong for me to conclude or for his Worship to conclude that you had in fact said on Friday that you prepared an additional page showing wave heights and that that was given to your clients with your notes?

A. Well I prepared - I'm not quite sure on the sequence of it.

50

Q. You were telling us this morning that the page containing the wave heights formed part of your actual notes was prepared--

55

A. A full part of the actual notes but it wasn't necessarily - in fact I asked my wife and she said that none of the notes were stapled. They were put into a plastic

folder and they were all put together because the amount of material that I prepared that time was not stapled because the paper was too - the amount of document was too thick.

Q. Can we take it then that at the time your clients left to go on this race the information that they had from you was that they could expect on the 27th waves of 2 to 3 metres, up to 4, (5)? 5

A. That's correct. 10

Q. Did you say anywhere in your notes to your clients that they could expect wind speeds of up to 50 knots? 10

A. Average 50 knots, no I didn't. I said there were gusts possibly to 50 knots and I talked about winds averaging 30 to 40 knots. 15

Q. When you talk about wind speeds, you talk about mean wind speeds don't you? 20

A. Unless specifically talking about gusts or squalls or short periods. 20

Q. So if you're telling your clients the winds are going to be 30 to 40, that's mean speed and you know that they know that there will be gusts considerably higher? 25

A. There will be higher gusts and there will be lower lulls. 25

Q. Because you know that the clients that you have understand that when wind speeds are given that they are mean wind speeds calculated over a 10 minute period and that there will be gusts above and lulls below? 30

A. I hope they know that. I don't cross-examine. I know all yachtsmen know that the wind is not a steady laminar flow but I think this particular exercise has brought out the fact that they don't necessarily know that it can be as high as 40 percent. 35

Q. That may be the case for some of the yachtsman in the race but in terms of the actual skippers and the navigators, you believed did you not before this race that they would have known what I've just put to you in relation to wind speeds? 40

A. Yes I did.

Q. Indeed you would regard it as extraordinary if a navigator did not know that fact? 45

A. I would take that as extraordinary that they didn't know that fact but I think whether that goes to 40 percent it's obviously been shown that yachtsmen didn't appreciate the fact that the gusts could be as high as 40 percent. 50

Q. Did you tell your yachtsmen, in preparation for this race when you spoke to them either on the day of the race or previously or in your notes, did you deem it necessary to warn them that when wind speeds are mentioned they should add a proportion or an amount for the fact that there will be gusts considerably higher? 55

A. No.

Q. No, it wasn't necessary was it in your mind?

A. Not in my mind, no.

Q. Similarly when wave heights are spoken of you understand that there will always be the odd wave that will be bigger than the average or significant wave height?

5

A. Absolutely and once again they should know that.

Q. These are things that in your experience in dealing with sailors and yachtsmen you believe they should have known it and that they would have known?

10

A. That's correct.

Q. And you were surprised since this event to find out apparently that so many yachtsmen, and I'm not saying skippers or owners, but so many yachtsmen were not aware of those facts?

15

A. Yes, I'm surprised that they considered that - I mean most of the material that I've read seems to think that they were surprised that it was anything more than plus or minus 10 percent and obviously it's a lot more than that, so I mean it's a grey area in knowledge from yachtsmen.

20

Q. Did you ever, before the race in your forecast, forecast mean winds of 50 knots or greater?

25

A. No, not at all.

Q. I want to read an extract from a letter that was published in the Sydney Morning Herald under your name, a letter to the Editor. "For north east Bass Strait on Sunday December 27 1998 I forecast winds averaging to 40 knots with the possibility of even stronger winds reaching 50 knots or more if the low pressure system actually formed in Bass Strait and not further away off the east coast of Tasmania."?

30

35

A. That's correct.

Q. Did you say that?

A. I said that. I gave everyone that forecast, I gave them the package that I had which said this is what I believe will occur 30 to 40 knots. I also, in the material, gave them the output from the US model which showed 50 knot average winds and I said I don't think this will occur.

40

Q. Are you saying that you did say to your crew that they could expect, or there might be winds of 50 knots?

45

A. I said - I gave them the model and in fact I can recall the answers from many of the yachtsmen, in fact several famous yachtsmen or said, "50, knots, I'm not going down in that", and I said, "Look, that's if that develops. I don't think that's going to occur."

50

Q. So you were, as it were as best you could, advising that it would not be 50 knots?

A. Absolutely, because that was my considered opinion on the morning.

55

Q. When did you change your mind?

A. That afternoon when everyone saw the new model outputs when suddenly not just one model had gone for that but several. During the course of that afternoon, on the start of the 26th, as the models came in they all started showing the same thing, that is at least 50 knot type winds. 5

Q. Dr Badham, you've been quoted in books and articles since this race, have you not?

A. I know I've been in a few yes. 10

Q. If you were contacted by an author and asked to give an opinion or to express what happened, I take it you'd do that as honestly as you could?

A. Yes. 15

Q. If it turned out that there was something wrong published under your name if you were misquoted, you'd do something to correct it?

A. I think I would yes. 20

Q. You are aware are you not that there have been reports been written in books to the effect that following the storm warning and your knowledge of the deterioration in the forecast, that you endeavour to contact a number of boats. You've told us last week you tried to contact two? 25

A. That's correct.

Q. Did either of those boats have a fax?

A. I don't think so, no. I'd be pretty sure they didn't. 30

Q. Did you leave on either of those boats a message on their Voice Mail?

A. I did, yes on one.

Q. So you in fact did give a message? 35

A. I just left a message that said Roger Badham calling time so and so. I didn't leave a message saying et cetera et cetera.

Q. Why didn't you? 40

A. I think I told you. I thought about this for a while, while I was physically going through the motions of actually calling and I didn't know that it was really the correct thing to do, so I left a message on one of them that just said it was a voice message. 45

Q. You were prepared to talk to them on your mobile phone where there could be no record of the call but you were not prepared to leave a message on the Voice Mail?

A. No. 50

Q. And the reason is because you knew it would be cheating and you wouldn't want to be found out?

A. Absolutely. I don't want to be - I mean it wasn't done in the - in any way to cheat. 55

Q. You were prepared to do it if you could get through on your mobile phone but you were not prepared to leave a

message on the Voice Mail?

A. I was prepared to leave a message, I mean I left my name.

CORONER: Q. No, with content? 5

A. With content, yeah, I left my name and they could get back to me but I mean all I was trying to do was to possibly alert one and particularly maybe another of the yachts that this was going to be a very serious event and that they should think seriously about whether they should continue in the race if conditions got extreme. 10

STANLEY: Q. Did they call you back?

A. Yes one did but not until after they'd withdrawn, in fact they were in port. 15

Q. I take it if they had called back you would have given them the advice that you were intending to give over the mobile phone?

A. I would presume so. I mean all I wanted to do was, I mean to alert them to the situation. 20

Q. So they could take steps to avoid the storm?

A. So that they would pull out before - in other words that they would be mentally aware of the situation which could be extreme and that they would pull out if necessary and not damage the yacht. 25

Q. Can we take it from that that your advice at that stage was that they should be pulling out had you given it. That was your view? 30

A. No, I said if the conditions as they went down got worse and worse they should be aware that at some stage they should canvass that as an option rather than think I can just keep going, I can keep going, it's going to get better, it's going to get better, et cetera, et cetera. 35

Q. At that stage you knew a storm warning had been issued?

A. I'm not sure on that but I think so. 40

Q. You knew that that storm warning would obviously come to the knowledge of your clients?

A. Yes.

Q. Did you not have sufficient confidence in the skipper's navigators on those boats for them to make to the assessment as to what they should do in the light of a storm warning having been given? 45

A. Yes I think I had confidence in them.

Q. Dr Badham you've had, you've told us before, past experience with the race in terms of forecasting. Have you attended pre-race briefings before this year? 50

A. Yes, in fact I did the pre-race briefing I think on--

Q. Sorry, have you attended them other than ones you may have given yourself? 55

A. Yes I have.

Q. Have you attended ones given by Mr Ken Batt?

A. Yes I think I've attended most of them.

Q. And up until this one have you ever had cause to criticise those briefings?

5

A. Not at all and I attended the one just this previous year, 1999 and that was good as well.

Q. What is it that makes this particular pre-race briefing subject to your criticism?

10

A. I thought it was two aspects to the briefing, and I watched it again in the court here last week and I had the same opinion then, and that was that there was too much information. He went much too fast and there was--

15

Q. In relation to what, information in relation to what?

A. In relation to information about the various weather conditions that possibly could be encountered, meteorological situations that wouldn't even occur and it was an information overload.

20

Q. Is this as part of the forecast or as part of the other section to this talk?

A. In part of the other section of the talk. The pre-race briefing covered approximately 30 minutes and about 20 or so

25

minutes of that was weather and about 5 or 6 minutes was oceanography or currents and I thought in the section on meteorology that he was trying to cover a huge amount of material that this could happen, this could happen, this

could happen, this could happen. I've generally found that you go left, you go right, you go in here. It was an

30

enormous amount of information. And secondly towards the end of that section of weather he then got on to the actual aspect of the forecast and said that - I mean and rightly said that the situation was confused and doubtful because

35

there was - obviously the models were not agreeing--

Q. Dr Badham, we've seen the briefing also. I'm just asking you--

A. Okay, here is my criticism then, that there was the possibility that a low could develop - the low was going to develop. It was a matter of was it going to be close to

40

Bass Strait, was it going to be east of Tasmania or south east of Tasmania and he picked on one model which was the GASP only and just said this is a scenario. Now he didn't

45

canvass the other two opinions and in terms of briefing a yachtsmen, in my opinion, if he'd taken less time in covering all the other aspects of what might go on in other years and he'd said, "Look we don't know what's going to

happen here but there are three possible scenarios and this A, B and C. Now make it - and I stress - make it your

50

effort on the morning of the start to come and get the update because one of these will probably be true and two of them will not be true."

55

Q. Don't you think he stressed that to the person that attended that they should fine tune their situation?

A. Yes I agree he said they should fine tune but he didn't

cover the options that could occur.

Q. Apart from Mr Batt's briefing you of course have been aware in the past in the manner in which the Bureau gives its forecasts?

5

A. Yes.

Q. Including storm warnings, gale warnings, strong wind warnings?

A. Yes that's correct.

10

Q. Up until this event have you ever had cause or ever done anything about criticising the form of the Bureau's forecast?

A. No I don't believe so.

15

Q. So again if I were to suggest to you it's really being wise after the event as far as you're concerned what would you say to that?

A. I would say that we haven't had a situation like this in a Hobart and I was not that critical of the storm warning or the gale warning. If I was critical of anything of the Bureau I was critical of the fact that the specific race forecast which is a commercial forecast for a hundred yachts was not specifically detailed for those hundred yachts, seeing it was a forecast written exactly for those yachts. They could have perhaps been more detailed.

20

25

Q. Dr Badham, in Mr Mundle's book - Mr Mundle is your journalist friend that we spoke about last week?

30

A. I'm acquainted with Mr Mundle.

Q. I'm sorry?

A. I am acquainted with him.

35

Q. Yes, well your acquaintance. You know the man I'm talking about?

A. I know the man yes.

Q. And you're aware of course that he's written a book?

40

A. I am aware, I have not read the book.

Q. If in that book at page 78 to 79 the following appears with respect to the phone call that you and he had or the conversation you had by phone at about 3 o'clock on the afternoon of the race day, Mr Mundle said you told him, "Mundle, clouds here. I've just looked at all the latest charts and there's only one thing I can say, if I were on half those yachts out there this afternoon I would be taking my spinnaker down right now and turning back to Sydney. They are going to get hammered. There's a bomb about to go off in Bass Strait. A low is going to develop and intensify. They're going to get 50 knots, maybe more and huge seas. This race is going to be worse than 1993." Those words I've just read are all in quotation marks. Did you say those things?

45

50

55

A. I think that's probably the tenor of the conversation. I don't know that I would - it doesn't sound like my

phraseology and it doesn't sound like some of the words I would use.

Q. Was it your opinion, this is two hours after the start of the race, that half the yachts there should have effectively come out of the race straight away? 5

A. No, it was not. It was my opinion that half the yachts would retire though.

Q. At that time it was looking worse than 1993 in terms of the intensity of the event and in 1993 they had a huge attrition rate and it was my opinion then that that there would be the same occurrence if that low did develop as was suggested by the models. 10

Q. In light of what you were then thinking did you consider contacting anyone at the Yacht Club? 15

A. No I did not.

Q. Why not? 20

A. Because I have no working relationship with the Yacht Club as such. The people that I worked with when I did the forecasts in the late eighties and early nineties are no longer there and I certainly don't have a working relationship with the present race director or anyone in the club and I mean there was an existing arrangement between them and the Bureau. That's not my - I mean the Bureau had issued a storm warning and I would presume the Yacht Club would be across that. 25

Q. You thought the issue of a storm warning was enough? 30

A. No I don't think it's enough but I said I think it's mandatory almost and that's what they did. I have no quibble at all with the fact that the storm warning was issued. It was issued exactly on time, in fact if anything I'd say it was issued earlier than what it would normally be issued but I said the Yacht Club, I assumed that the Yacht Club was across all the weather developments. 35

Q. It was your opinion two hours after this race started that it was going to be worse than 1993? 40

A. It wasn't two hours after - yeah, 3 o'clock yeah, that if that low, as the model suggested, was going to be in that place it would be as bad or worse than '93 yes, because the low was going to be as intense or more intense than 1993. 45

Q. We've already heard that in 1993 a number of boats were damaged, one man was lost overboard for some time and so there was considerable risk to life as well as property? 50

A. Absolutely, although 1993 storm was quite different to this one.

Q. Well without going into th detail of it, it was a disastrous race from that point of view wasn't it?

A. Absolutely and enormous attrition because it wore the boats down and virtually they just fell out. 55

Q. So you're thinking this is going to be worse than '93.

Did you think that there was any obligation upon you, not a business one but a moral one to contact the Yacht Club, because you're Dr Badham with all these forecasting capacities?

A. No, because - I mean in hindsight yes I probably I should but I don't see the Yacht Club, as far as I was concerned, had the channels of communication open, they had the forecast coming and the forecast from the Bureau at that stage were quite ample and so why would I contact them, what would I be telling them that they couldn't read? 5 10

Q. So the forecasts were adequate in your view and there was certainly plenty of time wasn't there?

A. Yes there was. 15

Q. Whether the individual yachts wished to withdraw to consider their position?

A. That's correct.

Q. Dr Badham, can we take it from your evidence on Friday that at no time were you forecasting winds in excess of 60 knots? 20

A. Yeah that's correct.

Q. And that in fact with hindsight it's your view that the winds did not exceed 60 knots, that's not to say gusts were not above that? 25

A. No, I would believe that probably most of the average winds were between 50 and 60 and probably 55 to 60, maybe a touch over, I'm not sure. I mean no one knows. 30

Q. There are a number of factors that evidence will be led about, that would suggest that the winds were in that band of 50 to 60?

A. Yes there would. 35

Q. You wouldn't dispute that?

A. I wouldn't dispute that at all.

Q. Now one of the factors that you took into account in telling this Court the wave heights could be expected to be very high was the effect of the currents? 40

A. That's correct.

Q. There will be evidence led through Mr Love to the effect that investigations, after the event of course, very detailed investigations have indicated that in fact in the area where the storm struck, the current was negligible. It was certainly no more than about a quarter or half a knot, half a knot? 45 50

A. I was - from the satellite information that I had it looked - and from the CSIRO notes they said there was a knot running at that particular time and with the wind stress operating for the 18 to 24 hours previously, that you would expect the current to increase to be at least two knots and as I am aware several of the boats measured the current speed at that point during the rescues and also prior to the situation taking place and at that time they were measuring 55

currents varying between 1 and 3 knots.

Q. You've not had access I take it to geographic currents that have been put out as a result of--

A. No I haven't but I mean--

5

Q. You'll be present in court today when Mr Love gives his evidence?

A. I hope so yes.

10

Q. When a storm warning is given for coastal waters, what do you say that tells a yachtsman?

A. It's a fairly significant event. I mean storm warnings are not issued very often in coastal or ocean waters but particularly in coastal waters of New South Wales.

15

Q. Does it tell him that he should take action to go around the storm or does it tell him he should come in - or go through the storm or he should come into--

A. It doesn't tell you any of that. It's purely a wind warning and it's obviously what's generating that particular wind and accompanying seas in terms of the way in which you would navigate it.

20

CORONER: Q. Or whether you'd navigate it?

25

A. Yes.

STANLEY: Q. It's warning, it's not just a forecast?

A. It's a warning.

30

Q. So it's more than simply a forecast isn't it?

A. No, it's a warning of winds which are expected or observed to be above or within a certain criteria.

Q. With those winds, sea conditions are as they've been described, whether in the Beaufort scale or in the Weather Bureau's--

35

A. That's correct.

Q. And the state of those seas is such that it would be, I suggest to you, risky and dangerous for these yachts to have passed through such a storm?

40

A. Well it can be, I mean it depends what the actual wind warning is. I mean in this particular instance there was a storm warning issued but the winds that were issued around that storm warning were 40 to 50 knots and most of those - therefore that band of winds that are referenced in the storm warning are really basically gales and it's up to the yachtsman I suppose, he hears the word storm warning and he sees the winds that are referenced which are 40 to 50 knots and he sees the accompanying seas that are referenced in the warning and he must assess the situation, that the yacht must assess the situation in terms of whether they can proceed or not.

45

50

55

Q. Do you accept that it's enough to simply identify an area as an area that may be the subject of a storm warning, that that's sufficient to tell a mariner what he should or

shouldn't do?

A. No, I mean I think you want to be as specific as you can be.

Q. Reading the accounts given by a number of the yachtsmen caught in the storm suggests that, and I think this is in accordance with your own evidence, that you would expect them to keep an eye open and then they would see a big wave coming every 20 minutes or so? 5

A. Yeah, I mean depends what big is in relation to what they're experiencing at the time. 10

Q. You're not suggesting that these seas were at all constant and they were all of these enormously high--

A. Quite the opposite. You normally find in those situations that you get little plumes or jets of current. 15

It's not a big bulk, you get little bands and that's generally what happens that the ocean tends to form into quite narrow little subsections and within there you'll find little jets or plumes of current where there's quite strong current running in one direction and may be less on either side and the seas, as I described before, you can find that there are therefore more organised wave trains which are standing up, the wave length reduces, the height increases and you can get more breaking waves in some of those parts and you'll get more washing machine conditions on the sides if you want to use that term. 20

Q. It's the big wave that the yachtsman has to keep an eye out for in an endeavour to meet it in the best way possible? 25

A. Some of those waves, they cannot physically cope with at all. I mean if the wave is sufficiently large and breaking, then for a small to medium sized yacht it becomes almost impossible to handle. 30

HILL: Q. Dr, I take it that your criticism with Mr Batt's briefing is that he only developed one scenario and not the other two, is that correct? 35

A. Yes I said there was two points yes, that there was basically the one situation, the one scenario was - that's correct. 40

Q. Now I want to ask you about your agreement with these yachts to supply the information on the weather. Once you delivered your package that was the end of the agreement or was it ongoing. What was the situation? 45

A. No, that's it.

Q. That's it? 50

A. Yeah, I mean it's a historical thing because up until the last few years the Weather Bureau hasn't had a representation there on the morning and I have offered a service where I can come in and basically give a briefing on the situation and give them a set of material. 55

Q. But as far as you were concerned once you'd handed the package to these yachtsman, your agreement, your contract with them was now concluded?

A. Yes, I think the word contract is probably a trifle strong but the agreement is finished because during the yacht race I can't contact them and at the end of the yacht race, that's it, it's finished.

5

Q. They paid you money, you gave them a weather forecast?
A. That's correct.

Q. We'd call that a contract?

A. Okay. It's sometimes not easy to get the money from the yachtsmen.

10

Q. The point I want to stress is that you then felt so concerned about this weather and for the safety of some of these people that you'd had this contract with, that you sought to warn them by telephone, is that correct?

15

A. Yes, I mean I really want to stress it's something that I had never done before and I wouldn't do again--

Q. I'm not worried about archaic rules.

20

CORONER: Either am I.

HILL: Q. I'm asking you did you consider it a duty, a moral obligation to warn these people of the danger that they were putting themselves in?

25

A. Yes the particular yachts that I had in mind, which were only two of them, were brand new yachts and it's very easy on a brand new yacht to break it because physically you just haven't tested it.

30

Q. So there was no contractual obligation on you?

A. None at all.

Q. But you warned them nonetheless?

A. No I thought about warning them and as I say I couldn't get through anyway. 5

Q. Now was that a moral feeling that you had or what?

A. Yes it is. I mean I take my profession seriously and I have a certain, you know, reputation to uphold and I cursed all afternoon that I had seen the output from the US model showing this on several occasions and I had rejected it and hindsight's a wonderful thing and meteorologists know more about hindsight than anyone I would suspect. 10

<WITNESS RETIRED 15

HILL: If Mr Dunda is in court?

CORONER: He is. 20

HILL: There's no statement from Mr Dunda but I believe that we all know what section his evidence will cover.

<PETER CHRISTOPHER DUNDA(11.16AM) 25
SWORN AND EXAMINED

HILL: Q. Mr Dunda, would you give the inquest your full name please?

A. Peter Christopher Dunda. 30

Q. And it's Dunda is it?

A. Yes.

Q. And your address? Professional address will be fine. 35

A. Bureau of Meteorology in Sydney.

Q. And your qualifications?

A. I'm a professional officer, class two, meteorologist. 40

Q. Do you have a university degree?

A. Yes, I have a bachelor of science degree.

Q. You were on duty, I think, on 26 December 1998, is that correct? 45

A. That's correct.

Q. What time did you come on duty?

A. I started at 7am. 50

Q. Until what time?

A. Until 7.20pm.

Q. Now what I want to know is when you went off duty at 7.30pm on 26th, when did you next come on duty? 55

A. The following morning at 7am.

Q. And what time did you go off duty on that day?

A. At 7.30pm.

Q. Now, prior to Boxing Day, and that's the day of the race, the 26th, did you have anything to do with the contract that the weather bureau had with the CYC in regards to weather forecasting for the Sydney to Hobart yacht race? 5
A. No I didn't.

Q. Now, when you came on at 7am on the 26th, what was the weather forecast at that stage from the bureau? 10

A. The weather forecast for the race was - one was issued early that morning, about 1am, and it was for a specified area which was from Sydney down to Jervis Bay.

Q. Yes, and what did it indicate? 15
A. I'd have to refer to it.

Q. Please do.

A. So the forecast was issued at 4.48 that morning. 20

Q. At what time?

A. 4.48, and the area was from Sydney to Jervis Bay and the forecast for winds were west to north-west winds five to ten knots inshore at first, east to north-east winds ten to fifteen knots offshore, north-east sea breezes developing inshore around midday, ten to fifteen knots at first but freshening to 20 knots by late afternoon, persisting into the evening. A southerly change 20 to 30 knots expected to move up the New South Wales coast overnight, expected near Jervis Bay around midnight to 2am, and then near Sydney around 3am to 5am Sunday. 25 30

Q. Now is that the public forecast or was that the one that was sent specifically to the CYCA pursuant to the contract? 35
A. This forecast I believe was the special forecast for the race for the CYCA which was following procedures and policy that was previously agreed to between the CYC and the bureau.

Q. You know about that police do you and procedures? 40
A. I have - we had some policy and procedures to follow to issue this forecast.

Q. Now, you were what? What was your position? 45
A. On that day my position was shift supervisor.

Q. Who was immediately above you?
A. Immediately above me--

Q. Yes, who did you report to? 50
A. --was the regional director.

Q. And who would that be?
A. Mr Sullivan. 55

Q. And was he on duty?
A. No he was not on duty.

Q. So for all intents and purposes you were the highest official of the weather bureau on duty that day?

A. In our office, that's correct.

Q. Now, you've talked about the procedures that were in place between the weather bureau and the CYC, can you tell us what those procedures were? 5

A. Those procedures were to issue forecasts for the Sydney to Hobart yacht fleet that's specified--

Q. You seem to be reading something? 10

A. Yes. It's - I'm just about to tell you the times and - the times of forecasts to be issued and for the areas that they were to be issued for.

Q. I see, that's set down in that document you have before you is it? 15

A. Well it's actually those times and areas as set at the top of each of the forecasts themselves.

Q. Well did you know about these specifically? 20

A. I had a notice notifying me of those procedures, yes.

Q. Is that notice in these documents?

A. Which documents are you specifically referring to, it's in my documents. 25

Q. Do you have a copy of that notice before you?

A. I have one here, yes. 30

Q. That informed you of what was to occur?

A. Yes.

Q. May I see that document? I'll ask for copies of this and I will be tendering that but if - when were you issued that document? 35

A. That document was posted on our internal webpage prior to the Sydney to Hobart yacht race.

Q. Is there any other documentation that was posted on your internal webpage other than that? 40

A. Not specifically.

Q. I'm sorry?

A. I'm not sure exactly what you mean. 45

Q. Well that contains some phone numbers especially for the Young Endeavour and mobile phone numbers. Where there any other--

A. No. 50

Q. --documents of that description?

A. No that's the only one.

Q. Now I think you will see that that document contains a mobile number for the people on the Young Endeavour? 55

A. That's right.

- Q. At some stage the forecast - the weather deteriorated and you issued I think a gale warning, do you recall that?
A. I issued a gale warning based on model information that I had at the time prior to weather deteriorating in my area of responsibility. 5
- Q. So what time was that?
A. That was around about 9 o'clock in the morning.
- Q. Now you went to a gale?
A. That's right. 10
- Q. Was there anything sent to the CYC about the gale warning?
A. The special race forecast for that morning was issued at around about the same time and it included advice that a gale warning had been issued. 15
- Q. And that went down to the CYC, is that right?
A. That was distributed through the prearranged channels. 20
- Q. Through the?
A. The prearranged channels.
- Q. What do you mean by the prearranged channels?
A. A system that was set up prior to the race and an agreed system between the CYC and the weather bureau. 25
- CORONER: Q. What were those channels?
A. I can't tell you exactly myself because I didn't - I wasn't involved in the actual agreement but they were set by the manager of our weather office. 30
- Q. And who is that?
A. At that time that was Mr Buckley. 35
- HILL: I missed that name I'm sorry.
- CORONER: Buckley. 40
- HILL: Q. And he set up that system did he? The channels you've talked about, the communications?
A. That's how I am aware of the situation, yes.
- CORONER: Q. Are you able to say whether any of the channels included the CYCA or someone from the CYCA?
A. I believe the specifically went to the CYCA. 45
- HILL: Q. Now you've talked about the channels. Exactly what are we talking about, telex?
A. Facsimile. 50
- Q. So you would send it by facsimile is that right?
A. Through our computer system that we have in place when we sent forecasts they automatically get distributed to the addresses that have been previously specified. 55
- Q. Now at some stage later on a storm warning was issued?

A. That's correct.

Q. Now how did that come about?

A. That came about through the - we obtained further information from computer models suggesting that there was a likelihood that storm conditions - storm force winds would develop in a particular area and I, along with my colleagues that were on duty at the time, agreed that it was reasonable to follow these guides and therefore I issued a storm warning.

5

10

Q. Who actually gave the wording in the storm warning? Who made that up?

A. That was me.

15

Q. Do you have a copy of that storm warning in front of you?

CORONER: We're talking at the one at two - that was issued at 14.14?

20

HILL: Q. Yes the one issued at 14.14.

A. I have that.

CORONER: And you're talking about the official forecast?

25

HILL: No I'm not talking about the official forecast.

Q. You also did the official forecast, didn't you?

A. That's correct.

30

Q. And I understand that the official forecast is constrained by international conventions as to what you can put in?

A. That's correct.

35

Q. And I want to take you to the forecast that you sent to the CYC or at least the one you issued at 14.14, have you got that?

A. Are you talking about the warning or the race forecast? I have them both but they're not on the same page.

40

Q. Okay, no, I'm talking about the race forecast, is that not the race forecast? Sorry, 14.50 is it?

45

CORONER: 14.50, yes, it's issued - 26 December 14.50.

WITNESS: Yes I have that.

CORONER: Q. So you worded that?

A. That's right.

50

HILL: Q. Now this is your wording?

A. Yes.

55

Q. All right, now it says "warning", see it, "warnings storm warning is current south from Merimbula, gale warning is current south from Broken Bay"?

A. Yes.

Q. "Wind north to north-east, wind 20-25 knots ahead of a west south-west change 25 to 35 knots with stronger gusts expected near Jervis Bay around midnight-2am and then near Sydney around 3am-5am Sunday. Wind may tend briefly north-west 15 to 20 knots prior to the change." Where is the wind that would take it into a storm warning? 5

A. May I add here that that forecast is specifically for an area which says clearly Sydney to Jervis Bay. The warnings is extra information which is relevant to that forecast because it's for adjoining areas of New South Wales coastal waters, however the forecast is for Sydney to Jervis Bay and the warning area is clearly several hundred kilometres away from that area therefore it is not required in that forecast. 10 15

Q. It's not required in that forecast?

A. At I believe it that's so. 20

Q. Well there are not winds that are consistent with a storm warning in that forecast, you would concede that? 25

A. In the forecast because the forecast is not for the storm warning area. 25

Q. Then why give a storm warning?

A. The warnings are in a separate section and that's extra advice. 25

Q. Right, well where's the extra advice that you faxed off? 30

A. This is the forecast that was distributed at that time.

Q. But look, what did you actually send to the Young Endeavour? 35

A. The Young Endeavour would receive this forecast - I believe it would receive this forecast and also any warnings that are issued from our office and prior to the issue of this forecast a storm warning had been distributed from our office. 40

Q. So what you're saying is that there's the official storm warning that goes to the whole public, that went to the Young Endeavour? 45

A. That's correct. 45

Q. And then this document as well went to the Young Endeavour? 45

A. As I believe it, yes.

CORONER: Q. They go by fax do they? 50

A. The special race forecast, I can't tell you specifically, you could ask, I'd suggest, the regional director or the manager of the office to find out exactly how and who these forecasts go to. 55

Q. What were want to know is whether they go to the same place on the Young Endeavour?

A. Yes well I believe that--

Q. You believe they go the same place on the Young Endeavour, the same people who get this warning get the official one. That's your belief is that what you're saying?

A. What I'm saying is the forecast would go to I believe it went to the CYCA and the Young Endeavour, I'm not sure if that's all but possibly more and the warnings go to various places and I believe that the young endeavour is one of the vessels that do regularly receive warnings.

EXHIBIT #14 DOCUMENT HEADED SYDNEY HOBART SOUTHERN CROSS YACHT RACE WEATHER SERVICES TENDERED, ADMITTED WITHOUT OBJECTION

HILL: Q. All right, now whilst I'm still on this subject there was a further weather forecast pursuant to the contract with the CYCA, that appears to be issued at 02.13 hours on Sunday 27th. Do you have a copy of that?

A. Yes I have that.

Q. Did you draw up that document?

A. No I was not at work at that time.

Q. Who drew up that document?

A. That was drawn up by Ian Robertson, I believe.

Q. Now, that appears to have brought the Merimbula warning, the storm warning, down to 40 to 50 knots?

A. That's correct.

Q. And the one prior was I think 45 to 55, can you tell us why that's occurred?

A. I didn't issue the warning myself so if you want specifics you would have to ask the person that issued it. However, when I took over responsibility for the office the following morning, as I said to you previously I was on the next day, in our handover Ian did tell me that all the forecasts were now consistent with all model guidance that we had at the time and I was satisfied with that.

Q. You were in the office with two bureau personnel, Mr Gage and Mr Batt?

A. Yes.

Q. Is that correct? That's on 26 December?

A. Yes.

Q. Race day. Now did you observe Mr Batt and Mr Gage when the storm warning was to be issued?

A. Mr Gage was close by me at the time the storm warning was issued.

Q. And how did he appear?

A. Can you be a bit more specific?

Q. Well was he emotional or not?

A. Not particularly, no.

Q. Not particularly. Well what about Mr Batt, was he emotional?

A. I don't recall seeing him at that specific time.

CORONER: Q. What about after?

5

A. Nor after.

HILL: Q. Well are you aware that they contacted or tried to contact the CYCA about the storm warning?

A. At the time the storm warning was issued Brett volunteered to make some phone calls to alert some people and I was aware that he was trying to contact the CYCA. 10

Q. And you were his superior, what was he going to do?

A. As I understand it he was going to try and contact them to alert them that a storm warning had been issued. 15

Q. As simple as that?

A. Yes. 20

Q. You realise a storm warning is the highest warning that your bureau can give in these latitudes?

A. That's right.

Q. Mr Gage tells us that he considered that life would be in danger. Did you agree with that?

25

A. I was unaware he considered that.

Q. Well what were you aware of with a storm warning and a yacht fleet?

30

A. A storm warning is the highest category warning that is issued from my office. I followed all policies and procedures in issuing that warning and I believe that - I have no reason to believe that there is any inadequacy in that. 35

Q. Is that your answer, you followed all policy?

A. That's right, as I understand your question.

Q. Did you consider the storm warning and the fleet to be in danger?

40

A. The storm warning was for an area well south of the fleet at that time and I considered I was giving them as much advice and warning that I could give - possibly give and to the best of my ability. 45

Q. Look, did you consider that if the fleet sailed into the storm they would be in danger? Yes or no?

A. What I considered was the possibility of what was going to occur and I did my best and followed the procedures that I was there to do to give them as much as advice and warning as I could possibly give? 50

Q. Yes, what was as much advice and warning that you could possibly give besides the storm warning and the forecast that you issued at 14.50 and sent to them? What else did you do?

55

A. Those - the forecasts and warnings were distributed and

that's what I considered I should be doing.

CORONER: Q. You didn't answer the question before which was did you considered there'd be a danger to the fleet if it sailed on into the storm wind area? That means quite simply, did you turn your mind to it? Did you consider it? 5

A. Yes, well that is why the warning - or one of the reasons why the warning was issued, it's to warn any vessel on the water.

Q. But having issued it did you turn your mind to the likely danger to the fleet? It's a pretty simple question but you seem to have a lot of trouble with it. Did you personally consider the practical effect of the warning you'd issued on the fleet? Do you understand what I mean? 10

A. Yes. Yes. 15

CORONER: The question's answered.

HILL: Q. You did consider that? 20

A. Yes.

Q. And what conclusion did you come to?

A. I came to the conclusion that I had done the right thing or I was doing the right thing, a warning should be issued, I had - that was what I should be doing, the warning should be issued and I gave them as much advice as I could. 25

Q. And as much advice as you could is contained in these two reports, that is the storm warning and the report that you sent to the CYCA or the Young Endeavour? 30

A. That's right.

Q. Then what was the purpose in your mind of Mr Gage and Mr Batt telephoning the CYCA? What was the purpose of that? 35

A. Mr Gage wanted to alert people to the fact that they had been issued. As far as I was concerned, as far as I knew, all the distribution had followed - had occurred as it should do and so the relevant people were informed. 40

Q. And were they?

A. I believe so, yes. I have no reason not to believe that. I have no evidence that they were no informed.

Q. Sir, the danger you foresaw for this fleet was that boats would be sunk, is that not correct? 45

A. I did not predict that, no.

Q. You didn't think that would happen?

A. I didn't know that boats would sail into a storm. The warning was issued 24 hours prior to when I believed those conditions would occur. 50

Q. Did Mr Gage or Mr Batt come back to you, you as their superior officer and tell you that they had not made contact with anyone at the CYCA? 55

A. I don't recall that, no.

Q. I'm sorry, I think--

SANTAMARIA: It's not strictly correct. I know the ..(not transcribable).. question but the evidence is that they did in fact contact persons at the yacht club. I think Mr Batt mentioned Lorraine and I think - the name Andrea Holt comes back to me.

5

HILL: Q. Were you told any of that?

A. I don't recall being told about someone called Lorraine, no.

10

Q. What were you told?

A. Well as I - all I can recall is that Brett made some calls but I don't know who he spoke to at the CYCA.

15

Q. You were the superior officer of Mr Gage and Mr Batt were you not?

A. That's right.

20

Q. And you were the highest ranking official of the weather bureau in New South Wales in that office on that day?

A. At that time, that's right.

Q. That's correct isn't it?

A. That's correct.

25

Q. You had the mobile telephone number for the people aboard the Young Endeavour, that's correct isn't it?

A. That's correct.

30

Q. You did not attempt to telephone number and tell them about the storm warning or what you suspected would be the conditions did you?

A. I had no reason to believe that they didn't have the warning or the forecast.

35

Q. If you had no reason to believe that they didn't have the warning or the forecast, why then does Mr Gage or Mr Batt telephone the CYCA?

A. As I believe they had just been to the CYCA, they had been speaking to people and I agreed - Brett said to me he thought it would be a good idea to try and call and I didn't disagree with that.

40

Q. Did you not think that you had a moral duty, never mind a contractual duty, a moral duty to inform the people about the Young Endeavour that there was a storm and the fleet were sailing into it?

A. And that is why I issued the forecast and the warning and I believed at the time that they did receive those forecasts and warnings.

45

50

Q. Then if you thought they had received them why do you have Mr Gage and Mr Batt telephoning the CYC?

A. As I just said before, Mr Gage said to me that he would like to telephone various people and the CYCA was one of them.

55

Q. But that's not the protocol is it for you to telephone them?

A. I'm unaware that that's not allowed.

CORONER: Q. No that's not the question. Of course it's allowed, the question is, it's not the protocol. You know the protocol where the CYCA contacts the bureau, that's the protocol isn't it for the race?

A. As I believed so, yes.

Q. Well don't you know so?

A. Well that's what I know, yes.

HILL: Q. Was their telephoning of the CYC unprecedented in your knowledge?

A. I don't know, I haven't previously been involved in issuing forecasts for the yacht race.

Q. Do you not consider that you had a moral duty as the highest officer representing your department to inform the CYC and the Young Endeavour of this storm?

A. I believe I have done so by distributing and issuing those forecasts and warnings.

Q. And nothing more, is that what you're saying? That that's as high as your duty went was to simply send out the forecasts?

A. And I was - I had no reason to believe that they didn't have those forecasts.

Q. What did Mr Gage and Mr Batt report back to you after they had telephoned? What did they report to you? Did they say they'd been successful?

A. I was - I don't recall exactly what they said. I don't recall Mr Batt actually being there as I said previously and Mr Gage was there.

Q. Well did you enquire what the result of their telephoning had been?

A. I don't recall exactly what happened after that.

Q. Are you saying that as far as you were concerned once you had issued the storm warning and sent off the weather forecast under the contract your duty was finished?

A. I was satisfied that the recipients had received their forecasts and warnings.

Q. And therefore any duty you had was at an end?

A. No my duty was to continue to monitor the situation and continue to issue forecasts and warnings as required.

Q. And that was it? That was as far as you were concerned was your duty, to issue the forecasts, nothing more?

A. And warnings, and the warnings are our highest responsibility.

Q. Well what did you think of Mr Gage and Mr Batt telephoning the CYCA?

A. I had no objection to that.

Q. No objection to it, about them telephoning? What did they say to you and what did you say to them?

A. Well as I stated previously Brett said to me that he would like to phone - or he volunteered to telephone certain people, CYCA was one of them. 5

Q. Did you ask him why? Why did he want to telephone them?

A. Well we had just issued a storm warning. 10

Q. Yes?

A. And that was clearly the reason why.

Q. What, just so that he could make sure that the fax was working, is that what you're saying? 15

A. That's not what I'm saying.

Q. Well what are you saying?

A. I agreed that it would be a good idea. 20

Q. To do what?

A. To telephone the CYCA.

Q. Yes and? 25

A. And to alert them that we had just issued a gale storm warning.

Q. But your fax machine would have told you whether or not they had received your fax? 30

A. Yes I believed that they did receive it.

Q. And you were just allowing Mr Gage to ring up and find out whether or not they'd received the fax, is that right? 35

A. Yes, that's right.

Q. Nothing more?

A. And to alert them that the storm warning had been issued. 40

Q. Well do you know how many telephone calls Mr Gage made?

A. I don't know.

Q. Well do you know whether Mr Batt telephoned? 45

A. No I don't know how many times.

Q. You don't know that either. Do you know that Mr Batt is alleged to have broken down and cried about the situation that the fleet was getting itself into? 50

A. I did not know that.

CORONER: Q. You'd never heard that before today?

A. I did not know that at the time, no.

Q. You've heard since though? You've heard about it?
A. I've heard it since.

HILL: Q. Sir, are you aware that Eden Coastal Patrol was telephoned by Mr Gage?

A. Yes.

5

Q. Are you aware that AMSA was telephoned by Mr Gage?

A. Yes.

10

Q. Did you approve of those telephone calls?

A. Yes.

Q. What is the purpose of telephoning AMSA?

A. Brett volunteered to make those calls.

15

CORONER: No, that's not a responsive answer.

WITNESS: Sorry, and he wanted to alert them that the storm warning had been issued.

20

HILL: Q. What does AMSA do, what's their function?

A. I'm sorry, I don't know that specifically.

Q. They rescue people from the water when their vessels have sunk don't they? Are you aware of that or not?

25

A. Yes.

Q. That's their function isn't it, or one of their functions, do you understand that?

30

A. I understand yes.

Q. And the reason that they were warned was because, and you approved of such warning, was because you thought vessels would be sunk in this storm, isn't that correct?

35

A. I did not know vessels would be in that storm. I issued a warning to alert, to warn people of the conditions that we could reasonably expect to occur.

CORONER: Q. But you didn't disagree with Gage's obvious opinion that he thought that vessels were likely to be sunk?

40

A. He didn't actually say that to me. We didn't discuss anything about vessels being sunk.

HILL: Q. What was the purpose of telephoning the Eden Coastal Patrol?

45

A. It was to alert them that a storm warning had been issued and it was in their region.

Q. What do they do, what's their function?

50

A. I believe that they are a coastal patrol. I don't know exactly what they do.

Q. Well they're a weather station are they?

A. I don't know, they might be.

55

Q. Don't they rescue people who are in distress on the sea, do you know that or not?

A. No I don't know.

Q. Were you in the same room when these telephone calls were being made?

A. I was in the same room as Brett. 5

Q. Well you would have heard then these telephone calls being made?

A. I don't recall hearing what he said, no. 10

Q. Have you ever issued a storm warning before?

A. Yes.

Q. How many?

A. I don't know specifically how many. 15

Q. Well you knew that the issuing of this storm warning was extremely serious didn't you?

A. That's right. 20

Q. It was a step you did not take lightly?

A. No.

Q. And you knew that a fleet of some 117 yachts were setting off down the New South Wales coast to Hobart? 25

A. That's right.

Q. And you knew that in the path of that fleet was this storm?

A. I knew that there was the likelihood of this storm forced winds developing and issued forecast and warnings accordingly. 30

Q. I'll take you back a step. You knew that the fleet was sailing down the New South Wales Coast to Tasmania didn't you? 35

A. Yes.

Q. Yes?

A. Yes. 40

Q. And you knew that you had just forecast a storm, the highest scale that you can put a weather warning on in this latitude in its path?

A. Yes. 45

Q. And that was very serious?

A. Yes.

Q. And one of your subordinates was telephoning not only the CYCA but AMSA and the Eden Coastal Patrol in the same room that you were? 50

A. Yes.

Q. And you don't recall any of the conversations on the telephone? 55

A. No.

Q. You don't remember anything that was said by Mr Gage?

A. Well I didn't listen to his telephone call.

Q. Wasn't this an extremely important telephone call?
Wasn't he alerting rescuers?

5

A. If the warnings and forecasts were - are issued to specific people and those - when the warnings were distributed they went to exactly all those people that they are suppose to--

10

Q. And he was checking up on that was he?

A. Yeah, the computer system automatically sends them and there were no alerts given to specifying that anything had not been sent, had not been received.

15

Q. Was Mr Gage checking up on whether they'd received the facsimiles, is that what you say?

A. He was phoning up to alert them that the warnings had been issued.

20

Q. How many times do you phone up after you've sent a facsimile to make sure that they've gone?

A. I'm sorry, in what context?

Q. Every time you issue weather forecasts and it's sent off via the channels of computer to the various recipients, do you telephone them to make sure they've got their facsimile?

25

A. No.

Q. So this is quite unprecedented isn't it to telephone them and find out whether they've got the storm warning?

30

A. It's unusual.

Q. Now the reason it was done was because it was an extreme warning, is that correct, it was a storm warning?

35

A. It was a storm warning yes.

Q. And it was the highest that you could give?

A. Yes.

40

Q. And you were telephoning them, or Mr Gage was telephoning them because this was quite an unusual event?

A. You could say that yes.

Q. And coupled with that there was going to be a fleet of yachts that within 24 hours would be sailing into that area?

45

A. That's right.

Q. And AMSA are the rescue people and so are the Eden Coastal Patrol, do you accept that?

50

A. Yes.

Q. Now I'm going to take you back to the telephone conversations. Are you still saying that you do not recall any of the conversations between Mr Gage and those various people when you were in the same room as him?

55

A. That's right.

Q. Did you inquire afterwards as to what Mr Gage had done?

A. I don't recall.

CORONER: Q. Did Gage volunteer to you what he'd done?

A. He - no I don't recall him saying that.

5

HILL: Q. Well after Mr Gage had finished, do you recall when he has finished telephoning?

A. I don't recall like a specific moment, if that's what you mean.

10

Q. Well look, from the time that Mr Gage had made his telephone calls until you going off duty at 7.30pm that night, did you give any further thought to contacting the CYC or the Young Endeavour?

15

A. As far as I'd believed and as far as I still believe that they received the forecast that they were suppose to and they received the warnings.

Q. What's wrong with putting in your warnings these ones that you have sent to him, or as the forecast rather, pursuant to the contract, what's wrong with saying gusts up to say 30 knots, 45 knots, do you have a difficulty with that?

20

A. As far as I believed at the time that these forecasts were to follow the usual policy of our forecasts and we don't normally put gust speeds in.

25

Q. As far as you know how does that come about, someone telling or what?

30

A. Well according to the procedures that were in place we were to issue the special forecast for the CYCA for particular times and particular areas which were essentially just repackages of our coastal waters forecasts and these forecasts are set in specific ways where we talk about average wind speeds.

35

Q. I see, average wind speeds. So if we have an average wind speed say of 20 to 30 knots what is wrong in your contract forecast with giving the gusts, the 40 percent gusts, what's wrong with that?

40

A. I don't believe that's a question that really I should be answering. It sounds to me that it's a policy type question. I didn't set the policies for these forecasts. I have no reason to believe that there's anything wrong with that policy.

45

Q. I take it your national director is here is he?

A. The deputy yes.

50

Q. Who sets the policy?

A. It is he.

Q. It is what?

A. He does.

55

Q. That's Mr Love is it?

A. Yes.

Q. Now who told you that you could not put wind gusts in these forecasts to the CYC pursuant to the contract?

A. Nobody told me.

OBJECTION (SANTAMARIA). FORM. OBJECTION WITHDRAWN.

5

Q. What prevented you from including in the forecast that you sent to the CYC pursuant to the contract, the wind gusts?

A. I was following normal procedures and policies of forecasts that are issued from our office and I believe I did - I had not reason to believe that I was not doing the right thing.

10

CORONER: Q. No one is suggesting you are doing the wrong thing. We're trying to get to - and we're having a great deal of trouble with it, trying to get to the reason why there seems to be something wrong with mentioning gusts in these special forecasts, do you understand that?

15

A. Well I understand what you're saying. At no time was I advised to or were there any policies saying that that should be done. I had no advice to include anything of that nature.

20

HILL: Q. Sir, as far as you were concerned there was a policy that prevented you from putting gusts into the forecast to the CYC, is that what you're saying?

25

A. As far as I'm concerned, the policy that was agreed to between the bureau and the CYC were for forecasts of the normal format, so that's following procedures that we normally follow in our office and the specifics were the time periods and the areas for each forecast. I had no reason to believe that I was not giving them the information that was required.

30

Q. Well they could have got the storm warning free couldn't they?

35

A. They did get the storm warning free, everybody gets the warnings free.

40

Q. Well what's the additional amount, in your mind, what was the additional information that you were giving them, that they were paying for?

A. I was giving the forecast according to the procedure that was specified beforehand between the Weather Bureau and the CYCA.

45

Q. Well look at the public forecast thus issued at 14:14 and keep also the CYC forecast 14:50 and what's the difference?

50

A. I have the Sydney Hobart Yacht Race forecast for 14:50 and we're comparing it with--

CORONER: 14:14 official priority storm warning forecast, 26th, 30 minutes earlier or 40 minutes earlier.

55

HILL: Q. What's the additional information in the CYC one?

A. I'm sorry?

- Q. What's the additional information that they're paying for?
- A. You're comparing to largely different products. One is a special forecast for - it was issued at 14:50 on Saturday and it was for an area Sydney to Jervis Bay and the other product that you're referring to is a storm warning and it's issued in this case for waters - the storm warning is for waters south of Merimbula. It also includes a gale warning for waters south of Broken Bay and a strong wind warning for waters between Broken Bay and Seal Rocks. They're two different products. 5 10
- Q. Let's just take the CYC forecast and what is it in there, what is in there that's not contained in the public one, what's additional to the public one? 15
- A. They're different products. The public one which you're referring to is a warning and it's a warning for coastal waters, it's a warning for strong winds, gale winds and storm winds. The other product is a forecast for the yachts for a specific area, Sydney to Jervis Bay. 20
- Q. One is specific for yachts, is that what you're saying?
- A. It's specific for the Sydney to Hobart Yacht Race.
- Q. For the yachts, specific to the yachts. Now you know that yachts have sails, yes? 25
- A. That's right.
- Q. And they have wind that drives those sails?
- A. Yes. 30
- Q. What is wrong with putting the gusts maximums in there?
- A. I don't know what is wrong with that.
- Q. You didn't do it because you felt constrained by policy, is that correct? 35
- A. I was following policy and I had every reason to believe that there was no problem with that. There was no advice given to me that this particular forecast needed that information and it's not usual to include that sort of information in forecasts that we give. 40
- Q. Well who gave you your instructions to draw up this?
- A. These instructions were given by the manager of our regional forecasting centre. 45
- Q. Who was that?
- A. Mr Buckley.
- Q. Where is he now? 50
- A. I don't know where he is now.
- CORONER: Q. Is he still in the job?
- A. He's in Sydney. He's not in our office. 55
- Q. He's not in the Weather Bureau?
- A. No he's not.

HILL: Q. He's not with the Weather Bureau?

A. No he's not with the Weather Bureau.

Q. Now you, earlier when you first came into the witness box, you had a document and I pointed out there was some telephone numbers on it for the Young Endeavour in particular?

5

A. Yes.

Q. Do you remember that?

10

A. Yes.

Q. What did you think the purpose of having the mobile telephone number for the Young Endeavour was?

A. If we couldn't get through to them on the normal channels then we had another option.

15

Q. And that's all?

A. Yes.

20

Q. Who else is in court from the bureau, the Weather Bureau?

A. At this time?

Q. Yes, right now in this Court?

25

A. I can see Geoff Love and Pat Sullivan.

Q. Who's Pat Sullivan?

A. He is the regional director.

30

Q. Now look you seem extremely defensive?

A. I'm sorry, I don't mean to come across that way.

Q. You're not being defensive?

A. I don't intend to be defensive.

35

Q. You don't feel intimidated that you have your superiors here?

A. No not in any way.

40

WEBER: Q. Mr Dunda, you produced a document at the beginning of your evidence which his Worship has marked as exhibit 14. Do you have a copy of it before you?

A. Yes.

45

Q. Could you remind me where did you find that document?

A. This particular one was given to me by Mr Sullivan just a couple of days ago.

Q. Did he indicate where he'd obtained it from?

A. He didn't tell me where he obtained it from.

50

Q. To your knowledge, as at Boxing Day 1998, was there a file at the Bureau which dealt with the 1998 Sydney to Hobart Yacht Race?

A. I don't know the answer to that question.

55

Q. To the best of your knowledge does the document

exhibit 14, have its origin on the Internet?

A. Not on the Internet, on our internal web site, so as far as I'm aware it's a totally internal document.

Q. So a member of the public couldn't obtain this document by searching the Internet?

A. I don't know.

Q. Are you able to translate the notation at the bottom left hand corner of the document?

A. No.

Q. Do you have any idea of the identity of the Andrew who is referred to in the writing at the bottom left hand corner of the document?

A. I do yes.

Q. Who would that be?

A. That would be Andrew Treloar.

Q. And what in December 1998 was that gentleman's role?

A. I don't know.

Q. On the right hand side at the bottom of the page there's 15-MAR-00. To the best of your knowledge would it be reasonable for his Worship to assume that that was the date upon which this document was recovered from the internal web site of the Bureau?

A. As far as I can tell it's the date that it was actually printed out.

Q. Do you have any idea of the source document from which the Bureau obtained the contact number for Neil Gallately which is referred to at point 7 of the first page?

A. No.

Q. Do you know who Neil Gallately is?

A. I don't know him, no.

Q. Do I take it that you don't know how it was that the Weather Bureau came to know any of the numbers on the first page of exhibit 14?

A. I assumed that these numbers were obtained during the agreements that were made between the Weather Bureau and the CYCA.

Q. Do you know who conducted the negotiations pursuant to which the agreement was made?

A. I believe it was Mr Buckley.

Q. Have you personally made any attempt to search the internal web site of the Bureau for information in relation to the 1998 Sydney to Hobart Yacht Race?

A. No I haven't.

Q. Is that a deliberate decision on your part to not do that?

A. Can you specify that a bit more?

Q. Certainly. Well one could not conduct a search because it didn't occur to you, or alternatively it could have occurred to you and you positively decided not to do it?

A. It hasn't occurred to me to do that.

5

Q. To the best of your knowledge who is the author of the document which his Worship has marked as exhibit 14?

A. To the best of my knowledge I believe it was Mr Buckley.

10

Q. You've been asked a number of questions by my learned friend Mr Hill concerning the preparation of both the general storm warning which was prepared at 14:14 and the specific information which was conveyed to the CYC and the Young Endeavour at 14:50, do you recall that?

A. Yes.

15

Q. And you agreed that you prepared both those documents, correct?

A. Yes.

20

Q. And that they were prepared, being the product of your professional assessment of the information then available to you, correct?

A. Yes.

25

Q. And that you expressed the product of your professional consideration in the orthodox way in which the Bureau expresses such things?

A. Yes.

30

Q. And were you content that that orthodox means of communication was sufficient to convey to whoever received these documents the fact of the storm warning?

A. Yes.

35

Q. Do I take it therefore that when you say that you had no objection to Mr Gage attempting to contact the CYC, by the same token you didn't think it was strictly necessary?

A. No I didn't think it was necessary because I believed that the CYCA had received all the information that was intended to be sent to them.

40

Q. And indeed was it your view that Mr Gage's telephone calls were surplus to requirements?

A. Were extra to requirements?

45

Q. Yes.

A. Yes.

50

Q. And the Weather Bureau, having spoke in official terms through official warnings, I take it it was no part of Mr Gage's function to either add to or detract from those warnings, correct?

A. Yeah I believe so.

55

Q. And that to the extent which you had your authority to make any phone calls, that authority was limited to the

purpose of alerting the persons to whom the telephone calls were made of the fact of the warnings having issued, correct?

A. That's right.

5

Q. Would his Worship be correct in assuming that notwithstanding the gravity of the storm warning which emitted from the Bureau at 14:40 on Boxing Day 1998, that the office was still conducting itself in its usual professional and efficient manner?

10

A. Yes.

Q. There were no signs of panic?

A. No.

15

Q. By anyone?

A. Not that I know of, no.

Q. You didn't observe any signs of panic?

A. No I didn't observe any signs of panic.

20

Q. I think it was put to you that Mr Gage seemed rather emotional and I think your answer was that he didn't seem particularly emotional?

A. He didn't appear that way to me, no.

25

Q. The whole demeanour of the office at that time was business as usual, correct?

A. That's right.

30

Q. It was put to you that there was protocol existing between the CYCA and the Bureau, do you recall those questions?

A. Yes.

35

Q. Do you agree that there was something existing between those organisations which would qualify for the description of a protocol?

A. Can you ask the question again please?

40

Q. Do you believe there was a protocol between the Weather Bureau and the CYC on Boxing Day of 1998?

A. Yes I believe that an arrangement had been agreed upon between the Bureau and the CYC regarding the Sydney to Hobart Yacht Race forecast.

45

Q. Being the contract between them?

A. Yes.

Q. And when you refer to protocol should his Worship take it that you refer to nothing more nor nothing less than the contract which existed between the Bureau on the one hand and the CYCA on the other?

50

A. Yes.

Q. Was there a notice board at the Bureau on 26 December 1998 upon which important information in relation to the Sydney to Hobart was posted?

55

A. In the form of the internal web notice?

Q. I'm a bit more old fashioned than you. I'm actually talking about a notice board where pieces of paper might be pinned?

A. Well something very similar to this, if not this, on a computer screen. 5

Q. So the office as at Boxing Day 1998 overwhelmingly didn't run on bits of paper, is that correct?

CORONER: Q. He's asking you whether you can recall there being in the office where you worked or work, a physical notice board of some sort setting out this type of thing, rather than a web page or a computer? 10

A. No I don't recall a pin-up board, a notice board or anything like specific to the Sydney to Hobart no. 15

Q. What about one saying a list of useful telephone numbers or something like that?

A. Nothing like that, no. 20

WEBER: Q. And so the information that one might expect to find on a notice board in a more old fashioned office at the Bureau at Boxing Day 1998, was to be found on the internal web site, correct? 25

A. Yes I believe so.

Q. And so if somebody wanted to find out, for example, information in relation to the Sydney to Hobart and the obligations of the Bureau to the CYCA, they would go onto the internal web site? 30

A. Yes.

CORONER: Q. Would you expect Mr Gage and Mr Batt to know that sort of thing, if they wanted to look up a phone number, they'd go to the web site? They're younger than you are they, or not? 35

A. I have no reason to think that they'd have any difficulty with that. 40

Q. Surely they wouldn't?

A. No.

Q. You'd expect them to know wouldn't you?

A. Yes. 45

WEBER: Q. I take it that it would be possible still to download all of the information which was on the internal web site in relation to the 1998 Sydney to Hobart Yacht Race? 50

A. Yeah I have no reason to believe that you couldn't.

Q. I realise this is particularly hypothetical because your view is such communications were surplus to requirements, but if you personally had wanted to contact the CYC that afternoon, do you think you would have had any difficulty in finding a number from the resources of the Met Bureau? 55

A. I haven't got the information with me now so I can't

really say for sure whether I could have then or not.

Q. Can you do your best and just give me your expectation. If hypothetically on that afternoon you wanted to make contact with the CYC, would it have been your expectation that by a reasonably simple search of the internal web site you'd have been able to come up with a number which would have allowed you to do so? 5

A. Well hypothetically I guess it's possible but I can't say for sure. 10

SANTAMARIA: Q. Mr Dunda, you were asked some questions by counsel assisting the Coroner about whether you were present during telephone conversations between Mr Gage and two or three others. I think you nominated AMSA, the Eden Coastal Patrol and the Yacht Club, and your evidence was that you don't recall anything said by Mr Gage, that you didn't listen to his telephone calls. What I want to ask you is to describe the room in which you were in at the time Mr Gage was making these calls. I suspect none of us have been in the room. Could you describe the room that you were in at the time? 15 20

A. It's a fairly large room--

Q. Bigger than this court?

A. Similar in size and there are several desks, many computers. 25

Q. Display boards?

A. A large screen and some display boards on a wall. 30

Q. Partitions like you might find in some other offices?

OBJECTION (HILL). LEADING.

SANTAMARIA: I take the point your Worship. 35

Q. Just do your best to describe--

A. Okay, so there are a few desks, some low partitions, a chart wall with charts on a wall.

Q. How many people would normally work in this area? 40

A. Normally there would be half a dozen, more or less.

Q. Is it your normal practice firstly to listen to calls being made by Bureau staff to third persons? 45

A. It's not a normal practice.

Q. Did you have any reason on this occasion to go and stand beside Mr Gage while he made these calls? 50

A. No.

Q. Did you feel the need to stand beside him at any stage while he made these calls? 55

A. No.

Q. And after he made the calls was there any reason in your mind that suggested to you that Mr Gage may not have communicated the matters to those third persons? 55

A. No.

- Q. All right, I want to ask you some questions now about the actual upgrading of the gale warning to storm warning and again you were asked during the course of your examination by Mr Hill whether you felt defensive about giving evidence. Well I want to ask you about whose responsibility it was ultimately to issue the storm warning. You were the senior forecaster on duty at the time? 5
- A. Yes.
- Q. Were you presented with different output from models during the course of the morning? 10
- A. That's correct.
- Q. At one point the models presented themselves in a way where you considered it might be necessary to issue a storm warning? 15
- A. Yes.
- Q. Is it the case that the models can be wrong? 20
- A. Yes.
- Q. But the forecaster must make a valued judgement about whether to run with a particular model? 25
- A. That's right.
- Q. And I think you've said on a previous occasion that the giving of a storm warning was an exceptional event? 30
- A. Yes.
- Q. The case is the buck stopped with you on that morning to issue a storm warning? 35
- A. Yes you can put it that way.
- HILL: Q. My learned friend Mr Santamaria asked you about the room and he said, normally half a dozen people worked in there? 35
- A. Yes.
- Q. How many were there on Boxing Day? 40
- A. About half a dozen.
- Q. There was Mr Gage, Mr Batt, yourself and who else? 45
- A. Mr Gage and Mr Batt were there are some time, they weren't actually there for the whole duration my shift. I was there, as I said, from 7 till 7.30 and there were three or four other forecasters for that duration as well.
- Q. Who was there when Mr Gage and Mr Batt were making their telephone calls? 50
- A. I can't recall every single person.
- Q. Well who was on duty? 55
- A. I was on duty, there was a - there would have been two or three other professional officers class two.
- Q. All right, we'll start with them, what were their names? 55
- A. I can recall that Chris Matthews was on and I can't--

Q. Is that a Christine or a Christopher?

A. Its a male.

Q. Yes?

A. I can't right now recall everyone else's names that were on at that time.

5

Q. Then can you recall anyone else that was around at the time that Mr Gage was making his telephone calls?

A. No.

10

Q. Or when Mr Batt was making his telephone calls?

A. I don't know where Mr Batt was at that time.

<WITNESS STOOD DOWN

15

CORONER: I have some documents produced under a notice to produce from the CYCA. They consist of the notes by the Yacht Race Regatta Committee, so I'll give those to you, Mr Hill to have a look at.

20

LUNCHEON ADJOURNMENT

Mr Colefax appears for Lewis Carter

25

HILL: I understand Mr Dunda will be returning to the court at 3.30, your Worship.

CORONER: Good. There's just one small area which was particularly ..(not transcribable).. to evidence in the middle of last week and because we had a couple of days without dealing with it we've forgotten to ask him one particular question and we just need to canvass that. Have you indicated to Mr Stanley what that's about?

30

HILL: Yes I have.

35

<GEOFFREY BRUCE LOVE(2.03PM)
SWORN AND EXAMINED

40

HILL: Q. Sir, would you give this inquest your full name please?

A. My name is Geoffrey Bruce Love.

Q. And your address, sir?

A. 150 Lonsdale Street, Melbourne.

45

Q. And your occupation?

A. I'm a meteorologist.

50

Q. And you are presently employed by the Bureau of Meteorology?

A. Correct.

Q. And what position do you hold?

A. I'm the bureau's deputy director of services. There are two deputy directors in the bureau, one for research and systems and one for services.

55

Q. I've been handed a copy of your curriculum vitae, perhaps you would like to have a look at that. Perhaps if you check that and make sure it's correct and I'll tender that.

A. Yes it's correct.

5

EXHIBIT #15 CURRICULUM VITAE OF GEOFFREY BRUCE LOVE
TENDERED, ADMITTED WITHOUT OBJECTION

CORONER: There's no argument about your expertise Mr Love.

10

HILL: Q. Sir, you have, I think, made a statement in this matter, is that correct?

A. That's correct.

15

Q. And you've also written a letter, I think it's a six page letter dated 8 December 1999?

A. That's correct. That's in fact the only statement I've made. I haven't made a formal statement, there's no record of interview for me.

20

Q. That's fine. Do you have a copy first of all, of your letter and then a copy of the preliminary report?

A. Indeed I do.

25

Q. Okay, now all the way through the preliminary report and indeed throughout your letter you talk about the final report?

A. Yes sir.

30

Q. Is there a final report?

A. There will be a final report.

Q. But there's not one yet?

A. But there is not one yet.

35

Q. Any idea when?

A. Possibly three to four months after the conclusion of this inquest.

40

CORONER: Q. Is it in any way likely to be contingent on this inquest, can I ask that?

A. No I don't believe so. The people who would put that report together have been engaged pretty substantially in gathering material for this inquest and so given the resources available it's one thing at a time.

45

HILL: Q. Just so that I'm clear, and understand what we're dealing with. This was not a cyclone, that is where the yacht went into, called a storm--

A. It wasn't a tropical cyclone.

50

Q. No, all right, but was it a cyclone? I'm not talking about a tropical cyclone, Melbourne's hardly tropical as I'm quite sure my learned friends will attest to.

A. If you relaxed the definition of a cyclone so that it didn't have to be warm cord then to be a cyclone you'd probably expect winds of 34 in all four quadrants around the

55

centre of the low and that wasn't the case.

Q. Well do you know a Doctor Graham Mills?

A. Indeed I do know Doctor Graham Mills.

5

Q. Who is Doctor Graham Mills?

A. Doctor Graham Mills works for the Bureau of Meteorology Research Centre.

Q. And do you know a Doctor Diana Greenslade?

A. Indeed I do.

10

Q. And who is that?

A. She also works for BMRC.

15

Q. Have you seen the document that they put out and it's called a preliminary study into the development of a mesoscale cyclone on 26 and 27 December 1998?

A. I have indeed.

20

Q. Well all the way throughout that document on every page and multiple times on those pages they refer to this storm as a cyclone?

A. Indeed they do.

25

Q. Is that loose terminology or what?

A. As I said before it depends how you wish to relax the definition. I mean if you call anything that's a low pressure system with winds going all the way round it a cyclone, and you might wish to do that, then it's a cyclone. It depends how you wish to use the term. It's just a terminology thing.

30

Q. They speak about two cyclones, all right? They're talking about the two cyclones that occurred in that area on that date. Have you got a copy of it?

A. Is it attachment E?

35

Q. It's attachment E, yes indeed?

A. Yes indeed.

40

Q. Paragraph 7, the secondary cyclone formed on the western side of the upper level low. It clearly defines cyclonic circulation over eastern Bass Strait. See the point I'm trying to make and trying to find out is this, that the public have a certain perception in regards weather and if you say storm they think of one concept but if you say cyclone they immediately attune to something that will cause great devastation, would you agree with that?

A. I would.

45

50

Q. Well, do you think that if the fleet, the sailors, had been told that you're getting near to cyclone conditions in these winds that that may well have dissuaded them from continuing on?

A. I don't believe that Mills and Greenslade used the term cyclone in the way you just used the term.

55

Q. What do you--

A. I take it to be a cyclonic wind system which means the winds go round in a clockwise fashion in the southern hemisphere and I think that's as tight as they are using the definition.

5

CORONER: Q. I mean if they said a cyclonic wind system, and the do in parts, the talk about the word cyclonic, I could understand that but in the very first line of that document the broad scale synoptic environment in which the mesoscale cyclone formed isn't that somewhat - I don't want to play word games but isn't that somewhat different to the term cyclonic ..(not transcribable).. system, but cyclone is a noun.

10

A. I think you'd have to get Mills and Greenslade here but I genuinely do not believe that they are using the word cyclone in the tropical cyclone sense. They are using in the sense of winds exceeding 34 knots all around the system, they are using it in the sense of a cyclonic low pressure system. I genuinely believe that, but you would have to talk to Graham Mills and Diana Greenslade. But perhaps I could add further, you know, this is a technical document produced by two researchers.

15

20

HILL: Q. Of the Bureau of--

25

A. Of the Bureau of Meteorology and it's their scientific assessment of a weather system.

Q. And they call it a cyclone?

A. Indeed they do.

30

Q. And who commissioned this?

A. After the event the director of meteorology called for a scientific assessment of the weather system in Bass Strait.

35

Q. And the scientific assessment was a mesoscale cyclone?

A. Correct.

Q. Well what is wrong that saying to the sailors that the storm they were going into would have near cyclone force winds? What is wrong with that?

40

CORONER: In the context of a private weather report to them, keep of the public official weather reports?

45

WITNESS: Yeah I don't have a problem with that.

HILL: Q. Then why wasn't it done?

A. I believe the forecasters - and I mean I heard Peter Dunda this morning and he was saying that he used the standard terminology to describe these events and that would be I guess just not standard terminology in the forecasters lexicon.

50

Q. Well is gusts standard terminology?

55

A. Well certainly gusts are discussed in the office and gusts are used in some forecasts but by enlarge, particularly in coastal waters forecasts, the tendency is to

forecast mean winds.

Q. Well is there anything fundamentally wrong with telling the CYC in their weather forecast mean winds up to 50 knots, gusts up to 70 knots? 5

A. No there is nothing fundamentally wrong with doing that and as a result of the experience in the '98 race, the '99 race forecasts contained gusts.

Q. Now, have you seen the naval forecasts that went to the Young Endeavour? Have you managed to see any of those? 10

A. I don't think I have, less the standard issue maritime forecasts. I mean high seas and--

Q. I think these are usually from Cairns, navcalls. You haven't seen anything? 15

A. No I haven't.

Q. Just have a look at this.

A. Go ahead I've got the general gist. 20

Q. Well the point I want to take you to really is that this is at 26.22 hundred hours zulu so that's presumably--

A. 9am on the 27th. 25

Q. Now, you'll see there that they talk about--

A. No, it couldn't have been, could it, 26.27?

Q. Well we're 11 hours in front, zulu time being the Greenwich mean time. 30

A. Yeah 9am the 27th, sorry I was thinking Boxing Day.

Q. Winds west to south-west, 20 to 30 knots inshore fresh and then 25 to 35 knots offshore in north of area gradient 30 to 40 knots inshore and 35 to 45 knots offshore to south gusts to 50 knots in storms. See the point I'm making there is that they set out the gusts, they don't seem to have any problems with setting that out. You would agree with that? 35

A. As we had no problems in 1999 setting out for the race forecast. 40

Q. So that's all been altered now?

A. For the official race forecast, yes.

Q. Now the contact with the CYC that's said to have taken place on the day by Mr Gage and Mr Batt, do you agree with that or not? 45

A. I'm perhaps missing the point and your Worship might pull me up but I think I agree, it was beyond the agreement and I guess I've talked to people in the New South Wales regional office and I believe it's beyond what is done routinely in that office but I don't have any disagreement with people who are providing a service to a specific client like the CYCA going to additional lengths to communicate with them if they feel necessary so I don't disagree with it but I do recognise it was something unusual in the office. 50 55

Q. Unusual it may be but so was the storm warning?

A. Correct.

Q. And the fleet was heading towards where the storm was going to develop. Surely it would have been correct on any view that the CYC should be contacted and told of the dangers of a storm, not just whether they've got the storm warning, but told? 5

A. Well that's - that's your impression. I think it appears to me that issuing the storm warning was considered to be a very significant event. We've got to the bottom of that. I think one of the things that we've learnt out of it was in fact in at least on the part of a substantial number in the race, a lack of appreciation of the significance of the storm warning and so I think that's a hindsight judgment. At the time it was expected that that storm warning would generate an understanding of its significance. 10 15

Q. All right, I accept what you've just said but I'm asking you when you consider what Mr Batt has said, how emotional he was about this and what Mr Gage has said that he thought that a death would result from this storm. That's how concerned they were. Do you see anything wrong with actually ringing them up and saying: 'Now look you've got the storm warning, but this is going to be very bad. This is the fears that I have.'? 20 25

A. I don't have anything wrong in doing that but I don't think it's a requirement on them either.

Q. You don't think it's a requirement, a requirement under what, morally or contractually? 30

A. It only becomes a moral requirement if in fact they were aware that people don't have a comprehension of what a storm warning means and if they really are acting on the assumption that people understand storm warnings, then it's not a moral requirement and I don't believe it was a contractual requirement. 35

Q. So you don't think it's a moral requirement and not contractual requirement either. 40

STANLEY: That's not what..(not transcribable).. your Worship, qualification, it's not a moral requirement the witness said, provided the persons had no reason to believe that the recipients would not understand the purport of the storm warning. 45

CORONER: That's right. Yes he qualified that.

HILL: Q. And if they didn't?

A. And if they didn't? 50

Q. Understand that you added forty per cent to the wind?

A. Okay moving onto that, that issue, I think - now this is a personal view - I would have been surprised if you talked to 50 sailors whether they knew that gusts were 40 per cent higher than the mean wind, but that's focusing on the 40 per cent. I would have been equally surprised if you talked to 50 sailors and they had no subjective feel for gusts being 55

quite substantially higher than the mean wind and so when you put the 40 per cent in your question that changes the answer to whether it's a subjective feel. I think sailors do understand gusts and lulls, they just - a lot of them haven't done the formal reading to know that we had a 40 per cent factor and so - that's sort of my answer in two parts.

5

Q. Now the witnesses all the way through from the Bureau have almost sheltered behind a statement of "this is policy, I can't go against policy". It's almost as though it's become holy writ. Is there a policy, or was there a policy that prevented them, and I'm talking about both the public forecast and the contractual forecast from giving estimations of wind gusts?

10

A. In the marine forecasts it's not an iron type rule but I think you're correct in your assessment that there is a policy to the effect that we don't put gusts in those forecasts unless - and the Bureau is a sort of organisation where I think people are happy to move outside the policies, as we might call them, if they think there are exceptional circumstances and certainly there were meteorological exceptional circumstances here but perhaps not to the extent to suggest that the gust rules were going to be broken in some way and there was no evidence to say that the gusts were going to be 70 per cent rather than the normal 40 per cent, as you might have in a severe thunderstorm and a severe down draft - down burst, where the gusts go beyond 40 per cent. So we generally don't put gusts in for the two reasons - or three reasons and one is that we try and keep the marine forecast fairly brief because they're read out over VHF and HF radio and that's crackly, the reception is not always great. We try to be fairly precise, we try not to load our warnings up with lots of numbers - you know 40 knots, 80 knots, 60 knots. We try and keep to the brief, short and to the point and I think that's the general tenor of the way we construct marine warnings. If it was a public warning being put in the newspaper, on a television broadcast or whatever, then I think we're happier to put that extra information if you like because we don't feel that the danger is there of confusion so much. So there's pretty much a formula for preparing coastal waters forecasts and there's no doubt that Peter Dunda followed that formula.

15

20

25

30

35

40

Q. All right, now I'm going to go back to the question again, is there anything in any convention or any law that prevents you in public forecasts from saying what the wind gusts are likely to be?

45

A. Not in any law and not in any international convention, no.

Q. So if you wanted to say, gusting to 50 or 60 knots and provided you had the average winds, you could do so?

50

A. Indeed.

Q. And when the storm warning was issued and I think that it said that the 45 to 55 knots off shore, south of Merimbula, you could have put gusting to, whatever the number is, 75 I think, not--

55

A. Indeed.

Q. And is there any reason why that was omitted?

A. In the public - in the marine warning?

5

Q. Yes in the marine warning?

A. Once again because convention, the long standing convention is the Bureau has believed that by and large sailors understand the relationship between mean winds and gusts and to keep the warnings brief and understandable when transmitted over HF and VHF radio, we haven't included them.

10

Q. And is that still the position?

A. Yes.

15

Q. Now certainly as far as the contractual document was concerned you could have put the gusts in there?

A. Indeed.

CORONER: And you did last year.

20

HILL: Q. And you did last year, that's been checked?

A. Yes, yes.

Q. I also notice in the preliminary report at one stage there that - and I don't want to belabour this too much, but the figures on my calculations seem to be somewhat out. I'll take you to the page. It is in two parts. It's the second page 9, well it is the page 9, arabic 9?

25

A. Arabic 9.

30

Q. I think that this actually does need correcting. You can see there at paragraph 2.4.4, the likely highest mean winds, do you see that - page 9?

A. Arabic 9?

35

CORONER: Yes.

HILL: Q. Paragraph 2.4.4 - sorry page 20.

CORONER: It's 9 on mine.

40

HILL: Q. It's 9 on--

A. I might have had an earlier release one. I guess we went through a few versions before we got this out of the Bureau. Anyway I've found the paragraph.

45

Q. Just so that I'm clear, we've got a report called the preliminary report of meteorological aspects of the 1998 Sydney to Hobart Yacht Race?

50

CORONER: Q. Dated February 1999? Yes so that's what you've got?

A. Yes.

HILL: Q. There are different editions?

55

A. Well I would have to look at yours. I wasn't aware that there were different editions.

CORONER: Q. By all means, you can look at mine.

HILL: Q. Okay well anyway, let's--

CORONER: No let's clear this up first. He's just having a look at my copy. 5

HILL: It may well have been corrected depending on which document you have and which one I have, or which edition. 10

CORONER: Q. All we need is some confidence that the document we have is the document you have of course? 10

A. The document I have is different to the document you have but not in that particular paragraph, just in the page numbering. I can't explain that. 15

HILL: Q. The paragraph reads the preliminary re-analyst of the situation taking account of all readily available information, including reports obtained to date from yacht crews - so far okay? 20

A. Indeed.

Q. Observations from the Esso Kingfish B platform in eastern Bass Strait, coastal station reports and information from Navy's race relay ship Young Endeavour, as well as the Bureau's normal observation network, strongly suggests that the highest mean winds over open waters in eastern Bass Strait and off the southern New South Wales coast was about 55 to 60 knots, that's the mean winds? 25

A. Yes. 30

Q. How has that been compiled, if you can tell us?

A. I guess the highest mean winds of course that were reported were for Kingfish B which was about 55 knots. The Young Endeavour's peak mean wind speed was 56 knots and there was certainly considerably higher gusts coming in what we believed were gusts coming in from yachts involved in the race and so an assessment was made at the time of putting this report together that the mean winds - I mean the forecasts were 45 to 55 were the highest we forecast. It was our belief at the time of writing this report that the winds were probably slightly higher than that - the mean winds, and it's as much an assessment on trying to reconcile the ship observations with Young Endeavour and Kingfish B which at that time we considered were the two most reliable observations we had over the open water. 35 40 45

Q. Is that still the Bureau's opinion?

A. Yes I think our opinion's probably been hardened up a little bit, if you want to put it in a notice frame. I mean the simulations of Professor Leslie which are quite independent of those of Graham Mills, suggested that speed range and since that time we became aware of a cargo vessel, the Sea Cap, which was mentioned earlier, which was hove to probably roughly in the middle of the Young Endeavour and the Kingfish B and in his ship's log, the strongest winds he observed using the Beaufort scale were force 9/10 which we took to mean that he felt the winds were 50 55

somewhere between force 9 and force 10 and so that all seems consistent with a mean wind of 55 to 60 knots tops.

Q. Now it then goes on to say "Gusts and squalls", now you'll have to forgive me here but I was under the impression a gust is just a wind that's gone, a squall can last some minutes?

5

A. Indeed, that's the definition in the bibliography of meteorology I guess.

10

Q. All right so we could have a squall higher than the average wind that will last--

A. Yes.

Q. --for some time?

15

A. A minute or so yes. Two or three minutes, four minutes yes and when you're taking a ten minute mean, you put the lull in, it comes down a bit.

Q. And you say there "Gusts and squalls of considerably higher wind speeds would almost certainly have been experienced by the yachts for short periods of time as mean winds of this magnitude, 55 to 60 knots, could be expected to produce gusts of 70 to 75 knots or more on a fairly regular basis". That's what's said there but I have problems with those figures because if you add 40 per cent to 55 I come up with 77 knots. If you add 40 per cent to 60 I come up with 84 knots so it's not 70 to 75, it's in fact 77 to 84 knots. Is that correct? 5 10

A. Yeah, I think - I mean the point you're making is that the 75 should have been of the order of 86 or 87?

Q. Yes.

A. Yeah, and if in fact the wind speeds were up to 69 knots and at that stage of writing the report I'm not sure that anybody was entirely confident, and as we've said I mean the gusts could have been 75 knots or more and a lot of this was put together in fact before even the yacht - a lot of the yacht observations were becoming available to us and as you're well aware we received no observations in real time and so - yeah. 15 20

Q. This was in fact your wish or desire, to have some of the yachts report back to the Bureau their actual observations when they were out on this race? 25

A. Very much so.

Q. Were they selected yachts or what was the situation?

A. I'm led to believe, and I believe, that there were about 20 yachts in the fleet that were Internet equipped and those yachts could have sent us back, via the Internet, observations and in fact the contract - the document you'd call contract - anticipates that's a possibility and we encouraged them to do so in plain language. Any language they wanted to use whatsoever we would have happy to receive. And that wouldn't have been shared with the whole fleet so they wouldn't have breached their rule or whatever it is, 41, where they were giving assistance to other yachts. 30 35 40

Q. Now I noticed that in this document, that is the preliminary report, you have placed the Beaufort scale.

A. Indeed. Correct. 45

Q. It's an old-fashioned scale, if I may use that term, but it was designed for sailing ships and considering we're dealing with sailing ships I also noticed that there's a number alongside if we go up to force 12 and some of the statements I've been reading they're talking about a force 9 and a force 8 so this is at - well it's part of the annexure. 50

A. Yes.

Q. And what I'm trying to point out is this appears to set out things such as smacks remain in harbour, those at sea lie to and at 30 to 40 the gale all smacks make for harbour if near, etcetera. How do we go about if it is correct that 55

the yachtsmen did not understand fully what was being forecast to them, how do we resolve that besides getting them all into a lecture room? Is there a method by which, say, something could be kept in folders or cards for argument's sake that the navigator's table has next to it your forecast scale or something like that so that they would fully appreciate what it was that was coming over the radio?

5

A. Yes, I appreciate the point you're raising and in fact it would certainly help us do our job which is obviously to forecast the weather and to warn of dangerous situations if in fact the people receiving those forecasts and warnings are well-placed to understand them and this event's, this tragic event's revealed to us that not everybody did. The Beaufort scale - I find the Beaufort scale quite attractive in some regards because it's been around for a long long time, it's tried and tested and people understand it. The Beaufort scale, you know, was put together in about 1805 and it's designed more for observing, observing the sea and the winds than for forecasting and it was clearly initially put together so that ships' logs would get some consistency in the way they reported the weather around the world and it's a wonderful tool for that. In fact I've got a ship's log here in my bag from the Sea Cap. They've used the Beaufort scale. They can look at the sea, that gives them a feel for the wind strength and the sea state and they can bring it together. And it does contain useful advice. Some weather services are tending to move away from the Beaufort scale and we have reproduced it here because I think we find that, you know, its descriptive terms are fairly useful and so I don't think that it's wasted. I enjoy reading about smacks making for harbour too but I suspect we have to update the language and as soon as you start doing that then you unpick some of the integrity, but yeah, it's a useful device and I suspect if more people had read our storm warnings in conjunction with the Beaufort scale you know they would have had a better appreciation given that they hadn't studied it beforehand.

10

15

20

25

30

35

Q. Well bearing in mind that the Coroner has to take into account what can be done to avert this sort of thing in the future is there a possibility that you would come up with some sort of concept where the vessels themselves could have in front of them on their navigation tables if you like a chart that shows what you are actually saying to them?

40

45

A. Yeah, I think that that's right. To some extent the problem is that particularly for fleets in coastal waters, coastal waters are just that little bit trickier than the high seas and a lot of the Beaufort scale is predicated on being as you see at sea far from land and at sea near the coast and it sort of runs out at Beaufort 8 near the coast because it's not advised that in a small boat you're in anything bigger than Beaufort 8.

50

Q. No.

A. But we could certainly do that and I think that's part of the education process but only part. I mean you said short of getting everybody into a hall beforehand and

55

talking to them about the weather. Well of course that was done this time around in '99 and I think that was very beneficial and it was done across the land in all the states and a lot of Bureau people participated.

Q. What about the idea that Dr Leslie came up with or Professor Leslie?

A. I missed his evidence, unfortunately.

Q. Of showing, not just explaining to the yachtsmen, what a sea is in regards to a storm or a gale but actually showing the videos of it and saying "Look, this is what it looks like". Has that been adopted or--

A. I guess some of the footage that we've obtained from, you know, the commercial means has been used and Bureau personnel are engaged all the time, largely in their own time, in talking to yacht clubs around Australia in every state and increasingly those materials are incorporated into our weather lectures for yachtsmen so yeah, I think the impact of that sort of material is tremendous.

I've got no further questions, thank you.

CORONER: Mr Morahan, any questions?

MORAHAN: No questions, your Worship.

CORONER: Mr Weber?

WEBER: No, your Worship.

CORONER: Mr Halifax?

HALIFAX: No.

CORONER: Mr Stanley?

STANLEY: Q. Dr Love, it appears from your curriculum vitae that apart from a Bachelor of Science and a Master of Science you are also a Doctor of Philosophy in Meteorology, is that so?

A. Indeed.

Q. And you have a Master of Business Administration?

A. Correct.

Q. And you've been with the Bureau since 1975?

A. Correct.

Q. And in the course of your work at the Bureau have you worked as a forecaster?

A. Yes.

Q. And are you familiar with and do you have particular expertise in the modelling aspect that we've heard described in this Court?

A. Yes. For ten years I managed the modelling centre of the Bureau.

Q. Now at the moment and indeed for the last three years or so you've been the Deputy Director of Services and that puts you as one of the three persons that are in effect the executive of the Bureau?

A. Indeed.

5

Q. And does that mean that you have particular input on the policy side of what the Bureau does and how it operates?

A. Yes.

10

Q. And does that include the way in which forecasts are to be given?

A. Yes. If in fact there is a Weather Services Hand Book and ultimately that lays down the approach to the various forecast products and if in fact we were to make substantial changes to elements of that I guess ultimately I in my current position would take them to the executive and argue for them and the three person executive, having worked it up through the organisation, would make the decisions that had to be made.

15

20

Q. Is it fair and appropriate that we distinguish for the purposes of this inquest between policy that applies to what might be called general public forecasts as against a specific forecast for a client for a particular purpose such as the Sydney to Hobart race?

25

A. Yes, I think that's clearly the case. I mean a specific forecast you do try and work with the client to ascertain their requirements and suit those requirements whereas something that's aimed more generally at the broader public, that sort of product will evolve very slowly over time and very carefully because we're always conscious of, you know, trying to, if you like, keep the largest number of people happy as we can with our forecast services.

30

35

Q. Why is it important that your public forecasts are expressed as they are in fact what might be sometimes described as old-fashioned or formal ways?

A. Yeah, and that's something we're wrestling with and I think that--

40

Q. Why is it that it is that way? Is it because it's been going for so long and we're talking about international--

A. Yeah, I think public forecasts - and we've got to distinguish now between marine forecasts - are a particular problem because people sail boats between marine jurisdictions and with marine public forecasts you're constrained to play in the global system pretty carefully whereas once you come on land the domestic forecast system nationally I think has got more freedom to move, if you like.

45

50

Q. But does it follow from what you're saying that with marine forecasts you have to deal with international shipping?

A. Yeah.

55

Q. And it has to be an international language, as it were,

that's understood.

A. Yeah, that's right.

Q. And has developed by convention over many many years?

A. Yeah and you know, the wind speeds. I mean everybody still talks in knots. You know, it's kilometres an hour for the public service, if you like, on the mainland.

Q. Why, for example, are not kilometres per hour used rather than knots?

A. Well once again I mean you would just - it's considered that you'd confuse people who - you know, from other jurisdictions. There's a global acceptance of knots and to change the global system is very difficult.

Q. And we've heard that for the mid-latitude we're concerned with in this case the highest warning that can be given is a storm warning. Why is it that a cyclone warning would be inappropriate in international terms?

A. There's that word "cyclone" again. I think--

CORONER: Q. Or a hurricane.

A. A hurricane, yes.

Q. We're not stuck on cyclone.

A. Last Friday I did a search of what goes on in the USA, Canada, Great Britain and New Zealand and none of those countries issues hurricane warnings for what I would call extra-tropical systems, the Concord(?) systems. None of them. They will talk of hurricane-force winds in the UK but nobody will issue a hurricane warning, but they issue hurricane warnings in the tropics.

STANLEY: Q. Right.

A. And that is the convention and the structure of a tropical cyclone is the winds increase as you go in 'till you find an eye wall and then that's a region of circular very intense winds.

Q. Perhaps I'll bring you back to that in more detail later on but is the situation this, that in an international scale the conditions here would also have been described as a storm warning, not hurricane or cyclone or anything else?

A. Yes, if it was any one of those five or six countries I mentioned they would have all put out a storm warning.

CORONER: Q. But they might have mentioned "hurricane-force winds" in the UK at least?

A. If they felt they were hurricane-force winds there.

STANLEY: Q. And were there in fact hurricane-force winds here?

A. Not to the best of our knowledge but that wouldn't stop you mentioning them if you thought - I mean we've got to separate a forecast out from an analysis after the event and if the forecasters had numerical models which were saying winds 55 knots, maybe 50 knots, they were waxing and waning, and that's roughly where the warnings were pitched. If the

forecast model had said 65 knots then it would have been appropriate, recognising it's still only a forecast.

CORONER: Q. Well you're saying if they were 65 knots they may well have mentioned hurricane-force winds? 5

A. We don't use the Beaufort terms if you like in the warning so they would have just said - if they thought the winds were going to be 65 knots they probably would have said "winds 55 to 65 knots" and the word "hurricane" wouldn't have been injected into that warning. 10

Q. Why didn't you put it in your hand-outs?

A. Because this hand-out I guess - well I can give you the history of this hand-out which helps explain it. This hand-out was originally developed in Western Australia and in fact for the high seas they do issue hurricane warnings up there and one of the issues that very often comes into play up the Western Australia coast is people on the coast will get access to hurricane warnings which are issued for the high seas and so Len Broadbridge who originally wrote this thing covers that possibility in this particular document. 15 20

Q. I see. So really that's predicated at the northern Western Australian coast?

A. And north of Brisbane and the Northern Territory. We issue hurricane warnings for high seas in all of those three areas. 25

Q. Which are basically the cyclone areas?

A. The cyclone areas, yes. 30

STANLEY: Q. Now I want to turn to the question of more specific forecasts such as the one for the Sydney to Hobart race. Did you have any direct part in the contractual arrangements between the Bureau and the yacht club for this race? 35

A. Direct part, yeah. From time to time as the arrangements were developed I guess people would discuss with me the ideas that were being put forward so yes, I was - I didn't have a real close hands-on, I mean that was done between the three regional directors involved, but I was aware of what was going on. 40

Q. So is the position as you understand it that before this race there would have been discussion between the three regional directors and then discussion in turn with representatives of the yacht club? 45

A. Yes.

Q. And an agreement was reached as to what the product was that was required by the yacht club and which would be provided by the Bureau? 50

A. Yeah. I think that's pretty true. I mean I believe that, you know, both the Bureau and the CYCA had been working together on this for quite a long time and I don't think it was, you know, a hard-nosed "let's do this" or "let's do that". I think it was, you know, pretty much a continuation of the arrangements and, you know, just moving forward. 55

Q. It had simply been in a sense the progression of an arrangement that had gone on for a number of years to the satisfaction of both sides?

A. Yes.

5

Q. And there'd never been, to your knowledge, any express requirement that forecasts should be given in any other than the sort of way they've been given over the years before this event for the yacht club?

A. Yes, I think that's true and perhaps a comment on the service and talking to people about the service. It was a Bureau view and I think that it was a service seen as an adjunct to the basic service so there was a basic service out there we put out the coastal waters forecast and warnings and it was seen, in our eyes at least, as an adjunct to that rather than a total replacement.

10

15

Q. And however since the events that occurred in this race some changes have been introduced?

A. Indeed.

20

Q. And perhaps I might deal with that now. Are you aware of the steps that were taken that led to these changes being introduced?

A. I'm aware of some of the steps.

25

Q. I'm talking about the changes in the form of the forecasting.

A. Well I'm aware of the changes in the form of the forecast, yes.

30

Q. Would you look please at this document. I'm not sure whether your Worship has seen this. This is evidence, I'm instructed. Although it's headed Example 1, that in fact is the actual forecast that was provided or copies of the actual forecast that was provided for the 1999 race.

35

CORONER: I don't think we have.

STANLEY: One can see by comparison the different approach that's now taken.

40

CORONER: Yes. Do you want that tendered at this stage?

STANLEY: Yes, I do.

45

EXHIBIT #16 COPY OF FORECAST PROVIDED FOR 1999 SYDNEY TO HOBART RACE TENDERED, ADMITTED WITHOUT OBJECTION

STANLEY: Q. Mr Love, since this race has there been a considerable amount of work done by the Bureau by way of research and analysis of the events, in effect a post-race analysis?

50

A. Yes, I think that's - you know the Bureau's an operational agency and most of our resources go to keeping the show on the road but we've put a fair bit of effort, we've had the Bureau of Met Research Centre, BMRC people, reanalysing the storm, the Victorian regional office people

55

have done some reanalysis. We've certainly spent a fair bit of time looking at our marine services generally and certainly going through the survey results from the race and trying to learn whatever lessons we can learn and improve the service. I mean it's the natural thing to do.

5

Q. And what would have been some of the areas that have been looked at? Perhaps I can be more specific. Have investigations been carried out or work done to analyse for example the impact of currents?

10

A. Yeah, well the current issue has been a recurring theme and I think the forecasting of the sea state is - I'm not sure where I read it but somebody said, you know, ultimately it's not the winds that sink the boats, it's the seas, and the seas are very very important and in terms of our ability to forecast. That's probably where we - as a technical organisation I think we have - state-of-the-art models are probably further behind forecasting seas than we are forecasting winds. I mean that's - I think we've got as good a models as anybody has got in the world but it's just a science that hasn't come as far as wind forecasting so we have looked at the currents I guess is the answer.

15

20

Q. And what's the relevance of currents as far as you're concerned? Is it to determine what effect they have upon wave heights or is it other matters?

25

A. No, I think currents are important for a variety of reasons. Wave heights is very important obviously but I think just in terms of - I mean Professor Leslie's done quite a number of studies on the east coast lows, the bombs, and they generally form in the warm - over the warm sea surface pools and so there's a whole relationship between the ocean and the atmosphere which is very important and we're trying to move our knowledge forward, I guess.

30

Q. Have you just recently made some investigations yourself and obtained some information that's relevant to the currents that were operative in the relevant area at the time of the storm?

35

A. Indeed, that's the case. I mean I went back from here back to my office last Friday and I made some pretty urgent enquiries into what the currents were through the area because it seemed to me that a lot of it was anecdotal and I wanted to find if there was some available scientific evidence as to the actual currents operating in the area where the boats got into strife.

40

45

Q. And when you say "anecdotal" do you mean the sort of evidence given by Dr Badham as to his estimate?

A. Not only Dr Badham. I mean everybody had just talked about a two knot current or a three knot current setting down the coast and I was just interested, even after the event, to know what really was the current and I mean a part of being a scientist is trying to get your hands on real data rather than just impressions.

50

55

Q. Well do you have some documents with you that are relevant to this issue? What I've just asked you to look at

and a copy of which has been handed to his Worship is a document entitled Current Maps. Is that so?

A. Indeed.

Q. And there are a total of four maps?

A. Yes.

Q. You might just briefly explain what these are and then tell us what conclusions you've drawn as to what the current in fact was on the basis of this material at the relevant time?

A. Okay, I'll try and be brief. These four maps, if we take the first one in the sequence that's just sea surface temperature from a number of passes of an orbital satellite. The legend up the top tells you the warmth of the sea surface, 24 is the red, 14 is the sort of dark blue. The white areas are where there was cloud, except to the left of the shot the scan didn't extend into Bass Strait north of Flinders Island. That sort of data was available at race time. The CSIRO routinely put that up on their website and people could look at that.

Q. And what would that tell anyone about the current?

A. Okay. An experienced person would look at that and infer from the relatively warmer areas that it was warm water heading south and from the colder areas cold water heading north so you can get a qualitative feel for the currents. You can see the sort of swirling eddies just off Gabo Island south--

Q. You might just indicate where that is.

A. Yes, south-east of Gabo Island the swirling eddies--

Q. But whereabouts on the map. Is that it there?

A. Yeah, that's it.

Q. That swirl?

A. Yeah.

Q. And where's Gabo Island?

A. Gabo Island is the tip of the sort of green-shaded continent and then there's a black line off the coast which in fact marks the continental shelf so you can see where the continental shelf falls away.

Q. And is that Flinders Island?

A. And Flinders Island on the north tip of Tasmania.

Q. All right, well that gives you a pretty general--

A. That's a qualitative feel and people use these to interpret what the currents might be.

Q. Now the following maps, the next two, what do they show?

A. Okay, the next two aren't available operationally and certainly weren't available at the time of the race. They were a research product. They derived from altimeters on satellites and so the satellites as they orbit over can observe the sea surface level and then using an analysis

system people can derive what are called geotropic currents and a chap by the name of Griffin at CSIRO in Hobart prepared these maps and they are available in non-real time once again off the CSIRO website. What it does give you is in fact the arrows are the currents and they are colour-coded and the length of the arrow is also proportional to the ocean current. Now to convert the metres a second to knots that we're all used to using you just have to double them so a two point five metre a second is a five knot current.

5
10

Q. So does that follow where we see yellow which we see just above Tasmania, the yellow, it's two point five metres per second, that becomes five knots?

A. Yes, right, and these data are - in fact there's 15 days of data there, seven days of data either side of 20 December and 20 December, so they use a 15 day window but because ocean currents are fairly slowly varying fairly conservative in time they can do that.

15
20

Q. And the next page it's a similar map but showing slightly different--

A. Yeah, the next page is the 15 day window centres on 30 December so you can see how conservative the currents are with time, you can see the eddy that was off Jervis Bay which is a little lump on the coastline, has slipped a little but further south and changed shape slightly but by and large the current structure is much the same.

25

Q. What do these maps tell you as to what the current was in the area where the low was and where the boats were heading?

A. I was obviously particularly interested to see what the currents were off Gabo Island, off Eden to the south-east there, to get a feel for whether it was wind against current or not. I mean that seemed to be a significant issue and when you look in the area off south-east Australia there in fact the currents drop away to zero.

30
35

Q. Is that on this map?

A. Or less than point five of a knot.

40

Q. Is that the plain area of red where we see no arrows?

A. Yes, that's the plain area of red where there are no arrows.

45

Q. So wherever we see that we can take it that--

A. Well that the currents are less than - the geotropic current derived from this instrument is less than half a knot.

50

Q. And that covers the area where--

A. I'm led to believe from - you know, I mean I think some vessels got into trouble further up off Eden and Eden's a little lump, you know the top, the first little nick as you go up the eastern coastline and they were facing a south-setting current of the order of maybe one knot there, maybe slightly less.

55

Q. All right, and then the fourth map, what is it?

A. The fourth map is essentially the vectors, the current vectors off the third map overlaid on the very first sea surface temperature map and so it's just putting the currents on top of the sea surface temperatures so you can line up the warm pools and the cold pools and so on.

5

Q. That indicates or is consistent obviously with the fact that in the general area where the low was the currents were minimal?

10

A. Yes. What's also done on that map is in fact the data haven't been cut off at half a knot. They've continued to cut down to quite small numbers. Now how reliable the very small numbers are is debatable but what they done is plotted them all so you can get a bit of a feel for the fact that there wasn't much going on south of Point Hicks and Gabo Island, if you like. The currents, the stronger currents were up the east coast, Batemans Bay way.

15

Q. Well what conclusion then do you draw as to whether the current was a real factor in affecting wave heights in the relevant area at the relevant time?

20

A. I have to stress at the outset I'm not an oceanographer even though I've done a fair amount of modelling with what are called the shallow water equations and I've played around in the area and I supervised the modelling, the ocean modelling group for a decade. My conclusion is that the currents from these analyses, and they may well be wrong, I mean it's hard data from the satellite but the currents probably weren't a major factor south in that little sector south and south-east of Gabo Island. I suspect that what we did have was a big north-easterly sea coming in from the Tasman and a swell coming in from the Tasman and on top of that a substantial sea generated by the westerlies in Bass Strait and you had in fact the conformance of a north-easterly swell and a westerly sea and the other factor there is you do go across the continental shelf and as wave trains go into shallower water there's a steepening and a shortening of the wave length and so I suspect it was as much the shoaling over the continental shelf combined with the interaction of the two different seas which produced some obviously horrendous conditions.

25

30

35

40

Q. And from the point of view of a forecaster what do you say as to the difficulties facing him in estimating or forecasting wave heights in circumstances such as this?

45

A. Well I think the difficulties for the forecaster are that they don't have quantitative current data so if any assumptions about, you know, whether it's a two knot current or a four knot current or a five knot current setting into the wind is a bit tough for the forecaster to make so I suspect that's the first issue for the forecaster to deal with and our models, our wave models don't have the currents in them. We really don't have wave models that have the current effect in there so I suspect that our forecasters are handicapped to the degree that the science has developed and then the interaction between the two wave trains is difficult to forecast how that will play out, particularly

50

55

as those wave trains are interacting close to the continental shelf. And to be very brutally honest, our forecasters aren't trained in that depth of oceanography to really be able to balance all those factors up and make an accurate forecast and I'm not sure that I'd like to be in that position either. I mean we can have a guess but it's a tough one.

5

Q. What's the standard of the Bureau's model and computer system?

10

A. Yeah, well we run on a super computer that's housed in the Bureau in Melbourne. It's jointly owned 50-50 by the Bureau and CSIRO. I think we probably have the sixth biggest super computer of any weather service in the world so it's up there, and I think apart from the Department of Defence it's the biggest one - I know it's the biggest one in Australia that anybody talks about but I suspect the Defence people have got one bigger. But I don't know that for sure, at all.

15

Q. And in fact is work going on within the Bureau in an effort to better forecast wave heights?

20

A. Yeah, the wave model we run is called the WAM model. It was developed by a consortium of scientists in Europe. It's run by the US, the Canadians, the Europeans, right through Europe. Up until about four years ago it was really the only world class wave model. There's a couple coming onto the horizon now but the WAM model is really it. I mean it's the best model around and what you do then is tailor it for your conditions, put in your bottom topography. There are various modules you can run and not run and to the extent that you do that you tune it to suit your requirements.

25

30

Q. And was that available for the assistance of the forecast of for example Mr Dunda on 26 December?

35

A. Yes. You know, an oceanographer will tell you that wave forecasts are only as good as the wind forecasts which I think is part of the answer, but WAM or meso WAM in a high resolution form was run on the back of meso laps so to the extent that we had those tools available we ran them in real time and in fact the wave forecasts were available about an hour after the wind forecasts.

40

Q. And those wave forecasts were in accordance with what was shown on the meso WAM model?

A. Yes, pretty much. I mean the forecasters just have to then look at the maps and decide how best to characterise the wave conditions over an area, particularly a coastal area, and that was done, and the wave forecasts were taking note of the coastal conditions pretty consistent with the model output.

5

Q. All right. Well I now want to turn to the question of winds. Since the race has the Bureau done work to endeavour to make a determination of what the actual wind speeds were in the relevant area?

10

A. Yes, and we've done that from - you know, we've tried to take all the available data and weigh it up and try and reach that conclusion.

15

Q. And are there a number of objective observations that you've taken into account?

A. Yes, as I've mentioned before Kingfish B, the Young Endeavour, and the Sea Cap are probably the three sort of standard observations apart from the routine coastal observations which--

20

CORONER: Q. In Bass Strait?

25

A. Yeah, which all have some draw back, but in Bass Strait around the storm they were the three best ones.

STANLEY: Q. Well they're three objective and independent observations?

30

A. Yeah.

Q. Dealing with Kingfish B, do you recall what the wind speeds were recorded there?

A. Yeah, Kingfish B had - well it had two peaks, one about 54 and one about 55 not in the mean wind.

35

Q. So there you were talking about a mean wind being measured over a period of time?

A. Yes, I guess we scientists tend to be - at one level we try and be precise, and then we try and turn that into generalised forecasts. But we would talk about 10 minute mean winds, but we'd also talk about we're forecasting winds at a 10 metre level, and so not only are they 10 metre - 10 minute means at 10 metre level above the surface.

45

Q. So 10 metres above the sea level?

A. Yeah 10 metres above the ground level, above the surface, whatever you're standing on. If you're on a boat, above the--

50

Q. All right. So Kingfish B, what, in the mid 50's. What about the observations from the Young Endeavour?

A. Yeah, Young Endeavour was 56 knots was it's strongest wind late on Sunday evening. I think it was close to midnight.

55

Q. And you mentioned the Sea Cap, do you in effect have

with you a copy of the ship's log?

A. Well, yes, I do have a copy of the ship's log.

STANLEY: I didn't propose to tender this, your Worship, but it will be available for anyone at the bar table if they desire to look at it did - raise some issues in relation to it. 5

Q. You have the deck log which shows that the vessel was travelling from Newcastle to Portland in Victoria? 10

A. Portland, Victoria.

Q. And then by reference to the log, and a letter received from the second mate on the Sea Cap, have you had plotted on a map the position of the Sea Cap at various times and the wind speeds that it encountered at those-- 15

A. Yes, what's plotted there is the lats and longs that they've given in the log, plus the winds. They gave the winds off the Beaufort scale. I didn't plot them, one of the - a bureau officer plotted for me. Just interpolating or converting the Beaufort scale to knots. 20

Q. Would you mind just looking please at the map, at the points that have been drawn on? Can you just roughly indicate where the readings were taken? 25

A. Okay. They start just south of Point Hicks, and the vessel continued to move southward. I guess he was slowly under steam. He was south of Point Hicks and moved about 80 kilometres towards the southwards or slightly sou'sou'west through the 12 hours from midday to midnight on the 27th. 30

Q. And from the ship's log does it appear that the boat effectively hove to during the storm?

A. Yes. Effectively he was just keeping his nose into the waves, I would infer from that. 35

Q. So does it follow really he was at the eastern side of Bass Strait?

A. Yes, he was probably roughly halfway between the Young Endeavour and Kingfish B. 40

Q. And what were the speeds that were recorded on that vessel by the log?

A. Well, he's two - he had very rough seas, I think, and Beaufort 9/10 is what appears in the log, force 9/10. So we've interpreted that to mean of the order of 50 knots. 45

Q. Is that consistent with that--

A. And that's pretty consistent with the other evidence that we've got available. 50

Q. Now apart from those objective observations do you now have additional information from your own models and from Professor Leslie's models?

A. Yes. We've run the Bureau high resolution models down with increasingly fine resolution and Lance Leslie, of course, has run his model at fairly high resolution as well. And the wind speeds are typically approaching 60 knots 55

maximum wind speed, and slightly over in a couple of grid points.

STANLEY: Your Worship, perhaps I should tender the document from the Sea Cap. There's the log itself, and a document that I'm particularly interested in, or that I questioned him about really was the map that's been drawn up and derived from the log. I'm happy to tender the whole log if that's thought necessary, if anyone wants them, otherwise just the diagram.

CORONER: Do you want it to go back to the boat? It's just a copy of their log, is it?

STANLEY: No, there's no need for that.

HILL: To get a ship's log put on you at this time, it's a little bit difficult to read it. I'm quite happy for the tender, but I'll want some time to read this.

EXHIBIT #17 CURRENT MAP TENDERED, ADMITTED WITHOUT OBJECTION.

EXHIBIT #18 LOG BOOK AND DIAGRAM TENDERED, ADMITTED WITHOUT OBJECTION.

STANLEY: Q. In light of the objective observations and the work that's been done on the model since the race, what do you say as to what was the likely winds that were experienced?

A. As I've said before I think the maximum winds were probably mean winds, 10 minute means were probably just around 60, may be slightly over 60. And I think the other - I think the anemometer readings off the yachts participating are equally an objective reading as long as you're willing to interpret those as generally being gusts, and I think they were consistent.

Q. I was going to ask you some comments about the readings that the various yachtsmen recorded. Do you say even the high readings that were recorded by the yachtsmen are still consistent with that assessment that you've made?

A. Yes, I believe so. I think within our understanding of extreme gusts for those sorts of mean winds.

Q. But looking at a 60 knot wind with the gusts even allowing for the 40 per cent, it brings you up to, what, 84 knots or thereabouts?

A. Yeah, something like that.

Q. Do you have any view about the accuracy of the anemometer readings taken on the yachts in these conditions?

A. I guess - you know, I think the conditions were pretty horrendous and, you know, we tried to wind test some anemometers, and the reports in my letter to the coroner of 8 December. But that doesn't really simulate boats surfing down the fronts of waves, pitching and rolling, we can't simulate that, and I think that's pretty difficult. But it

gives us an order of magnitude, and I don't doubt that the gusts were up there in the high 70's, the low 80's. But I think that we go to a lot of trouble to calibrate instruments and fix sights that aren't moving and that's difficult enough. So they give us an order of magnitude, but I've got no idea what, in a scientific sense, you could put the aerobars on those measurements as. 5

Q. Have you obtained some wind maps that are relevant to the research work that's been done since the race that perhaps are instructive in indicating the nature and positioning of the winds that were experienced in this storm, and comparing them with the winds in a cyclone? 10

A. Yes. Once again--

Q. And before you go to them I'll just ask his Worship to have a look at that? 15

A. What I've put there is just a couple of wind maps, one is out of attachment E to my letter to his Worship of 8 December, and that's just the surface winds at 4 pm on the 27th, as best we've been able to simulate them. 20

Q. So what you've done here is you've attempted to simulate in a graphic form the winds that you've been describing?

A. Yes. 25

Q. And if we look at this map we see it's divided into four, four of these quadrants, or is that just the latitude and longitude?

A. That's just the latitude and longitude lines. 30

Q. So it's just by chance, all right?

A. Yes, by chance.

Q. And we see the map of Tasmania down the bottom? 35

A. That's in Tasmania. And the only point there is those winds, we've got 60 knot winds, couple of 60 knoters--

CORONER: Q. They're the blue ones?

A. Yeah, they're the blue ones. 55 is the third little blue one down to the left of the first turn. 40

Q. Yes?

A. And then they were 50 knots, the pink ones either side of that 55, and then the next pink ones are 45's. So each one of those single bars is 10 knots and a half a bar is 5 knots. 45

Q. Yes?

A. And the little triangle is 50 knots. 50

STANLEY: Q. And again does that show then that the wind is in a relatively narrow band?

A. Yes, it's a narrow band of westerlies pushing through Bass Strait and stretching from roughly Wilsons Promontory out to the east of Gabo Island. 55

CORONER: Q. Really stretching to the north of Bass Strait?

A. North, yes. Through the north and then--

Q. I mean the southern half around the Flinders Island doesn't seem to be anywhere near as bad?

A. Yeah, Flinders Island observations didn't get above, I think, 27 knots was the highest wind speed recorded off there through the whole event. 5

Q. It's just that northerly strait between the north of Flinders Island and Gabo Island? 10

A. Just within--

STANLEY: Q. If we look at the map you can see an area there looks just like a plain cross, or two crosses?

A. Yes. 15

Q. With no wind speeds?

A. Yes.

Q. What does that indicate? 20

A. That's the centre of the low, and in fact I think that the numerical system has tried to draw three of those there, and in fact there's three crosses in a row. So it's a broad diffused low pressure area, and in fact you had a higher resolution model you may resolve the light winds going round. 25

Q. Looking at that simulation there's no continuous wind pattern right around the low, is that so?

A. No, that's - the area of gales associated with that maximum wind is quite small. I estimated, I think, 250 kilometres long at the maximum, and probably 75 kilometres, or less wide, which is about 20,000 square kilometres. 30

Q. That's gale and above? 35

A. Yeah, gale and above.

STANLEY: Q. How does that compare over the next page you've got a simulation--

A. That's not a simulation, that's a - well it's out of a model, but it's an analysis again. 40

Q. Perhaps you might tell us, what is it?

A. Yeah, what we've got on the second page is in fact Tropical Cyclone Steve, it's a category 2 cyclone so we don't believe there are any winds in that above 64 knots, and in terms of maximum wind speed it's quite comparable to the 98 low, I mean they're roughly the same wind speed animals, if you like. The difference, of course is that the winds are symmetrical, they go all the way round it. In aerial extent it's about 1.2 million square kilometres, much bigger, that's the area of gales. It's six or eight times the size of the low in Bass Strait, and this system here persisted from, I think, 27 February it was approaching Cairns, and here it is on 8 March approaching Shark Bay, I mean-- 50 55

CORONER: Q. In Western Australia?

A. Yeah. Cyclones are much more conservative, if you like, in time, much more extensive, and they hold that eye structure as they approach the land, and so potentially much more destructive for, I guess, small towns on the coast.

5

Q. So presumably that's got right up through the Arafura Sea and the Timor Sea and down towards Perth?

A. It got the stuffing knocked out of it as it crossed Cape York, reformed in the Gulf of Carpentaria, went across the top end, right at the top end, reformed as it went into the Timor Sea, as you say, and spun right around. So very conservative system.

10

Q. And do the characteristics of such a cyclone make it easier for a forecaster first to forecast and then to advise as to wind speeds and position?

15

A. Well I'm not sure if it's easier to forecast. I mean the regional director in Brisbane didn't think that was particularly easy as it hit Cairns. But because they are conservative over time you can get a better handle on it. I mean, the Bass Strait low probably came up, reached it peak intensity for about 4 to 6 hours, was all gone in 25 hours, maybe 30 hours. So different scale of phenomenon, and that's why we tend to keep a separate nomenclature, if you like, for tropical cyclones as opposed to extra tropical lows.

20

25

EXHIBIT #19 MAPS AND DESCRIPTIONS BY WITNESS TENDERED, ADMITTED WITHOUT OBJECTION.

Q. Mr Love, there were a number of issues put to the previous witness, and indeed also to yourself, I think, in chief as to the nature and wording of various warnings. Have you looked at a number of examples of warnings that have been given by the Bureau to illustrate the points that you desire to make?

30

35

A. Yes, once again you've got four example warnings--

Q. Just before you go into them, I'll hand these around.

HILL: This is, I think, the fifth document from a person that I haven't had a statement from.

40

CORONER: I know, it makes it very hard to examine him. But I take it you've only got these recently?

45

STANLEY: I got these this morning, sir.

CORONER: I'll make the pint once that it would have been helpful if we'd had this before the inquest started, or even early last week. It's not your fault, Mr Stanley, but it would have been helpful. And perhaps if the Bureau is faced with this sort of an inquiry again they might start to think pro-actively about it before we get to the death's door, as it were, of this part of the inquiry, because it makes it very difficult for us now to digest all of this, and to weigh it up with evidence we just haven't heard from the people junior to this witness, and I really still don't know

50

55

why they haven't been able to speak out.

STANLEY: Your Worship, one explanation for the lateness of these documents is that they arose out of evidence that Dr Love heard last week. And he has been previously apparently spoken to by counsel assisting, he put out a letter. In all events they're documents that only came into my possession this morning.

5

CORONER: I understand that.

10

STANLEY: Q. Do you have a copy of the warnings there?
A. Yes.

Q. Now the first of those relates to the warning for the Cyclone Steve that you've just referred to a moment ago?
A. Mm hm.

15

Q. What are the issues with respect to that that you desire to make?

20

A. I guess the only point I'd make is that it's a storm and gale warning for small craft, essentially a coastal waters forecast prepared by the Bureau of Meteorology in Brisbane. Just pulled it down on the weekend, there's no gust, it's just a standard marine forecast. And I was a bit concerned that there was a feeling that we treated tropical systems in some way differently to extra tropical systems. And what I'm just trying to point out that I think if the forecasters were right the same sort of coastal waters forecast for both types of system, there is no differentiation, we just try and forecast the severity of the system and pitch our warnings in the same fashion, tropical or extra tropical.

25

30

Q. With a tropical cyclone is the forecaster generally able to give more indication of the speed at which the cyclone is moving, for example, and its position?

35

A. Well yes, because you've got a longer history on the storm, or the cyclone, you can do that. But by and large if you've got the coastal waters forecast that warning one it's pretty much the same as the sort of warning that was coming out of New South Wales, Victoria and Hobart during the race.

40

Q. Well that's the warning for coastal sea, what about the high seas, that's the next example, is it?

A. Yes, well the high seas is for the same system at the same time. And once again it's a fairly cryptic warning, and it's our understanding that mariners know how to interpret that, and that's the same form as would be for an extra tropical system of the same intensity.

45

Q. The other two that you have relate to the Tropical Cyclone John in December 1999, what's the point with those?

50

A. Once again, I mean these are just out of the Western Australian office, and the first one is a combination storm, strong wind, gale, it's got all in there, and fairly concise, there are no gusts. It's to the point and we hope that it advises the communities of the wind threat. And the last one is a hurricane warning, just to make the point that

55

we do issue hurricane warnings. The question has been asked why we don't. Well we issue hurricane warnings in the tropics for things that we believe have got mean wind speeds greater than 64 knots. And once again it's fairly brief, there's not a lot of discussion of gusts, or whatever. We hope that that's adequate to advise mariners of the threat the weather system presents.

5

EXHIBIT #20 EXAMPLES OF MARINE WARNINGS, TENDERED, ADMITTED WITHOUT OBJECTION.

10

Q. Dr Love, did you prepare or obtain these examples yourself, after hearing the evidence last week, in an endeavour to assist the Coroner?

A. Yeah, all of those documents I put together on Friday, Saturday or Sunday. I mean I was just concerned that - well the current issue, there was some data around, and the winds and the warnings seemed to be an issue for discussion, I really was trying to be helpful.

15

CORONER: Q. Yes, I appreciate that, but you can see why it would be a topic of discussion, can't you?

20

A. Yes.

STANLEY: Q. Turn back to the question of wave heights, your aware, are you not, that there was a statement made by a helicopter pilot dealing with the height of the waves and estimates, I think, up to 120 or 140 feet even were given, you're aware of that?

25

A. Yes I am.

30

Q. Have you considered this, and I don't know what your views about the possibility of this being correct are?

A. Yeah, once again as you asked earlier in the Bureau we have tried to analyse the event and understand the winds and the waves to improve the overall service. I have personal belief that the forecasting in this office here in Sydney was very, very good, but if it wasn't good then we had to understand why and in what areas it was deficient. And certainly the helicopter wave height evidence was perhaps the most troubling technical evidence we had to deal with, and it was troubling simply because we don't have a lot of experience in that sort of information, and we endeavoured to make some inquiries and haven't got very far to get to the bottom of it. But the radio altimeter data from the helicopters in the statement from the senior constable flying one of those helicopters he reported occasional wave to 120 feet, that's about 36 and a half metres. And he details one wave where he was at a hundred feet, he had to pull up to 160 feet, and the wave went 10 feet under his helicopter, so that makes it 150 foot wave. Now I have to somehow reconcile that with the broad scale analysis we've doing. The previous highest wave ever recorded anywhere on this planet was 34.1 metres, and that was in the north-west Pacific in 1933.

35

40

45

50

55

Q. But that was objectively or in some way--

A. Well that was measured by triangulation off a US naval

vessel. And then the highest wave rider buoy data is of the order of 30, 32 metres in the North Atlantic. So those observations from the helicopter pilot occasioned a world record with one that went way, way, way above the previous world record. And that presents us with some issue in trying to reconcile that with the other information we had. So we struggled with that.

Q. Do you yourself accept that they could be accurate, those estimates?

A. Well in the record of interview of the helicopter pilot he points out that when you're normally hovering you get a hover point, so you look through the canopy of your helicopter and you fix on a tree branch or a leaf, as he says in the evidence, and you hold your helicopter constant. And he was saying that while he was at sea he had no hover point. And so his wave heights are only as accurate as the helicopter was stationary. And the other thing I'm not sure about is whether the spray off the waves affects the radar beam that's coming back to his helicopter that he'd using. I mean our weather radars are affected by raindrops, and I'm not sure whether that's the case there. So I have trouble reconciling that data, and for that reason we haven't - we've sort of discounted that data. I'm not willing at this stage to say that they were the biggest waves ever reported in this storm. The fetch lengths weren't there, and the wind speeds weren't there, compared with the case in the North West Pacific where they got 34.1 metres which has been accepted.

Q. Of course one would have to take into account your position with the Bureau, but being as objective as you can, and looking at it from a scientific approach, and taking into account the knowledge that's been gleaned since the event, what do you say as to the forecast that was in fact made giving a storm warning just after 2 o'clock on the day of the race?

A. Well that's sort of an unfair question because I am with the Weather Bureau. But, you know, I think 20 hours notice of storm force winds when the low hadn't even formed is really a triumph for numerical weather prediction. I mean we've now got weather systems that will predict storms that we didn't have even five years ago. And then it took a lot of courage, I believe, on the part of Peter Dunda, and others, not just Peter, there were the New South Wales - the Victorian office was involved as well, in putting their necks out and making that decision. I mean they could have looked pretty soiling if in fact the winds hadn't been there, and they hadn't formed at that stage. They put their necks out, put out the storm warning, and personally I think the Bureau staff did a very good job.

Q. Since the race also the Bureau has had further discussions with the Yacht Club in an endeavour to see what can be done to avoid - or to improve the situation in the future. One of the factors that's now been introduced as we've seen from the exhibit that was tendered before, there is now a change in the way in which the forecasts are

actually given for the Yacht Club. Is that to overcome the concern that the Bureau had when it discovered after the event that many Yachtsmen didn't have the understanding that the Bureau believed they either had or should have had?

A. Yes, I believe so. I mean it's hard to - when you write these things you've clearly got to pitch them at the audience that's receiving them, and we've learnt a lot about that audience from this event, and I think we will make sure your forecasts suit the audience.

Q. As a matter of policy and direction, is it the intention of the Bureau to continue working with the Yacht Club to improve the parameters of forecast?

A. Well, yes, I think that it takes two to tango, and that's also up to the Yacht Club whether they want to work with the Bureau. I think we are - you know, we've done it this year, and we'll do it in future years if they wish to work with us. I think while we work together we'll try and keep improving and making it a more relevant, more accurate and more timely service.

Q. Does the Bureau see itself as having a role in endeavouring to educate the community, in particular the boating community, with respect to its forecasts?

A. Yes, I think that's true, and certainly there's always been a level of involvement of Bureau officers in Yacht Clubs, sailing clubs, giving weather lectures. We've accelerated that as a consequence of this event and we'll continue to put resources as we can into it.

Q. That's the sort of work that was done previously by - or has been done by people like Ken Batt you mean?

A. Yes, not only Ken, but Ken because of his personal interest puts an enormous amount into it here in New South Wales. But down in Tasmania and Victoria, Western Australia, you can go all around the land and you'll find officers in every regional office doing the same sort of thing.

Q. As part of their job?

A. As part of their job and sometimes in addition to their job.

Q. One of the attachments to your letter to the Coroner was a comment on the meteorological matters that were covered in the Yacht Club's report on the race, do you have a copy of that with you? The first matter that is discussed relates to the pre-race briefing, the briefing given by Mr Batt. You weren't there at the time but you have seen the video?

A. Yes.

Q. And have you done briefings yourself in race situations?

A. Yes.

Q. And what are your views about the briefing that was given?

A. Well in many ways it was a briefing that I personally couldn't give because I don't know as much about yachting as

Ken Batt does. I thought - you know, I was - well let's deal with the easiest issue first. I think the media, after the event, portrayed it as a frivolous briefing. I mean Ken with the Santa Claus hat on was the 10 second grab on many television stations, and I think seeing the full briefing reassured me that Ken had done a thorough job, done his homework, got it organised, and put it together properly. And Ken was faced with a very difficult meteorological situation, and so what he attempted to do, and I think he succeeded in doing, was at least in yachting parlance giving a lot of tips as to how best to maximise the performance of their boat albeit that he couldn't give a precise forecast as to what the situation was going to develop like during the race, on the race days.

CORONER: Q. It was cantered as skippers and navigators, wasn't it? 15

A. Yes. You had to have been an experienced skipper or a navigator I suspect to get most value out of that briefing. But as one of his superiors in the hierarchy I was comfortable and gratified to see the briefing. 20

STANLEY: Q. The next matter you dealt with was there was an issue as to whether or not the times that the Bureau issued its forecast was appropriate, what was the concern there? 25

A. I think - I'm not sure if that was in their recommendations, but I think the issue about meteorological data these days is asynoptic, it's coming in all the time, satellites are giving us data all the time, different numerical models become available at different times, and you've just always got new data becoming available, and if you pick any particular time to issue a forecast you can always say, "But, ah, if we'd waited another hour something else comes along", but you've just got to pick a time which suits the people. You take the best data you've got up to the time and you run with it. 30 35

Q. And the times that in fact the forecasts were given were the times that were arranged at the request of and in consultation with the Yacht Club? 40

A. But I don't think they were bad times. I mean the fact of the matter is that meso lapse would come off about 1pm, there's always another model coming off, and personally I think the times were pretty good given the data available. 45

Q. What do you say as to whether or not it would be of real assistance to the Bureau in giving its forecast, particularly during the race, if it were to get some real time observations from the boats, from the yachts? 50

A. Yes, and we've covered that point a number of times, and there's not doubt - forecasting isn't a black art, you don't shut your eyes and throw a dart at the board, it's about analysing the situation as accurately as you can, and then projecting that understanding forward, and we need observations to do that. 55

Q. Has anything been done about that in arrangements with

the Yacht Club about ensuring that more information is obtained during the race?

A. And we got real time obs back from a number of vessels this year under arrangements with Telstra, and that worked well and was very satisfactory.

5

Q. There was then a concern raised that it would be best if the special race forecasts were collated and issued by one regional Bureau rather than coming from both Sydney and Hobart. What's been resolved, or what's the Bureau's position with respect to that?

10

A. And once again that's been followed through, and now essentially Hobart is the issuer, or the point of issue of all the forecasts, they all come through Hobart. So if you like they will all be of a consistent format and style coming out of Hobart, and that's basically because once the race starts everybody moves to Hobart, as we understand it, and it's best to have the forecast coming out of that office where there can be interaction.

15

20

Q. The forecast would obviously be developed after consultation with the other officers in Sydney and Melbourne?

A. Yeah, and that's what's always happened. There's been consultation, but the forecasting has moved between the two offices in the past but that won't happen anymore. 5

Q. In para 18 of the response, that's the paragraph dealing with the recommendation that there should be easily understood layman forecasts, you expressed the view the Bureau had strong reservations about that and you refer to the issue of international competitors being familiar with the standards. Is that so? 10

A. Yes, indeed.

Q. And are you aware that a fax was sent to the Bureau, to the attention of Mr John Bally(?). Do you know him? 15

A. Yes, I know John.

Q. From the owner of the yacht Aera that sailed in the Sydney to Hobart in 1998, that was a boat apparently from the UK and the owner lived in London. Are you aware of the fax that was sent? 20

A. I have seen the fax but it's a year ago now.

Q. Yes, and that the owner expressed the view that the weather briefing that he attended on the 24th was both interesting and informative and that he also took advantage of the Polfax service and the Internet website for weather and current information and he collected the Weather Bureau package at the CYCA on the morning of the race and he found that to be excellent. That he studied it and then returned to speak to meteorologists who were happy to answer all of his questions and he made the comment that the quality of the material exceeded that which he has received in the past from commercial forecasters and far exceeded the quality of that normally provided by race organisers. Now in the event that you move away from standard practices and you have people like that international yachtsman competing, is there a potential for problems or do you think they can be overcome? 25 30 35 40

A. I think that can be overcome in a pre-race package. I mean you can explain the correspondence between standard terms and whatever language and terminology you want to use. It gets a bit tougher when you're sending real time messages out over the radio waves or whatever to mix your messages and I think that's where we'd have to be very careful. 45

CORONER: Will you be much longer, Mr Stanley? 50

STANLEY: No, I won't at all. In fact--

HILL: Well yes, I have a lot and Dr Love will undoubtedly need to come back tomorrow. I'm worried about whether-- 55

CORONER: I want to get rid of Mr Dunda today.

HILL: Yes.

CORONER: I'll leave you open to tomorrow morning. Step down, doctor. You'll have to come back tomorrow. Sorry.

STANLEY: I'm nearly finished but not quite.

CORONER: We'll interpose Mr Dunda and see what can be sorted out. Thanks doctor, will you just stand down for the moment.

<WITNESS STOOD DOWN

<PETER CHRISTOPHER DUNDA(3.58PM)
ON FORMER OATH, EXAMINATION CONTINUED

CORONER: Q. Your full name again for the record?
A. Peter Christopher Dunda.

HILL: Q. Sir, you came back on duty on the Sunday 27 December 1998?
A. Yes.

Q. And you were the supervisor?
A. Yes.

Q. And you've seen the letter and the protocol in that letter is that the CYC can telephone the supervisor?
A. Yes.

Q. And that would have been you?
A. Yes.

Q. Is that right?
A. Yes.

Q. Now did you receive a telephone call on the morning of 27 December 1998 from Mr Phil Thompson?
A. I don't recall that, no.

Q. Well is it a case that you simply don't recall that or it--
A. I don't believe it happened, no.

Q. You don't believe that happened.

CORONER: Q. Do you recall a telephone call from anyone at the CYCA on the morning of the race?
A. No, I don't.

HILL: Q. You see, what Mr Thompson said in his statement was "And I can remember on the morning of the 27th speaking to the guy and he said" - I'm sorry, I'll take you back. "Who did you speak to in particular?" "Whoever was on duty at the time." And he then said "And I can remember on the morning of the 27th speaking to the guy and he said - I said "What's the likely wind strength they're going to get?" and he said "25 to 35" and I said "Oh well, as per what we've had before" and he said "Yes". I said "Okay". Answer, "No, obviously he's talking about 25 to 35 with - under his

little scheme that can be up to 60." I was literally taking him as 25 to 35." Did you speak to anyone from the CYC on the 27th and tell them that the forecast was for winds of between 25 and 35 knots?

A. No.

5

CORONER: Do you have any questions, Mr Weber?

WEBER: I think I will, your Worship.

CORONER: I don't know whether you were here when this examination of the earlier witnesses took place. You mightn't have been in the case at that stage, that's all.

10

WEBER: No, ..(not transcribable)..

15

CORONER: Yeah, I know, it's not easy.

WEBER: Might I enquire of the witness through your Worship when the witness is available for tomorrow morning?

20

CORONER: We're getting a bank-up of witnesses and I really want to get on to the Winston Churchill. We've got a family of a crew member from the United Kingdom who's come out early because the Naiad was originally expected to be on at the end of this week. She's bitterly disappointed at being out here and I really want to try. I'll sit on today, if necessary.

25

WEBER: I'll do my best, your Worship.

30

HILL: There's not much in my re-examination of Dr Love and I'm quite happy to - 20 minutes maximum.

SHORT ADJOURNMENT

35

CORONER: We're going to sit on for a while and try to get these two witnesses finished and so hopefully I can start on the Winston Churchill in the morning. Mr Winning I think was in reserve. I thank him for coming along for nothing.

40

WEBER: Q. Mr Dunda, I think your evidence is that you came on duty at 7am on the 27th, is that correct?

A. That's right.

Q. And were you thereafter the senior forecaster on duty?

45

A. Yes.

Q. And as I understand it the period between 7 and 7.30 there's a changeover period between the two senior forecasters. Correct?

50

A. Yes.

Q. Obviously in a period before 7am if a person rang for the senior forecaster he wouldn't speak to you, would he?

A. I wasn't there.

55

Q. Well the answer to the question is yes, that he wouldn't

Speak to you?

A. Yes.

Q. And if a person rang for the senior forecaster between 7 and 7.30 it's possible that your predecessor, the fellow who's been on the night shift, might have answered the phone. Correct?

A. Yes.

Q. And it would be only if the call came after 7.30am that in all probability you would answer the phone. Correct?

A. Yes.

Q. And even then it wouldn't be absolutely certain, would it, that a person who rang the number for the senior forecaster would necessarily get you at a period after 7.30. Correct?

A. Yes.

Q. Someone else could answer your phone?

A. Yes.

Q. And it's not the habit of the person who answers the phone of the senior forecaster to identify himself by name. Correct?

A. It might be. It depends on the actual person.

Q. It's quite common, I put it to you, that the person just identifies himself either as the senior forecaster. Correct?

A. It's common to identify that you're calling the Weather Bureau and the forecasting section and some people do use their name as well.

Q. Some don't?

A. Yes.

Q. And do you habitually use your name?

A. I do, but others don't. Some do, some don't.

CORONER: Have you got anything there on that, Mr Santamaria?

SANTAMARIA: I suppose one general question, your Worship, arising out of Mr Weber's questions.

Q. As far as you're concerned though if someone did ring to speak to the senior forecaster or to any other forecaster do you know of any circumstances which would cause a forecaster to depart from the terms of the official forecast pertaining at that time?

A. No.

CORONER: Thanks very much for your help, sir. You can step down and I think you can leave the inquest this time.

<WITNESS RETIRED

CORONER: Dr Love, would you come back? We'll finish you

today, hopefully, so you'll be able to have your ride to Canberra tomorrow.

<GEOFFREY BRUCE LOVE(4.15PM)
ON FORMER OATH, EXAMINATION CONTINUED

HILL: Q. Doctor, there's only three areas. First of all--

WEBER: Your Worship, may I just interrupt my learned friend?

CORONER: Yes.

WEBER: There's one small area of Dr Love's evidence elicited in examination by Mr Stanley that took me by surprise and I'd like to ask your leave to just explore it very briefly and in the circumstances it might be better that--

CORONER: Yes, very well, yes, before Mr Hill, that's right.

WEBER: Q. As I understand the evidence that you've given this afternoon, Dr Love, it's that your view is that the currents in existence on the New South Wales south coast on the 27th were probably as little as half a knot. Correct?

A. Not off - depends where you're talking about. You've got the maps that I have and--

Q. Yes, exhibit 17.

A. As long as you can see the map I'm happy. I mean I think I've got it mentally in my mind and--

Q. I don't want to be unfair to you--

A. No, no, no, I'm comfortable.

Q. Do you need it in front of you?

A. No, to the east of Australia there was a significant current setting south. You with me? Jervis Bay to Batemans Bay.

Q. Yes.

A. But as you move south of Batemans Bay the current weakens and by the time you get to Eden on the first map on the 20th, on the map of the 20th, there's not much current south of Eden. There's a little bit more current south of Eden on the second map, on the 30th, but it's still struggling to make a knot I would guess.

Q. And the study of ocean currents is the bailiwick, if I can use that expression, of oceanographers rather than meteorologists. Is that correct?

A. Indeed, indeed.

Q. And I don't mean to say this in an offensive way but did I detect in your evidence a slight diffidence in even going into the area of currents?

A. Yes, some diffidence. As I said, I mean I've done - I wrote a guide, a numerical model using the shallow water

equations, and as I said I've directed a group who were running oceanographic systems for a decade. Having said that - and I've taken Ph.D level units in sort of those sorts of things but I don't classify myself as an oceanographer so I'm just a little bit willing to step back and particularly the vexed issue of waves and currents.

5

Q. Did the Bureau have the assistance of any oceanographic input when it put together its preliminary report?

A. Yes, I believe that Diana Greenslade who is the wave modeller was - she was certainly on staff at the time and she was working with Graham Mills and she was running her wave model in conjunction with his atmospheric model and she was a part of the team, if you like.

10

Q. And she has a stronger background in oceanographic matters than you?

15

A. She's got a Doctorate in that material and an arm length of publications.

Q. Do you still have with you the preliminary report, Dr Love?

20

A. Yes, in my bag. Magically it's here.

Q. Good.

A. Oh God, the page numbers.

25

Q. Yes, there's a vexed problem amongst our many problems.

A. Give me the paragraph number.

Q. 2.5.1. I think on everybody, on his Worship's version and on everybody at the bar table it's--

30

A. Yes, I've got it.

Q. It's Arabic p 9. Correct me if I'm wrong but that paragraph deals with this subject, does it not, of the interrelationship between wave size and current?

35

A. Yes.

Q. And the preliminary report of the Bureau indicates that at the time this was occurring, in other words at - reading from the last sentence "The east Australian current is believed to have been flowing southward at about four knots off the New South Wales coast".

40

A. Yes.

45

Q. Well that's significantly different from the half knot to which you've been referring.

A. I don't believe it is. I mean if you read the whole sentence it says "Though no data were available at the time of preparation of the report to confirm this".

50

CORONER: Q. That's where we differ.

A. That's what mine says.

WEBER: Q. It's not what mine says, Dr Love.

55

CORONER: Q. Right.

A. Dearie me.

Q. Okay. Well look, I'll tell you what, it's very hard to--

A. Sorry. Well okay, even notwithstanding that, off Jervis Bay to Batemans Bay it is about four knots and that's my starting point. 5

WEBER: Q. But presumably the authors of this report did not wish to convey to its reader that it might have been four knots off Jervis Bay which would be entirely irrelevant but completely insignificant off Gabo Island where it would be relevant? 10

A. Yeah, and until Friday, three days ago or four days ago, I was of the belief like you that the current was around, you know, three to four knots in the area where the yachts got into trouble. 15

Q. Yes.

A. And I was of that belief. 20

Q. Well does that cause you to doubt the reliability of the satellite current information which is contained in the document which is now exhibit 17?

A. No, what it causes me to believe is that the anecdotal was that there's a sort of a four knot current and I think that's true, but what people often don't say in meteorology as much as oceanography is where they're talking about and just as we've heard over the last few days significant evidence about which forecasts applied to where, I think there was an ocean current and there was a significant ocean current but where the boats got into trouble I suspect the current was a good deal less. 25 30

CORONER: Q. Which is quite contrary to what Dr Badham says. 35

A. And in fact I guess if you look at the colour maps which are what were generally available and if one looks at that little orange streak down the coast one could conclude that the southward current went a long way south of Batemans Bay but until you looked at geostrophic currents derived off good data you really don't have any quantitative information to go on and what I did was what every scientist does, is go and look for some quantitative information. 40

Q. Which you found to be different to what you expected? 45

A. Yes. Yeah, that's right, and I mean I think it's - you know it's just a fact that the current, that eddy's got to weaken somewhere and the question was where did the eddy weaken. 50

WEBER: Q. But the exhibit 17 current information indeed is not specific to the day in question, is it?

A. Oh no, oh no.

Q. And it's not even specific to the general period, is it? 55

A. Sorry? It covers the general period. I mean it runs from the 23rd through to 6 January.

CORONER: Q. Well can we draw a conclusion from the fact that there's absolutely none shown on 20 December but there is a weak one shown on 30 December? That's I think what Mr Weber is getting at? Can we draw a conclusion that it was gradually building up over that ten days for example? 5

A. Yes, I think if you look at those two maps you'll see that the eddy that's driving that current moves south from one to the other and what we're seeing is there's a certain conservatism in the ocean that's slowly responding and the eddy's drifting south as those eddies do. 10

WEBER: Q. And it is suggested to you, as his Worship indicated to you, that there was a situation where even in the areas to which you refer the currents got stronger and then abated? 15

A. Oh. 15

Q. Say with--

A. That may well have happened. That's a conjecture. 20

CORONER: Q. That's exactly right, it is conjecture. I mean no, I put the opposite, that it was gradually increasing through the 30th. 20

A. Yes. 25

Q. But Mr Weber says it is possible that it peaked at about the 27th and was on the wane by the 30th. 25

A. I guess I'd look for processes that would enhance that current and I think to the extent that north-easterly winds were blowing over that area you would get a strengthening of that current and to the extent that westerlies and south-westerlies were blowing you wouldn't, and so I think the eddy's drifting south and I think the meteorological pattern wasn't one that would have reinforced that current except for the day or two prior to the yacht race we know that there were good north-easterlies in the area then the southerly buster came up. 30 35

WEBER: Q. I'm sorry, I didn't mean to interrupt you. 40

A. No, no. 40

Q. Have you read the report of the CYCA into the incident? 45

A. I - yes, I've read it a number of times but I last read it probably a month ago now. 45

Q. Do you recall - and I don't say this in any critical way of anybody but I don't have it with me because I didn't realise this problem was going to arise but do you recall there's consistent evidence from the competitors that the current was strong throughout the race and running between two and three knots? 50

A. Yes, I do and I - well I haven't puzzled over that. I mean they came roaring down the coast and then obviously the current - they would have - once the southerly buster went through the current and the winds would have been in some sense opposite but the current still would have a favourable one until they got to about Eden and I just don't know where they're talking about, if you know what I mean. I think the 55

issue of - you know, I've done a small amount of sailing and quite clearly when you aim for a point and you miss it you know that there's a current there and then you get a feel for what the current is, or currents are, so I'm just not entirely clear in my mind where those people were detecting a strong current and they certainly would have had one until somewhere between Batemans Bay and Eden. 5

Q. Do you know how the current is now measured on yachts?

A. No, I'm not aware of how. I can imagine how they measure it but I'm-- 10

Q. So you don't have any view that the way the yachtsmen themselves measured the current is in any way inaccurate?

A. No, I think how I used to assess currents when I was sailing was you know you could set yourself up aiming for a point and watch where you're getting moved if you like off that course and attribute some component of that to the current. 15

Q. Did you have the benefit in your days as a sailor of global satellite positioning? 20

A. No, I only had - I had the benefit of a laser dinghy which didn't quite accommodate that.

Q. Well would you accept from me that the way it's done is that now with the global satellite positioning-- 25

A. Yes.

Q. --there's an impeller beneath the vessel from which the vessel works out how fast it thinks it's going but when you compare that to its actual positioning one can detect whether some of it's current and some of it's yacht speed? 30

A. Yes.

Q. And that's how it's done? 35

A. Yes.

Q. You couldn't discount that evidence, could you, in determining-- 40

A. No.

Q. And why is it that in the face of the evidence of the yachtsmen that there was consistent current? 45

A. Where?

CORONER: Yeah, that's the point. Where?

WEBER: Well--

CORONER: I mean he's saying that there's current down to Eden, probably. Decent current. Certainly around Batemans Bay. 50

WEBER: I'm indebted to your worship.

Q. When you first read this preliminary report where the indication was that there could have been four knot currents, without reference to them cutting out at the 55

relevant point did that strike you as something which grated, that can't be right?

A. I guess I know that currents don't go forever so I was just always interested where the current went, you know? They're driven by eddies, they're like atmospheric systems, the winds and the waters go round in circles, and I just wanted to know where the circle ended, if you like, as far as the yachtsmen were concerned.

5

Q. But his Worship ought be content in the knowledge that the draftsmen and women of a preliminary report were indicating in the final sentence of para 2.5.1 that the current was running, believed to be running at four knots at a position which was relevant to the matters the subject of this inquiry. Correct?

10

A. Yea, I think that's a reasonable conclusion.

15

Q. And that conclusion was derived inter alia from the input of people expert in oceanographics. Correct?

A. It was derived from George Creswell's briefing before they started.

20

Q. So the answer to that question was yes. Mr Creswell is an expert in oceanographics.

A. Dr Creswell is the Australian expert.

25

Q. And it's only since last Friday that you have started to research the question of oceanographics and currents and you are now floating a contrary thesis. Is that a fair way to put it?

A. It's one that Dr Creswell subscribes to.

30

Q. Well you are floating a contrary thesis.

A. Actually it was put to me by Dr Creswell.

35

HILL: Q. You say that Dr Creswell has come up with this hypothesis?

A. The Bureau went back to Dr Creswell and asked him what the currents were, if you like, going into Bass Strait. I think the question put to Dr Creswell was "Is there a current of any significance coming down the coast and swinging back heading towards the west into Bass Strait?"

40

Q. When was this put to Dr Creswell?

A. I'm not entirely clear. It was put by Pat Sullivan.

45

Q. I see. Well is a report from Dr Creswell going to be made about this?

A. If it's required that can be done.

50

CORONER: I've got some evidence, in fact this very report talks about a four knot current. Dr Badham spoke about a current which was not nearly as significant as that but certainly was significant. And now we're finding that there's virtually no current or we're not sure but we can go on the 20th and the 30th and you take your pick, it's either small or no current. I think if we can get something from Dr Creswell we can make our own decisions about what to do

55

about it so if that could be arranged I'd appreciate it. Clearly the Cruising Yacht Club is interested in it and I think it's of interest to the inquest, so can you see what can be done about that?

HILL: Q. Now the other item I wanted to discuss with you is these warnings that are contained in exhibit 20. Now I noticed that we've got in the first one "Expect winds 33 to 45 knots around the cyclone increasing 55 knots at the centre". What makes this different from the 45 to 55 knots because you used the word "cyclone" in this?

A. Yeah, I guess that it's a tropical cyclone warning, yes.

Q. Because it's up north?

A. Yes, yes.

Q. Okay, so if it was up to 55 knots wind speed we're talking about a cyclone if it was up to this. Yes?

A. Yes.

Q. Right.

A. We're talking about the winds going all the way round the cyclone.

Q. Sure. All right, the next one is "30 to 40 knots increasing to 55 knots near the centre of the cyclone". Once again, north, even though the wind speeds are equivalent to what we were looking at on that day, because it's in north we call it a cyclone?

A. Yeah, because it's a tropical cyclone, yes.

CORONER: Q. And in fact that's just south of Cairns near Cardwell, isn't it?

A. Yes.

HILL: Q. All right, well the other thing that you were saying was the information you would have like to have got from the yachts that were actually in the race itself.

A. Yes indeed.

Q. And the purpose of that so that you would have the factual weather as opposed to the forecasted weather.

A. Yes.

Q. That's right?

A. Yes.

Q. So that someone could phone up and say "Look I'm getting 20 knots from the south-west"?

A. Yes.

Q. So you'd be able to say we forecasted whatever but the factual thing. Is that the same as what Mr Murray was saying to us in his terms the other morning when he gave his evidence when he said "If I had got this storm warning the first thing I'd be doing is ringing up" - and he went through the various coast guards - "to get the factual weather"?

A. Yes.

Q. That's really what he was saying and that's what you were seeking?

A. Yeah, that's right. We make available the coastal observations every three hours, all our coastal stations, and we expect I guess anybody using our forecasts is always, if you like, looking at the coastal observation stations as well and those coastal observations funnily enough a ten minute mean wind is ten metres and so we forecast, try to forecast in the same units.

Q. So the prudent thing to have done is it would be the same as what Mr Murray said, that once he got that warning was to start finding out from his navigator what was actually happening further down the coast and places like that?

A. Yes. As much information as they can get, bring it all together.

HILL: That's all I have for Dr Love.

<WITNESS RETIRED

HILL: Mr Coroner, before you adjourn I would wonder if the legal representatives would remain as I have something to put to them?

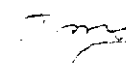



ADJOURNED PART HEARD TO TUESDAY 21 MARCH 2000

oOo

CERTIFICATION OF TRANSCRIPT

I, We the undersigned being (a) Sound Reporter(s) do hereby certify that the within transcript is a correct transcript of the depositions sound recorded at the NEW SOUTH WALES CORONER'S COURT in the matter of INQUEST INTO THE DEATHS OF JAMES MICHAEL LAWLER, MICHAEL BANNISER, BRUCE RAYMOND GUY, PHILLIP RAYMOND CHARLES SKEGGS, RONALD FRANK MATTHEWS, GLYN RODERICK CHARLES on MONDAY 20 MARCH 2000

Dated at GOODSELL BUILDING
this . day of 2000

NAME	PAGES	SIGNATURE
JMG	1-13 26-37	
LAM	14-25 38-43	
CJC	44-60 73-84	
JRB	61-72	
WAM	44-48	