

DETECTIVE SENIOR CONSTABLE GRAY

Q1 This is an electronically recorded interview between Detective Senior Constable Stuart Gray and Professor Nomoto, from Japan, on Thursday, the 10th of February, 2000, at Launceston, the Novotel Motel. Also present and seated directly opposite me is Senior Constable David Upston from the New South Wales Water Police. The time by my watch now is 10.25am. Just for the purpose of the record, Professor, could you please state your full name?

A Full name is Kensaku Nomoto.

Q2 O.K. And the Nomoto is spelt, for the record, N-O-M-O-T-O.

A That's right.

Q3 And could you spell your first name for me, please, for the record?

A K-E-N-S-A-K-U.

Q4 O.K. And your date of birth?

A (NO AUDIBLE REPLY)

Q5 Your date of birth, when you were born?

A Yeah, 1925.

Q6 And what day and month?

Q7 August.

Q8 And day?

A 12th.

Q9 12th. That's the 12th?

A 12th.

Q10 O.K. And your address in Japan?

A Yes. Home address is Motoyama, Meenami, 330, no, sorry, 3-1-0-3-0-5-1-2.

Q11 And what city?

A Kobe.

Q12 And how do you - - -

A Japan.

Q13 Japan?

A Yes.

Q14 O.K. Now, could you give me your occupation?

A Now, I have a, I retire already, so I'm giving title of Professor Emeritus, the University of Osaka ..... yes.

Q15 And what qualifications do you hold?

A Professor Emeritus as I mentioned now, and Doctor, Engineer.

Q16 O.K. And how long have you been involved with engineering and, and sailing?

A For sailing, I started sail, 1940.

Q17 Right.

A So now about 60 years or saying 30 years - - -

Q18 O.K.

A - - - without break. And in my professional side, I start to teach at the University Osaka, Naval Architecture, 1949, '49.

Q19 Right.

A Then after some 40 years of teaching experience there, I have retired.

Q20 Right.

A And incidentally the last 5 years in my working, ..... was spent in Sweden and the United Nations, IMO, International Maritime Organisation. The World Maritime University, and this is a special ..... school to raise technical standard of mainly developing country in maritime affairs.

Q21 Right.

A I taught there, Naval Architecture, for about 5 years. This is my last professional undertaking - - -

Q22 Mmm.

A - - - and then I'm retire.

Q23 Right. Have you been involved with any sailing organisation?

A Yes. In Japan up to recently, two nationwide organisation, one in Japan, Yachting Association, another Nippon Ocean Racing Club. I belonged to both.

Q24 O.K. And have you yourself had any input to yacht racing standards in Japan in relation to yacht design or safety aspects of yachting?

A Yes. Yes. I did some advices and solutions to those two yachting, the yachting authority as well as to the government and some time to the public. But my main field is not racing, but normal sailing yacht, particularly ocean cruising.

Q25 Right.

A So I have designed some ..... boat including mine.

Q26 Right.

A And, and I being a Naval Architects, I have some knowledge about hydrodynamics. It is a greater ..... in the design of sailing yacht. Sail and also hull and the keel and the rudder.

Q27 Right.

A And so in those field of things, now and then I have made ..... and otherwise ..... sometimes I published a, a book or and articles.

Q28 Right.

A Yes, I did.

Q29 Now the reason you're in Tasmania is for the World Stability Conference?

A That's right, right.

Q30 Which is being held here at the Novotel Motel?

A That's right.

Q31 And I believe yesterday you presented a paper - - -

A Yes.

Q31 - - - which was titled, Stability of a Sailing Yacht Floating Upside Down. Is that - - -

A That's correct.

Q31 - - - correct?

A That's right, I did.

Q32 Right. Now as I explained to you before, David and myself are, have been chartered to investigate the 1998 Sydney to Hobart Yacht Race.

A Yes.

Q33 And you're aware that, I suppose it was considered a disaster as you - - -

A Mmm.

Q33 - - - as you mentioned before - - -

A Yeah.

Q33 - - - and six people died - - -

A Yes.

Q33 - - - as a result of the, the race, and various things which happened in the race. So that's why we're here to speak to you today.

A Yes.

Q34 Now, do you agree that prior to, or before we started this interview we were discussing a number of things with you?

A Yes.

Q35 O.K.

A Yes.

Q36 What I'd like to do now is to take you to your involvement, or your knowledge of the 1991 Tokyo to Guam Race - - -

A Mmm.

Q36 - - - which was run by, organised by the Nippon Ocean Racing Club?

A That's right.

Q37 Would you be able to tell us what happened in that race as far as what you recall, so far as a boat called Marine Marine - - -

A Mmm.

Q37 - - - and a boat called Taka?

A            Yeah. Two racing boat had a very fatal disaster. One Taka, the name of the yacht is Taka, and another Marine Marine. Marine Marine lost a man overboard the night before in very severe sea condition. Then they stop to race and just seeking that man, man overboard and at the same time, of course radioed to the coast guard and, to ask help. The coast guard cutter arrived and one female crew who was heavily seasick was transported to cut, the coast guard cutter using inflatable launch, and they tried to tow Marine Marine to the safe port nearby island. Not very near, but anyway. But because of the high sea conditions to transfer the tow line was failed repeatedly. Then dusk came, dusk came, dark now. So the coast guard cutter, the captain judged to continue towing operation is any more successful, nor, nor safe. So stop that operation and just escort that Marine Marine, just drifting with no sail about 1 to 2 miles according to the navigator who was at the cutter, 1 to 2 mile away from that Marine Marine. That night was very dark with a heavy rains and big waves according to the navigator, wave height, I, if I remember correctly, 10 metre or something like that. After, after about midnight, yes, midnight, the watch on the bridge of the coast guard cutter witnessed the faint light suddenly disappeared. That faint light was the mast top of the Marine Marine. The cutter tried to check it, but during the night it was not successful.

Q38            Mmm.

A This is one of the consideration point. Why? And such are the vast navigation and instrument today, G.P.S and so on, why they couldn't catch that capsized Marine Marine? It was one of the point, ..... point. But anyway, that was that.

Q39 Mmm.

A And then on the other hand, and on board Marine Marine they just float until ..... and they could remember taking rest inside.

Q40 So it was upside down?

A No, no, not. No, no, no. Still floating up on, up - -  
-

Q41 Right.

A - - - and then it was midnight, a few crew member, rather experienced one, noticed that motion of Marine Marine is, he felt, and they felt, a bit unusual, not periodic. Perhaps like that.

Q42 Mmm.

A Something wrong, they felt, but did nothing. And some time after that irregular motion Marine Marine suddenly capsized, upside down. According to the witness ..... to us, ..... keel, ballast keel - - -

Q43 Mmm.

A - - - was just ..... off.

Q44 Right.

A So that the irregular motion is the ..... sign, well that break here, perhaps - - -

Q45 Mmm.

A - - - like that, and then eventually turned over. And then naturally like that.

Q46 Yes.

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Q47 Then naturally it turned upside down?

A Yeah, it turned upside down, now without ballast keel

Q48 Yes.

A Yes. And even worse, the big hole at the bottom, so all air escaped.

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Q49 Yes.

A Then water came in. In my paper I explained the situation of a yacht after floating upside down - - -

Q50 Mmm.

A - - - first water come in - - -

Q51 Yes.

A - - - in the normal situation, not the Marine Marine.

Q52 Yeah, normal situation.

A Yeah, normal situation, through the gap or the washboard, and the ..... hatch.

Q53 Yeah.

A Those companionway closure is not really water tight - - -

A Mmm.

Q53 - - - just weather tight, you know.

A Yes.



A            So inside air can escape through the gap of washboard.  
              Then water from the ..... hatch all replace the escaped  
              air - - -

Q54          Yes.

A            - - - then water comes up. But water level inside the  
              boat - - -

Q55          Yeah.

A            - - - arrived to the sill, or the companionway - - -

Q56          Yeah.

A            - - - now the highest point of the open - - -

Q57          Yes.

A            - - - sill. Water here. Here's the companionway  
              opening, O.K. - - -

Q58          Mmm.

A            - - - here, then the air inside the cabin has no way  
              out - - -

Q59          Yeah.

A            - - - then air, quite a big amount of air is now  
              trapped.

Q60          Yes.

A            - - - provided that all seacocks are closed. The air is  
              compressed, to some extent - - -

Q61          Mmm.

A            - - - but an, a ..... machine can be very very small -  
              - -

Q62          Mmm.

A            - - - you can neglect it in case of a sail boat.

Q63          Mmm.

A But anyway, trapped air, water. Then ..... and you could ..... position.

Q64 Yes.

A But now, Marine Marine case, back to Marine Marine case, a big hole - - -

Q65 Yeah.

A - - - on the bottom, at the top, all the air escape.

Q66 Yeah.

A Water comes in.

Q67 Yeah.

A So only one survivor there was from Marine Marine crew. According to that survivor, almost all, all inside the cabin was ..... and he dive through the companionway and ..... the companion ..... hatch, and dive and then upside. So then he climb up the ..... boat and embrace the rudder and escape.

Q68 Mmm.

A And that's how ..... the survivor, before he dive, he wanted to have some air, but almost no, no air - - -

Q69 Mmm.

A - - - but from the underwater he saw ..... light on the top, which was the opening near the by ..... of - - -

Q70 Yeah.

A - - - the keel. So he went to that light and, like that.

Q71 Yeah.

A He breathed as well as possible, and then dived ..... -  
- -

Q72 Mmm.

A - - - so you can understand very small air was .....  
near this ..... situation - - -

Q73 Mmm.

A - - - now is a big hole on the top, is in the Marine  
Marine ..... situation.

Q74 Mmm.

A Another crew member, another one also did the same, to  
breathe and then dives out, two get out, but another  
one was washed away later.

Q75 Oh, right.

Q76 And then just one crew member survived - - -

Q77 Mmm.

A - - - and the other five, five, six members inside - -  
-

Q78 Mmm.

A - - - drowned or heavily injured - - -

Q79 Mmm.

A - - - and they were found later - - -

Q80 Mmm.

A - - - as a body.

Q81 Mmm.

A Mmm. And this is the situation of Marine Marine

Q82 Mmm.

A And now for the, the course ..... we have made a,  
extensive investigation about which I will tell you  
later.

Q83 Mmm.

A Perhaps now I'd like to explain shortly the ..... of  
Taka - - -

Q84 Mmm.

A - - - another boat.

Q85 Mmm.

A Taka was imported sailboat. She was designed in,  
designed and built in the Netherland and imported to  
Japan, and Japanese Maritime Regulations for ..... boat  
are rather complicated. So that boat was, that boat  
needed to, to, some conversion in order to fit Japanese  
regulation. Need to ..... program, but if you want to  
know I will explain you later. But anyway some  
conversion, and then Taka participated in the, that  
Japan/Guam race in I.M.S. category, I.M.S. rating.

Q86 Mmm.

A Yes. And then they sailed down along with the chain of  
island in the south of Tokyo. West side of that chain  
of island, lee side, is quite a different condition - -  
-

Q87 Mmm.

A - - - because of the big cross shore current, cross  
shore current like the Gulf Stream, very strong warm  
current. And the disturbance made by the chain of  
island and also tidal stream is quite strong between  
island, so interference between the tidal current and  
cross shore current, and then, and the disturbance made  
by the chain of island, so as a result east side of the  
chain of island is a quite tricky water. U.S. side is

much better. They took the, however, east side, in, in spite of the intricate and, and tricky water, because of some racing tactics. They judged that route is better than down ..... And on the same night when Marine Marine lost one man overboard, Taka lost mainsail by ..... so ..... mainsail and they continued under number 2 rig, jib alone. And later they succeeded to repair, made eventually repair to the mainsail and I believe the mainsail was added later. And then they still went on. According to the survivor crew they didn't feel real danger in, in that situation, in that state. But now and then very big and breaking seas was coming from the broad side. Each time boat made quite a big roll, perhaps 40, 45 degrees, something like that. But still they didn't feel real danger, according to the survivor. But finally one of the big waves ..... Taka still mast and sail put on, and inside the cabin, oh, yes, the skipper ..... was at the helm at the time. Used safety harness lifeline - - -

Q88 Mmm.

A Now later he was found dead in the cockpit. He failed to, to part - - -

Q89 Yeah.

A - - - ..... his side of the lifeline. That fitting, that ..... had some problem. This is another small point and, which raised controversial .....

Q90 Mmm.

A He was tangled and then found dead afterwards.

Q91 Mmm.

A And then, inside the cabin, another crew member on deck was washed away. Other crews inside the cabin at that time, upside down. According to the surviving, just one crew, he said he didn't see ..... so frequently, so he admitted, so, no ..... no, and he admitted he couldn't say exactly how long time the boat is stayed inverted, but perhaps 45 minutes to 1 hour or even more. This is his admission. And among the crew enclosed in the cabin, inverted, there was a very experienced sailor and yacht designer, Tackichi. His name was, oh, very well known in the sailing community and also my good friends. And he observed and think about the situation. After long time of enclosed and inverted yacht he decided to dive and to go out, and then he told the crew members, Now we should dive and go out, O.K? And then they all prepared to dive. At this stage one crew member who is by chance in charge of E.P.I.R.B, be wrapped to his wist the lanyard of the E.P.I.R.B. and then prepared to dive. And side hatch was open, and crew members one after one, dived and then dive, and all member succeeded to climb up from the inverted hull. In this case ..... was intact, so I think keel and the ..... rudder, they're ..... and some are using nearby ropes and so on to ..... One of the unfortunate incident after this stage that the E.P.I.R.B. wrapped to his wrist was washed away - - -

Q92 Was lost, washed away.

A - - - washed away.

Q93 Yeah.

A Because in all the situation, the dive and it was in the dark - - -

Q94 Mmm.

A - - - is not easy - - -

Q95 Mmm.

A - - - operation. So - - -

Q96 .....

A - - - and that, during that operation that slipped away.

Q97 Mmm.

A And then the ..... up, they still, quite some time that inverted yacht was rolling, rocking, so. But at the stage, according to the survivor, swell and the sea is much east. I believe to, after ..... already that big roll past to eastward. And now the daytime, dawn, and that expert, ..... recognise that boat motion is something unusual and he cried to the crew members ..... to the ..... keel and ..... the boat is being recapsized, righting up, hold on, he cried. And then recapsized. And then, now upright - - -

Q98 Yes.

A - - - with a great lots of water inside. Then, next ..... point, that expert now, already crew member found that the skipper was found dead, tangled - - -

Q99 Mmm.

A - - - in the cockpit and so now that expert sailor is acting skipper.

Q100 Mmm.

A He's experience of the ..... not ..... He thought, bail out. And ordered the crew members to get in the cabin, flooded, and to find the bucket. Pump is, in that situation, not ..... and the bucket is most effective .....

Q101 Mmm.

A Final stage, O.K.

Q102 Mmm.

A But the crew member did it, but all, already most those crew members are in panic - - -

Q103 Mmm.

A - - - is understandable after such a long time enclosing to the boat and then diving into the water and, and then he, once get in that, and soon he come back and reported, I couldn't find a bucket. According to opinion, that expert, my friend, should, repeats order, ..... some order was very important in that situation.

Q104 Mmm.

A I know him very well, so from his character in that situation, he's not strong enough, a rather mild person.

Q105 Mmm.

A So I'm very sorry for him.

Q106 Mmm.



A Then bailing out was not successful, water .....  
Another point is after that, ..... has designed the  
boat has a big cockpit lockers, unlike normal  
arrangement, that cockpit locker is at the star side,  
hatch back. And you know a hatchback .....

Q107 Yes.

A More or less the same, similar to that arrangement.

Q108 Yeah.

A And according to the survivor, that hatchback cockpit  
locker cover was not very good water tightness, and at  
the same time that locker was not separated by the  
bulkhead to the inside of the cabin.

Q109 Mmm.

A This is a - - -

Q110 Yeah.

A - - - a very big problem. But about that point not 100  
per cent certain - - -

Q111 Mmm.

A - - - because boat was at the sea bottom and designers  
already close the shop. We tried to take information  
from him, but it is not possible. And even ..... the  
other boat was converted after imported to Japan, so  
that point was not 100 per cent sure. But according to  
that surviving crew it is likely that that hatchback  
cover is non water tight and water gets through - - -

Q112 Mmm.

A - - - in that hatch in, ..... the water, and upside  
down, no problem - - -

Q113 Mmm.

A - - - the trapped air - - -

Q114 Mmm.

A - - - stop the water getting in, from just, and the hatchback - - -

Q115 Mmm.

A - - - and the cover, companionway and whatever else - - -

Q116 Mmm.

A - - - provided that all seacocks were closed - - -

Q117 Yeah.

A - - - ..... which was done by that expert sailors. But once, then the cockpit locker latch can become quite - - -

Q118 Mmm.

A - - - a ..... opening - - -

Q119 Mmm.

A - - - opening to take further water and in the big amount. And then they failed to bail out. But still that expert sailor didn't give up to ..... So he tried something this one, this one, but crew member, more or less in panic and ..... water was not very well understood, not ..... something like - - -

Q120 Yeah.

A - - - some like confusion - - -

Q121 Mmm.

A - - - in that situation. And some of the crew members look at life raft mistakes. That life raft should be

right about, not right from the deck, each, and always taught that, but still boat was afloat in fore deck they inflated liferaft, on the fore deck and boat is like this and half inflated. Equipment and emergency food, water inside, some of them washed away - - -

Q122 Mmm.

A - - - and then they floated. So that expert sailor had no way to order to move to the liferaft. It was not his real intention but he had no choice on that stage. This, as I mentioned before, his leadership ..... captainship - - -

Q123 Mmm.

A - - - is a bit - - -

Q124 Mmm.

A - - - broken, his character and then raft and then ..... drift away. And that survivor did see that boat is still afloat but nearly, nearly sunk but soon after it will sink.

Q125 Mmm.

A But anybody didn't witness a real sinking of that boat.

Q126 Mmm.

A But anyway - - -

Q127 O.K.

A - - - drifted away, and then comes a rather long drifting - - -

Q128 Mmm.

A - - - in the liferaft and they saw even two times searching plane, searching plane.

Q129 13?

A No, no - - -

DETECTIVE SENIOR CONSTABLE UPSTON

A searching, searching plane.

DETECTIVE SENIOR CONSTABLE GRAY

Q130 Right.

A - - - a searching plane, aircraft - - -

Q131 Mmm.

A - - - even two times and a fairly low altitude. So that expert sailor said, according to the survivor, Oh, we're saved now.

Q132 Mmm.

A But that searching aircraft didn't find liferaft.

Q133 Mmm.

A They were told not to search ..... drifting - - -

Q134 Mmm.

A - - - not, not liferaft.

Q135 Mmm.

A And there are two organisations to fly the searching aircraft. One, coast guard, another, navy and between navy and coast guard location, agreement with location of searching area but it might, there might be some misunderstanding - - -

Q136 Yeah.

A - - - about the location, that can happen from time to time and between the two different organisation - - -

Q137 Mmm.

A - - - and some said in the inquiry at the Maritime Court at the time we close the watching door, no, watching window, so at any rate they couldn't find.

Q138 Mmm.

A Then, just float, float away, that expert sailor at that time disappointed, apparently and he died, next morning, he found dead next morning. I think disappointing was - - -

Q139 Mmm.

A - - - disappointing to his power to survive.

Q140 Mmm.

A He was the first person to die on the raft.

Q141 Mmm.

A He was also the oldest in the boat, not very old but -  
- -

Q142 Mmm.

A - - - anyway, oldest among members. And then after one - (Tape Beeping) - one after that died and finally just one survivor was spotted by the British ..... and saved.

Q143 Right.

A Mmm. This is a - - -

Q144 We just might stop it now - - -

A Mmm.

Q144 - - - 'cause the tapes - - -

A Mmm.

Q144 - - - and everything.

A Yeah.

Q145 So it's - - -

A Mmm.

Q145 - - - 5 minutes past 11.00.

A Yes.

Q146 This interview is suspended for a tape change.

INTERVIEW SUSPENDED

DETECTIVE SENIOR CONSTABLE GRAY

Q147 Interview between Detective Gray and Mr Nomoto is recommenced at, the time on my watch is 10 minutes past 11.00. Now Professor, in relation to the Tokyo, Guam Race which we're talking about at the moment which happened in 1991 - - -

A Mmm.

Q147 - - - how long is that race in nautical miles, do you know approximately?

A At the moment, I have no exact figure.

Q148 O.K.

A Yes, I can work out about, no, you can easily ..... it, you know, on the - - -

Q149 O.K.

A - - - chart.

Q150 On the chart - - -

A Yes.

Q150 - - - O.K. that's - - -

A Yes.

Q150 - - - all right.

A Yeah.

Q151 But it goes for some days?

A Some days, yeah, yes.

Q152 How many days does it normally last?

A Mmm. 10, 10 to 14 days.

Q153 Days, O.K. Now the boat Taka - - -

A Mmm.

Q153 - - - actually entered in the I.M.S. division.

A Yeah, yes - - -

Q154 Yes.

A - - - I.M.S. - - -

Q155 Now - - -

A - - - yes.

Q156 Are you aware, is the Tokyo, Guam Race - - -

A Mmm.

Q156 - - - a category 1 race? Do you understand the categories?

A Mmm, yes, of course.

Q157 Category 1 - - -

A Mmm.

Q157 - - - 2, 3 - - -

A Mmm.

Q157 - - - and 4 - - -

A Mmm, mmm.

Q157 - - - and I believe category 1 - - -

A Mmm.

Q157 - - - is a limited positive stability of 120 degrees.

A Yes.

Q158 Are you aware of that?

A Yes.

Q159 O.K. Sorry, category zero - - -  
A Mmm.  
Q159 - - - so - - -  
A Mmm.  
Q159 - - - the categories are category zero - - -  
A Mmm.  
Q159 - - - category 1 - - -  
A Mmm.  
Q159 - - - category 2 - - -  
A Mmm, mmm, mmm.  
Q159 - - - 3 and 4.  
A Yeah, yeah.  
Q160 And the Tokyo, Guam Race is that a category 1 race or  
a category zero race?  
A At that time I think category 1.  
Q161 Right.  
A Mmm.  
Q162 Which - - -  
A But now I think that recent race was run under category  
zero or standout, I think.  
Q163 O.K. Now category 1 - - -  
A Mmm.  
Q163 - - - is 115 degrees - - -  
A That's right.  
Q163 - - - epos.  
A Yeah.  
Q164 O.K.  
A According to I.M.S. - - -



Q165 Rules?

A - - - rules, yes.

Q166 Yes. Are you aware, did the boat Taka - - -

A Mmm.

Q166 - - - have a stability - - -

A Mmm.

Q166 - - - or a epos - - -

A Mmm.

Q166 - - - of 115 degrees or less?

A A little bit more.

Q167 A little bit more?

A Yeah. According, you know, according to the I.M.S. rule that stability categorisation needs to be without any ..... and coach houses.

Q168 Yes.

A According to that situation that boat had stability range of 118.

Q169 O.K.

A If I remember correctly.

Q170 O.K.

A I think so, that, that - - -

Q171 That's all right.

A Mmm.

Q172 Now you were saying that it's possible that Taka remained inverted - - -

A Mmm.

Q172 - - - for some 45 minutes to an hour - - -

A Mmm.

Q172 - - - or even more.

A Mmm.

Q173 As an expert - - -

A Mmm.

Q173 - - - are you able to sort of give us some idea as to why it stayed inverted so long?

A Yeah. In general smaller stability range at the upright condition gives the stiffer stability at inverted situation. I mean the smaller stability range - - -

Q174 Mmm.

A - - - at upright condition - - -

Q175 Mmm.

A - - - gives the steeper initial stability at inverted situation.

Q176 Right.

A Now, now with, with the ..... for example Taka had a stability range in average situation about 118 degrees, is it?

Q177 Yes.

A And another boat 140 degrees - - -

Q178 Mmm.

A - - - then compare these two boats floating in the inverted situation, the former boat, Taka, having smaller stability range - - -

Q179 Yes.

A - - - then she's very stiff at the inverted situation.

Q180 Happier upside down?

A Yes. Stiff means a little bit inclined from the upside  
down situation than very strong stability moment - - -

Q181 Right.

A - - - aft to the other boat, so this very stiff.

Q182 Right.

A Another boat, 140 degrees stability range once inverted  
small moment then inclined quite a lots - - -

Q183 Mmm.

A - - - doesn't mind - - -

Q184 Mmm.

A - - - like a top heavy ships - - -

Q185 Mmm.

A - - - in upright situation.

Q186 Mmm.

A So in a way smaller stability range gives stiff  
inverted situation, bottom heavy situation.

Q187 Right.

A And on the contrary a greater stability range gives at  
the inverted condition top heavy situation, top range,  
in this case, top is contrary.

Q188 Yes.

A Yes. So smaller stability range gives more time to be  
floating to be floated upside down.

Q189 Right.

A And greater stability range is best time - - -

Q190 Best time.

A - - - and less chance to be capsized.

Q191 So to put that simply, high stability - - -

A Mmm.

Q191 - - - come over, re-rights quicker.

A Mmm. A high stability is the, the normal, normally high stability is the normal situation - - -

Q192 Yes.

A - - - yes, but stability, and we talk about stability two element, how big righting direct.

Q193 Yes.

A And how wide stability range. So we should take into account these two factors - - -

Q194 Mmm.

A - - - ..... righting is lever to re-right the boat when the boat is inclined to some extent, you understand?

Q195 Yes.

A This is righting arm, the greater the righting arm the more stable the ship is, but at the same time stability range is at this angle that boat loose stability.

Q196 Right.

A So stability advantage angle, in other word, this angle is wider the more stable the ship is, you understand?

Q197 Yeah, I understand.

A So we should take these two factors into account when we discuss about stability, not only stability in whether righting arm, not only righting arm but also the width of the ..... angle - - -

Q198 Mmm.

A - - - during which stability moment is acting.

Q199 Right.

A And the stability range, I said the stability range is shorter or narrower than once inverted then very stiff situation - - -

Q200 Mmm.

A - - - which can last for long - - -

Q201 Mmm.

A - - - on the contrary, wider stability range even once inverted, this situation rather unstable, so more chance to get back.

Q202 Right. O.K. Now after that particular race in 1991 - - -

A Mmm.

Q202 - - - were there any more Tokyo, Guam Races?

A Up to recent race.

Q203 Which was?

A Which was started 1999 to the - - -

Q204 So that was the first race - - -

A - - - last of December. That's right.

Q204 - - - since the Guam - - -

A Yes, yes.

Q204 - - - incident in '91?

A Yes, I think so, let me see. Yes, yes.

Q205 O.K.

A I think so.

Q206 Now you just previously mentioned before that you believe that they may have increased the category - - -

A Mmm.

Q206 - - - for - - -  
A Yes.  
Q206 - - - the '99 race - - -  
A Yeah.  
Q206 - - - to category zero.  
A Yeah.  
Q207 Is that correct, do you - - -  
A Yes, yes - - -  
Q207 - - - as best you recall?  
A - - - yes. I will check with, when I go back home - -  
-  
Q208 Yes.  
A - - - and if my comment here is, is wrong - - -  
Q209 Yes.  
A - - - I, I think this, all of a sudden - - -  
Q210 Yes.  
A - - - but this is, I'm now talking on just my memory -  
- -  
Q211 Yes, that's fine.  
A - - - so I will, I will have to check with that.  
Q212 O.K.  
A Just a moment. Yes, I will check up.  
Q213 O.K.  
A Mmm.  
Q214 If, if in fact that it was put up to category zero - -  
-  
A Mmm.

Q214 - - - why did they do that? Why did they increase the category to, for - - -

A Mmm.

Q214 - - - a bigger stability range - - -

A .....

Q214 - - - safer?

A Yes, stability range is a bit wider - - -

Q215 Yes.

A - - - compared with category 1 - - -

Q216 Yes.

A - - - and some other points, in detail, I can't say now  
- - -

Q217 Yes, I see.

A - - - exactly but you can look into the rule book.

Q218 Yes.

A Yes, in there.

Q219 O.K.

A Yes.

Q220 Now after this race happened I believe that there was a, a inquiry - - -

A Mmm.

Q220 - - - investigation.

A Mmm.

Q221 And you explained before that in Japan there were two systems.

A That's right.

Q222 There's a Maritime Court - - -

A Yes.

Q222 - - - and then there's the normal courts which deal with criminal and civil matters.

A That's right.

Q223 O.K. And you said that in fact this investigation commenced in the Maritime Court in Japan.

A Yes.

Q224 And in fact you were a Judge - - -

A Yes.

Q224 - - - in that maritime proceeding?

A Yes, so called expert Judge from outside.

Q225 Side - - -

A Yes.

Q225 - - - O.K.

A Now and then Maritime Court may ask somebody, some expertise from the outside - - -

Q226 Right.

A - - - in there to, you know, and appoint him - - -

Q227 Yes.

A - - - as a Judge.

Q228 Right.

A Yes.

Q229 And it's, is it the case the Maritime Court will do the investigation - - -

A Mmm.

Q229 - - - and if necessary - - -

A Mmm.

Q229 - - - if there's a criminal situation - - -

A Mmm.



Q229 - - - then the prosecuting authority in - - -  
A Mmm.  
Q229 - - - Japan - - -  
A Mmm.  
Q229 - - - will determine - - -  
A Mmm.  
Q229 - - - whether to prosecute - - -  
A Mmm.  
Q229 - - - those involved.  
A Mmm, mmm.  
Q230 Is that right?  
A Mmm, mmm, that's right.  
Q231 There could - - -  
A Normally, normally after the conclusion of Maritime  
Court - - -  
Q232 Yes.  
A - - - but some but not necessarily so - - -  
Q233 Yes.  
A - - - in a very clear case than Maritime Court and the  
prosecution can go further.  
Q234 Yeah. O.K. And can you tell us a little about what  
happened in the Maritime Court in relation to - - -  
A Mmm.  
Q234 - - - not so much Marine Marine - - -  
A Mmm.  
Q234 - - - but, but Taka.  
A Mmm. Not very much Marine Marine and Taka - - -  
Q235 Yeah. More - - -

A - - - in particular Taka?

Q236 In particular Taka.

A Uh-huh, uh-huh. Maritime Court dealt with Taka and the Marine Marine cases together.

Q237 Yes.

A So conclusion you're more or less saying that in particular Taka point to be raised were, stability of Taka, particularly stability range of Taka. And her conversion after imported, what type of conversion was made and so on, so on - - -

Q238 O.K.

A - - - but which may cause some weak point to the design of that boat. And, and oh, yes, Nippon Ocean Racing Club's position to postpone or postpone the start or stop the race on the way in wild seas right and the duty to do so, is it just liable to stop the race after start and so on, this is in wild seas. The point, it was also investigated - - -

Q239 Right.

A - - - in the Maritime Court.

Q240 And, and what was concluded from that?

A As I mentioned before in wild sea, has no responsibility to stop the race after start. To postpone a race it might be possible in wild sea to do so but not postponing the start in this case is not necessarily the decisive fault of in wild sea - - -

Q241 Right.

A - - - so a bit grey - - -

Q242 Yes.

A - - - yeah, the situation. And a court added the .....  
to the future - - -

Q243 Yes.

A - - - so organising a race, organising body should have  
consideration to the coming weather - - -

Q244 Yes.

A - - - and if they, if they are judged reasonable and  
necessary to do so then don't hesitate to postpone race  
is, should be considered in the future.

Q245 Considered, yes.

A Yes, in just a situation.

Q246 Mmm.

A But then in conclusion means that point is not  
postponing the start is not ..... if guilty - - -

Q247 Yes.

A - - - a decisive fault in wild sea.

Q248 Right.

A This is the conclusion that the Maritime Court - - -

Q249 Mmm.

A - - - about that point.

Q250 Mmm.

A And I, and I said two point about the ships and one in  
wild sea is the position and then, yes - - -

Q251 Mmm.

A - - - search and rescue was made adequately or not - - -  
-

Q252 Mmm.

A - - - this is also a very controversial point.

Q253 Mmm.

A And as I mentioned before two times a search plane flew over - - -

Q254 Mmm.

A - - - ..... - - -

Q255 Mmm.

A - - - without spotting.

Q256 Right.

A And also they failed to, failed to, failed to spot the capsized, oh, just Marine Marine, oh, sorry, just another point.

Q257 You're right - - -

A Yeah - - -

Q257 - - - that's all right.

A - - - another point. That's the coastguard cutters.

Q258 Yeah.

A Yes. And the, and Taka, and in wild seas point and then and E.P.I.R.B.

Q259 I.P.I.R.B?

A Yes. As I mentioned before the man in charge for E.P.I.R.B. on board Taka was in fact the only survivor - - -

Q260 Mmm.

A - - - Sano, is his name. He was told to keep E.P.I.R.B. - - -

Q261 Mmm.

A - - - and then upside down that expert sailor told him  
to try to, try to act - - -

Q262 Mmm.

A - - - to, to make active that E.P.I.R.B.

Q263 Right.

A And he tried to do so but he failed.

Q264 Mmm.

A And so some misunderstanding of the, indeed - - -

Q265 Mmm.

A - - - of that E.P.I.R.B. That E.P.I.R.B. was U.S.  
made - - -

Q266 Mmm.

A - - - imported, and according to the instruction  
pamphlet, written in English, is the battery is  
disconnected so before use you connect the battery.

Q267 Oh - - -

A But Japanese dealer put a small tag on the E.P.I.R.B.  
in Japanese - - -

Q268 Mmm.

A - - - batteries connected.

Q269 Oh - - -

A On the contrary.

Q270 Mmm.

A That survivor, Sano, could understand English so if he  
read into the details of English instruction pamphlet  
then - - -

Q271 Mmm.

A - - - he could make active the - - -

Q272 Mmm.

A - - - E.P.I.R.B. but in such I imagine his situation,  
only small tags - - -

Q273 Mmm.

A - - - made by the dealers - - -

Q274 Mmm.

A - - - that are missed in translation.

Q275 Mmm.

A Disconnect and connect - - -

Q276 Mmm.

A - - - how can he, on the contrary, that very  
unfortunate, unfortunate things.

Q277 Mmm.

A But on the Maritime Court this is not on the fault of  
the dealer but also that E.P.I.R.B. should be tested -  
- -

Q278 Yes.

A - - - beforehand. And a skipper should know everything  
on the boat - - -

Q279 Mmm.

A - - - this is not good enough.

Q280 Mmm.

A So this is raised in the Maritime Court but the most  
responsible person was dead already.

Q281 Mmm.

A So Maritime Court pointed out that preparation of  
E.P.I.R.B. was not adequate but a responsible person  
was already lost.

Q282 Mmm.

A So no way of making, what say, unaware of making any punishment or - - -

Q283 Yes.

A - - - no treatment - - -

Q284 Mmm.

A - - - to the skipper.

Q285 Yes.

A And as for that man in charge for the E.P.I.R.B. he was just told by the skipper to keep that E.P.I.R.B.

Q286 Yeah.

A And in, without the imagination point he couldn't find a correct way of using that E.P.I.R.B. including the connecting the batteries - - -

Q287 Mmm.

A - - - is, yes, Maritime Court crunched up, this is one of his fault, survivor's fault but this fault is not decisive enough to, to give him any punishment or some deal.

Q288 Yes.

A So this is - - -

Q289 O.K.

A - - - another grey - - -

Q290 Area?

A - - - area. And also the same to the dealers for their mistranslation - - -

Q291 Yes.

A - - - of the instruction book.

Q292 Mmm. O.K.

A Yes, yeah, E.P.I.R.B. And - - -

Q293 Now after, after the inquiry or after that - - -

A Mmm.

Q293 - - - race - - -

A Mmm.

Q293 - - - in '91 - - -

A Mmm, mmm.

Q293 - - - is it the case that there was no more Tokyo, Guam Races, until last year?

A I think so. As I mentioned before.

Q294 Yes. Why was that, do you know?

A No, participant.

Q295 No participant?

A Mmm, no, no apply, no application to any ocean racing craft.

Q296 Oh - - -

A But if one or two application was existed but I wonder if Nippon Ocean Racing Club could dare to open the race immediately after such a big disaster.

Q297 Mmm. O.K. Now you mention also that there was litigation - - -

A Mmm?

Q297 - - - there was - - -

A Mmm.

Q297 - - - some litigation from the families - - -

A Oh, ha, oh, - - -

Q297 - - - against Taka.



A - - - yeah, yeah.

Q298 Could you explain that to us?

A Yes. So before getting to that part the conclusion of the Maritime Court is in short, there were a number of faulty points in ship design, in the conversion E.P.I.R.B. treatment and some over point but any of them is not decisive enough to make any punishment or deal ..... things to the, those who are concerned.

Q299 Yes.

A So that means there were some thought grey area - - -

Q300 Mmm.

A - - - if faulty or not, not guilty or not guilty. If the skipper was right perhaps the skipper was, no, skipper must have had some punishment - - -

Q301 Mmm.

A - - - in the Maritime Court, the Maritime, punishment but the Maritime Court is not find another unlike a criminal case - - -

Q302 Yes.

A - - - a fine or gaol - - -

Q303 Right.

A - - - those kinds of punishment the Maritime Court can't do but Maritime Court can stop or to give up the licence.

Q304 Yes.

A So that's if the skipper was right then that type of punishment most likely then be made - - -

Q305 Mmm.

A - - - but ..... so there were some faulty point but not guilty enough to make a punishment to those who are concerned.

Q306 Mmm.

A This is the Maritime Court conclusion.

Q307 Mmm.

A After that the family of lost member of Taka they assumed that government and the Nippon Ocean Racing Club and the owner, skipper's company has a representative of the died owner - - -

Q308 Mmm.

A - - - usually to compensate the lose those of those lives. And then in conclusion, oh, this is a general court - - -

Q309 Mmm.

A - - - not the Maritime Court - - -

Q310 Mmm.

A - - - and a Judge at the Maritime, no, in that court didn't make any foundation but he suggested some moderation, moderation, I, I don't, I don't know exact word in English but not decide family but to suggest to negotiate within two parties.

Q311 Mmm.

A And the conclusion of negotiation is normally suggested by the Judge. For example you should pay this, this side and so on, so money, and you should pay some this side, and like that.

Q312 Mmm.

A And in this case government not guilty at all and Nippon Ocean Racing Club should pay a small fraction of money to the family, about, I think five or 6,000 of the required compensation money, which is very small. So from the Nippon Ocean Racing Club's point of view this is consolation money to the lost members - - -

Q313 Mmm.

A - - - not compensation. So in wild sea didn't, didn't accept they were guilty - - -

Q314 Yes.

A - - - for the loss of lives - - -

Q315 Mmm.

A - - - but those members are lost at sea so in wild sea will pay some consolation money - - -

Q316 Mmm.

A - - - according to that, what is suggested by the court - - -

Q317 Mmm.

A - - - then this is acceptable.

Q318 Mmm. O.K. Now we discussed before about from your experience the involvement - - -

A Mmm.

Q318 - - - of a race committee - - -

A Yeah.

Q318 - - - ordering or instructing the fleet to stop - - -

A Mmm.

Q318 - - - or to, to seek refuge - - -

A Mmm.

Q318 - - - after the race has started.

A Mmm.

Q319 Can you just expand on what your views are about that?

A In general I haven't changed my view - - -

Q320 Yes.

A - - - about that point but before you explained your case the Sydney/Hobart Race - - -

Q321 Yes.

A - - - just before the most tricky point, Bass Strait, you have the regulation that every participant should make communication on radio to the racing committee and explain the situation. Then after agreement of the racing committee to go court - - -

Q322 Yes.

A - - - go further - - -

Q323 Yes.

A - - - and this is firmly told to every participant beforehand.

Q324 Mmm.

A I didn't know that - - -

Q325 Yes.

A - - - up til now. And if you are doing that way then to stop not the race altogether - - -

Q326 Mmm.

A - - - not altogether but to stop such and such boat, you are not good to go further to the Bass Strait, so take refuge. I think is a quite a good procedure.

Q327 Yes.

A But as I mentioned before, excuse me, Japan, Guam Race  
take refuge this.

Q328 It's a different race, isn't it - - -

A Mmm.

Q328 - - - geographically - - -

A Mmm.

Q328 - - - is?

A Geographically - - -

Q329 Very different.

A - - - different, yes. And in many, many of the  
offshore races in the word some can make the same  
system - - -

Q330 Mmm.

A - - - but not always possible.

Q331 Mmm. That's right.

A Mmm.

Q332 So do you think what I explained to you before when I  
drew that - - -

A Mmm.

Q332 - - - map for you, do you think that's a good idea?

A Yes, very good, but the condition, in the condition  
that that system is very well explained - - -

Q333 Yes.

A - - - and ..... - - -

Q334 Yes.

A - - - beforehand - - -

Q335 Yes.

A - - - by every participant.

Q336 Yes. Mmm. Now in relation to, you were saying that the Maritime Court did recommend that the Nippon Offshore Racing Club or Nippon Ocean Racing Club should consider in future - - -

A Mmm.

Q336 - - - postponement - - -

A Mmm.

Q336 - - - of a race.

A Mmm.

Q337 Is it the situation that it is hard for an individual -  
- -

A Mmm.

Q337 - - - in a race committee - - -

A Yeah.

Q337 - - - of so many - - -

A Mmm.

Q337 - - - members - - -

A Mmm.

Q337 - - - to make that decision - - -

A Mmm.

Q337 - - - alone - - -

A Mmm, yeah - - -

Q337 - - - and could have dire consequences - - -

A - - - mmm, mmm - - -

Q337 - - - for their position?

A - - - that's right. So that solution was not very a very strong one, so I wonder if a racing committee in the future takes seriously that solution, or not.

Q338 As a group?

A Mmm, as a group, I wonder.

Q339 Do you think that's a good idea, did, did, do you think it's a, it's something where the group, the race committee group should - - -

A Mmm.

Q339 - - - consider - - -

A Mmm.

Q339 - - - together - - -

A Mmm.

Q339 - - - and make a decision - - -

A Mmm.

Q339 - - - or an individual make that decision in that race committee?

A Individual member of a racing committee?

Q340 Or the, or, or, either the individual - - -

A Individual - - -

Q340 - - - member of the race committee - - -

A - - - yes - - -

Q340 - - - deciding - - -

A - - - not individuals, they are racing skippers but individual of the racing committee - - -

Q341 Yes.

A - - - well, racing committee should behave as a body, finally - - -

Q342 Right.

A - - - and so - - -

Q343 Make a decision - - -

A Yes.

Q343 - - - as a body?

A Before that individual should explain what he is thinking - - -

Q344 Yes.

A - - - and discuss in depth and then final decision made at decision as one body of racing committee.

Q345 Now the storm that hit the fleet in '91 was an extreme or a very deep low.

A Yes. At first it was not regarded so. Now normal big lows approaching to Japan in the winter season, perhaps in one winter seas, five or six times, like that. So . . . . . after a few days, after, after a couple of days, yes - - -

Q346 Mmm.

A - - - a couple of days after start it grew, grew much more than expected.

Q347 Now what month does the Japan, Guam Race start normally?

A End of December.

Q348 And it goes for some 10 to 14 days, into January?

A Yes.

Q349 O.K.

A In a very fast case perhaps could be 1 week - - -

Q350 Yes.

A - - - but normally, I, I'm not sure the result of the race run very recently, yes, '99, December to January -  
- -



Q351 2000.

A - - - 2000, yes.

Q352 And that starts on December, 27th?

A Mmm?

Q353 December, 27th normally?

A 27th or 28th.

Q354 Right. O.K.

A If you want to know exactly I can check it by telephone.

Q355 O.K. Now what - - -

A Should I do?

Q356 Oh, no, no, no - - -

A Mmm.

Q356 - - - that's all right, that's all right.

A O.K.

Q357 What's the, the climate in Japan at that time, what season - - -

A Mmm.

Q357 - - - is it winter?

A Excuse me. Yes, the, on average end of December to early January is quite hard but not the highest point of the severe winter.

Q358 Right.

A Highest, most severe is end of January to early February.

Q359 Now is it the case that during that particular period there are always lows developing in the Asian - - -

A Yes.

Q359 - - - shelf area?  
A Yes.  
Q360 So that always occurs invariably, like - - -  
A Mmm.  
Q360 - - - we know that this year - - -  
A Mmm.  
Q360 - - - in that period of that race - - -  
A Mmm.  
Q360 - - - there's always going to be a low - - -  
A Mmm.  
Q360 - - - more often than not?  
A Mmm. So - - -  
Q361 Do you understand what I, I mean?  
A Well, not exactly - - -  
Q362 O.K.  
A - - - not, yeah.  
Q363 Is it regular - - -  
A Mmm.  
Q363 - - - between December and January - - -  
A Mmm.  
Q363 - - - that you made experience severe weather - - -  
A Mmm.  
Q363 - - - in that race - - -  
A Mmm.  
Q363 - - - is that a common thing?  
A Mmm. Not very common.  
Q364 Right.

A Normally, normally a fairly strong breeze 2 to 3 days after start is expected but on average perhaps ..... eight, up to eight, seven to eight - - -

Q365 Mmm.

A - - - is expected wind. That means up to 20 knots.

Q366 Right.

A I'm sorry, 20 metre, 5 seconds so 40 knots - - -

Q367 Right.

A - - - 40 knots.

Q368 O.K.

A Yes. But occasionally a big low from the Asian continent can grow - - -

Q369 Mmm.

A - - - in that season - - -

Q370 Right.

A - - - in that case ..... nine or 10 - - -

Q371 Mmm.

A - - - 12, sometimes people talk about 12 but this is very, very rare in the south of Tokyo area.

Q372 Mmm.

A The further north near Hokkaido and then to ..... of 12, ..... the 12 is always happening in the winter - - -

Q373 Mmm.

A - - - but in the last, perhaps up to 10.

Q374 Mmm. Now you mentioned before that the storm itself in that particular race was of a duration of about 36 hours - - -

A Mmm.

Q374 - - - is that - - -

A Mmm, mmm.

Q375 Fine.

A And then passed - - -

Q376 Then passed.

A - - - to the east.

Q377 O.K. Now in relation to, to Bass Strait - - -

A Mmm.

Q377 - - - what do you know about Bass Strait as a piece of water?

A Oh, yeah, it's a, many times I read about how dangerous Bass Strait is and that reason to interference by east going current, you know, from the south coast of Australia and then coming, another current - - -

Q378 Mmm.

A - - - around the east coast and then strong final effect, you know, to the wind - - -

Q379 Mmm.

A - - - from the east to west or west to east. Those kinds of things - - -

Q380 Mmm.

A - - - I have read it.

Q381 Mmm. Have you sailed in Australia?

A No, unfortunately.

Q382 Now there's just one thing, one thing I've just to ask, a further thing. We mentioned before about responsibilities of racing committees.

A Mmm.

Q383 Stopping races or giving advice - - -

A Mmm.

Q383 - - - to seek refuge and that sort of thing.

A Mmm.

Q384 Now as I understand in the Tokyo, Guam Race - - -

A Mmm.

Q384 - - - there is not a, a great deal of area - - -

A Mmm.

Q384 - - - to take or seek refuge.

A Mmm.

Q385 Would that be right?

A A very small chance of take refuge.

Q386 Refuge. O.K. So in - - -

A And it, if it is, this very north part of the racing area - - -

Q387 Yes.

A - - - which is the most treacherous areas - - -

Q388 Right.

A - - - contrary - (Tape Beeping) - to your Sydney/Hobart - - -

Q389 Yes.

A - - - we - - -

Q390 If I was to just - - -

A - - - it, it is not, not feasible to, to follow your systems in Japan, Guam Race.

Q391 Yes.

A Mmm.

Q392 If I was to - - -

DETECTIVE SENIOR CONSTABLE UPSTON

.....

DETECTIVE SENIOR CONSTABLE GRAY

Q393 If I was to sort of draw you a, a rough - - -

A Mmm.

Q393 - - - eastern coast of Australia, which it is - - -

A Mmm, mmm.

Q393 - - - Sydney's here - - -

A Mmm.

Q393 - - - and Hobart's here.

A Mmm, mmm.

Q394 The race is generally run down along the coast.

A Yes.

Q395 So there are in fact - - -

A Mmm.

Q395 - - - greater areas to seek shelter.

A Mmm, mmm.

Q396 From your experience do you think that, this is different to the Guam Race - - -

A Mmm.

Q396 - - - do you think that a racing committee should make suggestions to seek shelter because they can?

A Mmm.

Q397 There is available coast there to take shelter.

A Mmm, mmm, mmm. In this Sydney/Hobart Race - - -

Q398 Yes.

A - - - yes, I think you mentioned before, you said the line - - -

Q399 Yes.

A - - - or race decision and before, passing this line every participant should make radio contact to the racing committee - - -

Q400 Mmm.

A - - - to report their conditions and also sea condition they observed.

Q401 Mmm.

A And then racing committee make decision to each individual boat to go forward or to take refuge.

Q402 Yes.

A Then that system is told to all participants, firmly beforehand - - -

Q403 Yes.

A - - - start - - -

Q404 Yeah.

A - - - before start. Then other point is if any participant failed to make radio contact to the racing committee before this line then this boat will be, must be disqualified.

Q405 Disqualified, yes.

A That point is if that, those point standard told and ..... - - -

Q406 Mmm.

A - - - by the participant - - -

Q407 Mmm.

A - - - your system, I think very, very good system.

Q408 Mmm.

A And this is, it is because according to that system you are doing each individual boat and racing committee talk to each other and racing committee decide to each boat - - -

Q409 Mmm.

A - - - to go forward or to take refuge.

Q410 Yes.

A So as I mentioned before, if to postpone, oh, no, no, no, to stop the race altogether - - -

Q411 Mmm.

A - - - then this not communication between racing committee and each individual boat but racing fleet as a body - - -

Q412 Mmm.

A - - - then danger can happen - - -

Q413 Mmm.

A - - - as I mentioned before.

Q414 Yes.

A Still no notice to stop race, so sea condition must be acceptable.

Q415 Yes.

A So participant may, they're a bit used to the dangerous - - -

Q416 Mmm.

A - - - this is my point - - -

Q417 Mmm, mmm.



A - - - so if racing committee communicate with to each  
both - - -

Q418 Mmm.

A - - - and then decide, go or not - - -

Q419 Mmm.

A - - - then stories quite different - - -

Q420 Mmm.

A - - - definitely different - - -

Q421 Mmm.

A - - - so your system will work.

Q422 Mmm.

A And geographical condition is suitable for that - - -

Q423 Mmm.

A - - - because very last part you have ..... - - -

Q424 Mmm.

A - - - and before that you have lots of refuge - - -

Q425 Mmm.

A - - - refuges.

Q426 Mmm.

A O.K.

Q427 O.K.

A So - - -

Q428 The time on my watch is now 11.55. This interview is  
suspended for a tape change.

INTERVIEW SUSPENDED

INTERVIEW RESUMED

DETECTIVE SENIOR CONSTABLE GRAY

Q429 Interview between Detective Gray and Mr Nomoto is recommenced. The time on my watch is 12.58pm. do you agree that, Mr Nomoto, that we've had a break - - -

A Mmm.

Q429 - - - and we went and had some lunch?

A Yeah.

Q430 O.K. Now basically I'll had you over to, to Senior Constable Upston.

A Mmm.

Q431 He wants to ask you a couple of questions - - -

A Yes.

Q431 - - - in relation to a few things.

A Yes, please.

SENIOR CONSTABLE UPSTON

Q432 Professor, just a couple of, of very brief points.

A Mmm.

Q433 You mentioned the Beaufort scale - - -

A Mmm.

Q433 - - - a number of times in previous interview with Detective Gray.

A Mmm.

Q434 And the Beaufort scale being as, as I understand that you know it as, as a wind - - -

A Mmm.

Q434 - - - indicator - - -

A Mmm.

Q434 - - - on, on the strengths of the wind?

A Mmm.

Q435 How reliant are you on the Beaufort scale, in Japan as, as far as your weather information is concerned?

A Mmm. It's no, sorry no, not very the international standard of the winds, wind speed to Beaufort scale. And I think Japanese weather forecast in scale of .... Beaufort scale is quite reliable.

Q436 And when you receive your weather briefings for sailing  
- - -

A Mmm.

Q436 - - - from the Bureau of Meteorology of Japan - - -

A Mmm.

Q436 - - - do they give a Beaufort scale on the weather reports?

A Mmm. Well, normally weather, weather forecast they used a wind speed in metre per second. But at the same time they are broadcasting on radio three times a day on our wind, wind direction, wind speed and atmospheric pressure and some temperature and so that we can draw a weather chart listening to the radio. In that information they don't use metre per second, instead they use Beaufort scale.

Q437 Right. And in the instance where a weather briefing -  
- -

A Mmm.

Q437 - - - is given prior to a race - - -

A Mmm.

Q437 - - - maybe from a race committee - - -

A Mmm.

Q437 - - - is that projected in Beaufort scales or metres per second?

A They are using both, mixing. Of course, you know, Beaufort scale is more, let's say, not very in detail, some, and Beaufort scale has some range. Metre per second is more exact, but sometimes it's not possible to, to, to estimate, you know, exact wind speed in metre per second, sometimes, so in that case they just ..... information, wind force, then in that sense Beaufort scale is more convenient, so they use both ways.

Q438 Right. So there's - - -

A But normally up to the Beaufort scale 7 to 8, for .... speaking the number of Beaufort scale times two makes wind speed, average wind speed in that Beaufort scale zone in metres per second, so Beaufort scale 6 is, times two, 12 metres per second, is the average speed during the zone, or Beaufort scale 12.

Q439 Pardon me.

A Mmm.

Q440 I understand what you're saying. Now in your experience - - -

A Mmm.

Q440 - - - pardon me. In your experience the average sailor  
- - -

A Mmm.

Q440 - - - in Japan - - -

A Mmm.

Q440 - - - does he understand more the Beaufort scale or more perhaps metres per second in wind speed?

A Perhaps average sailors they may prefer metres per second, and even knots, because .... many wind speed or metres in the market are using knot - - -

Q441 Mmm.

A - - - so sailors, quite a lot of sailors may use wind speed, in the scale of knot.

Q442 O.K. Thank you. Now I'll show you a document that's covered by the Stability 2000 Proceedings of the Seventh International Conference on Stability of Ships and Ocean Vehicles, which is why you're here - - -

A Yes.

Q442 - - - in Tasmania to, to talk on a particular paper - - -

A Mmm.

Q442 - - - and an issue which Detective Gray raised earlier.

A Mmm.

Q443 And your paper, I understand, commences on page 572 - - -

A Mmm.

Q443 - - - where it is headed Stability of Sailing, of a Sailing Yacht floating upside down. Is that correct?

A Yes, that's correct.

Q444 O.K. And I'll show you this document, and it carried on for a number of pages - - -

A Yes.

Q444 - - - up to page 585. Is that correct?

A That's correct.

Q445 And all of the printed words that are in, in this document - - -

A Yes.

Q445 - - - are they your own words?

A Yes. I made manuscript off these sentences, also diagrams, yes, I do, I did write them.

Q446 And then you sent these to Dr Reynoldson - - -

A That's right.

Q446 - - - and the then produced them in this document form here now?

A Exactly that.

Q447 O.K. At the conclusion of the interview - - -

A Mmm.

Q447 - - - would you sign each page - - -

A Mmm.

Q447 - - - as this is your own words?

A Mmm. Yes.

Q448 O.K. Now within this document you also, you mention that you use a test yacht - - -

A Mmm. Mmm.

Q448 - - - which is a 25 foot cruiser racer.

A Yes.

Q449 Right. And the manufacturer of that yacht is, is - - -

-

A Yamaha.

Q449 - - - Yamaha?

A Yeah, Yamaha company.

Q450 O.K.

A Yes.

Q451 Do you recall what stability rating that that yacht, that test yacht had?

A Stability - - -

Q452 The stability rating.

A Rating, yes. Just a moment. Yes. .... it just says there what do we call stability in diagram - - -

Q453 Mmm.

A - - - of that yacht, Yamaha 25.

Q454 Yes.

A And stability can change according to the condition of the boat, but this calculation is based upon the condition of this yacht under test.

Q455 Yes.

A And this .... drawing, this is the, what we call, righting arm .... - - -

Q456 Yes.

A - - - against .....

Q457 Yes.

A In, in, in that condition.

Q458 Yes.

A And these three lines are on the same righting arm curve with the flooded water - - -

Q459 Yes.

A - - - inside. Yes.

Q460 Right. So when the vessel is floating the correct way

- - -

A Mmm.

Q460 - - - in a, in perfect conditions - - -

A Yeah, in tack condition.

Q460 - - - in tack conditions - - -

A Mmm.

Q460 - - - the stability rating is here - - -

A Is ..... here.

Q460 - - - is the crosses the, the line - - -

A Mmm.

Q460 - - - at what angle?

A Oh - - -

Q461 Would you agree?

A Let me see, 120 and 80, so, just says 100 to 45, mmm.

Q462 So 140 is the mark?

A 100, I think this is 140 isn't, 60 and 90 is, so 100,  
let me see, how can ..... yes, this is 150.

Q463 Yes.

A So just on the halfway - - -

Q464 Mmm.

A - - - from 20 to 50 - - -

Q465 Mmm.

A - - - so 135.

Q466 O.K.

A Mmm, 135 degrees.

Q467 Right. So the - - -

A Mmm.



Q467 - - - the vessel in its, in its, in good condition - -  
-

A Mmm.

Q467 - - - is 135? Do you agree with that?

A Yeah, 135 stability range - - -

Q468 Yes.

A - - - it has.

Q469 Yeah. O.K.

A Mmm.

Q470 And I think that your report - - -

A Yes.

Q470 - - - covers, covers that factor that, that all the  
range is all, is apparent - - -

A Mmm.

Q470 - - - and its different conditions - - -

A Mmm.

Q470 - - - is set out fully in the report.

A Mmm.

Q471 So just onto that last map there, that last  
illustration - - -

A Mmm.

Q471 - - - that particular diagram - - -

A Mmm.

Q471 - - - illustrates that when there's water in the vessel  
- - -

A Mmm.

Q471 - - - in a .... up position - - -

A Mmm.

Q471 - - - she becomes more stable. Is that correct?

A Well - - -

Q472 Her .... gets higher.

A As I mentioned before in talking about stability we have to think about two factors. One is righting arm - - -

Q473 Right.

A - - - and another stability range. Righting arm is indicated by just height.

Q474 Right.

A And this is in metre, when, so at maximum the righting arm, righting whatever - - -

Q475 Yeah.

A - - - from this boat is about 0.34 or 35 metre, 35 centimetre or something like that. Incidentally, this righting arm GZ is, can I write here?

Q476 Yes, you can, certainly.

A This is centre of gravity of the yacht. This is gravity.

Q477 Force down?

A Yeah, down. Here is the centre of buoyancy - - -

Q478 Mmm.

A - - - floating force.

Q479 Yes.

A Now centre of floating force is stated at the centre of volume underwater, so upright then naturally at the centre line - - -

Q480 O.K.

A - - - but now inclined to this side.

Q481 The keel.

A Then volume shift this side.

Q482 Mmm.

A Then volume centre shift this side. Then here, centre of buoyancy, what, as we call the floating force. And the floating force is equal to gravity, the weight of the boat of course.

Q483 Uh-huh.

A And then this moment to turning force acting upon the yacht, we call righting moment, a moment, moment is a turning force. Moment is more or less the same as torque.

Q484 Right.

A Mmm. Yes. So torque acting up on the boat to right. The this torque or a moment is called righting moment, and righting arm is this lengths.

Q485 Mmm.

A O.K?

Q486 Mmm.

A This lengths times floating force, which is equal to the gravity force. Then righting torque is yacht weight times this righting arm.

Q487 Mmm.

A So the maximum righting arm is here, about 34, yes, 34 centimetre or .34 metres.

Q488 Mmm.

A And then it happened about 85 degree or heel.

Q489 Mmm.

A 80. So that's 80 degrees of heel, incredibly big heel. like this, and then righting torque is yacht's weight W times this length. This length is 30, 34 centimetres.

Q490 Mmm.

A This is what this diagram shows.

Q491 Yes. Mmm.

A So this righting arm and the higher the righting the arm the more righting torque.

Q492 Mmm.

A O.K?

Q493 Mmm.

A Another factor is stability range. Stability range is angle of heel at which righting ..... becomes nil.

Q494 Mmm.

A So righting .... at upright situation, of course are nothing.

Q495 Mmm.

A And then heeling over gradually big amount of righting torque is acting, represented by righting .....

Q496 Mmm.

A But after this maximum point righting torque will decrease with increasing angle of heel.

Q497 Mmm.

A Eventually, at 135 degrees of heel in this case, righting torque becomes nil. O.K. - - -

Q498 Mmm.

A - - - because the .... becomes nil here.

Q499 Which is, you're saying there's no other force, there's no more force left - - -

A No, no.

Q499 - - - to push it back up?

A No. That's right. Then this stability range, the wider the stability range, then the ship is more stable for over wider range of angle of heel.

Q500 Mmm.

A O.K?

Q501 Mmm.

A So this dotted line indicates the righting arm with the flooded water of 1.39 tonnes.

Q502 Yes.

A 1.39 tonnes.

Q503 Of water in the hull?

A Yes, in the hull.

Q504 Right.

A In that case maximum righting arm is much smaller than this one - - -

Q505 Mmm.

A - - - compared with the in tack condition now 0., 0.24 metre or something like that. So from the point of view of righting torque flooded water affects in a negative side.

Q506 Mmm.

A I mean flooded water inside the hull decrease the righting torque.

Q507 Mmm.

A O.K. But at the same time stability range is a little bit wider.

Q508 Mmm.

A And the further amount of flooded water, 1.88 tonnes, 2.55 tonne, then maximum right, righting ..... righting torque is decreasing but at the same time stability range is increasing. So in a way you can say the more flooded water righting torque, stability torque will decrease, the more flooded water the less righting torque.

Q509 Mmm.

A At the same time the more water taken in, the wider the stability range is.

Q510 Mmm.

A This is the conclusion.

Q511 Mmm. So the more water - - -

A Mmm.

Q511 - - - in simple terms - - -

A Mmm.

Q511 - - - in a boat which is inverted - - -

A Mmm.

Q511 - - - should assist it - - -

A Oh, yes - - -

Q511 - - - greater - - -

A - - - than - - -

Q511 - - - to, to come upright?

A Then - - -

Q512 That, the range of stability?

A Yeah. That a very good question. Here, 180 degrees angle of heel - - -

Q513 Yeah.

A - - - that means floating upside down.

Q514 Yeah.

A Then in in tack conditions because a ship, ship inclined a little bit from inverted 180 degrees, then very strong stability torque is acting.

Q515 Yes.

A That means that very strong force is push back to the upside condition.

Q516 Mmm.

A Yes. This side is the same to the upside condition. Then this inverted situation is a very stable and stiff - - -

Q517 Mmm.

A - - - in this intact - - -

Q518 Condition.

A - - - situation. But the more water, and even more water then this, like this in between.

Q519 Yes.

A In this case inverted, a little bit, inclined to this side. No force acting.

Q520 Mmm.

A Because ..... is nearly unchanged.

Q521 Mmm. Yes.

A So even further, a little bit force is acting to recover. But even further water in this small ..... a little bit inclined. This ..... is negative.

Q522 Mmm.

A That means further torque to increase the - - -

Q523 Mmm.

A - - - heel, that torque will act to the boat, so a little bit inclined from the upside down condition, even more torque to increase this one.

Q524 Yes. Eventually - - -

A ....

Q524 - - - eventually it comes up?

A Yes, it comes up.

Q525 Mmm.

A So a comparatively small amount of water taken in, this is flooded water, 1.39 tonnes, taken in, quite stiff and still inverted, but more water taken in then gradually yacht will lose stability at inverted condition.

Q526 Yes.

A And eventually at a certain amount of flooded water she will lose stability at inverted - - -

Q527 Inverted.

A - - - more, totally.

Q528 Mmm.

A Then comes up.

Q529 So without sort of, what do you hope to achieve with this particular study - - -



A Mmm.

Q529 - - - safety in yachting? Safety for yachting in the future?

A I, I don't understand exactly what you mean.

Q530 This experiment that you've done here with flooded water - - -

A Mmm.

Q530 - - - is it something that, that you hope will occur if yachts are inverted, where they can let water in - - -

A Mmm.

Q530 - - - to help them - - -

A Oh, yes.

Q530 - - - self-right?

A Yes, yes.

Q531 That's the idea of it?

A Yes, yes. And at the same time to prevent water coming in is not possible with normal yacht construction.

Q532 Yes.

A Because, you know, normal yacht construction, they have a weak entrance to the cabin, as we call, companionway, companionway, and normally they, they use a washboard - - -

Q533 Mmm.

A - - - some, in a small boat just one washboard, bigger boat two steps or even three steps, washboard.

Q534 Mmm.

A And then horizontally sliding the hatch like this, so in fair weather they all put the washboard out - - -

Q535 Mmm.

A - - - and then just .... that ..... and in, in getting in or out push it straight .... then easily, and the people can get in or get out. This is a normal arrangement.

Q536 Mmm.

A You know, and then in heavy weather they put washboard and .... hatch for ..... This is just weather tight - - -

Q537 Mmm.

A - - - not water tight.

Q538 Mmm.

A No packing under ..... so just weather tight, not water tight. Then that, the, and sometimes, occasionally sea coming overboard and that's not very ..... perhaps a small ..... in the gap of, in the washboard on the .... hatch, but just a very little.

Q539 Mmm.

A But once floating upside down, now washboard and ..... hatch is totally under water.

Q540 Mmm.

A So ..... hatch and washboard has no real function to prevent water from getting in. And at the same time no function to prevent air inside the cabin to get out. Do you understand what I mean?

Q541 Yes.

A Yes.

Q542 Yes.

A So here, construction plan of this boat, here on companionway, washboard is like this.

Q543 Yes.

A And this a slide hatch, this way.

Q544 The slide hatch and companionway here - - -

A That's right.

Q544 - - - which you're indicating, yes.

A Yeah. Yeah, companionway here, and this is a slide hatch. And now the situation here, slide hatch and the washboard under water, then air inside find a way out through gap of washboard.

Q545 Mmm.

A And escaped air is replaced by the water, getting through slide hatch. Slide hatch has also come gap - - -

Q546 Mmm.

A - - - 1 millimetre or 2 millimetres - - -

Q547 Mmm.

A - - - just weather tight, not water tight.

Q548 Mmm.

A And in case of, perhaps a police patrol boat, you may have a, a hatch on the foredeck. That hatch is, normally has a rubber packing - - -

Q549 Mmm.

A - - - and then tightening .... from the inside, yes. Don't you have it?

Q550 Yes.

A Yes.

Q551 Yes.

A So that's a real water tight.

Q552 Mmm.

A But this is not that, not like that.

Q553 Mmm.

A Just a, a slide, horizontally.

Q554 Mmm.

A So a small gap, and must be, always must be, so water get in. And then, then what does stop water coming further? That's here. At first water level is like this, O.K?

Q555 Mmm.

A More air get out, more water come in like that. And now the water level inside reached to the level of companionway seal.

Q556 Mmm.

A Seal is now the highest point of the companion entrance. You understand?

Q557 Mmm.

A Then water is come here, so here find no way out now. Of course provided that all seacocks are closed.

Q558 Mmm.

A Sink seacocks for example. If you fail to close that seacocks the air will find a way out from the sink to the bottom. Then more water, further getting in.

Q559 Mmm.

A Eventually boat will sink. So after capsized in total to close all seacocks is essential.

Q560 Mmm.

A Of course.

Q561 Mmm.

A Provided that all seacocks are shut then air is trapped, no way out.

Q562 Mmm.

A Then the situation is like this. This is inverted boat and inside the water here, this is companion seal.

Q563 Mmm.

A O.K?

Q564 Yeah.

A So inside the water is over companion seal, so air inside has no way out. If in this stage, at this stage inside the water is ..... on companion seal, then air will find a way out through the washboard.

Q565 Mmm.

A But now, then air trapped, and the air is compressed to some extent. But .... volume is almost negligible, that small, and anyway the air is trapped, and then push down the water. Then water stopped to further getting in. The water pressure act from below, this water pressure is equal to the, this water pressure. The same depth under water, and this pressure push up the trapped air, push up. And this air, air pressure pushed up the hull. Thus boat weight is supported in the inverted condition. You see.

Q566 Mmm.

A And then inclined to some extent, then water have to  
..... as I already mentioned here. So in this  
situation flooded water is all this water - - -

Q567 Mmm.

A - - - now this is total 1 tonne or 2 tonne for example  
- - -

Q568 Mmm.

A - - - 1 tonnes flooded water still quite stiff - - -

Q569 Mmm.

A - - - in that situation, but 2., nearly 2 tonnes, 1.88  
- - -

Q570 Mmm.

A - - - then nearly neutral, so inverted condition is  
very ..... and, so in this particular case, after  
righting recapsize, that is or re-right - - -

Q571 Mmm.

A - - - after re-right the situation the inside water  
level here, inside water level after self-righting is  
here. So you can work out the total weight of this  
inside water. In this case about 2.5 tonnes.

Q572 Mmm. Right. How, how do you propose, I don't know  
whether you've thought a this but, but how do you  
propose that if the boat's in that position - - -

A Mmm.

Q572 - - - how do you propose that, that the crew who, who  
are inside - - -

A Mmm. That's a very - - -

Q572 - - - would allow water in?

A Mmm. A very good question. In this situation - - -  
Q573 Yes.  
A - - - no need to prevent water further coming in,  
because this trapped air is making that function.  
Q574 Yes.  
A What the crew should maybe is recapsize or self-  
righting as early as possible. For .... recapsizing  
the most important factor is trim by the bow.  
Q575 Yes.  
A Trim, you know - - -  
Q576 Yes.  
A - - - ..... here, this full size experiment. Water  
level like this. You're looking to this one in detail.  
This water line is 1 minute 30 second after capsized and  
this is 5 minutes after capsized.  
Q577 Mmm.  
A This is 8 minute, 30 minutes after capsized.  
Q578 Mmm.  
A So water lying outside likes, moves like this.  
Q579 Mmm.  
A That means the boat will taking a bow trim.  
Q580 Mmm.  
A Bow trim.  
Q581 The bow goes further - - -  
A Yes, further - - -  
Q581 - - - .....  
A - - - further down, yes, further down. This encourages  
recapsize, quite a lot.

Q582 Mmm.

A I explained my mathematical reason for that - - -

Q583 Mmm.

A - - - but anyway conclusion is bow trim, further down the bow situation in the inverted condition, encourage to recapsize.

Q584 Mmm.

A That is righting ..... righting.

Q585 Mmm.

A So you said what is .... tactics for the crew enclosed inside inverted boat. That a very good question. In my opinion the best tactics for the crew is to shift their weight to the .....

Q586 Mmm.

A - - - bow part of the boat, to cause bow trim. The once cause bow trim a little bit then water already flooded will gather to the bow side, even further bow trim. Then - - -

Q587 Assist in turning back?

A That's right.

Q588 Yeah.

A And now there's some sailing yacht, also sailing yacht has a water ballast, in strong, in breeze, in a steady, strong breeze, to shift the water ballast from just, on the, lee side to weather side. Then that's a very effective means to keep boat upright.

Q589 Mmm.

A Or nearly upright.



Q590 Mmm.

A And many crew members .... the weather side today, you know - - -

Q591 Mmm.

A - - - but that's not very comfortable, and sometimes even dangerous. But the water ballast is very good, so particularly in short 100 races, for example, around the word, V.O.C. Challenge, in that type of boat nowadays almost all yacht are using water ballast.

Q592 Mmm.

A So in that case, to shift water ballast to the bow .....

Q593 Mmm.

A If it is possible that's good tactics.

Q594 Mmm. Very good.

DETECTIVE SENIOR CONSTABLE GRAY

Q595 Just clarify one point, though. In your paper - - -

A Yeah.

Q595 - - - you mentioned that this situation - - -

A Mmm.

Q595 - - - with water, the ingress of water - - -

A Yeah.

Q595 - - - in boats or yachts with large stability ranges -  
- -

A Mmm.

Q595 - - - is a good idea.

A Mmm.

Q596 But the opposite can occur for boats with a small stability range. Is that correct?

A Mmm. Mmm. Small stability range boat need more water taken in before recapsizing. And that means that, this is quite wide stability range.

Q597 Yes.

A So only 2 tonnes of water is good enough - - -

Q598 Mmm.

A - - - but if this is like this, stability range is small, then quite a big amount of water will be needed - - -

Q599 Needed, yes.

A - - - before recapsizing. So after recapsizing to bail out all those big amount of water - - -

Q600 Mmm.

A - - - might be very difficult.

Q601 Yes. And could it be dangerous - - -

A And - - -

Q601 - - - when the vessel is - - -

A Yeah.

Q601 - - - in fact re-righted?

A Yeah. Yeah.

Q602 What would, what would you suggest or what would you, if a situation where a, where a yacht has a stability index - - -

A Mmm.

Q602 - - - under, under I.M.S. - - -

A Mmm.

Q602 - - - of say, 110 degrees.

A Mmm. In my personal view that 110 is not good enough, not good enough. In these 15 years they are increasing, gradually increasing that criteria. But the contrary action is made by the, in design builder side because more, if you want to give a yacht drastically wider stability range, then performance will be a little bit lowered.

Q603 Mmm.

A So any racing sailors doesn't want to have slower boat.

Q604 Mmm.

A So designer, builders want to make faster boat, of course.

Q605 Mmm.

A Faster boat, yes, ..... performance is very good, but at the same time the faster boat has, on the other hand, weak point of narrower stability range.

Q606 Mmm.

A This is a trend of yacht design today.

Q607 Yes.

A So this is a big problem. And international authority, like ..... Racing Council, O.R.C. the, the international authority are trying to give the stability standard for the safe offshore racing, and 100 degree for category 3 race and so on. And they, they have been gradually increased that stability range figure. Who decides that stability figure.

Q608 Mmm.

A Representative of Sailing, National Sailing Authorities  
- (Tape Beeping) - including the technical people,  
gathered normally in London - - -

Q609 Mmm.

A - - - and to make discussion and to fix it. Once I  
used to, the technical member representing Japan in  
those kind of international meeting, and I recognised  
that. Well, the more stability range will be more  
safer and the wider stability range will be safer, but  
at the same time that means bit slower boat, so  
designer builder side is always - - -

Q610 Mmm.

A - - - against it.

Q611 Mmm.

A So as a compromise 115 to category 1 or something like  
that.

Q612 Mmm.

A In my personal view we should have somewhat wider  
stability range.

Q613 What would be an example for - - -

A Mmm.

Q614 In your view what would be a safe - - -

A Yeah.

Q614 - - - a safe stability - - -

A Yeah, in my - - -

Q614 - - - bill post?

A This is my personal view.

Q615 Your personal view.

A Yes. In my personal view at least 140 degrees, and 150 much better.

Q616 Mmm.

A So 140 to 150. Not in this transaction, but perhaps you may know about Fast, Fast Net Race Report - - -

Q617 Yeah.

A - - - compared in the U.K. In that report you will find this kind of righting ..... curves for two boats, two typical boat. One for A.O.R, International Ocean Racing, Rating, International Ocean, this is a very right and smaller stability range and very fast boat. And another example is ..... Construction traditional offshore cruiser, not really racer. They two typical example.

Q618 All right.

A Big difference.

Q619 Mmm.

A That traditional one has nearly 180 degrees of stability range. That means - - -

Q620 Mmm.

A - - - at any angle he just self-righting. That about 160, 180.

Q621 Yeah. We just might change the tape.

A Yeah.

Q622 Time on my watch is - - -

A Mmm.

Q622 - - - 1.40 - - -

A Mmm.

Q622 - - - pm. We'll just suspend this interview.

A Mmm.

INTERVIEW SUSPENDED

INTERVIEW RESUMED

DETECTIVE SENIOR CONSTABLE GRAY

Q623 The time on my watch is 1.43pm. This interview between Detective Gray and Mr Nomoto is recommenced. I'll hand you over to, to David.

SENIOR CONSTABLE UPSTON

Q624 Professor, just on that point, we were talking about the, the graph here showing the, the stability - - -

A Yeah.

Q624 - - - and the righting moment.

A Mmm.

Q625 Without doing a mathematical equation - - -

A Mmm.

Q625 - - - do you think that it is possible for a vessel having a stability rating, a stability index of 110 degrees - - -

A Mmm.

Q625 - - - to take on - - -

A Mmm.

Q625 - - - approximately 4 to 6 tonnes of water - - -

A Mmm.

Q625 - - - to assist to self right?

A Mmm.

Q626 Would that be a factual statement? Do you, do you think it would need approximately 4 or maybe 5 tonnes

of water before it would self right using your conclusions?

A Mmm. It's not very easy to estimate exact amount of flooded water to righting, but speaking approximately, ..... that boat's intact displacement ..... that means if the boat ..... (BLANK SECTION IN TAPE)

Q627 In relation to yachting in Japan generally, is it Government requirements that skippers of yachts - - -

A Mmm.

Q627 - - - have certain qualifications?

A That's right.

Q628 Licensing?

A Yes, licensing, we do.

Q629 So you have licensing for ocean racing skippers?

A That's right.

Q630 O.K.

A Not only ocean racing skippers but all pleasure boat users are Government forcing, enforcing that licence.

Q631 O.K.

A Only exception is the pleasure boat without auxiliary motor or sailing yacht which is intended for cruise out of our territory, that means about 20 nautical miles from shore, then beyond. Even without engine at all they need, you said about licensing, licensing to the people ..... to the boat is two ways in Japanese Government, so your licensing is, let me see, licensing is, yes, with or without motor, no, no distinction between them, and those boat ..... let me see, what

about the dinghies, dingy has no licence. Anyway, Japanese Government has the most intricate licensing system and safety regulation for pleasure boat in the world - - -

Q632 Right.

A - - - and licensing, we have now five ..... even five ..... the lowest one is only for personal water craft, not - - -

Q633 Jet skis.

A Yes, and, and, and a motorbike on the water, like that ..... that, force is, that they fix, and force they call is next one, next easier one, that's motorboat and sailboat with auxiliary motor and five gross tonnes, under five gross tonnes, and inside five nautical miles from the shore - - -

Q634 Mmm.

A - - - and next one is, next one is more than 5 tonnes gross to 20 gross tonnes and up to 20 nautical miles.

Q635 That's sailing boat as well as power boat?

A Yeah, yeah, yeah. The highest one is they call the fast rate is no limitation to the operation area but the ship up to ..... metre ..... Even bigger boat you need professional licence ..... international standard, licence or .....

Q636 So is the Japanese Government involved with the regulation of the sailing community?

A Yes.

Q637 Safety - - -



A Mmm.

Q637 - - - enforcing safety issues - - -

A Yes.

Q637 - - - in relation to - - -

A Yes, yes.

Q637 - - - to, to, to yachts?

A But I, this is my personal opinion - - -

Q638 Yes.

A - - - and I'm rather ..... as a member of Japanese people of what our Government is doing in that field is not very reasonable.

Q639 Right.

A I will give just one case. As I mentioned right now, Japanese Government is insisting sailboat skipper to have that licence, the highest ones ..... but in real practice they need now test on the water. They use motorboat, not sailboat at all.

Q640 A test?

A Mmm. In Germany, for example, they have their own licensing system for pleasure boat skipper, not as intricate as ours, they are just one class, over five horsepowers motor. No motor, no license at all. Over five horsepower motor, and this is interesting, within 5 miles from the shore. Outside you don't need any licence.

Q641 But you must get from, from the, from your point of departure - - -

A That's right.

Q641 - - - to 5 miles.

A Yeah, yeah.

Q642 The licence ..... licence - - -

A That's, that's a very clever system, but this is very interesting, in German Authority is making also now test on the water to give that licence. The ..... of that test and also written examination they are doing, but just ..... examination and also ..... of ..... on the water, they are making those things by discussion with National Sailing Authority and National Motorboat Authorities, so if you want to, to operate motorboat by pleasure then you have to sit the examination and test on the water. In that case examination and the test on the water is designed by discussion of German motorboat association and the Government.

Q643 Mmm.

A The sailboat the same, so of course and, and a test on the water for sailboat ..... cruiser ..... sailing experience, making tacking, the jibing and so on. That more reasonable - - -

Q644 Mmm.

A - - - so you see I'm not, a little bit reluctant to say that point because I know I'm saying against my Government - - -

Q645 Yeah.

A - - - and so I'm a bit ashamed - - -

Q646 Yeah.

A - - - but in my personal views - - -

Q647 Yes.

A - - - that's, yes.

Q648 Do you agree with some form of licensing for sailing vessels?

A That's a difficult question. One thing is certain, licensing now for commercial boat including commercial fishermen, licensing for commercial ship operators and licensing for pleasure boat operator should be separated, sharply separated, because the basic nature of those two categories of boat is quite different. In my personal view, safety of pleasure boat should be kept under owner's responsibility because they no duty to make commercial benefit, so however big money, for example, they can spend if they ..... necessary.

Q649 Mmm.

A But in the commercial ships, for example fishermen, they are operating the ships for their earning ..... so cutting down the safety equipment for example is, means more benefit, so Government Authority should have some restraint to them for fair competition among fishermen or commercial cargo traders, but for pleasure boat person, pleasure boating is basically free recreational activity of individual, so free recreational, free activities, not only recreational, free activities of individual, should be as free as possible from governmental restriction. This is my opinion.

Q650           Yeah.

A               ..... too much ideal nowadays, as a result, well, perhaps ..... 40 years ago pleasure boat operation is not very, you know, popular now, now almost everybody is getting into that sport - - -

Q651           Mmm.

A               - - - so that means, to be frank ..... seamanship get ..... very much - - -

Q652           Mmm.

A               - - - so ..... my ideal concept, that a kind of idealism.

Q653           Mmm.

A               You understand idealism?

Q654           Yes.

A               And each individuals, individual ..... free activity should be as free as possible from the governmental restriction. This is idealism - - -

Q655           Mmm.

A               - - - but nowadays that, such ..... so in some cases, some cases, least amount of governmental restriction, for example licensing, that you said, that type and that kind of things may have been necessary. This is my personal view - - -

Q656           Mmm.

A               - - - but basically speaking - - -

Q657           Mmm.

A               - - - individual activity should be free.

Q658 Mmm. I suppose as you put, rightly so, that pleasure boating is a individual's responsibility, but if an individual takes on board a number of other people - -  
-

A Mmm.

Q658 - - - do you feel that it's the right of those other people - - -

A Mmm.

Q658 - - - to feel safe - - -

A Mmm.

Q658 - - - in the hands of that individual?

A That's right, and at the same time in case of casualties, pleasure boater can spent quite lots of money from tax - - -

Q659 Mmm.

A - - - helicopters, rescue ships, many personnel, national governmental, governmental personnel, maybe ..... that means quite a lot of tax money is spent, so, well, once disaster happen then I believe the Government should make the best effort to rescue their countrymen.

Q660 Mmm.

A And, but at the same time, pleasure boater should have every possible precaution to avoid such a, a disaster -  
- -

Q661 Mmm.

A - - - including least amount of restriction placed by the Government if it is not really necessary.

Q662 O.K.

DETECTIVE SENIOR CONSTABLE GRAY

Q663 Dave?

SENIOR CONSTABLE UPSTON

I have nothing further.

DETECTIVE SENIOR CONSTABLE GRAY

Q664 Is there anything further you'd like to say, Professor?

A .....

Q665 Look, thanks for your time today - - -

A Mmm.

Q665 - - - we really appreciate it. So what we'll do now is we'll conclude the interview.

A Yes.

Q666 The time on my watch is 2.00pm. This interview is concluded.

INTERVIEW CONCLUDED