



**STATE CORONER'S COURT
OF NEW SOUTH WALES**

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| Inquest: | Inquest into the death of Sarah Teelow |
| Hearing dates: | 20-24 March 2017, 9-10 November 2017 |
| Date of findings: | 31 May 2018 |
| Place of findings: | State Coroners Court, Glebe |
| Findings of: | Deputy State Coroner, Magistrate Teresa O'Sullivan |
| Catchwords: | CORONIAL LAW – High speed water ski racing Speed restrictions Protective equipment Aquatic licences |
| File number: | 2013/357108 |
| Representation: | Counsel Assisting the Coroner, Mr Adam Casselden SC instructed by Jessica Wardle and Jennifer Hoy of the Crown Solicitor's Office; Ski Racing Australia, Ms Catherine Gleeson, Mr Dominic Villa; Roads and Maritime Services, Mr Michael Spartalis; Cookie Industries Pty Ltd, Mr Nicholas Chen SC; Teelow Family, Mr David Evenden |

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| Findings: | <p>The <i>Coroners Act</i> in s. 81(1) requires that when an inquest is held, the coroner must record in writing his or her findings as to various aspects of the death. These are the findings of an inquest into the death of Sarah Teelow.</p> <p>Name of deceased: The identity of the deceased was Sarah Louise Teelow.</p> <p>Place of death: She died at Royal North Shore Hospital, St Leonards, NSW.</p> <p>Date of death: Sarah Teelow died on 25 November 2013.</p> <p>Manner and cause of death: Sarah Teelow died from an atlanto-occipital (C0/1) injury caused by exposure to a high force or force impact to her head when she lost control of her water ski and struck the water during a high speed water ski race.</p> |
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| <p>Recommendations:</p> | <p>Recommendations in relation to Ski Racing Australia</p> <ol style="list-style-type: none"> 1) That Ski Racing Australia continues to consult with its members in considering whether or not to introduce speed restrictions in the Formula 2 class. 2) That Ski Racing Australia collaborate with manufacturers, and its member stakeholders, in giving consideration to the development of helmet technical specifications for water skiers, and to give consideration to revising Ski Racing Australia's rules accordingly. 3) That Ski Racing Australia collaborate with manufacturers, and its member stakeholders, in giving consideration to the development of Personal Flotation Device technical specifications for water skiers so as to maximise water skier safety compatibly with the performance requirements of the sport, and to give consideration to revising Ski Racing Australia's rules accordingly. 4) That Ski Racing Australia give consideration to introducing into their rules and procedures a requirement that race scrutineers ensure that all helmets to be worn by skiers are a secure and close fit (snug), and the helmet straps are secure and correctly adjusted. <p>Recommendations in relation to Roads and Maritime Services</p> <ol style="list-style-type: none"> 1) That Roads and Maritime Services ("RMS") consult with Ski Racing Australia and other relevant stakeholders to determine whether it is desirable or necessary for a speed restriction to be a condition of an aquatic licence for any Bridge to Bridge Water Ski Classic. |
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The Coroners Act in s. 81(1) requires that when an inquest is held, the coroner must record in writing his or her findings as to various aspects of the death. These are the findings of an inquest into the death of Sarah Teelow.

Introduction

1. The death of Sarah Teelow was the tragic outcome of an accident during the Bridge to Bridge Water Ski Classic, a high speed water skiing race, on Sunday 24 November 2013. Sarah was water skiing in a tandem ski team behind the boat "Out Numbered" when she unexpectedly lost control of her water ski and crashed.
2. Sarah was the daughter of Chris and Tania Teelow and the sister of Jarrod. She was 20 years of age. I offer Sarah's family and friends my sincere condolences for their sad loss.

The Inquest

3. Section 81 of the Act requires a coroner presiding over an inquest to confirm that the death occurred and make findings as to:-
 - the identity of the deceased;
 - the date and place of the death; and
 - the manner and cause of the death.
4. Under s. 82 of the Act, a coroner may make such recommendations considered necessary or desirable in relation to any matter connected with the death, including in relation to public health and safety.
5. There is no controversy in this case as to identity, date or place of death. I am able to find that Sarah died on 25 November 2013 at approximately 5:55pm at Royal North Shore Hospital, St Leonards, following a water skiing accident on the Hawkesbury River, as part of the Bridge to Bridge Water Ski Classic.
6. The real issues in this inquest relate to the manner and cause of Sarah's death and in particular, whether the helmet she was wearing contributed to her death, and whether I consider it necessary or desirable to make any recommendations in relation to any matter connected with Sarah's death.

The life of Sarah Teelow

7. Sarah was born on 22 January 1993 at Wellington Hospital to Tania and Chris Teelow. One year and nine months later her brother Jarrod was born. The family lived in Wellington NSW, where Sarah's parents ran a swimming pool business.
8. Sarah went to primary school in Wellington, and completed high school at St John's College in Dubbo. After school she went to Newcastle University, where she studied Exercise Science.
9. Both Tania and Chris competed for many years in water ski racing, at a high level. As their children grew up, water ski racing became a focal point and a passion for both Sarah and Jarrod. Sarah skied for the first time when she was four years old, and over time she learnt to ski on a single ski and barefoot.
10. At 13 years of age Sarah began skiing competitively, and went on to win a number of competitions, including an Australian and a world title. She was part of the Australian Junior Team in 2009 in Belgium. Two years later, in 2011, Sarah narrowly missed out on being selected to represent Australia at the world titles.
11. In September 2013, Sarah won the world title in the F2 Women's Class in Spain. Sarah was 20 years old at the time. Darren Patterson stated that he had observed Sarah water skiing over one hundred times, and described her competency as "Excellent. She's a world champion".¹

Race day

12. The Bridge to Bridge Water Ski Classic is an internationally renowned water ski race held on the Hawkesbury River each year. The race covers a distance of approximately 112km and commences from the mouth of the Hawkesbury River at Dangar Island in Broken Bay, proceeds along the length of the river, and finishes in the historic town of Windsor, in western Sydney. Competitors pass under a number of bridges during the course of the race. The first bridge that competitors pass under is the Hawkesbury River Railway Bridge ("the Railway Bridge"), followed by the M1 Hawkesbury River Road Bridge ("the Road Bridge"), sometimes referred to as the 'M1 Mooney Mooney Bridge'.
13. On the day of Sarah's death, Sarah was part of an experienced four-member tandem ski team. Their boat, "Out Numbered" was owned by Matt Jones. Sarah's tandem partner for the race was Ellen Jones, Matt Jones' daughter, who at the time was 14 years of age. Sarah's driver was Danny Knappick and her observer was Darren Patterson. Both Danny and Darren were experienced in their respective roles.
14. The conditions on the Hawkesbury River on Sunday, 24 November 2013 were good, with calm water and little to no wind. Sarah was competing in the

¹ Transcript of Darren Patterson, 20 March 2017, p. 16.

Formula 2 or F2 class and was in the third grid or race to commence that day. The first two grids were from the class known as Modified Open Cockpit or "MOC". Sarah's boat, "Out Numbered", was given pole position number 3. There were five boats in Sarah's grid. The race was scheduled to start at about 9:30am.

15. Sarah was using a new ski, a CS6, which she had purchased and tested two days before without incident. This particular ski was relatively new on the market. Sarah commented to others that her new ski was much lighter, with a lot less drag than her wooden skis and she was excited to be using it for the Bridge to Bridge Water Ski Classic. Some reservations about Sarah using her new ski in the race had been expressed to her by some members of her team, and by her partner, Steven Robertson.
16. The helmet used by Sarah, was a 'Cookie' brand, and was acquired by Sarah before the world titles in Spain in September 2013. This particular type of helmet had been designed for sky diving, not water skiing, however at the time of Sarah's accident it was a helmet frequently used by other water ski racers.
17. Sarah commenced the race and passed under the Railway Bridge without incident. Sarah's boat then encountered some small waves, whilst travelling at a speed of somewhere between 75 to 85 miles per hour (approximately 120 to 136 kilometres per hour). Upon observing the small waves, Mr Knappick decelerated and Mr Patterson signalled to Sarah and Ellen Jones, by raising his left arm into the air, that the boat would be slowing down and that Sarah and Ellen should prepare for incoming waves.
18. Sarah negotiated the first small wave without incident. On hitting the second small wave, Sarah's ski was observed to flip into the air in front of her. Sarah was then seen to fall heavily to her right side and tumble, or cartwheel, along the water. GoPro video footage obtained from another competing vessel shows Sarah's helmet being released shortly after her initial contact with the water, and before she makes contact with the water for a second time. Sarah's fall occurred approximately 2.7 kilometres downstream of the Road Bridge.
19. First aid assistance was provided to Sarah shortly after her fall and Sarah was subsequently flown to Royal North Shore Hospital in a critical condition, where tragically, she died the following day. A limited autopsy report concluded that Sarah died as a direct cause of blunt force head and neck injuries.

The issues

20. Counsel assisting circulated a list of issues prior to the inquest commencing. That list included the following issues:
- Did Sarah's helmet contribute to her death?
 - Did speed contribute to Sarah's death?
 - Were there appropriate systems, procedures and governance to ensure the safety of Sarah when competing in the Bridge to Bridge Water Ski Classic?
 - Are there appropriate systems, procedures and governance to ensure the safety of water-skiers at the Bridge to Bridge Water Ski Classic? and
 - Are there any recommendations that are necessary or desirable to make in relation to any matter connected with Sarah's death?
21. In addition to those matters, a great deal of evidence was adduced at the inquest that went to the origin of the small wave that Sarah was negotiating at the time of her fall.

Where did the wave come from at the time of Sarah's fall?

22. Detective Senior Constable Matthew Erickson gave evidence that:
- He was told by the observer and driver of the boat behind which Sarah Teelow was travelling at the time of her fall that it was possible that a stopped boat from the previous race may have contributed to the waves which caused Sarah's fall;² and
 - Three weeks prior to the inquest, he was informed that Stephen Coyte had witnessed a catamaran exit from Sandbrook Inlet that was heading west under the Road Bridge on race day.³
23. Following the receipt of information provided by Stephen Coyte in relation to the catamaran, Detective Senior Constable Erickson obtained:
- A statement by email from Mr Coyte;⁴ and
 - A statement from Sergeant Duncan Gray.
24. Detective Senior Constable Erickson also arranged for a map to be produced as a result of Mr Coyte's evidence.⁵

² Transcript of Detective Senior Constable Matthew Erickson, 20 March 2017, p. 5.

³ Transcript of Detective Senior Constable Matthew Erickson, 20 March 2017, pp. 5-7.

⁴ Transcript of Detective Senior Constable Matthew Erickson, 20 March 2017, pp. 5-7.

⁵ Transcript of Detective Senior Constable Matthew Erickson, 20 March 2017, pp. 6-7.

25. Detective Senior Constable Erickson stated Sergeant Gray said that while NSW Police were operating a catamaran that day, they were approximately 2.5 kilometres west of the Road Bridge.⁶ Detective Senior Constable Erickson stated that:
- The police boat operated by Sergeant Gray was the only police boat operating on the Hawkesbury River at the relevant time;⁷ and
 - There were at least three boats operated by Maritime NSW on the Hawkesbury River at the relevant time.⁸
26. In his witness statement signed on the day of Sarah's accident, Danny Knappick, Sarah's driver, stated that he "noticed a boat off the grid to my right had stopped and had caused a few small waves, we slowed down to cross them, I was going about 70-80 miles per hour".⁹ The evidence disclosed that the boat to which Mr Knappick made reference was "Evil One".
27. In his further witness statement given to police three days after Sarah's accident, Mr Knappick stated that "as I reduced speed I noticed a fallen boat (a boat who [sic] the skier had come off) on the other side of the Railway Bridge. It appeared to be moving very slowly and I noticed a couple of little washes coming from the ski boat".¹⁰
28. In his oral testimony, Mr Knappick confirmed that those "few small waves" were the waves that Sarah had encountered at the time of her fall.¹¹ He also said that the water conditions at the time the race started were "pretty good"; that they could feel some waves, but the waves were not "very visible".¹² Mr Knappick stated that as he drove the boat upstream away from the Railway Bridge he did not have any concerns, and the boat was handling "really good".¹³
29. Mr Knappick stated he cannot recall seeing any "rollers" coming from the boat with the fallen skier; however he stated that there were "little waves" coming from the boat with the fallen skier, and he would say that these were the waves Sarah encountered.¹⁴
30. Ellen Jones, Sarah's ski partner, was interviewed by police eight days after Sarah's accident. In her record of interview, Ms Jones stated "well a boat had fallen just in front of us, so we just hit some of their waves".¹⁵ Ms Jones described these waves as "little waves" and "not very big at all".¹⁶ Ms Jones said the conditions were really good and it was really smooth, and that she

⁶ Transcript of Detective Senior Constable Matthew Erickson, 20 March 2017, p. 7.

⁷ Transcript of Detective Senior Constable Matthew Erickson, 20 March 2017, p. 12.

⁸ Transcript of Detective Senior Constable Matthew Erickson, 20 March 2017, p. 12.

⁹ Exhibit 1 at 1/173[4].

¹⁰ Exhibit 1 at 1/179[19].

¹¹ Transcript of Daniel Knappick, 20 March 2017, p. 56.35.

¹² Transcript of Daniel Knappick, 20 March 2017, p. 54.

¹³ Transcript of Daniel Knappick, 20 March 2017, p. 58.

¹⁴ Transcript of Daniel Knappick, 20 March 2017, p. 56.

¹⁵ Exhibit 1 at 1/21/197.151.

¹⁶ Exhibit 1 at 1/21/197.158, 198.163, 199.181 and 203.230.

and Sarah would not worry much about these little waves as they had skied at Brooklyn in four metre swells which Sarah had handled easily.¹⁷ When asked for her thoughts on why Sarah may have fallen, Ms Jones responded “No I have no clue why it happened really ... It’s just a freakish accident really”.¹⁸

31. In his first witness statement, signed on the day of Sarah’s accident, Darren Patterson, Sarah’s observer, stated they “hit a little bit of boat wash”.¹⁹ In his second witness statement, signed three days after Sarah’s accident, Mr Patterson speculated that “Evil One”, a fallen ski boat, was most probably the cause of the waves they encountered.²⁰ This contemporaneous evidence was very much at odds with the evidence Mr Patterson gave at the inquest over three years after Sarah’s accident, where he stated that the waves which caused Sarah to fall had definitely come from a distance further away than the fallen boat.²¹
32. Mr Patterson gave oral evidence that he believed the waves associated with Sarah’s fall were the wake from another vessel.²² Mr Patterson stated the waves appeared to be coming from his left as he faced downstream in an easterly direction.²³ Mr Patterson stated that the direction of the waves was not parallel to the race course.²⁴ Contrary to his witness statement, he no longer believed that the waves associated with Sarah’s fall came from the boat which had stopped due to a fallen skier, because “the waves probably couldn’t have got to us in time, by the time we got to where we were”.²⁵
33. Stephen Coyte, a ski competitor and spectator, provided a statement to police over three years after Sarah’s accident, in which he stated that a dual engine catamaran operated by either Roads and Maritime Services (“RMS”) or NSW Police produced a large wash, which then headed up and down the river.²⁶ Whilst Mr Coyte did not witness Sarah’s fall, he believed the wash from the RMS or NSW Police boat could have been a contributing factor in relation to Sarah’s accident.²⁷
34. Mr Coyte gave oral evidence that he saw a “maritime police” twin engine catamaran and a “very small tinnie” with a cream colour canopy on the Hawkesbury River at the time of the race.²⁸ Mr Coyte stated the tinnie was heading in a westerly direction upstream towards Windsor at 30-35 knots, and the catamaran came out of the Sandbrook Inlet at “half throttle”.²⁹

¹⁷ Exhibit 1 at 1/21/204-205.234-235.

¹⁸ Exhibit 1 at 1/21/205.235.

¹⁹ Exhibit 1 at 1/17/155.

²⁰ Exhibit 1 at 1/18/164[28].

²¹ Transcript of Darren Patterson, 20 March 2017, p. 27.30-27.50.

²² Transcript of Darren Patterson, 20 March 2017, p. 26.

²³ Transcript of Darren Patterson, 20 March 2017, pp. 25-26 and p. 28, p. 48.

²⁴ Transcript of Darren Patterson, 20 March 2017, p. 34, p. 48.

²⁵ Transcript of Darren Patterson, 20 March 2017, p. 46.

²⁶ Exhibit 1 at 2/45A/[5]-[6].

²⁷ Exhibit 1 at 2/45A/[7]-[8].

²⁸ Transcript of Stephen Coyte, 20 March 2017, p. 70.

²⁹ Transcript of Stephen Coyte, 20 March 2017, p. 70.

35. It is important to record that when Mr Coyte saw the RMS or NSW Police boat throw out its wash, he was positioned approximately 2.5-2.7 kilometres upstream from the location of Sarah's fall,³⁰ and it was 5-10 minutes before the first race started downstream at Dangar Island. Mr Coyte said there were three waves that headed downstream towards the start.³¹
36. Cameron Vella was one of the skiers skiing behind the boat "Evil One". In an email to Detective Senior Constable Erickson, written nearly four years after Sarah's accident, Mr Vella stated that "a rogue wave knocked me off the ski at this time (wave came from the right side of the river, heading towards Windsor)" and that it "takes some time for boat wash to actually reach the racing line." In his opinion, he said it was quite possible that the same set of waves reached Sarah, as she was approximately 800 metres behind him at the time of his fall.
37. It is important to record that Mr Vella stated that the wave direction was moving from the right to the left across the race channel as one travels upstream in a westerly direction towards Windsor, whilst Mr Coyte recalls the wave direction moving in a perpendicular direction to the ski boats whilst travelling upstream in a westerly direction towards Windsor.
38. John Lees, the observer in "Evil One", wrote an email to Detective Senior Constable Erickson nearly four years after Sarah's accident in which he stated that they hit what he assumed was some chop or waves, and he remembered being rocked slightly whilst crossing them.
39. Robert Williams, the second skier behind "Evil One", also wrote an email to Detective Senior Constable Erickson nearly four years after Sarah's accident, in which he stated that he noticed an inconsistent wave that was generally coming from the left. He skied through the first and second wave, but his ski partner Cameron Vella fell on the second wave. Mr Williams expressed the opinion that it was inconceivable that the wash from "Evil One" could have reached "Out Numbered" at the time of Sarah's fall. It is important to record that Mr Williams recalls the waves moving from the left, whilst his ski partner Mr Vella recalls them moving from the right.
40. Shannon Lewry, the driver of "Evil One", made a witness statement two months after Sarah's fall in which he stated that after driving for about two minutes he was travelling around 75 miles per hour ("mph") and he crossed some small bumps which brought one of his skiers undone.
41. Darren Reilly, a ski competitor in the first race/grid, provided a witness statement to police three years after Sarah's fall. He stated that after he had passed under the Road Bridge he saw a twin hull course boat about thirty feet long.

³⁰ Transcript of Stephen Coyte, 20 March 2017, p. 67.15.

³¹ Transcript of Stephen Coyte, 20 March 2017, p. 72.17.

42. Graeme Dunlavie, RMS Manager Operations Hawkesbury River, confirmed that RMS catamarans were on the Hawkesbury River on the day of the Bridge to Bridge race, however he could not recall how many RMS vessels there were.³² Mr Dunlavie gave evidence that one RMS vessel was occupied by Anita Schultz and Nerissa Knight,³³ and another RMS vessel was occupied by Mark Rayward and Renee Emery.³³
43. Mr Dunlavie stated that the vessel he was on patrolled an area approximately 100 metres west (i.e. upstream) of the Road Bridge from about 8:30am, about one hour before Sarah's race; however he did not recall travelling up the Sandbrook Inlet, or chasing a "tinnie" or a small fishing boat.³⁴ Mr Dunlavie stated he did not recall seeing any small fishing boats, tinnies or catamarans in the area of the Road Bridge at the time of the event.³⁵
44. Anita Schultz stated that there were "at least four" RMS catamarans on the water on the day of the race, however she was unable to state the exact number, as not all had attended the morning briefing.³⁶ Ms Schultz stated that from 7:30am (two hours before Sarah's race) she was positioned near the Railway Bridge in vessel MA0114,³⁷ and that Darryl Lennox was positioned near the Road Bridge in vessel MA011.³⁸
45. Ms Schultz recalls chasing "a couple" of tinnies or small fishing boats prior to the race starting, with one vessel travelling from Dangar Island across to Mullet Creek, east of the Railway Bridge.³⁹ Ms Schultz stated:
- She did not chase or follow any boats west of the Railway Bridge;⁴⁰
 - She did not see either an RMS boat or any large boat travel across the river from north to south before or around the start of the race,⁴¹ and
 - She did not observe any wash/rollers/wake moving downstream prior to the start of the race, and that "the conditions were good and fine".⁴²
46. As part of the coronial investigation, video footage was obtained from a number of race participants and spectators. The video taken from the boat "Bite the Bullet"⁴³ shows some small waves/wash which move across the race channel from right to left as that boat moves upstream towards Windsor. The waves are best seen in the still photographs that formed part of Exhibit 28, at time stamps 12.52 and 12.53, and show the wave line moving across the river, towards the skiers, and then into the path of "Bite the Bullet".

³² Transcript of Graeme Dunlavie, 22 March 2017, p. 7-8.

³³ Transcript of Graeme Dunlavie, 22 March 2017, p. 11.

³⁴ Transcript of Graeme Dunlavie, 22 March 2017, p. 9-10.

³⁵ Transcript of Graeme Dunlavie, 22 March 2017, p. 11.

³⁶ Transcript of Anita Schultz, 22 March 2017, p. 35.

³⁷ See Exhibit 8.

³⁸ Transcript of Anita Schultz, 22 March 2017, pp. 35-36.

³⁹ Transcript of Anita Schultz, 22 March 2017, p. 36, p. 43.

⁴⁰ Transcript of Anita Schultz, 22 March 2017, p. 37, p. 44.

⁴¹ Transcript of Anita Schultz, 22 March 2017, p. 45.

⁴² Transcript of Anita Schultz, 22 March 2017, p. 37.

⁴³ Exhibit 4.

47. "Bite the Bullet" was in the same race/grid as "Out Numbered". It is difficult to discern from the video and photographic evidence whether the waves seen in Exhibits 4 and 28 emanated from "Evil One" or from some other source.
48. At least three possibilities exist as to the likely source of the wave that Sarah was negotiating at the time of her fall. First, it may have been from "Evil One", secondly, from an official race boat (RMS, NSW Police or Marine Rescue) or thirdly, from another unidentified boat moving on or near the race course before the commencement of Sarah's race.
49. Each possibility was supported by some evidence before me, each with varying degrees of reliability. My concerns about the reliability of the evidence include for example, that some witnesses have given different versions of the direction in which the wave was travelling, that some of the evidence as to the source of the wave was based on conjecture, and that a number of witnesses have given their accounts of this matter for the first time many years after the event, bringing into question the reliability of their recollections.
50. As a result of those concerns, and having regard to the totality of the evidence before me, I have come to the conclusion that I cannot make a finding, on the balance of probabilities, as to the origin of the wave which Sarah was negotiating at the time of her fall. Notwithstanding that finding, I have a lingering doubt that the wave may have emanated from "Evil One", given the evidence contained within the witness statements of Danny Knappick, Ellen Jones and Darren Patterson, all given very shortly after Sarah's accident.
51. Further, in my opinion, there is insufficient evidence before me to make a finding, on the balance of probabilities, as to what contribution, if any, Sarah's new ski played in her losing control and crashing, or whether the T9 fracture she sustained occurred, as expert witness Dr Mark Gillies opined, at the time of hitting the wave, which then caused her to fall. It seems to me that given Sarah's immense experience at water skiing, and the relatively small size of the wave that she was negotiating at the time she fell, that Sarah's fall, as Ellen Jones said, was tragically a freakish accident, the cause of which, I regret, I am unable to determine.

Did Sarah's helmet contribute to her death?

52. Jason Cooke, director of Cookie Composite Pty Ltd, gave evidence that the helmet worn by Sarah (MFI A) was an "Ozone" type helmet manufactured by Cookie Composite Pty Ltd, and that the only modification made to it was the addition of a "goggle strap" at the rear of the helmet to hold the goggles in place. Mr Cooke stated the helmets were designed for skydiving, and were not approved to any Australian Standard (or any other regime), because there is no Australian Standard (or any other regime) applicable for skydiving helmets. The Ozone helmet that Sarah was wearing at the time of her accident contained the following warning:

"WARNING

This is not a safety helmet

This product offers the wearer NO protection against injury or death

This product is not to be used on motorized or non motorized modes of transport. Cookie Composites Pty Ltd accepts no responsibility for injury or death that may occur when using this product. The wearer uses this product at their own risk!"

53. The evidence at the inquest revealed that no helmet presently exists that is specifically designed and manufactured for the sport of water skiing.
54. One of the issues explored at the inquest was whether the helmet Sarah was wearing at the time of her accident may have, in some way, contributed to her fatal injuries by reason of a theory known as "bucketing". Three expert bio-mechanical engineers, Dr Andrew McIntosh, Dr Mark Gillies and Dr Thomas Gibson each provided expert reports, participated in an expert conclave and prepared a joint report, and gave expert evidence addressing this matter.
55. The unanimous opinion of the expert bio-mechanical engineers was that the failure of the helmet retention system of Sarah's helmet at the time of the accident was not a contributing factor to Sarah's fatal injuries.
56. At inquest, Dr Gibson was of the opinion that it was not possible to exclude the helmet as a contributor to the cause of the injury. Following the close of evidence on 10 November 2017, the Court received correspondence from the legal representatives for Sarah's family in relation to two contusions that were observed on the back of Sarah's neck during the external post mortem examination, and described in the autopsy report. One of these contusions was described in the autopsy report as being located on the "upper portion of the thoracic" and the other "on the lower portion of the cervical vertebrae".
57. The existence and significance of the two contusions, and their possible relationship to the helmet worn by Sarah at the time of her accident, were canvassed during the expert conclave on 9 November 2017, at T22.23-23-40 and T26.22-36.30. All three experts gave evidence that they were unable to form a view about any possible relationship between the contusions and the helmet impacting with the back of Sarah's neck. When asked whether the helmet could have caused either of the contusions, Dr McIntosh stated it was

“unlikely because there’s nothing that suggests why the helmet would be actually pressing in on that edge at that point if the restraint system’s breaking and the helmet’s detaching from the head.” (at T23.1-23.4)

58. On 19 December 2017, Sarah’s family made an application pursuant to s. 65 of the Act to inspect photographs of the two contusions taken during the external post mortem examination, for the purpose of having Dr Gibson review the photographs. This application was granted on 15 March 2018. Following the inspection of the photographs of the contusions, the Court convened on 28 March 2018 to determine a further application from Sarah’s family that further work be undertaken to determine the nature and extent of the contusions, in an effort to determine whether there was any relationship between them and the helmet that Sarah was wearing at the time of her accident. With the agreement of the parties, Dr James Raleigh, forensic radiologist from the Department of Forensic Medicine, was instructed to produce a report addressing these issues.
59. In his expert certificate dated 27 April 2018 (Exhibit 31), Dr Raleigh stated that he observed “irregular hyperdensity in subcutaneous fat and fat deep to the superficial muscular fascia in the midline of the posterior lower neck and upper thorax ... at T1 and T2 levels”. Dr Raleigh stated that this was “consistent with soft tissue contusion, and corresponds to the pink discolouration of skin in the midline seen in the photographs”. Dr Raleigh opined that these findings suggested possible damage to the T1 and T2 ligaments, “most likely to occur in hyperflexion injury to the spine”. Dr Raleigh further opined that “hyperflexion may have occurred as part of the severe trauma that produce[s] the higher atlanto-occipital fracture dislocations”.
60. Following the service of Dr Raleigh’s report on the parties, Dr Gibson prepared a responsive report, dated 10 May 2018 (Exhibit 32). In that report, Dr Gibson stated that he had inspected a Cookie Ozone3 helmet similar to that worn by Sarah at the time of her accident, and reviewed the photographs of the two contusions taken during the external post-mortem examination. Dr Gibson further stated that Dr Raleigh’s findings “tend to confirm that” the injuries on the back of Sarah’s neck were “not due to the helmet pushing into the back of the neck, as had been suggested during the evidence”. Dr Gibson concluded that “having now reviewed the further evidence, I am not of the view that the injuries to Sarah’s lower neck and upper thorax suggest that the helmet contributed materially to the fatal injury”.
61. I accept the opinions of all three expert bio-mechanical engineers in relation to this matter, which is that it is highly unlikely that Sarah’s helmet made a material contribution to the cause of her injuries. Accordingly, I find that the helmet Sarah was wearing at the time of her fall made no contribution to her catastrophic injuries

Did speed contribute to Sarah's death?

62. Darren Patterson stated that he gave a signal to slow down as "Out Numbered" approached the Railway Bridge, because the shadow caused by the bridge made it difficult to view the water conditions. Following this, Mr Patterson stated that the boat was travelling at close to 80 mph, and that while Mr Knappick said that more speed was available, he told Mr Knappick to maintain pace with "Team 50", which was the other boat leading at the time. Darren Patterson estimated that "Out Numbered" was travelling at 75 mph when it hit the waves associated with Sarah's fall.
63. Danny Knappick stated that he estimated the boat was travelling around 75-80 mph as it approached the Railway Bridge; however he was watching the water and not the dashboard. Mr Knappick rejected the possibility that the boat could have been travelling 84-85 mph.
64. Both Darren Patterson and Danny Knappick stated they had not viewed the data from the "Safe Race" device installed on their boat. The "Race Safe" GPS data for "Out Numbered" recorded the boat travelling at a speed of approximately 85 mph (i.e. 136.8 kilometres per hour, or 38 metres per second) at the time of the accident.
65. The three expert bio-mechanical engineers agreed that the speed of the boat "Out Numbered" may have been a contributing factor or direct cause of Sarah's fall and/or loss of control. They also agreed that speed is a major factor in the kinetic energy present in the fall and impact. The kinetic energy present contributed to the injury and/or Sarah's kinematics (i.e. motion) from her first entry into the water until her second entry into the water. It is important to note that the experts all agreed that whilst speed may have been a contributing factor to Sarah's injuries, it was not the only factor.

Were there appropriate systems, procedures and governance to ensure the safety of Sarah when competing in the Bridge to Bridge Water Ski Classic?

Personal flotation devices

66. Darren Patterson stated that Sarah was wearing a wetsuit he manufactured, which was a Type 2 Personal Flotation Device ("PFD"). Mr Patterson's evidence indicated that he was unaware of any safety testing requirements set by Ski Racing Australia, and the last time that a flotation test was performed to his knowledge was in 1998 or 2000.
67. Nayland Aldridge, marine investigator, in his report dated 29 April 2014, expressed the opinion that Ski Racing Australia should ensure that skiers wear Type 1 PFDs in order to ensure that injured skiers have the best possible chance of floating with their face clear of the water.
68. Given this evidence, I propose to make a recommendation in relation to Personal Flotation Devices.

Helmets

69. Darren Patterson stated that he had acted as a scrutineer responsible for checking helmets, and that these checks included inspecting for shell damage, paint fade and straps. Importantly, Mr Patterson said that there was no requirement in Ski Racing Australia's Rules for a scrutineer to check whether the helmet was a suitable or snug fit.
70. Kristie Middleton, the Chief Executive Officer ("CEO") of Ski Racing Australia at the time of the incident, stated that in 2013 there was a compulsory helmet check by a nominated scrutineer to ensure that "there were no obvious visible signs of helmet distress and that the clip and helmet were in good working order". Ms Middleton stated that, at the time of the 2013 race, a scrutineer could not refuse entry to a race if a helmet did not comply with the relevant rules; however around 2014 the rules had subsequently been amended to permit a scrutineer to refuse entry to participants without compliant helmets.
71. Ms Middleton stated that, following Sarah's death, the board of Ski Racing Australia researched applicable Australian Standards and international standards for extreme sport helmets, and were also aware that the NSW Police and RMS were conducting an investigation into helmet requirements and their suitability. Ms Middleton stated the board's research regarding helmets found "there is no applicable Australian standard to a specific ski racing helmet or that there is no Australian standard that is applied to ski racing helmets that are currently on the market".
72. Given this evidence, I propose to make a recommendation in relation to helmets.

Risk assessment and risk management

73. Ms Middleton stated that, following Sarah's death, there was "an increased scrutiny across risk assessment plans as they were presented as part of the aquatic licence". Having regard to this evidence and other evidence before me, I am satisfied that meaningful and positive steps have been and are continuing to be taken in respect of this matter, and therefore I do not propose to make any recommendations in relation to risk assessment and risk management.

Speed restrictions

74. Darren Patterson gave evidence regarding the difference between a "classic" style race (like the Bridge to Bridge) and "circuit" style races. Mr Patterson's evidence was that skiers were "more susceptible to injury" if they fell in a classic race, because these events involved higher speeds. Mr Patterson stated that training and competing in open water was safer, even though the waves were rougher, because speed was "reduced by nearly half" and did not exceed 65 mph.
75. Ms Middleton stated that while she did not perceive any reluctance to impose speed limits during her time as CEO of Ski Racing Australia, she believed a recommendation to impose speed limits would not be welcomed by

participants “because it takes away the race aspect of the sport”. Ms Middleton stated that factors other than speed which contributed to injuries included experience, equipment and conditions. However, Ms Middleton also accepted the proposition that speed limits “may” lower the risk of injury.

76. Ms Middleton accepted “in some instances” the speeds recorded for recent fatalities in water ski racing were “high ... however, not necessarily outside of the norm for ski racing”.
77. Ms Middleton went on to state that:
 - During her time as CEO, the board of Ski Racing Australia had discussed whether a speed cap might prevent fatalities;
 - There were already some restricted speed classes within the sport; and
 - Further speed restrictions were not imposed because the board considered that speed “wasn’t one of the only common denominators and that a reduction in speed ... wouldn’t necessarily prevent [fatalities] occurring again”.
78. Wesley Lloyd, the current CEO of Ski Racing Australia stated: “I accept that speed is a common factor but I don't know if that is the absolute ultimate cause” of fatalities in ski racing.
79. When asked whether RMS could impose a condition to an aquatic licence limiting the speeds at which boats travel, David Hunter, General Manager of Boating Operations, NSW Maritime Division of RMS, stated: “It is within in our ability to do so but we choose not to”.
80. Notwithstanding some of the views expressed above, in circumstances where there have been a number of deaths during high speed water skiing races, and an acceptance that speed is a contributing factor (common denominator) it is, in my opinion, both desirable and necessary that the relevant stakeholders associated with the sport of water skiing consider the introduction of speed restrictions. I therefore propose to make a recommendation in relation to the introduction of speed restrictions.

The Thompson Clarke Report

81. Following Sarah’s death, and other deaths involving water ski racing and power boat racing, RMS commissioned a report by Thompson Clarke Shipping (“Thompson Clarke”) to review high speed on-water racing events in NSW. As a consequence of that report, a committee of RMS, Ski Racing Australia and the Australian Power Boat Association was formed to consider and implement a significant number of recommendations.
82. To a large extent those recommendations have been implemented, or are presently under consideration, by the relevant organisations. For example, a significant amount of work has been undertaken by Ski Racing Australia, through Dr McIntosh’s research, to develop technical specifications for helmets and personal flotation devices. Similarly, RMS has addressed, in

large measure, those matters identified by Thompson Clarke for their improvement or consideration.

Other matters

83. Given the inherent risks involved in water ski racing, the systems, procedures and governance to ensure the safety of participants that were in place at the time of Sarah's death, were, to a large degree, appropriate. As acknowledged in evidence by a number of witnesses, further safety improvements could be made to the sport. Those areas of improvement, which are supported by the evidence, are identified in the recommendations I make below.
84. I do not intend to make any recommendations in respect of the NSW Ski Federation, as proposed to me by Sarah's family, for the reason that they were not an interested party before the inquest, and to do so in their absence would deny them the opportunity of being heard.
85. In closing, I would like to thank the officer in charge of the investigation, Detective Senior Constable Matthew Erickson, for his thorough investigation and preparation of the brief of evidence.
86. I would like to thank my counsel assisting, Mr Adam Casselden SC and his instructing solicitors, Jessica Wardle and Jennifer Hoy from the Crown Solicitor's Office for their excellent work in assisting me before and during this inquest.
87. Finally, I offer my sincere condolences to Sarah's parents and her brother. Much of the content of this inquest involved technical details. However, at the heart of this inquest were the very human experiences of pain and love. Sarah's mother, Tania, spoke so beautifully about Sarah and her generosity; it is very clear to me, having read and heard so much about Sarah, that she was a remarkable young woman who held a special place in the hearts of many and she will be greatly missed.

Findings required by s. 81(1)

As a result of considering all of the documentary evidence and the oral evidence given at the inquest, I am able to confirm that the death occurred and make the following findings in relation to it.

The identity of the deceased

The identity of the deceased was Sarah Louise Teelow.

Date of death

Sarah Teelow died on 25 November 2013.

Place of death

Sarah died at Royal North Shore Hospital, St Leonards, NSW.

Manner and cause of death

Sarah Teelow died from an atlanto-occipital (C0/1) injury caused by exposure to a high force or force impact to her head when she lost control of her water ski and struck the water during a high speed water ski race.

Recommendations

Recommendations in relation to Ski Racing Australia

- 1) That Ski Racing Australia continues to consult with its members in considering whether or not to introduce speed restrictions in the Formula 2 class.
- 2) That Ski Racing Australia collaborate with manufacturers, and its member stakeholders, in giving consideration to the development of helmet technical specifications for water skiers, and to give consideration to revising Ski Racing Australia's rules accordingly.
- 3) That Ski Racing Australia collaborate with manufacturers, and its member stakeholders, in giving consideration to the development of Personal Flotation Device technical specifications for water skiers so as to maximise water skier safety compatibly with the performance requirements of the sport, and to give consideration to revising Ski Racing Australia's rules accordingly.
- 4) That Ski Racing Australia give consideration to introducing into their rules and procedures a requirement that race scrutineers ensure that all helmets to be worn by skiers are a secure and close fit (snug), and the helmet straps are secure and correctly adjusted.

Recommendations in relation to Roads and Maritime Services

- 1) That Roads and Maritime Services ("RMS") consult with Ski Racing Australia and other relevant stakeholders to determine whether it is desirable or necessary for a speed restriction to be a condition of an aquatic licence for any Bridge to Bridge Water Ski Classic.

I close this inquest.

Magistrate Teresa O'Sullivan
Deputy State Coroner
31 May 2018