QUEENSLAND COURTS

CORONERS COURT OF QUEENSLAND

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of Joseph Mark Scaturchio**
TITLE OF COURT:	Coroners Court of Queensland
JURISDICTION:	Brisbane
FILE NO:	2012/1369
DELIVERED ON:	24 June 2019
DELIVERED AT:	Brisbane
HEARING DATE(s):	5 June 2018, 26 and 27 November 2018
FINDINGS OF:	Graham Lee, Brisbane Coroner
CATCHWORDS:	Coroners: inquest – reopening, coronial investigations, jet ski collision, jet ski racing, pro stock race, collision, cavitation, additional contact, race bumping, unhooked, forensic recording analysis, engine control unit ECU, MoTeC data, MoTec report and analysis, I2 analysis software, PWC (personal water craft)

REPRESENTATION:

Counsel Assisting:	Dr K Mellifont QC i/b Ms M Parry, Coroners Court of Queensland
Scaturchio Family:	Mr D Galbally AM QC, Madgwicks Lawyers
Mr Anthony Alback	Ms J Sorbello (Counsel) i/b Mr P Crofts, Queensland Department of Main Roads and Transport.
Queensland Police Service	Ms Amanda Robertson (Legal Officer), Queensland Police Service Legal Services
Senior Constable Kyle Hutchinson	Mr Callan Lloyd (Solicitor) Gilshenan & Luton Legal Practice

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Introduction

1. Mr Joseph Mark Scaturchio (Mr Scaturchio) was 22 years of age when he died while competing in a jet ski race, at the Australian Watercross Nationals held on the Gold Coast on 22 April 2012. Mr Scaturchio suffered fatal injuries as a consequence of a jet ski collision. Despite protracted resuscitation efforts, he was unable to be revived.

2. Mr Scaturchio was an experienced jet ski rider, having ridden jet skis since the age of 12. At age 16 he acquired his unrestricted licence and began competing in jet ski events. Mr Scaturchio was a qualified Seadoo mechanic and had been involved in the servicing and repair of jet skis for four and a half years. Together Joseph, his brother Simon and their father, Tony shared a love of jet skiing.

Coronial Jurisdiction and scope of inquiry

3. A Coroner has jurisdiction to inquire into the cause and circumstances of a reportable death. If and where possible, a Coroner may make certain findings in accordance with section 45(2) of the *Coroners Act 2003* (the Act), as to the following pertinent matters:

   (a) The identity of the deceased;
   (b) How the death occurred;
   (c) When the person died;
   (d) Where the person died; and
   (e) What caused the person to die.

4. It is well established that the scope of an inquest is extensive and expands beyond identifying the medical cause of death. More specifically, it is "*not confined to evidence directly relevant to the matters listed in section 45(2) of the Act".* [1]

5. The leading English Case of *R v South London Coroner*[2] distinguishes an inquest as not a trial between opposing parties but rather an inquiry into the death, stating:

   "it is an inquisitorial process, a process of investigation quite unlike a criminal trial where the prosecutor prosecutes and the accused defends … the function of an inquest is to seek out and record as many of the facts concerning the death as the public interest requires".[3]

[1] *Doomadgee v Clements* [2006] 2 Qd R352 at 360 [28], citing *Atkinson v Morrow & Anor* [2005] QSC 092 and *Queensland Fire & Rescue Authority v Hall* [1998] 2 Qd R 162 at 170
[2] *R v South London Coroner*; ex parte Thompson (1982) 126 S.J 625
[3] *R v South London Coroner; ex parte Thompson* (1982) 126 S.J 625

6. Inquests are fact-finding exercises and not a methodology for apportioning guilt or liability or attributing blame.[4] There are "no parties, there is no indictment, there is no prosecution".[5] Relevantly, the focus is on the discovery of what occurred, "simply an attempt to establish facts".[6] The fundamental purpose is to inform family members and the general public about how the death occurred and prevent the likelihood of deaths from occurring in similar circumstances, through preventive recommendations.[7]

Admissibility of evidence and standard of proof

7. The Coroners Court is not bound by the rules of evidence, as the Act prescribes it "*may inform itself in any way it considers appropriate*".[8] In *Commissioner of Police Service v Clements*[9]*,* the Court of Appeal considered the practical application of the power granted by the broad section, stating:

> *"While the Coroners Court is not bound by the rules of evidence, the touchstone of the evidence and submissions it may receive must be relevant to the matters the Coroner is empowered to investigate, the questions on which he or she must make findings and the matters on which he or she may comment".*

8. The admissibility of evidence is therefore determined by the scope of the inquest and the coroner is afforded flexibility in respect to receipt of information that may not typically be admissible in other proceedings and determination of its significance.

9. A coroner should apply the civil standard of proof, specifically the balance of probabilities on the sliding *Briginshaw* scale.[10] Dixon, J in *Briginshaw v Briginshaw*[11] stated "*when the law requires the proof of any fact, the tribunal must feel an actual persuasion of its occurrence of existence … It cannot be found as a result of a mere mechanical comparison of probabilities".* His Honour, further clarified the standard is one of "*reasonable satisfaction*".

10. Practical application of the civil standard for coroners and triers of fact, effectively mandates that the greater or more significant matter to be determined, the more serious

[4] *R v South London Coroner, ex p Ruddock* (8 July 1982, unreported)
[5] *R v South London Coroner, ex p Ruddock* (8 July 1982, unreported)
[6] *R v South London Coroner, ex p Ruddock* (8 July 1982, unreported)
[7] Section 46 of the *Coroners Act 2003*
[8] Section 37(1) of the Act
[9] *Commissioner of Police Service v Clements* [2006] 1 Qd R 210
[10] *Anderson v Blashki* [1993] 2 VR 89 at 96 per Gobbo J
[11] *Briginshaw v Briginshaw* (1938) 60 CLR 336 at 361-362 per Sir Owen Dixon J

an allegation or the more inherently unlikely an occurrence, the stronger or more persuasive the evidence must be, to sufficiently satisfy it was proven to a civil standard.[12] Notwithstanding, it does not necessarily involve the exclusion of all reasonable competing possibilities. [13] I have therefore when drawing inference or reaching conclusions, been mindful to weigh up the evidence and explain both its significance and persuasive value, to demonstrate satisfying the civil standard. [14]

11. A coroner must comply with the rules of natural justice and act judicially.[15] Accordingly a coroner must first, afford a party an opportunity to make submissions opposing any adverse finding that may be damaging to the reputation of an individual or organisation.[16] The gleaned legal principle is one of legal entitlement to make submissions in respect of adverse findings against a party including the deceased.

12. Finally, a coroner is precluded from making any comments, findings or recommendations that a person is or may be guilty of an offence or is or may be civilly liable. [17]

Non-inquest findings into the death of Mr Scaturchio and reopening of the coronial investigation

13. Mr Scaturchio's death was reported to the Coroners Court of Queensland. Carriage of the coronial investigation into Mr Scaturchio's death was allocated to the South Eastern Coroner, Coroner James McDougall.

14. Coroner McDougall directed a coronial investigation be undertaken into Mr Scaturchio's death and determined the evidence available, sufficient to satisfy the legislative requirements of section 45(2) of the Act. Subsequently Coroner McDougall completed non-inquest findings into Mr Scaturchio's death. A copy of the Coroner's non-inquest findings and notice of completion of coronial investigation (Coroner's Findings) were provided to Mr Scaturchio's parents, Tony and Lori Scaturchio.

15. On 9 October 2014 Coroner McDougall completed the Coroner's Findings and found *inter alia*, as to the circumstances of Mr Scaturchio's death, the most likely scenario of events,

[12] *Briginshaw v Briginshaw* (1938) 60 CLR 336 at 361-362 per Sir Owen Dixon J
[13] *Hurley v Clements & Ors* [2009] QCA 167
[14] *Director of Public Prosecution (Cth) v Turner and Anor* [2016] QCS 107
[15] *Harmsworth v State Coroner* [1989] VR 989 at 994
[16] *Annetts v McCann* (1990) 65 ALJR 167 at 168
[17] Section 45(5) and 46(3) of the Act

and also the preferred scenario by both the Queensland Police Service (QPS) Forensic Crash Unit (FCU) and Maritime Safety Queensland, was that:

> *"Mr Scaturchio over-rotated out of the fourth buoy turn, which placed him in line with Mr Lewis approaching the turn on the correct side of the further buoy, and the two jet skis have collided".*[18]

16. As to the cause of Mr Scaturchio's injuries however Coroner McDougall determined on the balance of the evidence available to him, as follows:

> *"it appears that Mr Lewis' jet ski went over the top right hand side of Mr Scaturchio's jet ski, and that Mr Scaturchio's injuries were caused by his chest coming into contact with the steering pole of his own jet ski, rather than being hit directly in the chest by Mr Lewis' jet ski".*[19]

17. Mr Scaturchio's family via their legal representative, requested the coronial investigation be re-opened and requested further investigations be undertaken on the basis of new evidence from Doctor Shane Richardson, Mechanical Engineer of Delta V Experts (Dr Richardson).

18. In summary, Dr Richardson identified that the competitor Mr Lewis, involved in the jet ski collision with Mr Scaturchio, was on the incorrect side of the fourth buoy, placing his jet ski in a near head on collision with Mr Scaturchio's PWC, after Mr Scaturchio had negotiated the right turn around the fourth buoy. Subsequently, Mr Lewis' jet ski collided with Mr Scaturchio's jet ski and impacted Mr Scaturchio's body causing his severe chest injuries. [20] Dr Richardson refuted Senior Constable Jennifer Lowe's preferred scenario (outlined in Coronial Report dated 19 June 2013) that Mr Scaturchio's jet ski over-rotated or spun out prior to the fourth buoy turn or impacted the PWC handle bar. He determined that the only way the PWC could have stopped instantaneously, was if it impacted something sufficiently. [21]

19. The State Coroner determined the coronial investigation into Mr Scaturchio's death be re-opened and assigned the matter back to Coroner McDougall for further investigation. The matter was later reassigned to me. I subsequently determined to hold an inquest in

[18] Coroner's finding and notice of completion of coronial investigation into the death of Joseph Mark Scaturchio 2012/1369 p.5
[19] Coroner's finding and notice of completion of coronial investigation into the death of Joseph Mark Scaturchio 2012/1369 p.5
[20] Ex D2, p52
[21] Ex D2, p57

consideration of the public interest in examining the conflict between the conclusions reached by Dr Richardson, Queensland Police Service and Maritime Safety. I considered this would best be explored through oral evidence.

20. I directed the following targeted coronial investigations also be undertaken:
    (a) reports from the following parties:
        (i) Mr Paul Leven, professional jet ski rider, Australian Jet Ski Academy;
        (ii) Supplementary report from Mr Peter Swinney, MoTeC Engineer and Expert, MoTeC Pty Ltd;
        (iii) Supplementary report from Dr Dianne Little, Forensic Pathologist, Queensland Health Pathology;
        (iv) Supplementary report from Mr Anthony Alback, Marine Safety Officer, Maritime Safety Queensland addressing Dr Richardson's report;
        (v) Supplementary report from Senior Constable Kyle Hutchinson, QPS FCU addressing Dr Richardson's report.
    (b) QPS forensic analysis of the existing video recording of the Pro Stock Race.

21. The inquest into the death of Mr Scaturchio was held on 26 and 27 November 2018. Oral evidence was heard from the following witnesses:

    (i) Mr Marshall Lewis, jet ski competitor (holder of a pro competition licence);
    (ii) Mr Timothy Woodcock, Senior Forensic Recording Analyst, Queensland Police Service;
    (iii) Mr Peter Swinney, MoTeC Engineer and Expert, MoTeC Pty Ltd (expert witness);
    (iv) Mr Anthony Alback, Marine Officer, Maritime Services Queensland (expert witness);
    (v) Senior Constable Kyle Hutchinson, Queensland Police Service, Forensic Crash Unit (expert witness);
    (vi) Dr Shane Richardson, Mechanical Engineer, Delta V Experts (expert witness);
    (vii) Mr Paul Leven, Professional jet ski rider, Australian Jet Ski Academy (expert witness);
    (viii) Mr Darren Williams, President, Australian Jet Sports Boating Association.

22. Expert witnesses, Mr Peter Swinney (Mr Swinney), Mr Anthony Alback (Mr Alback), Senior Constable Kyle Hutchinson (Senior Constable Hutchinson), Mr Paul Leven (Mr Leven) and Dr Shane Richardson (Dr Richardson) gave evidence during the inquest concurrently. Ordinarily concurrent evidence involves the giving of evidence by two or more persons in

the same field of expertise. In this particular circumstance, I determined that no one expert or area of expertise could best determine the scope of the inquest matters including:

(a) The cause of the collision;

(b) The point of contact; and

(c) The cause of Mr Scaturchio's chest injuries.

23. The panel of expertise was required to closely examine each of the expert witnesses varying conclusions as to the circumstances of Mr Scaturchio's death and obtain their opinion as to the events and circumstances leading to Mr Scaturchio's death, constructed from new evidence obtained from further coronial investigations.

Background

24. The 2012 Australian Watercross Nationals were held at Marine Stadium, at the Gold Coast on 20, 21 and 22 April 2012. The personal water craft (PWC) event was hosted by the Sunshine Coast Jet Sports Club and sanctioned by the Australian Jet Sports Boating Association (AJSBA), the national representative body for personal watercraft racing in Australia. The International Jet Sports Boating Association rules applied to the event.

25. Maritime Safety Queensland issued AJSBA with the requisite permits to conduct the event. Maritime Safety Queensland, the Queensland Police Service and K38 Australia, a water rescue volunteer organisation, were involved in the safety aspects of the event.

26. Mr Scaturchio was a competitor in the Pro Stock Race, a professional competitor class event. Competitors in this event were required to hold a professional competition licence. The AJSBA was at the time of Mr Scaturchio's death and continues to be, the governing body responsible for issuing competitive licences and assessing applicants' suitability. With the exception of Mr Aero Aswar (Mr Aswar), all competitors in the Pro Stock Race held pro competition licences. Mr Aswar, held an International Jet Sports Boating Association licence only and was authorised to participate in the Pro Stock Race by race officials, in consideration of his competency level and international racing experience.

27. The Pro Stock Race is a closed race course circuit designed in accordance with the guidelines for closed race course circuits, as outlined in the International Jet Sports Boating Association (IJSBA) rule book. A closed race course circuit is not a prescriptive course design, in so far as a set course requiring buoys to be placed in specific locations or within specific distance from one another. Rather, race officials design the circuit, devised from previous course layouts, selecting preferred turns and straights to comprise

the circuit. Officials and competitors test the closed race course circuit by undertaking test runs of the circuit and then make adjustments as necessary and as identified, in consideration of the feedback received.

28. All competitors in the Pro Stock Race undertook numerous warm ups on the closed race course circuit prior to the race. Some provided event officials with their comments and suggested amendments to the design layout. In response, event officials made minor changes to the closed race course circuit. Relevantly, all competitors participating in the Pro Stock Race trialled the course and were reasonably familiar with it prior to the race. Further, all agreed to participate in the race with the final design layout.

29. As to the closed race course circuit design, it had a series of straights, as well as numerous left and right turns, indicated by buoys. It was also split into two separate areas, the "inside split" and the "outside split". Competitors challenged one another, utilising their skills to negotiate their way around the buoys and complete all 12 laps of the course circuit in the fastest time.

30. The race start line was also divided into two delineated areas, referred to the "inside split race area" and the "outside split race area". This division indicated the designated area in which each competitor was required to take the first lap of the race course circuit. That is, closed race course circuit rules required competitors in the inside split race area to undertake their first lap in the inside split and competitors in the outside split race area, to undertake their first lap in the outside slip. Once the first lap was completed, competitors were free to select either the inside split or outside split on subsequent laps.

31. At approximately 2:00pm on 22 April 2012, ten competitors lined up at the race start line to compete in the third race of the Pro Stock Race. Mr Scaturchio was one of five competitors in the inside split race area. His starting position was second from the left. The other five competitors were lined up in the outside split race area.

32. The five competitors in the inside split were the following, from left to right (Inner Split Competitors):
    (1) Mr Christopher Withers;
    (2) Mr Joseph Scaturchio;
    (3) Mr Aero Aswar;
    (4) Mr Eliot Birch;
    (5) Mr Marshall Lewis.

33. In compliance with the IJSBA regulations, Mr Scaturchio was wearing personal safety equipment including a helmet, gloves and a personal floatation device.

34. Shortly after the commencement of the race and close to the fourth buoy indicating the fourth turn, Mr Scaturchio's jet ski was involved in a collision with another competitor's (Mr Lewis) jet ski. The impact resulted in Mr Scaturchio being thrown from his jet ski into the water.

35. Immediately after the collision, Mr Lewis noticed a riderless jet ski and Mr Scaturchio face down in the water. He was unaware of the identity of the competitor and jumped from his jet ski into the water to assist him. Mr Lewis immediately swam over to Mr Scaturchio and was assisted by Mr Simon Le Comte, Course Marshall (Mr Le Comte) to lift Mr Scaturchio onto a rescue board, attached to the rescue jet ski (driven by Mr Le Comte). Mr Lewis then drove the rescue jet ski to shore, while Mr Le Comte attended to Mr Scaturchio on the rescue board.

36. Cardiopulmonary resuscitation was performed on Mr Scaturchio by a Saint Johns advanced life support medic once he was transported to shore. Lifesaving measures were undertaken, including the use of a defibrillator, and continued until the arrival of the Queensland Ambulance Service (QAS). QAS paramedics then took over resuscitation efforts. Despite best efforts, Mr Scaturchio was unable to be revived. A life extinct certificate was issued at 2:44pm on 2 April 2012.

37. Note jet ski and PWC (personal water craft) are used interchangeably throughout these findings.

The evidence

38. In review of the evidence, I do not consider it necessary to summarise all of the information in the coronial brief and attained during the inquest. I do however consider it appropriate to record pertinent extracts of expert witnesses' statements and oral evidence provided during the inquest, particularly in relation to the enhanced video footage and relevant facts, on which I have based my decision concerning the circumstances of Mr Scaturchio's death.

39. Relevantly, section 50B(5) provides a coroner, who has reopened an investigation "*may accept any evidence given at the earlier investigation as being correct*".

40. In reviewing the evidence from the earlier investigation, I accept that Mr Scaturchio died as a consequence of a collision between his PWC and Mr Lewis' PWC.

41. Counsel Assisting, Dr Mellifont QC and Ms Parry have provided helpful submissions, and legal precedents cautioning care with respect to evidence in the field of traffic reconstruction and to guard against "backwards inferential reasoning" and/or speculation. Accordingly I have considered the evidence with care and with the notified caution in mind.[22]

Post Mortem Findings

42. Dr Dianne Little, Forensic Pathologist (Dr Little) performed an external and partial internal autopsy (excluding head and arms and legs). A number of toxicology and histology tests were conducted. A full body CT scan was also carried out.

43. In summary, the external and partial internal examination revealed Mr Scaturchio suffered severe chest injuries with fractured sternum, multiple lacerations of the pericardium and multiple lacerations of the underlying heart, both internally and externally with massive haemorrhage into the chest cavities with collapse of both lungs and bruising.[23]

44. In concluding that Mr Scaturchio's chest injuries were the cause of death, Dr Little confirmed:
    (a) Autopsy revealed the presence of severe chest injuries with a fracture of the sternum (breastbone) and patchy overlying bruising on the skin surface. In the underlying chest, the sac surrounding the heart was irregularly lacerated and there were multiple lacerations, both on the external and internal surfaces of the underlying heart which had caused massive haemorrhage into the chest cavities (total almost 4 litres). In addition, there was bruising to both lungs, particularly the right lung;
    (b) Chest injuries were the direct cause of death;
    (c) Also present were minor lacerations to the liver with minimal resulted haemorrhage as well as haemorrhage at the back of the abdomen on the right side;
    (d) Nil evidence of significant natural disease to cause or accelerate death.[24]

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[22] *R v Faulkner* [1987] 2 Qd R 264, 265, lines 20-35; *R v Stephenson* [1999] QCA 519 and *Berwick v Clark* [2018] QSC 116, paragraph 115.

[23] A5, page 8

[24] A5, page 8-9

45. Dr Little was asked to provide her opinion as to whether Mr Scaturchio's chest injuries were caused by the front of a jet ski impacting his body or from contact with the steering pole of his own jet ski.

46. In Dr Little's Supplementary Report, she identified bruising over Mr Scaturchio's central chest, an area of 130mm in height and 25mm in width. Minor lacerations to the liver, fractured sternum and lacerated heart which caused massive haemorrhage into the chest cavities and bruising of the lungs, particularly his right lung.

47. As to the pattern of injuries, Dr Little identified they were a consequence of a heavy blow to the front of Mr Scaturchio's chest. She opined Mr Scaturchio's young age and pliability of ribs, were probable explanations for the absence of rib fractures.

48. Dr Little was unable to determine if those injuries were conclusively caused by the front of the jet ski or from Mr Scaturchio's chest hitting the steering column of his own jet ski. She stated the injuries to the skin of the front of Mr Scaturchio's chest did not show any specific pattern, other than being approximately vertically oriented in a band. Dr Little further observed the presence of Mr Scaturchio's overlying wetsuit and padded personal floatation device would have dispersed the energy from the blow and prevented a distinct pattern being imprinted on his skin.

49. Lastly, Dr Little stated the impacting surface was likely elongated vertically with respect to Mr Scaturchio's body at the time of the impact and that it could have been either, a portion of the steering pole of his own jet ski or a portion of the other jet ski, for example, its nose.[25]

50. I accept Dr Little's opinion as to the medical cause of Mr Scaturchio's death. I also accept that Mr Scaturchio's injuries do not conclusively demonstrate the source of the impact to his chest.

Work health and safety investigation

51. The Office of Fair and Safe Work Queensland (OFSWQ) were notified and subsequently conducted an investigation into the fatal incident. Investigating officers for the QFSWQ reviewed the responsibilities of the AJSBA, the duty holder in accordance with *Work Health Safety Act 2011* and *Safety in Recreational Water Activities Act 2011* along with the control

[25] A5.1, page 2

measures engaged to ensure health and safety at the event. The OFSWQ completed its investigation on 2 December 2012 and determined no further action be undertaken, as there was no evidence of any workplace health and safety issues to support further proceedings.

52. The QFSWQ decision was reviewed by the WHSQ Investigations Governance Group and also concluded there was no identifiable workplace health and safety issues.[26]

53. I accept the OFSWQ findings.

Maritime Safety Queensland investigation

54. Maritime Safety Queensland (MSQ) conducted a parallel investigation into the fatal incident. Mr Alback, Marine Safety Officer, carried out the investigation and also provided technical and other assistance to the Queensland Police Service (QPS) Forensic Crash Unit (FCU), along with the exchange of evidence.

55. During the course of the coronial investigation, Mr Alback provided three statements, dated 1 April 2014, 23 May 2014 and 25 May 2018. He was also called to give evidence during the inquest.

56. Mr Alback having reviewed the evidence including Mr Lewis' statement and analysed and interpreted the MoTeC data, formed the following opinion as to cause of the collision:

> *"Mr Lewis in fifth position[27] had gone "deep and late" into turn four and Mr Scaturchio, in third position[28] had gone into turn four on the inside line, held full power and full lock but due to his position relative to second position slightly ahead and on his outside and holding the turn, Mr Scaturchio over rotated out of turn four and met Marshall Lewis at near head on".[29]*
>
> *"It is my opinion that (MoTeC) data may support Mr Scaturchio's PWC impacted with an object at near head on, whilst being operated at about 32-35kph, on or coming off full lock to starboard and decelerating, presumably in a turn, that caused the jet to be lifted out of the water, and the engine that was under load "unhooked" and revved to*

[26] C4
[27] That is, coming fifth coming into turn four
[28] That is, coming third coming into turn three
[29] B7.10, page 4

the limiter for a period of 0.7 seconds as provided by Peter Swinney's basic conclusions on page 2 of this MOTEC Accident Report dated 15/06/2012".

57. Relevantly, Mr Alback was also of the opinion that the course design was a contributing factor in the incident.

58. With respect to the cause of Mr Scaturchio's fatal injuries, Mr Alback opined it was unlikely Mr Scaturchio "*would have directly impacted the handle bars in the event of a sudden stop or deceleration at the point of the race where the incident occurred"* given his adopted jet ski riding position.[30] Further identifying the most likely scenario being, Mr Lewis' PWC struck the right side of Mr Scaturchio's PWC with the centre link of Mr Lewis' PWC, striking Mr Scaturchio's body and chin, who may have been attempting to avoid impact by falling backwards or otherwise falling backwards from impact. Mr Alback further identified this sequence of events was consistent with the paint transference at the bottom of Mr Scaturchio's helmet.[31]

QPS Forensic Crash Unit investigations – safety and risk management

59. An investigation was conducted into the circumstances of Mr Scaturchio's death by Senior Constable Jennifer Lowe (Senior Constable Lowe) of the QPS CFU, Coomera. Senior Constable Lowe prepared a Coronial Report dated 21 June 2013 outlining her investigation into Mr Scaturchio's death, analysis of the evidence and opinion as to the cause of Mr Scaturchio's injuries and contributing factors (QPS Coronial Report).

60. The material considered in QPS Coronial Report included, *inter alia*, the IJSBA rule book, AJSBA closed course design guide outlining structure and requirements, Queensland Personal Watercraft Club Manual including Risk Management Plan and Safety Management 11/12, witness statements from other competitors, family members, event officials and video recordings and photographs of the race.

61. Senior Constable Lowe also reviewed the documentation prepared by the event official and safety and risk management strategies for any non-compliance. Relevantly, she found the safety and risk management strategies at the time of the incident, met the minimum requirements for the course design and competitor safety. In summary, Senior Constable Lowe found:

[30] B7.10, p3
[31] B7.1, p4

(a) All competitors in the Pro Stock Race were required to hold a Pro Licence, which meant they had won an official AJSBA amateur race or applied to the AJSBA requesting acknowledgement of their experience and/or results in international racing;
(b) Competitors were provided an opportunity to familiarise the closed course by conducting trial runs prior to the race and provide feedback as to suggested amendments to the course;
(c) Competitors were encouraged to advise event officials in the event they did not feel safe with any part of the course;
(d) Competitors were entitled to withdraw from the Pro Stock Race and were advised they would receive a full refund of the entry fee;
(e) The closed course was designed with reference to previously utilised course designs;
(f) The closed course circuit was successfully tested by each of the competitors and event officials;
(g) Mr Scaturchio's safety equipment including helmet and personal flotation device was inspected and found to be in good condition.

62. The tight closed course layout and turns greater than ninety degrees were identified by Senior Constable Lowe as a major contributory factor for the collision between Mr Scaturchio and Mr Lewis. Senior Constable Lowe stated:

"Although there had never been a fatal incident in jet ski racing in Australia using this course design, this course was slightly smaller than usual course designs and some of the inside split turns were sharper than ninety degrees, leaving no margin for error when turning when there are oncoming crafts".

63. As a result of the investigation, Senior Constable Lowe recommended the modification of the closed course layout, noting the course was slightly smaller than usual course designs and some of the inside split turns were sharper than ninety degrees.

64. Subsequently the AJSBA has introduced mandatory double buoyed turns on courses where the angles are more acute than ninety degrees. The amendment was incorporated in the Closed Course Design Guide section of the AJSBA Manual 2013/14. Minimum spacing measurements of 4 metres between buoys for closed course designs was also incorporated. [32] The effect of substituting the single buoy turns to double buoy turns is

[32] B1

that the greater turn apex angle reduces risk by limiting speed and contact between PWCs.[33] I am of the view, the introduced safety measures adequately address competitor safety and do not appear to require further review.

65. As there was no new evidence identified during the reopened investigation with respect to alleged inadequacy or non-compliance of safety and risk management of the 2012 Australian Watercross Nationals, I do not consider this matter requires any further review. Accordingly I accept the FCU findings as to evaluation of the safety and risk management strategies.

QPS Forensic Crash Unit investigations – sequestered video footage

66. FCU identified and sequestered video recordings of the Pro Stock Race taken by two spectators located on the beach. The footage taken by the first spectator was limited in so far as it covered the commencement of the race but failed to capture the actual incident. This was due to the spectator following her partner, Mr Withers who was leading the race at the time of the incident. The second spectator's footage also had significant limitations, in so far as its quality and due to the significant amount of water disturbance in and around the fourth buoy caused by the jet ski collision. The incident was obstructed by water spray.

67. Mr Scaturchio's go pro, mounted to his helmet was also sequestered by FCU. The footage was limited to Mr Scaturchio undertaking various trial runs of the closed course circuit on the days prior to the Pro Stock Race. The actual Pro Stock Race in which the incident occurred was not recorded.

68. The sequestered video footage was included in the coronial brief and disseminated to the witnesses holding expertise in investigations, engineering, and industry experience for opinion. Subsequently each of the expert reports was prepared with the benefit of the sequestered video footage.

QPS mechanical and technical inspections

69. The Queensland Water Police seized the Inner Split PWC's, excluding Mr Wither's PWC as he was in first place, leading the race and not within close proximity to the incident.

[33] B5

70. Mr Brian Peaker (Mr Peaker), a qualified marine mechanic attached to the Marine Technical Section with 26 years' experience, carried out inspections of each of the PWC's and recorded his findings by way of statement.[34]

71. As to Mr Peaker's investigations, he found no mechanical fault on any of the four PWC's that contributed to the incident. He also found each PWC to be in good working order.

72. Mr Peaker's inspection of the PWC ridden by Mr Birch did not reveal any damage. Of the Inner Split Competitors PWC's, it was the sole PWC that did not sustain any damage from the incident.

73. His (Mr Peaker) inspection of Mr Scaturchio's PWC revealed the following damage:
    (a) extensive damage to the front right of the helm area (steering area);
    (b) black transference, believed to be a rubbery consistency, on the transparent panel of the top front and right side and also present above and in front of the handle bars;
    (c) damage to the black plastic front panels;
    (d) the steering wheel and steering wheel assembly had broken from the steering housing and caused the steering wheel assembly to hang from where it originally was mounted.

74. Mr Peaker found Mr Lewis' PWC to have sustained damage to the front bumper in the form of cracks and scrapes and also had coloured transference. Mr Peaker identified the transference was consistent with both Mr Scaturchio's and Mr Aswar's PWC's. Fresh scratch marks were also identified on Mr Lewis' PWC hull (watertight base/under area) towards the bow (forward part of the hull). Mr Peaker identified this was caused when the front of Mr Lewis' PWC collided (with the side) of Ms Aswar's PWC. Along with scratch marks at the bow.

75. On inspection of Mr Aswar's PWC, Mr Peaker found damage to the right hand middle side, where the fibreglass had been pushed inwards and towards the competitor seat and paint transference. He found this to be consistent with a collision with Mr Lewis (and damage sustained to the front bumper and hull of the PWC). Mr Peaker also found damage to the hull however was advised by Mr Aswar that the damage was a consequence of a previous incident. [35]

[34] B6
[35] Ex B1 p22

76. I accept Mr Peaker's investigation findings including the absence of any evidence of pre-existing mechanical faults of any of the Inner Split Competitors PWC's, contributing to the incident.

QPS Forensic Crash Unit investigations – findings and further review

77. As a consequence of Senior Constable Lowe's ceasing employment with the QPS, Senior Constable Kyle Hutchinson (Senior Constable Hutchinson) was tasked with providing an addendum report addressing Dr Richardson's report. During the course of the coronial investigation Senior Constable Hutchinson provided two statements dated 1 June 2018 and 25 November 2018 and also gave evidence during the inquest.

78. Senior Constable Hutchinson supported Senior Constable Low's initial finding however offered a differing opinion with respect to the point of impact and cause of injuries, stating the "*hull of Mr Lewis' PWC struck Mr Scaturchio as opposed to the leading edge of Mr Lewis' PWC"* and that it was unlikely that Mr Scaturchio would strike the handlebars as he did not believe "*Mr Scaturchio was moving forward with sufficient speed or that Mr Scaturchio's PWC stopped dead in the water in a head-on collision".* [36] Further, "*the hull of Mr Lewis' PWC mounted the front, crushed the handlebar down and to the rear and the hull struck Mr Scaturchio as Mr Lewis' PCW continued ahead … It is possible that the handlebars were pressed into the chest of Mr Scaturchio during the collision".*[37]

79. As to the cause of injuries, he formed the following opinion:

    The three riders had negotiated turn three. Mr Scaturchio, then Mr Lewis and followed by Mr Aswar. All three riders took slightly different lines with the intention of making a right turn at the turn four buoy. Mr Scaturchio arrived at the buoy first and commenced a sharp right turn. Consequently, his speed was reduced substantially in the water (probably due to inconsistent thrust – perhaps "spin-out") which created a large disparity between his PWC turn speed and the approach speeds of both Mr Lewis and Mr Aswar's PWCs. Approaching the same turning point, a collision occurred at or near the turning buoy. In the conditions, collision was unavoidable.[38]

[36] B9, p11
[37] B9, p12
[38] B9, p6

80. Senior Constable Hutchinson also identified the track design, in particular the acute turn at the fourth buoy, as a contributory factor to the cause of the incident, along with Mr Scaturchio's speed and the disparity of speeds of Mr Lewis' and Mr Aswar's approaching PWC's. [39]

81. I note Senior Constable Lowe provided the following commentary with regards to the context in which the incident occurred:

> *"Like with any motorised high speed sport, there is some element of risk and, in this case, the risk had been identified in the Risk Management Plan of the Queensland Personal Watercraft Club Manual which all competitors are made aware of. If it was not for the challenge, the competitiveness of elite level athletes competing in these sports, these sports would not exist. People will continue to compete in high speed sport and there will always be the risk associated with these sports. Hopefully the risks can be minimised by small changes, but unfortunately sometimes these changes are not recognised until incidents highlight an issue with an event or activity".* [40]

82. Senior Constable Lowe identified two possible scenarios as to the cause of Mr Scaturchio's fatal injuries, outlined in the QPS Coronial Report. She also identified the events leading to the collision between Mr Lewis and Mr Scaturchio and or the cause of same, was a consequence of Mr Scaturchio's PWC had either "*spun out or hung in the wash from the jet being out of the water".*

83. The reasonableness of Senior Constable Lowe's findings is twofold. Firstly, on the evidence available, Dr Little's examination of Mr Scaturchio injuries, did not conclusively demonstrate the source of the impact to his chest. The sequestered video evidence was limited, in so far as the collision between Mr Lewis' PWC and Mr Scaturchio's PWC was obstructed from view due to water spray. Secondly, Senior Constable Lowe's identification of the two possible scenarios as to the cause of Mr Scaturchio's injuries was through application of her extensive investigation experience and critical analysis of the evidence. Relevantly, Senior Constable Lowe identified that there was a collision between Mr Lewis and Mr Scaturchio and an antecedent event. I am therefore not critical of Senior Constable Lowe's investigation or findings.

[39] B9, p6
[40] B1, p49

84. I have also reflected on Senior Constable Hutchinson's comments during the inquest that the circumstances of the collision was an 'investigators' nightmare'. I accept the investigation from an investigatory perspective was extremely challenging, due to the multiplicity of issues including that the incident occurred on water being a dynamic marine environment, at speed, in racing conditions and with PWCs in extremely close proximity to one another, requiring reconstruction in the absence of a physical scene and compelling physical evidence. Accordingly I am also not critical of Senior Constable Hutchinson investigation and findings.

85. I note the adequacy of the QPS's investigation into the death of Mr Scaturchio was not raised during the inquest. Accordingly I find the QPS investigation into Mr Scaturchio's death was conducted appropriately and comprehensively.

QPS Electronic Recording Section – sequestered video footage enhancement

86. In consideration of recent advancements in photographic enhancement technology and prior to the inquest, the sequestered video footage was provided to the Electronic Recording Section of QPS for enhancement at my request.

87. Mr Tim Woodcock (Mr Woodcock), Senior Forensic Recording Analyst, Electronic Recording Section (ERS), Queensland Police Service was tasked by the Officer in Charge of ERS to analyse and enhance the sequestered video footage from the 2012 Australian Watercross Nationals.

88. As requested, Mr Woodcock performed the following tasks with respect to enhancing the sequestered video footage:
    (a) de-interlaced the video footage by removing interlacing artefacts and placed frame numbers on each frame for unique identification (folder 1 Exhibit B10.1);
    (a) created as a sequence of 130 images/still pictures covering the incident and also superimposed frame numbers (folder 2 Exhibit B10.2);
    (b) utilised the still pictures he stabilised and cropped close to the incident (folder 3 Exhibit B10.3);
    (c) utilised the still pictures he added notation to identify jet skis 1 through to 5 (the 5 competitors in the Pro Stock Race); created 3 subfolders containing videos of the images at 25 frames per minute (fpm), 10 fpm and 2fpm and a further subfolder identifying a 'black mass' that appears to travel through air

and splash into the water (identified as the splash observations) (folder 4 Exhibit B10.4);

(d) created a looped video (repeated) of the splash observation and subfolder of images and videos of the fourth buoy location (folder 5 Exhibit B10.5);

(e) provided two images identifying ski 70 and 200 (folder 6 Exhibit B10.6) (enhanced video footage).[41]

89. Mr Woodcock outlined the process of de-interlacing and other enhancements he made in respect of the sequestered video footage in his statement of 23 November 2018.[42] Mr Woodcock also gave evidence at the inquest.

90. Mr Woodcock's expertise is forensic recording analysis. He has extensive experience in enhancing and analysis of audio and video recordings and has 30 years in audio and video engineering, with 15 years in the forensic discipline. Appropriately, Mr Woodcock did not purport to interpret the enhanced video footage in so far as to speculate about the events leading to Mr Scaturchio's death.

91. During the inquest, Mr Woodcock explained the process he undertook to enhance the video footage including the de-interlacing process, creation of the 130 stills with superimposed frame numbers, competitor position numbers for identification and the splash observation, in which he identified a 'black mass' that appeared to travel through the air and splash into the water. He further explained, despite best efforts that the incident remained obstructed by water spray.

92. Mr Woodstock clarified the superimposed numbers on the PWC's correlated with the numerical sequence of the competitors lined up on the race line, from left to right and focused on their negotiations around the third buoy turn, along the straight and in and around the fourth buoy turn, where the incident occurred.

MoTeC Data Reports

93. Mr Peter Swinney (Mr Swinney) is the Operations Engineer for the Motorsport ECU and Data Analysis Company, MoTeC Pty Ltd (MoTeC). [43] Mr Swinney has been employed by MoTeC for a period of 17 years. He is also an A Grade Qualified

[41] B10
[42] B10
[43] D8.1 [3]

Mechanic.[44] As an Operations Engineer, Mr Swinney is responsible for tuning engines, analysing race data and specialises in the marine aspect of MoTeC's business.[45] He is also in charge of the MoTeC operations of the engine control unit (ECU) product development for PWC's.[46] Since 2012, Mr Swinney has continued working extensively with racing PWC's across all levels of the sport.[47]

94. Mr Swinney prepared two reports, dated 16 June 2012 and 11 October 2018. He also gave evidence at inquest.

95. Mr Swinney's report of 16 June 2012 (First Report) was prepared at the request of Senior Constable Lowe of the QPS CFU and provided basic information about the data downloaded from the on-board aftermarket MoTeC ECU (MoTeC ECU) fitted to Mr Scaturchio's PWC.[48]

96. In consideration of Mr Scaturchio's family concerns, and as part of the coronial investigation, I requested Mr Swinney prepare a further report providing in depth analysis of the MoTeC ECU data.

97. In his supplementary report of 11 October 2018 (Second Report) Mr Swinney provided in depth detail about the process in which data is downloaded and derived from on-board sensors, commonly referred to as channels[49]. He further explained the difference between the first channels which the competitor can physically influence and the second, being channels the ECU controls (ECU influences the behaviour of the PWC). [50] Mr Swinney stated that of the 375 channels logged and extracted data from the MoTeC ECU fitted to Mr Scaturchio's PWC[51], the majority of those channels are used for engine performance and to monitor the ECU performance. Of those, only seven were relevant to assist with the investigation of Mr Scaturchio's PWC and rider behaviour[52]. Mr Swinney's analysis of the data extracted from the most relevant channels, moments prior to the time of the incident, identified Mr Scaturchio significantly deviated from his typical rider behaviour.[53]

[44] D8.1 [3]
[45] D8.1 [3]
[46] D8.1 [3]
[47] D8.1 [3]
[48] B1.5 [2]
[49] B1.5 [3]
[50] B1.5 [4]
[51] D8.1 [21]
[52] D8.1 [32]
[53] D8.1 [68-70]

98. In determining Mr Scaturchio's typical behaviour Mr Swinney utilised MoTeC I2 analysis software (I2 software), a high tech quality analysis tool, used throughout motorsport virtually to Formula 1 racing,[54] to analyse the following evidence:
    (a) MoTeC ECU data logged from Mr Scaturchio's previous warm up/trial race laps (12 laps in total, taken on the inner split with the exception of lap 10, as Mr Scaturchio took the outer split)[55];
    (b) MoTeC ECU data logged from Mr Scaturchio's accident race lap;
    (c) GoPro video footage from Mr Scaturchio's previous warm up/trial race laps.

99. I have read Mr Swinney's First Report, listened to the Second Report along with his evidence provided at inquest. Counsel Assisting has also provided detailed submissions about Mr Swinney's reports describing the ECU data download process and the data downloaded from on board sensors of the MoTeC ECU fitted to Mr Scaturchio's PWC.

100. I accept Mr Swinney's findings and in reliance of the information provided by Mr Swinney, understand that an ECU is an electronic control unit which records and interprets data through sensors, to analyse engine function, transmission, steering and suspension and other key elements of engine performance and reliability. It also records driver or rider performance, typically utilised across all levels of performance motorised racing sports. In the context of Mr Scaturchio's death, the data downloaded from the on-board channels on the MoTeC ECU fitted to the PWC, provides instructive information about Mr Scaturchio's final input into the engine and the engine's performance.

101. Relevantly, the data identified the incident occurred at approximately 17 seconds into the race lap. In the final second, prior to the incident, the speed of Mr Scaturchio's PWC decreased from 35 to 32 kilometres per hour. Mr Scaturchio engaged the throttle three additional times and the engine responded appropriately and without fault or delay. He then made three directional changes, as indicated by the steering lock data. The engine speed limiter, a device fitted to engines to protect against maximum speed, detected the engine was at maximum speed for 0.76 seconds, prior to the engine ceasing, as a consequence of the removal of the lanyard when Mr Scaturchio fell into the water.

[54] D8.1 [10]
[55] D8.1 [62]

102. Mr Swinney advised the analysis of the data and the success of the logged data itself, hinges on a multitude of aspects including the quality of the ECU unit sensors, correctly calibrated channels, correct locations and logging rate.[56] The significant limitations in the context of logged data, include that it cannot identify the cause of the incident, other PWC's in the vicinity or relevantly, if the PWC spun out or over rotated. Further, it ceases after the lanyard worn by Mr Scaturchio was pulled from the PWC and entered the water.

103. Mr Swinney was asked to provide his opinion as to the interpretation of the logged data recordings from the relevant channels and to identify Mr Scaturchio's rider activity at or just prior to the incident. He opined the additional throttle events could have been created by Mr Scaturchio to assist the PWC make direction changes. In respect to direction, he noted the steering lock inputs indicate steering changes only, not the exact direction taken by Mr Scaturchio. He also advised that the inputs were significant, as they were full directional changes e.g. left, to right, then left. Relevantly, Mr Swinney was unable to determine if the directional changes or the additional throttle events were to avoid another PWC.

104. He (Mr Swinney) contemplated the cause of the engine speed limit behaviour, having been active to 0.76 seconds, stating the activity typically occurred in race situations and while usually indicative of a PWC being out of the water, it was limited to average to 0.2 seconds. Mr Swinney excluded the activity was a result of rough water, as the limiter was constant as it was not logged inconsistently up and down and however speculated the pump may have been out of the water or the nose of the PWC could have been down and in the water.[57]

105. Mr Swinney also considered if the activity was a result of the collision between Mr Lewis' PWCs and Mr Scaturchio's PWC. In determining same, he calculated the PWC was 3.3 metres long and curved at the bow, with possible contact at 3 metres. Noting the PWC's were travelling on average at 9 metres per second (the average of all minimum speeds logged by the MoTeC data) and identifying the duration of the collision and subsequent contact between the PWC's would have occurred for a total of 0.33 or 330 milliseconds. Mr Swinney remarked the timeframe of the collision between the PWC's was approximately half of the time in which the engine speed limiter was active for. As to the remaining time in which the engine speed limiter was active, a further 0.43 seconds, Mr

[56] D8.1 [5 – 14]
[57] B1.8 [31]

Swinney stated, it was an unusual amount of time to be out of the water. Lastly, in the absence of any additional data, Mr Swinney advised there was no way to identify the cause of the additional timeframe.

106. In summary, Mr Swinney's analysis of the MoTeC data was that Mr Scaturchio's inputs into the ECU sensors reflected deviation from his typical riding behaviour and in context, Mr Scaturchio did not operate the PWC in a similar manner to any of the previously recorded negotiations around the fourth buoy. [58]

Mr Aero Aswar's account of events

107. Mr Aero Aswar (Mr Aswar) was 17 years old at the time of the incident, and a resident of Jakarta. He provided his statement to QPS on 23 April 2012. He was unavailable to attend the inquest.

108. Mr Aswar's account of the race was that he commenced on the inside split in third position from the left. As he came up to the first buoy, he could see the orange ski (Mr Lewis) was approaching the second buoy from a wide position, and there was clean water inside of the orange ski. He (Mr Aswar) took a sharp turn from the first buoy to the second buoy to take advantage of the clean water. He then took the second and third buoys close to the buoys. As he was coming up to the fourth buoy, he saw the orange ski (Mr Lewis) in front of him. Mr Aswar was on the inside of the race lane and could see the yellow ski (Mr Scaturchio). He stated it was "*turning really sharply to the fourth buoy*."[59] He then saw the orange ski (Mr Lewis) start to turn to the right near the fourth buoy and he went out to the left to avoid the splash. [60]

109. Mr Aswar then negotiated the fourth buoy turn and saw water splash to his right but did not see what occasioned the splash. He continued wide and made it to the fifth buoy turn and continued the race until he noticed the red flag notifying the immediate cessation of the race. [61]

[58] D8.1 [31]
[59] B2,[12]
[60] B2,[12]
[61] B2, [13-14]

Mr Marshall Lewis' account of events

110. Mr Marshall Lewis (Mr Lewis) was 27 years of age at the time of the event. His statement was not taken by QPS until 24 May of 2013 as he was too emotional at the time of the incident to provide his version of events.

111. Mr Lewis recounted that during the race he was "*next to three other people, pretty much the left hand turn (third buoy turn) and to the straightish part of the right hand turn (fourth buoy turn)".* He recalled having a PWC next to him and that it "*actually bumped into me twice as we were heading for that right hand turn."*

112. In the straight, coming from the third buoy turn and leading into the fourth buoy turn, Mr Lewis stated his *"left hand side vision was impaired, but he could still see the right turn buoy*". He said that a ski was on his left, and he (Mr Lewis) was on the outside of one ski that he knows of, but that he could see the right hand turn "no worries at all". [62]

113. He said that he could see the buoy: "*As we were in the straight … as we approached it closer the boat then hit me that was on my left hand side, hit me again, his spray impaired, his spray slightly impaired me. I knew I hadn't moved from track so I knew where I was heading*." [63] As he was approaching the buoy, and got closer to that buoy, "*a huge wall of spray came up in front of us, it happens pretty fast, it wasn't a slow thing, I felt like I ran over something."*[64] He then turned and saw the riderless PWC, saw someone in the water and immediately jumped in the water to assist.

114. Mr Lewis when asked to describe what he had hit or felt, he stated *"it was fairly large, well I felt like I hit something. It didn't feel that big, it sort of felt like I ran up the back of a ski".* As to the PWC's position, he commented that he was outside of the track from where he had come from and that "*the buoy seemed to be quite far … quite a way on my left, so I didn't quite understand, how we ended up so far from the track".*[65]

115. During the inquest, Mr Lewis clarified that the bump or taps between the PWC's were more like rubbing, given that PWC's were all heading in the same direction and given their close proximity to one another would often touch.[66]

[62] B1.7, p4
[63] B1.7, p4-5
[64] B1.7, p5
[65] B1.71, p5
[66] TD1 – 1-21-22

116. As to the location of the incident, Mr Lewis explained that he had "*started turning in, as it happened. So it was right on the point apex of the turn as far as – is where I would see it, where I felt it happened".* Further adding, he didn't exit the turn as he went past it. "*We didn't make it around the turn. Neither of us made it around the turn*".[67]

117. In response to what may have caused Mr Lewis to have come to hit Mr Scaturchio with his PWC, he (Mr Lewis) stated *"I don't know what happened to his position to put him in a position that I hit him. No. I turned into a turn. Spray came across, and I hit something. At that point, didn't know what it was".*

Analysis of the coronial issues

118. During the inquest, the enhanced video footage as provided by QPS ERS and MoTeC data outlined in Mr Swinney's Second Report, were closely examined. Each of the selected expert witnesses provided their opinion as to their interpretation of the enhanced video footage and subsequent identification of the coronial issues, being the cause of collision, point of contact and cause of Mr Scaturchio's injuries. Given the benefit of the substantially enhanced evidence, a sequence of events was canvassed as to the most likely scenario of events leading to Mr Scaturchio's death.

119. Despite Mr Woodcock's, QPS ERS best efforts to enhance the sequestered video footage, the visibility of the incident itself remained obstructed from water spray.

120. For the purposes of reference, the expert witnesses collaborated and agreed on the constituents of a typical turn, identified as the Entry, the Turn and the Exit (as depicted on Exhibit 1).[68] Further, Mr Leven clarified the vernacular term 'unhooked' to mean when a jet ski pump (processes the water out of the exit nozzle and creates forward momentum) gets aeration, due to no water or extremely aerated water, which can occur in a number of situations such as rough water conditions, wake from another jet ski, prop wash (creating aeration), which results in the pump not processing the water efficiently, thus creating a cavitation field. He also explained 'cavitation' by the analogy of "*wheels spinning*".[69] Mr Alback further clarified 'spin out' to mean "*the desired turn is interrupted by the lack of suction*

[67] TD1 – 1-51-52
[68] Ex 1. Diagram of typical PWC turn for legal reference
[69] TD-1, 1-76

of the pump and the lack of adhesion in the turn of the water surface, which causes the rear of the ski to almost overtake the turning arc". [70]

121. Note explanation of the above vernacular terms is relevant to the expert witnesses' exploration and identification of Mr Scaturchio's rider behaviour and interconnectivity between the Inner Split PWCs.

122. A significant scenario identified for the panel of experts was the prospect that the splash event, discovered by Mr Woodcock during the course of enhancing the sequestered video footage, was a consequence of Mr Scaturchio entering the water. Dr Richardson was questioned about the probability of the splash event resulting from Mr Scaturchio entering the water post incident and stated the splash indicated "*something hitting the water, traveling from the right to the left, which is the same direction as post impact, Mr Scaturchio's PWC".* He further qualified, *it's plausible that what's identified is Joseph (Scaturchio) being thrown in the water. That's my view".* [71]

123. Mr Leven, holder of a pro class jet ski licence and Australian PWC Champion (1997, 2008, 2017 and 2018) with 22 years' experience as a pro class PWC rider, reviewed the enhanced video footage and identified an 'additional contact' made to Mr Scaturchio's PWC prior to the collision with Mr Lewis. This sequence of events had not previously been considered by the panel of experts.

124. Mr Leven gave evidence during the inquest that he had observed Mr Aswar (in the enhanced video footage with imposed numbers exhibit B10.4) was in closer proximity to Mr Scaturchio then he first considered and that he (Mr Aswar) likely bumped or taped the rear of Mr Scaturchio's PWC in the Entry of the turn, causing the PWC to change its direction from right to left and alter its nose down into the water. The consequence of the additional contact was Mr Scaturchio's PWC was occasioned to face back in the direction it came from, resulting in it being in line with Mr Lewis' PWC. [72] He identified this antecedent event, as the first contact.

125. He (Mr Leven) identified that Mr Aswar's PWC had a large amount of cavitation, was almost stationary and was a lot deeper past the fourth buoy, as was Mr Lewis' PWC. Mr Leven considered that Mr Aswar should have been going at a faster speed mid corner, in

[70] TD-2, 2-58
[71] TD-2, 2-53
[72] TD-2, 2-24

consideration of the line he took from the third buoy turn and his location, being the far left side of fourth buoy turn. These considerations were pivotal in his discovery of the antecedent event, namely the first contact, prior to the collision between Mr Lewis and Mr Scaturchio.

126. As to the cause of the collision and point of contact, Mr Leven provided his opinion as to the following sequence of events, identified as Mr Aswar's PWC slightly taped or bumped the back of Mr Scaturchio's PWC (first contact) which occasioned Mr Scaturchio's PWC to change its direction from right to left and alter its nose down into the water and also the direction of Mr Aswar's PWC, to go further on past the buoy. Mr Lewis' PWC then contacted and went over the top of Mr Scaturchio's PWC (second contact). Further, Mr Lewis' PWC then collided with the back rear of Mr Aswar's PWC (third contact). [73] He identified the location of the collision (between Mr Lewis and Mr Scaturchio) was "*in the line between Entry and the turn*". [74] He opined the first contact to Mr Scaturchio's PWC "*changed its angle to be facing back in the direction that it's come from, still in the line between the Entry and turn point*".

127. Mr Leven explained, he experienced bumps and taps mid racing and that they had consequently altered the angle of his jet ski by up to 45 degrees. "*It can have a dramatic effect on the direction of both skis and also cause increased cavitation".* [75] Similarly, Mr Lewis identified the common occurrence of bumps and taps in PWC racing, as "*race rubbing*". [76]

128. Mr Swinney was then requested to align the MoTeC data against specific frames of the enhanced video footage and comment on consistency with the data. Specifically, he was asked to align the MoTeC data and frame 1127 (in the enhanced video footage with imposed numbers exhibit B10.4)[77], as a probable scenario that the frame or close to the correct frame (1130) identified the collision between the two PWCs. This premise was identified given Mr Woodcock's discovery of the splash event was Mr Scaturchio entering the water. Relevantly, Mr Swinney confirmed that MoTeC data did not contradict the presented scenario.

129. He was also asked to provide his opinion as to the MoTeC data being consistent and aligned with the possible scenario of the first contact, between Mr Aswar and Mr Scaturchio. Mr

[73] TD-2, 2-41
[74] TD-2, 2-41
[75] TD-2, 2-24
[76] TD-1, 1-56
[77] Ex B10.4

Swinney confirmed the scenario was highly likely. Further stating "*it is highly likely that a tap to the rear of the PWC will cause it to lose traction*".[78] He (Mr Swinney) explained the limit of adhesion, in either water or motor sports, is when the vessel is at its adhesion limit while turning and that the rider or driver has typically gone around a corner or buoy many times and practices to the limit of adhesion. At the limit of adhesion given the limited friction, it takes very little to interrupt or break the traction e.g. tyres and road or PWC and water). Mr Swinney further stated, *"that whole scenario fits almost perfectly".* [79]

130. Dr Richardson was then asked to consider the scenario of the first contact between Mr Aswar and Mr Scaturchio and the possibility of the antecedent event, causing the collision between Mr Scaturchio and Mr Lewis (the second contact) in so far as it redirected Mr Scaturchio's PWC in line or slightly off centre with Mr Lewis' PWC. Dr Richardson accepted that it was a plausible scenario.[80] Having considered the enhanced video footage, Dr Richardson altered his opinion as to the location of the incident, namely to have occurred in the Entry of the turn, to Exit as illustrated in Exhibit 5.

131. As to the collision, Dr Richardson identified the collision between Mr Lewis and Mr Scaturchio's PWCs as "*a glancing blow*". He clarified that he had worked under the premise that the MoTeC data was reliable and that it did not support a change in velocity as a result of the collision. Dr Richardson stated it did conversely support a glancing blow, despite the PWCs being orientated in an offset head on configuration. He opined the collision did not cause both jet skis to stop, but rather they glanced … "*it's been a sliding offset, overrun impact".*[81] As to the likely scenario that the impact had on the PWCs, Dr Richardson affirmed "*Mr Scaturchio's ski would go to the left and Mr Lewis' jet ski would go to his left as well, separating from one another. That's physics"*.[82]

132. Finally in respect to the impact and cause of Mr Scaturchio's injuries, Dr Richardson stated much would depend on the collision dynamics, however the PWCs did engage but not necessarily impacted Mr Scaturchio fully in the chest. He further observed the PWCs "*impacted at some angle and glancing across and been engaged in the chest to cause a velocity change".* [83]

[78] TD-2, 2-27
[79] TD-2, 2-2
[80] T D-2, 2-28
[81] TD-2, 2-52
[82] TD-2, 2-52
[83] TD2-2, 2-53

133. With majority support from the expert witnesses, the additional contact or antecedent event between Mr Aswar's and Mr Scaturchio's PCWs was considered to be the most likely scenario as to the cause of the collision between Mr Lewis and Mr Scaturchio. The discrepancy was limited to whether Mr Scaturchio over rotated his PWC or was in a spin out prior to the additional contact which occurred between Mr Aswar's and Mr Scaturchio's PWC, so as to cause the collision between Mr Lewis' and Mr Scaturchio's PWCs.

Other party submissions

134. Submissions received for Senior Constable Kyle Hutchinson, the Department of Transport and Main Roads and Queensland Police Service, all adopted Counsel Assisting's submissions in respect to findings and circumstances of Mr Scaturchio's death, as required by section 45(2) of the Act.

Scaturchio family submissions

135. The Scaturchio family submissions oppose Counsel Assisting's' submissions as to the evidence presented at the inquest and specifically, the additional contact between Mr Aswar's and Mr Scaturchio's PCWs. The Scaturchio's maintain that Mr Lewis was on the incorrect side of the fourth buoy turn (approaching from the right of the buoy) which resulted in Mr Scaturchio's death. The Scaturchio submissions also raised a number of issues in support of their preferred conclusion and or raised issues for further consideration. I will now address each of the issues raised respectively.

Did Mr Scaturchio's PWC spin out immediately prior to the collision?

136. The notion of whether Mr Scaturchio's PWC spun out or over rotated prior to the incident was examined by the expert witnesses throughout the inquest and divided expert opinion.

137. In particular, Mr Alback's dissenting opinion was that the change in Mr Scaturchio's PWC riding behaviour was as a consequence of his PWC 'unhooking' and already being in a rotating spin out, when the contact between the two PWC's occurred.[84] He opined "*Mr Scaturchio has lost traction, a clip occurred which has exacerbated Mr Scaturchio's*

[84] TD-2, 2-26

rotation. He has then hooked up causing that spray (to right of the screen) and he has come almost back on his own path".

138. Senior Constable Hutchinson contemplated that either a spin out or the first contact between Mr Aswar's and Mr Scaturchio's PWCs were a likely possibility as to the cause of the collision between Mr Lewis and Mr Scaturchio.[85] He did not prefer one possibility over the other.

139. Conversely, Mr Swinney's analysis of the MoTeC data downloaded from ECU fitted to Mr Scaturchio's PWC, did not support Mr Scaturchio's PWC spinning out or over rotating. Mr Swinney stated "*there is no evidence (MoTeC data) to support the scenario of the PWC already spinning out … nothing in the data anywhere to say he was already spinning out. There is nothing that even remotely suggests that".*

140. Relevantly, Mr Leven dismissed the likelihood of spin out or over rotation, given the riding skills and ability of Mr Scaturchio and the handling characteristics of the hull of the PWC in which he rode. Mr Leven concluded "the *Sea-Doo RXP-X ridden by Mr Scaturchio is an extremely good handling ski … they are a ski that would be extremely hard to spin, and I believe a ski – a spin by ski 2 (Mr Scaturchio), although a possibility, is more probably unlikely given the handling characteristics of the hull, and also the riding ability of Mr Scaturchio"*.[86]

141. Finally, Mr Swinney in support of Mr Leven, stated "*I one hundred percent agree that the PWC (RXP-X) and Joseph Scaturchio together should, would, it is an unlikely scenario given his experience, given his times around the buoy, it is extremely unusual for that to happen".*

142. Given Mr Swinney's comprehensive knowledge and expertise in MoTeC data analysis, I am persuaded by his evidence and analysis of the MoTeC data (downloaded from the ECU fitted to Mr Scaturchio's PWC) of which did not support that Mr Scaturchio's PWC was in a spin out or over rotated moments prior to the incident. Further, his opinion of Mr Scaturchio's experience and riding skill also did not support his PWC spinning out or over rotating.

143. I also consider relevant the opinion and expertise of Mr Leven, an Australian PWC champion and professional PWC rider with over 22 years professional PWC riding experience in like racing circumstances. In considering the scenario where Mr Aswar's PWC made contact with

[85] TD-2, 2-26
[86] TD-2, 2-25

Mr Scaturchio's PWC, Mr Leven stated the "minor contact" to the rear of ski 2 (Mr Scaturchio) altered the direction of both skis (Mr Scaturchio's and Mr Aswar's), "*causing increased cavitation to both skis*" and ski 5 (Mr Lewis) going over the top of ski 2 (Mr Scaturchio). Mr Leven also opined that the handling characteristics of the PWC (Sea-Do RXP-X) and Mr Scaturchio's riding ability also did not support his PWC spinning out or over rotating.

144. Having considered the evidence, I find that the enhanced video footage and the statements of Mr Leven and Mr Swinney sufficiently displace any inference that Mr Scaturchio spun out or over rotated his PWC prior to the incident or at the time of the incident and likewise, any rider error on Mr Scaturchio's part.

145. I find on the balance of probabilities that Mr Scaturchio did not spin out or over rotate his PWC prior to the incident or at the time of the incident. I further find on the evidence available, no rider error on the part of Mr Scaturchio that contributed to this terrible incident.

Mr Scaturchio's approach to the fourth buoy turn and location of collision

146. Mr Scaturchio's approach to the fourth buoy turn and whether he approached it on the correct side of the buoy, was also considered during the inquest. I note this matter was less contentious due to the majority of the experts inferring that Mr Scaturchio was on the correct side of the fourth buoy turn, prior to the incident.

147. In review of the enhanced video footage, Mr Leven stated "*ski 2 (Mr Scaturchio) enters corner 4 from a wide angle and appears to be trying to go tight to the buoy, compared to ski 4 just in front. I presume, from a racing perspective, trying to find smoother water on the inside of ski 4 and rounding the buoy on the correct side".* [87]

148. Mr Aswar's statement identifies that he saw Mr Scaturchio's PWC ahead of him "*turning really sharply to the fourth buoy*."[88] The enhanced video footage depicts Mr Aswar behind Mr Scaturchio, prior to the incident and supports that Mr Aswar was in a position to see Mr Scaturchio's PWC and make contact with his PWC.

[87] TD-2, 2-24
[88] B2,[12]

149. Lastly, Senior Constable Hutchinson identified that "*Mr Scaturchio may have been attempting that snap turn to get around that buoy inside Mr Birch and to get out as – as quick as he can*". Mr Birch over took into second place and completed the fourth buoy turn as depicted in the enhanced video footage. Mr Scaturchio's PWC travelling on the inside of Mr Birch rounding the fourth buoy, placed him on the correct side of the buoy.

150. I am persuaded by the enhanced video footage and the above expert witnesses opinions that Mr Scaturchio was on the correct side of the fourth buoy, prior to the incident.

151. I find on the evidence available, Mr Scaturchio was on the correct side of the buoy as he approached the fourth buoy turn.

Did Mr Aswar's PWC bump Mr Scaturchio's PWC prior to the collision?

152. The proposed antecedent event or 'additional contact' between Mr Aswar and Mr caturchio prior to the collision, was explored by the expert witnesses and considered by the majority, being Mr Swinney, Mr Leven, Mr Alback and Senior Constable Hutchison as most likely and by Dr Richardson as plausible.

153. In brief, the additional contact was identified as Mr Aswar's PWC tapping or bumping the back of Mr Scaturchio's PWC (first contact). The contact resulted in a change of direction to both Mr Aswar's PWC to push him further past the buoy and Mr Scaturchio's PWC to change its direction from right to left, facing back in the direction it came, nose down and in line with Mr Lewis' PWC.[89] Mr Lewis' PWC then went over the top of Mr Scaturchio's PWC (second contact) and Mr Lewis' PWC then collided with the back rear of Mr Aswar's PWC (third contact). As outlined in detail under the heading of Analysis of the coronial issues.

154. Relevantly, the disparity between expert witnesses was limited, in so far as Mr Alback's opinion that Mr Scaturchio's PWC had 'unhooked' and already lost traction and that the bump or tap from Mr Aswar's PWC exacerbated Mr Scaturchio's PWC rotation back in the "*direction of his initial entry to the turn and met Mr Lewis head-on or thereabouts".* [90] Senior Constable Hutchinson was unable to identify whether a spin out or the additional contact was the likely scenario as to the cause of the collision between Mr Lewis and Mr Scaturchio.[91]

[89] TD-2, 2-24
[90] TD-2, 2-59
[91] TD-2, 2-26

155. The Scaturchio submissions state that the evidence does not support the additional contact scenario, in particular the contact between Mr Aswar's and Mr Scaturchio's PWC for the following reasons:

(a) There is no evidence of the bump on either PWC;

(b) Ms Aswar does not mention the bump in his statement;

(c) The angle of the riders in the enhanced video footage does not support the theory.

156. In review of the Scaturchio submissions, I am of the opinion that these suggestions do not adequately or persuasively dismiss the expert evidence outlined herein that the additional contact between Mr Aswar's and Mr Scaturchio's PWCs likely occurred or in my opinion that it likely did occur.

157. I find the submissions are without merit for the following reasons. Firstly, I do not consider the absence of physical damage (to a PWC) to be indicative of contact not having occurred in racing conditions. I refer to Mr Leven's statement in which he identified contact between PWCs was common place in racing conditions and often did not result in residual marks. I accept his assessment and consider it is also supported by the race video shown by Mr Leven during the inquest, demonstrating the extremely close proximity and frequent contact between PWCs in racing conditions. Mr Leven stated:

> *"No marks are left on the ski because you're basically travelling in the same direction, but it is enough to upset both skis involved and alter their direction. Certainly not intentional, but as per my video that was shown yesterday from the aerial view, we're very close at different variant speeds sometimes and bumps happen. Same as they do when we were discussing – I heard Mr Lewis as far as saying for bumps happening out of the start gate. It's not intentional, but we're racing in close proximity. They do happen. To say that they don't happen, it would – it's not the case. They definitely – little bumps, nothing on purpose, but little bumps happen because you're making split second decisions in a very short period of time".* [92]

158. Mr Swinney explained that it would take very little force to interrupt or break adhesion (friction or traction) of a PWC while at the limit of adhesion so as to redirect or dispel the PWC. I accept that analysis. In application of the circumstances, I consider a tap or bump from Mr Aswar's PWC need only to have been minor to cause the redirection of Mr Scaturchio's PWC

[92] TD-2, 2-26

into the direction of Mr Lewis' PWC. I also consider the contact between the PWCs exemplified 'race rubbing' and given their forward direction, likely did not cause any physical damage to either PWC or create any awareness (to Mr Aswar) as to its occasion.

159. While it is true that Mr Aswar did not identify or refer to a tap or bump in his statement occurring in or around the fourth buoy turn, the scenario of the antecedent event or additional contact was a matter raised during the inquest. In the absence of Mr Aswar providing further information and being available for cross examination and in the light of the expert evidence at inquest, I attach little weight to this submission in concluding that there was no antecedent event or contact between Mr Aswar's and Mr Scaturchio's PWCS. Despite best efforts by QPS and the Coroners Court of Queensland, Mr Aswar was unable to be contacted.

160. I also find the submission that the 'angles' do not support the antecedent event is without merit, on the basis that all of the expert witnesses agreed that the angles in which the competitors took in and out of turns, in particular at the fourth buoy turn could not accurately be determined and that the enhanced video footage could not provide any further clarity. Subsequently, the 'angles' were not expressly explored during the inquest. I therefore do not consider it a worthwhile undertaking to speculate on the 'angles' in which the competitors undertook. I further note, the reliance of the enhanced video footage or any piece of evidence in insolation and with the benefit of hindsight when reconstructing traffic accidents has been cautioned against.

161. I am also of the opinion the argument that Mr Lewis was placed on the incorrect side of the fourth buoy is insufficiently supported by the evidence. I have placed significant weight on Mr Lewis' testimony that he turned into the fourth buoy turn on the correct side of the fourth buoy. Mr Lewis' descriptive statements are instructive:

(a) *"I had started turning in, as it happened. So it was right on the point apex of the turn as far as – is where I would see it, where I felt it happened";*

(b) *"I don't know what happened to his position to put him in a position that I hit him. …. I turned into a turn. Spray came across, and I hit something. At that point, didn't know what it was".*

(c) *"I didn't go around it. I went past it … well, I collided at a – at a point in the turn, … that didn't allow me to – to exit out of the turn".*

162. With reference to the three components of a typical turn, I am of the opinion that Mr Lewis' entered the Entry of the turn, collided with Mr Scaturchio on the correct side of the fourth buoy and was subsequently unable to Exit out of the fourth buoy turn, as he was displaced further past the fourth buoy due to the collision.

163. I am of the opinion the enhanced video footage was fundamental in providing clearer footage for analysis as to identification of the competitors and their negotiations and interactions around the fourth buoy turn. For clarity, the limitations of the enhanced video footage remained that the incident was obstructed from view due to water spray and the unidentified angles in which competitors took at the fourth turn buoy. The enhanced video footage aligned with the downloaded MoTeC data afforded the expert witnesses with the best opportunity to identify and explore the most likely scenario of events leading to Mr Scaturchio's death, despite the above mentioned limitations.

164. In summary, I find persuasive the expert witnesses majority support that the additional contact between Mr Aswar's and Mr Scaturchio's PWC was the most likely antecedent event to the collision between Mr Lewis' and Mr Scaturchio's PWCs. I am further persuaded by Mr Swinney's acknowledgement that the scenario was supported when aligned with the MoTeC data, in which he stated "*a hundred per cent, a tap from a ski causes loss of traction. That whole scenario fits almost perfectly".*

Conclusions on the evidence

165. I find the analysis of the MoTeC data aligned with the enhanced video footage is instructive in determining the likely events leading to Mr Scaturchio's death, in particular the competitors' positioning and negotiations leading up to and at the fourth buoy turn. Accordingly I find on the evidence available that both Mr Lewis and Mr Scaturchio were both on the correct side of the fourth buoy.

166. I find the 'additional contact' between Mr Aswar's and Mr Scaturchio's PWCs occurred in the Entry of the turn while Mr Scaturchio was turning his PWC into the fourth buoy turn. I further find it was the most likely scenario or most plausible scenario, causing or contributing to the collision between Mr Lewis' and Mr Scaturchio's PWCs, resulting in Mr Scaturchio's death.

167. As to the circumstances that ensued the additional contact between Mr Aswar's and Mr Scaturchio's PWC, I find most likely that Mr Scaturchio's PWC changed direction, from left to right, causing it to face back in the direction it came with its nose down in the water and in an offset position to Mr Lewis' PWC.[93] The change of the PWC direction was outside Mr Scaturchio's control and was not a result of his error. Mr Lewis' PWC then unavoidably and instantaneously collided with a glancing blow to Mr Scaturchio's PWC with Mr Lewis' PWC impacting Mr Scaturchio's chest, causing his fatal injuries (second contact). Mr Lewis' PWC then likely continued on to collide with the rear of Mr Aswar's PWC (third contact).

Findings required by section 45 of the *Coroners Act 2003*

168. I make the following findings in accordance with section 45(2) of the Act:

Identity of the deceased - Joseph Mark Scaturchio

How he died - Mr Scaturchio died following a collision between his jet ski and Mr Lewis' jet ski.

The most likely scenario is that prior to Mr Lewis' PWC colliding with Mr Scaturchio's PWC, Mr Aswar's PWC bumped or taped Mr Scaturchio's PWC, in the Entry of the fourth buoy turn while Mr Scaturchio was turning his PWC into the fourth buoy turn (first contact).

The bump or tap from Mr Aswar's PWC was likely very slight and commonly referred to in PWC racing terms as 'race rubbing'. Race rubbing typically occurs when PWCs are travelling in the same direction, in a straight or turning a corner and are within extremely close proximity to one another while in a dynamic marine environment.

Mr Scaturchio's PWC was at the limit of adhesion with the water and took very little force from Mr Aswar's PWC to interrupt or break traction.

[93] TD-2, 2-24

The PWC contact resulted in a directional change of Mr Scaturchio's PWC from right to left, causing it to face back in the direction it came with its nose down in the water and in an offset position to Mr Lewis' PWC.

The change in direction of Mr Scaturchio's PWC was outside his control and it did not result from his error.

Mr Lewis' PWC then unavoidably and instantaneously, collided with a glancing blow to Mr Scaturchio's PWC with Mr Lewis' PWC, impacting Mr Scaturchio's chest, causing his fatal injuries (second contact).

Mr Lewis' PWC continued on to collide with the rear of Mr Aswar's PWC (third contact).

Mr Scaturchio was on the correct side of the fourth buoy as he was attempting to negotiate the turn;

Mr Lewis was on the correct side of the fourth buoy turn prior to the fatal collision between his PWC and Mr Scaturchio's PWC.

Place of death - Marine Stadium, Gold Coast during the 2012 Watercross Nationals

Date of death - 22 April 2012

Cause of death - Chest injuries

Recommendations

169. Section 46 of the Act provides that a Coroner may make comment on any matter connected with a death which relates to the public health and safety, the administration of justice or ways to prevent deaths from happening in similar circumstances in the future. I now make the following comment:

(a) That the Australia Jet Sporting Boat Association considers amending its rules and implement the requirement for all race participants to utilise waterproof on-board cameras, attached to individuals, helmets or jet skis, for both preparation/trial and race laps at events.

Condolences

170. I offer my sincere condolences to Tony and Lori Scaturchio and their son, Simon on the sad loss of their beloved son.

171. I close the inquest.