QUEENSLAND COURTS

CORONERS COURT OF QUEENSLAND

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of Eric Davis FINLAYSON**
TITLE OF COURT:	Coroners Court of Queensland
JURISDICTION:	Cairns
FILE NO(s):	2012/3661
DELIVERED ON:	27 November 2017
DELIVERED AT:	Cairns
HEARING DATE(s):	23 June, 20 July, 18 August, 6 October, 28-29 October 2015 and 17 February 2016
FINDINGS OF:	Kevin Priestly, Coroner
CATCHWORDS:	Coroners: inquest, drowning, snorkelling, marine tour operator, missed opportunities, safety system review**.**
REPRESENTATION:	
Counsel Assisting	Jesika Franco
Voyager Australia Pty Ltd	James Sheridan, Counsel i/b Anne English of Atherton Tablelands Law.
Office of Industrial Relations	Kevin Parrott, Counsel of Crown Law

Contents

Introduction

On 2 October 2012, Mr and Mrs Finlayson flew into Cairns from the United Kingdom for a holiday.

At about 7:30am on 9 October 2012, Mr and Mrs Finlayson boarded the MV *Seastar* for a trip to the reef, including Michaelmas Cay, for a day of snorkelling and water activities. On board were 33 passengers and 10 crew. *Seastar* arrived at about 9.30am and moored in sheltered waters about 80m from the sandy Michaelmas Cay. Mr and Mrs Finlayson were part of a group of snorkellers taken over to the Cay for a snorkelling tour.

At some point, Mr Finlayson separated from the snorkelling tour and returned towards the Cay. Later, a crew member acting as lookout on the Cay noticed Mr Finlayson floating motionless on the surface about 20m from shore. She alerted another crewmember in the water who investigated and found Mr Finlayson floating unconscious. They retrieved Mr Finlayson to the beach.

The Master of *Seastar*, Mr Edwards, arrived in a tender and started resuscitation. He returned to *Seastar*, retrieved first aid equipment, and returned to the Cay. He continued resuscitation efforts. Two medically qualified passengers from *Seastar* arrived on the beach and assisted. Mr Edwards returned to *Seastar* and alerted emergency services. A Queensland Emergency Services helicopter with paramedics arrived and took over efforts to revive Mr Finlayson. However, on careful assessment, he was pronounced deceased.

A coroner is required to investigate and make findings about who died, when the person died, where the person died, how the person died and what caused the person to die (the required findings). A coroner must not include in the findings any statement that a person is or may be guilty of an offence or civilly liable for something. Further, a Coroner is empowered at inquest to make comments or recommendations to help prevent deaths from similar circumstances.

This coronial investigation started with an initial police investigation. I was also assisted with the benefit of the evidence gathered in the Workplace Health and Safety Queensland (WHSQ) investigation. Commercial snorkelling activities are regulated under Queensland Workplace Health and Safety legislation.

The information gathered during these investigations was sufficient to make most of the required findings. However a better understanding was required of the narrative, what caused the death of Mr Finlayson, and whether there were any missed opportunities for a better outcome in the operator's management of snorkeller safety. Are there any lessons to be learnt? For these purposes, an inquest was held.

At a directions hearing before the inquest, the following topics were identified for further more detailed consideration:

- Fitness to snorkel;
- Group management;
- Effectiveness of lookouts;
- Emergency response; and
- Regulators expectations about safety standards.

The Narrative

Eric Davis Finlayson was 68 years of age and lived with Mrs Finlayson in Staffordshire, England.

Mrs Finlayson reported he was a competent swimmer and had snorkelled on 2 or 3 holidays over the past 10-15 years. Both had snorkelled in the Maldives. She reported they felt "comfortable enough" snorkelling. Mrs Finlayson reported Mr Finlayson was in good health and he'd seen his doctor in the UK about a week prior to traveling to Australia. He did have borderline high blood pressure but did not require medication.

On the morning of 9 October 2012, Leigh Stalker, Master, arrived on board *Seastar* and started the usual engine room checks in preparation for the day. However, he experienced back pain and felt unable to continue. Peter Edwards, Director of Voyager Australia Pty Ltd and Master, relieved Mr Stalker. Mr Edwards is a qualified and experienced Master with appropriate qualifications in First Aid and as a Rescue Diver. On arrival, Mr Edwards met with the crew and briefed them on the day, including expected weather and other conditions at the Cay. Mr and Mrs Finlayson arrived about 7.30am.

Seastar departed Cairns about 8am with 33 passengers and 10 crew. There was a marine safety briefing on departure. *Seastar* headed to Michaelmas Cay. During the trip, those planning on participating in diving or snorkelling were divided into two separate groups for briefing specific to that activity. In addition, those that were to undertake diving had to complete a medical questionnaire. Crew member Timothy Jirgens briefed the snorkellers.

Timothy Jirgens was 23 years of age, held an open water dive ticket and started as a Dive Master Trainee about a month earlier. Mr Jirgens recalled there were about 15-17 passengers present for the briefing. He asked if anyone had any medical conditions that "we need to know about". He also explained the safety signals, the availability of buoyancy and life jackets as well as wet suits, how to use fins, mask and snorkel. The briefing session lasted about 15 minutes.

The plan and normal procedure was for one snorkelling tour to start at the Cay and snorkel back to *Seastar* while another started at *Seastar* and snorkelled to the Cay.

Seastar arrived at the Cay about 9.30am. Conditions were ideal with little wind or tide and the sea was calm. Michaelmas Cay is a small sand cay and home to a colony of sea birds. There is a small beach area roped off where tourists are allowed ashore. The rest is for the birds. The beach runs in an east west direction and faces north. *Seastar* was moored about 80 metres from the beach.

Crew member Noora Heikkinen was a 19 year old Finnish national on a working holiday in Australia. She started as a Hostess about a week earlier and was listed on the daily log as a trainee. Ms Heikkinen was given the role of lookout on the Cay. It was the first or second time she performed that role. Ms Heikkinen conducted a briefing to the passengers about the plan for the day and where they could swim. She encouraged people who were not confident swimmers or wanted to get use to the equipment to come to the beach with her as it was easier, the water was shallower and they could stand.

Mr and Mrs Finlayson joined the group to go to the Cay, intending to take part in the snorkelling tour back to *Seastar*. Mr Jirgens was assigned the role of snorkel tour leader and Eugenia Bolla was to assist.

Ms Bolla was a 27 year old Argentinean tourist in Australia on a working visa. It was her first day of a four day trial period of 'unpaid employment' with Voyager. She had been to the reef on 7 October 2012 with *Seastar*, spending half the day as a hostess and the other half as a photographer. She is listed on the daily log as a trainee.

Mr Jirgens prepared the tender and took those snorkellers intending to do the tour to the beach. He 'thinks' there were 'about 10'. Ms Heikkinen recalls 'about 10 people'. He also took Ms Heikkinen and Ms Bolla across to the Cay. He left them and returned the tender to *Seastar*. Mr Edwards returned Mr Jirgens to the Cay before returning the tender to *Seastar*.

Mrs Finlayson reported she took 'stuff' to the Cay, including a swimming vest but decided not to wear it, feeling it was heavy and cumbersome. She and Mr Finlayson had fins, mask and snorkel. The snorkel group stood in the water off the beach and tried the snorkelling equipment. Staff kept checking, asking if they were OK or alright. Mr Jirgens asked if 'everyone was good'. There is a photograph in evidence of the snorkel group standing in the shallows. All except Mr Finlayson were wearing a wet suit. The snorkel tour started.

There are a number of witnesses with slightly different perspectives on what happened.

Mrs Finlayson reported:

> "We both swam out together with the group with one instructor who had a floatation ring. There was one lady who kept having some trouble and ended up using the ring. I had been having trouble with water in my mask so I stopped and tightened it up. Eric was with me and he had a look at it and said it was tight enough. At that time we were both standing. This made us a bit behind the group and the instructor stopped the group and he checked my mask. I'm pretty sure Eric was still there at that stage. I swam off with the group but that's when Eric was behind. I saw that he was almost back to the beach, to where I saw him sitting on the beach near the rope (that indicates where we can't go because of a bird sanctuary) At least I thought it was him. By the time I swam and got to the group the tour had finished and the instructor was telling everyone they could free swim. I thought I'd go back to join Eric and started to swim back. I couldn't see him anywhere and I looked in the group to make sure he hadn't joined the group but he hadn't. As I was swimming back I saw one of the instructors in a yellow vest pulling something out of the water."

In his statement to WHSQ, Mr Jirgens said on starting the tour, a lady signalled to him that she and a male were not going to do the tour and did not say why. They were 'old' and he thought they were birdwatchers. He left the couple on the water's edge and under the supervision of the lookouts. Only after the tour, Mr Jirgens noticed commotion on beach and appreciated something urgent was happening. He went back to boat.

Vinnicus Costa was performing lookout, under instruction from Mr Edwards, from atop of *Seastar*. He was a 27 year old Brazilian tourist undertaking a dive master traineeship. Although trained as a marine biologist, he had not done dive work before. He was on board *Seastar* for the first time on 9 October 2012, for the start of four days orientation. He did not have any CPR, oxygen therapy or first aid qualifications.

Mr Costa reported he first became aware of an incident upon hearing Ms Heikkinen on the radio calling 'he's not moving, he's not moving'. Mr Costa looked but could not see what she was talking about. Mr Costa then saw a man retrieved onto the beach and saw Mr Edwards head for the beach in a tender. Mr Edwards later described Mr Costa as a trainee lookout and that he, Mr Edwards, was the primary lookout.

In her statement, Ms Bolla recalled that during the snorkelling tour she assisted a woman who had difficulty with her mask and was using a float to help support herself. The snorkel group was about half way between the Cay and *Seastar*. The woman felt unwell. Ms Bolla recalls Mr Jirgens checking the snorkellers behind them. She gave him the camera, left the tour, helping the woman back to *Seastar*. Once on board, she checked with Mr Edwards, then on the aft deck, about what he wanted her to do. He directed her to swim to the Cay. Ms Bolla took the float with her.

When she got about 20m from the beach, Ms Bolla saw Ms Heikkinen waving her arms but ‘did not understand what she meant by this’. Ms Bolla then realised she was pointing to someone in the water about 10m away. Ms Bolla swam to the person (later identified as Mr Finlayson). He was unconscious. She tried to put him on the float and support his head above water. Ms Bolla called for Ms Heikkinen to come and help. She was standing in water about 1.2m deep. Ms Bolla and Ms Heikkinen pulled Mr Finlayson from the water onto the beach. He looked blue in the face. Ms Bolla said she thought he might be dead and was ‘feeling very sick straight away’. She checked that Ms Heikkinen had radioed for help. Mr Edwards arrived in the tender and checked for a pulse, reporting he’d found a pulse.

I will return to the first aid response shortly.

Ms Heikkinen provided a statement to police. She reported she was on the beach with a radio and acting as a lookout. The snorkel group tour left the beach. She remembers customers swimming ‘about’ for 10-15 minutes when two women came onto the beach and chatted with her for about 10 minutes. The women returned to the water. She noticed Mr Finlayson ‘some distance’ away. He was calmly moving in the water and at one point, he may have stood up and then went back swimming. She said she didn’t take much notice, he appeared fine. The water was shallow where he was. Her statement continues:

> 8. My attention remained on the group and I was watching them for less than ten minutes. The group seemed a distance away and could not see everybody in the water. I looked back to the deceased man and he appeared still in the water. I could not see his arms and there were small waves coming in so I could not see if he was moving or in distress. I did notice his snorkel on but it had come out of his mouth. I got up and walked closer to him. I then notified the skipper Peter on the radio. I told Peter, "It seems to me that someone is not moving". Peter said, "Who do you mean and where is he" or words to this effect. I cannot recall the exact conversation I had with Peter but I told him where the man was.
>
> 9. I saw Eugenia and I called to her, "Can you check that man I cannot see". Eugenia was in possession of the life ring, which is a device used to assist stricken swimmers. Eugenia swam to the deceased man. Eugenia started hand signals indicating the situation was not alright. I called Peter again and confirmed that the man was not moving and that we needed help immediately. Peter asked again for confirmation if the man was not moving. I told him again to come quickly. I then put down the radio and got into the water to assist Eugenia with the deceased man.
>
> 10. I swam out and the depth of the water would have been to my chest. I noticed the male person's head was a blue colour and I could not tell if he was breathing or not. Eugenia and I tried to place the life ring on him however he was so heavy we were unable to apply the device. I then started holding his head out of the water and Eugenia and I were dragging him from the

water. I cannot recall exactly what position I was in. The reason I cannot recall the exact details was because I was panicking and scared of what had happened.

11. Eugenia and I dragged the man from the beach and we turned him from his stomach onto his back. I noticed that his eyes were opened and froth coming from his mouth. He wasn't breathing and I believed the man was dead. I was very shocked and I did not check his pulse or if he was breathing. I saw the skipper Peter coming from the main boat in a dinghy. I remember that he drove the dinghy onto the beach. When he did he told me, "Hold on to this". I secured the dingy and did not look at the man. I was panicking so much that I was struggling to breathe and I was in shock. I did not see what assistance Peter provided other than he checked the man's pulse. I couldn't look at the deceased man because I was so shocked. I thought Peter had taken a long time to respond to my request for help.

In his statement to WHSQ investigators given that evening, Mr Edwards said:

9. At 10:20 I went to the main deck and heard Nora calling the boat on the radio. I spoke to her. She said she could see a man snorkelling on the other side of the floating boundary line. I saw two separate people in that area who looked fine. Just before this Eugena brought some snorkellers back on board. I helped them on board. Then I sent Eugena snorkelling back to the beach. This should take 2-3 minutes.

10. Then I got the 10:20 radio call from Nora. I said 'where is the person?' She said 'He's outside the rope close to the beach'. I could not see him. I said 'Can you see Eugenia?' She said ‘I’II get Eugenia to have a look'. I decided to go and look too in the big tender. There was no urgency at this point.

11. As I travelled over I then saw Nora and Eugena dragging someone out of the water. I hadn’t seen this person from the *Seastar*. I could tell it looked bad.

12. I sped over, got out and saw his eyes were open and bloodshot. He was very blue. I checked for a pulse. He was laying on his back. There was foam trickling from his mouth. I ran to the beach box and looked for a rescue mask but couldn't find one so I returned. I washed his face and put him into the recovery position. Water poured from his mouth. I put him on his back and commenced CPR. I gave 30 compressions and then tried to give breaths. This was hard so I put him back into the recovery position and more water came out again. He still had no pulse.

In a further statement provided to the Coroners Court, Mr Edwards responded to the versions of Ms Bolla and Ms Heikkinen, stating Ms Bolla did return to the back of the boat, she did ask what to do and he told her to return to the beach as he needed to assess her swimming (para. 137). He also said while she swam to the beach, he returned to lookout duties. He then said: “When Eugenia saw Noora waving, Noora made the radio call and I had received it”.

Earlier in that statement and in response to material in another statement, Mr Edwards reported a similar narrative, stating that when Ms Bolla returned to *Seastar* towing two

snorkellers, he directed her to return to the beach. Not long after she left, Mr Edwards said he got the radio call from Ms Heikkinen concerned about a snorkeller who was not moving (para. 105-106).

Resuming the narrative about the first aid response.

Neither Ms Bolla nor Ms Heikkinen immediately initiated CPR. Ms Heikkinen reported she was 'very shocked' and did not check for a pulse or breathing. She saw Mr Edwards coming from *Seastar* and secured his dinghy after arrival. She could not look at Mr Finlayson, "I was panicking so much that I was struggling to breathe and I was in shock".

Mr Edwards made the initial assessment and started CPR. He described the events that followed in his statement to WHSQ:

> 12. I sped over, got out and saw his eyes were open and bloodshot. He was very blue. I checked for a pulse. He was laying on his back. There was foam trickling from his mouth. I ran to the beach box and looked for a rescue mask but couldn't find one so I returned. I washed his face and put him into the recovery position. Water poured from his mouth. I put him on his back and commenced CPR. I gave 30 compressions and then tried to give breaths. This was hard so I put him back into the recovery position and more water came out again. He still had no pulse.
>
> 13. I began CPR again. Both girls were in shock and unable to help so I carried on alone. It was a routine of compressions, breaths and clear. Water kept coming out. I kept going but knew I was in trouble. It seemed like a long time and I was getting tired and sore.
>
> 14. I knew I couldn't leave him but I needed help. The girls were still in shock. I jumped in the dinghy and returned to *Seastar*. I got Kelsey, the O^2 equipment and Automatic External Defibrillator (AED) and the rescue equipment and we both returned to the beach.
>
> 15. We started dual CPR, connected the AED, it worked but didn't shock. We carried on CPR. He showed no life signs during CPR.
>
> 16. At some point two of our customers who are cardiologists came and offered to help. We took tums doing the different CPR roles. At some point Tim came over and helped as well. The deceased's wife came to the beach and I think Tim looked after her.
>
> 17. While the cardiologists and Kelsey continued CPR, I returned to the *Seastar* and contacted emergency services. They took some details and said they would send the helicopter. They told me to return to the beach.
>
> 18. I returned. I phoned EMQ again. They spoke to the cardiologists. The CPR continued while we waited for the helicopter. I helped get Eric's effects and his wife ready to go back on the helicopter.

19. The EMQ helicopter arrived and landed on the western end of the cay. Paramedics arrived and took over. They connected Eric to a machine but stopped CPR. They told his wife that Eric was dead.

20. The EMQ then took Eric and his wife back to Cairns in the helicopter.

The doctors on board as passengers and the EMQ paramedic reported that the CPR they saw performed was effective and within the guidelines.

On arrival, the EMQ paramedic Ms Noble reported an AED was connected and showed non-shockable rhythm. Ms Noble found Mr Finlayson cyanosed with pupils fixed and dilated. He looked obviously dead. Further resuscitation effort was considered futile and Mr Finlayson was pronounced deceased.

Cause of Death

Dr Max Stewart, Pathologist, conducted an autopsy and concluded death was due to drowning against a background of cardiomegaly and severe coronary artery calcific atherosclerosis. He reported that autopsy showed white froth in the airways, a heart weighing 432g (expected weight between 292-372g) with mild interstitial fibrosis and calcific atherosclerosis occluding some epicardial arteries by 50%. Toxicology was negative. Histology showed both lungs were moderately oedematous and congested, exhibiting emphysematous changes and containing scattered brown pigmented alveolar macrophages and focal alveolar erythrocyte collections.

Dr Douglas Walker is a general medical practitioner with a long history of research in the field of dive deaths. At the request of Voyager, he reviewed the material gathered during the WHSQ investigation and the autopsy report with a view to commenting on the likely cause of death. Dr Walker reported this death appeared to be an 'example of death of an apparently fit man who dies from the silent snorkel syndrome'. Dr Walker asserted that 'a sudden loss of consciousness from a cardiovascular cause would produce no disturbance apparent as drowning occurred'. Hence a person may drown without notice while under the direct supervision of a lookout. He took into consideration the witness accounts and concluded death was most likely due to cardiac arrhythmia leading to a loss of consciousness and drowning. He also reported such events are unpredictable, unpreventable and silent. He added that a witness would 'notice only a quietness and absence of further movement of the limbs'.

I make a few general observations about drowning before analysing the opinions of Dr Stewart and Walker.

Drowning is death from asphyxia while immersed in water. It is the final common pathway of different initiating causes of incapacitation in water. The real difficulty is determining the

initiating cause or causes. Rarely are investigators including forensic pathologists presented with an account of an inexperienced swimmer violently struggling on the surface before succumbing and sinking. In this case, Mr Finlayson had cardiomegaly and severe coronary artery calcific atherosclerosis. In other words, an enlarged heart and narrowed coronary arteries. His cardio-respiratory function was impaired. However, Mr Finlayson led an active lifestyle without any noticeable impairment.

Mr Coxon, Senior Advisor and Dive Inspector, Workplace Health and Safety, reviewed literature on silent drownings while snorkelling. An extract from his report appears at Appendix 2.

Snorkelling is an activity that may affect cardiorespiratory function in a number of possible ways.

Firstly, a snorkeller might be unfamiliar or inexperienced with the underwater environment and experience a degree of anxiety, which may in turn cause the persons respiration rate to increase and become shallow. The oxygen/carbon dioxide exchange is less than optimum. Secondly, the snorkeller may find the activity is physically demanding and fatiguing, increasing the need for oxygen. Thirdly, the snorkeller may inadvertently aspirate salt water in the snorkel, triggering a cough or choke reflex, that interrupts the supply of air. The snorkeller might experience a persistent cough or even a choking sensation until managing to calmly control the reaction and breathing. Fourthly, there is a form of incapacitation known as shallow water blackout, a loss of consciousness, from cerebral hypoxia toward the end of a breath-hold dive normally associated with hyperventilation. Although unlikely in this factual context, there remains the possibility Mr Finlayson was breath holding in shallow water and increasing his oxygen deficit. Finally, there is the prospect a compromised cardiac respiratory function might trigger a cardiac arrhythmia (irregular heart rhythm) causing incapacitation. These factors might act separately or cumulatively at varying degrees to cause the same outcome, namely incapacitation under water.

The focus of Dr Walker's report was to emphasize the element of contribution from the pre-existing cardiac condition to the drowning and that the drowning may have been silent to others looking on.

Dr Stewart and Dr Walker gave evidence at the inquest.

Dr Stewart explained the basis for concluding death was due to drowning. He found white froth in the bronchii and heavy, congested lungs. He said it was possible Mr Finlayson experienced a cardiac arrhythmia and such conditions can be sudden in onset, resulting in loss of consciousness and drowning.

I understood the evidence of Dr Stewart to attribute the pre-existing cardiac condition as contributing in two possible ways. Firstly, there was a degree of cardiac respiratory impairment that made Mr Finlayson more vulnerable in the event of any other compromise to cardiorespiratory function – such as accidental saltwater aspiration; and secondly, his compromised cardiorespiratory function also reduced his capacity to recover from whatever was the initiating event.

Dr Walker said he first identified silent snorkelling syndrome in a publication in 1973. He noted an instance in 1987, 1989, 1993, and more frequently after 1995 when there was greater commercial interest in snorkelling. I suggested to Dr Walker a large number of deaths he characterised as 'silent deaths' might have been unwitnessed deaths due to less than optimum supervision, not necessarily silent deaths. He responded stating he found a lot of recreational snorkelling deaths on the Barrier Reef were on well organised trips and apparently died silently. That response did not adequately address my point. His view presumes a high quality of supervision. It is very difficult to assess the quality of supervision that prevailed in earlier times. There is no doubt that the standards of supervision have vastly improved in recent times. Similarly, the quality of investigation of supervision in the event of an incident was questionable in earlier times. Even this case demonstrates the challenges associated with assessing quality of supervision in the form of an effective lookout.

I am satisfied the evidence supports the finding that Mr Finlayson died due to drowning. There are a number of ways in which this outcome might have come about and varying degrees to which his pre-existing but unknown cardiac impairment might have contributed. However, I am unable to conclude anything more beyond the possibility that the cardiac condition was a contributor.

Whether a snorkeller had a pre-existing cardiac condition that contributed to death does not end the discussion about risk management. There will always be a significant proportion of passengers going to the reef to participate in snorkelling that have, with or without their knowledge, pre-existing conditions that impair cardiorespiratory function. From a risk management perspective, the challenge is to design interventions that will reduce the prospect of incapacitation while in the water and if incapacitated, how to detect and recover that person so as to maximise the prospect of survival.

It is not sufficient to simply attribute a death to a pre-existing condition, as if to say there is nothing further that might have been done.

Evidence of Voyager

Mr Edwards is a director of Voyager Australia Pty Ltd as well as a regular Master of *Seastar*. He provided a comprehensive statement to the Court and gave evidence at the inquest. His evidence was initially in response to the issues identified at the directions hearing.

Mr Edwards reported the snorkel briefing is normally conducted by the crewmember assigned to conduct the snorkelling tour. It is conducted on the upper deck and takes about 15-20 minutes. There was a prompt card for the crew that itemises the topics to be covered. There is also a written procedure that addresses the information to be provided during the briefing, including the warning:

> "Snorkelling is a strenuous activity, if you have any medical conditions or feel your fitness is not up to scratch and feel need to be watched more carefully, tell the crew and especially the lookouts so we can keep an eye on you "Try and swim in buddy groups or pairs" "Don't have a buddy make one".

Importantly for fitness to dive, Mr Edwards reported:

> "Crew are encouraged during training, to be observant of passengers as soon as they board. We ask crew to observe passengers as they move about the vessel, whether they have difficulty, whether they have been seasick, are they overweight, very old, breathless, otherwise displaying any distress or anxious behaviour – we stress crew should make such observations of passengers whilst we are on the way out to the reef in order to discuss with the dive master any additional precautions/measures or closer observations or arrangements that might need to be made when we get to the destination".

After the death, WHSQ issued an improvement notice to Voyager directing the organisation ensure each person intending to snorkel is advised that snorkelling may increase health and safety risks for persons suffering from the medical conditions outlined in Regulation 13.

Voyager provided WHSQ with a copy of the new Snorkelling Information Sheet provided to each participant that specifically sets out the medical conditions referred to in Regulation 13.

Mr Finlayson was not aware of his medical condition. Many people with a similar risk profile may not be aware of a potential incapacitating condition. While it is important to risk assess participants who report a relevant medical condition, it is equally important to identify and manage snorkellers who fit the profile of 'at risk' snorkellers. This will become more evident later in my findings.

Mr Edwards reported there were two designated lookouts, one on the boat as primary lookout and one on the beach as a secondary lookout who was under the supervision of the boat lookout. Mr Edwards asserted there was no WHSQ requirement to have the lookout on the

beach and this was an extra precaution. The lookout on the beach was equipped with high visibility clothing, pocket resuscitation mask, snorkelling equipment and buoyancy aids. Communication between lookouts was maintained by radio. He reported lookouts were instructed to watch for snorkellers displaying the following characteristics: distress signal, not ok; swimming with head up, out of water; swimming backwards; looking around, adjusting mask too much, separated from the group or buddy; poor or weak swimming style; another signs of obvious discomfort; not moving; and unusual activity. If seen, the beach lookout was to report the sighting to the lookout on the boat 'for an immediate response'.

Training for lookouts involved a 'talk through'. Mr Edwards reported Ms Heikkinen received her induction and training as a hostess and lookout from Mr Stalker and a Hostess during the 4 day trial period.

Mr Edwards identified written "Safety Lookout Procedures" in the operations manual that essentially highlights the need to maintain vigilance and not be distracted by other activity.

In the context of lookout duties, Mr Edwards made the statement (para 89):

> "In addition, we tend to focus on the snorkelers who are out in deeper water, not on those who are in water shallow enough to stand in".

Mr Edwards explained that Voyager had a rescue plan for the following situations: unconscious snorkeller, tender rescue, swim rescue, Michaelmas Cay rescue, 'once out of water' and radio details.

Mr Edwards reported in the event of an unconscious snorkeler, the plan provides:

> Once noticed, lookout to radio/notify skipper and other staff maintain lookout for the other snorkelers and divers whilst rescue in action; if the rescue is done by other staff on the vessel, inform the skipper with the progress by radio unless he/she is already assisting e.g. a DMT is swimming out to the victim...
>
> You want to do the rescue with minimum risk to yourself so assess the situation and decide appropriate action to be taken...

In the event of a Michaelmas Cay rescue, Mr Edwards reported the plan provides:

> On the Cay you can get the *Seastar* tender to do the rescue or get *Ocean Spirit* to assist (*Ocean Spirit* is on Channel 78) as they have small inflatable and will be a lot swifter rescue than you swimming out to the victim. If either is unavailable get your fins and a flotation device and pocket mask swim out to the victim; before entering the water tell *Seastar* on the radio what you are doing or the other lookout on the vessel. Once at the victim check their ABC if required start the rescue breaths keep waving for help tenders are coming to assist choose between *Seastar*

and the beach which one is closest as there is Oxygen gear at both destinations on the beach Ocean Spirit has O^2 gear there that will be able to use.

Mr Edwards reported that since the incident, it is a requirement for first aid training prior to starting on board 'as full time crew' (para 82). It is not clear how many crew are employed full time and whether this addresses the obvious shortcoming in the immediate administration of CPR with Mr Finlayson. Elsewhere in the same statement (para. 83) there is a reference to first aid certificates for all crew prior to commencement of employment. Does this included those on traineeships?

Mr Edwards sought to clarify and explain other matters relevant to the narrative. As to the failure to administer immediate CPR, Mr Edwards reported:

91. Neither of the girls had CPR training at that stage but they are not required to because their duty requires them to call for assistance and then to support experienced crew with the situation. This occurred. Noora had called and I have CPR certification. I had responded immediately upon her call and arrived at the beach just as they dragged Mr Finlayson onto the beach. I was on site within I minute of her call.

As to the need to return to the boat to obtain first aid equipment, Mr Edwards said:

92. When I realised the CPR did not seem to be helping the situation I decided I should try the defibrillator and oxygen. Both items are stored in a plastic cylinder on board the vessel in a seat in the wheelhouse. We do not keep the container in the dinghy as we try to keep the tender as free from obstructions as possible and to avoid the possibility of damage.

93. The tender is a registered vessel and requires a person with marine qualification to operate. It is powerful and fast and requires considerable skill to control safely. In this situation and at this time, I was the only person who could operate it in those circumstances. I returned to the vessel to retrieve the oxygen and defibrillator. This would have taken no more than I minute.

As to the need to return to the boat again to make a call for emergency assistance, Mr Edwards said:

94. Shortly after returning to the beach with Kelsey and these items and resuming CPR Laura brought over two doctors who were passengers and they took over the CPR whilst I returned to the vessel to radio emergency services.

95. There was some criticism of my need to return to radio emergency services. The hand held radios are low power and for local area communication only, having an effective range of up to 3-5 miles (9klm), they are not powerful enough to send or receive over the 22 nautical miles (40. 7klm) back to Cairns. In any case the mobile phone was the best means to communicate directly with the emergency personnel, without the necessity of transmissions being relayed through a radio base. There were definitely radios on both the beach and boat for

communications. Noora had used one to contact me in the first place. There were 4 radios in operation, I with the boat lookout on the upper deck, I on the lower back deck, I with Noora and I had one in the dinghy. There was a spare radio in the bridge of the vessel.

96. I needed to return to the vessel to contact emergency services because I was also best placed to communicate with emergency personnel as it is my experience with contact with them in the past that they require detailed marine information as to exact location, sea conditions. The captain of the vessel or senior staff were the best placed to respond. At the time the most senior people were over attending to Mr Finlayson on the beach and so that is why I needed to get back to the boat to radio emergency services. The tender is very fast and can travel the distance between the boat and the beach in 15 seconds.

97. The details I gave to emergency services included how far off the coast is Michaelmas Cay, what the latitude/longitude for the Cay is, where is the best position to land, how far is the patient from this area etc. Crew members would not necessarily have had the knowledge to provide such technical information. I believe I made the right decision to be the person to convey this information.

"Snorkel Safety" – The Publication

The WHSQ publication "*Snorkel Safety: a guide for workers*" contains important information about identified contributors to snorkelling deaths and managing snorkeller safety. It was published after this incident but contains information and procedures that were in use at the time of this incident amongst some marine tour operators who conducted snorkelling activities.

In the introduction section of the publication, it is reported:

> Examining data from snorkelling incidents identifies trends in the circumstances influencing them. Understanding these circumstances guides the development of prevention or minimisation strategies that focus on the highest risk participants and situations.
>
> Between 2000 and 2011 there were 49 deaths in recreational snorkelling workplaces in Queensland. WHSQ records recreational snorkelling incidents where the activity was conducted by a business or undertaking. Other snorkelling incidents, such as private spear fishing or snorkelling from a public beach are not included as they are not considered to be workplaces.
>
> WHSQ's incident data indicates Queensland recreational snorkelling workplace fatalities most commonly involve:
>
> • people with medical conditions, in particular those with cardiac conditions;
> • older people, predominantly males;
> • inexperienced snorkellers and swimmers of all ages and gender; and
> • international visitors with little or no understanding of English.

Under the subheading ‘Significant findings’ it reported that analysis of past incidents showed that snorkellers involved in incidents often had pre-existing medical conditions that they failed to let the snorkelling workers who were supervising them know about.

It reported:

> In some cases, an autopsy has shown a significant medical condition of which the snorkeller was unaware. Many of these snorkellers did have common characteristics or behaviours to suggest they may be at risk, including being:
>
> - older
> - overweight
> - a smoker
> - nervous
> - a poor swimmer or low confidence in the open water

It is also reported:

> In the majority of fatalities, the snorkellers were not using a floatation device, teamed with a specific buddy or in a guided group. It was also found that most incidents were silent, with no obvious distress shown by the snorkeller.

And:

> In several cases the lookout was not the first person to realise that a snorkeller was in trouble. Rescues were sometimes delayed through inappropriate equipment and techniques to handle an unconscious person or remove them from the water, particularly when the person was overweight.

The publication included the following case study:

> A snorkeller died from a cardiac condition after completing a medical assessment form that stated there were no pre-existing medical conditions.
>
> After the incident it was established that the snorkeller did not know about the heart disease.
>
> How could this risk have been minimised?
>
> The snorkeller was clearly identified as an older person and considerably overweight. These factors were not taken into consideration when workers assessed the participant and gave the all clear, based solely on the medical assessment form.
>
> A proper assessment would have identified that the snorkeller was at risk due to age and weight, despite the information on the medical assessment form.
>
> Identifying which snorkellers are at risk and providing them with additional care is a vital part of ensuring their safety.

Control measures may include:

- Increasing supervision
- Reducing physical exertion in the water
- Encouraging at risk snorkelers to participate in guided snorkelling opportunities
- Keeping at risk snorkellers close to lookouts and supervisors
- Snorkelling with a paired buddy
- Use of floatation devices.

Later, under the heading 'Risk: Panic and stress, the publication states:

> Many snorkellers have little or no previous snorkelling experience and may not be strong swimmers. Despite being willing to try snorkelling, they are susceptible to panic which can make any pre-existing medical conditions worse and can lead to drowning.
>
> During the snorkelling assessment and while snorkellers put on their equipment and enter the water, watch for signs of stress such as anyone being jumpy, hesitant, overly excited, fidgety or having shaking hands.
>
> Ensure the lookout and any guides are aware of these at risk snorkellers. Stress can be reduced by close supervision, the use of flotation devices, guided tours and snorkelling in good environmental conditions.

The publication makes it clear to anyone who has read and understood the contents that:

- there is a profile for 'at risk' snorkellers;
- risk is not dependent on a participants knowledge and reporting of a medical condition;
- at risk snorkellers need to be identified and the level of risk assessed;
- the operator is expected to have the knowledge and expertise to make the risk assessment and decide on appropriate control measures, not the participant; and
- there are a range of control measures available to the operator to mitigate that risk.

Snorkel Safety provides guidance to operators about how to manage risk, starting with allocation of roles and responsibilities amongst crew (at p.6):

> All snorkelling should be coordinated by a snorkelling supervisor. Other team members should have their duties and responsibilities detailed in their job description or a duty statement.
>
> The legislation identifies five specific roles to be undertaken at recreational snorkelling sites:
>
> • snorkelling supervisor
> • snorkelling guide (optional)
> • lookout
> • rescuer
> • first aid provider.

> In many situations these roles will be undertaken by one or more workers who each may perform one or more duties. For example, the snorkelling supervisor may share lookout duties with another member of the snorkelling team.

The publication provides an example duty statement for snorkelling supervisors and lookout.

It then states:

> Most recreational snorkelling businesses have developed standard operating procedures (SOPs) to clearly detail how their business is to be conducted. Although the SOP should be based on the regulations and codes of practice, they are typically more detailed and specific to the needs of that business. SOPs are also called operations manuals or procedures manuals.

The publication covers consultation and training including induction of all workers and what should be addressed as a minimum. Practical training and assessment should be provided that is relevant to duties, including how to:

- assess and identify at risk snorkellers;
- perform an environmental assessment;
- set up a snorkel site;
- provide information to snorkellers;
- demonstrate the use of snorkelling equipment;
- fit equipment to snorkellers;
- perform lookout duties, supervisor duties and guide duties; and
- conduct emergency procedures.

The publication provides a template, in question and answer format, for assessment at induction of a snorkel worker based on knowledge of the contents of the publication. It establishes a minimum level of knowledge and understanding a snorkel worker might be expected to have.

The publication then provides (at p.8):

> Snorkelling businesses should provide ongoing training and supervision of their workers to maintain and improve their competence. Emergency skills need to be practiced regularly and even experienced workers need their knowledge and skills reviewed.
>
> Snorkelling businesses should ensure their workers conduct regular snorkeller rescue drills and check that snorkel briefings contain all of the relevant information and advice.
>
> These are opportunities to challenge and test workers' skills individually and as a group. Monitoring should be based on realistic scenarios reflecting the standard operating procedures of your business. They should be practical and varied from month to month.

> Simple records of training and assessments should be kept and include names of all staff involved, the date of training, what the subject of the training was, and what assessment was undertaken.

The publication, having established that there are snorkellers who may be at risk and the need to allocate responsibility to particular crew for assessing that risk, then provides guidance about how to assess intending snorkellers.

> Before snorkellers enter the water they should be assessed to determine whether they may be at risk. This process is subjective and relies on the knowledge and skills of the snorkel worker.
>
> The assessment is not designed to stop potential customers from participating in snorkelling activities. It helps to identify at risk individuals so that they can be given appropriate advice, equipment and supervision. Sometimes however, the best advice may be to avoid snorkelling on that occasion.
>
> The assessment can be completed by:
> • asking the participating group questions
> • talking with snorkellers individually
> • using an assessment form
> • observing the group.
>
> The snorkelling worker should observe and record whether any participants:
> • are either an older or a very young person
> • are overweight
> • smoke
> • appear to be in bad health (e.g. with respiratory problems or particularly unfit)
> • exhibit stressed behaviour (e.g. appearing to be jumpy, hesitant, overly excited, fidgety or have shaking hands).
>
> Some people, particularly older men, may be reluctant to acknowledge or discuss their concerns.
>
> Remember a successful assessment is one that encourages honest participation by customers. Be honest about the risks of snorkelling and respectful of snorkellers concerns and privacy.
>
> Once you have identified any at risk snorkellers, make sure all members of the team know who they are and why they are at risk. If you use a snorkelling plan, record the names and details of at risk snorkellers as a reference during the day.

A template for a Snorkeller Assessment Form is provided. Part of the form addresses control measures that may be required. The form and publication also restates:

Controls for managing at risk snorkellers include:

• using specifically coloured equipment or other markings so they can be easily supervised and monitored in the water
• encouraging at risk snorkellers to take part in guided snorkelling trips
• keeping at risk snorkellers close to lookouts and supervisors
• arranging buddy pairs and encouraging hand holding
• encouraging the use of flotation devices.

When addressing factors to be considered in relation to snorkelling equipment, the publication notes (at p.13):

- Snorkelling equipment is usually available in bright colours. Using the same colour snorkels, fins or masks, or attaching coloured ribbons is a simple way to clearly identify and easily supervise at risk snorkellers.
- Flotation devices used for snorkelling include personal flotation devices (PFD), non-standard swim jackets, boards, life rings and tubes (such as noodles). Generally all flotation devices can provide some support for snorkellers and minimise the stress of maintaining their position in the water. However a panicking snorkeller will receive better flotation support from a PFD compared to a noodle.
- Not all at risk snorkellers are prepared to use a flotation device. Snorkel workers should try to persuade these snorkellers to do so by demonstrating their use and advising that it will help them to relax in the water.

Clearly, one of the most important roles is lookout. A good lookout needs excellent scanning skills. To be most effective, the publication lists a number of key features or attributes, relevantly to this matter:

- have an elevated and distraction free location (distractions can be visual or audible—snorkellers asking questions is extremely distracting);
- wear brightly coloured or distinctive clothing so that they are easily recognised;
- have binoculars and polarised sunglasses that do not hinder peripheral vision;
- move their head while scanning, not just their eyes;
- scan using patterns and zones to cover the whole site at least once every 60 seconds;
- change scanning patterns periodically;
- look into the water, as well as on the surface;
- focus on each snorkeller, checking them for movement or signs of distress;
- give greater attention to at risk snorkellers and environments, especially those that are down current or at the limits of the snorkelling area; and
- be aware of conditions that affect visibility such as glare, shadows and poor in-water visibility and change position to see into these areas if needed.

The publication also recommends testing how effective a lookout is at scanning the snorkelling site by arranging for a snorkeller to simulate unconsciousness or place a small distinctive object, like a red tennis ball, in the snorkelling area. Then time how long it takes the lookout to notice. Responding in less than 10 seconds indicates excellent scanning. Taking more than 60 seconds to respond indicates their scanning is not effective and this should be addressed. A simple benchmark for performance.

The publication also recommends the use of a snorkelling guide to provide direct supervision of at risk snorkellers.

Finally, the publication addresses rescue and emergencies. It emphasises the need for clear roles, workers with necessary qualifications and the presence of first aid equipment including oxygen and the possible need for an Automatic External Defibrillator. But most importantly, the publication emphasises the need to perform drills.

> For an emergency plan to be effective, everyone must understand their role and drills must be practiced regularly.
>
> Real emergency responses have been hindered when snorkelling teams could not retrieve an injured snorkeller or were slow to action their missing snorkeller procedures.
>
> Every rescue or emergency situation will be different so experience can only be gained by practicing different rescue and emergency scenarios. Consider scenarios where the snorkeller is elderly or overweight or where rescues take place in poor conditions.

Comment and Analysis

I now reflect on what happened and how the circumstances might have been better managed. There were missed opportunities.

There was a missed opportunity to conduct a snorkeller risk assessment on Mr Finlayson. He fitted the profile of a person who might be an at risk snorkeller. If a snorkeller risk assessment had been conducted, he would likely have been identified as an at risk snorkeller. That is plain from the material contained in the *Snorkel Safety* publication. If he had been identified as an at risk snorkeller, the control measures to mitigate that risk could have been discussed with him and implemented. This could have been done on a group or individual basis depending on the numbers in a like situation.

Mr Finlayson was not assessed for risk, let alone determined to be an at risk snorkeller. It will be recalled that Mr Edwards reported all crew were encouraged to watch passengers and report to the dive master any passengers who may require additional precautions. This falls far short of identifying snorkellers potentially at risk and conducting a risk assessment.

The next step was selection and implementation of control measures. Mr Finlayson could have been provided with coloured or high visibility snorkelling equipment to identify his at risk status to the crew and flagging the need for direct supervision. He could also have been required to wear a wet suit which would have provided additional buoyancy. Although Voyager now provides high visibility equipment, it did not at the time of Mr Finlayson's death and certainly didn't do so to distinguish his status as a high risk snorkeller that required extra supervisory attention from lookouts.

Mr Finlayson could have been placed under direct supervision to improve the prospect of detecting any signs of difficulty and rendering immediate assistance. Direct supervision could have been achieved through the use of defined areas for at risk snorkellers to snorkel, located nearer lookouts at the boat and Cay as well as through the participation in a snorkel tour with a guide. All at risk snorkellers could have been required to:

- participate in a snorkel tour starting at the Cay that included an instructional session in the shallows to learn and practise snorkelling;
- pair up with a buddy or crew member and stay in close proximity with the buddy;
- remain with the tour unless they left to return to the boat or a defined snorkel area and their departure was coordinated between the guide and relevant lookout (through signalling) to ensure continued direct supervision.

Mr Finlayson did participate in the snorkel tour and the crew did offer encouragement to snorkellers with limited experience to join the tour from the Cay. However, this approach was not proactively based on any assessment of risk to Mr Finlayson. The passive approach taken is best reflected in the fact that Mr Finlayson declined a wet suit based on comfort. Mrs Finlayson was reported to consider using a vest but changed her mind, finding it cumbersome and heavy. These decisions were made without any contribution by the crew and without any education about the benefits in terms of safety. Further, there was no evidence of participants in the tour pairing up with a buddy or being encouraged to maintain close contact with a buddy during the tour. There was certainly no management of participants leaving the group as reflected in the fact that Mr Finlayson seems to have meandered back alone to the Cay without discussion with or intervention by the guide. This was an overly relaxed approach to group management. There was no coordination between the guide and lookout on the Cay about Mr Finlayson's return to the Cay.

There were missed opportunities in relation to the lookout on the Cay. The lookout could have been qualified and proficient in effective scanning techniques, identification of at risk snorkellers requiring greater attention, recognition of a snorkeller in difficulty, and rescue and retrieval techniques as well as first aid including CPR. While I have no doubt Ms Heikkinen

and Ms Bolla did the best within the bounds of their knowledge, skill and experience; each was sadly lacking due to lack of training and assessment on the part of Voyager.

The account of Ms Heikkinen suggests Mr Finlayson was under intermittent observation but the frequency suggests minutes between observations. There were only a small number of Voyager customers on or near the Cay so the frequency of checks could have been comparatively high. Clearly, the *Snorkel Safety* publication contemplates training and assessment of lookouts whereby an immobile snorkeller is detected within a minute. That does not appear to have been the case here. Further, if Ms Heikkinen understood the concept of "at risk snorkellers", that Mr Finlayson was an "at risk snorkeller", and his need for greater direct supervision; she would likely have been more vigilant in her supervision.

Ms Heikkinen's account involved seeing and reporting to Mr Edwards a man was immobile in the water. On her account, she told Mr Edwards where he was and then she directed Ms Bolla to check on him. Mr Edwards recalls this aspect of the radio communication and decided to go to have a look for himself. It is curious that Mr Edwards would leave an important role of Master and lookout on the vessel, leaving the role of lookout to a trainee, to check on a possible snorkeller in difficulty when Ms Heikkinen was apparently trained and able to make that identification. It also suggests Mr Edwards was not in a position from *Seastar*, to see and identify whether the person was in difficulty. It will be recalled that Mr Edwards regarded his role as the primary lookout in compliance with the legislative requirement.

This exposed a major vulnerability in the system of supervision and emergency response. The system relied on Mr Edwards to be the key person for many roles; the supervisor, the lookout, the responder and the coordinator. He also had to leave the boat and responsibility for oversight of the other passengers, including snorkellers to an untrained lookout. So, when there was uncertainty about the status of the person who might be a snorkeller in difficulty, Mr Edwards responded as lookout, having to check for himself. If Ms Heikkinen was proficient in the role of lookout, she could have made the call and Mr Edwards responded with first aid equipment.

The procedures of Voyager do not suggest any boundaries to the responsibilities of the lookout at the Cay but the understanding seemed to be that greater attention should be given to those nearest the Cay by that lookout. There was no defined area at the Cay for the inexperienced or at risk snorkellers to be under the immediate and direct supervision of that lookout.

No first aid was immediately administered on retrieving Mr Finlayson to the beach. Mr Edwards told the Court he arrived at the beach in a short period of time as he was on his already on his way in the tender. He immediately administered CPR. However, he had no support in his

efforts. He had to return to the boat to get first aid equipment and later leave again to communicate with emergency services.

If Ms Heikkinen was as effective a lookout per the *Snorkel Safety* model, on seeing Mr Finlayson immobile in the water, she could have raised the alarm. Mr Edwards could have responded with the necessary first aid equipment, leaving his post in the charge of another experienced and qualified crew member who stood by a radio for directions. Alternatively, Mr Edwards could have responded with the capacity to communicate with emergency services in the event escalation was required. He could also have called through a coordinator for any medical assistance from passengers on his boat or others nearby. None of these steps were taken until later in the sequence of events and it appears passenger medical practitioners came forward when they realised a medical emergency was unfolding.

It appears that initially there were no other crew members able to immediately assist Mr Edwards in efforts with Mr Finlayson, either to drive the tender, locate the first aid equipment, bring it to him or communicate with emergency services. It is not surprising since most persons involved in the efforts to assist Mr Finlayson were trainees of some sort or another.

Although I have identified a number of missed opportunities, I cannot conclude that the outcome for Mr Finlayson would likely have been better. In the absence of evidence about what happened physiologically in the minutes before his death and in the context of the current medical evidence about his cause of death, I find there is too much uncertainty about the factors relevant to assessing the possible outcome.

Why were these opportunities missed and what needs to be done to remedy the situation from an organisational perspective?

The Systems Review

Inspectors from WHSQ conducted an investigation into the circumstances of the death. There is a legislative framework that applies to commercial snorkelling activities in the form of the *Safety in Recreational Water Activities Act* and *Regulations 2011,* as well as the *Recreational Diving, Recreational Technical Diving and Snorkelling Code of Practice 2011*. A copy of the investigation file and report is an exhibit in this hearing.

I note the primary focus of the WHSQ investigation was establishing whether Voyager complied with its obligations under this legislation. A number of improvement notices were issued and Voyager responded. Ultimately, WHSQ accepted that Voyager had undertaken the necessary improvements to comply with the legislation. It is noted that this is a minimalist

approach and predominantly addresses those matters of compliance that are prescriptive in nature.

During the course of this hearing, I became concerned about the extent to which Voyager had taken advantage of the guidance material published by WHSQ and made available to the industry about risk management of snorkellers. A list of the publications available at the time of the incident and at the time of the hearing are detailed in Appendix 1.

I requested Chris Coxon from WHSQ, a very experienced former Chief Dive Inspector, to review the procedures of Voyager. Mr Coxon was asked to identify opportunities for improvement both then and now for this operator based on the WHSQ guidance material and his experience in reviewing other operators. Mr Coxon was asked to consider the following areas:

- Lookouts
- Fitness to snorkel
- Group management of snorkelling tours
- Emergency response including rescue, first aid, escalation of response, and communications

Voyager was given the opportunity to, and did, identify all operational documents it relied upon as relevant to its procedures at the time of the incident and at the time of the hearing. Mr Coxon was given that list of material.

When addressing each area, Mr Coxon was asked to comment on:

- The extent to which the evidence demonstrated: the existence of a procedure (orally or in writing), the development of procedure was risk based, the strengths and weaknesses of that procedure, and opportunities for improvement;
- The extent to which the evidence demonstrates: the existence of training (orally or documented – competency based or otherwise) on those procedures, the effectiveness of the training, strengths and weaknesses, adequacy of any documentation, and opportunities for improvement;
- The extent to which the evidence demonstrates: the existence of any supervision to ensure procedures are performed during operations pursuant to these procedures and training, effectiveness of the supervision, strengths and weaknesses of the supervision, and opportunities for improvement;
- The extent to which the evidence demonstrates: the existence of auditing to check on the effectiveness of safe working procedures, training and supervision; strengths and weaknesses of existing auditing, and opportunities for improvement.

The report of Mr Coxon is comprehensive and although repetitive, there are clear recurring themes. I have summarised his findings. Mr Coxon identified the relevant information he used to assess the Voyager practises and procedures at the start of each area.

Lookouts

The relevant information included:

Safety in Recreational Water Activities Act 2011, (Qld) (SRWA Act)

- S. 16(2)(d)- Primary duty of care- monitoring of participants;

Safety in Recreational Water Activities Regulation 2011, (Qld) (SRWA Regulation)

- S. 14 Lookout, guides and rescuer;

Recreational Diving, Recreational Technical Diving and Snorkelling Code of Practice 2011, (Qld) (*Code of Practice*)

- para 2.1.2 Control measures - risk management, roles and duties, documented procedures, training;
- para 2.4.2.1 Site supervision-lookouts;
- para 2.4.2.4 Number and location of supervisory personnel;
- para 2.4.3.1 Appropriate skills and knowledge-snorkel workers.

Mr Coxon reported the Voyager documents demonstrated the existence of working procedures about lookouts but the content was lacking in that it did not address relevant matters in the *Regulation* and *Code of Practice*, including recognition of relevant hazards and snorkelers in difficulty, responsibilities regarding provision of first aid including CPR and oxygen resuscitation, scanning techniques, site boundaries, access to polarised sun glasses, fitness, supervision of breath hold diving and 'matters specific to snorkel guides'.

He reported:

> The style of the procedures seeks to allocate duties relevant to the lookout to certain roles including the Vessel Master, Deckhand, Trainee and DMT in a variety of documents. There appear to be some inconsistencies and overlap between the different duties stated which may create confusion. For example doc 252 states the lookout must 'be lookout only' and 'under no circumstances… assisting other crew in non-surveillance activities… assisting passengers'. However doc 265-267 states, regarding the Master's duties, that the 'skipper to be lookout and tender operator simultaneously, attending to any needs of instructors and snorkelers'

Mr Coxon identified opportunities for improvement by clarification of lookout duties for different roles during different parts of the daily operation, referring to advice and examples included in the WHSQ Digital Information Booklet – "*Snorkel Safety: a guide for workers*" and video '*Effective Lookouts – monitoring divers and snorkellers effectively'.*

As to training, Mr Coxon reported the existence of records of initial crew training after the incident covering watermanship, rescue and lookout duties; but the content was limited.

He reported:

> The content is minimal concerning the duties of a lookout (three dot points) although important underpinning knowledge is included elsewhere on these and other documents provided. The documents only indirectly refers to training given and any assessment of the lookout's competence performing that duty. For a safety role as significant as that of lookout, this is an inadequate record of training and assessment.
>
> The records are only for initial training for workers. Ongoing training and assessment is also necessary, and is particularly important for lookouts where competence can be difficult to monitor and maintain.

Opportunities for improvement included:

- Increasing the recorded scope and extent of the training and assessment program for lookouts. The training should be consistent with working procedures and reflect all relevant legislative provisions. Training should emphasise that competence is achieved through assessment of the practical application of acquired skills in the workplace rather than just knowledge based. Advice and examples are included in the WHSQ Digital Information Booklet - *'Snorkel Safety: a guide for workers'* and Video- *'Effective Lookouts- monitoring divers and snorkellers effectively'.*
- Ensuring lookout training is ongoing, that lookout competence is assessed and appropriate records are kept of any assessments.

As to supervision of lookouts, Mr Coxon reported that Voyager did not identify specific evidence about supervision of lookouts but the documents as a whole revealed an expectation that the master supervise workers including lookouts.

He reported:

> With consideration of the broad range of responsibilities of a vessel Master, it is unlikely that supervision of all safety aspects of the snorkelling operation, including worker supervision, could be managed effectively in this way. The *Code of Practice* advises persons conducting recreational snorkelling to appoint a person as a snorkelling supervisor to coordinate snorkelling activities. This important role identifies the need to ensure that the various interrelated duties required to ensure a safe snorkelling operation, including lookouts, guides, rescuers and first aiders are coordinated and monitored to ensure their effectiveness in different snorkelling situations. The *Code of Practice* gives advice on this role in s.2.4.2.1 and s.2.4.2.4.

He recommended an appropriately experienced crew person be appointed snorkelling supervisor whose duties include ongoing supervision of snorkelling workers including

lookouts. He noted advice is included in the *Code of Practice* and examples are included in the WHSQ Digital Information Booklet *'Snorkel Safety: a guide for workers'.*

As for auditing relevant to lookouts, Mr Coxon noted a record of an emergency drill conducted on 25 July 2012 for a 'surprise panic snorkel for beach lookout'. He notes no other action serving the purpose of an audit. Opportunities for improvement included:

- Ensuring audits such as the one identified are conducted on a regular basis and reflect the mobility of the workforce so that new lookouts are audited on an ongoing basis. Advice and examples are included in the WHSQ Digital Information Booklet -*'Snorkel Safety: a guide for workers'*, Video- *'Effective Lookouts- monitoring divers and snorkellers effectively'* and the *'Self audit dive and snorkel compliance checklist'*.
- Ensuring all lookout duties are audited, not just emergency response.

Fitness to Dive

Mr Coxon identified the legislation relevant to fitness to dive published at the date of death.

- *Safety in Recreational Water Activities Act 2011* , (Qld)
  - S. 16(2)(c)- Primary duty of care- provision of information
- *Safety In Recreational Water Activities Regulation 2011*, (Qld)
  - S. 13 Advice about medical conditions
- *Recreational Diving, Recreational Technical Diving and Snorkelling Code of Practice 2011, (Qld)*
  - at 2.4.1 Medical fitness of snorkellers

The published advisory information included:

- Sample snorkeller medical assessment form.
- Translated materials into 10 languages including the snorkeller medical assessment form.
- Two industry case studies on snorkeller assessment and snorkel site management.

He reported the legislative environment was unchanged at inquest and further advisory information was published, including:

- Revised web site including snorkelling specific information on:
  - Medical fitness for diving
  - Non-English speaking participants
- Digital Information Booklet - *'Snorkel Safety: a guide for workers'*
- Video- *'Managing the risk of cardiac death – preventing cardiac-related incidents by identifying at-risk recreational divers and snorkellers'.*
- Video- *'Snorkelling Sense'*.

On review of the Voyager documentation, Mr Coxon found evidence of a working procedure addressing fitness to dive but at the time of the incident it was not consistent with all legislative requirements.

Although general references were made to fitness and health related issues in two (inconsistent) briefing documents and duty statements, he found these were inadequate to ensure a consistent application of the legislation. Mr Coxon reviewed the new snorkelling card (developed after this incident) distributed to intending snorkellers on the trip to the reef and reported:

> The safety card does mention heart disease, lungs, diabetes, epilepsy, fainting and for participants to tell the crew if they have any medical conditions. The visual format may be of assistance to non-English persons but the extensive use of English medical terms may cause confusion.
>
> *SRWA Regulation 2011* section 13 requires the duty holder to advise each person who intends to snorkel that snorkelling can be a strenuous physical activity. The safety card does not provide this advice. The safety card also does not specifically mention asthma.

Mr Coxon suggested, by way of improvement:

- Amendment of the snorkel card, or other advice provided, to ensure that snorkellers are given all advice required under the *SRWA Regulation 2011* section 13 and *Code of Practice 2011* section 2.4.1. Advice and examples are included in the WHSQ:
    - Sample snorkeller medical assessment form
    - Industry case study on snorkeller assessment
    - Digital Information Booklet - *'Snorkel Safety: a guide for workers'*
    - Revised web site including snorkelling specific information on medical fitness for diving
    - Video- *'Managing the risk of cardiac death – preventing cardiac-related incidents by identifying at-risk recreational divers and snorkellers'*.
    - Video- *'Snorkelling Sense'*.

As to evidence of training, Mr Coxon found there was evidence of a template record for initial crew training that covered matters relevant to assessing a person's fitness to snorkel. However, the content and assessment criteria were not well described although important underpinning knowledge is included elsewhere in other documents. He reported:

> The record only indirectly refers to training given and any assessment of the worker's competence regarding the knowledge and skills required to assess a person's fitness to snorkel. For a safety management feature as significant as the assessment of fitness of snorkellers, this is a minimal record of training and assessment.

He again recommended increasing the scope and extent of the training and assessment program for workers assessing the fitness of snorkellers, reiterated that the training should be consistent with documented working procedures and reflect all relevant legislative provisions. Training should emphasise that competence is achieved through assessment of the practical application of acquired skills in the workplace rather than just knowledge based. Mr Coxon referred to advice and examples in the WHSQ publications.

Voyager relied on the Master to supervise and ensure its procedures relevant to fitness to dive were complied with. However, Mr Coxon considered the broad range of responsibilities of the Master and concluded it was unlikely that supervision of all aspects of the snorkelling operation including supervision could be managed effectively in this way. He referred to the *Code of Practice* requirement for the appointment of a snorkelling supervisor to coordinate all snorkelling activities and again recommended an appropriately experienced and qualified crew person be appointed as snorkelling supervisor.

No documents were identified relevant to auditing about fitness to dive. He again identified the opportunity for improvement be ensuring audits were conducted on a regular basis and reflect the mobility of the workforce so that new workers assessing a client's fitness to snorkel are audited both as a part of their initial training and assessment, but also on an ongoing basis.

Group Management of Snorkelling Tours

The relevant legislation regarding group management of snorkelling tours includes:

- *Safety in Recreational Water Activities Act 2011*, (Qld)
    - S. 16(2)(d)- Primary duty of care- monitoring of participants
- *Safety In Recreational Water Activities Regulation 2011*, (Qld)
    - S. 14 Lookout, guides and rescuer
- *Recreational Diving, Recreational Technical Diving and Snorkelling Code of* Practice 2011, (Qld)
    - at 2.1.2 Control measures- risk management, roles and duties, documented procedures, training;
    - at 2.2.7 Entry and exit from water;
    - at 2.4.2.1 Site Supervision;
    - at 2.4.2.2 Snorkelling guide;
    - at 2.4.2.3 Snorkelling site risk assessment;
    - at 2.4.2.4 Number and location of supervisory personnel;
    - at 2.4.3.1 Appropriate skills and knowledge- snorkel workers;
    - at 2.4.3.2 Appropriate skills and knowledge- snorkelers;
    - at 2.4.3.3 Advice on snorkelling environment and potential problems.

The advisory material includes that which is identified elsewhere in his findings. Mr Coxon reviewed the information and training provided to intending participants. Voyager relied on a new safe snorkelling card using images and graphics as a means of communicating key messages. This was presumably intended to supplement oral briefings and instruction. Mr Coxon reviewed each part of the card, offering specific comments and concluded:

> In summary the snorkel card does provide information and advice in a visual format which, in most instances, would be of assistance to a non-English speaker. However it does not provide the following information as recommended by the *Code of Practice*:
>
> - Site specific advice including: the snorkelling area, relevant environmental conditions including boating channels, wind and tide strength and direction.
> - Location of lookout/s and snorkelling supervisors.
> - Practising snorkelling in shallow water before venturing further afield.
> - Abstaining from drinking alcohol prior to snorkelling.
> - Advice to persons who intend to breathe hold dive.

He suggested amendment of the snorkel card, or other advice, to ensure snorkellers are given all advice required in the *Code of Practice* at section 2.4.3.2 and 2.4.3.3.

In relation to *in-water supervision of guided snorkelling groups*, he reported:

> The evidence provided demonstrates that a working procedure relevant to the conduct of guided snorkelling groups is provided in the relevant duty statement, but the requirements are not consistent with all advice in the *Code of Practice*. For example there is no reference to group size, beginning and ending the tour, headcounts and buddy pairing. However as discussed in Note 2, the additional presence of a lookout does not require strict adherence to s2.4.2.2 of the *Code of Practice* although in general the advice remains valid if practical. The new safe snorkelling card advises participation in guided groups in a visual format.

Again, Mr Coxon identified the opportunity to amend the duty statements and work procedures to cover all relevant advice given in the *Code of Practice*. Another component of group management of snorkellers was identified as *site characteristics*. Mr Coxon reported:

> The evidence provided demonstrates a working procedure relevant to the assessment and monitoring of snorkel site characteristics. Reference in the deckhand duty statement includes reference to tides and snorkel site preparations including placement of dinghies and life rings. However these procedures are not consistent with all advice in section 2.4.2.3 of the *Code of Practice.* For example there is no reference to the assessment of currents or surface conditions and their possible impacts on snorkelling operations, including safe entry and exit and emergency responses. The new safe snorkelling card advises participants on some environmental risks in a visual format.

Again Mr Coxon identifies an opportunity to amend material to incorporate the advice provided. Similarly, the training records reveal a template record for initial crew training of these subjects. He reports:

> The content and assessment criteria in these training records are limited although important underpinning knowledge is included elsewhere in other documents such as the snorkel card. The training record only indirectly refers to what training has been given and any assessment of the worker's competence regarding the knowledge and skills required to undertake a snorkel briefing, instruct snorkellers, assess snorkelling sites and conduct a guided snorkel tour. For a safety management feature as significant as this, this is a minimal record of training and assessment.

Voyager relied on the Master (again) as the supervisor to ensure all procedures relevant to snorkeller group management were complied with. Again, Mr Coxon concludes it is unlikely, given the other duties of the Master, that supervision can be effectively managed in this way.

Voyager was unable to identify any documents relevant to auditing on this subject. Mr Coxon reported there was an opportunity to ensure audits were conducted on a regular basis and reflected the mobility of the workforce so that new workers were audited as part of initial training and assessment and on an ongoing basis.

Emergency Response

The relevant legislation regarding emergency response for snorkelling workplaces included:

- *Safety in Recreational Water Activities Act 2011, (Qld)* at S. 16(1)- Primary duty of care
- *Safety In Recreational Water Activities Regulation 2011, (Qld)* at S. 14 Lookout, guides and rescuer
- *Recreational Diving, Recreational Technical Diving and Snorkelling Code of Practice 2011, (Qld)* at 2.2.2 Emergency plans, at 2.2.3 Rescue of a person snorkelling, at 2.2.4 First aid and oxygen, at 2.4.2 Supervision of snorkelling in open water.

The relevant advisory information included sample emergency plans for recreational diving and snorkelling. At the time of the inquest, the relevant advisory information included additional material. The revised web site including snorkelling specific information on diving emergencies and diving injury and illness. Digital Information Booklet - *'Snorkel Safety: a guide for workers'* and video- *'Effective Lookouts- monitoring divers and snorkellers effectively'* also contain information relevant to rescue.

Voyager provided a number of documents it relied upon as relevant to working procedures about rescue. Mr Coxon reviewed the material and noted the existence of two rescue plans, giving rise to the risk of inconsistency and lack of clarity of the different duties required of different crew members. Clarification of the different roles was required.

As to first aid, Mr Coxon reported:

> The evidence above demonstrates the existence of a working procedure relevant to giving first aid, including during a rescue, and duty statements including requirements for first aid qualifications for the master and deckhand roles. This is consistent with the expectation of s.2.1.2 and s.2.2.2 of the *Code of Practice* and is consistent in style and content with similar documents in other similar snorkel workplaces.
>
> Similar to the rescue plan, there is a lack of clarity about the first aid requirements for different crew members. For example the deckhand and master have duty statements requiring that they hold first aid qualifications. However the plans imply that any crew person undertaking a rescue must be able to provide first aid.

As to the procedures for escalating an emergency response, Mr Coxon reported:

> Similar to the rescue plan, there is a lack of clarity about the requirements to escalate a response for different crew members. For example the evacuation plan lists a number of duties for 'one crew member' but it is unclear which roles during the evacuation (master, deckhand, DMT and others) are expected of which person. Without this clarification the plan implies that all crew persons must be competent and able to perform all duties associated with an evacuation.

And in relation to emergency communications, Mr Coxon reported that various documents revealed consideration given to communications and there existed various procedures. These may be characterised as internal (hand held radios, whistles, voice), local (radio with neighbouring vessels) and external (phone and radio with emergency services, medical facilities and advisory resources). However, these procedures were lacking about how members of the crew were to be part of these communications systems during different parts of the snorkelling operation. He reported there was opportunity for improvement by clarification of these matters.

Mr Coxon commented on training for rescue was in the same terms as other aspects of training. The template record related to initial training whereas ongoing training and assessment was required, particularly given the importance of rescues where competency can be difficult to maintain and there was a rapid turnover of staff with limited experience.

As to first aid training, Mr Coxon reported:

> The documents supplied demonstrate that external training has been undertaken members to obtain first aid certificates, including oxygen resuscitation. Other documents supplied indicate training in the application of first aid in induction training and duty statements including requirements for first aid qualifications for the master and deckhand roles. This is consistent

with the expectation of *SRWA Regulation 2011*, s.14 and *Code of Practice* s.2.2.2 and s.2.2.4, and is consistent in first aid training in other similar snorkel workplaces.

Opportunities for improvement exist concerning first aid training by:

- Ensuring **all relevant crew** who may participate in an emergency response hold first aid qualifications, including oxygen resuscitation.
- Ensuring emergency training include first aid scenarios in different workplace situations.
- Assess whether an Automatic External Defibrillator, and trained crew is appropriate for the management of risk for snorkellers on the vessel. Advice and examples are included in the WHSQ:
    - Digital Information Booklet - *'Snorkel Safety: a guide for workers'*
    - Web site including specific information on diving emergencies

As to training on escalation of an emergency response, Mr Coxon found no evidence of such training. He commented, "By not training crew about the correct requirements to escalate an emergency response, a risk is created that any contact may be delayed or ineffective." He reported there was an opportunity to ensure emergency training for lookouts included escalating an emergency response in different workplaces scenarios.

Similarly in relation to training about communications in an emergency, Mr Coxon found no evidence of such training in the documents from Voyager. In the absence of training about communications, there was a risk that relevant communications may be delayed or ineffective.

Turning now to documents relevant to supervision in the context of emergency response procedures. Mr Coxon found the documents that Voyager identified as relevant to this aspect addressed training of workers rather than their supervision. Mr Coxon reported:

> The occasional nature of emergency situations makes ongoing supervision difficult. However by ensuring training is undertaken, drills performed and reviewing performance, it is reasonable to conclude that a level of supervision is provided. Further, it is apparent by reviewing the documents supplied as a whole that there was an expectation that supervision of workers be undertaken by the master of the vessel (see '265- 267- Position Description and Responsibilities- Vessel Master; and Deckhand/Trainee).
>
> With consideration of the broad range of responsibilities of a vessel Master, it is unlikely that supervision of all safety aspects of the snorkelling operation, including worker supervision, could be managed effectively in this way. The *Code of Practice* advises persons conducting recreational snorkelling to appoint a person as a snorkelling supervisor to coordinate all snorkelling activities.

As to auditing of performance of emergency response procedures, Mr Coxon found there was evidence that periodically rescue drills were conducted including rescue procedures and

practical rescue training. These may be considered an audit of effectiveness if any training given is reviewed and relevant feedback incorporated into the safety management system. However, Mr Coxon found the audit criteria was limited. He also emphasized the need for ongoing training and assessment, particularly for rescues where ongoing competency can be difficult to maintain and there is a rapid turnover of staff with limited experience.

As to first aid, external training was undertaken to obtain first aid certificates but no evidence was found of any audit of first aid skills in an emergency. There was evidence of drills conducted involving simulated first aid, but there was no criteria demonstrated against which performance was assessed. Similar comments were made about escalation of response and communications.

Response of Voyager

The initial response of Voyager through Mr Edwards was:

> … Mr. Coxon's report is very thorough and has helped me to understand that whilst I believe that *Seastar* operations comply in many respects with the matters addressed in Mr. Coxon's response in the day to day conduct of our operations, I accept the actual documentation of our safety management procedures for dive and snorkel operations could do with improvement and I am committed to take a course of action to implement improvement in both the standard of competence of workers in our safety systems and record keeping in the context of the practical operations of the business as mentioned below.

That response appears to concede only that documentation of procedures 'could do with improvement' and commits to improving the competence of workers and record keeping.

Mr Edwards said he was familiar with the online resources but most were more appropriate to larger tour operations. He reported:

> Another example is in regard to the recommendation that there be a specific snorkelling supervisor. The larger operators have specific, designated staff that are segmented into different positions that are dedicated to specific safety areas. Smaller operators such as the company that I conduct do not have the capacity to have staff members who would have sole responsibility for some of the safety areas that the larger operators would be able to engage.

A little later, he states:

> It is a necessary aspect of the smaller boat operators that crew members have to sometimes assume responsibilities that span several different areas, particularly the Master of the vessel as there are other legislative conditions that cross over and require compliance as applies to the Master. (E.g. Maritime Safety Queensland identifies the master of the vessel has a broad range of responsibilities).

> Safety is of critical importance to the smaller operators and that would not be jeopardized for commercial reasons, however we have to adapt best practice ideals into the practical operations on our vessel.

He also reports:

> Furthermore as another example (by reference to paragraph 3.5 of the Coxon Report and recommended opportunities for improvement) in our daily routine it is normally the dive master who acts as a snorkelling supervisor who coordinates both snorkellers and snorkel workers and is the most likely and practical person to undertake that responsibility in the first instance and will for example, hand over the supervisory role to the Master who remains on board when the dive master is in the water, (save for the continued supervision of the activity/worker that is exercised by the dive master whilst actually in the water). This is the system that currently pertains although it may not be clearly documented that this is the case.
>
> However I do accept that there may be a need for more precision in the description of the responsibilities (including supervision of snorkelling workers) and point-in-time assumption thereof and demarcation on hand-over to other crew members when necessary to and by the skipper.

There are multiple roles performed by individuals on larger operations as well. However, I accept that larger marine tourism operations have greater opportunity to assign fewer roles to particular individuals. Smaller marine tour operations may have to make greater use of fewer crew. But that does not detract from the need to articulate who does what role and when (coordination), then ensure that each person is trained to the same level of competency in each role whatever the size of the operation. The changing roles and responsibilities need to be documented. Why? So that the required competencies can also be mapped out, the training required to achieve those competencies is specified, and how achievement and performance of the competencies is to be assessed and recorded.

Mr Edwards concludes his general comments on the Coxon Report by stating he is prepared to commit to engage an external marine expert to undertake an audit of our existing safety procedures for recreational dive and snorkelling activities.

Mr Edwards then addresses a few specific issues raised in the Coxon Report.

As to snorkeller assessment by crew, Mr Edwards provides a lengthy response. It is important that I extract the full response. He states:

> I do have concerns over the materials relied upon by WHSQ that tend to insist on a risk approach that places sole responsibility on operators to identify "at risk snorkellers" whereas it seems that the more recent medical approach (gleaned from my research into the subject and

also from the evidence of Dr Walker) is to provide the snorkeller with information and tools to empower the snorkeller with the full range of risks associated with this activity.

I am cautious about a regulatory approach that would place the entire onus of "assessment of at risk snorkellers" entirely on medically untrained crew who simply do not have the required medical skill set to make such assessments, whilst at the same time I do agree with and our operations (including training of staff) do include identification of "at risk" snorkellers although we do not use "snorkeller assessment sheets" as such. ….

Empowering the snorkeller to identify their own risks and to inform crew thereof is the major reason we have developed the *Snorkel Safety Sheet* "SSS".

A balance between prudent risk assessment by the operator of a snorkeller's competence and/or health risks from the activity and the primary responsibility for their own health remaining with the snorkeller should be the objective.

Again the question of how to effectively "audit" workers assessment of a passenger's fitness to snorkel (in the context of the best risk practice information on this particular topic and having regard to the practical conditions) will be an issue to be discussed with the expert auditor in the context of the review mentioned above.

It might be recalled that considerable attention was given in the Coxon report to training. Mr Edwards responded:

Essentially it is the responsibility of different operators to train their staff to what they consider is the appropriate standard. With the smaller operators the training responsibility could be one person, who has no qualification in teaching, has to do the training on the job and in the case of vessels with a high turnover of staff a repetitive time consuming operation. Unlike the larger companies who may have a safety/training officer who has a qualification in safety and training, with additional personnel to instruct.

I accept the responsibility lies with the company as the operator to ensure training in the areas mentioned requires attention and it is my intention to include this in the abovementioned review and seek expert advice as to how best to deliver the required training.

However I am also of the view that the regulator could further assist the industry by exploration jointly with industry on the development of some short courses available in specific areas, for instance "lookout responsibilities" that could be standardised across industry and delivered within either a training provider or TAFE environment (who would have the teaching/training qualifications and expertise to deliver a standardised course) and be a more flexible option for addressing the needs of smaller operators reliant on frequent crew changes.

After a comprehensive review of the extensive publications WHSQ provided to the marine tour operators and the low level of use made by Voyager of that material, the last suggestion is without any merit.

It will be recalled Mr Edwards expressed concern that the WHSQ material tended to 'insist on a risk approach that places sole responsibility on operators to identify at risk snorkellers' whereas the 'more recent medical approach (gleaned from my research into the subject and also from the evidence of Dr Walker) is to provide the snorkeller with information and tools to empower the snorkeller with the full range of risks associated with this activity'. These assertions demonstrate serious ignorance, or at the very least - a serious misunderstanding, of the currently available information by a person in a senior leadership position of a marine tour operator conducting snorkelling activities.

To compound the problem, it will be recalled Mr Edwards asserted he was 'cautious about a regulatory approach that would place the entire onus of assessment of at risk snorkellers entirely on medically untrained crew who simply do not have the required medical skill set to make such assessments'. It is difficult to understand how Mr Edwards could make this assertion if he had read and understood this publication *Snorkel Safety*.

The publication makes it clear who are likely to be at risk snorkellers. It is not a difficult task to perform for a trained crew member with the competencies identified in the publication. It does not require medical training. The publication provides template duty statements for the use of operators setting out in detail the roles and responsibilities for snorkelling supervisors and lookouts. The publication also provides templates for a 'snorkeller assessment' to support a risk assessment on the part of the snorkelling supervisor and control measures for implementation. The publication also includes a template for practical assessment of the lookouts scanning techniques. More than enough information is provided about how to identify and assess at risk snorkellers. All that is required is commitment on the part of Voyager to use and apply that information.

It will be recalled Mr Edwards reported on the challenges facing smaller operators with training. However, the publication provides a wealth of material that does not appear to have found its way into Voyager's procedures or training. Continuing on the subject of training, Mr Edwards suggested the regulator could assist the industry by exploring jointly with industry on the development of some short courses available in specific areas, for instance lookout responsibilities that could be standardised across industry and delivered within either a training provider or TAFE environment. The publication offers templates on key roles and responsibilities as well as a practical assessment check list for lookout scanning techniques, including one simple but highly effective measure involving a simulated unconscious snorkeller and how long it takes for the lookout to notice. None of these measure were incorporated into Voyager's training. Yet, Mr Edwards suggests more work be done by WHSQ

and industry through a third party provider to train and assess workers. Voyager has hardly demonstrated a commitment to maximising the use of freely available information at present.

Mr Edwards resists the recommendation from the Coxon report of a dedicated Snorkel Supervisor, suggesting such a role is not practicable on a smaller operation and that role can be adequately performed by the dive supervisor. When that person is not on deck (i.e. underwater), he says the Master can perform that role.

The difficulty I have with this proposition is best demonstrated with what happened in this situation. Mr Edwards was master, lookout, snorkelling supervisor, rescuer, first aid provider, and retrieval co-ordinator. Each of these roles, carries many responsibilities and cannot be effectively performed by the same person, as Mr Edwards clearly demonstrated. I encourage the reader to review the duty statements in the Snorkel Safety publication for each of the key positions relevant to snorkelling.

Conclusion

Required Findings

1. Eric Finlayson died on the morning of 9 October 2012 on the beach at Michaelmas Cay on the Great Barrier Reef, offshore from Cairns. He died due to drowning against a background of cardiomegaly and severe coronary artery calcific atherosclerosis. He did not know about these pre-existing cardiac conditions. It is not possible to determine whether, and if so to what extent, the pre-existing conditions were implicated in the events that caused his incapacitation in the water or impaired his ability to recover from whatever was the precipitating event.
2. Mr Finlayson and his wife were holidaying in Cairns and had travelled to the Cay with Voyager Pty Ltd as a passenger on its vessel *Seastar*. When he drowned, Mr Finlayson was snorkelling from the beach at the Cay and under the supervision of the crew from *Seastar*.
3. There were a number of missed opportunities on the part of Voyager to better manage the safety of Mr Finlayson and to reduce his risk of death by drowning but I am unable to determine if he would have survived had all those steps been taken.
4. Voyager did not identify Mr Finlayson as an ‘at risk’ snorkeller and did not have in place all of the control measures available to it to mitigate the risk of drowning.
5. The practises and procedures of Voyager relevant to snorkelling required extensive review and remedial attention.

Recommendations

1. I recommend Voyager conduct a major review of its procedures, training, supervision and auditing relevant to the manner in which it conducts snorkelling activities.

2. In light of the commitment of Voyager at inquest over 12 months ago to conduct a review with an independent expert, I recommend Workplace Health and Safety Queensland conduct an audit of snorkelling activities conducted by Voyager and report to the Coroners Court on its progress with any independent expert review as well as implementation of recommendations from the Coxon report.

I close the inquest

Kevin Priestly
Northern Coroner
Date: 27 November 2017

Appendix 1

The legislative environment relevant to the work health and safety of recreational snorkellers included:

- *Safety in Recreational Water Activities Act 2011* (Qld).
- *Safety in Recreational Water Activities Regulation 2011* (Qld).
- *Recreational Diving, Recreational Technical Diving and Snorkelling Code of Practice 2011*.

The advisory material included:

- Self-audit dive and snorkel compliance checklist.
  - Available at: https://www.worksafe.qld.gov.au/__data/assets/word_doc/0005/83813/recreational-diving-snorkelling-checklist.doc

- Sample emergency plans for recreational diving and snorkelling.
  - Available at: https://www.worksafe.qld.gov.au/injury-prevention-safety/alerts/whsq/2013/emergency-plans-for-recreational-diving-and-snorkelling

- Sample snorkeller assessment form.
  - Available at Page 27 of *"Snorkel Safety: a guide for workers"* https://www.worksafe.qld.gov.au/__data/assets/pdf_file/0009/79326/snorkel-safety-guide.pdf

- Safety Information for Divers and Snorkellers (including Safety Information for snorkellers and Medical Declaration for Snorkelling) translated into English and 12 other languages
  - Available at: https://www.worksafe.qld.gov.au/diving-snorkelling/diving-and-snorkelling-hazards/diving-resources

- Two industry case study on snorkeller assessment and snorkel site management.
- Fantasea Adventure Cruising
  - Available at: https://www.worksafe.qld.gov.au/diving-snorkelling/diving-and-snorkelling-hazards/diving-resources/fantasea-adventure-cruising-a-case-study-on-managing-the-medical-risks-of-snorkellers

- Great Adventures
  - Available at: https://www.worksafe.qld.gov.au/diving-snorkelling/diving-and-snorkelling-hazards/diving-resources/great-adventures-case-study-safe-use-of-hire-snorkelling-equipment

- **Revised web site including snorkelling specific information on:**
  - Diving and snorkelling equipment
  - Diving and snorkelling risk management
  - Diving emergencies
  - Diving injury and illness
  - Head counts
  - Available at: https://www.worksafe.qld.gov.au/diving-snorkelling/diving-and-snorkelling-hazards?result_53551_result_page=1

- **Revised web site including snorkelling specific information** on:
    - Information and advice for recreational divers and snorkellers
    - Medical fitness for diving
    - Non-English speaking participants
    - Qualifications and competency
    - Recreational diving and snorkelling
    - Supervision
    - Available at: https://www.worksafe.qld.gov.au/diving-snorkelling/diving-and-snorkelling-hazards?result_53551_result_page=2

- Digital Information Booklet - *'Snorkel Safety: a guide for workers'.*
    - Available at: https://www.worksafe.qld.gov.au/__data/assets/pdf_file/0009/79326/snorkel-safety-guide.pdf

- Video - *'Effective Lookouts- monitoring divers and snorkellers effectively'.*
    - Available at: https://www.worksafe.qld.gov.au/forms-and-resources/films/effective-lookouts

- Video - *'Managing the risk of cardiac death – preventing cardiac-related incidents by identifying at-risk recreational divers and snorkellers'.*
    - Available at: https://www.worksafe.qld.gov.au/forms-and-resources/films/managing-the-risk-of-cardiac-death

- Video - *'Snorkelling Sense'*
    - Available at: https://www.worksafe.qld.gov.au/forms-and-resources/films/snorkelling-sense

Appendix 2

Extract from the Report of Mr Coxon on a review of literature on "Fatal Silent Snorkelling Syndrome"

Lippmann and Pearn (2012)[1] describe Fatal Silent Snorkelling Syndrome (FSSS) in their review of 130 forensically reported Australian snorkelling fatalities. In this study they identified four principle cause of death categories in snorkellers:

- Cardiac related (proven or suspected)
- Surface drowning associated with inexperience
- Drowning after extended breath hold diving associated with considerable experience
- Trauma

The authors use the term FSSS to describe a common set of features associated with cardiac related death in snorkellers. In their study, cardiac diseases were the most common causes of death accounting for 60 (46%) of the fatalities considered. Typically these involved snorkellers who were noticed floating silently and close to others. They were usually male, sober, middle aged or older (median 65 years), inexperienced, and in supervised groups who remain on the surface with their face mask submerged.

Cardiac causes of death at autopsy are identified as myocardial infarction, valve rupture, previously undiagnosed congenital valvular or coronary artery abnormalities and unrecognised myocarditis. Further, the authors identify several other cardiogenic causes of death in snorkelers in people with no history of cardiac or other medical conditions and no vascular or cardiac pathology at autopsy. These include:

- Dysrhythmias triggered by the diving reflex or tracheal-cardiac vagal reflexes after the inadvertent inhalation of small amounts of sea water.
- Immersion bradycardia that may progress to various types of dysrhythmia, specifically P wave abnormalities and abnormal nodal rhythms.

The authors conclude that "this process may lead to fatal dysrhythmias not only in people who are predisposed by existing coronary disease (e.g. coronary artery disease or acute or chronic myopathies), electrical conduction defects or channelopathies, but also in otherwise healthy people. Unaccustomed exercise, especially if vigorous, by people in an "at risk" demographic group for coronary artery disease is a potential trigger for sudden cardiac death, whether due to dysrhythmias or infarction."

The authors also identify several potential cardiac stressors associated with snorkelling:

- Exertion
- Anxiety
- Autonomic cardiogenic reflexes
- Effects of cold
- Pulmonary and cardiac reflexes from inhalation of water or immersion.

Edmonds (1998)[2] in his review of drowning mechanisms describes 'quiet drowning' contrasting it with the traditional description of drowning as a 'fight for survival'. This paper is useful in any consideration of FSSS as it broadens the discussion from the cardiac focus of Lippmann and Pearn to discuss other mechanisms where the drowning process may similarly be unnoticed by the observer. Edmonds describes several drowning mechanism in diving where drowning may proceed in a 'quiet and unemotional manner'. Relevant to snorkelling, these include:

[1] Lippmann J. M. and Pearn J. H. 2012, Snorkelling-related deaths in Australia 1994-2006, Medical Journal of Australia: 197 (4) pp230-232.

[2] Edmonds C. 1998, Drowning Syndromes-The Mechanism. South Pacific Underwater Medical Society Journal: 28(1)pp2-9

- Hyperventilation with breath hold diving.
- Uncontrollable hyperventilation associated with cold and cardiac arrhythmia.
- Drugs and alcohol
- Salt water aspiration
- Other- envenomation, coincidental medical illness,

However not all authors agree that descriptors like FSSS are useful in classifying drowning. Beeck
et al (2005)[3] discuss difficulties with existing definitions and classifications of drowning that include terms like 'passive' or 'silent'. These authors stress the spectrum of drowning responses and argues that terms like 'passive' or 'silent' should not be applied to drowning classifications. They argue that this type of descriptor does not address the process of drowning and that terms like passive or silent may simply describe drownings that were not observed.

In summary, FSSS probably adds to lexicon of descriptors of mechanisms associated with snorkelling fatalities to describe a common set of observed circumstances. Care should be taken in using it solely in the context of cardiac related events as there are a number of other mechanisms that may similarly be described as 'silent' or 'quiet'. What these papers emphasise is the sometimes complex interplay of factors leading up to a snorkelling death. A causal analysis of these factors suggests that disabling agents and disabling injuries are often interchangeable in the processes, drowning or otherwise, leading to a snorkeller's death. Or put more simply, cardiac death or drowning may occur independently, or cardiac related events may lead to drowning syndromes or drowning syndromes may lead to cardiac events.

[3] Van Beeck E.F. Branche C.M. Szpilman D. Modell J.H. Bierens J.J. 2005, A new definition of drowning: towards documentation and prevention of a global public health problem. Bulletin of the World Health Organisation: 83 (11) pp 853-856.