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Maritime Safety

MARITIME SAFETY AUTHORITY OF NEW ZEALAND
Kia Maanu Kia Ora

REPORT NO: 96 061 VESSEL NAME: COOK CANYON

KEY EVENTS

1.1 During the evening of 15 July 2002, **Cook Canyon** sailed from Greymouth with a Skipper and four crew members' on board. She proceeded to the hoki fishing grounds situated off the west coast of the South Island of New Zealand.

1.2 At about 0600 hours, New Zealand Standard Time (NZST) on 16 July, the first trawl (shot) for hoki, using a net and about 800 metres of warp wire, was made in an area known as the North Gully, situated to the west of Hokitika.

1.3 After shooting the fishing gear, the crew was told by the Skipper to stand down until it was time to haul the net on board. In the meantime, the Skipper remained in the wheelhouse, monitoring the net and conning the vessel visually.

1.4 At about 1000 hours, the Skipper called the crew on deck in preparation for hauling in the net. The Leading Deckhand, proceeded to the winch control position, situated at the forward starboard side of the after deck and commenced hauling the two warp wires to which the trawl doors and net was attached. In the meantime, two of other members of the crew, (Crew #1 & Crew #2) proceeded respectively to the port and starboard quarters of the after deck of the vessel. This was in preparation for hooking on wire guiders to the two warp wires in order to keep them from riding up on the winch barrels as the wires were hauled on board. Crew #3 stood to one side during the retrieval of the net whilst the Skipper remained on the bridge, generally overseeing the operation and keeping a lookout for other vessels.

1.5 After the wire guiders were hooked on, the Leading Deckhand continued to haul the two warp wires until the port and starboard trawl doors, situated on each side of the net and used to keep the mouth of the net open when trawling, were approaching the stern of the vessel. At this point the warp winches were stopped, the wire guiders disengaged and the two trawl doors were brought by their respective warp wires towards the gallow blocks situated on either side of the stern ramp on **Cook Canyon**.

1.6 At this juncture, the Leading Deckhand was relieved by the Skipper at the winch control position. He proceeded to the after end of the vessel to advise the Skipper when the stern doors were up against their respective gallow blocks and secured in position. At this point, the Skipper stopped the winches and Crew #1 and Crew #2 disengaged the two lazy wires from their respective trawl doors and connected them to the main warp winch drums. In the meantime, the stern door, situated at the top of the stern ramp, was lowered from its closed vertical position, where it had been held in place at each end by locking pins against the adjacent bulwark rail on each side of the stern ramp. When fully lowered, the stern door, with relatively small gaps between its leading and trailing edges, provided a bridging platform between the top of the stern ramp and the after end of the fish box to allow the trawl to be brought onto the after deck of the vessel and to facilitate the retrieval of the net.

1.7 After hauling on the winch and taking the weight off the back strops connecting the trawl doors to the bridle wires the trawl doors were separated completely from the trawl and secured in position against their respective gallow blocks on each quarter of the vessel. After the Skipper was informed that this had been done, he proceeded to the bridge to check there was no traffic in the near vicinity of the vessel, before returning to the winch position and operating the winch to bring the and bridle wires up the stern ramp and onto the deck of the vessel. At this juncture, the lazy lines from the net roller that was situated above the after deck of the vessel at the forward end of the fish box, were run out and connected using "C" hooks to the wing ends of the net. The winch used for the operation the net roller was then activated by the Skipper and the weight of the net transferred from the bridle wires to the lazy lines.

1.8 The belly of the net was then hauled up the stern ramp, over the open stern door and the fish box and onto the net roller. As this was happening, Crew #1 was standing by to one side of the stern door and fish box, on the port side of the vessel, whilst the Leading Deckhand and Crew #2 were on the other side. After the net was brought to the surface, some of the fish from the cod end of the net had started to float towards the front of the net. For this reason it was necessary to 'work' the fish back to the cod end by 'rattling' or 'surging' the net. This was achieved by hauling quickly on the net roller, before allowing the net to slip back slowly as the vessel continued ahead through the water at dead slow speed. In this manner, with the net angled downwards in way of the stern ramp, the fish were moved towards the cod end.

1.9 On the morning of 16 July, the act of rattling or surging the net was conducted on three occasions in order to get all the fish towards the cod end. On the third and last occasion, before the fish in the cod end was about to be brought on board and released into the fish box, the net was being allowed to slip back over the stern ramp. At this point, the Leading Deckhand suddenly heard Crew #1 shout out. On looking over to the port side, he saw that the stern door had been lifted into its closed vertical position trapping Crew #1's leg and foot between the stern door and the adjacent bulwark rail. The Leading Deckhand saw that one of the beckett ropes which was attached to the cod end, had caught the leading corner of the stern door and Crew #1"s leg and had pulled the door closed as the cod end had continued to slip down the stern ramp. Immediately on observing what had happened, the Leading Deckhand turned towards where the Skipper was standing at the control for the net roller, put both hands up and shouted stop winch. On hearing this, the Skipper put the winches into gear and took the weight off the cod end to prevent it from slipping out further. Shortly afterwards, one end of a rope strop was attached to the cod end whilst the other end was attached to a "gilson" hook. This, in turn, was attached to a gilson rope which led from a block situated at the top of an 'A' frame at the stern of the vessel. In this manner, the weight of the cod end was taken by the gilson rope and hook using the winch.

1.10 In order to release Crew #1's leg and foot, his gumboot, which was trapped by the beckett rope and stern door, had to be cut free by slicing it down the side and cutting off the safety steel toecap. The Leading Deckhand carried out this operation with the aid of a 'cabbage' knife. It was later found that the corner of the stern door had sliced through the steel toecap severing two of Crew #1's toes. His big toe was later amputated in hospital.

1.11 The Skipper stated that Crew #1 was understandably in shock at this time. Crew #1 told the Skipper that his leg was definitely broken. Notwithstanding this, Crew #1 managed to reach the top of the freezer hatch unaided by hobbling and holding onto the side of the fish box. The Leading Deckhand tried to take Crew #1's sock off but Crew #1 did not want to do this. He was then helped inside the accommodation block by the Skipper and laid down on a mattress on the deck. This was considered to be better than a bunk in case they had trouble in being able to get him off the vessel. Crew #1 was given a cup of coffee, two paracetamol tablets and a cigarette. He was given two more tablets about two hours later.

1.12 As soon as Crew #1 had been brought into the accommodation, the Skipper rang the emergency telephone number and spoke to the local hospital to advise them of the situation and whether a helicopter could be scrambled to evacuate Crew #1 to hospital. They said they would ring back. After checking on Crew #1 and advising the owners of what had occurred, the Skipper went on deck to assist in bringing the net on board so that the vessel could start steaming back towards Greymouth. On returning to the wheelhouse, he found the telephone was ringing. It was the hospital. They advised him that the rescue helicopter was in Christchurch after undergoing repairs to a broken winch and that it would take the helicopter about 2½ hours to reach their position. The Skipper advised that he was about 2½ hours steaming time from Greymouth. For this reason, it was agreed that Crew #1 would remain on board and be met at Greymouth by an ambulance. The Skipper also telephoned Crew #1's partner to advise her of what had occurred. He said that Crew #1 had a broken leg or ankle and that they would be returning to Greymouth at about 1415 hours.

1.13 The hospital told the Skipper to keep a close watch on Crew #1. They asked if there was any bleeding to which the Skipper replied in the negative. They asked him to go and make sure. The Skipper told them that Crew #1 would not let him take his sock off as he had said he did not want to see his foot because he knew it was "twisted up." When the Skipper returned to Crew #1, he told him that the hospital wanted him to check his circulation and that to do this he must cut his sock open. When the Skipper cut open the sock he saw that there was a little bit of bleeding and that two of his toes were missing. The hospital was advised of the situation and they told the Skipper to keep an eye on him.

1.14 The Skipper told the Leading Deckhand that two of Crew #1's toes were missing and to see if he could find them. They were found to be still in the steel toecap of his gumboot and, after being removed, were packed in ice. The Skipper kept a check on Crew #1's pulse on the passage back to Greymouth. When **Cook Canyon** arrived in port there was an ambulance a doctor and the fire brigade waiting on the quayside. A stretcher was brought on board and Crew #1was given oxygen. He was taken by ambulance to the local hospital. The Skipper telephoned Crew #1's partner to advise her of the vessel's arrival. He said it would be necessary for her to pick up Crew #1's gear as he would not be going back fishing. After picking up his gear, Crew #1's partner went to the hospital.

1.15 After being assessed at Greymouth hospital, Crew #1 was transferred by road to Christchurch hospital the same day. Apart from the loss of his toes, Crew #1 sustained fractures to his tibia and fibula, breaks to two bones above the ankle and fractures to two bones in his foot. He did not undergo surgery on his injuries until approximately three days after he was admitted to hospital, due to the swelling of his foot and leg. After treatment at the hospital, it was ascertained that his injuries were not healing very well and it was recommended by his doctor that he should remain off work for a period of six months. Thereafter, Crew #1 was given doctor's certificates every 4-6 weeks. Tragically, a few months after his accident, Crew #1 committed suicide.

KEY CONDITIONS

2.1 Particulars and Ownership of Cook Canyon

2.1.1 **Cook Canyon,** built in 1971, is a steel hulled trawler with a gross tonnage of 113. She has a length overall of 27.10 metres, a registered length of 25.49 metres and a maximum breadth of 6.13 metres. At the time of the accident she was entered in the Safe Ship Management (SSM) system of Marine & Industrial (M&I) and had a valid SSM Certificate that expired on 30 October 2002. The SSM Certificate stated that the vessel was fit to ply as a fishing vessel within offshore restricted limits – within 100 miles of the coast of New Zealand including Stewart Island and the Chatham Islands. She is owned and operated by North Beach Fishing Limited of Greymouth. She was purchased by her present owners about seven years ago. At the material time, **Cook Canyon** was fishing for hoki, for a period of up to three months each year, under a leased annual quota from Talleys Fisheries Ltd. The capacity of her fish freezer hold is about 40 tonnes.

2.2 Particulars of Fishing Equipment and Layout of the After Deck

2.2.1 The trawl and its ancillary equipment were standard for a vessel the type and size of **Cook Canyon**. The net measured about 80 metres overall in length from the wing ends to the cod end. Theoretically, the maximum amount of fish that could be contained within the net was about 50 tonnes, but this was too much to handle safely at any one time. Usually, about 30 tonnes of fish was the maximum that could be safely handled. At the time of the accident, the Skipper believed there was about 10 tonnes of hoki in the net, which was considered to be a relatively small catch.

2.2.2 When rattling or surging the net, it was hauled quickly inboard, over a distance of about 12 – 15 metres, to move the fish towards the cod end before it was released to slip down the stern ramp and back over the stern before repeating the operation. Three to four surges of the net were usually necessary before all the fish was in the cod end and it could be lifted on board and the fish released.

2.2.3 The position where the Skipper was located at the winch controls for the net was about 10 - 12 metres from the stern of the vessel. In this position, he had a clear open view of the starboard quarter, where the Leading Deckhand and Crew #2 were standing. When the net was being trawled through the water, the port quarter of the vessel, where Crew #1 was standing, was also visible from this position. However, once the net was being brought on board and was being rove (wound) around the net roller in the manner shown in an Appendix to this report the Skipper's arc of vision, in way of the port quarter, was lost and he was wholly reliant upon signals from the Leading Deckhand, in the event of anything occurring in this area of the vessel.

2.2.4 When not trawling, the stern door was usually left in the closed vertical position in order to minimise the effect of waves washing up the stern ramp and onto the after deck in heavy weather. When the cod end was brought over the fish box and before being opened to allow the fish to spill on to the deck of the fish box, wooden pound boards were inserted in way of the after end of the fish box in order to prevent the fish from being lost overboard. The horizontal distance between the after end of the fish box and the top of the stern ramp was just under one metre. A similar horizontal distance existed between the port side of the stern door/fish box and the port bulwark rail where Crew #1 was situated at the time of his accident. The same distance existed on the starboard side of the stern door and fish box, where the Leading Deckhand and Crew #2 were standing. Raised wooden slats were in situ over the steel deck in these two areas to minimise the risk of slipping when the crew worked at the stern. The slats had been placed there about 5 years previously.

2.2.5 According to the owners of **Cook Canyon**, the crew of the vessel would shoot and recover the net about four, sometimes five times a day. Neither the Owner, Skipper or the Leading Deckhand who were interviewed by MSA Investigators could recall a previous incident where the stern door had become caught in one of the beckett ropes in way of the cod end, causing it to be pulled into the closed vertical position against the bulwark rails. This was contrary to Crew #1's evidence who, when interviewed by a Maritime Safety Inspector (MSI) shortly after the accident, was reported as saying that this was a known problem and that he had complained about it to the owner. Subsequent to the initial investigation by the MSI, the Chief Investigator of Accidents (CIA), ascertained from a fisherman who had served on **Cook Canyon** that about 4 -5 years ago, when the vessel was rolling in heavy weather, the net had caught temporarily on one side of the open stern door, which was then lifted a short distance. However, this was not to the fully closed position as had occurred in this instance. No action had been taken at that time or subsequently as it was not considered to be important by the crew. The owner stated that he was not advised of this occurrence by the skipper or any of the crew. The MSA has no record on its accident data base (operational since 1993) of a stern door being snagged by a net and thereby causing it to close prematurely.

2.2.6 It was the evidence of the Leading Deckhand that on 16 July the crew, including Crew #1, went to the after deck and "hopped off to our sides (port and starboard quarters of the vessel), like we normally do." He stated that shortly before the accident occurred Crew #1 was "….. lying back basically, leaning back …. with his left foot on the top of the fish box." The next thing was when he heard Crew #1 shout out. When Crew #1 was interviewed by the MSI shortly after the accident, the Inspector's notes stated as follows: "Both feet on deck. May be. It is unclear but Crew #1 ended up with beckett rope round my (his) foot." No taped transcript of Crew #1's evidence (or other members of the crew) was taken by the MSI, which might have helped clarify this issue. According to Crew #1's partner, she was told that he did not know how the accident had happened.

2.2.7 Surrounding and attached to the edges of the net, in way of the cod end, belly and wings were separate lengths of rope that were used to help maintain the shape of the net and provide its primary strength. The provision of beckett rope eyes/strops had a dual purpose. Firstly, to limit the amount of fish accumulating in the cod end which, by extension also reduced the load that was placed upon the cod end. Secondly, to minimise crushing of the fish which would affect their value.

2.2.8 Following the MSI's inspection of the vessel on or about 21 July 2002, and in particular the stern door, he recommended that locking pins be fitted on either side of the top of the door to prevent a recurrence of this accident. According to the MSI, work to fit locking pins was commenced by the owners that day and completed a few days later. This is contrary to the evidence of the owner who maintained that he told the MSI of his intention to fit locking pins and, after obtaining the MSI's approval to this action, went ahead and fitted the locking pins.

2.3 Particulars of the Skipper and Crew of Cook Canyon.

2.3.1 The Skipper holds a Skipper of a Coastal Fishing Boat Certificate (Skipper's Certificate), which he obtained in 1984 and a 2nd Class DTE Certificate, which he obtained in 1986. As the holder of a Skipper's Certificate, he was required to have a "first aid qualification" which had to be an adult standard certificate of the New Zealand Red Cross Society, the St. John Ambulance Association, or other similar body approved by the Secretary, or a letter from a registered medical practitioner stating that the candidate has passed an examination in first aid equivalent to the adult standard. At present, there is no legislation which requires that such a first aid qualification must be kept current. He had been a fisherman for about 22 years at the time of the accident. He joined North Beach Fishing Limited on 1 October 2001 when he became skipper of **Cook Canyon**. The previous skipper had served on the vessel for about four years.

2.3.2 The Leading Deckhand holds a Qualified Fishing Deckhand's Certificate which he obtained about 10 years ago. At the time of the accident, he had served on **Cook Canyon** for about 7 years.

2.3.3 Crew #1 held a Qualified Fishing Deckhand's Certificate, which he obtained in December 1993. According to his partner, he had been a fisherman for about 10 years. He joined **Cook Canyon** as a Deckhand on 12 February 2002. This was his first time on the vessel. He undertook a pre-sea training course at Nelson Polytechnic and his fishing career had included service with Sanfords (South Island). The Leading Deckhand considered Crew #1 to be a good fisherman. He had met Crew #1 after the accident and was told that he was not getting enough money from ACC and therefore finding it hard to live financially.

2.3.4 Neither of the other two crew were qualified at the time of the accident. One of them had served on the vessel for about 12 months and the other had only recently joined the vessel.

2.3.5 There was no evidence to suggest that alcohol or drugs played a part in this accident. The Leading Deckhand stated that the crew had adequate hours of rest before the accident and nobody should have been fatigued. The crew normally worked a roster system of three trips on and one trip off with each trip lasting about 8-10 days. Usually, the vessel was in port for about 24 – 36 hours between each trip. At sea, the crew worked each shot and recovery of the trawl (4 - 5 each day) but in between were able to take rest periods and that practically speaking they worked an average of about 8 hours per day. On this particular voyage however, where the vessel was catching hoki, the trip lasted only one day due to the rate at which the quantity of hoki was being caught. Predominately, trips lasted only 1-2 days during the hoki season.

2.4 Health and Safety Procedures on Cook Canyon

2.4.1 Under section 6 of the Maritime Transport Act 1994 (MTA), every employer of seafarers on a New Zealand ship is required to take all practicable steps to ensure the safety of seafarers and, amongst other things, to ensure that seafarers are not exposed to hazards on a ship. To this end, an employer is required to systematically identify all hazards and where there is a significant hazard to take all practicable steps to eliminate, isolate or minimise such hazards. Pursuant to section 16 of the MTA, seafarers are themselves required to take all practicable steps to ensure their own safety and that no action or inaction of the seafarer causes harm to any other person.

2.4.2 The Leading Deckhand stated that the action of bringing the cod end over the stern and surging the net was no different to any of the other occasions when this had been done in the past. There had been no previous accidents of a similar nature during his time on board the vessel and he was not aware that any complaints had been made regarding the risk of the stern door being caught by the net and closing. The Skipper was unaware of a similar accident having occurred or of any complaints being made. The Owner said he did not recall any complaints being made regarding the risk of the stern door being snagged by the net and closing prematurely.

2.4.3 According to the Leading Deckhand, everyone on the vessel was very safety conscious and knew exactly what was going on. He said that the crew was always told about the safety aspect of things and of the need to wear hard hats, gloves and reinforced gumboots. It was his evidence that everyone knew that they had to keep well clear when the net was being brought on board and that everyone was taught this lesson, including Crew #1.

2.4.4 Shortly after this accident, the exact date is unknown, it was decided by the Skipper and Owner of the vessel to formalise the hazard identification procedure system on **Cook Canyon** by producing two documents as follows: "Cook Canyon Hazard and Safety Guide" and "Duties for Leading Hand". In respect of the ramp area where Crew #1 sustained his injuries it stated “Keep alert. Keep hands and feet clear while hauling bag on board, shooting net and 'surging fish' back down the net. Be particularly careful when putting pins in and out. Be aware of loose chains (backstraps) ropes etc.”

2.5 Weather

2.5.1 At the time of the accident the weather was reported to be good with a calm sea and no swell.

2.6 Medical Stores.

2.6.1 On the basis that the registered length of the vessel exceeded 24 metres, **Cook Canyon** was required, when plying outside New Zealand Coastal limits, to accord with the Scale 3 requirements of Maritime Rule Part 50 regarding the quantity of medical stores to be carried on board. In the case of analgesics (pain killers) this included the requirement to carry morphine ampoules. At the time of this accident, the vessel was plying within coastal limits and as such was required to accord only with the requirements of Scale 2 which, in respect of pain killers, included the provision of paracetamol, ibuprofen and diclofenac tablets.

CONTRIBUTING FACTORS

N.B. These are not listed in order of importance.

3.1 It is difficult to determine for certain whether this accident could have been avoided if the Skipper had had a clear view of the area where Crew #1 was standing. On balance, it is considered unlikely, given that almost no time appears to have elapsed between Crew #1 shouting out and the Leading Deckhand observing Crew #1's foot caught by the stern door. However, if Crew #1 was standing closer to the fish box/stern door than he should have been, the Skipper would have been able to observe what was happening and issue the appropriate instruction before the accident occurred.

3.2 The absence of any retaining bolts to secure the stern door in the open position.

3.3 The probability that Crew #1 was standing too close to the fish box/stern door with the result that his foot became trapped in the beckett rope.

3.4 The failure of the Leading Deckhand to instruct Crew #1 to keep well clear of the fish box/stern door.

CAUSE

Human Factor

o Failure to comply with regulations	o Drugs & Alcohol	o Overloading
o Failure to obtain ships position or course	o Fatigue	o Misconduct/Negligence
o Improper watchkeeping or lookout	o Physiological	o Error of judgement
o Lack of knowledge	o Ship Handling	o Other . . .

Environmental Factor

o Adverse weather	o Debris	o Ice	o Navigation hazard
o Adverse current	o Submerged object	o Lightning	o Other . . .

Technical Factor

o Structural failure	o Wear & tear	o Steering failure
o Mechanical failure	o Improper welding	o Inadequate firefighting/lifesaving
o Electrical failure	o Inadequate maintenance	o Insufficient fuel
o Corrosion	o Inadequate stability	o Other . . .

4.1 This accident occurred when a beckett rope of the net snagged Crew #1's foot and the corner of the stern door at about the same time. As the net continued to slide down the stern ramp, the stern door was pulled shut, thereby trapping Crew #1's foot.

OPINIONS & RECOMMENDATIONS

N.B. These are not listed in order of importance.

5.1 That a Marine Notice be issued by the Maritime Safety Authority, drawing the attention of owners and fishermen to the importance of ensuring that all stern doors, of the same or similar design to that fitted on **Cook Canyon** and all other doors/hatches/covers on board a vessel that could cause injury if not dogged properly, should be fitted with retaining bolts/locking pins to prevent their premature closure. The retaining bolts/locking pins to be painted with a bright colour to facilitate their location and highlight the need for their use.

5.2 That a copy of the final report be sent to all Safe Ship Management Companies drawing their attention to the importance when conducting inspections/audits of fishing vessels, of ensuring that each vessel is equipped with the correct medical stores and that the Skipper holds the requisite certificate for the area in which the vessel is operating.

5.3 That a copy of this report be forwarded to FISHGroup. This to be accompanied with a memorandum setting out that with regard to the provisions of the Health and Safety in Employment Amendment Act, due to come into force on 5 May 2003, all hazards and their location on board fishing vessels be systematically identified by the owner in a register to be kept on board each vessel. This to be signed and dated by each crew member as having read and understood what hazards there are on board and the controls/steps that are necessary to prevent injury. This checklist to be sighted by a surveyor/MSI for currency as part of the SSM audit system. The memorandum to also request FISHGroup to consider the need for currency of first aid qualifications given that many of them were obtained some time ago and are in need of re-evaluation.

5.4 That within two months of the publication of the final report, the owners of **Cook Canyon** to give consideration to re-siting the winch controls so as to give the operator an unimpeded view of the after deck when bringing a trawl on board.