

**INQUIRY UNDER THE FATAL ACCIDENTS AND INQUIRY
(SCOTLAND) ACT 1976 INTO THE SUDDEN DEATH OF MARTIN
GORDON BLACKLEY**

SHERIFFDOM OF GRAMPIAN, HIGHLAND AND ISLANDS AT DINGWALL
UNDER THE FATAL ACCIDENTS AND SUDDEN DEATHS INQUIRY (SCOTLAND)
ACT 1976

DETERMINATION

by

DESMOND JOHN LESLIE,

Sheriff of Grampian, Highland and Islands at Dingwall

In

FATAL ACCIDENT INQUIRY

into the death of

MARTIN GORDON BLACKLEY

DINGWALL, 19 January 2007

The sheriff having resumed consideration of the cause determines:

**In terms of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act
1976, section 6(1):**

(a) That Martin Gordon Blackley, born 9 April 1976 of Druinruadh, Birchburn Road, Aultbea, died in the course of his employment as a diver on 22 May 2002 at 12.15pm at the Marine Harvest Fish Farm, Aultbea;

(b) That the cause of death was drowning whilst diving;

(c) There were reasonable precautions which could have been taken whereby his death might have been avoided, in particular:

(1) Mr Blackley was not provided with a full face mask suitable for the type of diving he was engaged;

(2) He was not provided with a life line;

(3) There was no two-way communication with the surface vessel monitoring the dive;

(4) An inadequate and under-equipped diving team had been assembled for the dive leading to lack of supervision and the absence of a fully equipped standby diver prepared for emergencies.

(d) There were defects in the system of work contracting which contributed to the death, namely:

(1) There was no diving plan;

(2) The dive was inadequately manned;

(3) No risk assessment was undertaken;

(4) There was an inadequate system in place for principal contractors to check on compliance by sub-contractors with industry standards and with the certification for health of divers and training of divers.

(5) Equipment and plant was inadequate and poorly maintained.

The facts relating to the circumstances of the deceased's death were as follows:

(1) At the time of his death Martin Gordon Blackley was engaged with Seahorse Aquaculture, Aultbea.

(2) Mr Blackley was employed with the British Army as a Royal Marine but was on sick leave having sustained a leg injury in October 5, 2001. As a marine he was based at HMS Condor in Arbroath.

(3) Mr Blackley was fit and athletic and was supported by the Army Medical Authorities to maintain his fitness by swimming.

(4) Whilst on sick leave from the Army, and whilst staying at Aultbea Mr Blackley took up diving and dived for scallops as a freelance diver. The diving equipment used by him was borrowed.

(5) Mr Blackley obtained a dry suit from James Bell, an employee of Seahorse Aquaculture and son of the proprietor of that firm Colin Bell.

(6) Mr Blackley's experience of diving was limited. He had no professional training and was not certificated. He had no experience of diving within fish farm pens.

(7) On 13/14 May 2002 John Mackay, a manager with Aultbea Fish Farm, which was owned and operated by Sea Harvest, contacted Colin Bell of Seahorse Aquaculture to assemble a dive team for the purpose of removing dead fish (morts) from the bottom of the fish pens situated in Loch Ewe at Aultbea. Colin Bell was at the time working in the Western Isles and delegated the contract to his son, James Bell.

(8) On 21 May 2002 James Bell attended at the fish pens in Loch Ewe, Aultbea on board his vessel Tie Venture III to remove the morts by hoisting the pen nets to the surface. He was advised by John Mackay not to undertake the task in this way as the fish in the fish pen at that time suffered from a viral infection and that lifting the net from the base to the surface stressed the fish and was detrimental to their wellbeing. He was asked to remove the dead fish by diving into the pen and collecting the dead fish by hand.

(9) A fish pen has a circumference of 70 metres. These are cylindrical nets descending from the surface of the pen to a depth of 10 metres. Thereafter the net tapers in conical fashion for a further 5 metres. At the base of the net there is a dead sock measuring 1 metre in depth and 1 metre across. The dead fish sink into the dead sock. A diver removing the morts requires to descend to the base of the sock. The base of the net is tethered to the surface by three ropes which are attached to the top of the sock. These three ropes extend for 2 metres and are joined together in a bridle which is attached to a single rope which extends to the surface and which is secured to the side of the fish pen. This rope is known as the sock rope.

(10) Each fish pen contains approximately 50,000 fish, each weighing between 200 and 300 grams and measuring 8 to 10 inches.

(11) James Bell was instructed by his father to assemble a dive team for 22 May 2002 to remove the morts from the dead sock.

(12) The team assembled comprised James Bell, Martin Blackley and David Beaton. David Beaton was employed as a deckhand. James Bell is a qualified diver. His medical certificate was out of date. Martin Blackley had neither a diving qualification nor medical certification for diving.

(13) In exchange for the dry suit provided by James Bell, Martin Blackley agreed to carry out dives for Seahorse Aquaculture by way of recompense. The suit was valued at £300.

(14) Only one set of diving equipment was used by the team. This was a scuba rig, comprising a half face mask and one oxygen cylinder. The person diving wore a wrist computer capable of recording data relevant to the time, depth and duration of the dive.

(15) James Bell carried out four dives into the fish pen between 9.03am and 11.23am. He used no life line or surface to diver communication system.

(16) On completion of his dive, James Bell transferred his diving equipment to Martin Blackley.

(17) Martin Blackley descended into the fish pen at 11.58am. He reached the foot of the sock after one minute. He then ascended by 5 metres to a depth of 11 metres before returning to the bottom of the sock. He remained there for between 5 and 8 minutes then ascended to 13 metres. Between 12 and 17 minutes into the dive he again descended to within 2 metres of the base of the sock. He again ascended to a

depth of 13 metres, which was the top of the bridle, but thereafter descended to a depth of 16 metres where he remained until recovery.

(18) After one hour following upon Martin Blackley entering the water, David Beaton and James Bell became concerned for his safety. They hoisted the sock rope. James Bell jumped into the water unassisted by scuba equipment. Martin Blackley was drawn from the bottom on the sock. The sock rope was entwined across his chest and his oxygen cylinder. His mouthpiece and mask were off his face. The emergency services were contacted immediately.

(19) Mouth to mouth resuscitation was carried out continuously until Martin Blackley was brought ashore. It then terminated when he was pronounced dead. Death was confirmed at 1.30pm.

(20) Throughout the course of the dive Martin Blackley was not provided with a life line. Nor was there any two-way communication system provided between himself and the surface vessel. He had been provided with a half face mask and a oxygen regulator which had not been serviced and which might restrict the flow of oxygen to the diver if the diver is working under duress and drawing heavily upon his supply of oxygen.

(21) No risk assessment was carried out prior to the dive taking place. Nor was any project plan prepared. No log was maintained for any of the dives undertaken.

Note:

[1] I heard evidence in this inquiry between 25 September 2006 and 27 September 2006. Written submissions were kindly provided to me on 20 September 2006. Evidence was taken from the following witnesses:

- Janette Blackley, mother of the deceased;
- James Bell, an employee of Seahorse Aquaculture;
- Alexander MacIver, a tradesman working in Aultbea;
- David Beaton, a deckhand and employee of Seahorse Aquaculture;
- Frederick Robertson, an employee of Marine Harvest Limited;
- John Mackay, manager of Aultbea Fish Farm, owned and operated by Marine Harvest Limited;
- Colin Bell, marine contractor and proprietor of Seahorse Aquaculture
- PC Neil MacIver;
- Robert Wilson, safety manager, Marine Harvest Limited;
- Nicholas Bailey, health and safety executive;

- Anne Poyner, HM Inspector, Health and Safety Executive;
- Peter Cook, HM Inspector, Health and Safety Executive.

[2] The inquiry was led by Mr Urquhart, Procurator Fiscal. The family were represented by Mr Donald, Solicitor and Marine Harvest Limited were represented by Miss Milne, Solicitor. The Health and Safety Executive were represented by Peter Cook, himself a witness, who elected to raise such matters as he considered appropriate through the services of the Procurator Fiscal. I am grateful to all parties for their sensitive presentation of the evidence.

[3] The deceased was Martin Gordon Blackley, who was 26 at the time of his death. He was a Royal Marine based at HMS Condor in Arbroath and was fit and active. As a result of a muscle injury in his leg in October 2001 he was on sick leave from the Army. He suffered from "compartment syndrome" which was being treated by physiotherapy administered in a forces hospital in the south of England. He was able to spend large periods of time at home in Aultbea on the shores of Loch Ewe and to maintain fitness he had taken up diving.

[4] He did not possess any scuba equipment and borrowed this as and when he need it. He engaged in diving for scallops. This form of diving is known as free diving. There was little likelihood of equipment being ensnared or entangled in this form of diving.

[5] He had contacted James Bell to purchase a dry suit. In payment or part-payment he had agreed with James Bell to undertake such diving work for Seahorse Aquaculture as would be commensurate with the value of the dry suit. Seahorse Aquaculture is owned by Colin Bell. James Bell is employed by his father. Marine Harvest are a company with wide ranging fish farming operations. Marine Harvest did not employ divers to service their fish pens, but engaged diving sub-contractors. At the time of Mr Blackley's death Seahorse Aquaculture were the sole diving sub-contractor used by Marine Harvest. The two companies had a relationship stretching back a number of years. The familiarity between the personnel of the two companies may have been a significant contributing factor to the lax approach adopted by both companies to the diving procedures and practices advocated by each of them. On either 13 or 14 May June 2002 John Mackay, the manager at Aultbea Fish Farm contacted Colin Bell of Seahorse Aquaculture to carry out routine maintenance to the Aultbea Fish Farm fish pens. The purpose of the maintenance was the removal of "morts" or dead fish from the base of the fish pen in Loch Ewe. The call was taken by Colin Bell when he was engaged in carrying out work in the Western Isles. He delegated the contract to his son James. Colin Bell returned to Aultbea on the night of 21 May, but was preoccupied with an inspection being carried out to one of his vessels by the Maritime Coastguard Agency the following day. He regretted not being fully involved in the diving operation scheduled to take place on 21 May. The dive team assembled by James Bell comprised a Seahorse Aquaculture employee, David Beaton and Martin Blackley. Martin Blackley was not qualified to undertake work of this nature, having neither an approved diving certificate or valid health certification. The medical certificate held by James Bell was out of date.

[6] There are two ways of removing morts from the fish pen. They can be removed by hoisting the dead sock at the base of the pen to the surface, a procedure which does not involve diving, or they can be removed by diving to the base of the pen. In the latter case the diver scoops the morts into a sack which is then hoisted to the surface. The initial approach of James Bell was to attempt removal of the morts by the former procedure. He set out to do this on 21 May, but had been advised that this was not the preferred removal of the morts as the live fish were infected by a virus and experience showed that the fish became stressed when the sock was raised. The preferred method of removal was by diving.

[7] Colin Bell gave evidence that there would be or ought to have been no difficulty in assembling a four man diving team of suitably qualified personnel. However, James Bell sought no advice in this regard and requested the services of Martin Blackley, who had no previous experience of this sort of dive. The diving service being offered by Mr Blackley would off-set the cost of the dry suit provided by James Bell to him. No project plan was prepared and no risk assessment was carried out. There was one set of diving apparatus provided, which consisted of one oxygen cylinder, regulator and half face mask. The diver therefore undertook a dive without any life line attached between himself and the surface vessel, nor with any form of radio communication between himself and the surface vessel. James Bell was the principal diver in the team. He made four dives to recover morts from the base of the sock. On his fourth dive he used a fresh oxygen bottle. That dive had a duration of 12 minutes. On completion of that dive he transferred his diving apparatus to Martin Blackley. As there was no additional scuba rig, James Bell could not equip himself to be a standby diver on full alert for any emergency. Martin Blackley entered the water at 11.58. He was described by James Beaton as being quite comfortable when he entered the water. In consequence of using a half face mask, handed to him by James Bell, he had no life line between himself and the surface or any communication link with the surface. No dive log had been maintained of James Bell's dives. It followed that no recording was made by anyone on the deck of the surface vessel of the time Martin Blackley entered the water. What times are available come from a dive computer which was worn on the wrist of James Bell and then transferred to Martin Blackley. The computer records that within 5 minutes of entering the water Martin Blackley had descended to a depth just short of 15 metres. He then ascended to 11 metres before returning to his original depth. He remained there for approximately 5 minutes then moved to a depth of 13 metres then dropped to below 14 metres for approximately 5 minutes before returning again to a depth of around 13 metres. By 17 minutes into his dive he was again at a depth just short of 15 metres where he remains static for approximately 42 minutes. He was pulled from the water 65 minutes after his initial plunge. An hour had elapsed before the personnel on the support vessel, i.e. David Beaton and James Bell queried the extraordinary length of Martin's dive. On the realisation that Martin Blackley had not surfaced for some time, the sock rope was wound up and James Bell donned a half face mask and entered the fish pen to attempt a free dive down the length of the sock rope. James Bell gave evidence that when he saw Martin Blackley, the sock rope had become entangled around him and the oxygen cylinder and that his face mask was detached from his face. Martin Blackley was taken to the surface and thereafter resuscitation procedures were implemented unsuccessfully. Martin Blackley showed no signs of life and death was confirmed at 1.30pm by ambulance personnel and certified shortly thereafter by a general practitioner.

[8] This project was ill-fated from its inception. The safe systems of work designed to prevent an occurrence of this nature were disregarded at every level of the operation. The approach taken was casual in the extreme. The management supervision and control was absent at each stage of the diving contract. Diving industry standards and procedures were ignored and no effort was made either on behalf of Marine Harvest or Seahorse Aquaculture to implement fundamental provisions which, if adhered to, would have avoided Mr Blackley's death. Health and Safety within the industry is regulated by the "Diving at Work Regulations" 1977 (the Regulations). Practical guidance on these regulations is provided by Health and Safety at Work Approved Codes of Practice (L104) (the Code), which came into force on 1 April 1998.

[9] The duties of a diving contractor are set out in Regulations 6, 8, 9, 10, 11, 12 and 13 of the Regulations. The corresponding implementation advice is given between paragraphs 32 and 144 in the Code. Between the Regulations and the Code there is set out a detailed programme to be undertaken in every dive that is contracted, whether that dive is undertaken by subcontractors on behalf of a contracting company or whether a dive is undertaken by the principals themselves. In the case of Marine Harvest they had no in-house diving team and therefore subcontracted for their diving operations. At the Aultbea Fish Farm Seahorse Aquaculture were the principal, if not only, contractor providing a diving service. The obligations of the diving contractor, i.e. Seahorse Aquaculture, are not conditional or discretionary. It is the responsibility of the diving contractor to ensure, *inter alia*, that the diving project is properly and safely managed, that a risk assessment is carried out, that a suitable diving project plan is prepared, that that plan takes cognisance of emergency and contingency plans, that the team is properly briefed, that there are sufficient personnel to carry out a dive safely, that a supervisor is appointed, that suitable sufficient and maintained plant is provided, and that the team is medically fit to dive. Seahorse Aquaculture failed on each of these responsibilities. The preparation of a diving project plan and risk assessment was of critical importance, particularly given that Mr Blackley had no previous experience of dives of the character to be undertaken by him. A risk assessment was essential to identify the inherent hazards of such a project, together with the potential difficulties such a project might present. Established procedures were in place between Seahorse Aquaculture and Marine Harvest for the submission by the subcontractor and vetting by the principal contractor of diving project plans prepared in respect of each scheduled dive. These procedures appear to have fallen into desuetude in or around the year 2000. Investigations undertaken by the Health and Safety Executive following upon Mr Blackley's death found that no record of diving project plans being submitted beyond 2000. It was accepted by all concerned that the implementation of the procedures already in place had become lax, due to the infrequency of the dives and also as a result of familiarity between the subcontractor, Colin Bell and Mr John Mackay, the Marine Harvest manager at the Aultbea site. This casual administration without doubt laid a poor foundation for all other aspects of the dive. Had a diving project plan been prepared it would comprehensively have set out in documented form all the diving contractor's operating procedures, the standard of his equipment, a generic risk assessment, and a risk assessment based specifically on the nature of the particular dive site when the dive has been undertaken. Although no example of a diving project plan was presented to the inquiry, it is clear from the Code between paragraphs 38 and 41 what detail is required to properly prepare such a plan.

Essentially a diving project plan refreshes the importance of good general procedure, then focuses on the importance of the specific dive and its inherent dangers and complexities. The diving project plan specifically addresses "contingency procedures for any foreseeable emergency including retrieving injured and/or unconscious divers from the water". It was a foreseeable risk that a diver could become entangled in the sock rope and that an experienced diver might be unable to deal with that emergency. The lack of managerial responsibility for the dive and lack of awareness of the dangers of the dive ultimately percolated through to the nonchance on board the Tie Venture III. As a very minimum requirement each and every dive down to the sock should have been the subject of careful vigilance by those on the surface vessel. Sadly, that was singularly absent and Mr Blackley was allowed to remain within the water unnoticed, for an inordinate length of time.

[10] The preparation of a diving project plan is a *sine qua non* of any diving venture. It focuses on every aspects of the dive. Had the plan been prepared properly, then the assembly of a diving team appropriate to the task in hand would not have been treated in such a cavalier fashion. Regulation 6(3)(a) of the Regulations provides that:

"The diving contractor shall ensure that there are sufficient people with suitable competence to carry out safely and without risk to health both the diving project and any action, including the giving of first aid, which may be necessary in the event of a reasonably foreseeable emergency connected with the diving project."

Paragraphs 73 to 83 of the Code elaborate the requirements expected: the risk assessment will dictate the manpower level generally, but the minimum requirement is a dive team comprising a supervisor, a working diver, a standby diver and a tender for the working diver. Paragraph 78 of the Code provides for a team of three only where there is "no risk of entrapment". The dive team should have the competencies required for a specific task and where "an inexperience diver is gaining experience in a dive team members and a supervisor will need to be aware of this and provide support". The operation of the dive undertaken at Aultbea was fatally flawed in the provision of manpower. James Bell had brought along Mr Blackley as an unpaid diver with no experience in diving of this nature and with no certificates authorising him to undertake commercial dives. David Beaton was taken as a deckhand and tender. It is a requirement of the Code that there is a standby diver who is fully equipped to deal with any emergency. The tender is engaged with the diver in the water and a tender is required for every diver in the water at any one time. On the occasion of this dive the only person who would be described as supervisor was James Bell and he was the principal diver. The standby diver, Mr Blackley, did not have a duplication of equipment and equally when he himself was in the water Mr Bell had no backup equipment which he could use in an emergency. Whilst the diver is in the water, the Code of Practice provides that the standby diver should be full equipped and ready to dive. There was simply no provision for this on Tie Venture III. David Beaton, the tender, was invited merely as a deckhand on the boat. There was no supervisor on board to record and log the duration of each dive and thereby manage the diving project. A diving project plan would have identified this catalogue of deficiencies and would have resulted in each of these being remedied prior to the plan being submitted to the principal contractor for approval. The risk of fatality would have therefore been greatly reduced. Had a supervisor been appointed to record the

dives by way of a log with an actual dive time record, the longevity of Mr Blackley's dive would have been immediately identified. This would have prompted emergency action by a fully equipped standby diver and brought into play any contingency and emergency provisions which had been considered and prepared for in advance within the diving project plan.

[11] Critically the diving project was inadequately and poorly equipped. The provision of equipment would have been identified within the diving project plan, which would have identified the plant deficiencies and would have remedied that particular difficulty. The Code sets out at paragraph 43(a), (b), (c) and (d) the minimum procurement level. The diver should have a full face mask and he should have an independent secondary source of breathing, e.g. a bail out cylinder. He should have a life line attached between himself and the surface and an appropriate two-way communication system, either wired or wireless. Had a full face mask been worn, then a life line would have been attached in combination with a wired communication system between diver and surface. Martin Blackley was provided with a half mask. A simple life line would have immediately alerted the tender and supervisor to any difficulties encountered by the diver which would have prompted the immediate aid of the standby diver, had there been one. A wireless communication system would have alerted surface personnel of any entanglement experienced by the diver and again would have prompted immediate action. A half face mask was singularly inappropriate for a dive of this nature. There is the possibility of entanglement with the central sock rope and a distinct possibility of entanglement when diving beneath the three ropes attached by the bridle to the single rope. When the diver is at the foot of the sock he is working within a confined area. He is swimming amongst 50,000 fish and runs the risk of being buffeted by or collided with these shoals. It is therefore essential that a full face mask be provided and although Colin Bell, Senior spoke to the fact that such equipment was available, it was not used in this instance.

[12] There was some doubt expressed by Mr Colin Bell as to the ownership of the scuba equipment provided to Martin Blackley. Nonetheless he accepted he had responsibility for that equipment. A diving project plan would have covered the maintenance aspect of any equipments to be used in the dive. The regulator used by Mr Blackley was found to have a malfunction, which could restrict the flow of oxygen to someone with an accelerated rate of breathing. Such a rate of breathing could come about by increased work effort or by panic. It was adduced by the Procurator Fiscal that the energy expended by Mr Blackley in trying to disentangle himself from the ropes may have increased his demand for oxygen and that that demand might not have been serviced by the malfunctioning regulator, thus restricting the draw of oxygen by Mr Blackley. This in turn could have caused panic and possible removal of the mouthpiece due to his inexperience. It was established that the air valve within the regulator did not function to its potential and therefore may have been a contributory factor to Mr Blackley's death. Mr Blackley died approximately 17 minutes into his dive. The oxygen cylinder worn by him contained 110 bar oxygen at the time of his death. It was therefore half full. James Bell had changed the cylinder into his fourth dive and had used 12 minutes of oxygen from that cylinder. On the changeover of that cylinder Mr Blackley had used 17 minutes of oxygen. At the time of retrieval of the oxygen cylinder it was found to be half full. No record was kept by Seahorse Aquaculture of any maintenance carried out to scuba equipment and in particular to the regulator. The equipment was manufactured between 1985 and

1990 and was purchased as MOD surplus. There was no record of it being properly serviced since purchase. Maintenance of diving plant is governed by section 6(3)(e) of the Regulations and paragraphs 116 and 120 of the Code. There should be a planned maintenance schedule of all equipment. Details of the maintenance arrangements should be entered into the diving project plan. As no records were kept of maintenance it follows that the diving project plan would have disclosed deficiencies in the maintenance of the equipment to be used prior to the dive. If a valid maintenance schedule for the dive was not available then the equipment should not have been used, or at least should have been sent for immediate service prior to use.

[13] The dive which resulted in Martin Blackley's death should not have taken place.

The detailed provisions of the Regulations and the Code were ignored by Seahorse Aquaculture and by Marine Harvest. Marine Harvest were alerted to the provisions of the Regulations and the Code and had formulated a checklist validation which matched the requirement of the Code and the Regulations. There was however a culture which substantially contributed to a casual attitude towards health and safety provisions. There was a suggestion that within Marine Harvest the responsibility for health and safety was not adequately devolved to the site managers and although the Company had quite clear policies in place these were not implemented where it mattered, namely at the operation site. The lack of management procedures, a casual or token regard for health and safety issues, no managerial rigour in enforcing recognised best practice and little on-site awareness or concern for health and safety issues all contributed to a blasé approach to diving operations. The failure of Marine Harvest was to police its health and safety procedures and practices adequately. They had procedures and practices in place which were formulated by co-operation with the Health and Safety Executive. A re-appraisal of the company's obligations was made falling upon Mr Blackley's death. This sought to instil in local managers the positive duty to oversee a diving project plan and scrutinise the submission of such a plan by the subcontractor and then, on satisfaction of that diving project plan, issue a permit to sanction the diving project proceeding. This system is now considered best practice and a template for similar operations. Seahorse Aquaculture singularly failed in each and every one of its responsibilities. They failed to prepare a diving project plan and therefore carried out no risk assessment. They employed an untutored diver, provided him with inadequate equipment for the job in hand and failed to deploy basic safety measures, such as a life line and two-way communication system. Had the Regulations and the Code been adhered to by Seahorse Aquaculture then it is likely the death of Martin Blackley would have been avoided. Following upon Mr Blackley's death Seahorse Aquaculture took no further part in any other diving operations.

[14] I thank the Procurator Fiscal, and each of the solicitors who represented the parties to the inquiry, for their useful and helpful submissions.

[15] Notwithstanding the considerable passage of time since Martin Blackley's death I offer my deepest sympathies to his family who attended the inquiry with great diligence and showed quiet dignity throughout.