



Accident Report
Black Attack
Sinking, West of Waiheke Island
on 4 April 2004



REPORT NO.: 04 1095

VESSEL NAME: *BLACK ATTACK*

Casualty Details:

Date of Casualty:	4 April 2004
Time of Casualty:	1800 hours New Zealand Standard Time (NZST)
Casualty Type:	Sinking
Casualty Location:	West of Waiheke Island
Weather Forecast Area:	Colville
Investigator:	Jim Lott



REPORT NO.: 04 1095

VESSEL NAME: *BLACK ATTACK*

Vessel Details:

Vessel Name:	<i>Black Attack</i>
Vessel Category:	Recreational
Length (m):	6
Flag:	New Zealand



SUMMARY

On 4 April 2004, *Black Attack* foundered due to a structural failure of the hull. One person was rescued and one person drowned.



KEY EVENTS

- 1.1 On Sunday 4 April 2004, at about 1300 hours New Zealand Standard Time, the Skipper and his friend (*referred to as the passenger in this report*) departed Half Moon Bay launching ramp to go fishing on the Skipper's 5.5 metre trailer vessel, **Black Attack**.
- 1.2 On the way to the fishing grounds, and while transiting Motuihe passage, the waves caused the boat to land heavily on a couple of occasions. Speed was then adjusted to ensure the smoothest possible ride.
- 1.3 The two men anchored so that they could fish in the lee of the headland at the entrance to Home Bay, Motuihe Island.
- 1.4 At about 1530 hours, after being unsuccessful in catching any fish, they moved to a location close to the entrance of Owhanake Bay, Waiheke Island, that was sheltered from the fresh south-westerly wind.
- 1.5 At about 1745 hours, they set out to return to Half Moon Bay.
- 1.6 At about 1800 hours, they noted the height of the waves had reduced and become more regular. On observing this, the passenger, who was at the helm, increased speed to a point where **Black Attack** was just planing.
- 1.7 Shortly after, they hit two waves slightly harder and immediately slowed down. At this moment they noticed a significant ingress of water that the Skipper described as a "small fountain" just inside the stern. Both men donned the lifejackets that they had been using for cushions.
- 1.8 The passenger tried to increase speed and head toward Waiheke Island, but it quickly became apparent that the water ingress was too rapid and that bailing was ineffective.
- 1.9 At about 1815 hours, the stern had trimmed/settled sufficiently by the stern, for water to cause the motor to stop. The boat then started to founder by the stern, with only the bow exposed by about one metre.
- 1.10 At about 1830 hours, they noticed the Waiheke ferry, that was entering Matiatia, about 500 metres distant. They tried unsuccessfully to attract the attention of those on board, by waving.
- 1.11 The ferry passed on its return journey to Auckland and the two men used a torch to signal it, but without success.
- 1.12 As the light faded further, they sighted some other passing pleasure craft and attempted unsuccessfully, to attract attention using the whistle attached to the Skipper's lifejacket. This was after the batteries of their torch had failed.
- 1.13 At about 1900 hours, they feared the boat would sink and decided to swim to the Waiheke shore, approximately one mile distant.
- 1.14 The two men encouraged and helped each other to keep swimming but at about 1915 hours, the passenger said he wanted to rest. He then stopped kicking and talking to the Skipper. The Skipper held on to the passenger until a passing yacht, **Petty Theft**, rescued him.
- 1.15 At about 1925 hours, **Petty Theft**, which was under sail, was tacking through the Motuihe Passage while on passage from Coromandel to Auckland. The crew heard a shout for help and immediately used torches and a searchlight to look for the source of the sound.



- 1.16 After a few minutes, they sighted the reflective patch on the Skipper's lifejacket. He was about 100 metres distant. They manoeuvred **Petty Theft** around, and came alongside the Skipper, who was holding onto the passenger. The Skipper was lifted on board in a totally exhausted and distressed state. They called Coastguard on VHF Radio.
- 1.17 The crew of **Petty Theft** then lifted the passenger on board. Noting that he was not breathing, the crew applied CPR until the arrival of the Coastguard vessel, **Grey Bear**, about ten minutes later, followed soon after by the **Coastguard Rib Alpha**.
- 1.18 The crew of **Grey Bear** and **Alpha** administered CPR, oxygen and used a defibrillator in an attempt to revive the passenger, but without success.
- 1.19 The passenger was then moved on board **Alpha**, and taken to Matiatia Bay, Waiheke Island, while attempts to revive him continued. These attempts were continued by ambulance staff until he was pronounced dead.
- 1.20 The Skipper was treated for hypothermia on board **Petty Theft, Grey Bear** and later in hospital.
- 1.21 On 5 April, the Police Maritime Section recovered **Black Attack** from the Motuihe Channel near Rakino Island. A small section of the bow had remained above water. **Black Attack** was towed to Okahu Bay where inspection showed a small area, adjacent to the port side of the keelson, and immediately forward of the transom stern, to be missing.



KEY CONDITIONS

- 2.1 **Black Attack** is a 5.5 metre cabin runabout, designed by Frank Pelin and built in about 1975. Construction is 9 mm (millimetre) marine ply over longitudinal stringers and frames. The design and construction is typical of plywood trailer power-boats of that period.
- 2.2 The Skipper bought the boat in a somewhat run-down state about a year prior to the accident. Both men inspected the boat at the time of purchase and identified a number of areas that were in need of repair. These areas included replacement of the transom (stern) and an area of rotted ply in the bottom. They made reference to a text book on wooden boatbuilding, while making these repairs.
- 2.3 The materials used were marine ply, epoxy glue and marine grade stainless steel screws. They also checked the boat using hammer-sounding techniques, physical force and probing with screwdrivers to locate any other degraded areas.
- 2.4 The area that failed was not in the area that the two men had repaired.
- 2.5 They replaced all internal joinery including the seat and bunk areas before preparing and painting using appropriate marine grade materials.
- 2.6 Inspection of **Black Attack** following its recovery, showed that the plywood surrounding the missing area aft was delaminating. The outer layers of the ply, which was made up of five veneers, were intact and sound and showed no degradation. The internal layers appeared to be intact, but when rubbed by hand they were found to be degraded and prone to crumbling. Hammer testing of this area sounded normal with little indication of the failing internal layers. The degraded area measured approximately 150 mm by 300 mm. A further area running out from the keelson towards the chine was cracked and two broken stringers were noted. It is possible some of this damage occurred while **Black Attack** was being towed semi-submerged, about 10 miles to Okahu Bay.
- 2.7 **Black Attack** is powered by a Mercury outboard engine rated at about 90 kW (125 HP). This engine is appropriate for the vessel.
- 2.8 Equipment carried on board included four lifejackets, a torch, bailer, fishing gear, some tools, charts, a spare outboard motor (approx 6 kW), anchor and cable, fire extinguisher, and cellphones. **Black Attack** was fitted with the correct navigation lights. Navigation was by visual reference, using charts.
- 2.9 No flares or VHF radio were carried and the cell phones were not sealed in a plastic bag to enable them to be used in the event of having to abandon the boat.
- 2.10 Since the repairs were completed, the two men had used **Black Attack** regularly for recreational fishing, during the six months prior to the accident. This was in many areas on the north east coast of the North Island, and had passed without incident.
- 2.11 The Skipper (age 39), had previously owned a smaller wooden boat. He had made repairs to it while it was in his ownership. He had no formal boat building training. He had undertaken some home study about safe boating practice, using available written material.
- 2.12 The passenger (age 40), was more experienced than the Skipper and had been involved in boating for several years. Both men had been good friends since school days. The Skipper considered the passenger to be his mentor in boating matters.
- 2.13 The weather on 4 April was mainly fine with a few isolated showers. The wind was from the south west, up to a maximum of 20 knots, during the afternoon.



- 2.14 The Skipper checked the marine weather forecast for the Hauraki Gulf area using teletext, before deciding to use **Black Attack** for the fishing trip.
- 2.15 High water (springs) was at 1840 hours. The weather tide in the Motuihe Channel had a rate of up to two knots in some areas. The wind against tide effect is very pronounced in the area near Owhanake Bay.
- 2.16 By the time **Black Attack** left the anchorage to head back to Auckland, the tidal flow had stopped and any effect of the tide on wave height would have been negligible.
- 2.17 The height of the sea waves at the time were about one metre. This was a condition that **Black Attack** was capable of handling, provided appropriate caution was observed.
- 2.18 This sea state, and worse, had caused no problem to **Black Attack** on several previous occasions.
- 2.19 Sunset was at 1809 hours, and darkness was total by about 1900 hours. It was a full moon with a mainly clear night.

2.2 Legal Requirements

- 2.20 **Maritime Rule Part 91 - The Navigation Safety Rules** and the **Auckland Regional Council Navigation Safety Bylaws**, require every vessel to have on board a serviceable lifejacket (personal safety device, or PFD) for each person located in an immediately accessible position. The lifejacket must be worn in all cases of heightened risk. The men were sitting on their lifejackets and immediately put them on when they noted the water entering the vessel.
- 2.21 **The Maritime Transport Act 1994, section 65**, makes it an offence to operate or maintain any vessel in a way that causes any unnecessary risk to other person or property.



CONTRIBUTING FACTORS

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

- 3.1** The failure of the internal laminates of the 9 mm plywood, in the area close to the transom.
- 3.2** The failure of the outer layers of plywood in the delaminated area when the boat pounded over waves (*refer also 5.6*).
- 3.3** The lack of any communications equipment that could be used to alert others to the suddenly and unexpected distress situation.



CAUSE

Human Factor

<input type="checkbox"/> Failure to comply with regulations	<input type="checkbox"/> Drugs & Alcohol	<input type="checkbox"/> Overloading
<input type="checkbox"/> Failure to obtain ships position or course	<input type="checkbox"/> Fatigue	<input type="checkbox"/> Physiological
<input type="checkbox"/> Improper watchkeeping or lookout	<input type="checkbox"/> Lack of knowledge	<input type="checkbox"/> Ship Handling
<input type="checkbox"/> Misconduct/Negligence	<input type="checkbox"/> Error of judgement	<input type="checkbox"/> Other . . .

Environmental Factor

<input type="checkbox"/> Adverse weather	<input type="checkbox"/> Debris	<input type="checkbox"/> Ice	<input type="checkbox"/> Navigation hazard
<input type="checkbox"/> Adverse current	<input type="checkbox"/> Submerged object	<input type="checkbox"/> Lightning	<input type="checkbox"/> Other . . .

Technical Factor

<input checked="" type="checkbox"/> Structural failure	<input checked="" type="checkbox"/> Wear & tear	<input type="checkbox"/> Steering failure
<input type="checkbox"/> Mechanical failure	<input type="checkbox"/> Improper welding	<input checked="" type="checkbox"/> Inadequate firefighting/lifesaving
<input type="checkbox"/> Electrical failure	<input type="checkbox"/> Inadequate maintenance	<input type="checkbox"/> Insufficient fuel
<input type="checkbox"/> Corrosion	<input type="checkbox"/> Inadequate stability	<input type="checkbox"/> Other . . .

- 4.1 The failure of the outer veneers of plywood in a weakened area of the bottom when the boat pounded caused water ingress and flooding.
- 4.2 The lack of suitable communications equipment to send a distress signal or message, resulted in one fatality.



OPINIONS & RECOMMENDATIONS

Opinions

- 5.1 Having lifejackets immediately accessible, and wearing them, clearly saved the life of the Skipper. It is particularly tragic that the passenger succumbed to exhaustion and drowned just a short time before rescue arrived.
- 5.2 The use of a lifejacket, or any other PFD, does not guarantee survival. However, it does increase the chances of survival considerably; just as seat belts do in a vehicle. A PFD works in three ways:
- It provides buoyancy that assists a person to float easily, without panic, while awaiting rescue.
 - It eliminates the need for a person to tread water to stay afloat. Avoiding moving limbs in the water can double the time before hypothermia causes a person to lose consciousness.
 - Many jacket-style PFDs, provide an effective layer of thermal protection, delaying the onset of hypothermia, loss of consciousness and death.
- 5.3 It was totally by chance that a yacht under sail was passing close to the men in the water. Being under sail, the crew on the yacht were able to hear the shout for help. Had the yacht been under power, the shouts would probably have gone unheard, due to engine noise. Given the exhausted state of the survivor, he would certainly have perished if he had not been rescued at that time.
- 5.4 The two men had no suitable means of communicating distress following the accident. Most small craft accidents occur very suddenly and without warning. It is essential that skippers and crew on small craft carry suitable means to signal distress, no matter how sudden the emergency. It is equally important to understand the limitations of communications equipment. The following equipment is readily available:
- VHF radio. A 24 hour watch is kept on Channel 16, covering virtually all areas of the NZ coast, not only by Maritime Radio and many Coastguards, but also by any other craft in the area. A mayday message results in immediate assistance, unless conditions make this impossible. However, in the case of a sudden capsize, flooding or sinking, the radio and its battery are vulnerable to water and instantly rendered useless. Hand-held VHF radios are available and can be purchased as a waterproof model, or alternatively they can be sealed in a plastic bag. They can be used effectively, without removal from the bag.
 - Cell phones are carried on most vessels by at least some of the crew. Cell phone coverage is limited, but frequently covers the areas most popular with small craft users. Cell phone communication is limited to the person who is listening, but calls to 111 can be relayed to search and rescue authorities, for immediate response. A cell phone is particularly vulnerable to water and it should be kept sealed in a plastic bag and carried on the person, so that it is available after the boat has been abandoned. There is no loss of signal strength if it is used in the bag.
 - Red hand-held flares can be used by day or night. They can be seen clearly for a considerable distance, except when visibility is limited. If seen, assistance is usually immediate. Parachute flares can be carried for use further from the coast and the use of orange smoke flares are very useful by day.
 - At least one reliable waterproof torch should be carried on all vessels. It can be used effectively at night to attract attention.



- Emergency position indicating radio beacons (EPIRBs) are waterproof and transmit a signal that is monitored at the NZ Rescue Co-ordination Centre. While very reliable, it usually takes at least an hour before a rescue attempt can begin, due to the limitations of the system and ascertaining the exact location of the casualty. This time lapse can be critical when persons are immersed in cold water.

- 5.5 **Black Attack** was maintained with care by the Skipper. With the assistance of others, he had checked the boat diligently. He used quality materials to make necessary repairs and sought the advice of others when he was unsure. The area that was overlooked showed no signs of degradation and normal survey techniques, such as hammer testing, did not indicate the delamination that existed in the critical area. It is by no means certain that a marine survey would have identified the problem.
- 5.6 The Skipper stated that he believed the damage was caused when the boat hit an unseen object in the water. However, the Accident Investigator made a detailed examination of the boat following its recovery and removed samples of the degraded area for further inspection. In his opinion, the damage and state of the internal laminations of the plywood are entirely consistent with damage caused by impact with a wave or waves likely to be present with wind conditions on that date.
- 5.7 Wooden boats of this style were popular in the 1960's and 1970's. They were often constructed as home build projects, and many are still in use. Over time, wood can deteriorate, particularly if it remains damp for extended periods. The area adjacent to the keelson on such a boat, is particularly vulnerable to retaining small amounts of water for long periods while the boat is in storage. Fresh water causes much more rapid deterioration than salt water. Finding rot is typical in this location. However, before rot becomes established and obvious, plywood often loses much of its strength due to breakdown of the fibres.
- 5.8 There should be no criticism of the Skipper for his failure to identify the deficiency in the vessel.



Recommendations

- 5.9 It is recommended that the Maritime Safety Authority (MSA), continues to promote the wearing of PFDs in small craft, using all possible means to take this message to the operators and passengers on pleasure craft.
- 5.10 It is recommended that the MSA, in co-operation with the National Pleasure Boat Safety Forum, to whom a copy of this report is to be sent, consider the promotion of suitable communications equipment for pleasure vessels. It is further recommended that the introduction of rules requiring mandatory carriage of communications be considered by the National Pleasure Boat Safety Forum after reviewing fatal accident numbers where inability to communicate has contributed to fatalities in pleasure craft
- 5.11 It is recommended that this report be considered for inclusion in the next edition of the recreational accident book published by the MSA. It is also recommended that the MSA issue a safety bulletin and a press release drawing the attention of owners of boats, similar to **Black Attack**, to the need to be particularly vigilant about deterioration in wooden boats over time.
- 5.12 It is recommended that the Skipper and crew of the yacht **Petty Theft** be commended for their vigilance and for their handling of a difficult and unexpected situation.