



# Accident Report

*Waitea*

Fatality at Bostaquet Bay, Kawau  
Island on 8 January 2004



REPORT NO.: 04 1063

VESSEL NAME: WAIATEA

Casualty Details:

<b>Date of Casualty:</b>	8 January 2004
<b>Time of Casualty:</b>	1210 hours New Zealand Daylight Time (NZDT)
<b>Casualty Type:</b>	Fatality
<b>Casualty Location:</b>	Bostaquet Bay, Kawau Island
<b>Investigator:</b>	Chris Poulter, Maritime Safety Inspector, Auckland



REPORT NO.: 04 1063

VESSEL NAME: *WAIATEA*

Vessel Details:

Vessel Name:	<i>Waiatea</i>
Vessel Category:	Power
Length (m):	10



## SUMMARY

As *Waiatea* entered the bay, it slowed to a speed of about 6.5 knots for vessels that were fishing. As it proceeded through the area, they were alerted to the fact that they had struck a diver who was surfacing, killing him instantly.



## KEY EVENTS

- 1.1 On 8 January 2004 at about 1040 hours New Zealand Daylight Time, the motor launch, **Donzello**, anchored in a depth of about 20 metres, in a position about 160 metres from Brownrigg Point, at the western entrance to Bostaquet Bay on Kawau Island. The Skipper and his friend commenced fishing while the Skipper's wife read a book on the flying bridge.
- 1.2 At about 1100 hours, the motor launch **Strikeon** anchored inside **Donzello** approximately 80 metres from Brownrigg Point in a depth of 15 metres. **Strikeon** was accompanied by the motor launch **Yolo**, which anchored about 30 metres from **Strikeon's** starboard quarter and about 80 metres from the shore. All the persons on the three launches were friends or associates. The area is popular for scallop diving.
- 1.3 A further 60 metres outside **Donzello**, a yacht, **Caballero**, was anchored with its occupants fishing. Another un-named vessel was anchored about 50 metres ahead of **Caballero**.
- 1.4 Both **Yolo** and **Strikeon** hoisted dive flags at on the port quarter before three men from the two vessels started to scuba dive for scallops and crayfish. The divers were operating independently from each other.
- 1.5 At about 1140 hours, the Skipper and owner (*the deceased*) of **Yolo** had finished his first dive and returned to **Yolo**. After a short spell, he replaced his dive bottle and re-entered the water. On **Donzello**, the Skipper's wife monitored the bubbles that indicated his position. She noted that by about 1210 hours, the bubbles were about half way between **Yolo** and **Donzello**.
- 1.6 At about 1200 hours, the 10.5 metre motor launch, **Waiatea**, was heading in an easterly direction towards Brownrigg Point with the intention of altering course to port around the point and into Bostaquet Bay. **Waiatea** was travelling at a speed of 13 knots at 3000 RPM on the engine.
- 1.7 At about 1205 hours, the Skipper of **Waiatea** saw the four craft anchored ahead and a number of additional craft further away. He slowed to about eight knots. Being a keen diver, he looked to see if any of the vessels were displaying dive flags. The Skipper's wife moved to the stern in order to shorten the dinghy painter in preparation for anchoring in Bostaquet Bay, where a number of vessels were at anchor approximately 0.4 miles ahead.
- 1.8 The Skipper could not see any dive flags on the vessels ahead and selected a course that would pass inside **Donzello** and outside **Strikon** and **Yolo**.
- 1.9 At about 1210 hours, the Skipper of **Waiatea** noticed a man on **Donzello**, which was about 50 metres ahead and to starboard, waving and making signals to slow down. The Skipper reduced engine speed to 1000 RPM, that he knew provided a speed of about 5 knots. The man who appeared to be fishing, pointed at the water and was shouting something that the Skipper could not hear over the engine noise. The Skipper did not see any bubbles indicating a diver was working and since he had not seen any dive flags he assumed the man on **Donzello** was indicating that he had a fishing line in the water.
- 1.10 The Skipper's elder daughter on **Waiatea**, felt a slight bump and she and her mother immediately noticed something submerged in the water at the stern, and shouted to the Skipper to stop. As they stopped, they saw the deceased float up and they then realised they had hit a diver. The Skipper immediately called for his daughter to let go the anchor while he jumped into the dinghy with his wife to go to the aid of the deceased, who was about 50 metres astern.
- 1.11 The Skipper of **Donzello** and his wife, noted that **Waiatea** passed through the area where bubbles were surfacing. A few moments later they saw the deceased float to the surface directly astern of **Waiatea**. He was face down and was bleeding profusely.



- 1.12 The deceased's friends on *Strikeon* heard the Skipper of *Donzello* shouting a diver had been injured and immediately used two dinghies to go to the aid of the deceased. They reached him about 30 seconds later. After removing the deceased's dive bottle, they pulled him into a dinghy, aided by the Skipper of *Waiatea*. Their impression was that he was already dead.
- 1.13 The crew on *Strikeon* and *Donzello* alerted police and Coastguard using VHF radio and cellphone.
- 1.14 A nurse from the yacht *The Companion*, which was anchored in Bostaquet Bay, had witnessed the accident. She arrived in a dinghy to offer assistance and advised the men to move the deceased from the dinghy to the stern boarding platform of a launch.
- 1.15 The Skipper of *Donzello* weighed anchor and manoeuvred his stern alongside the dinghy. The deceased was transferred to the boarding platform.
- 1.16 The nurse from *The Companion* noted that there appeared to be no signs of life. She commenced CPR while *Donzello* moved inshore towards the beach at Bostaquet Bay.
- 1.17 A nurse from another anchored vessel offered assistance and CPR was continued for a time, but it was very clear to them both that he had died.
- 1.18 The Westpac helicopter arrived. The deceased's body was taken ashore by dinghy, thence to the helicopter.



## KEY CONDITIONS

- 2.1.1 *Yolo*, which was owned by the deceased and his wife, is a 13 metre motor launch with an enclosed flying bridge.
- 2.1.2 *Strikeon* is a 14 metre motor launch with an enclosed flying bridge. *Yolo* and *Strikeon* were both built within the last 10 years.
- 2.1.3 *Caballero* is a 12 metre sloop.
- 2.1.4 *Waiatea* is a 10 metre Vindex design motor launch with a flying bridge. It was built in 1978 and displaces about 6 tons.
- 2.1.5 *Waiatea* is powered by a single 190 kW diesel engine that is about two years old, and a conventional shaft and propeller. Normal cruising speed is 16 knots at 3,400 RPM. The 20 inch diameter propeller operates ahead of the rudder. A solepiece extends from the keel below the propeller to provide a lower bearing for the rudder.
- 2.1.6 *Waiatea* has a draught of 1.1 metres and a beam of about 3.5 metres.
- 2.1.7 *Waiatea* is fitted with a flying bridge where the Skipper was steering. The fitted clear plastic screens were rolled up and the Skipper's view was unimpeded in all directions.
- 2.1.8 *Waiatea* is equipped with a compass, depth sounder, GPS plotter and VHF Radio. There is no log to indicate water speed. The Skipper was navigating solely by visual means in a familiar area.
- 2.1.9 The speed of *Waiatea* through the water was not checked by the Skipper, although the GPS/plotter would have readily provided that information. However, due to the nature of GPS systems, this information would not have been displayed until a short time after a change in speed. The Skipper recalled that he slowed to 1000 RPM on the engine, which provided a speed of 5 knots. Estimates from several witnesses put the speed of *Waiatea* at between 4 and 8 knots. No wake was being created. Given the waterline length of *Waiatea*, it is most likely that it was travelling at about 6.5 knots. At a speed higher than that, significant wake would be created. The Skipper of *Waiatea* has stated that he was not exceeding five knots from the time he was approaching *Donzella*.
- 2.1.10 The Skipper of *Waiatea* was accompanied by his wife and two daughters who were aged 21 and 11.
- 2.1.11 The Skipper of *Waiatea* and his wife bought the launch in 1999. In total, he has about 30 years boating experience. He holds a Coastguard Dayskipper Certificate and is a qualified scuba diver.
- 2.1.12 The dive gear used by the deceased was taken by the police dive unit for testing. Test results showed that the equipment operated normally. The air in the dive bottle had been almost entirely used but sufficient air remained for the deceased to make a controlled ascent, with stops, if that had been necessary. The police also ascertained that the deceased normally used the maximum amount of air that he could with safety, prior to returning to the surface. He was described by his companions as being very safety conscious.
- 2.1.13 The weather at the time was sunny and calm with very good visibility. There was a faint breeze from the south-west, sufficient to cause a slight ripple on the sea.
- 2.1.14 High water (springs) was at about 0835 hours. The tidal set off Brownrigg Point at the time of the accident was so slight that it was barely measurable, but was most likely about 0.25 knots, in approximate direction 090°(T).



- 2.1.15 The dive flag on **Strikeon** was about 300mm hoist by 600mm long. It was placed on a staff in the fishing rod holder on the port quarter. The height of the flag was below the level of the top of the flying bridge.
- 2.1.16 The dive flag on **Yolo** was approximately 600mm at the hoist by 1 metre in length. The height of the flag was below the level of the top of the flying bridge.
- 2.1.17 Both vessels hoisted the dive flags before commencing diving. In neither case was the flag held out by a rod, or stiffener, that can be used to spread the flag when there is little wind. Both flags were hanging down vertically in the time prior to the accident. The dive flags were clearly seen by the persons on board **Donzello** and on other vessels anchored abeam of **Yolo** and **Strikeon**.
- 2.1.18 **Yolo** and **Strikeon** were anchored, lying head to the very slight breeze and slight tidal set. They were both headed in an approximate south-west direction.
- 2.1.19 When **Waiatea** approached from the south-west, the dive flags on **Yolo** and **Strikeon** were at least partly obscured by the flying bridge on each launch, due to the head-on aspect of the two vessels. Additionally, with the flags hanging vertically down, even if the launches had swung side-on, the flags would not have been obvious unless the faint breeze was sufficient to make them flutter. The flags on both vessels were seen by the Skipper and crew on **Waiatea**, once they stopped, after striking the deceased. By then, **Waiatea** was astern of **Yolo** and **Strikeon**.
- 2.1.20 The skippers of two other vessels, that also entered Bostaquet Bay during the time that the divers were operating, have stated that they did not see the dive flags until they were astern of **Yolo** and **Strikeon**. The bubbles from the deceased were clearly visible to the persons aboard **Donzello**. However, they knew there was a diver operating and had been keeping watch on the bubbles. The Skipper of **Waiatea** did not notice the bubbles, but he was not expecting to see any since he had not seen a dive flag. The slight ripple from the faint breeze was sufficient to mask the bubbles to some extent.
- 2.1.21 Divers are trained to be aware of the possibility of vessels when surfacing. There is ample evidence that the deceased was a careful diver. Sound carries clearly through water and the noise from a propeller of a vessel moving at speed is obvious. However, **Waiatea** had slowed down and the propeller noise would have been very muted due to there being no cavitation from the propeller blade tips.
- 2.1.22 The deceased was operating in about 17 metres of water while collecting scallops. Looking upwards, while ascending, is very difficult and even if a vessel is sighted, it takes time for an ascending diver to make a stop. If he had surfaced several metres ahead of **Waiatea**, he would have had sufficient time to descend or swim away from the danger of the propeller, given that the launch was travelling at a moderate speed.
- 2.1.23 The underwater visibility at the time was about 5 metres. If the deceased only saw **Waiatea** from that distance as he surfaced, immediately adjacent to the keel, he would have had virtually no opportunity to avoid contact with the propeller.



## 2.2 Legal Requirements

- 2.2.1 The Maritime Rules and Bylaws relevant to this accident include Maritime Rules Part 22, Collision Prevention and Auckland Regional Council Navigation Safety Bylaws. (NOTE: Navigation Safety Bylaws must not conflict with Maritime Rules Part 91, Navigation Safety. In any areas where a Regional Council has not accepted responsibility for navigation safety in their area, Maritime Rule 91 applies).

- 2.2.2 Rule 22.5, **Look-Out**, requires that a proper look-out be kept at all times using sight, sound and any other means available.
- 2.2.3 Rule 22.6, **Safe Speed** requires every vessel to travel at a safe speed at all times. Auckland Regional Council Navigation Safety Bylaw 3.2.1 requires that no vessel within 200 metres of a vessel displaying a dive flag (international code flag A) may exceed a speed of 5 knots through the water. The same speed restriction applies within 200 metres of shore and within 50 metres of any other vessel or a person in the water.
- 2.2.4 Maritime Rules Part 91, Navigation Safety, require every vessel that has divers operating to display a dive flag in such a way that it can be clearly identified from 200 metres by the watchkeeper on an approaching vessel. Both divers and the skipper of the vessel are responsible for ensuring the flag is displayed correctly. However, Auckland Regional Council Bylaws contain no such requirement. Although this is in direct conflict with the requirements of Maritime Rule 91, all councils had until 1 April 2004 to ensure their Bylaws were not in conflict with the Rule. (Note. Maritime Rules Part 91 were introduced in March 2003). Therefore, there was no legal requirement for *Yolo* or *Strikeon* to display a dive flag at the time of the accident.
- 2.2.5 Maritime Rule 22.30(1) requires a vessel at anchor to exhibit a black ball in the fore part of the vessel. (It should be noted that this rule is rarely observed by small craft).
- 2.2.6 Maritime Rule 22.27(4) **Vessels Restricted in Their Ability to Manoeuvre**, requires a vessel, such as *Yolo*, to exhibit a rigid replica of the dive flag at least 1 metre in height when engaged in diving operations. However, a vessel that is a support vessel for scuba divers does not fit the definition of “A Vessel Restricted in its Ability to Manoeuvre” which states such a vessel must be restricted to the point that “it is unable to keep out of the way of another vessel”. Scuba diving places no more restriction on a vessel than swimmers. Therefore Maritime Rule 22.27 did not apply to the vessels in this accident.
- 2.2.7 The Rules and Bylaws regarding distances and the maximum speed of vessels were known and understood by the Skipper of *Waiatea* when he was interviewed following the accident.



# CONTRIBUTING FACTORS

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

- 3.1 As he ascended, the deceased was unaware of **Waiatea** above him. Underwater visibility was limited to about five metres and any propeller noise was very muted or not present. He did not stop his ascent a couple of metres from the surface to look around.
- 3.2 The deceased did not have time to descend or swim clear of the propeller as he surfaced alongside the keel, probably just forward of the propeller aperture.
- 3.3 The dive flags displayed by **Yolo** and **Strikeon** were not displayed so that they could be seen all round. They were hidden from vessels approaching from the south-west. Lack of wind contributed to the flags being difficult to see.
- 3.4 The Skipper of **Waiatea** did not see the dive flags, and in the circumstances prevailing as he approached, he could not be expected to do so.
- 3.5 The Skipper of **Waiatea** did not notice the air bubbles from the diver ahead in the water. The ripples from the slight breeze, being focussed on steering the launch near other craft, the communications from **Donzello** and his own mindset that there were no divers because he could not see any dive flags, may all have contributed to the Skipper's failure to see the bubbles.
- 3.6 Even though he could not hear the shouts, the Skipper of **Waiatea** did not heed the hand signals of the Skipper of **Donzello** who signalled him to reduce speed. **Waiatea's** Skipper had satisfied himself there was no danger and continued on course to pass through an area between the anchored vessels, rather than stopping in the still conditions to ascertain what **Donzello's** Skipper was trying to tell him.
- 3.7 The Skipper of **Waiatea** failed to check his speed using the equipment he had. While he was aware of the 5 knot restriction and slowed to approximately that speed, a further reduction in speed after checking his GPS should have been made. With no tide or current, the GPS speed equated to speed through the water.
- 3.8 The Skipper of **Waiatea** chose to take the shortest route to the anchorage in Bostaquet Bay. The added distance and time to go round the anchored craft was negligible. The Skipper stated he would have gone outside all the other vessels if he had seen a dive flag. The skippers of at least two other craft entering Bostaquet Bay had also elected to pass through the same passage between **Strikeon** and **Donzello**, prior to the arrival of **Waiatea**.



# CAUSE

## Human Factor

<input checked="" 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 checked="" 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 checked="" type="checkbox"/> Other . . .

## Technical Factor

<input type="checkbox"/> Structural failure	<input type="checkbox"/> Wear & tear	<input type="checkbox"/> Steering failure
<input type="checkbox"/> Mechanical failure	<input type="checkbox"/> Improper welding	<input 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 deceased died from head-wounds caused by the propeller of *Waiatea*.
- 4.2 The dive flag was not displayed so that it could be readily seen all round.
- 4.3 The Skipper of *Waiatea* elected to follow a course between the anchored vessels in circumstances where this was not necessary.



# OPINIONS & RECOMMENDATIONS

## 5.1 Opinions

- 5.1.1 The deceased seems to have failed to stop his ascent, short of the surface, to look around and check it was safe to continue. This 'best practice' is often ignored by divers in similar circumstances, given the scarcity of traffic, the proximity to shore and the other vessels at anchor close by. He was, in effect, diving alone rather than using the recommended practice of diving with a buddy. However, it is very unlikely that diving with a buddy would have prevented this accident.
- 5.1.2 Underwater New Zealand has provided the following information in relation to scuba diving.
- Utilizing a buddy system is a standard safety procedure for diving and should always be adopted by all divers.
  - The sound of a vessel travelling at slow speed is often impossible to hear unless the exhaust of the vessel is discharged below water. Motor launches with inboard diesel installations discharge exhaust above water.
  - Divers are trained to look up and around while ascending, with one arm held upwards holding and controlling the air from the inflate/deflate mechanism on the buoyancy compensator. Divers are also trained to make a safety stop in shallow water. Controlling ascent/descent and stopping are not difficult procedures.
- 5.1.3 The flag on *Yolo* was 600mm at the hoist and would have been clearly visible from 200 metres if it had been spread out and not obscured by the flying bridge. However, there was no legal requirement at that time for *Yolo* to display a dive flag. The fact that a flag was hoisted attests to the careful attitude of the deceased.
- 5.1.4 The Skipper of *Waiatea* was fully aware of the dangers vessels created for divers and would have avoided the area if he had seen the flag. However, he could have slowed to a speed much slower than five knots given the fact that he was passing close to other craft at anchor. He also decided to go relatively close to those vessels when other options were available. He took no action on seeing the hand signals from the skipper of *Donzello*.
- 5.1.5 The speed of about 6.5 knots maintained by *Waiatea*, when 5 knots was the maximum, was not significant in terms of this accident and a speed of 3 or 4 knots could have had the same result. Nevertheless, slower speeds will almost always provide a greater level of safety in close quarters situations.
- 5.1.6 The errors of judgement by both the skipper of *Waiatea*, regarding his speed and choice of track, and the Skipper of *Yolo*, regarding the display of the dive flag and failing to stop during his ascent in order to make absolutely sure it was safe to surface, were minor in their own right. However, these errors combined together at a moment in time with tragic results.
- 5.1.7 Such errors of judgement are commonplace and not confined to the operation of pleasure craft. With the aid of hindsight, it is not difficult to determine what caused this accident, but it would be extremely difficult to predict such an unfortunate sequence of events.
- 5.1.8 Those who went to the deceased's assistance following this accident are to be commended, especially in light of what must be described as a horrific accident. However, the severe head injury was immediately fatal and no other actions could have saved his life.



## 5.2 Recommendations

- 5.2.1 Following this accident experiments were conducted by a team from NZ Underwater, the Maritime Police Unit and the Maritime Safety Authority to ascertain the size for a dive flag to be readily visible from 200 metres in all conditions. The results indicated that any flag under 600mm in height and 600mm in length could not be clearly identified at the required distance, even when held out horizontally.

It is recommended that Maritime Rule Part 91 and Regional Council Bylaws be amended to include the minimum size for a dive flag be 600mm at the hoist and 600mm in length. It is further recommended that the Rule and Bylaws state specifically the requirement for the flag to be displayed in such a way that it can be readily seen from all directions by any approaching vessel.

- 5.2.2 It is recommended that the MSA issue a Boat Notice/Safety Bulletin detailing these changes and providing advice on the use of the dive flag.
- 5.2.3 It is recommended that this accident report be considered for inclusion in the next recreational boating accident book published by the MSA to draw attention to skippers that while the legal maximum speed close to shore and other vessels is five knots, frequently, a significantly slower speed, provides a greater increase in safety.
- 5.2.4 It is recommended that NZ Underwater advise the dive community and dive shops selling dive equipment of the changes to the dive flag requirements.
- 5.2.5 It is recommended that instructions be included with each dive flag stating that a) any vessel from which divers are operating is legally required to display a dive flag not less than 600mm in height, and b) it is a requirement that the flag must be spread out and displayed in such a way that it is clear of obstructions and can be readily seen by the watchkeeper of any approaching vessel.
- 5.2.6 It is recommended that divers always follow best practice and recommended training procedures at all times.

