

ASSESSMENT  
Heavy Weather Passage  
*Challenger (Kaitaki)*  
24 October 2006



# INTRODUCTION

On 24 October 2006, the Cook Strait ferry **Challenger** sailed from Picton to Wellington encountering storm force conditions. The voyage, which took nearly ten hours, was an uncomfortable crossing.

Publicity relating to the crossing and complaints received from some of the passengers on board prompted Maritime New Zealand (MNZ) to undertake an assessment of the safety of the vessel, its passengers and crew during the course of the crossing.

That assessment has now been completed and a narrative of the events and comment and analysis thereof is set out below.



# NARRATIVE

On Tuesday 24 October 2006, **Challenger's** two Masters, the Day Master and Night Master, re-joined the vessel after a week's leave. Before leaving home, knowing that bad weather was forecast, the Day Master downloaded the weather forecast for Cook Strait from the Metconnect web site.

At 0841 New Zealand Daylight Time (NZDT), **Challenger** sailed from Wellington for Picton with the Day Master in command. The vessel was routed further to the south in Cook Strait than normally occurred to allow for the prevailing south westerly gale force conditions. Other than the fact that one of the vessel's four engines was shut down momentarily, after an engine over speed trip was activated as a result of the heavy pitching of the vessel, the passage to Picton was uneventful.

**Challenger** docked at Picton at 1215, forty minutes later than her scheduled arrival time.

**Challenger's** freight was discharged and further freight loaded. Passenger embarkation was completed by 1320.

At 1328, **Challenger** sailed from Picton with 852 passengers and 66 crewmembers on board. Shortly after departure, the engine room was informed by the bridge that the engines would be kept in combinator mode after entering Cook Strait. This was to enable the bridge team to continue to control both the pitch of the propellers and speed of the four engines.

At 1338, the Master informed the bridge team that the latest recording at Beacon Hill, signal station, situated at the entrance to Wellington Harbour, was southerly 50 – 60 knots.

At 1424, the vessel commenced its turn through the eastern entrance of Tory Channel and proceeded into Cook Strait. Shortly afterwards, the wind increased significantly and the vessel started pitching into the southerly swell.

By about 1445, the southerly wind had increased to 65 knots.

At 1448, one of the two engines on the port propeller shaft shut down after a mechanical over speed trip was activated as a result of the vessel pitching in the heavy seas. The engine was reinstated by the engineers seven minutes later, at 1455.

Due to the prevailing weather conditions, the Master decided to head in the direction of Clifford Bay, situated on the northern coastline of the South Island (see *Figure 1*). It was his intention, having approached closer to the land and obtained a lee from the prevailing weather conditions, that he would be able to turn safely to port and run up towards the entrance to Wellington Harbour with the seas and swell on the vessel's starboard quarter.

At 1510, the Master telephoned the Interislander Duty Manager ashore to inform him of his intentions to close with the land and to advise that as a result they would be late arriving in Wellington.

At 1521, the Master altered course onto a south westerly heading in the direction of Clifford Bay (see *Figure 1*).

At 1522, the Master was told by the Interislander Duty Manager that **Aratere's** departure from Wellington had been cancelled as a result of the southerly wind maintaining a speed of about 65 knots.

At 1544, the Master made a Public Address announcement to the passengers informing them of the situation and the action that was being taken.

By about 1600, the wind had backed to the south south west and increased to 70 knots.

At 1606, whilst still endeavouring to keep in the lee of the South Island, the Master altered course onto a south easterly heading in order to make more 'southing' before altering course towards the entrance to Wellington Harbour (see *Figure 1*).



At 1619, the Master again spoke to the Interislander Duty Manager ashore and informed him that the vessel's estimated time of arrival at Wellington would now be at 1820.

At 1630, the wind was still south south west at 70 knots.

At 1632, there was a discussion amongst the bridge team concerning the problem of obtaining information of the significant and maximum wave height and period that were being recorded by the wave rider buoy situated a short distance off Baring Head (see *Figure 1*).

At 1641, the Master altered the vessel's course onto a broadly east north easterly heading towards the approaches to Wellington Harbour entrance, putting the sea and swell on the starboard quarter (see *Figure 1*).

At 1649, the Master called Beacon Hill signal station to advise them of the vessel's revised estimated time of arrival (ETA). The Master was told that the present wind conditions at Beacon Hill were gusting up to 72 knots from a direction of 210° (T).

At 1711, one of the two engines on the starboard shaft shut down after the activation of a mechanical over speed trip, as a result of the heavy pitching of the vessel.

At 1712, Beacon Hill signal station called **Challenger** and advised that the wave rider buoy was functioning again and was recording a maximum wave height of 9.44 metres, a significant wave height of 5.21 metres and a wave period of 8.06 seconds.

At 1715, the engine on the starboard shaft which had shut down was reinstated.

Following a discussion with the bridge team about the reported sea conditions at the entrance to Wellington Harbour, the Master decided to abort the approach to Wellington. The Master then altered course to starboard onto a broadly south easterly heading and put the seas and swell on the starboard bow (see *Figure 1*).



At 1725, the Night Master came to the bridge to discuss the situation with the Day Master.

At 1738, the vessel was struck by a large wave over the bow and the Master immediately dispatched the 2<sup>nd</sup> Mate to check the forward facing windows in the passenger areas. Following his inspection, the 2<sup>nd</sup> Mate reported that all the windows were intact.

At 1739, two of the four engines shut down briefly after the activation of their respective mechanical over speed trips as a result of the heavy pitching of the vessel.

Two minutes later, at 1741, all engines were reinstated.

Due to the weather conditions causing the intermittent activation of the engine mechanical over speed trips, the Master decided to alter course to starboard onto a broadly south westerly heading and head back in the direction of Clifford Bay (see *Figure 1*). He informed the engine room of his intentions and said that he would not be taking the vessel into Wellington until the weather conditions had improved.

At 1815, following a formal handover, the Night Master relieved the Day Master of his duties and took over the command of the vessel.

At 1819, the Operations Manager of Interislander telephoned the Master to discuss the situation. The Night Master advised him of the decision that had been made to turn back towards Clifford Bay.

By about 1830, the south south westerly wind had eased somewhat to 60 knots.

At 1838, a passenger was reported as being very short of breath and a Doctor on board was asked to assist.

At 1852, Beacon Hill signal station called the vessel to advise that the latest recordings from the wave rider buoy, showed a maximum wave height of 8.29 metres and a significant wave height of 5.54 metres.

At 1858, the wind and swell conditions had eased sufficiently for the Master to decide to alter course to port and head in a south easterly direction so as to make more 'southing' before eventually turning to port and heading towards Wellington (see *Figure 1*).

At 2019, Beacon Hill contacted the vessel and said that they were again having problems obtaining recorded data from the wave rider buoy due to technical difficulties.

At 2027, the Master made a public address announcement to the passengers informing them that conditions were improving and that he would shortly be altering course to head towards Wellington.

At 2031, **Challenger's** course was altered to port onto a broadly north north easterly heading towards Wellington Harbour entrance, putting the seas and swell on the vessel's starboard quarter.

At 2057, Beacon Hill signal station contacted the vessel and said that the wave rider buoy was functioning again and recording a maximum wave height of 6.47 metres and a significant wave height of 4.65 metres

At 2122, Beacon Hill signal station reported the wave rider buoy was recording a maximum wave height of 7.09 metres with a significant height of 4.61 metres. The wind conditions at the entrance to Wellington Harbour were reported to be 34 knots gusting to a maximum of 58 knots from the south south west.

At 2158, Beacon Hill informed **Challenger** that the maximum wave height at the wave rider buoy had reduced to 6.22 metres with the significant wave height at 4.48 metres.

At 2213, **Challenger** passed abeam of Barrett Reef buoy at the entrance to Wellington Harbour and subsequently berthed at Wellington without incident at 2315, approximately seven hours after her scheduled arrival time.



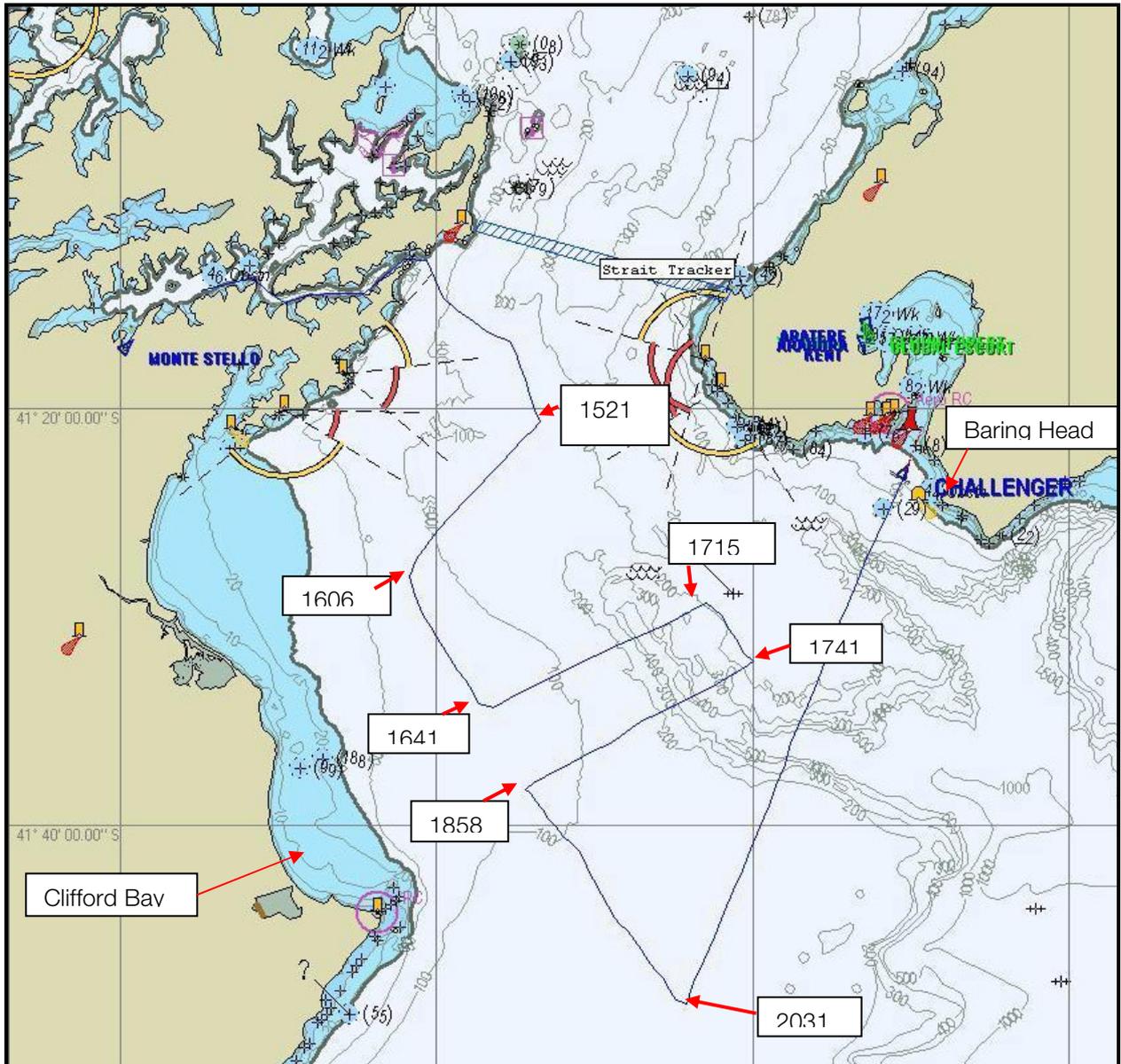


Figure 1 - Automatic Identification System recording of *Challenger's* track over the ground in Cook Strait



## COMMENT & ANALYSIS

The vessel encountered storm force conditions on the return passage to Wellington in what was definitely a most uncomfortable and extended crossing. Based on letters that were written to MNZ, the extreme movement of the vessel at times clearly frightened some of the passengers. Although many passengers were sick, some acutely so, there were fortunately no serious harm injuries to any of the passengers or crew.

Damage to freight was restricted to one vehicle suffering minor damage and one motorbike falling over onto its side.

Following a detailed analysis of the vessel's Voyage Data Recorder (VDR), a review of letters written by a number of passengers and after conducting further enquiries with the ship's crew, MNZ is satisfied that the vessel, its passengers and crew were never placed in any danger during the crossing from Picton to Wellington on 24 October. Further, MNZ considers that the Master took the prudent action of firstly seeking the lee of the land before attempting to turn towards Wellington and secondly of his decision to abort the passage to Wellington and return to the lee of the land when it became clear that the prevailing weather conditions were too bad to risk entry.

**Challenger's** VDR, which is similar to an aircraft's 'black box', records information such as the vessel's position and its course and speed, both through the water and over the ground. It also records conversations on the bridge. These were analysed at length by MNZ. Based upon this evidence and the interview of the Day Master, MNZ is satisfied that the decision to sail from Picton and the subsequent navigation of the vessel in Cook Strait were prudent and appropriate with regard to the safety of the vessel, the passengers and crew.

Analysis of the recorded bridge conversations confirm that the utilisation of Bridge Resource Management techniques, to include communication, briefings and challenge and response by the whole bridge team was of the highest standard for which they are complimented by MNZ.

Except for a period of a few minutes when the vessel first entered Cook Strait, the vessel remained in manual steering throughout.

Both stabilizer fins were operational and fully extended throughout the crossing.

Data from the wave rider buoy was not available to the Master of **Challenger** as normal via the internet due to technical difficulties. It was therefore necessary for him to seek this information from Beacon Hill signal station. This too, however, had occasional difficulty obtaining the required data from the buoy because of technical difficulties.

Interislander's documented procedures state that when the significant wave height in Cook Strait reaches 5 metres, the Duty Manager of Interislander has to seek clearance for their vessels to continue sailing from the Divisional General Manager of Interislander. When **Challenger** sailed from Picton, the significant wave height was recorded by the wave rider buoy as being less than 5 metres and accordingly this procedure was not invoked.

Tidal conditions in Cook Strait had changed since **Challenger's** morning crossing from Wellington to Picton on 24 October. On the return passage to Wellington, the tide was initially setting against the direction of the seas and swell. This would have had the effect of steepening and increasing the height of the waves.

Several times during the voyage, **Challenger's** engines shutdown due to the activation of mechanical over speed trips. If, due to the vessel pitching, the propellers momentarily leave the water, the lack of water resistance causes the rotation of the shaft to increase in speed. The engines are fitted with two different over speed trips, one electrical and the other mechanical. The electrical trips, which are set at 550 rpm, cut off the fuel supply to the engine until the speed reduces when it automatically resets. The mechanical trips are activated by an offset weight on the camshaft that acts like a governor. When a



mechanical trip is activated, it necessitates an engineer having to manually reset the trip at the engine with a spanner. The mechanical trips were set at 580 rpm on Nos. 1, 3 and 4 engines and 600 RPM on No. 2 engine. The mechanical trips are tested on a planned maintenance schedule every 1 250 hours.

MNZ received a number of letters from passengers on this sailing. The letters between complaint and commendation were almost equally divided.

Passenger complaints included the lack of any warning by shore staff/crew at Picton about the forecast weather conditions so that passengers could make an informed decision as to whether they should sail. There was mention of some passengers in chairs sliding across the deck and crashing into other passengers as the vessel rolled and pitched heavily. Some of the passengers felt the Master should either not have sailed or should have aborted the passage, on encountering heavy weather conditions, and returned to Wellington. Some families were severely traumatised by the passage and had doubts they would survive. One passenger was of the opinion that Interislander should publish arrival times, as do the airlines, so that they can determine if a ferry will be on time, arrive early or be late.

Letters of commendation were to the effect that the Master's announcements were professional and informative without scaring people and that he made the right decisions with a view to ensuring the safety of the vessel and those on board. Many passengers praised the crew for their overall professionalism, help and reassurance.

Signage concerning rough seas was displayed at the foot passenger check in desks at Picton but there was no information available to passengers about the weather conditions over the public address system both in the terminal check in area and vehicle check in.

**Aratere**, which sailed from Picton for Wellington before **Challenger**, on her scheduled 1000 hours sailing on 24 October had an uneventful crossing although she did take a more southerly route than usual because of the prevailing weather conditions.



# CONCLUSIONS

1. The vessel encountered very rough sea conditions which were more severe than those forecasted.
2. Although it was definitely an uncomfortable crossing, which was frightening to some on board, the vessel, passengers and crew were not placed in any danger during the voyage.
3. The Master acted prudently by taking the appropriate actions to ensure the safety of the vessel, passengers and crew.
4. Whilst many of the passengers were sick, some acutely so, there were no serious harm injuries to any of the passengers and crew.
5. Signage concerning rough seas was displayed at the foot passenger check in desks but there was a lack of other information available to passengers about the weather conditions so that they could make an informed decision about whether to sail. Interislander should review its procedures for informing passengers of the possibility of a rough crossing prior to embarkation.
6. Interislander should review its procedures for keeping passengers updated with information whilst in the passenger terminal during disrupted sailings.
7. Interislander should review the securement of fittings on board their vessels that are likely to move in rough weather.
8. Interislander should give consideration to amending their web site to include details of a vessel's ETA during disrupted sailings.
9. The Bridge team is complimented by MNZ on the Bridge Resource Management techniques they utilised during this crossing.
10. The vessel's hospitality staff is complimented by MNZ for the professionalism, help and reassurance that they gave to the passengers throughout the crossing.



## VESSEL DETAILS

<b>Ship Name:</b>	<i>Challenger</i>
<b>Ship Type:</b>	Passenger Ro Ro
<b>Certified Operating Limit:</b>	Unlimited
<b>Port of Registry:</b>	Portsmouth
<b>Flag:</b>	British
<b>Built:</b>	1995
<b>Construction Material:</b>	Steel
<b>Length Overall (m):</b>	181.6
<b>Maximum Breadth:</b>	24.4
<b>Gross Tonnage:</b>	22365
<b>Ship Operator/Manager:</b>	Interislander
<b>Classification Society</b>	Lloyds Register
<b>Accident Investigator:</b>	Maritime New Zealand

