

# Accident Report

Grounding

*Ariel II*

16 August 2006

Class A





**Photograph 1**  
*Ariel II* on slip in Bluff shortly after the grounding.

## SUMMARY

The coastal trawler ***Ariel II*** departed Bluff at 2200 hours on Monday 14 August 2006. The vessel steamed through the night and started trawling along the western side of Stewart Island at approximately 0600 hours the next day. The vessel continued fishing until 0600 hours on Wednesday 16 August, when the weather forced operations to cease.

***Ariel II*** steamed around the southern end of Stewart Island and into the lee of the land and started to make passage back towards Bluff. When the vessel was in the vicinity of Shelter Point on the eastern side of the Island, the crew and Skipper went on deck to stow the catch. Shortly after this the vessel grounded on the rocks off Shelter Point. A Mayday was broadcast by the Skipper and after a short time the vessel drifted off and was able to be reversed into safer waters. The vessel was then towed to Port Adventure, Half Moon Bay and then eventually back to Bluff where the vessel was slipped for repairs.

The report concludes that the Skipper was fatigued and made a poor decision with regard to course selection. He was preoccupied with a single task as a result of feeling fatigued.

The report makes a number of recommendations including that the Skipper and the owning company implement various hazard management plans as well as fatigue management procedures. That the Skipper and crew undergo FishSAFE training and embrace the FishSAFE guidelines.

# NARRATIVE

**Ariel II** is a wooden hulled vessel built in 1953. She was built as an oyster vessel for the Foveaux Strait fishery. She was converted to trawl in the off-season in 2003.

Otakou Fisheries Ltd owns **Ariel II**. United Fisheries Ltd wholly owns Otakou Fisheries Ltd.

At the time of the accident, the vessel had a valid Safe Ship Management (SSM) Certificate issued by SGS-M&I. The Certificate has limits set for Coastal, restricted to within VHF coverage on channel 16.

**Ariel II** has an overall length of 21.94 metres (m), a registered length of 20.02m and a gross tonnage of 55 tonnes. Propulsive power is provided by way of a V12 GM main engine via a standard fixed pitch propeller. She has a service speed of 9 knots at 1750 revolutions per minute (RPM).

The Skipper holds a Skipper Coastal Fishing Boat (SCFB) Certificate issued in June 1973 and a Second Class Diesel Trawler Engineer (2DTE) Certificate issued in March 1989. He has been the Skipper of **Ariel II** for 10 years and was with Otakou Fisheries before United Fisheries purchased the vessel.

The vessel was carrying two crewmembers at the time. One held a SCFB Certificate; the other did not hold any maritime qualifications. Both crewmembers are experienced crew and have worked on various vessels in the Foveaux Strait area. They were not the regular crew as that crew had pre-existing commitments that prevented them from sailing on this voyage.

# THE ACCIDENT

At 0700 hours, on Monday 14 August 2006, the Skipper of the fishing vessel **Ariel II** awoke at home in Bluff. He then slept for a further four hours between 1700 and 2100 hours before boarding **Ariel II**.

At 2200 hours, the vessel departed Bluff Harbour.

The Skipper steamed west through Foveaux Strait to the north of Stewart Island and then towards Cod Fish Island situated on the western side of Stewart Island.

The vessel arrived at *Position A* (See Figure 1) at approximately 0600 hours, Tuesday 15 August, and commenced trawling. The Skipper towed south at a speed of about 3 knots. They continued fishing for the next 24 hours. The vessels' southernmost position was at *Position A1* (See Figure 1) at approximately midnight. At this time the Skipper shot away and towed north for about 6 hours.

During the morning of Wednesday 16 August, the weather started to deteriorate. The Skipper decided to haul the trawl net at *Position B* (See Figure 1). Due to the poor weather, the Skipper wound the net onto the net roller regardless of fish caught in the wings of the net. The cod end was secured on deck and all crew exited the deck while passage was made south, with the prevailing weather, towards shelter.

The Skipper headed south and transited inside Big South Cape Island and rounded South West Cape at about 0900 hours.

At 1000 hours, at *Position C* (See Figure 1), the Skipper handed over the navigational watch of the vessel to the qualified crewmember and went to his bunk below for the first time that voyage. The Skipper slept for 1½ hours, after which he returned on watch as there was still fish on deck which he wanted to get below.

At approximately 1130 hours, he went back to the wheelhouse and took over the navigation again. The crewmember retired to his bunk leaving the Skipper alone. Shortly after this the Skipper went on deck and started to unroll the net and remove the fish in the wings of the trawl net.

At about 1200 hours, at *Position D* (See Figure 1), the two crewmembers were on deck processing the catch. The Skipper was moving between the deck and the wheelhouse helping with the catch.

At approximately 1325 hours, in *Position E* (See Figure 1), the Skipper saw that Bluff Hill had opened up from the eastern side of Stewart Island. He altered course to pass east of Shelter Point and West of Wreck Reef to make passage in a broadly northerly direction, towards Bluff Harbour. The Skipper spent about 5 to 10 minutes in the wheelhouse, selected his course, set the autopilot, and then returned to the deck to help stow the cased up fish below into the hold. Before leaving the wheelhouse, the Skipper checked the new course had been set properly and also observed Bluff Hill ahead of the vessel. The Skipper and one crewmember were on deck lowering the cases on hooks and rope to the other crewmember below in the hold.

Approximately 10 minutes later they were thrown off their feet as the vessel grounded in *Position F* (See Figure 1). The vessel was thrown bodily over to starboard with the bow pointing in a broadly westerly direction. The main engine stalled and the Skipper made his way to the wheelhouse where he made a Mayday call on the local Bluff Fisherman's Radio VHF channel. He checked the engine room and observed water coming in. He instructed one crewmember to launch the ship's dinghy that was lashed down on the fore deck. After this was completed, the Skipper and one crewmember boarded the dinghy. This capsized shortly afterwards. The dinghy sank leaving both men in the water clinging to the side of the vessel.

The other crewmember still onboard the vessel, then effected a rescue of both men back onto **Ariel II**. Once everyone was back on deck, it was noted that the vessel has refloated off the rocks. The Skipper went to the engine room and started the main engine. The gearbox was still engaged in ahead. The Skipper stopped the main engine and instructed a crewmember to select astern on the control in the

wheelhouse. The Skipper then restarted the main engine and the vessel idled astern clear of the rocks. He then activated the ship's pumps and they were able to keep ahead of the rate of water ingress.

Once clear of the rocks, the Skipper made a second Mayday call to Bluff Fisherman's Radio. This was because the steering was not answering to the helm. It was later determined that the rudder had sheared off during the grounding.

Shortly after two fishing vessels arrived and assisted *Ariel II* into Port Adventure. Portable pumps arrived via the Foveaux Strait fast ferry.

The vessel was secured and towed to Half Moon Bay and then onto Bluff for slipping.

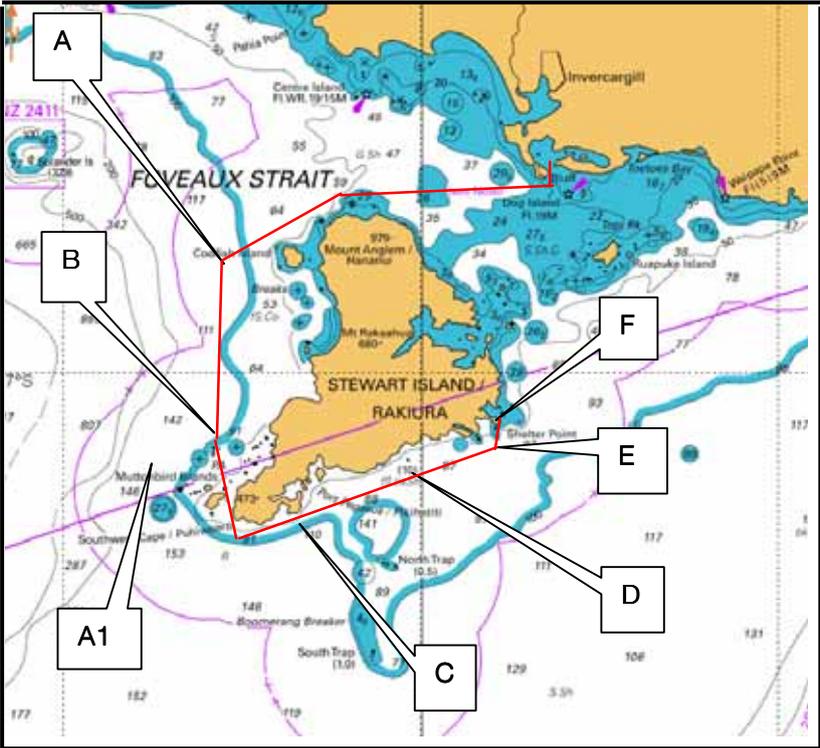


Figure 1

# COMMENT & ANALYSIS

## Evidence

As soon as the vessel was reported as having grounded an investigation was launched by Maritime New Zealand.

The Investigator interviewed the Skipper, crewmembers and the Owner.

Physical and documentary evidence was gathered from the vessel, insurers, local fisherman and the SSM Company.

## Analysis

### Details of Personnel

The Skipper has been a Bluff fisherman all his life and holds Skipper Coastal Fishing Boat Certificate of Competency. He has been a Skipper on various similar vessels in the area. He has been in command of **Ariel II** for 10 years. Firstly only as a Foveaux Strait oyster vessel, then after Otakou Fisheries was bought out by United Fisheries, as a trawler in the off-season.

One crewmember holds SCFB Certificate the other does not hold any maritime qualifications. Both are experienced in crewing fishing vessels in the Bluff area.

### Manning Requirements

The vessel was manned correctly in accordance with Maritime Rule Part 31C.11 Coastal Area.

### Environmental Conditions

On Wednesday 16 August 2006, at 0600 hours, the Skipper retrieved the trawl due to the rough weather experienced at the time. He stated that the wind was 25 to 30 knots from the north west with a rough sea. He also said that as the vessel went past South West Cape, they experienced winds up to 60 knots from the north west.

The MetService observation station situated at South West Cape recorded for 16 August, a mean wind speed of 33 knots from north west and a maximum gust of 59 knots from north west.

At the time of grounding, the tide was ½ an hour after low water at Bluff. Spring tidal conditions were present at this time. On the chart at the grounding position, there is a tidal stream reference diamond 'A'. When calculated this gave a stream of 0.2 knots flowing 026° True.

The Investigator spoke to fishermen who are experienced at working in this area. They said that at that state of the tide there would have been negligible effect from the tidal flow.

### Watchkeeping

During the voyage, the Skipper took it upon himself to maintain watch keeping. He had 1½ hours rest below in his bunk. The rest of the time he was at the wheel or working on deck. There were two crewmembers available to him for relief, one of which held an equivalent certificate to the Skipper.

During the voyage back towards Bluff, the Skipper had the GPS plotter, echo sounder and autopilot operating. He did not have the radar operating or any alarms activated on the other electronic navigation aids. This was in keeping with the Skipper's normal watch keeping practices.

The Skipper was not using waypoints on the GPS plotter, instead was using the cursor over his intended position ahead to give him a course to steer. This system is useful for giving a course to steer and an arrival time, it does not however give a ready reference to any cross track error that may be being experienced.

The Skipper spent about 10 minutes in the wheelhouse at *Position E* (See *Figure 1*). He states that at this position he made a course adjustment to pass through clear water between Shelter Point and Wreck Reef (See *Figure 4*). He then left the wheelhouse to help on deck for a further 10 minutes. Given a vessel speed of 9 knots and a multiplier of 10 minutes the distance travelled would have been 1.5 nautical miles.

By this point in the voyage the Skipper would have been significantly fatigued. He states that he has done these kinds of trips his whole life and can operate safely because of this.

**Maritime Rule Part 31C.15 Fatigue, states the following:**

- (1) *When the owners and the Master of a fishing vessel establish and implement procedures for ensuring a seafarer's fitness for duty, they must take into account that:*
  - (a) *the level of alertness of a person keeping a navigational watch or engine room watch may be affected by fatigue*
  - (b) *whenever alertness is affected by fatigue, performance can be impaired.*
  
- (2) *A seafarer on a fishing vessel, when considering his or her fitness for duty, must take into account:*
  - (a) *the signs, symptoms, and affects of fatigue*
  - (b) *that fatigue will affect his or her level of alertness*
  - (c) *that the performance of any person whose alertness is affected by fatigue can be impaired.*

An Advisory Circular (See *Figure 2*) was issued in conjunction with the above Rule, which gives information on fatigue and its effects:

PERFORMANCE IMPAIRMENT	SIGNS and SYMPTOMS
Impaired attention, loss of concentration, and diminished decision-making power	<ul style="list-style-type: none"> <li>• Overlook or incorrectly order sequential task element</li> <li>• Preoccupation with single tasks or elements</li> <li>• Exhibit lack of awareness or poor performance</li> <li>• Failure to appreciate the gravity of a situation</li> <li>• Failure to anticipate danger</li> <li>• Failure to observe and obey warning signs</li> </ul>
Diminished memory	<ul style="list-style-type: none"> <li>• Overlook a task or elements of a task</li> <li>• Fail to remember the sequence of task or task elements</li> <li>• Inaccurate recall of operational events</li> </ul>
Delayed reaction time	<ul style="list-style-type: none"> <li>• Respond slowly or fail to respond altogether to normal, abnormal, or emergency stimuli</li> <li>• Reduced attention span</li> </ul>
Diminished problem solving ability	<ul style="list-style-type: none"> <li>• Display poor judgement of distance, speed, and/or time</li> <li>• Inaccurate interpretation of a situation</li> <li>• Display problems with such things as arithmetic and geometry</li> </ul>
Mood change	<ul style="list-style-type: none"> <li>• Less conversant than normal</li> <li>• Irritability, tiredness, depression</li> <li>• Distracted by discomfort</li> </ul>
Attitude change	<ul style="list-style-type: none"> <li>• Display willingness to take risks</li> <li>• Ignore normal checks and procedures</li> <li>• Display a "don't care" attitude</li> </ul>
Adverse physiological effects	<ul style="list-style-type: none"> <li>• Exhibit speech effects – slur, rate, content</li> <li>• Impaired co-ordination of control skills – key punch entry errors, switch selection</li> </ul>
Impaired alertness	<ul style="list-style-type: none"> <li>• Succumb to uncontrollable sleep – nap, long sleep episode</li> <li>• Display automatic behaviour syndrome</li> </ul>

**Figure 2**  
Advisory Circular

Whilst the Owner and Skipper were aware of this Rule and the Advisory Circular they had not considered them in sufficient detail to have a proper understanding of what was required or the advice that it contained.

## Company Management

The vessel is owned by Otakou Fisheries, which is in turn owned by United Fisheries Ltd. There are no company instructions or policies issued regarding the operation of this vessel.

There is some reference in the Contract for Services between the Skipper and Otakou Fisheries signed in 2004. Under 'Skipper Responsibilities' 9.4 it is stated that the Skipper is to have the radar on at all times.

In March 2005, Otakou Fisheries Ltd issued a 'Health and Safety Manual' to the vessel. This was concerned with hazards around the fishing and anchoring operations on board **Ariel II**. There was also a hazard register and training matrix attached to this for Skipper and crew sign off. This had been completed for various crew. There were no other hazards identified on the vessel other than those operations based ones already in the manual. There was no information on board from the company regarding the safe operation and watch keeping of the vessel.

The Director of Otakou Fisheries stated in his interview that the company had informal meetings with the Skipper but nothing was in place formally. They had not previously identified fatigue as a hazard in this operation.

The Skipper stated that he had not received any extra information or instruction from the Owners regarding fatigue or watch keeping practises.







**Photograph 3**  
Keel. The entire length of the keel has impact damage.



**Photograph 4**  
Skag. The skag is completely missing from where it was scarfed into the keel. The holding bolts have been torn out.



**Photograph 5**  
Sternpost. The sternpost has been critically damaged as a result of the loss of the skeg.



**Photograph 6**  
Rudder. The rudderstock has been sheared off with a cant to port indicating a blow from the starboard side.



**Photograph 7**

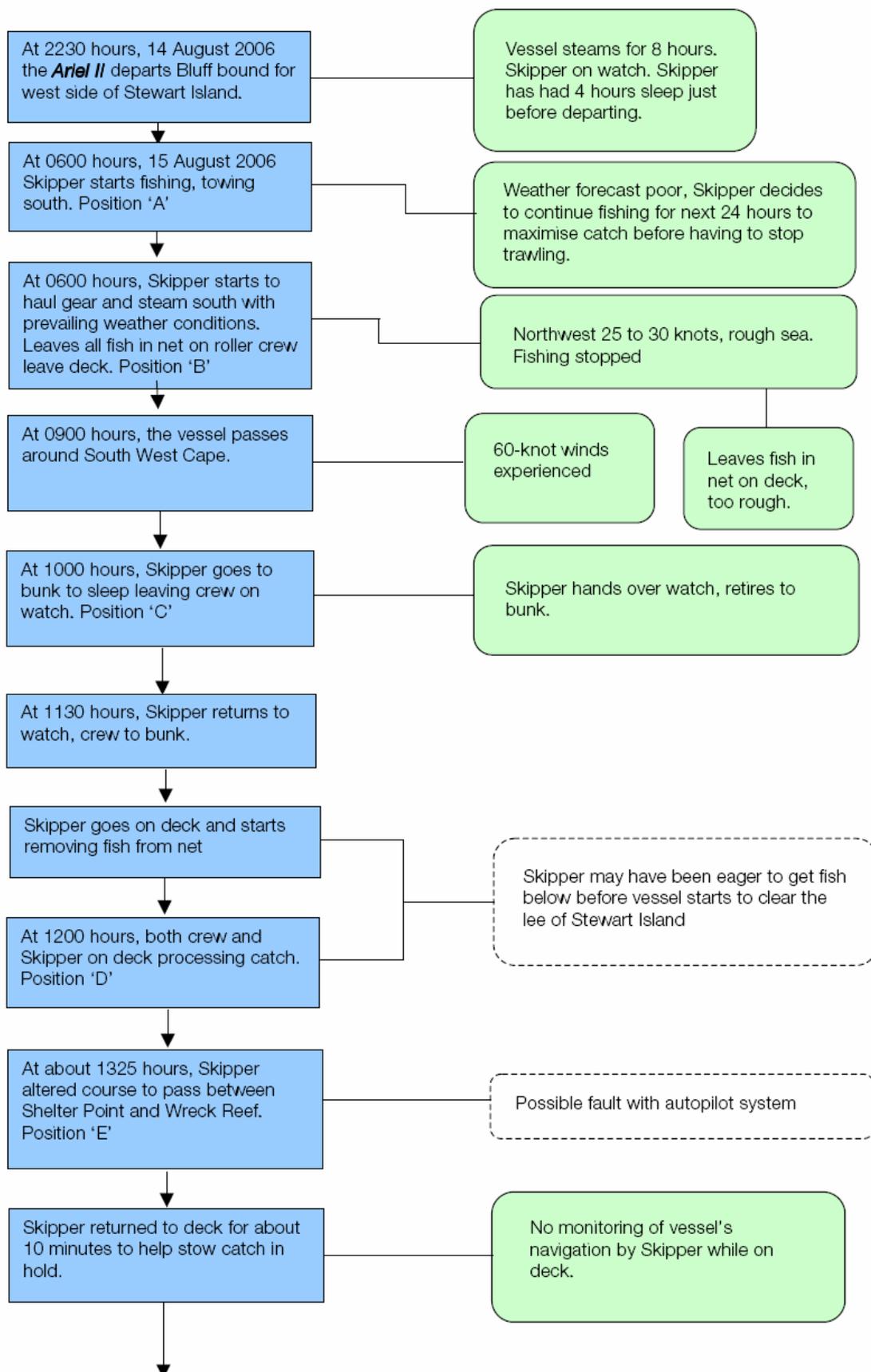
Propeller. The propeller has moderate damage on most blades.

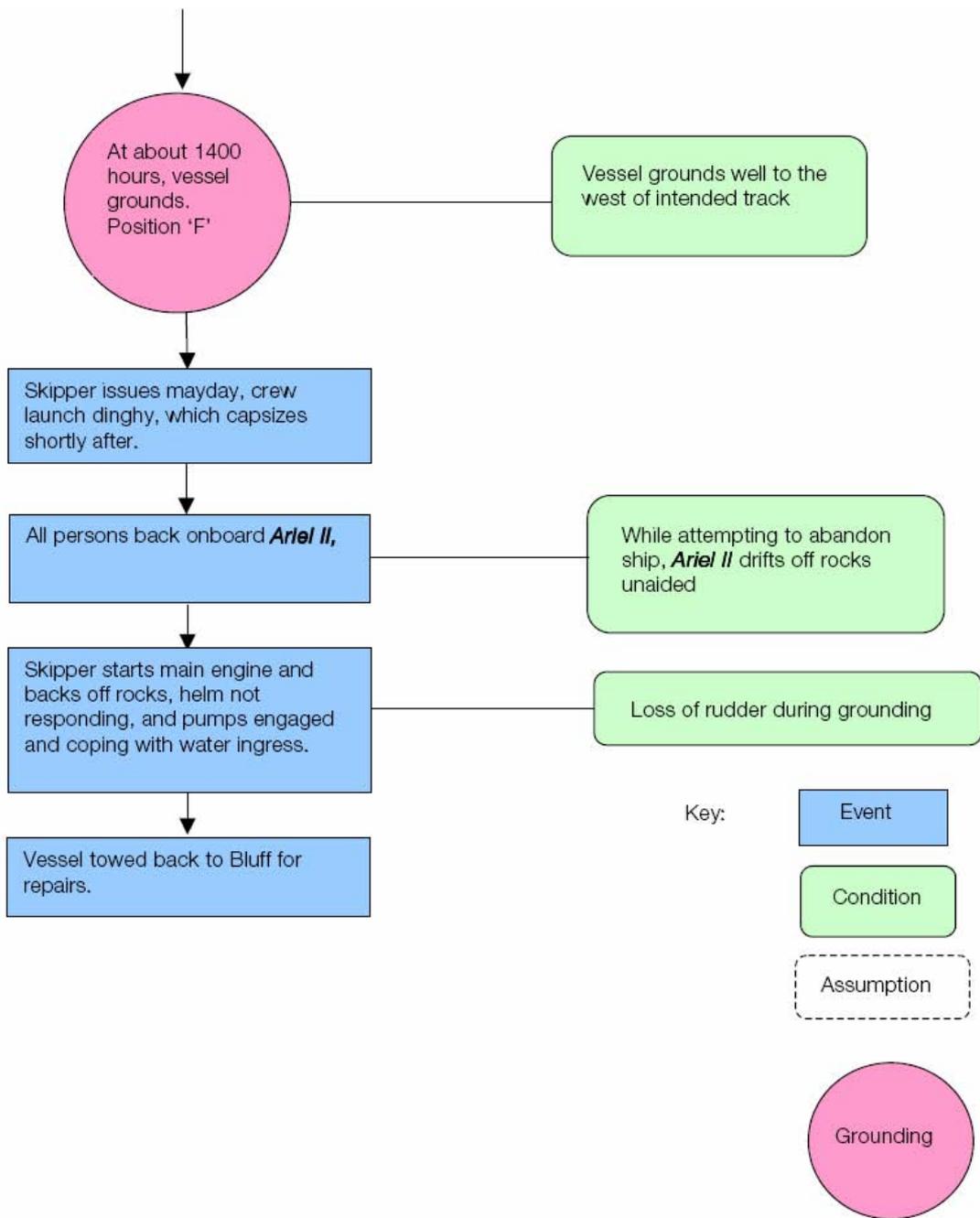
The vessel is to be repaired in Bluff.

## Testing

The automatic Pilot was tested and found to contain a number of faults. These included, the pilot fuse on the main switchboard was blown, an armature connection to the commutator had become disconnected in the pilot hydraulic steering pump. Other connections in the pump were found to be faulty. The pump was rewound and reinstalled into the auto pilot system and tested and found to be operating satisfactorily.

## Events & Conditions Chart





# Passage

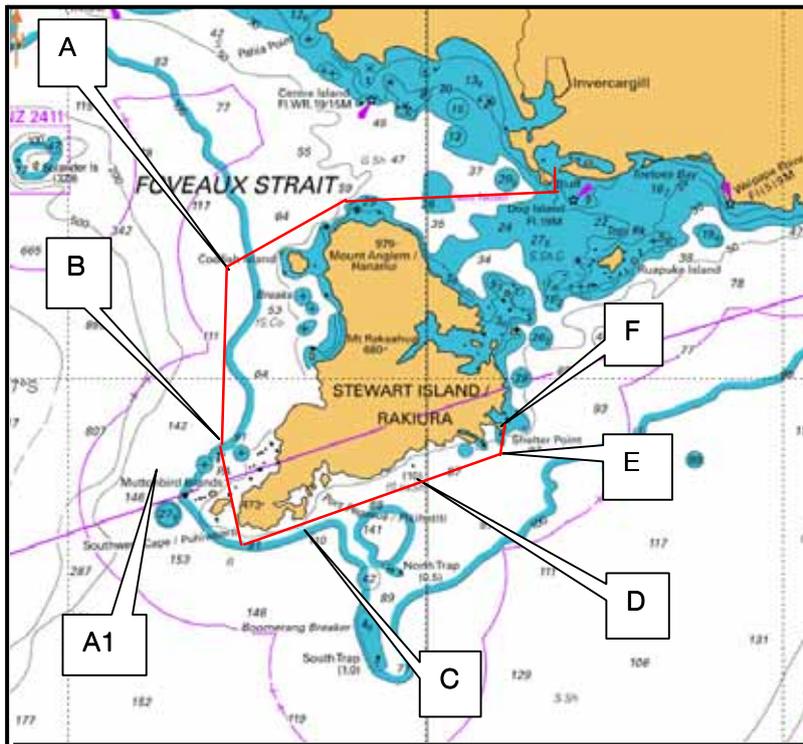


Figure 3  
Overview of Chart NZ 69

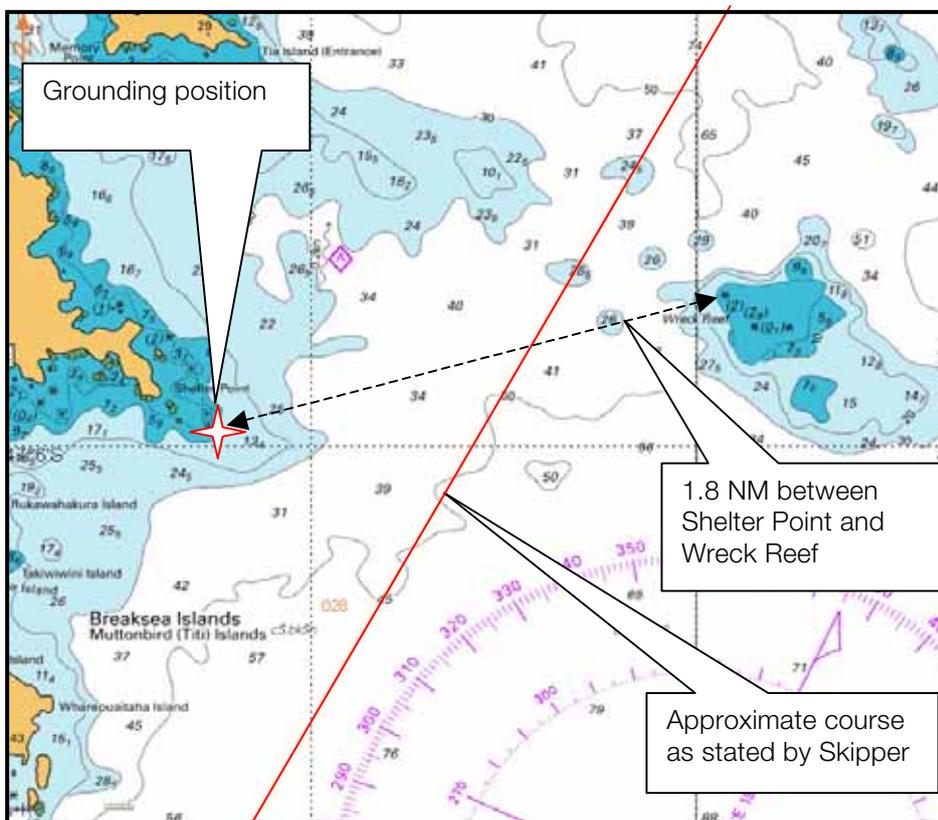


Figure 4

Local fisherman familiar with the area state that with experience, passage can be made between the outlying rocks east of Shelter Point and the land. They also note that there would not have been a noticeable influence (set) on the vessel caused by the tide shortly before the grounding.

The Skipper of *Ariel II* said he had only been in the area of Shelter Point/Wreck Reef area about three times before.

The Skipper was on deck for 10 minutes after making his course adjustment. The vessel was travelling at 9 knots; they would have covered a distance of 1.5 NM during this time. During this time the vessel must have tracked along an incorrect course to the grounding position. The Skipper cannot have made any attempt during this time to monitor the vessel's navigation as otherwise he would have been aware of the danger of grounding.

## Audits & Inspections

Maritime New Zealand undertook an inspection of the vessel in Bluff on 8 July 2004. There were three deficiencies noted against the vessel no copies of crew certificates onboard, no training records on board and no records of drills or musters. The vessel was given 1 month to rectify these deficiencies. The copies of crew certificates deficiency was cleared by the inspector on 18 August 2004. The others are still outstanding.

SGS-M&I carried out a dry dock inspection on 11 January 2006 and deemed the vessel all in order. The Surveyor noted in his remarks that the SGS-M&I Naval Architect had to issue the freeboard mark for the vessel.

On 31 January 2006, the same Surveyor carried out an audit of the vessel. He made the following closing remarks '*well maintained and run vessel with good procedures in place for safety and training*'. He gave the vessel a Safety Profile Number of 18, where 0 is outstanding and 100 is very poor.

# CONCLUSIONS

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

There was no set experienced from the tidal conditions and the drift from the northwest wind would have been to starboard away from the ultimate grounding position.

The Skipper was focused on getting fish stowed below before coming out of the lee of land and into strong northwesterly. It would seem he may have had a preoccupation with this single task, which is symptom of fatigue as set out in Maritime Rule Part 31C Advisory Circular.

The course selected by the Skipper after *Position E* (See *Figure 1*) should have taken the vessel clear of all obstructions in the area.

The autopilot was functioning satisfactorily before the grounding. A fault in the automatic pilot was found after the vessel had been repaired indicating that this could have been a factor in the grounding.

There were no formal hazard management systems or plans in place for this vessel as required by Maritime Rules.

There were no company procedures regarding watch-keeping standards, fatigue or fitness for duty as required by Maritime Rule Part 31C.14, 15 and 16.

Otakou Fisheries Ltd was leaving the majority of system monitoring up to the Safe Ship Management Company.

The Skipper had no alarms set on his electronic navigation aids to alert him to the fact that the vessel was running into danger. However, as he was not in the wheelhouse shortly before the grounding, it is unlikely that any of these would have been heard if they had been activated.

The Skipper stated that he always fished for long periods without going to sleep, and was used to this regime.

Neither the Owner nor the Skipper had sufficient knowledge and understanding of Maritime Rules and their Advisory Circulars relating to fatigue management and watchkeeping standards to be able to develop and implement effective procedures for combating fatigue and setting appropriate watchkeeping standards. This is common amongst the majority of fishing vessel owners and skippers.

# RECOMMENDATIONS

It is recommended:

1. That the Skipper and regular crewmembers of ***Ariel II*** attend all FishSAFE training in the Bluff area, and that they become fully conversant with the FishSAFE guidelines.
2. That within two months of this report being finalised, Otakou Fisheries Ltd provides Maritime New Zealand with a comprehensive hazard management plan. This is to include elements such as watch keeping practises as well as fatigue and general hazard identification.
3. That SGS-M&I makes sure that in future, they have a complete and modern version of the Safe Ship Management manual on board this and all their vessels. That there are procedures in place so as to comply with Maritime Rule Part 31C sections 14, 15 and 16.
4. That the Skipper compiles and displays fatigue and watch keeping related information onboard the vessel for ready reference to all persons onboard.
5. That excerpts of this report is published in Seafood New Zealand magazine to highlight the other effects of fatigue other than the more obvious one of falling asleep.
6. That the Skipper activates all available electronic aids to navigation and the alarms are turned on as a matter of course when the vessel is making passage.
7. That the Skipper uses the waypoint function of the GPS to better assess accuracy of the vessels course during passage.
8. That the Bluff office of Maritime New Zealand monitors this vessel and Skipper closely to assess compliance with the above recommendations.
9. That the Skipper is censured for his poor watch keeping practises and the above points are reinforced in this letter.

## ACTION TAKEN

In an email received from Otakou Fisheries on 20 September 2006, they state:

*'Currently we are putting together a new manual for the operation of the vessel, it will include such things as, how to recognise and deal with fatigue issues, and what we as a company require from the skipper and crew to ensure the operation is carried out in a safe and efficient manner. Before the vessel goes fishing again (it's still under repair) I will sit down with him and the crew to go through all procedures from the manual to ensure their full understanding of it. There is also a Fish Safe workshop in Bluff during November that we will be asking the skipper and crew to attend. Once the vessel is operating again, I will be travelling to Bluff on a regular basis to ensure 1) there is a good communication between crew and company and 2) the vessel and crew are operating according to the company's requirements'.*

A Marine Superintendent from United Fisheries, who is involved with **Ariel II**, has started training to become a FishSAFE mentor.

SGS NZ Ltd have taken steps to issue the freeboard assignment to the vessel.

## VESSEL INFORMATION

<b>Ship Type:</b>	Fishing Vessel
<b>Certified Operating Limit:</b>	Coastal
<b>Flag:</b>	New Zealand
<b>MSA No.:</b>	100841
<b>Built:</b>	1953
<b>Construction Material:</b>	Wood
<b>Length Overall (m):</b>	21.94
<b>Maximum Breadth:</b>	4.91
<b>Gross Tonnage:</b>	55
<b>Net Tonnage:</b>	13.28
<b>Registered Owner:</b>	Otakou Fisheries Ltd
<b>Ship Operator/Manager:</b>	United Fisheries Ltd
<b>SSM Company:</b>	SGS NZ Ltd
<b>Accident Investigator:</b>	Domonic Venz