



Australian Government

Australian Transport Safety Bureau

Collision with vessel involving Cessna 208, VH-ZWH

Berowra Waters, New South Wales on 29 June 2019

ATSB Transport Safety Report
Aviation Occurrence Investigation
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Addendum

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Safety summary

What happened

On 29 June 2019, at about 1249 Eastern Standard Time, an amphibious Cessna 208 aircraft, registered VH-ZWH, was travelling from Rose Bay to Berowra Waters, New South Wales (NSW). After the aircraft landed and was slowing down to taxi speed, the front left float of the aircraft bumped into a small stationary boat. There was no damage to the aircraft or boat, and one person in the boat sustained minor injuries.

What the ATSB found

The ATSB found that the pilot did not see the boat, due to a combination of factors including the weather conditions on the day as well as the colour, size, lack of movement and location of the boat as it was positioned in the aircraft's direct path.

What's been done as a result

The aircraft operator has introduced the requirement for company pilots to manoeuvre towards the right side of the river to reduce the risk of a blind spot near the area of the collision. Also, as a standard operation, company pilots are to reduce the speed of the aircraft to an idle power taxi speed after landing, 100 m before the start of the 4-knot zone at Berowra. In addition, the company's safety management system was updated to reflect additional post incident response requirements.

Safety message

This incident is a reminder of the importance of scanning and assessing landing areas for any potential hazards, and of the joint responsibility of both aircraft and marine vessels to see and avoid other aircraft/vessels operating on the water. When choosing an operating speed for any vessel or aircraft on the water, consideration should be given to any potential blind spots and areas where other vessels could emerge.

The occurrence

What happened

On 29 June 2019, at about 1230 Eastern Standard Time,¹ an amphibious Cessna 208 Caravan aircraft, registered VH-ZWH (ZWH) operated by Sydney Seaplanes, departed from Rose Bay on a charter flight to Berowra Waters, New South Wales (NSW). On board were the pilot and eight passengers.

At about the same time that the aircraft took off from Rose Bay, two adults and two children departed from the Berowra Waters Marina in a hired small aluminium boat, which the marina reported as being about 4.8 metres in length. The boat hirer (boat operator) did not have a boat licence, nor was one required to operate the boat. The children were wearing lifejackets and the adults were not wearing lifejackets, nor were they required to in the circumstances in accordance with NSW Marine Safety Regulation (2016).² After about 15 minutes, the boat operator stopped the boat near the middle of Berowra Creek to have lunch, and turned off the motor.

About 5 minutes after the boat had stopped, ZWH approached the landing area on Berowra Creek (located in Berowra Waters). The pilot assessed that the wind conditions were suitable for landing and positioned the aircraft to land on Berowra Creek in a south-westerly direction (Figure 1). After landing, because of the long distance to taxi to the restaurant, the pilot kept the aircraft's speed up, maintaining the aircraft 'on the step' (see *Seaplane positions*) for some time. At the same time, the pilot was also monitoring a large white boat that was heading south out of Calabash Bay, ensuring that it continued moving away from the aircraft and was not going to present a hazard. As the aircraft approached the 4-knot zone of the creek (Figure 1), the pilot reduced the speed and the aircraft moved from the step to the taxiing position.

The boat operator saw the aircraft land and travel towards their stationary boat. As the aircraft approached, the boat operator became concerned that the aircraft was not going to stop. Because the boat appeared to be in the aircraft's direct path, the boat operator started the motor and began turning the boat away from the aircraft. As the aircraft was slowing to taxi the pilot felt a bump while at a speed of about 6 to 7 knots.³ The pilot looked around the nose of the aircraft (which was obstructing part of the forward field of view) and saw that the front left float had contacted the boat, which the pilot had not seen until then. The silver hull of the boat had been motionless on the calm, glassy surface of the creek and its dark blue canopy and dark clothing worn by the adults in the boat had blended into the surrounding area.

The aircraft is powered by a PT6 series gas turbine engine with a full reversing propeller. After seeing the boat, the pilot reported selecting full reverse thrust and the aircraft moved away from the boat. There was no damage to the aircraft or the boat and one person on board the boat sustained minor injuries.

The boat operator subsequently reported previously hiring a boat in the same area once before but was unaware that seaplanes operated in the area. The previous time, the boat operator had not seen or heard any aircraft in the area, and therefore was not expecting to see one operating nearby.

¹ Eastern Standard Time (EST): Coordinated Universal Time (UTC) + 10 hours.

² NSW Marine Safety Regulation (2016) stated that lifejackets must be worn by adults in vessels under 4.8 metres in length when operating alone, between sunset and sunrise, or in alpine or open waters. The regulation also states that lifejackets are required to be worn by children less than 12 years of age when on board a vessel less than 4.8 metres in length, or in an open area on board a vessel that is less than 8 metres in length and is underway.

³ One knot, or one nautical mile per hour equals 1.852 kilometres per hour.

Figure 1: Image of the Berowra Waters area showing the location of the collision, the landing direction of VH-ZWH and significant landmarks

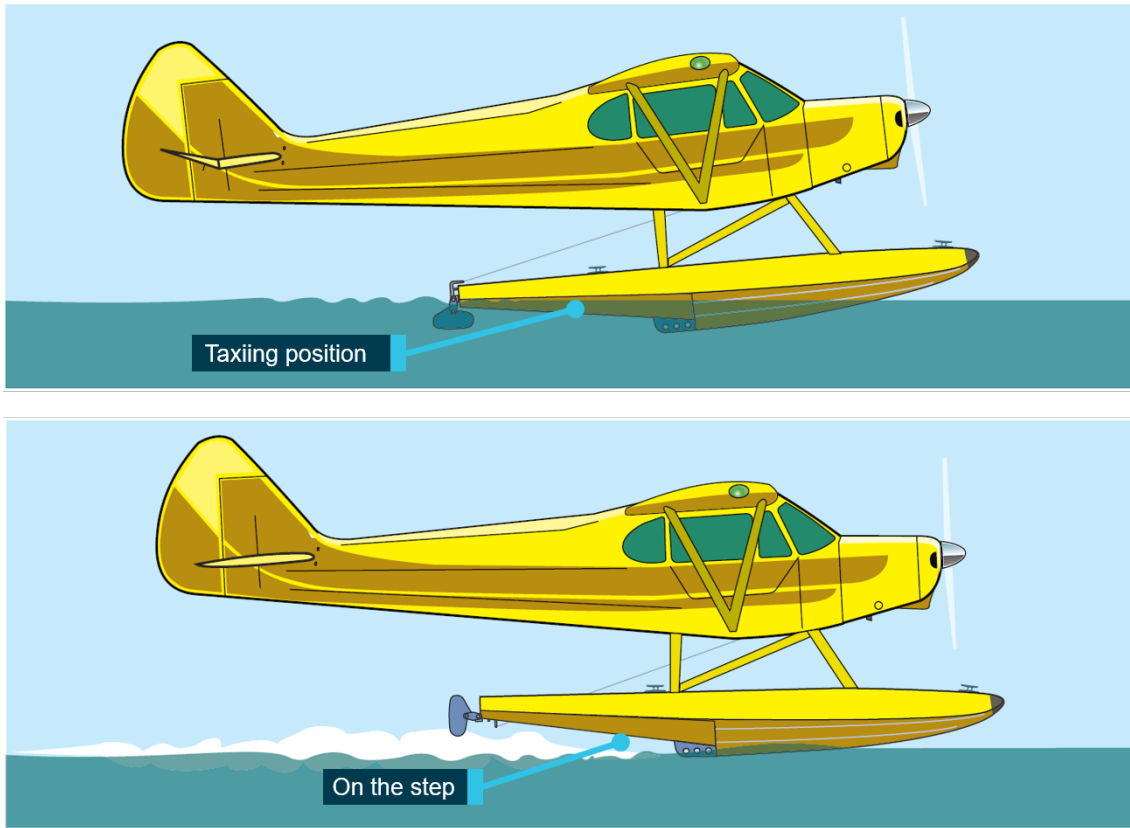


Source: Google earth annotated by the ATSB.

Seaplane positions

When moving on the water, the aircraft had two states it could be in, either 'on the step' or in the taxiing position (Figure 2). On the step most of the weight of the aircraft is being supported by hydrodynamic lift rather than the buoyancy of the floats, and it is the take-off and landing position.

Figure 2: Diagram of the difference between being ‘on the step’ and being in the taxiing position



Source: FAA Seaplane, skiplane, and float/ski equipped helicopter operations handbook - annotated by the ATSB.

Safety analysis

Due to a combination of factors the pilot did not see the boat prior to the collision. The factors included the weather conditions on the day, as well as the colour, size, lack of movement and location of the boat as it was positioned in the aircraft's direct path. The colour of the boat blended into the surrounding environment.

The actions of the boat operator of starting the engine and attempting to move out of the aircraft's direct path likely reduced the risk to the boat occupants due to the change in the angle of impact as the aircraft struck the boat.

Findings

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

- While slowing to taxi speed, the aircraft collided with a small boat that was motionless in the middle of the creek and in the aircraft's direct path. The boat's lack of movement, silver hull and dark blue canopy reduced the pilot's ability to discern it from the background environment.
- After the boat operator realised the aircraft was travelling directly towards them, the boat operator started the motor and attempted to manoeuvre the boat out of the direct path of the aircraft.

Safety action

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Proactive safety action

Aircraft operator

As a result of this occurrence, the aircraft operator has advised the ATSB that they have taken the following safety actions:

- Company pilots where possible are to manoeuvre on the right hand side of the river to reduce the risk of a blind spot near the area of the incident.
- As standard operations, company pilots are to reduce the speed of the aircraft to an idle power taxi speed after landing, 100 m before the start of the 4-knot zone at Berowra.
- The company safety management system was updated to reflect additional post incident response requirements.

General details

Occurrence details

Date and time:	29 June 2019 – 1249 EST	
Occurrence category:	Serious incident	
Primary occurrence type:	Collision	
Location:	Cottage Point (ALA), 284 ° M 7 km (Berowra Waters) NSW	
	Latitude: 35° 35.29' S	Longitude: 151° 7.11' E

Aircraft details

Manufacturer and model:	Cessna Aircraft Company 208	
Registration:	VH-ZWH	
Operator:	Sydney Seaplanes	
Serial number:	20800399	
Type of operation:	Charter - Passenger	
Departure:	Rose Bay, NSW	
Destination:	Berowra Waters, NSW	
Persons on board:	Crew – 1	Passengers – 8
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	None	

Boat details

Departure:	Berowra Waters, NSW
Destination:	Berowra Waters, NSW
Persons on board:	4
Injuries:	1
Boat damage:	None

About the ATSB

The ATSB is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within the ATSB's jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to operations involving the travelling public.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

Purpose of safety investigations

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.