Aviation Investigation Final Report

Location:	JUNEAU, Alaska	**Accident Number:**	ANC94FA070
Date & Time:	June 22, 1994, 20:15 Local	**Registration:**	N13GA
Aircraft:	de Havilland DHC-3	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	7 Fatal, 4 Serious
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

FIVE AIRCRAFT DEPARTED A LODGE, ONE BEHIND THE OTHER. FOG AND DRIZZLE WERE ENCOUNTERED, AND THE PILOT OF THE FIRST AIRCRAFT RADIOED TO THE PILOTS OF THE OTHER AIRCRAFT TO CROSS THE RIVER TO THE EAST SHORELINE. A PASSENGER IN THE FOURTH AIRCRAFT (N13GA) STATED THAT WHEN THE AIRCRAFT WAS OVER THE MIDDLE OF THE RIVER, SHE COULD NOT SEE EITHER SHORE DUE TO FOG. THE PILOT OF N13GA (A FLOATPLANE) STATED THAT HE ENCOUNTERED DETERIORATING WEATHER & STARTED A DESCENT, INTENDING TO MAKE A PRECAUTIONARY LANDING. HE BEGAN TO LEVEL, EXPECTING CONDITIONS TO IMPROVE. SUBSEQUENTLY, THE FLOATPLANE HIT THE SURFACE OF 'GLASSY WATER' AND CRASHED.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
VFR FLIGHT BY THE PILOT INTO INSTRUMENT METEOROLOGICAL CONDITIONS (IMC), AND HIS FAILURE TO MAINTAIN ALTITUDE (CLEARANCE) ABOVE THE SURFACE OF THE RIVER. FACTORS RELATED TO THE ACCIDENT WERE: THE ADVERSE WEATHER CONDITIONS, AND THE SURFACE CONDITION OF THE RIVER (GLASSY WATER).

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: MANEUVERING

Findings
1. (F) WEATHER CONDITION - FOG
2. (F) WEATHER CONDITION - DRIZZLE/MIST
3. (F) WEATHER CONDITION - OBSCURATION
4. (C) VFR FLIGHT INTO IMC - ATTEMPTED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
5. TERRAIN CONDITION - WATER,GLASSY
6. (C) ALTITUDE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On June 22, 1994, at 2015 Alaska daylight time, a float equipped Dehavilland, DHC-3 Otter, N13GA, registered to and operated by Wings of Alaska, of Juneau, Alaska, crashed into the Taku Inlet, 12 miles east of Juneau. The Air Taxi flight, operating under 14 CFR Part 135, last departed the Taku Lodge located on the Taku river, and the destination was the Juneau downtown dock. Instrument meteorological conditions prevailed at the time of the accident and a company flight plan was in effect. The airplane received substantial damage. The Commercial Certificated Pilot and three passengers received serious injuries, six passengers received fatal injuries, and one passenger is missing and presumed fatal.

According to the Company, cruise ships contract with them to provide shore cruise excursions to the passengers who so desire a trip. The cruise ships dock at the Juneau downtown dock and the airplanes board and discharge the passengers at that location. The on board shore cruise director has the option of selling a passenger a ticket on behalf of the airline charter company or providing the passengers with information. The airline charter company, Wings of Alaska, also sells tickets at the downtown dock. The passengers for this flight had purchased tickets from the cruise ship's shore cruise director. This trip was to go from Juneau downtown to the Taku Lodge where the passengers could either eat dinner or walk around the area. After approximately 1 hour on the ground they would board the airplanes for the return flight. The company stated that they had flights scheduled every two hours starting at 0800 and they would use up to 5 airplanes to transport the passengers depending on the passenger count. This trip required 5 single engine Otter airplanes.

According to the pilot, the first trip, scheduled for 0800, was cancelled due to weather. His first trip began at 1000 and he completed a trip approximately every two hours. He stated that they dropped off the first passengers and would return for a second load while the first set of passengers were still at the lodge. Upon returning, the previous flight's passengers would reboard for their return to the cruise ship. He returned to the Taku lodge at 1900 hours. This flight was empty because it was the last flight for the day.

After the passengers were loaded, the airplanes departed one at a time. N13GA was number 4 in the departure sequence. The pilot of N13GA described their route of flight as a take off down river with a straight out climb to 1000 feet above mean sea level. The flight would then cross the face of the Taku Glacier located on the northwest shore of the Taku River. He stated he would fly down the western shore line because he was more familiar with that terrain. The river makes two "S" turns between the Taku Lodge and the mouth of the river.

According to Mike Olsen, a line pilot for Wings of Alaska, he was the first one to depart the

Taku Lodge. He stated that at Flat Point he reported by radio to the other four airplanes that "we needed to go from Flat Point to the vicinity between Turner Lake and Jaw Point, and that we may need to land due to the low ceilings." Mr. Olsen relates the following: "At that time, I was at 500 ft., and descending between Flat Point, Turner Lake and Jaw Point. I could pick up the shoreline across the bay. At this time I was at 100 ft., and could pick up Jaw Point and Cooper Ridge. So, I aborted the landing, and started climbing for Jaw Point and Cooper Ridge."

The pilot of N13GA, the accident airplane, stated that the weather along the western shoreline of Taku Inlet was deteriorating and the first three aircraft, which departed ahead of him, transitioned across to the east side. He elected to transition also and en route he lost site of the shoreline. He made a turn to proceed up river and began a descent. He last recalled seeing the altimeter at 200 feet indicated and just as the "Turner Lake" shoreline came into view the airplane struck the water.

WITNESSES

There were no witnesses to the accident. However, Mr. Dick Emberton, employee for Alaska Electric Light and Power Company, was stationed at the Annex Creek power plant, which is located near Scow Cove. He stated he heard the engine of an airplane and then a noise that sounded "just like an airplane crash you would hear on one of those airplane documentaries." After the described crash noise he realized that he could no longer hear the engine noise.   Mr. Emberton stated that the weather was very poor and had been so for a long time. He stated that the time was 2015 because he had just looked at his watch before he laid down.

INJURIES TO PERSONS

The pilot and three passengers received serious injuries as a result of hypothermia. Seven of the passengers received fatal injuries. According to the pilot, no one was injured in the crash. One passenger is still missing and presumed fatal. This passenger was 5 years old. According to his mother, he had exited the airplane and held onto a door with his sister and mother. He did not have a life vest. His mother stated that he went to sleep.

DAMAGE TO AIRCRAFT

The airplane sank in the Taku River Inlet and was substantially damaged as a result of the impact with the water.

PERSONNEL INFORMATION

The 51 year old pilot is the holder of a Commercial Pilot Certificate, number 1464672, with airplane single engine land and sea, and multi engine land, and instrument airplane ratings. He also holds a Flight Instructor Certificate for airplane single engine. He was issued a Federal Aviation Administration, Class 2 Medical Certificate with no limitations, on November 5, 1993.

According to the Company Pilot records, he received the equivalency of a Biennial Flight Review on April 21, 1994. This flight was a 14 CFR Part 135 checkride and was accomplished in a Cessna 206 airplane on amphibious floats.

According to the Company, the pilot had been the Chief Pilot at one time but left to take another job. He later returned to work for this company. At the time of this accident, he was one of the company's Check Airman for the DHC-3 airplane.

The company stated that the pilot was salaried and paid by the hour for duty time. The pilots also receive "attitude" pay once per month and "Safety and Completion" pay which is paid at the end of a safe flying season.

AIRCRAFT INFORMATION

The company's maintenance records show that the airplane had a total time of 7672.4 hours. It received a 100 hour inspection on June 5, 1994 and had operated 64.3 hours since that inspection. The engine, a Pratt & Whitney R-1340, capable of producing 600 horsepower, serial number 42-10198, had a total time of 6761.0 hours and had 717.8 hours since overhaul.

According to the NTSB Form 6120.1/2, the airplane had 50 gallons of 100 octane low lead fuel on board at the last takeoff.

The amount of fuel on board the airplane at the time of the accident could not be verified.

According to a surviving passenger, there was no change in the engine sound until they struck the water.

The pilot stated that the altimeter was set to zero while at the Juneau downtown dock. Once at the lodge it should have read 80 feet indicated. He stated that he did not see anything abnormal with the altimeter and he did not reset the altimeter at the lodge. The altimeter did read 80 feet while at the lodge.

METEOROLOGICAL INFORMATION

There are no weather reporting facilities in the Taku River Inlet area or at the Taku Lodge. The nearest weather reporting facility is located in Juneau, Alaska, 12 miles west of the accident site. The accident site is not visible from Juneau. There is a mountain between the sites.

According to the National Weather Service, the Juneau weather at 2000 hours was 800 scattered, estimated 2000 broken, 3000 overcast, visibility 7 miles with light drizzle, temperature 56, dewpoint 54, wind from 060 degrees at 5 knots, altimeter setting 30.08 inches of mercury.

The area forecast for Central and Southeast Alaska, valid from June 22, 1994, 0600 hours to June 23, 1994, 0000 hours, showed mountains occasionally obscured in clouds and precipitation. These conditions were to continue beyond 1200 hours. The forecast also called for occasional ceilings at or below 1000 feet with 3 to 5 miles visibility with light drizzle and fog. These conditions were to continue beyond 1200 hours.

The pilot of N13GA stated that at no time during his flight did he enter the clouds. He stated that he had at least 2 miles of visibility at all times.

The other 4 pilots, (statements included) operating at the same time in the same area, stated the visibility was from 2 to 5 miles with fog layers throughout the area.

The pilot of N13GA said he heard a radio transmission that alerted them to cross from Flat Point toward Turner Lake. He stated he continued his flight along the west shoreline beyond Scow Cove because he was more familiar with that shoreline. He started his turn to cross the Taku River Inlet beyond Flat Point.

He stated that the weather along the west shoreline was foggy.

According to two surviving passengers, Ms. Rose Marie Gomar De Vides and her grandmother, Ms. Margarette De Munoz, the weather was good during the take off from the lodge. They could see glacier from the take off area. They tried to fly over the glacier but couldn't get over the glacier so they flew towards the river and descended. Ms. Marie Gomar stated they were "flying up the middle of the river." She was not able to see out of the front of the airplane nor could she see either shoreline. Ms. Gomar stated that "after we had crashed and were in the water for approximately 15 minutes, the fog became so thick that I could not see anything." She also heard someone ask the pilot what happened. She heard someone respond that "it was too foggy and that I was flying too low."

Ms. Wanda Gard, another surviving passenger, stated there was some fog and haze near the lodge during the take off. After take off they flew low. A few minutes later she stated she could not see out of the airplane beyond 5 to 10 feet due to fog. A few minutes later they crashed into the water. Ms. Gard was seated in the rear of the airplane.

AIDS TO NAVIGATION

There are no electronic aids available for navigation because the area is separated from the facilities by mountains.

COMMUNICATIONS

There are no Federal Aviation Administration facilities available in the Taku River Inlet area. However, the company procedure is that all the airplanes operating in the Taku River Inlet Area be tuned to and monitor the company radio frequency for traffic and weather information. All the airplanes in this flight were on the same frequency. The lead airplane did transmit information about the weather and crossing the river and the pilot of N13GA did hear the radio call.

WRECKAGE AND IMPACT INFORMATION

The accident occurred near Scow Cove in the middle of the Taku River Inlet. The airplane sank in 90 feet of silty water. It was recovered on June 29, 1994.

Examination of the wreckage showed that the engine, the left wing, and both floats were missing. There was no damage to the empennage or the fuselage except for the left bottom of the engine firewall and the left cockpit floor. The interior cockpit floor was buckled upward. All the doors on the airplane were missing.

MEDICAL AND PATHOLOGICAL INFORMATION

According to the autopsy reports, there were no fatalities due to impact injuries. The causes of death were either hypothermia or asphyxiation.

TEST AND RESEARCH

According to Bob Jacobson, President and owner of Wings of Alaska, Inc., passengers are briefed by donning a headset and listening to a recording. This procedure is acceptable according to 14 CFR Part 135. The recording is in english. According to the manifest and the surviving passengers, five of the airplane's occupants were foreigners and one could not speak or understand english. This was Rose Marie Gomar's grandmother. During the interview, she stated that no one translated the recording of the passenger briefing. Mr. Jacobson stated that the cruise ship usually provides someone to ensure that the information is understood. No one was provided for this trip.

Information provided by the company shows that they carry from 16,000 to 20,000 passengers a season. Many of these passengers do not speak or understand english.

According to 14 CFR Part 135.117, "(a) Before each takeoff each pilot in command of an aircraft carrying passengers shall ensure that all passengers have been orally briefed on ...." "(c) The oral briefing required by paragraph (a) of this section shall be given by the pilot in command or a crewmember. "(d) Notwithstanding the provisions of paragraph (c) of this section. for aircraft carrying 19 passengers or less, the oral briefing required by paragraph (a) of this section shall be given by the pilot in command, a crewmember, or other qualified person designated by the certificate holder and approved by the Administrator." "(f) The briefing required by paragraph (a) may be delivered by means of an approved recording playback device that is audible to each passenger under normal noise levels."

The regulation does not address the language barrier. Furthermore, no information could be found documenting another qualified person, who was designated by the certificate holder and approved by the Administrator, to give passenger briefings. According to the Federal Aviation Administration, if there was another procedure approved it would be in the company's operations manual.

The Regulation, 14 CFR Part 135.203, states "Except when necessary for take off and landing, no person may operate under VFR-(a) airplane-(1)During the day, below 500 feet above the surface or less than 500 feet horizontally from any obstacle; or...."

According to three of the four pilot statements, one provided by Mike Olsen, the first pilot of a flight of five to depart the Taku Lodge, Rusty Shaub, the second pilot to depart, and Kevin Kramer, the last pilot to depart, they each set up their airplane for landing on the water when they encountered poor weather and could no longer maintain an altitude of 500 above the surface. They indicated in the written statement and stated during an interview that the weather improved before they landed on the river, so they aborted their landing and continued the flight to Juneau.

A fourth pilot, James Roe, departed the lodge third. He stated that he never descended below 500 feet above the surface and the visibility was never less than 2 miles. He stated the following: "...I encounter marginal VFR conditions consisting of a lower stratus layer at about 300 feet that was scattered to occasionally broken. These conditions persisted for a distance of about 2 miles."

The company manuals were reviewed and no procedure was found outlining procedures to be taken when adverse weather encounters occur. The pilots were interviewed and they were asked if it was a company policy to automatically land on the water when they encountered poor weather. They stated that it was not a policy.

A review of the training program showed no documentation for inadvertent encounters with instrument meteorological conditions.

According to 14 CFR Part 135.293, " No certificate holder may use a pilot, nor may any person serve as a pilot, unless, since the beginning of the 12th calendar month before that service, that pilot has passed a written or oral test, given by the Administrator or an authorized check pilot, on that pilot's knowledge in the following areas... (7)(i) Recognizing and avoiding severe weather situations; (ii) Escaping from severe weather situations, in case of inadvertent encounter, including low-altitude windshear...."

Referencing Page 3-14, Module B4 of the Wings of Alaska Training Program, titled "Navigation and Communications," under subtitle "Juneau harbor operations," it lists "Taku wind conditions and other hazards." as a training element. There is no other mention of inadvertent IMC procedures.

There were no lesson plans available to determine what information was being taught. The

Federal Aviation Regulations do not require that lesson plans be kept.

The research showed that 14 CFR 135.293 require training related to "escaping from severe weather situations, in case of inadvertent encounter...." The company training manual did not have a training module addressing inadvertent IMC procedures. The training manual and company operations manual are required to be reviewed and approved by the Federal Aviation Administration. According to the Principal Operations Inspector assigned to Wings of Alaska, each page of the manuals must be approved.

ADDITIONAL INFORMATION

The pilot of N13GA stated that after the accident they were able to account for seven total people including himself. It could be determined that only five life vest were available out side of the airplane. He further stated that there were life vest available in the airplane for each of the occupants. The life vests were located in a small pouch mounted on the fuselage wall directly in front of each of the passenger seats. The pouch was open at both ends and did not need to be opened to access the life vest. It could be slipped out from either end.

The passengers stated that they did see an eighth person float past them. Two passengers were found inside the airplane wreckage after it was raised. The surviving passengers stated they exited the airplane through the rear doors as the water was rushing from the front to the rear.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	51,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	November 5, 1993
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	12000 hours (Total, all aircraft), 400 hours (Total, this make and model), 12000 hours (Pilot In Command, all aircraft), 260 hours (Last 90 days, all aircraft), 60 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	de Havilland	**Registration:**	N13GA
Model/Series:	DHC-3 DHC-3	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	179
Landing Gear Type:	Float	**Seats:**	11
Date/Type of Last Inspection:	June 5, 1994 100 hour	**Certified Max Gross Wt.:**	7967 lbs
Time Since Last Inspection:	64 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	7672 Hrs	**Engine Manufacturer:**	P&W
ELT:	Installed, not activated	**Engine Model/Series:**	R-1340
Registered Owner:	WINGS AIRLINE SERVICE	**Rated Power:**	600 Horsepower
Operator:	WINGS AIRLINE SEVICE	**Operating Certificate(s) Held:**	Commuter air carrier (135)
Operator Does Business As:	WINGS OF ALASKA	**Operator Designator Code:**	AJAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Unknown	**Visibility**	
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	13°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	TAKU LODGE	**Type of Flight Plan Filed:**	Company VFR
Destination:		**Type of Clearance:**	None
Departure Time:	20:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	7 Fatal, 3 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	7 Fatal, 4 Serious	**Latitude, Longitude:**	58.58012,-134.769973(est)

Administrative Information

Investigator In Charge (IIC):	Kobelnyk, George
Additional Participating Persons:	ROBERT KOLVIG; JUNEAU , AK
Original Publish Date:	June 5, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=2443