National Transportation Safety Board
Aviation Accident Final Report

Location:	Kodiak, AK	**Accident Number:**	ANC06FA136
Date & Time:	09/21/2006, 1315 AKD	**Registration:**	N5154G
Aircraft:	de Havilland DHC-2	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal, 1 Serious, 4 None
Flight Conducted Under:	Part 91: General Aviation - Other Work Use		

Analysis

The airline transport pilot was departing to the north from a narrow stream in a float-equipped airplane with lodge guests aboard, on a Title 14, CFR Part 91 flight. Northerly winds between 25 and 35 knots, were reported at the time of the accident. The accident pilot reported that after departure, he turned left, and a strong downdraft "threw the airplane to the ground." The passengers said that the airplane started its takeoff run directly into the strong winds, but shortly after becoming airborne, the pilot made a steep turn to the left, about 150 feet above the ground. The passengers indicated that as the airplane continued to turn left, it began to shudder and buffet, then abruptly descended nose low into the marsh-covered terrain. During the impact, the right wing folded, and the airplane's fuselage came to rest on its right side. One of the occupants, seated next to the right main cabin door, was partially ejected during the impact sequence, and was pinned under the fuselage and covered by water. Rescue efforts by the pilot and passengers were unsuccessful. In the pilot's written statement to the NTSB, he reported that there were no preaccident mechanical anomalies with the airplane, and during the on-site examination of the wreckage by the NTSB investigator-in-charge, no preaccident mechanical anomalies were discovered.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain adequate airspeed while maneuvering to reverse direction, which resulted in an inadvertent stall and an uncontrolled descent. Factors associated with the accident were the inadvertent stall and wind gusts.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING - TURN TO REVERSE DIRECTION

Findings
1. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND
2. (F) STALL - INADVERTENT - PILOT IN COMMAND
3. (F) WEATHER CONDITION - GUSTS

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. TERRAIN CONDITION - TUNDRA
5. TERRAIN CONDITION - WATER

Factual Information

HISTORY OF FLIGHT

On September 21, 2006, about 1315 Alaska daylight time, a float-equipped de Havilland DHC-2 (Beaver) airplane, N5154G, sustained substantial damage when it impacted marshy, water-covered terrain about 75 miles northwest of Kodiak, Alaska. The airplane was being operated as a visual flight rules (VFR) other work use flight under Title 14, CFR Part 91, when the accident occurred. The airplane was owned by DES, LLC., of Wilmington, Delaware, and operated by Alaskan Sportsman's Lodge, Anchorage, Alaska. Of the six people on board, the certificated airline transport pilot and three passengers sustained no injuries, one passenger sustained serious injuries, and one passenger sustained fatal injuries. Visual meteorological conditions were reported in the area at the time of the accident, and company flight following procedures were in effect. The flight was returning to the operator's remote fishing lodge located near Igiugig, Alaska.

During telephone conversations with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on August 26, three of the surviving passengers stated that after landing in a narrow stream in a marsh, the group fished until weather conditions deteriorated to a point that the pilot said that they would have to return to the operator's lodge sooner than originally planned. The passengers reported heavy rain showers and strong winds, ranging between 25 and 30 knots. The passengers said that the airplane started its takeoff run directly into the strong winds, but shortly after becoming airborne, the pilot made a steep turn to the left, about 150 feet above the ground. The passengers indicated that as the airplane continued to turn left, it began to shudder and buffet, then abruptly descended nose low into the marsh-covered terrain. During the impact, the right wing folded, and the airplane's fuselage came to rest on its right side. One of the occupants, seated next to the right main cabin door, was partially ejected during the impact sequence, and was subsequently pinned under the fuselage. The surviving passengers said that about 3-feet of water then entered the main cabin area and submerged the trapped passenger. Rescue efforts by the pilot and passengers were unsuccessful.

In the pilot's written statement dated September 27, 2006, which was included in the NTSB Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1) submitted by the operator via the accident pilot's personal attorney, the pilot stated, in part: "Departure was normal and uneventful. To avoid obstacles, I turned left after a positive rate of climb was established. After approximately 1/2 mile of flight, I turned from crosswind to downwind. A strong downdraft from the mountain behind the plane threw the plane to the ground." The pilot also reported that there were no preaccident mechanical anomalies with the airplane.

The accident pilot declined to be interviewed by the NTSB IIC.

CREW INFORMATION

The pilot held an airline transport pilot certificate with an airplane multiengine land rating. He also held commercial pilot privileges with single-engine land and sea ratings. His most recent second-class medical certificate was issued to the pilot on May 11, 2006, and contained the limitation that he wear corrective lenses.

According to information provided by the operator, the pilot's total aeronautical experience consisted of about 4,770 hours, of which 1,860 were accrued in the accident airplane make and

model.

AIRCRAFT INFORMATION

The airplane was a float-equipped, de Havilland DHC-2, equipped with a Pratt & Whitney R-985 engine, rated at 450 horsepower.

At the time of the accident, the airplane had accumulated a total time in service of 11,613.7 hours. An examination of the maintenance records revealed the most recent annual inspection of the engine and airframe was accomplished on April 28, 2006. The last recorded inspection of the engine and airframe was a 100-hour inspection, completed on August 18, 2006, 75.6 hours before the accident. The engine was overhauled on January 13, 2003, by Covington Aircraft Engines, Inc., and had accrued 1118.7 hours since overhaul.

Seating Configuration

The airplane was equipped with two front seats that travel fore and aft on floor mounted seat tracks. The front seat lap belts were attached to the frame of each seat. The front seats were equipped with shoulder belts that are attached to the upper doorposts of the airframe and are integrated into the lap belt when clipped to the seat belt buckle.

At the time of the accident, the airplane's aft passenger seats consisted of two additional rows of seats located behind the two front seats. The second row of seats had three seats installed, and the third row had two passenger seats installed. Each passenger seat was equipped with a lap belt. None of the rear passenger seats were equipped with shoulder belts.

METEOROLOGICAL INFORMATION

The closest official weather observation station is Kodiak, located about 75 miles southeast of the accident site. At 1253, an Aviation Routine Weather Report (METAR) was reporting in part: Wind, 100 degrees (true) at 27 knots with peak gusts to 32 knots; visibility, 3 statute miles with rain and mist; clouds and sky condition, 800 feet few, 2,400 feet broken, 3,300 feet overcast; temperature, 46 degrees F; dew point, 45 degrees F; altimeter, 29.56 inHg.

The ground witness in the area reported strong gusty wind conditions in the area during the accident airplane's takeoff run.

In the Pilot/Operator Aircraft Accident Report submitted by the operator, the pilot indicated that the wind was from the north, at 30 knots.

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board investigator-in-charge (IIC), along with an FAA inspector from the Anchorage Flight Standards District Office, examined the airplane wreckage at the accident site on September 23, 2006. All of the airplane's major components were found at the main wreckage area.

According to the passengers, the airplane's fuselage originally came to rest on its right side, after the right wing strut fractured, and the right wing folded underneath the fuselage. They said that the right passenger door was submerged in about 3 feet of water, and the airplane's left wing was positioned vertically. They added that following the accident, while awaiting rescue, a strong northerly wind buffeted the airplane's fuselage.

When the NTSB IIC arrived at the accident site, the fuselage was found inverted, in an area of marshy tundra-covered terrain, with the upper portion of the fuselage oriented on a magnetic

heading of about 030 degrees (All heading/bearings noted in this report are oriented toward magnetic north).

The first observed point of ground contact were two parallel, vertical gouges in the tundra about 10 feet apart, approximately 25 feet north of the main wreckage site. The area of tundra disruption was consistent with width of the airplane's floats.

The right wing was fractured at its fuselage to wing attach points. The right aileron and right flap remained attached to the wing, and was bent upwards about midspan.

The left wing remained attached to its attach points. The left aileron and left flap remained attached to the wing. The left flap appeared to be extended about 30 degrees.

The left side of the fuselage had buckling adjacent to the right passenger doorway. The right passenger door was torn from both of the forward mounted hinges. The right side passenger door sustained extensive damage to the forward portion of the door.

The left side of the fuselage had buckling at the left passenger door. The left side door remained attached to the fuselage.

The empennage was buckled downward at the forward end of the vertical stabilizer attach point, and was displaced slightly to the right. The vertical stabilizer, horizontal stabilizer, elevator, and rudder sustained minor denting.

Due to impact damage, the flight controls could not be moved by their respective control mechanisms. Flight control system cable continuity was established to the point of impact related damage.

The left float assembly was fractured from its fuselage attach points, and was resting alongside the inverted fuselage. The forward portion of the float was crushed aft and bent upward about 20 degrees.

The right float assembly was broken from its fuselage attach points. The right float had been severed into two portions, about midpoint. The forward portion of the right float was located within the wreckage path, adjacent to the first observed point of ground contact, and the main wreckage site. The aft portion of the right float was located about 10 feet from the main wreckage site, and along the wreckage path.

The propeller assembly remained attached to the engine crankshaft. One propeller blade had leading edge gouging, chordwise scratching, torsional twisting, and aft bending.

Examination of the airplane did not reveal evidence of any preimpact mechanical discrepancies.

MEDICAL AND PATHOLOGICAL INFORMATION

An Alaska State Trooper assigned to the Kodiak post of the Alaska State Troopers met the Alaska Air National Guard's HH-60 helicopter when it arrived in Kodiak following the rescue of the pilot and passengers. According to the Trooper, he requested a urine sample from the accident pilot after he had completed a medical evaluation. The Trooper said that the pilot agreed to provide a sample, but the pilot told the Trooper that he was physically unable to provide a sample at that time. The Trooper said that over a course of many hours, and after drinking large quantities of water, the pilot was still unable, or he was unwilling, to provided a urine sample. About five hours after arriving in Kodiak, and still unable to produce a urine

sample for the Trooper, the pilot eventually submitted to have a blood sample drawn in place of the urine sample. The Alaska State Troopers then sent the pilot's blood sample directly to the Federal Aviation Administration (FAA) Civil Aero medical Institute (CAMI), located in Oklahoma City, Oklahoma.

On November 22, 2006, CAMI's toxicological examination of the pilot's blood revealed the presence of the following agents:

Tetrahydrocannabinol carboxylic acid (Marijuana) (0.0041ug/ml, ug/g)

Tetrahydrocannabinol is the active substance in marijuana, and tetrahydrocannabinol carboxylic acid is the primary inactive metabolite of tetrahydrocannabinol.

SURVIVAL ASPECTS

The pilot and front seat passenger, both wearing shoulder harnesses, were not injured. The passenger seated next to the right main cabin door, did not have a shoulder harness available. He sustained fatal injuries after being partially ejected during the impact sequence, and was subsequently pinned under the right side of the fuselage.

None of the passenger seats in the aft section of the airplane were equipped with shoulder harnesses, nor were they required to be.

SEARCH AND RESCUE

A rescue HH-60 helicopter assigned the 210th Rescue Squadron of Kulis Air National Guard Base, Anchorage, was dispatched to the accident scene. Once on-scene, two Pararescue team members assigned to the Alaska Air National Guard's 212th Rescue Squadron, confirmed that one of the airplane's occupants had sustained fatal injuries. The surviving passengers and the pilot were then transported to a medical facility in Kodiak.

WRECKAGE RELEASE

The Safety Board released the wreckage to the owner's representatives on September 23, 2006, and retained no parts or components.

Pilot Information

Certificate:	Airline Transport	**Age:**	56, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With Waivers/Limitations	**Last FAA Medical Exam:**	05/01/2006
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	4770 hours (Total, all aircraft), 1860 hours (Total, this make and model), 4530 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	de Havilland	**Registration:**	N5154G
Model/Series:	DHC-2	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	405
Landing Gear Type:	Float	**Seats:**	8
Date/Type of Last Inspection:	08/01/2006, 100 Hour	**Certified Max Gross Wt.:**	5370 lbs
Time Since Last Inspection:	75.6 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	11613.7 Hours at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	R-985-14-B
Registered Owner:	DES, LLC	**Rated Power:**	450 hp
Operator:	Alaska Sportsman's Lodge, LLC.	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:		**Visibility**	
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	25 knots / 30 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:	Moderate - Showers - No Obscuration		
Departure Point:	Kodiak, AK	**Type of Flight Plan Filed:**	Company VFR
Destination:	Igiugig, AK	**Type of Clearance:**	None
Departure Time:	1315 ADT	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal, 1 Serious, 3 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious, 4 None	**Latitude, Longitude:**	58.601667, -153.750000

Administrative Information

Investigator In Charge (IIC):	Clinton O Johnson	**Report Date:**	07/25/2007
Additional Participating Persons:	Boyd B Waltman; Federal Aviation Administration; Anchorage, AK		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		