Aviation Investigation Final Report

Location:	Key West, Florida	**Accident Number:**	ERA19LA156
Date & Time:	April 23, 2019, 12:00 Local	**Registration:**	N366TA
Aircraft:	Cessna 208	**Aircraft Damage:**	Substantial
Defining Event:	Abnormal runway contact	**Injuries:**	5 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot landed the seaplane into an easterly wind, then noticed that the surface wind was greater than forecast. Unable to taxi to the beaching location, he elected to return to his destination. He maneuvered the airplane into the wind and applied takeoff power. He described the takeoff run as "bumpy" and the water conditions as "rough." The pilot reported that the left float departed the airplane at rotation speed, and the airplane subsequently nosed into the water. The pilot and passengers were assisted by a nearby vessel and the airplane subsequently sank into 50 ft of water. Inclement sea and wind conditions prevented recovery of the wreckage for 52 days, and the wreckage was stored outside for an additional 13 days before recovery by the salvage company. Extensive saltwater corrosion prevented metallurgical examination of the landing gear components; however, no indication of a preexisting mechanical malfunction or failure was found.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's decision to attempt a takeoff in rough sea conditions, resulting in damage to the floats and the sinking of the seaplane.

Findings

Personnel issues	Decision making/judgment - Pilot
Aircraft	Wheel/ski/float - Capability exceeded
Environmental issues	Choppy surface - Contributed to outcome

Factual Information

History of Flight

Takeoff	Abnormal runway contact (Defining event)
Takeoff	Loss of control on ground

On April 23, 2019, about 1200 eastern daylight time, a Cessna 208 amphibious airplane, N366TA, was substantially damaged during takeoff from Dry Tortugas National Park, about 58 miles west of Key West, Florida. The airline transport pilot and four passengers were not injured. The flight was operated by a private corporation as a Title 14 Code of Federal Regulations Part 91 personal flight. Day, visual meteorological conditions prevailed near the accident site, and no flight plan was filed. The flight was originating at the time of the accident.

According to the pilot, he landed into an easterly wind, north of the island. After landing, he noticed that the wind was greater than forecast, and he was unable to taxi to the beaching location. He elected to return to Key West International Airport (EYW). He maneuvered the airplane into the wind and applied takeoff power. He described the takeoff run as "bumpy." As the airplane reached rotation speed, the left float departed the airplane. The airplane then nosed into the water. The pilot assisted the passengers out of the airplane and into a life raft. The airplane sank about 30 seconds later. A National Park Service (NPS) vessel responded and assisted the pilot and passengers. In the NTSB Form 6120.1, Pilot/Operator Aircraft Accident Report, the pilot described the water conditions as "rough."

The wreckage came to rest in about 50 ft of sea water. Examination of underwater photos provided by the NPS revealed that both landing gear floats were separated from their mounting structure; however, they were both located with the fuselage, partially attached by cables and broken structure. The upper surfaces of both floats exhibited structural deformation and tearing.

Due to inclement sea and wind conditions, the wreckage remained on the sea floor for 52 days before it was recovered. After recovery, the wreckage was stored outside for 13 more days prior to being moved to a wreckage storage facility. Because of saltwater corrosion damage, failure analysis of the landing gear structural components could not be performed.

Federal Aviation Administration Handbook 8083-23, Seaplane, Skiplane, and Float/Ski Equipped Helicopter Operations, addresses water effects on operations: "Even relatively small waves and swell can complicate seaplane operations. Takeoffs on rough water can subject the floats to hard pounding as they strike consecutive wave crests. Operating on the surface in rough conditions exposes the seaplane to forces that can potentially cause damage or, in some cases, overturn the seaplane."

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	46,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	April 30, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 30, 2019
Flight Time:	2407 hours (Total, all aircraft), 27 hours (Total, this make and model), 2000 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 35 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N366TA
Model/Series:	208 Undesignat	**Aircraft Category:**	Airplane
Year of Manufacture:	1996	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	20800249
Landing Gear Type:	N/A; Amphibian	**Seats:**	10
Date/Type of Last Inspection:	April 16, 2019 Annual	**Certified Max Gross Wt.:**	8001 lbs
Time Since Last Inspection:	6 Hrs	**Engines:**	1 Turbo prop
Airframe Total Time:	9506 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney Canada
ELT:	Installed	**Engine Model/Series:**	PT6A-114A
Registered Owner:	On file	**Rated Power:**	675 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	EYW,21 ft msl	**Distance from Accident Site:**	61 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	95°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	40°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.1 inches Hg	**Temperature/Dew Point:**	26°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Key West, FL	**Type of Flight Plan Filed:**	None
Destination:	Key West, FL (EYW)	**Type of Clearance:**	None
Departure Time:	12:00 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	4 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	5 None	**Latitude, Longitude:**	24.665277,-82.863609(est)

Administrative Information

Investigator In Charge (IIC):	Hicks, Ralph
Additional Participating Persons:	Donald Casto; FAA/FSDO; Hollywood, FL
Original Publish Date:	December 3, 2020
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=99306