Helicopter Safety Performance

2019

HeliOffshore

Safety Through Collaboration

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Introduction

I am pleased to introduce the latest HeliOffshore Helicopter Safety Performance Report. In the following pages, you will find a unique, global, industry-wide perspective on the safety performance of the offshore aviation sector.

Safety data is not always easy to read. It reveals our challenges and reminds us of our critical mission to transform global performance so no lives are lost in offshore aviation. This is a mission delivered by one evidence-based safety conversation at a time. Despite its breakthroughs and successes, it remains relentless work. Our industry frontline of pilots, engineers, maintainers, designers and passengers, deserve nothing less. So, thank you for your contribution to date. Thank you for sharing data and for your commitment to act on the priorities it reveals.

This report also provides an opportunity for reflection. Where does your safety performance sit in these statistics? Where should it be? We encourage you to draw on HeliOffshore's membership support and resources to help close the gap.

We should always expect to change in response to new data; it either confirms or adjusts our priorities, actions and impact. One thing is sure, we cannot remain the same. Let's hold each other accountable. Remember, in this challenging year and through all that follows, we are in this together.

Tell us what this data means to you. Contact me at tim.rolfe@helioffshore.org.

I look forward to hearing from you,

Tim Rolfe
CEO, HeliOffshore

>5m

More than 5 million passengers transported by our members in 2019.

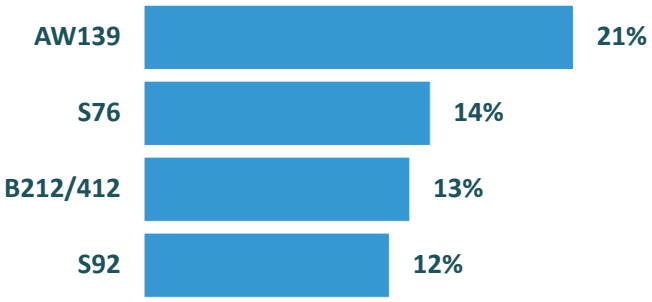
110

110 members

46

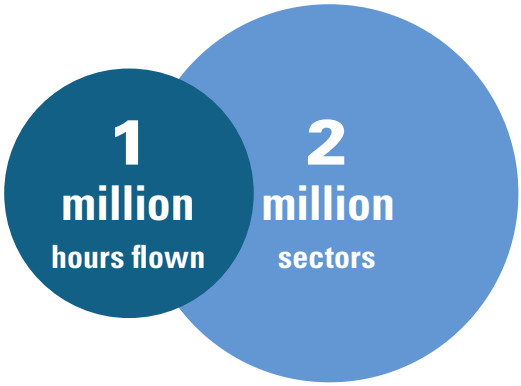
46 helicopter operator members

Most common helicopter types in global Oil and Gas*



*excluding Russian Helicopters

Total hours and sectors flown in Oil and Gas in 2019



For the period 2015-2019

More than 5.5 million hours flown

45 accidents

114 fatalities

5-year average industry fatal accident rate (2015-2019)

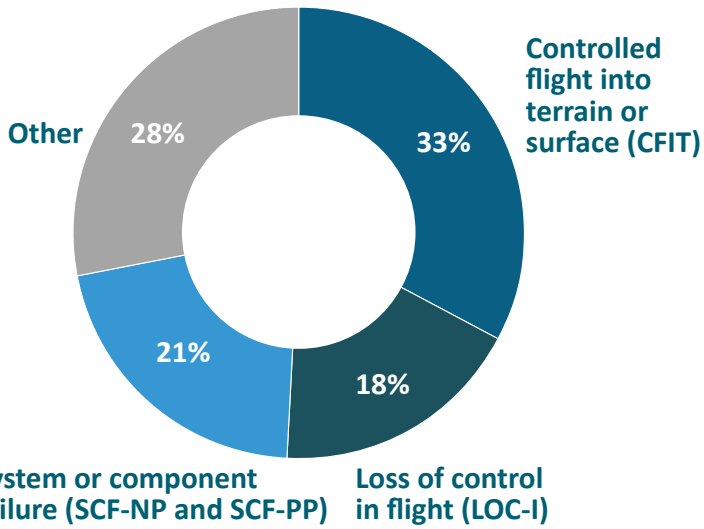
3.5

3.5 fatal accidents per million flight hours

1.7

1.7 fatal accidents per million sectors

Fatal accident occurrence categories



The sources for these data are described within the report

Executive Summary

> Far better an approximate answer to the right question, which is often vague, than an exact answer to the wrong question, which can always be made precise.
>
> John W. Tukey
> Mathematician

The oil and gas passenger transport sector is a significant global operation. Based on numbers submitted for two-thirds of our operator member fleets, our members transported in excess of 5 million passengers in 2019. This was achieved flying nearly 500,000 flight hours over nearly 1 million flight sectors, or an average of more than 2,500 sectors per day.

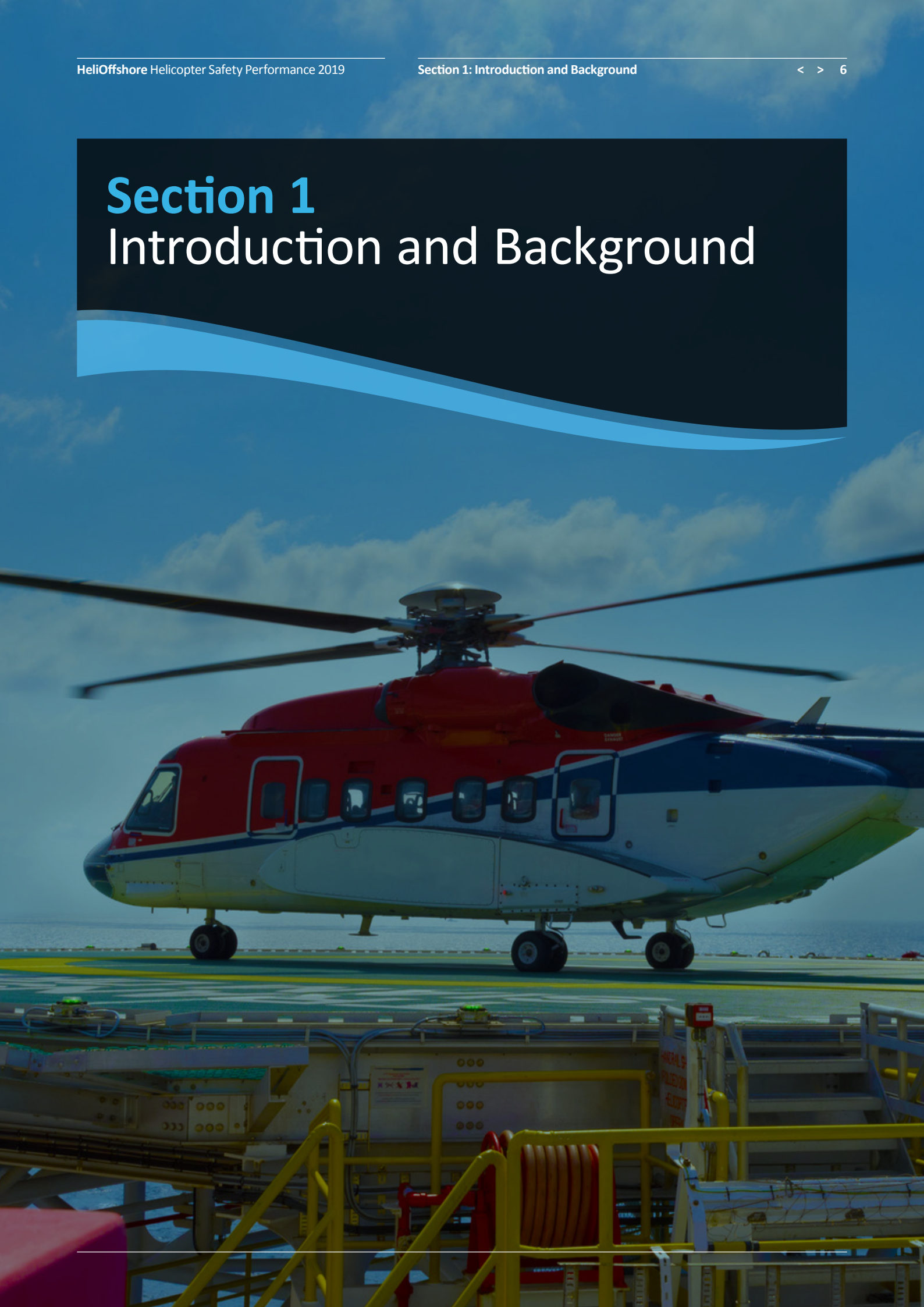
This report was compiled using data gathered from operators, OEMs and industry bodies combined with information from agencies and regulators to try to give an overall safety picture for one part of the helicopter industry.

In the 5-year period from 2015-2019 helicopters transporting passengers for the oil and gas industry suffered 45 accidents, 20 of which were fatal, resulting in 114 fatalities. This gives an estimated 5-year fatal accident rate for the industry of 3.5 per million flight hours or 1.7 per million sectors. Fixed-wing operations are clearly different and metrics vary, but for comparison, the Aviation Safety Network gives the global 5-year fatal accident rate for aircraft capable of carrying more than 14 passengers, as 0.4 per million departures. HeliOffshore's membership has united around the safety strategy which is targeted to eliminate fatalities in our industry; with an interim goal of closing the gap to fixed-wing.

The 3 most common occurrence categories for fatal accidents were: controlled flight into terrain or water (CFIT); loss of control in flight (LOC-I); and system or component failure or malfunction – non-powerplant (SCF-NP). These 3 occurrence categories accounted for two-thirds of the fatal accident occurrences.

The data presented in this report highlight the importance of the HeliOffshore Safety Intelligence Programme and the benefits of sharing data as an industry; only by collaborating can we hope to understand the true safety performance of the industry and measure the improvements as we progress towards our goal of zero accidents.

Section 1
Introduction and Background



1 Introduction and Background

1.1 Introducing HeliOffshore

HeliOffshore is the global, safety association for the offshore helicopter industry. Our vision is a safer frontline, where no lives are lost, served by an aligned offshore helicopter industry. We are delivering our mission by inspiring a shared safety conversation, identifying the right priorities and resources, and leading the collective action we need to transform frontline safety performance.

This report presents data which was gathered from operators, manufacturers and regulators, through HeliOffshore's Safety Intelligence Programme, to form a comprehensive, authoritative picture of global performance. Ultimately, this report's value will only be realised in the behaviour it changes. We can use this global benchmark to support collaboration, inform practice, drive safety performance and measure the effectiveness of our safety initiatives. The data reveals how far we've come on our mission to ensure no lives are lost in offshore aviation and where to focus our collective efforts to deliver the very best safety return. To learn more about our work, please visit HeliOffshore.org.

1.2 The HeliOffshore Safety Strategy

HeliOffshore's work is based on our Safety Strategy which identifies the most likely potential accident types and the goals we must achieve to prevent each of these. It also identifies goals that need to be achieved to allow people to survive accidents if they do happen.

The key safety programmes we are currently working on include: Flight Path Management, Helicopter Terrain Awareness and Warning Systems, Flight Crew Operating Manuals, Health and Usage Monitoring Systems and Return to Base events. You will find more details of these programmes at HeliOffshore.org.

Figure 1.1 – Global Distribution of all HeliOffshore Members

1.3 The HeliOffshore Safety Intelligence Programme (HSIP)

The HeliOffshore Safety Intelligence Programmes (HSIP) is the mechanism through which the collection and analysis of industry data is managed. The aim of the programme is to collect and analyse data on behalf of our members to provide information and intelligence through which we can act to improve the safety performance of the industry.

As part of HSIP, HeliOffshore has developed a Memorandum of Understanding. This document sets out the governance process for the programme and the way in which data will be handled and presented. At present, around two-thirds of HeliOffshore's operator members have signed the Memorandum of Understanding and those members that have signed operate more than 85% of the operator members' fleet.

The programme is run in collaboration with our industrial partners: GE Aviation's Digital Group provide sponsorship and analysis support with Tonic Analytics and NLR providing data handling and analysis support.

HSIP is a cross-cutting workstream which supports and enables many parts of HeliOffshore's safety programme including:

- the Helicopter Flight Data Monitoring (HFDM) Working Group;
- the System Reliability Workstream; and
- the Flightpath Management (FPM) Working Group.

1.4 Structure of the Report

This report is divided into 6 sections:

Section 1: sets the context and background for the report;

Section 2: describes the process of data collection and some of the assumptions made in the calculations;

Section 3: focuses on the 'usage' data for the industry including the types of aircraft being used and the number of hours and sectors being flown, which is crucial in producing any occurrence rate;

Section 4: deals with the accidents and incidents that have been experienced by the industry and describes the rationale behind the inclusion or exclusion of events;

Section 5: summarises the findings and the data collection approach that will be adopted in the future ; and

Section 6: contains appendices giving more information and data.

Section 2
Data Collection

2 Data Collection

2.1 Scope

The scope of this report is oil and gas passenger transport operations, whether onshore or offshore. In many ways, the onshore/offshore distinction is artificial since many 'offshore' flights start from an onshore location and many 'onshore' flights are flown to the same requirements as offshore flights.

Other types of flights such as cargo, seismic, pipeline inspections and other aerial work are excluded from this report, except where there is dual purpose with an element of passenger transport.

2.2 Operator Membership

At the time of writing, HeliOffshore has 46 operator members with fleet sizes ranging from single aircraft up to hundreds of aircraft. Some of these operators have global operations in multiple countries and some operate in single countries. Operator members are shown with an asterix in Appendix 1 of this report.

For this report, data has been received from 30 operators and their responses provided data for three-quarters of the aircraft operated by HeliOffshore members (more than 650 aircraft from a total number of less than 900 aircraft).

2.3 Industry Data

This report aims to reflect the safety performance of the entire industry. However, for a variety of reasons, not all relevant operators are members of HeliOffshore. Therefore, to gain a wider industry picture, the operator member data has been supplemented by usage data from the airframe manufacturers.

2.4 Accidents

Defining accidents that should fall within the scope of this report is complex for a number of reasons.

For example, it is not always easy to establish the flight mission following an accident; some accident reports provide this information whereas others do not.

Similarly, whilst it is relatively easy to define accidents where fatalities are involved, it is more complex to classify severity for non-fatal accidents, serious incidents and incidents. Often, a national safety investigation agency will label an event, but sometimes that classification is not available.

For this reason, the 2019 accidents that are included in the analysis for this report are detailed in Appendix 3.

In general, the definition of an accident, as provided by ICAO Annex 13, is useful for categorisation. This can be summarised as:

"An occurrence associated with the operation of an aircraft, which… takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked… in which:

a) A person is fatally or seriously injured as a result of:
- *Being in the aircraft, or*
- *Direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or*
- *Direct exposure to jet blast*

[with exceptions]… *or*

b) The aircraft sustains damage or structural failure which:
- *Adversely affects the structural strength, performance or flight characteristics of the aircraft, and*
- *Would normally require major repair or replacement of the affected component,*

[with exceptions]… *or*

c) The aircraft is missing or is completely inaccessible"

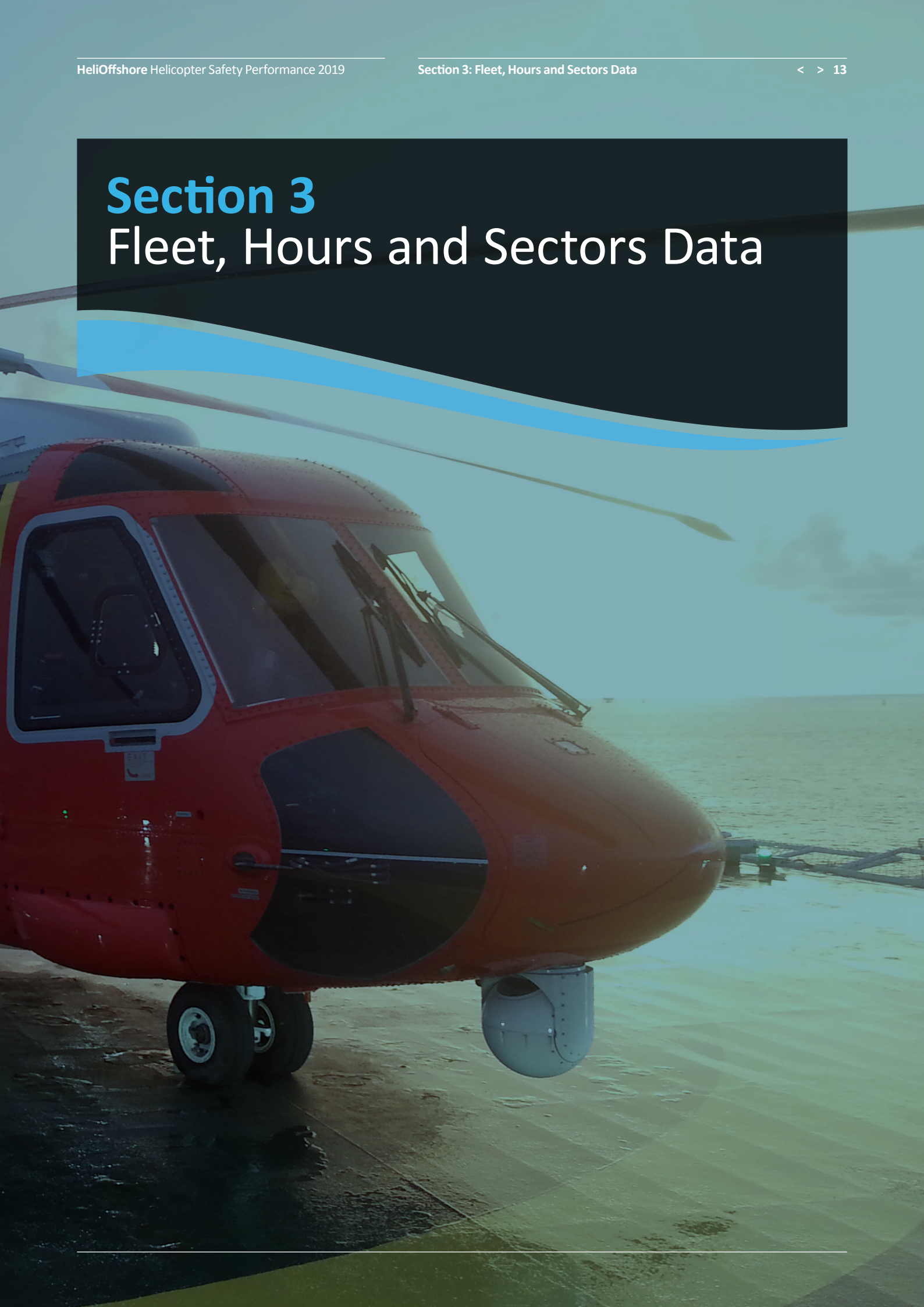
The definition is given in full in Appendix 2 of this report. The definition of a serious incident is also given and can be summarised as:

"An incident involving circumstances indicating that there was a high probability of an accident…"

with a note that

"The difference between an accident and a serious incident lies only in the result".

Section 3
Fleet, Hours and Sectors Data



3 Fleet, Hours and Sectors Data

3.1 Aircraft Fleet

Members were asked to report their fleet for oil and gas operations as of Ist January 2020. In addition, 4 aircraft OEMs (Airbus Helicopters, Bell, Leonardo and Sikorsky) provided data describing their aircraft involved in oil and gas operations. Russian Helicopters did not respond to requests for data.

Figure 3.1 shows the proportion of the OEM-reported global oil and gas fleet by aircraft type. Table 3.1 below shows the same data in more detail.

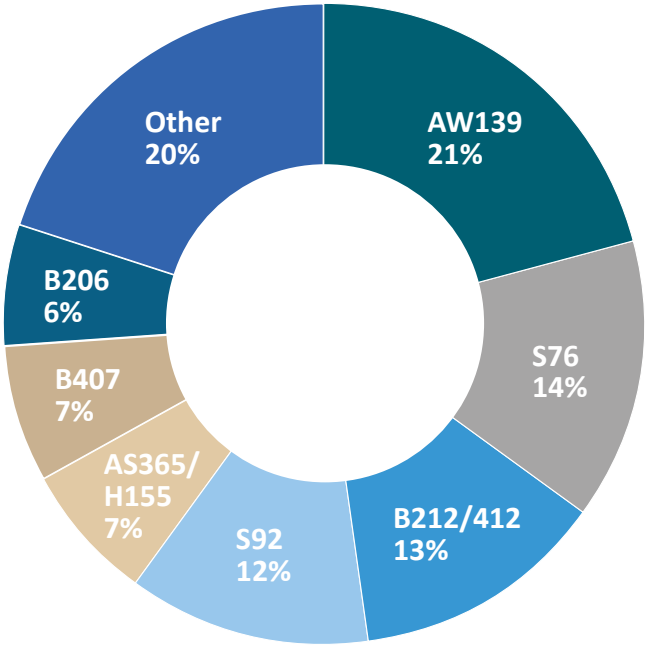


Figure 3.1 – Global Oil and Gas Fleet Numbers by Type

The data in Table 3.1 is the sum of the individual fleets as reported by HeliOffshore air operator members and the total fleets in oil and gas service as reported by the aircraft OEMs, excluding Russian Helicopters.

				OEM			
		Type	Operator member reported	Total Jan '20	Δ total '19-'20	Fleet proportion Jan '20	Δ fleet proportion '19-'20
Airbus		AS350 / H125 / H130	19	42	-7	2.7%	-0.2%
		AS365 / H155	28	109	-6	7.1%	+0.2%
		H135	16	30	-5	1.9%	-0.2%
		BK117 / H145	18	37	-3	2.4%	-0.0%
		H175	13	27	5	1.8%	+0.4%
		AS332 / H225	10	44	-57	2.9%	-3.2%
		Other	0	21	-8	1.4%	-0.3%
Bell		B206	0	92	-19	6.0%	-0.7%
		B212 / B412	39	195	-7	12.6%	+0.5%
		B407	61	110	-1	7.1%	+0.5%
		B429	2	4	-1	0.3%	-0.0%
		Other	0	23	-3	1.6%	-0.1%
Leonardo		A109 / AW119	22	22	-9	1.4%	-0.4%
		AW139	170	330	36	21.4%	+3.7%
		AW169	3	12	=	0.8%	+0.1%
		AW189	15	43	2	2.8%	+0.3%
Sikorsky		S76	107	222	-8	14.4%	+0.6%
		S92	136	179	-32	11.6%	-1.1%
			659	**1542**	**-123**		

*Table 3.1 – Global Oil and Gas Fleet Reported by Members and OEMs**

* Does not include Russian Helicopters.

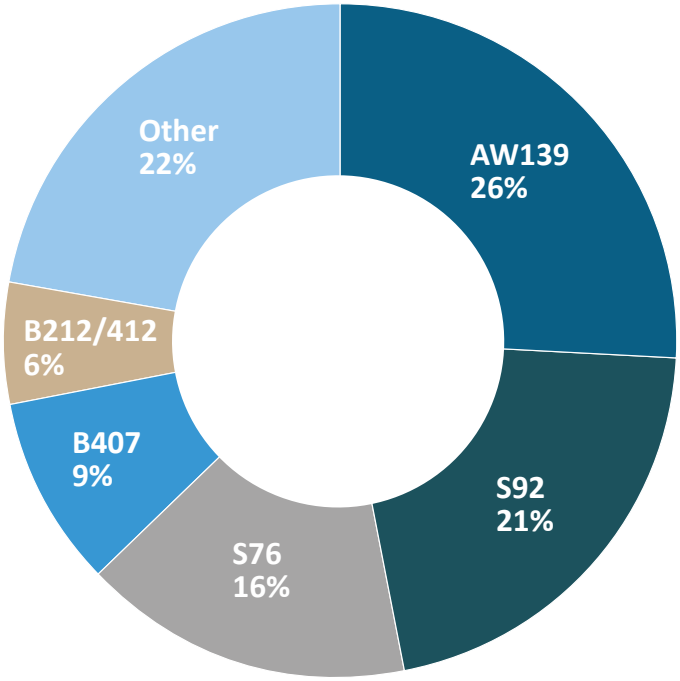


Figure 3.2 – Breakdown of Members' Reported Fleet by Type

Figure 3.2 shows the breakdown of aircraft types for the members' reported fleet shown in Table 3.1. In the 'Other' category, all individual percentages were less than 5%.

3.2 Geographic Breakdown of Fleet

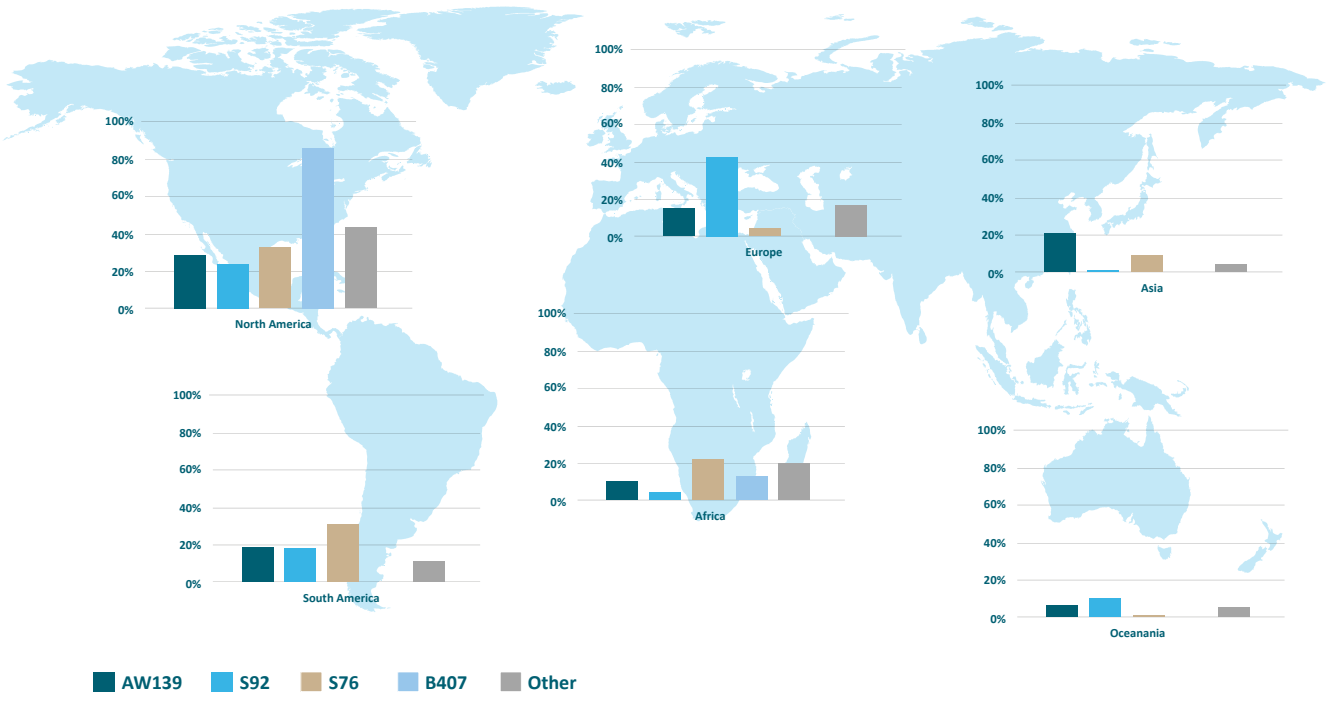


Figure 3.3 – Reported Aircraft Types by Area of Operation

Figure 3.3 shows the distribution of aircraft based on the fleet numbers submitted by operator members, with the numbers shown below in Table 3.2. The highest percentages are shown in blue.

	AW139	S92	S76	B407	Other
North America	29%	24%	33%	87%	44%
South America	19%	18%	31%	0%	11%
Europe	15%	43%	4%	0%	17%
Africa	10%	4%	22%	13%	20%
Asia	21%	1%	9%	0%	4%
Oceania	6%	10%	1%	0%	5%
	100%	**100%**	**100%**	**100%**	**100%**

Table 3.2 – Distribution of Reported Aircraft Types by Area of Operation

3.3 Annual Flight Hours

Reliable usage statistics are fundamental to the calculation of rates. Only by producing and analysing this rate data can we hope to truly understand the safety performance of the industry and how it is changing.

Figure 3.4 shows the industry flight hours as reported by the OEMs for the last 7 years. This includes an estimate for activity using Russian Helicopters.

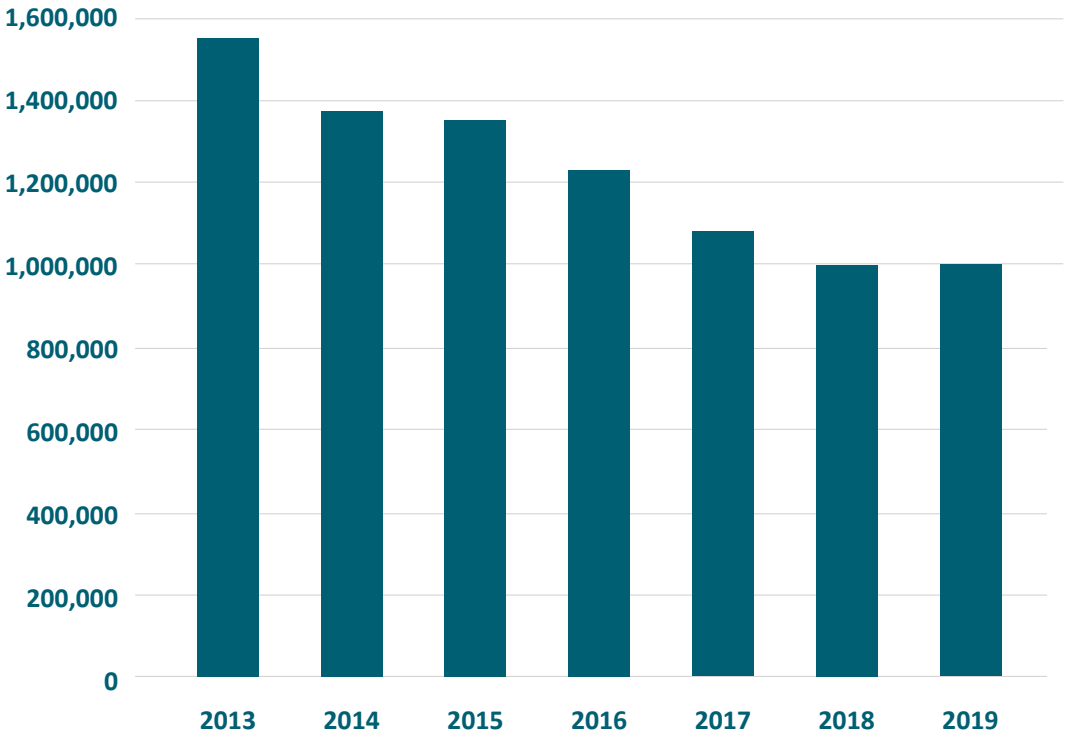


Figure 3.4 – Annual Flight Hours

The figures continue to show the significant decline that has been seen in the industry over the last few years.

The data supplied by the OEMs includes all types of oil and gas activity, including aerial work. To correct for this, the flight hours have been reduced by the corresponding percentage given in the annual IOGP Safety Performance Indicators (5.2% in 2019) to estimate only the passenger transport hours. Russian Helicopters did not supply hours information and therefore an estimate has been included in the industry figures.

3.4 Annual Sectors

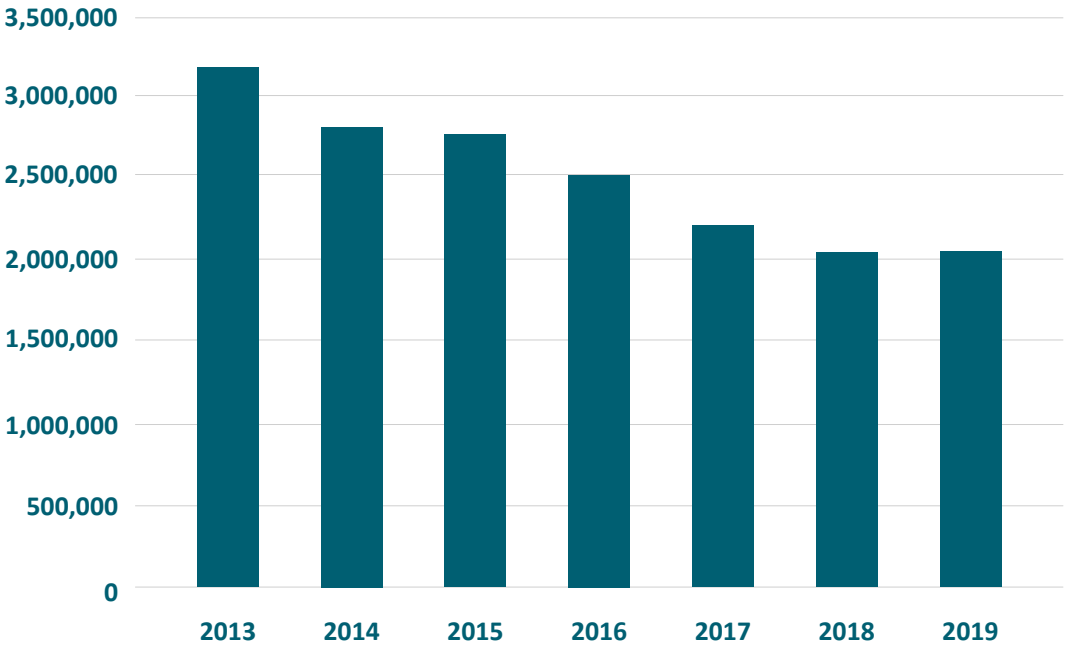


Figure 3.5 – Annual Sectors Flown

Figure 3.5 shows the estimated industry sectors, derived from OEM industry hours for the last 7 years. The industry sectors have been calculated using the industry hours supplied by the airframe manufacturers and mean sector time.

3.5 Breakdown by Aircraft Type

HeliOffshore members reported a total of just over 480,000 flight hours, corresponding to nearly 1 million sectors, with associated country and aircraft type.

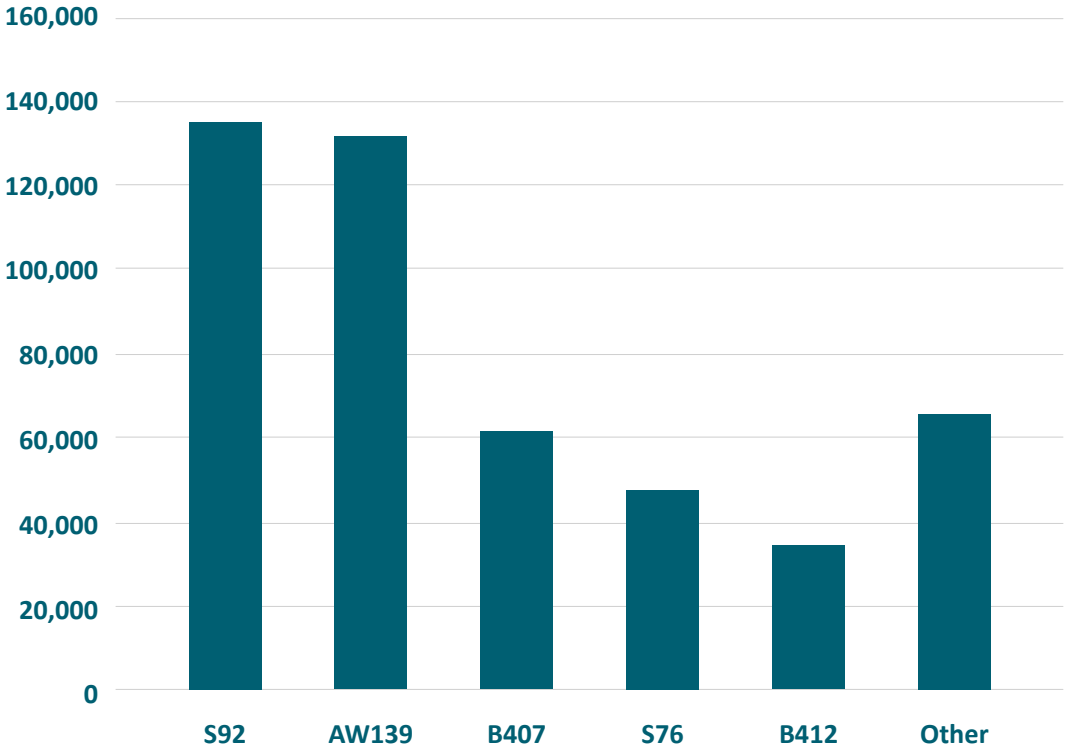


Figure 3.6 – 2019 Submitted Flight Hours by Aircraft Type

Figure 3.6 shows the breakdown of submitted 2019 flight hours by helicopter type. Figure 3.7 shows that the first 3 helicopter types account for nearly 70% of the total submitted 2019 flight hours.

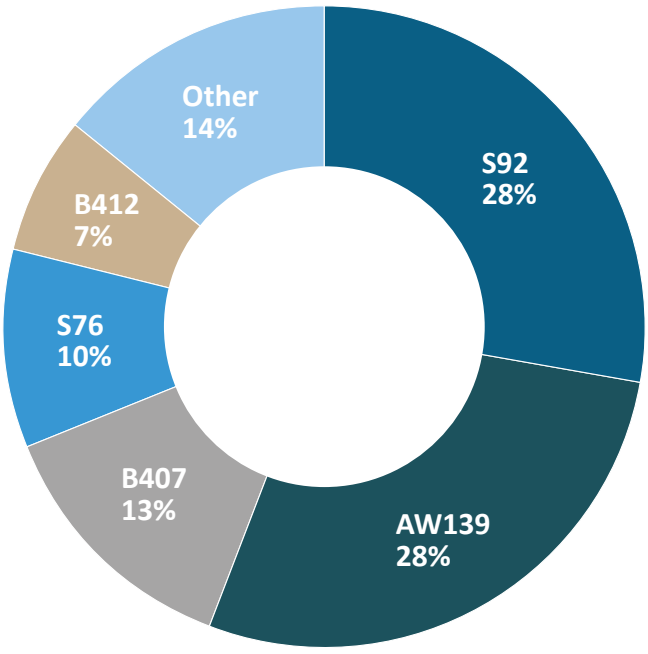


Figure 3.7 – 2019 Submitted Flight Hours by Aircraft Type

Figure 3.8 shows the breakdown of submitted 2019 sectors by aircraft type in the same order as presented for flight hours above.

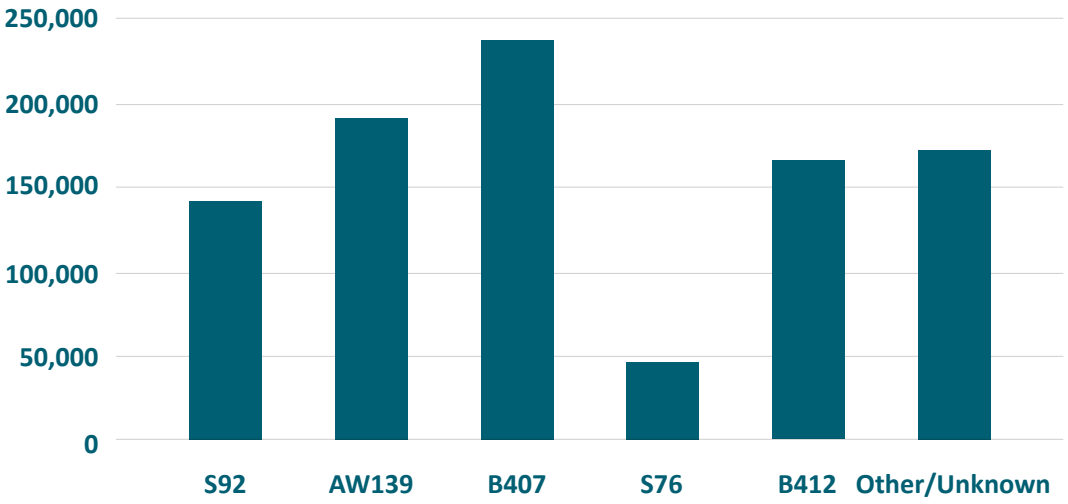


Figure 3.8 – 2019 Submitted Sectors by Aircraft Type

Figure 3.9 shows the percentage of submitted sectors for 2019 by aircraft type. It is interesting to note that the S92 represents 28% of the flight hours, but only 15% of the sectors. Conversely, the B407 accounts for 13% of the hours but 25% of the sectors. This is to be expected due to the size and typical use patterns for these helicopters. However, it raises questions over how to assess the relative risk between flight time and take-offs / landings.

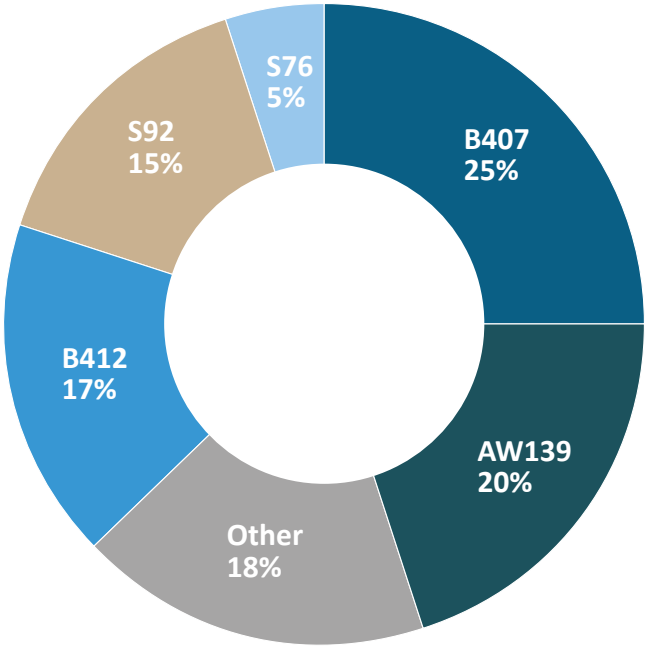


Figure 3.9 – 2019 Submitted Sectors by Aircraft Type

Based on the total submitted 2019 data, the average sector length for all helicopter types is 29 minutes. Figure 3.10 below shows the average 2019 sector length for different aircraft types.

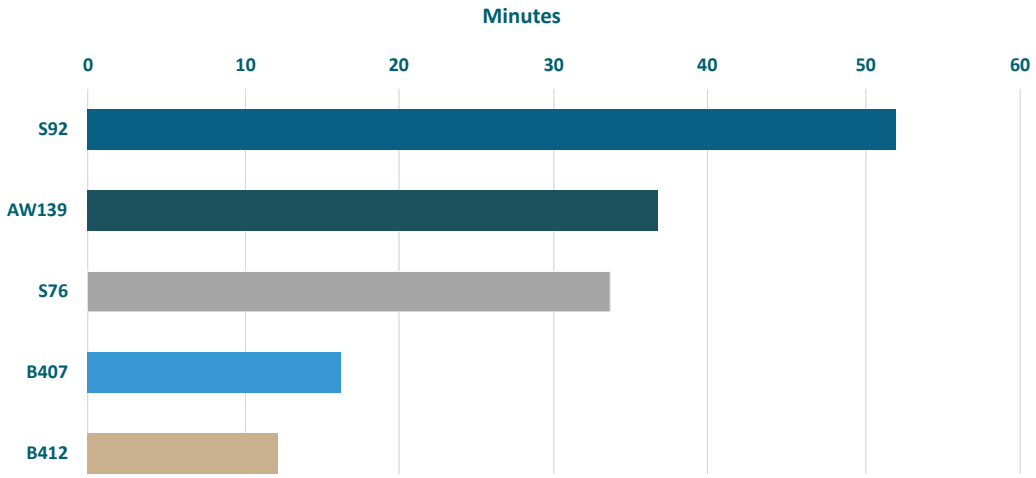


Figure 3.10 – Average Sector Length by Aircraft Type from Submitted Data

Section 4
Accidents

4 Accidents

4.1 Definitions

For clarity, and in part due to complexity in categorisation discussed in Section 2.4, Appendix 3 contains a list and short summary of the fatal and non-fatal accidents from 2019 which are included in the analysis below. Aircraft registrations are included in this list only to ensure complete transparency about which accidents are being included in these statistics.

4.2 Data Sources

There is no single definitive, authoritative source for global accident information. As a result, the data presented in Appendix 3 represent a composite of many different sources, fused in an attempt to provide a complete picture.

4.3 Total Number of Events

In the period January 2013 to December 2019, a total of 65 accidents were identified that could be considered relevant to passenger transport in the oil and gas industry. These accidents involved 151 fatalities.

4.4 Number of Accidents by Year

Figure 4.1 shows the distribution of fatal and non-fatal accidents over the period. Of the 65 accidents identified, 30 were fatal and 35 were non-fatal.

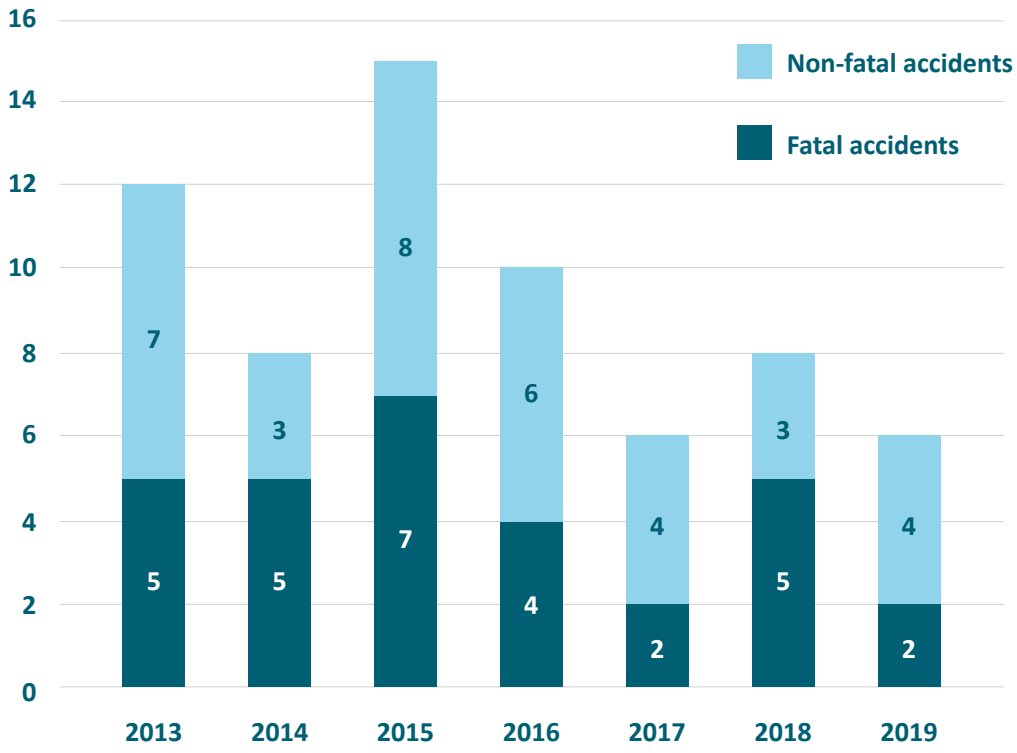


Figure 4.1 – Accidents by Year (fatal and non-fatal)

	2013	2014	2015	2016	2017	2018	2019	Total
Non-fatal	7	3	8	6	4	3	4	**35**
Fatal	5	5	7	4	2	5	2	**30**
Total	**12**	**8**	**15**	**10**	**6**	**8**	**6**	**65**
5-yr (2013-2017)	Non-fatal = 28 (5.6/yr mean) Fatal = 23 (4.6/yr mean) **Total = 51 (10.2/yr mean)**							
5-yr (2014-2018)		Non-fatal = 24 (4.8/yr mean) Fatal = 23 (4.6/yr mean) **Total = 47 (9.4/yr mean)**						
5-yr (2015-2019)			Non-fatal = 25 (5.0/yr mean) Fatal = 20 (4.0/yr mean) **Total = 45 (9.0/yr mean)**					

Table 4.1 – Breakdown of Fatal and Non-fatal Accidents by Year

4.5 Fatalities by Year

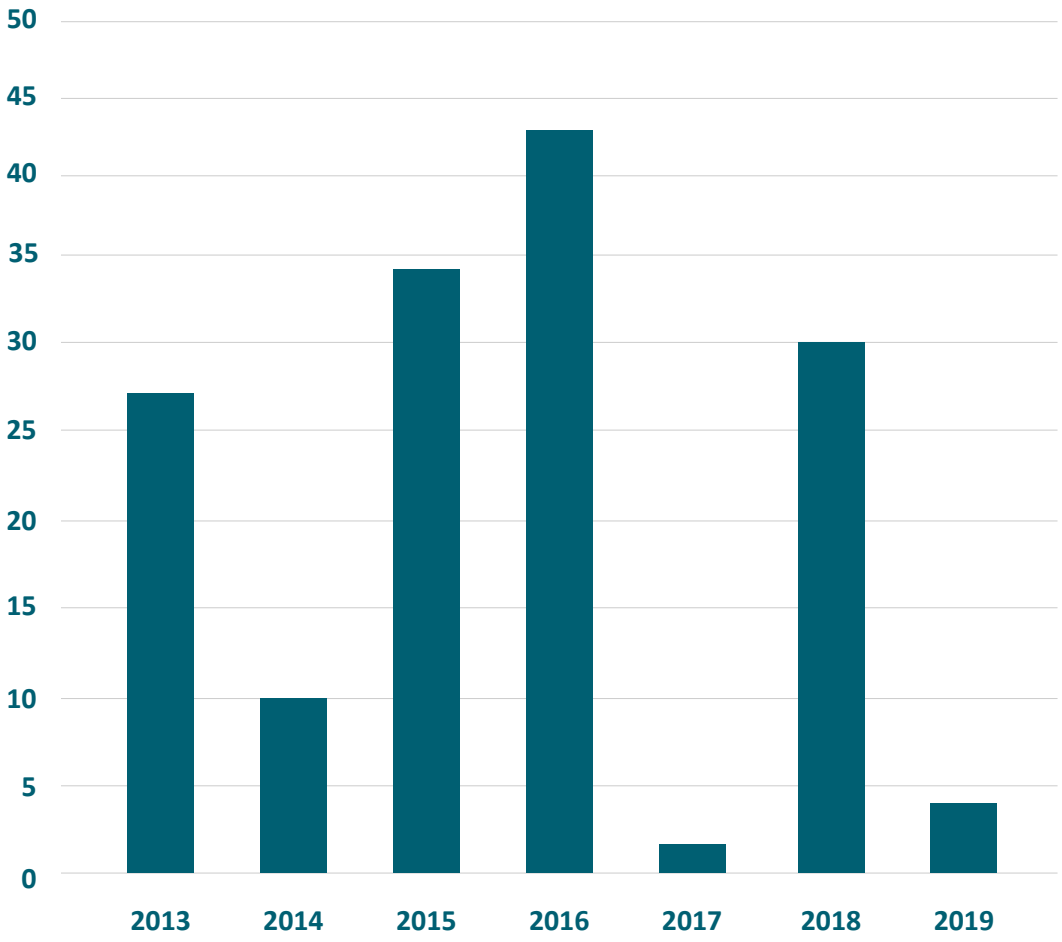


Figure 4.2 – Fatalities by Year

In the 7-year period covered by this report, there were 151 fatalities in the identified accidents. Considering all accidents (fatal and non-fatal) gives a mean fatality rate of 2.32 fatalities per accident. Considering only fatal accidents, the mean fatality rate becomes 5.03 fatalities per accident.

4.6 Normalised Accident Rates

Based on the hours and sectors provided and estimated in Section 3 and the accidents described above, it is possible to estimate the following 5-year average accident rates: :

	All accident rate pMFH	Fatal accident rate pMFH	All accident rate pMS	Fatal accident rate pMS
2013-2017	7.8	3.5	3.8	1.7
2014-2018	7.8	3.8	3.8	1.8
2015-2019	8.0	3.5	3.9	1.7

pMFH = per million flight hours *pMS = per million sectors*

Table 4.2 – 5-year average accident rates

4.7 Causes by CAST/ICAO Common Taxonomy Team (CICTT) Definition

Appendix 4 includes a list of the CICTT aviation occurrence categories. For each of the accidents, one or more CICTT occurrence categories were allocated and these are shown for the 2019 events in Appendix 3. In some cases, more than one occurrence category is applied to a single accident.

Figure 4.3 shows the breakdown of all 65 accidents by CICTT occurrence categories. The same breakdown is shown in Figure 4.4, but only for the 30 fatal accidents.

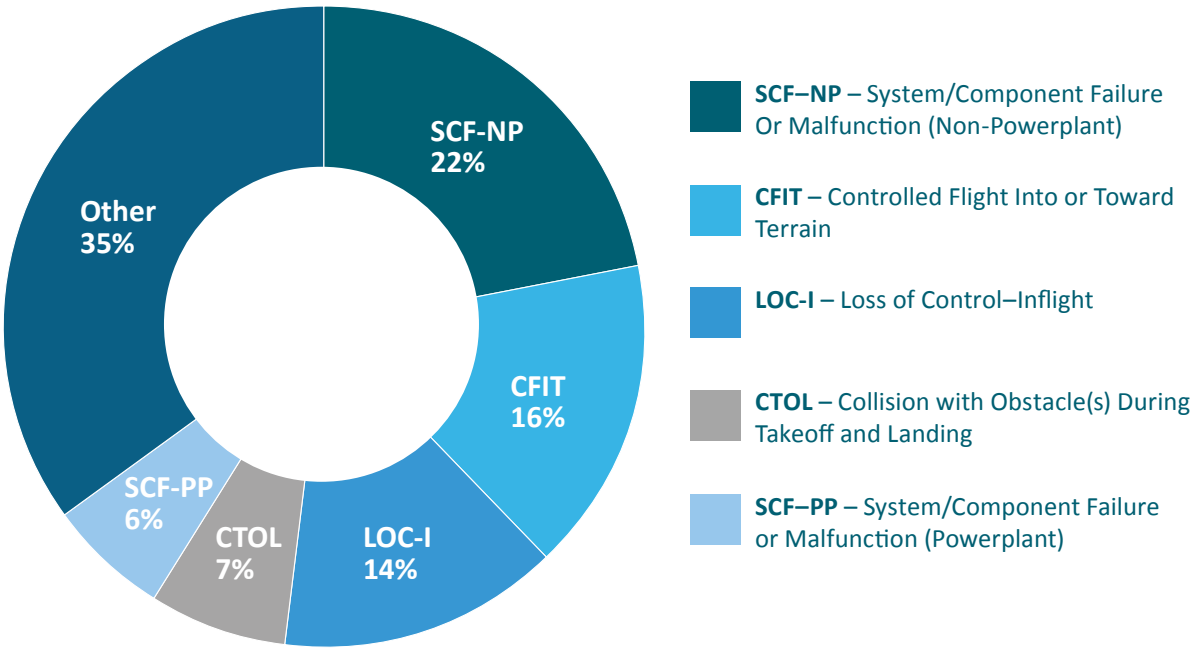


Figure 4.3 –CICTT Occurrence Categories for All Accidents (2013-2019)

Based on this analysis, the largest single occurrence associated with all accidents is non-powerplant system or component failures (SCF-NP = 22%) followed by controlled flight into terrain or water (CFIT = 16%) and loss of control in flight (LOC-I = 14%). The 'Other' category here contains 15 different causes, each with a proportion of 4% or less.

Changing focus to only fatal accidents changes this breakdown significantly; Figure 4.4 shows the proportion of occurrence categories associated with fatal accidents only.

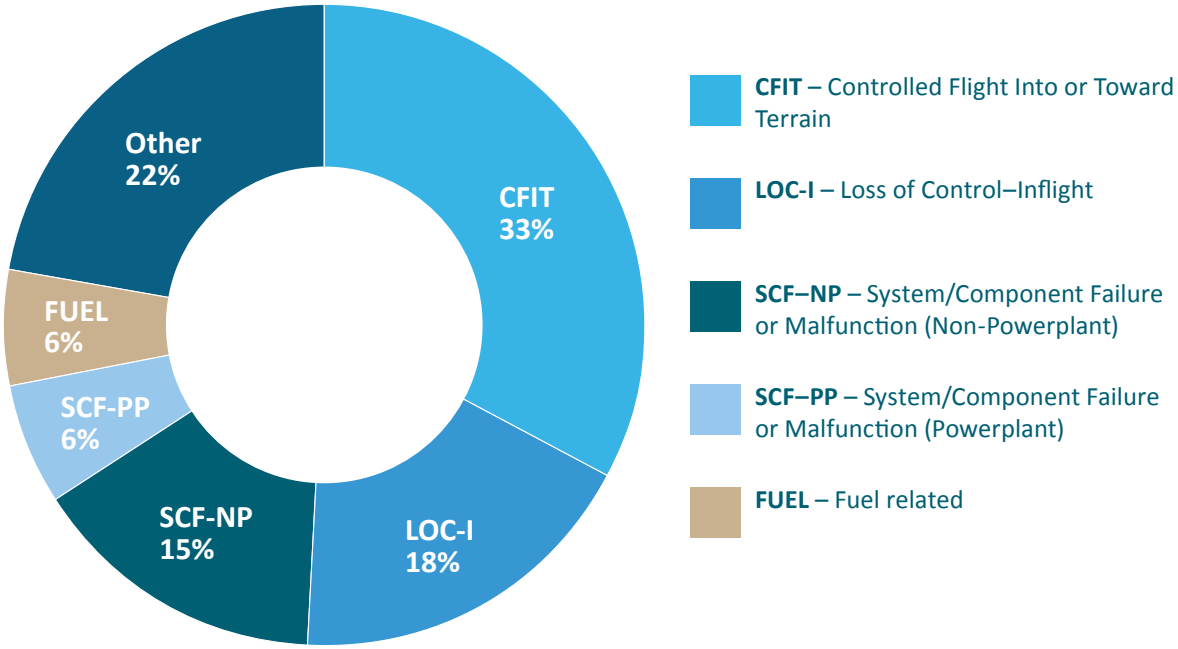


Figure 4.4 – CICTT Occurrence Categories for Fatal Accidents Only (2013-2019)

Figure 4.4 shows that controlled flight into terrain or water is the most common category associated with fatal accidents (CFIT = 33%) followed by loss of control in-flight (LOC-I = 18%) and non-powerplant system or component failures (SCF-NP = 15%). Here 'Other' contains 7 categories each with a proportion of 3% or less.

These occurrence categories correlate with the HeliOffshore Safety Performance Model focus areas of:

- Surface / Obstacle Conflict;
- Aircraft Upset; and
- System Failure.

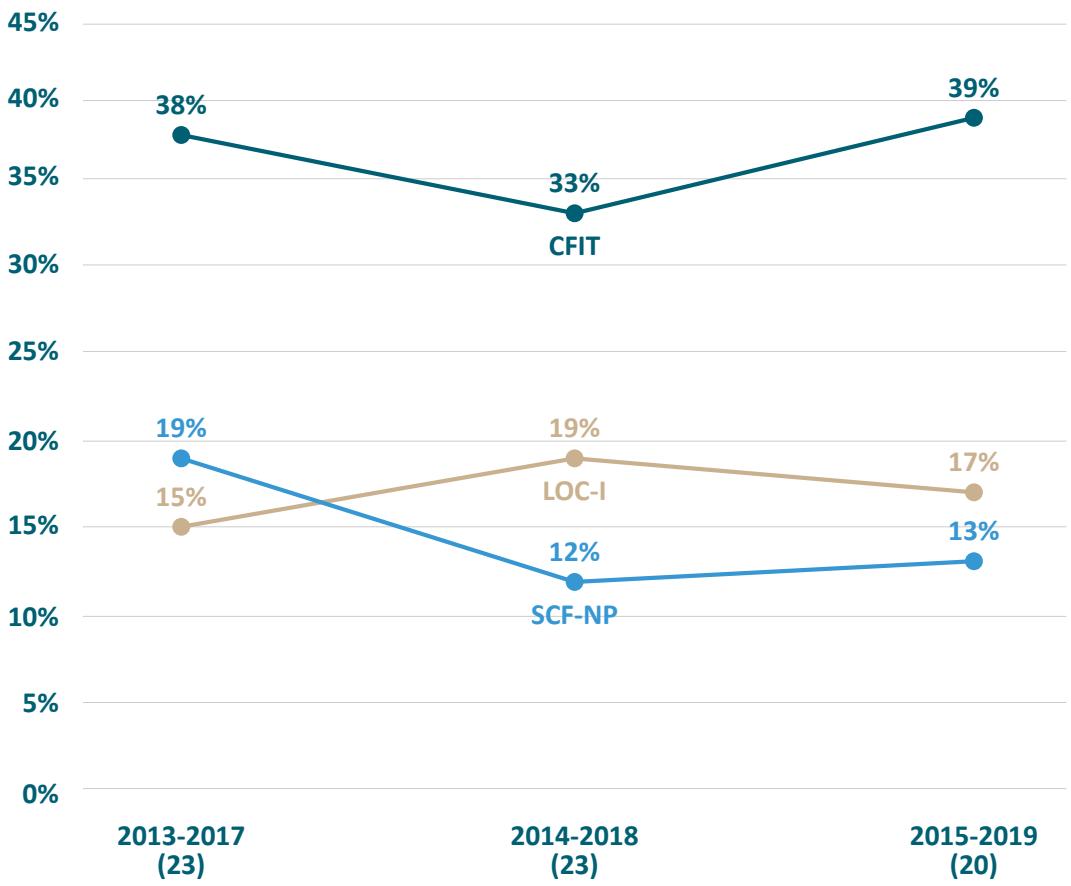


Figure 4.5 – Top 3 Fatal Accident Occurrence Categories in 5-yr moving average (Accident numbers in brackets)

Figure 4.5 shows the 5-yr moving average value for the top 3 occurrence factors for fatal accidents; put another way, the graph represents the proportion of accidents in a period with that occurrence category. The total number of fatal accidents in each period is shown in brackets at the bottom of the graph.

This shows that the top 3 occurrence categories remain the same in all periods and that the proportions remain relatively constant. CFIT remains the predominant category, representing more than double the proportion of the next highest category in the period 2015-2019.

4.8 Comparison with Fixed Wing

The Boeing 2018 Statistical Summary of Commercial Jet Airplane Accidents gives the number of fatal accidents from 2009 to 2018 as 51 in total, resulting in a total of 2,447 fatalities onboard. Figure 4.6 shows the breakdown by occurrence category.

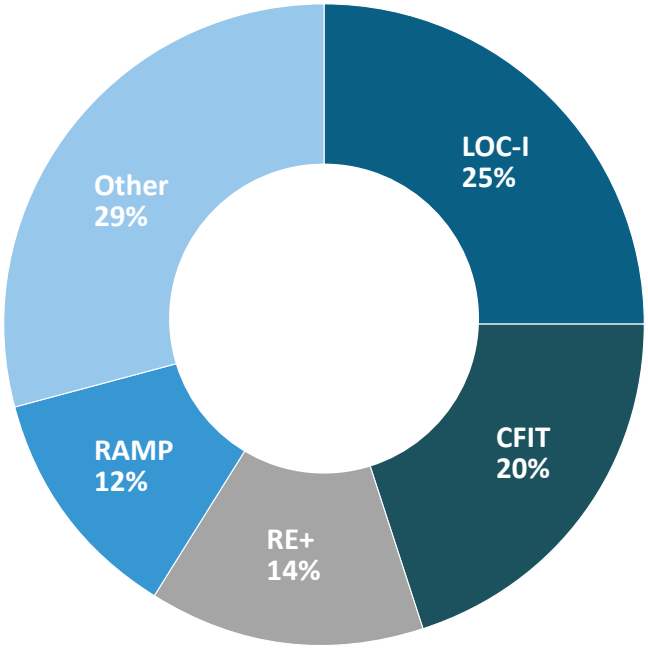


Figure 4.6 –CICTT Occurrence Categories for Commercial Jet Fixed-Wing Fatal Accidents

RE+ combines runway excursion on landing (RE), abnormal runway contact (ARC) and undershoot / overshoot (USOS).

The Boeing statistics do not include aircraft manufactured in the Commonwealth of Independent States (CIS) or Russia due to a lack of operational data. The Aviation Safety Network gives the global 5-year fatal accident rate for aircraft capable of carrying more than 14 passengers, as approximately 0.4 per million departures.

Section 5
Conclusions

5 Conclusions

This report gives a consolidated picture of the safety performance of passenger transport in the global oil and gas industry.

The information contained within this report can be significantly improved – accuracy and fidelity can be improved, industry intelligence can be expanded and further analysis can be performed. However, none of this detracts from the value that this data provides in giving a reliable assessment of the current safety and risk picture.

As part of the continuing work of the HeliOffshore Safety Intelligence Programme we will be making these improvements, which are best-achieved with the help and insight of our members. Also, as part of the HSIP, we will be providing the data in a more dynamic, personalised way for contributing members.

Whilst the gathering of this data is a crucial first step in improving the industry's safety performance, it is not, in itself, of any value unless it is acted upon. Therefore, HeliOffshore will use this, and other data to continue to inform its safety strategy to provide the greatest safety benefit for the industry and benchmark its progress through the ongoing collection and analysis of data within the HeliOffshore Safety Intelligence Programme. In particular, data will allow us to 'close the loop' on our safety initiatives to check that our actions are having the desired outcomes.

As part of our next steps, HeliOffshore will be encouraging operators to track and feedback data on lower level 'precursor' events that can lead to CFIT, LOC-I and System / Component Failure. We will also be working with them to prioritise these risks within their Safety Management System and identify the activities that need to be robust in their training and operations. Finally, we will also be developing leading indicators that will help us to identify any areas for attention, ideally before a serious incident occurs.

Section 6
Appendices

Appendix 1

Full membership list at time of publication (* indicates an Operator Member)

Aeroservicios Especializados S.A. De C.V.*
Aerossurance Limited
AeroteQ Consulting Limited
Air Greenland*
Air Safety Engineering LLC
Airbus Helicopters
Aircontact Services AS
Airtight Aviation Services Ltd
Airwork NZ Limited
Alidaunia Srl*
Arrow Aviation
AviaSafety Consulting International
Aviashelf*
Aviator Group*
Baines Simmons Ltd
Bel Air Aviation A/S*
Bell
BHP
BP Plc
Bristow Group Inc.*
Brunei Shell Petroleum Company Sdn Bhd*
Canadian Helicopters Offshore*
Caverton Helicopters*
CHC Helicopter*
Chevron Corporation
Collins Aerospace
ConocoPhillips
Coptersafety OY
Cougar Helicopters Inc.*
Cranfield University
DART Aerospace
Echelon Consulting Limited
Ecole Nationale de l'Aviation Civile (ENAC)
Equinor
Euro-Asia Air*
Everett Aviation*
Exxon Mobil Corporation Aviation Services
Flight Safety Foundation
FlightSafety International Limited
G.E.D.A. S.p.A.
GE Aviation
Green Deck Operations Limited
Heli Holland Offshore B.V.*
Heli-One
Heli-Union*
HeliAmérica, SAC*
Heliconia Aero Solutions*
Helicopter Association International (HAI)
Heliportugal*
HeliService International GmbH*
Heliservicio S.A.*
HELISPEED
HeliVibe Training and Consultancy Ltd
Honeywell Aerospace
HTM Helicopter Travel Munich GmbH*
HUCON
International Aircraft Services (IAS)*
International Association of Oil & Gas Producers
International Aviation Marketing Limited
KN Helicopters A/S*
LCI Helicopters Ireland Limited
Leonardo Helicopters
Líder Aviação S/A*
Lobo Leasing Limited
Macquarie Rotorcraft Leasing Inc.
Milestone Aviation Group Limited
Modena Air Service*
National Helicopter Services Limited (NHSL)*
Nesto Aviation Ltd*
NHV Group*
Northern HeliCopter GmbH*
Norwegian Confederation of Trade Unions
Oil & Gas UK
OMNI Helicopters International*
ORYX Aviation Services
OuterLink Global Solutions
PANH Helicopters*
PHI Inc.*
Pratt & Whitney Canada
Providum Aviation Services
PT Travira Air*
Royal Navy
Safran Helicopter Engines
Sazma Aviation*

SFS Aviation Company Limited*
SGS Hart Aviation
Shell Aircraft Limited
Siemens Gamesa Renewable Energy
Sikorsky Aircraft Corporation
SKYTRAC Systems Limited
SonAir Airline Services S.A.*
Spectro|Jet-Care
StandardAero
Step Change in Safety Limited
Thai Aviation Services Limited*
The LOSA Collaborative
THG Group*
Tonic Analytics Limited
TOTAL S.A.
Transportes Aéreos Pegaso S.A. de C.V.*
Tunisavia*
Ultimate Heli (Pty) Ltd*
United Offshore Aviation Company Limited*
Upstream Aviation
UTair-Helicopter Services*
Vega Offshore SRL*
Weststar Aviation Services Sdn Bhd*
WIKING Helikopter Service GmbH*
Willis Towers Watson

Appendix 2

ICAO Annex 13 gives the definition of an accident and serious incident as:

Accident

An occurrence associated with the operation of an aircraft, which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

a) a person is fatally or seriously injured as a result of:
- being in the aircraft, or
- direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
- direct exposure to jet blast

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

b) the aircraft sustains damage or structural failure which:
- adversely affects the structural strength, performance or flight characteristics of the aircraft, and
- would normally require major repair or replacement of the affected component,

except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or

c) the aircraft is missing or is completely inaccessible

Serious incident

An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down.

Note – The difference between an accident and a serious incident lies only in the result.

Appendix 3

The information given below for 2019 is for transparency with regard to the accident statistics in the report. Where available the investigating agency's assessment has been used. Brief decriptions are given only to help outline the event and in no way attempt to summarise all the relevant factors. Accidents are almost always complex events with many factors and as such the accident report, where available, should be treated as the definitive description of the event and its causal factors. In some cases a CICTT code is attached based on available information and where no further detail is expected. Data for the period 2013-2018 can be found in the previous version of this report.

Fatal Accidents

Date	Type	Registration	Town	Country	Phase	Occurrence	Severity	CICTT categories		Onboard	Injuries	Fatalities
10 March 2019	B407	N577AL	Galliano, LA	United States	En Route	Impact with surface	Accident	LOC-I	-	2	0	2
On March 10, 2019, about 1203 central daylight time, a Bell 407 helicopter, N577AL, was destroyed when it was involved in an accident near Galliano, Louisiana. The pilot of the helicopter departed on the flight to transport the passenger to an offshore platform; several minutes before the accident, he transmitted a pilot report describing a cloud ceiling about 700 ft above ground level and 6 statute miles visibility. Onboard data indicated that the helicopter entered a descending left turn from about 300 ft above ground level that continued until the helicopter impacted a marsh. The characteristics of the turn are consistent with the pilot experiencing spatial disorientation and loss of control. The restricted visual references resulting from the low cloud ceilings and flight over a body of water that lacked significant contrasting terrain features would have been conducive to the development of spatial disorientation; and the low altitude in which he was flying would have limited his available time to recover. Postaccident examination revealed no mechanical anomalies that would have precluded normal operation. The National Transportation Safety Board determines the probable cause(s) of this accident to be the pilot's loss of control during cruise flight as a result of spatial disorientation while operating the helicopter in close proximity to terrain in marginal meteorological conditions.												
12 July 2019	B407	N79LP	GOM	United States	-	-	Accident	-	-	2	0	2
The helicopter went missing in the Gulf of Mexico about 25 nautical miles southeast of Grand Isle, Louisiana.The investigation is ongoing.												

Non-fatal Accidents

Date	Type	Registration	Town	Country	Phase	Occurrence	Severity	CICTT categories		Onboard	Injuries	Fatalities
11 October 2019	B412EP	SU-CBX	Port Said	Egypt	En route	Ditching	Accident	-	-	5	0	0
The aircraft performed an emergency landing / ditching into the Mediterranean Sea, 65 miles from Port Said City during its return from one of the petroleum installations heading towards Ej Jameel airport.												
24 November 2019	Mi-8 MTV-1	RA-24119	Novo-Portovskoye	Russia	Take-off	Tail rotor failure / hard landing	Accident	SCF-NP	-	25	0	0
The helicopter made a hard landing on the territory of the Novo-Portovskoye field of the Yamalo-Nenets Autonomous Area. According to preliminary data, after the aircraft took off from the territory of the Novo-Portovskoye field, the tail rotor failed. On board the aircraft were 22 passengers and 3 crew members. The tail boom and landing gear were damaged in the incident.												
25 December 2019	Mi-8 AMT	RA-22720	Baykit airport	Russia	Take-off	Possible whiteout	Accident	CFIT	-	24?	16?	0
Possible whiteout at takeoff resulting in hard landing. IAC are investigating.												
25 December 2019	Mi-8T	RA-24277	Nenets region	Russia	En route	-	Accident	-	-	23	0	0
Emergency landing.												

Serious incidents (not exhaustive)

Date	Type	Registration	Town	Country	Phase	Occurrence	Severity	CICTT categories		Onboard	Injuries	Fatalities
25 March 2019	AW189	G-OENC	North Sea	United Kingdom	Landing	Wrong deck landing	Serious incident	NAV	-	6	0	0
The pilots landed the helicopter on the Forties Charlie (40C) platform having misidentified it as the destination platform (40D). Controls in place at the time proved inadequate to break the confirmation bias of the pilots. Discussion between the pilots about the position of the crane on the 40C platform probably resulted in them switching their attention incorrectly to this platform and away from the 40D platform. The crane was not stowed on either platform, so did not serve as a distinguishing feature. The pilots' familiarity with the Forties field, the physical similarity of the platforms, and the identical approach and landing flight path to each of them served to reinforce their selection of the wrong deck. The pilots did not verify they were approaching the correct platform by cross-checking the position of the platform against the FMS bearing and distance to the destination or reading the platform name on the helideck before committing to land.												
01 June 2019	S-76C++	###	Gulf of Mexico	United States	Landing	Landing gear malfunction	Serious incident	SCF-NP	-	7	0	0
The aircraft was unable to extend the left main landing gear prior to landing to an offshore location. The crew elected to return to an airport and arrived with sufficient fuel remaining to troubleshoot the landing gear with maintenance personnel. Multiple attempts were made by personnel on the ground to extend the landing gear without success. A decision was made to land the aircraft with the landing gear in the upright position on a designated area of soft grass. The aircraft was set down on the belly of the fuselage and shutdown without incident, sustaining very minor damage to an antenna mount which contacted the ground.												
27 June 2019	EC175B	###	North Sea	Nether-lands	En route	Airprox	Serious incident	MAC	-	17	0	0
The helicopter with 15 passengers on board flew under instrument flight rules at 3,000 feet above the North Sea, when the pilot performed an evasive manoeuvre due to an F-16 approaching the helicopter. The helicopter crew continued the flight to Den Helder Airport without further reported peculiarities. Investigation is ongoing.												
24 July 2019	S-92A	C-GICB	Nova Scotia	Canada	Approach	Loss of altitude on approach	Serious incident	LOC-I	-	13	0	0
The helicopter was conducting a flight between Stanfield/Halifax International airport (CYHZ) and the Thebaud gas field platform southwest of Sable Island, Nova Scotia, when it experienced a drop in altitude while approaching the platform. The helicopter pilots elected to return to CYHZ, where a landing was conducted without further incident. Investigation is ongoing.												
02 October 2019	S76C++	###	Gulf of Mexico	United States	Take-off	Unstable departure	Serious incident	LOC-I	-	-	0	0
During departure from an offshore platform, the aircraft began a right rotation as power was applied. The yaw pedals were not centralized for take-off and the autopilots were not engaged. As the power was increased, the aircraft continued its rotation as it moved vertically and laterally away from the platform. The pilot monitoring challenged the pilot flying, took control of the aircraft and corrected the rotation. The aircraft recovered to a climb and continued into cruise flight without further incident.												
25 October 2019	S-92A	5N-BOA	Port Harcourt	Nigeria	En route	Engine failure	Serious incident	SCF-PP	-	13	0	0
En route to Part Harcourt from an offshore platform, the aircraft declared an emergency due to left engine failure. The aircraft was cleared left Base Runway 22 for expeditious landing and landed safely.												
13 December 2019	S-92A	G-WNSV	North Sea	United Kingdom	En route	Lightning strike	Serious incident	WSTRW	-	17	0	0
In-flight lightning strike, PAN declared.												
16 December 2019	S-92A	C-GKNR	St John's	Canada	Approach	Landing gear malfunction	Serious incident	SCF-NP	-	-	0	0
On final into the local airport, the flight crew reported that after selecting the Gear Down they did not have a"Green" Nose Landing Gear (NLG) Down indication. IAW the Emergency Checklist (ECL), they carried out an Emergency Blow Down procedure, but the nose gear indication did not change.The aircraft was hover-taxied to a taxiway adjacent to the heliport where maintenance staff met the aircraft,accessed the NLG wheel-well and aided with dislodging the stuck NLG. The helicopter landed, the NLG was safetied (landing gear pins installed) and the aircraft shutdown in position on the taxiway. Passengers and Crew disembarked the aircraft.												

Appendix 4

Abnormal Runway Contact	ARC
Abrupt Maneuver	AMAN
Aerodrome	ADRM
Airprox/TCAS Alert/Loss of Separation/Near Midair Collisions/Midair Collisions	MAC
ATM/CNS	ATM
Bird	BIRD
Cabin Safety Events	CABIN
Collision with Obstacle(S) During Takeoff And Landing	CTOL
Controlled Flight Into or Toward Terrain	CFIT
Evacuation	EVAC
External Load Related Occurrences	EXTL
Fire/Smoke (Non-Impact)	F–NI
Fire/Smoke (Post-Impact)	F–POST
Fuel Related	FUEL
Glider Towing Related Events	GTOW
Ground Collision	GCOL
Ground Handling	RAMP
Icing	ICE
Loss of Control–Ground	LOC–G
Loss of Control–Inflight	LOC–I
Loss of Lifting Conditions En Route	LOLI
Low Altitude Operations	LALT
Medical	MED
Navigation Errors	NAV
Other	OTHR
Runway Excursion	RE
Runway Incursion	RI
Security Related	SEC
System/Component Failure Or Malfunction (Non-Powerplant)	SCF–NP
System/Component Failure Or Malfunction (Powerplant)	SCF–PP
Turbulence Encounter	TURB
Undershoot/Overshoot	USOS
Unintended Flight In IMC	UIMC
Unknown or Undetermined	UNK
Wildlife	WILD
Wind Shear or Thunderstorm	WSTRW

More details about the taxonomy and the categories can be found here. This also includes guidance on how to apply the categories.


Natasha

You can find out more about HeliOffshore at **www.helioffshore.org**

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Safety Through Collaboration