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HSAC

Helicopter Safety Advisory Conference

Safety Through Cooperation - Since 1978

COM OFFSHORE OPS AND SAFETY REVIEW



Helicopter Safety Advisory Conference (HSAC)

HSAC pledges:

- To communicate safety-related issues.
- To recommend procedures and safety initiatives.
- To facilitate communication between the various governmental agencies and the industry.
- To develop recommended procedures and guidelines to support offshore flight operations.
- To be pro-active in resolving issues of interest to the industry.

<http://www.hsac.org>

**"SAFETY THROUGH COOPERATION"
SINCE 1978**



Any new ways to hurt ourselves? Root Causes?

- 1998 – 2018
- Myron Hillers

USB Drive (D:) > HSAC Accident >			
^	Name	Date modified	Type
	1998	10/31/2018 4:03 PM	File folder
	1999	10/31/2018 4:11 PM	File folder
	2000	10/31/2018 4:58 PM	File folder
	2001	10/31/2018 4:53 PM	File folder
	2002	10/31/2018 4:54 PM	File folder
	2003	10/31/2018 4:34 PM	File folder
	2004	10/31/2018 4:30 PM	File folder
	2005	11/1/2018 8:10 AM	File folder
	2006	11/1/2018 8:19 AM	File folder
	2007	11/1/2018 8:14 AM	File folder
	2008	11/1/2018 7:58 AM	File folder
	2009	10/31/2018 4:46 PM	File folder
	2010	11/1/2018 7:59 AM	File folder
	2011	11/1/2018 8:03 AM	File folder
	2012	11/1/2018 8:22 AM	File folder
	2013	11/1/2018 8:24 AM	File folder
	2014	11/1/2018 8:26 AM	File folder
	2015	11/1/2018 8:29 AM	File folder
	2016	11/1/2018 8:28 AM	File folder
	2017	10/31/2018 5:05 PM	File folder
	2018	10/31/2018 4:15 PM	File folder



First Five (5) year average Bob Williams

HSAC
Statistics
from
1999 to
2018
can be
found
on www.hsac.org

FIVE YEAR GULF OF MEXICO OFFSHORE HELICOPTER ACCIDENT DATA Injuries

Number Of Accidents			Injury Classification					Aircraft Damages			Aviation Accident				
Aircraft Category		Categ	Injuries		Severity			Classification			Rates				
Year	# Accidents	# Fatal	# Eng Related	Pax	Crew	Minor	Serious	Fatal	Minor	Substantial	Total Loss	# Acc 100k Hrs	# Fatal Acc 100k Hrs	# Fatal 100k Occupants	# Acc 100k Flt Stages
1995	5	3	NR	7	3	1	1	8	1	1	3	1.21	0.73	0.14 E	0.33
1996	7	4	NR	7	4	0	0	11	1	2	4	1.58	0.91	0.19 E	0.42
1997	6	1	1	6	6	7	4	1	1	2	4	1.27	0.21	0.02	0.35
1998	3	1	1	0	2	1	0	1	0	1	3	0.66	0.22	0.02	0.22
1999	9	1	2	7	4	4	5	2	2	2	5	2.29	0.25	0.05	0.62
5 Yr. Avg.	6.0	2.0	0.6	5.4	3.8	2.6	2.0	4.6	1.0	1.6	3.8	1.40	0.46	0.08	0



Legacy of Safety through Cooperation

Second Five (5) year average included the FAA and HSAC Work Groups

January 13, 2005 **Bob Williams (HSAC) and Scott Horn**, FAA Manager, BTR FSDO

- Studied the Gulf of Mexico Accident Statistics from 1999 – 2004
- Identified System Elements that were completed by workgroups to address:
- Training of Flight Crewmembers Not Following Proper Procedures;
- High Sink Rate, Complacency
- Aircraft Handling; Failure Of Equipment/Component

Rotorcraft Calendar year Flight Hours/Accident Rate

<u>Accident Rate Per 100,000 Flight Hours:</u>	1999	2000	2001	2002	2003	2004
U.S. Civil Rotorcraft Accident Rate ¹	7.22	8.93	8.41	9.72	9.98	7.46*
U.S. Civil Rotorcraft Fatal Accident Rate ¹	1.13	1.52	1.34	1.23	1.74	1.36*
Gulf of Mexico Accident Rate ²	2.29	2.04	1.99**	1.49	4.19	2.62*
Gulf of Mexico Fatal Accident Rate ²	0.25	0.68	0.22	0.25	1.84	1.83*

Data sources: 1.HAI/FAA APO-110, 2. HSAC flight hour estimates

*-denotes 2003 flight hours estimate used to develop rates.

** 2001 – Includes a fuel exhaustion incident which resulted in minor aircraft damage



Top 8 Root Causes for GOMEX Accidents

- **1999**
- **to**
- **2004**

- Diminished Situational Awareness
- Poor Judgment/Incorrect Decision – Operations
- Aircraft Handling
- Complacency
- Failure Of Equipment/Component
- Not Following Proper Procedures – Operations
- Undetermined
- High Sink Rate



Causal Factors 1999 to 2004

	1999	2000	2001	2002	2003	2004	Total
Loss of Engine Power / Engine Failure	2	2	1	1	4	4	14
Main / Tail Rotor Blade Strike to Object	1	1	1	2	3	1	9
Loss of Aircraft Control (Other than tail rotor)	0	1	1	1	3	0	6
Flight into Terrain/Water During IMC	1	0	0	0	4	1	6
Loss of Tail Rotor / Drive System (Mechanical Failure)	1	2	1	0	1	0	5
Loss of Tail Rotor Effectiveness	2	1	1	0	1	0	5
Fuel Contamination / Fuel Exhaustion	0	1	2	1	0	1	5
Tie Down Attached / Gear Hung up	1	0	0	1	0	0	2
Personnel Hit by Main / Tail Rotor	1	0	1	0	0	0	2
Others / Unknown	0	1	1	0	0	3	5



Understanding Data Mining

- **Statistics can be found on hsac.org dating back to 1999.**
- **Why are we mining data?**
- **Data Analytics help to focus on:**
- **First, Risk Mitigation and if possible Eliminate Risk (fuel past vs present)**
- **Secondary benefits: Increase Operational Efficiency**



Any new ways to have an accident?

- **Credit: Terry Duprie now compiles the data, who wrote:**
- **"Leading causes, not all inclusive, of the accidents since 1999 are listed below, and secondary causes of these events include**
- **21 engine related,**
- **25 loss of control or improper procedures,**
- **18 helideck obstacle strikes,**
- **13 controlled flight into terrain,**
- **12 other technical failures**



Ultimate Goal

- Terry ends last years letter stating, "We are optimistic that by widely and openly sharing this information with all operators and other oil industry groups that additional safety initiatives may be developed and implemented to further reduce accidents and incidents with an
- **ultimate goal of zero events."**
- **How do we do that on a daily basis?**



Back Off or Just Say No

**FDM Chair
Amanda Roberts
keeps everyone
civil during Data
Mining**





Avoid the easy button and hiding anything

Complacency?

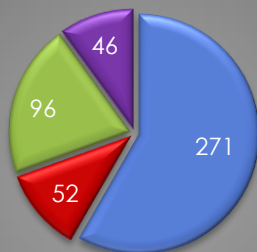
**Intentional
Incident of Non
Compliance?**





GOM Operational Data

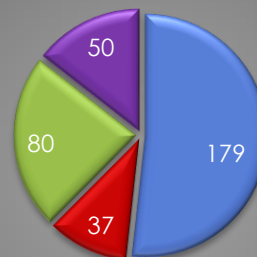
2014



Single Engine Light Twin
Medium Twin Heavy Twin

Total Fleet - 465

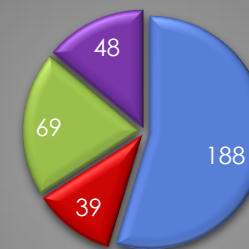
2015



Single Engine Light Twin
Medium Twin Heavy Twin

Total Fleet - 346

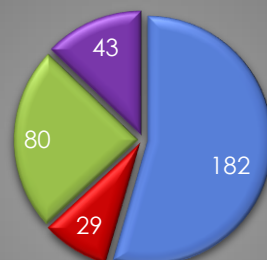
2016



Single Engine Light Twin
Medium Twin Heavy Twin

Total Fleet - 344

2017



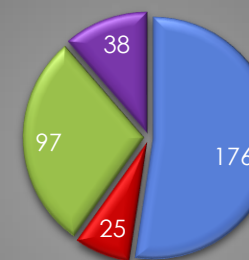
Single Engine Light Twin
Medium Twin Heavy Twin

Total Fleet - 334

Helicopters 2017 vs. 2018 (2018 Data)

Single Engine	– 182 (176)	–6
Light Twin	– 29 (25)	–4
Medium Twin	– 80 (97)	+17
Heavy Twin	– 43 (38)	–5
Total Fleet	– 334 (336)	+2

2018



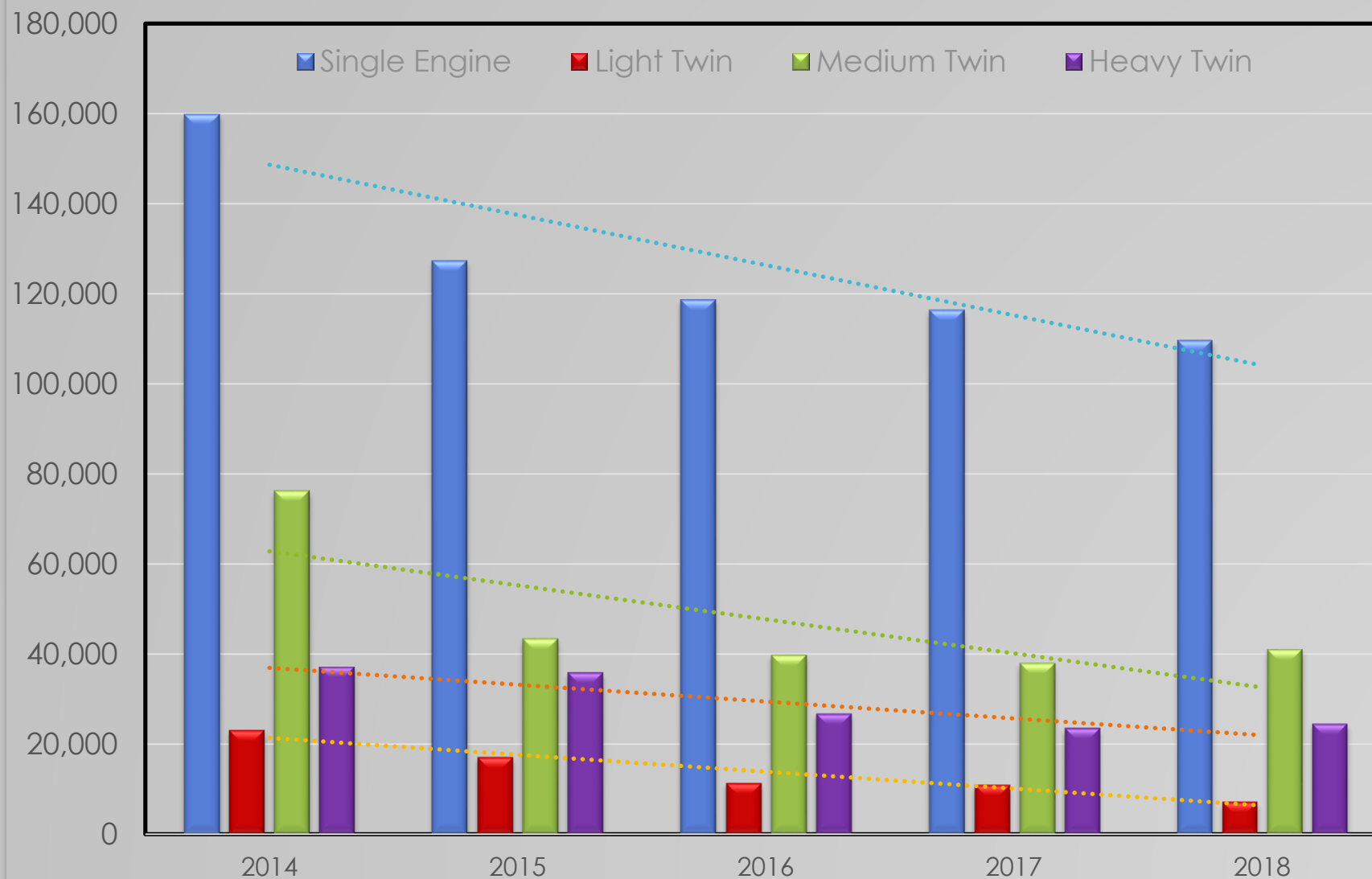
Single Engine Light Twin
Medium Twin Heavy Twin

Total Fleet - 336



GOM Flight Data

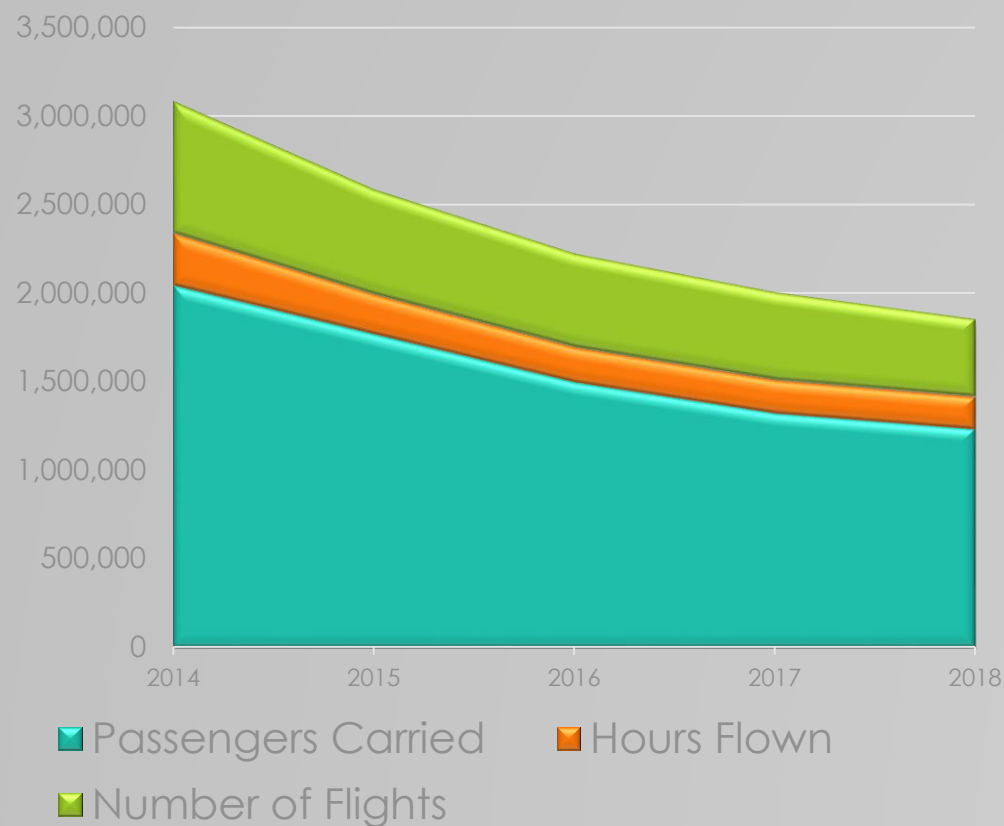
FLIGHT HOURS BY HELICOPTER TYPE





GOM Flight Data

Passengers Carried/Hours Flown/Number of Flights



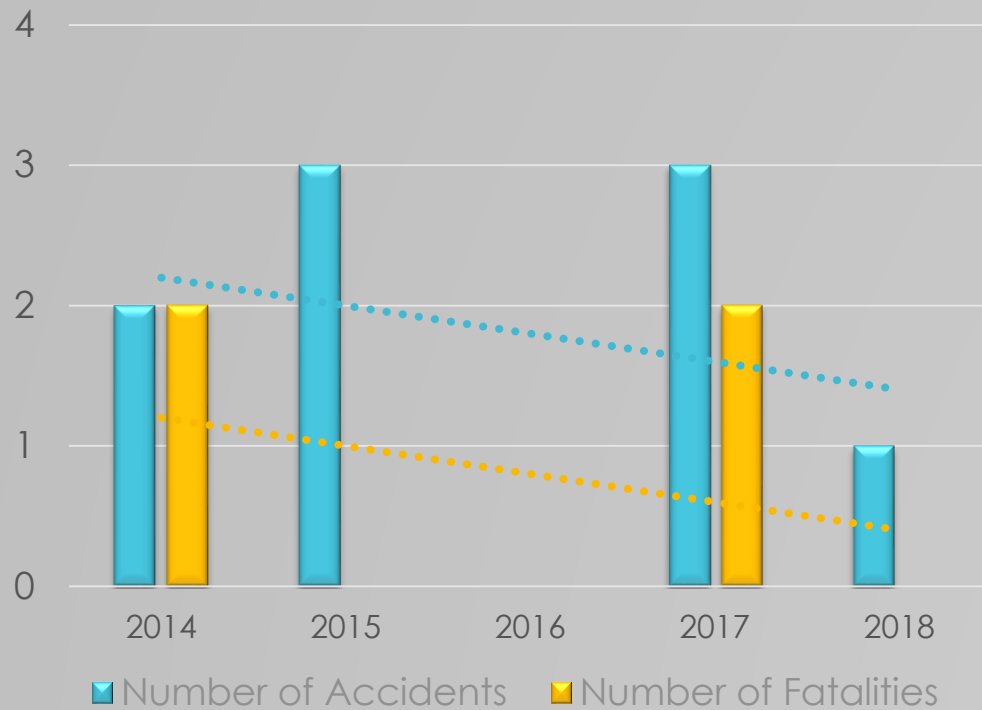
Passenger Data	2016	2017	2018
Passengers per Day per 5 Day Week	5,763	5124	4,747
Flights Per Day	1,444	1,347	1,193
Average Flight Duration in Min.	22	23	25

Single Engine Aircraft operations are lower duration yet higher in segments than their Medium and Heavy Twin counterparts!

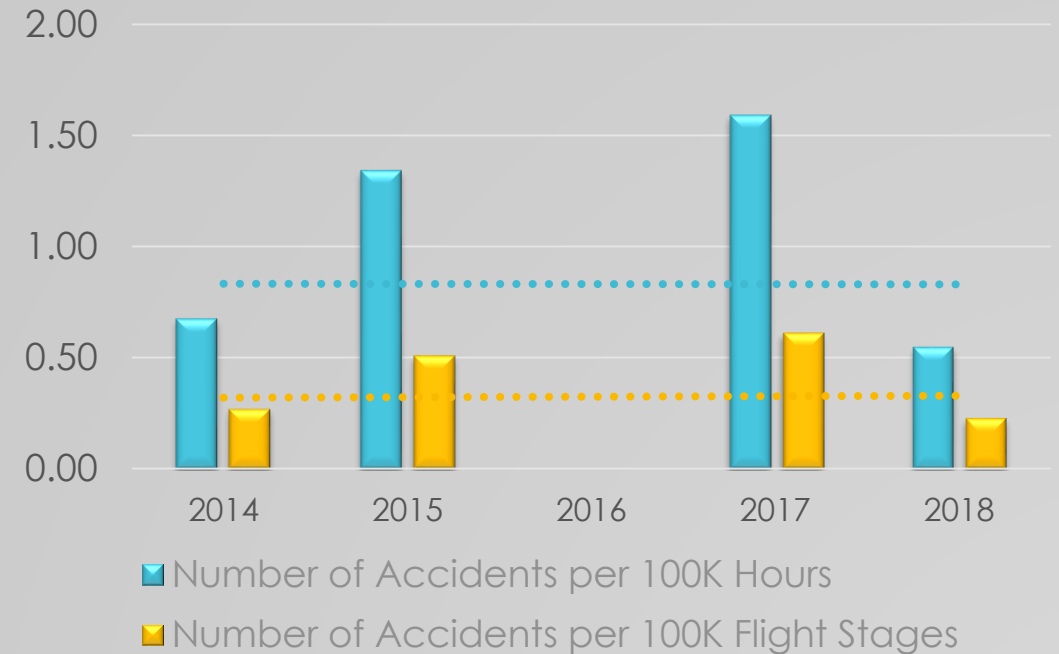


GOM Accident Data 2014 - 2018

Number of Accidents



Number of Accidents per 100K Hours/Stages



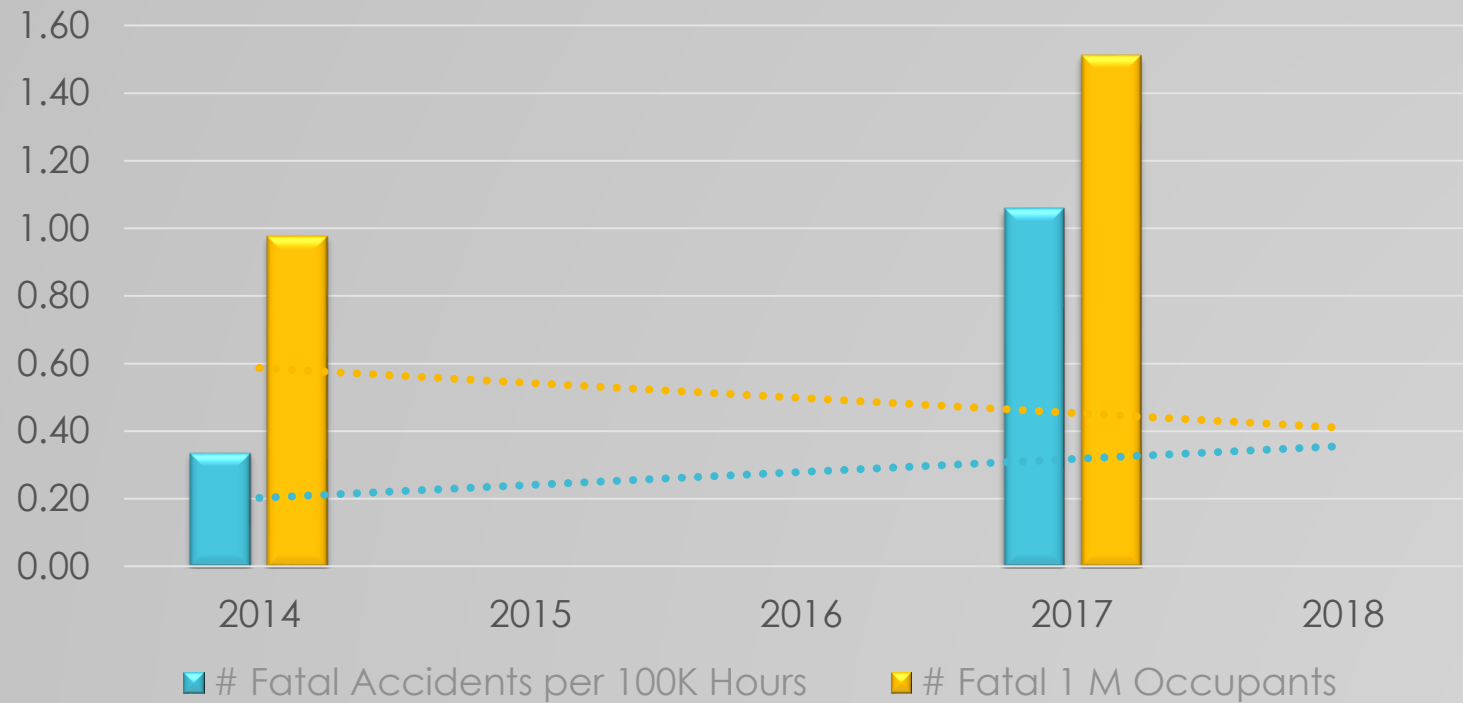
Five Year Average – **0.83 Per 100k Hours**

2018 – 0.55



GOM Accident Data 2014 - 2018

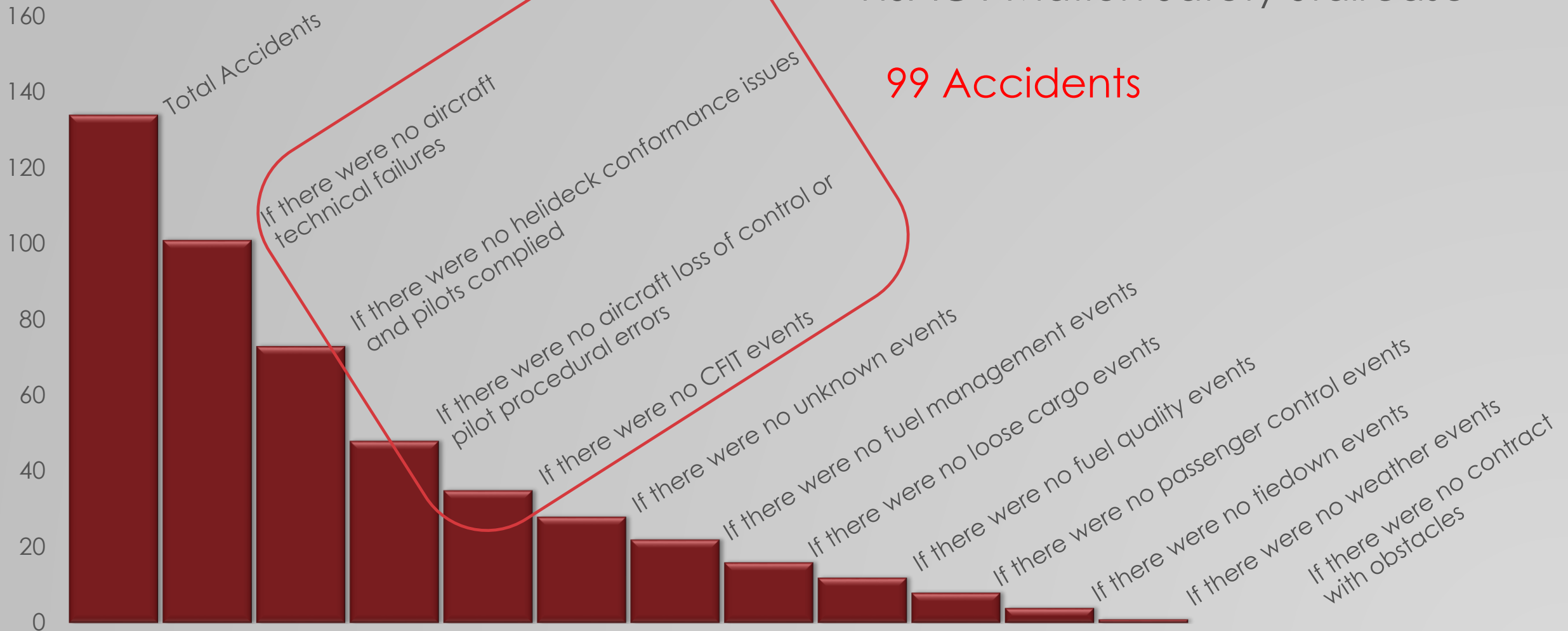
Fatal Accidents per 100K Hours /
Fatalities per 1 Million Occupants





GOM Accident Data 1999 - 2018

HSAC Aviation Safety Staircase





Workgroups

- FLIGHT DATA MONITORING
- TECHNICAL (Myron)
- CHIEF PILOTS (Training?)
- HELIDECK (how do you train pilots to use it properly?)
- How should we be identifying exposure? What other data should we be collecting?
- Near Misses for example.
- What should we be doing/ alignment with HeliOffshore



FLIGHT DATA MONITORING



"SAFETY THROUGH COOPERATION" SINCE 1978

HSAC

Questions, Comments, Concerns?

<http://www.hsac.org>

Bob Williams

Terry Duprie

Myron Hillers

Amanda Roberts

Pat Attaway

Billy Majeau