

## Determining The Effectiveness of Single-Pilot Resource Management in General Aviation

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# Determining the Effectiveness of Single-Pilot Resource Management in General Aviation

By

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# GA Statistics

More than 90% of the approximately 220,000 civil aircraft in the United States are GA aircraft (AOPA)

More than 80 % of certified pilots in the US fly GA aircraft (AOPA)

GA accounts for 94% of civil aviation fatalities (Boyd, 2017)

# Statement of Purpose

Examine the impacts of SRM concepts in GA

Examine the impacts of CRM training in commercial aviation

Examine the concepts of CRM training in commercial aviation to provide recommendations to enhance the effectiveness of SRM

# Research Questions

Is CRM training effective in mitigating human errors and enhancing flight safety in commercial aviation?

Is the application of SRM effective in mitigating human errors and enhancing general aviation safety?

What factors are responsible for the ineffectiveness of SRM?

What factors contribute to CRM effectiveness?

# Methodology

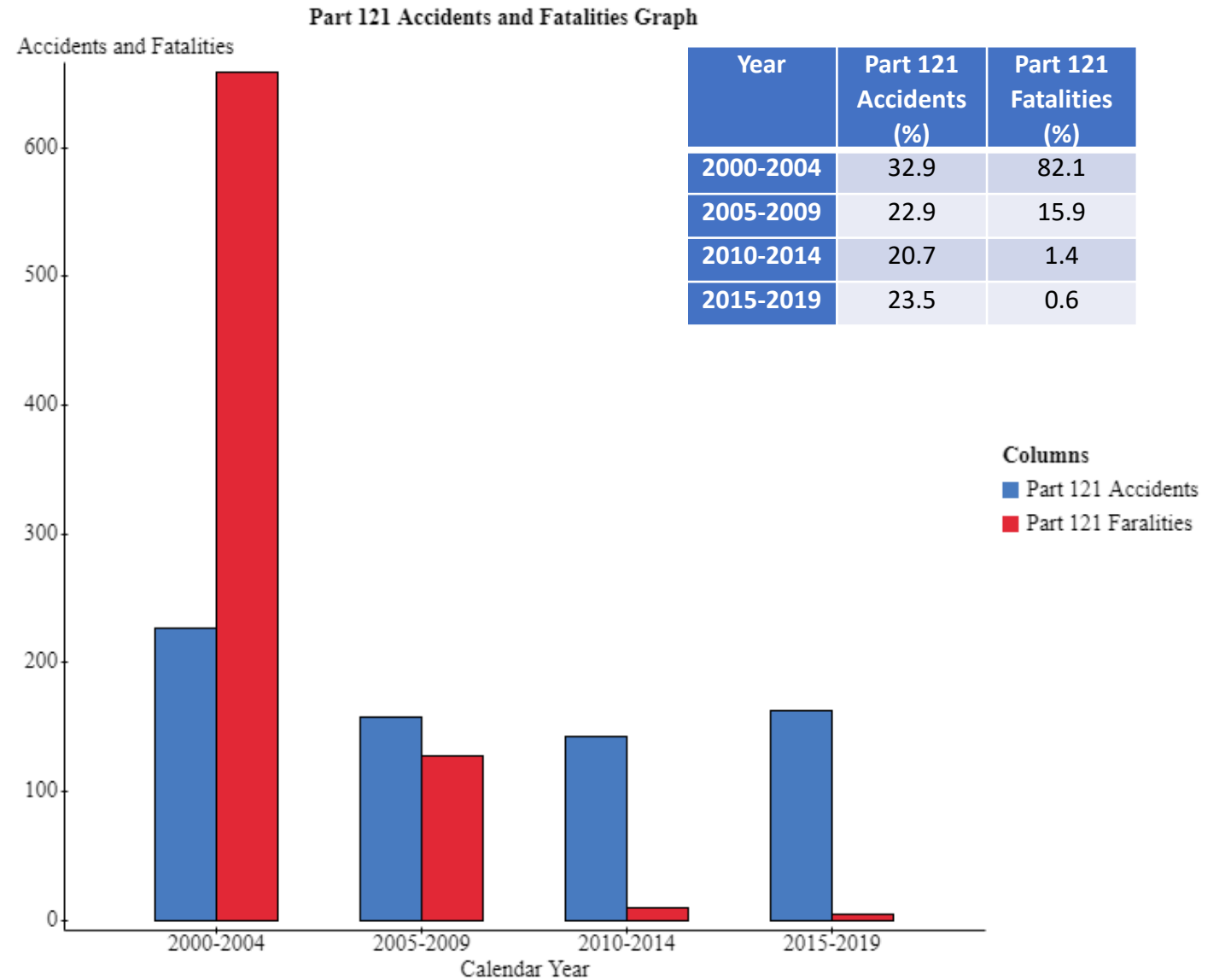


A mixed approach: a qualitative descriptive research design and a qualitative deductive coding analysis research design.

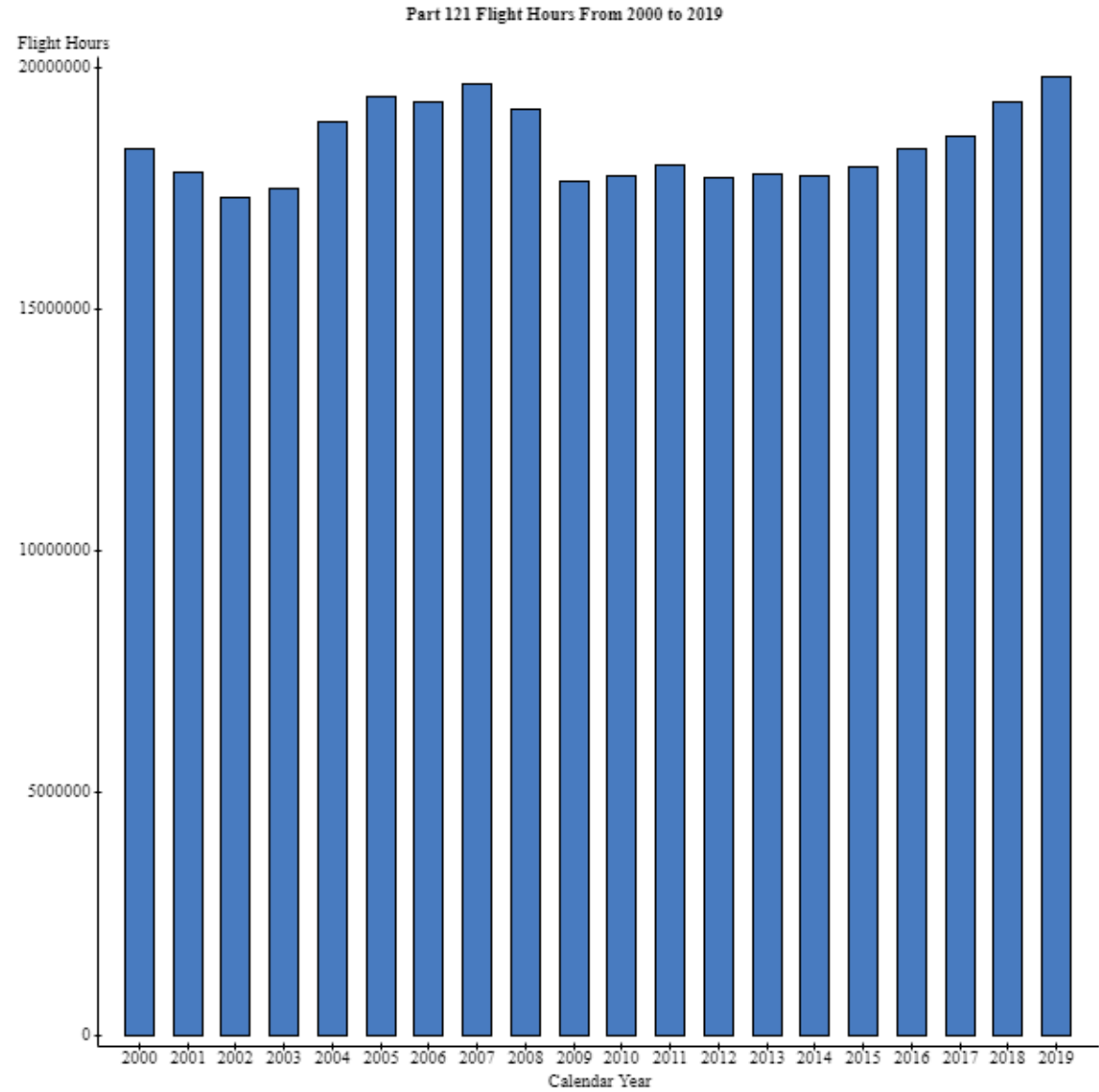


Data Sources: NTSB and Advisory Circular 120-51E

# Results

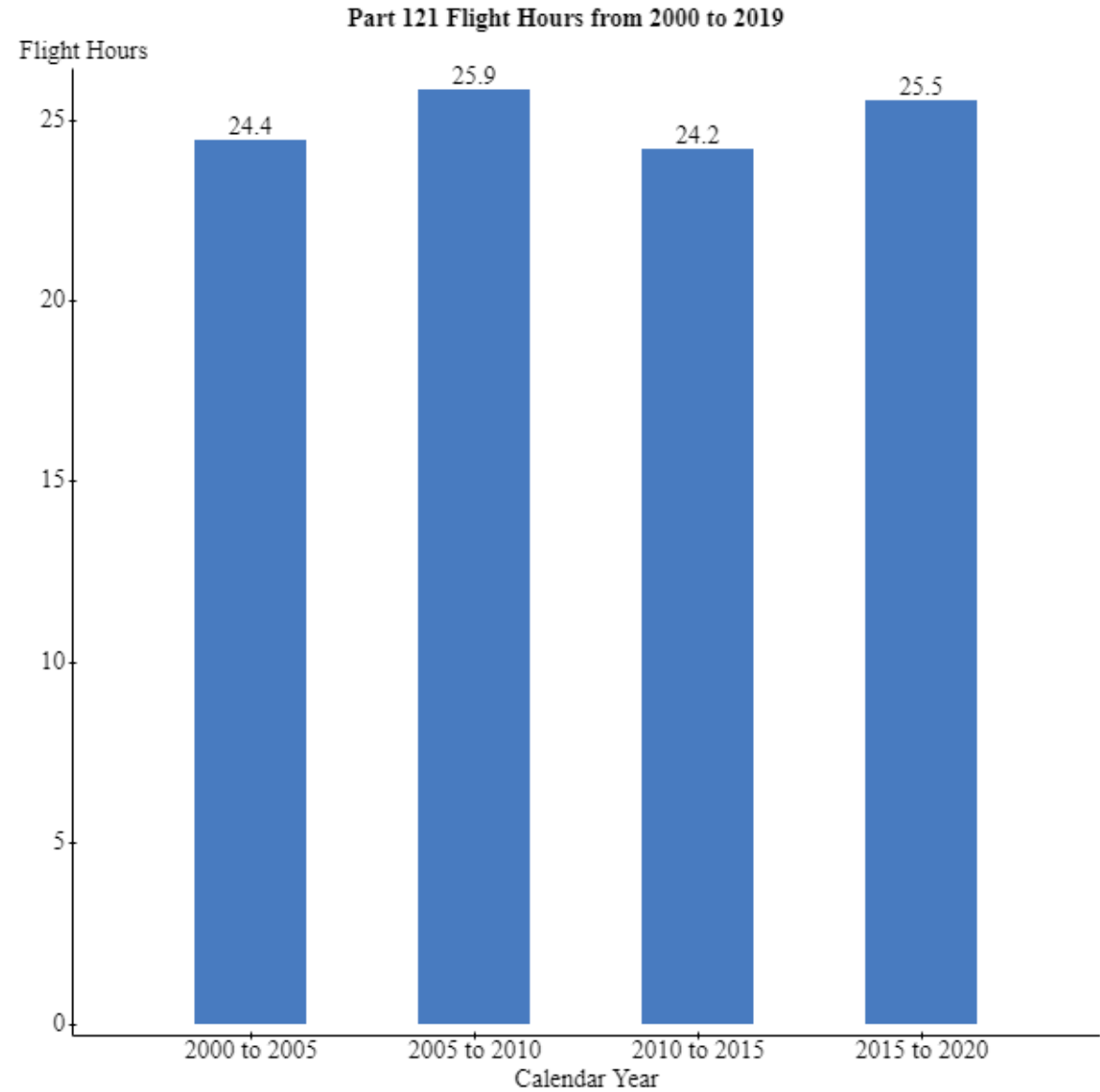


# Results

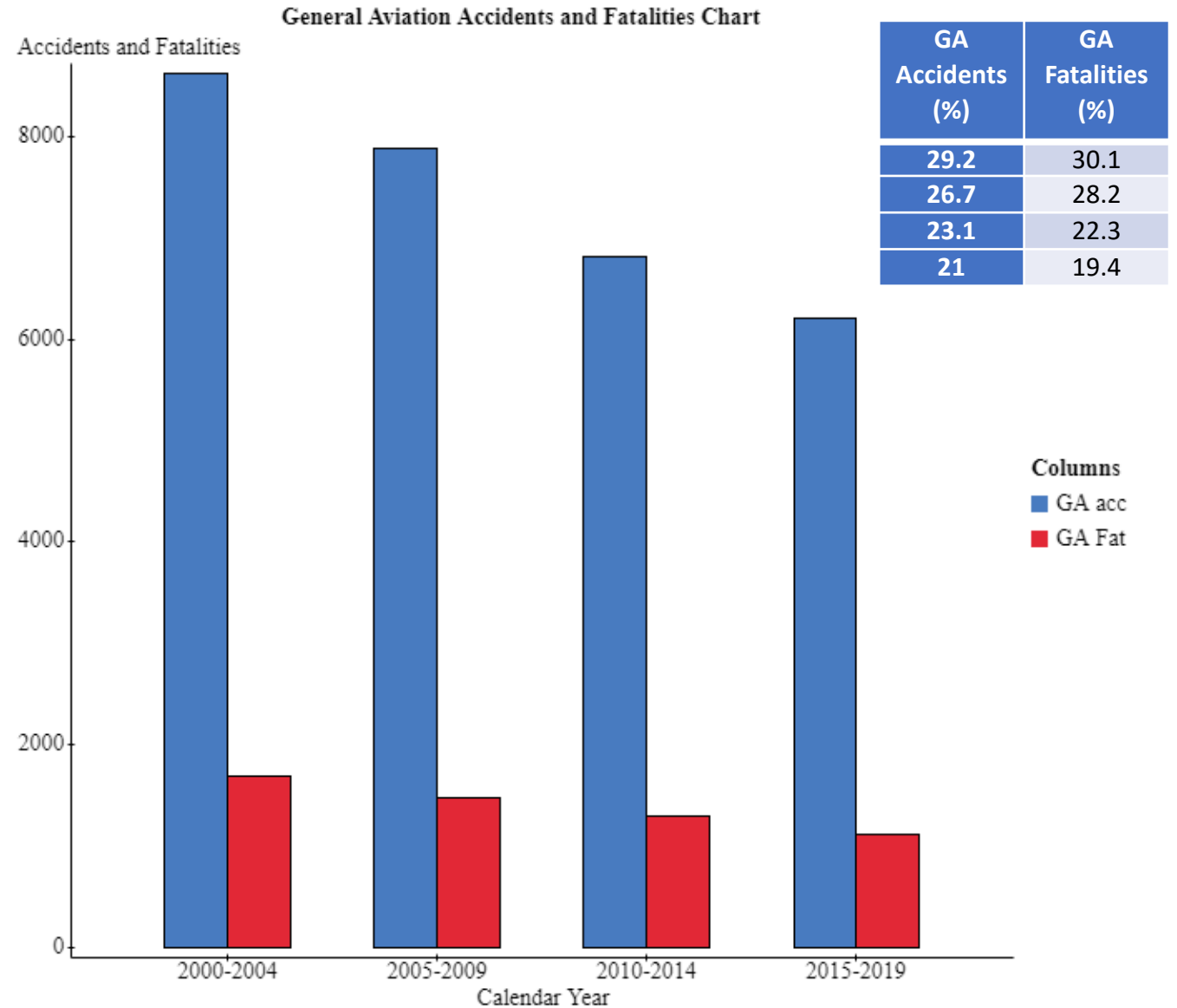




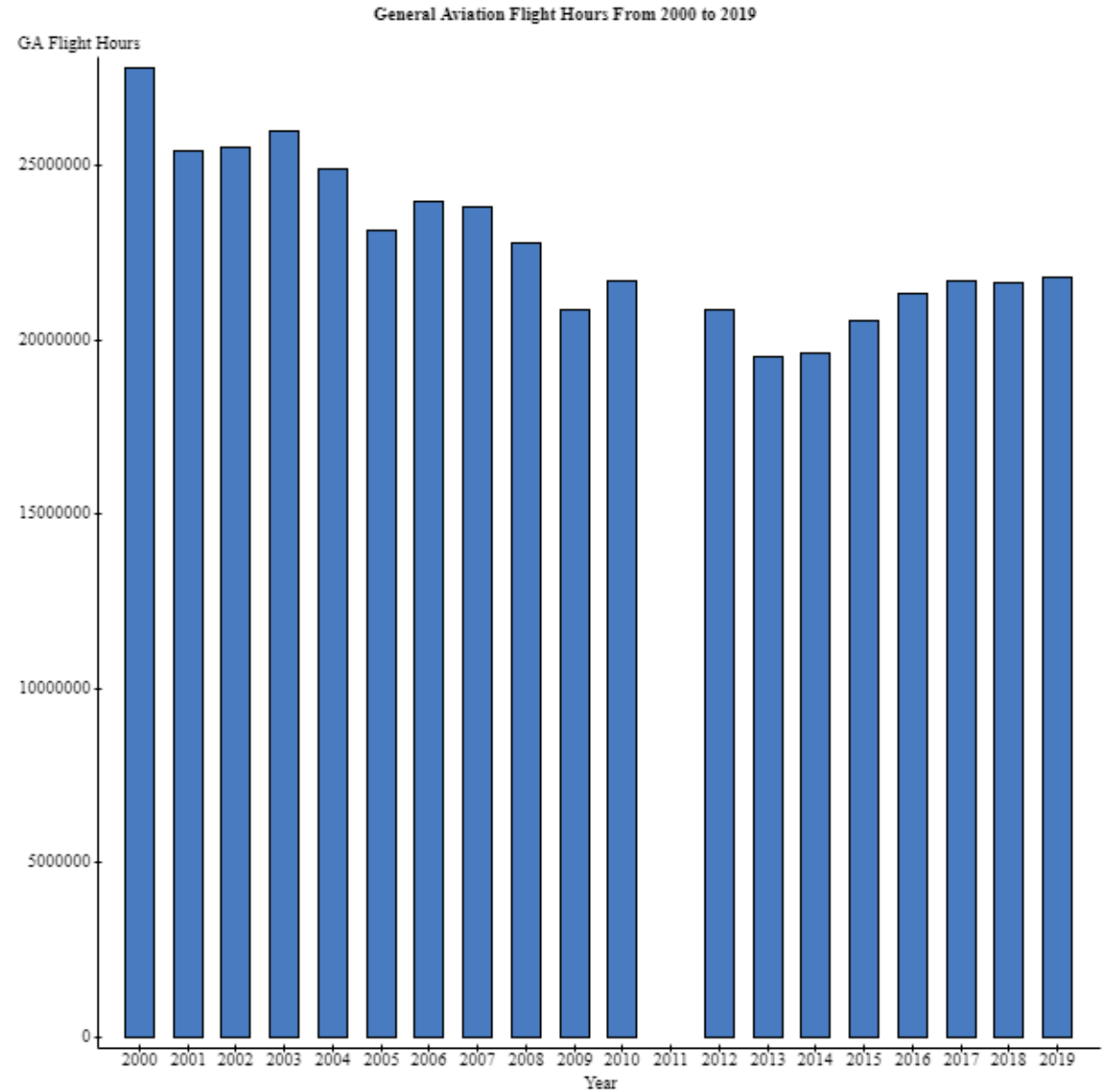
# Results



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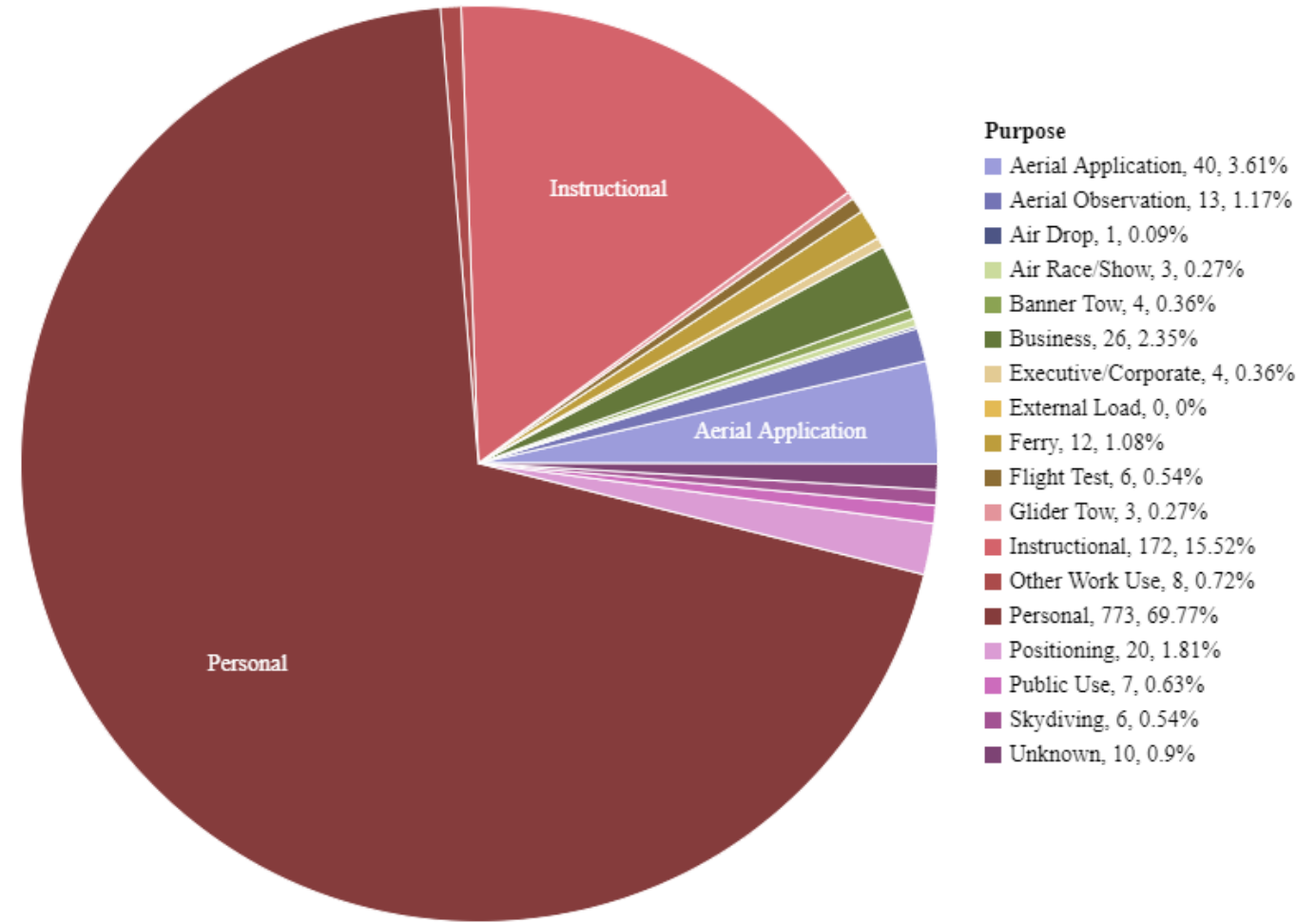


# Results



# Results

General Aviation Accident Aircraft by Flight Purpose



# Results

Table 2

The Summary of five years intervals of Part 121 and GA accidents and Fatalities in Percentage and Flight Hours from 2000 to 2019.

Year	Part 121 Accidents (%)	Part 121 Fatalities (%)	Flight Hours	GA Accidents (%)	GA Fatalities (%)	Flight Hours
2000-2004	32.9	82.1	89,753,849	29.2	30.1	129,698,000
2005-2009	22.9	15.9	95,044,158	26.7	28.2	114,615,830
2010-2014	20.7	1.4	88,958,654	23.1	22.3	
2015-2019	23.5	0.6	93,876,068	21	19.4	107,076,594



# Initial Findings

CRM training is producing positive results in commercial aviation

SRM is not producing desired results in general aviation compared to its counterpart CRM

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# Exploration of Advisory Circular 120-51E

The fundamentals  
of CRM training  
implementation

Components of  
CRM training

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**Table 3**

**The Summary of the Fundamentals of CRM Training Implementation and Components of CRM Training**

**Fundamentals of CRM Training Implementation**

- **Assess the Status of the Organization Before Implementation**
- **Get Commitment from All Managers, Starting with Senior Managers**
- **Customize the Training to Reflect the Nature and Needs of the Organization**
- **Define the Scope of the Program and an Implementation Plan**
- **Communicate the Nature and Scope of the Program Before Startup**
- **Institute Quality Control Procedures**

**Components of CRM Training**

- **Initial Indoctrination/Awareness**
- **Recurrent Practice and Feedback**
- **Continuing Reinforcement**



# Final Findings

- SRM is not customized and structured to reflect the specific needs of general aviation pilots.
- SRM has no quality control procedures to ensure its effectiveness.
- SRM is not a structured training program that ensures recurrent practice and feedback.

# Conclusions

- CRM training is producing positive results in commercial aviation
- The fundamentals of CRM training and its components have contributed to the effectiveness of CRM training in mitigating human errors
- The concepts of SRM have not been fully effective in reducing human errors and enhancing general aviation safety
- A lack of constant and monitored human factors awareness (SRM) training in GA renders the concepts of SRM ineffective.

# Recommendations

- SRM concepts should be developed into recurrent mandatory training for general aviation pilots
- SRM training should be customized to reflect the nature and needs of individual flying purposes
- Institute quality control procedures for the SRM training.