

# PROACTIVE SHOCK MITIGATION:

REDUCING IMPACTS BEFORE THEY HAPPEN

**salmon**  
power sports

SHOCK PROTECTION | ENHANCED PERFORMANCE | IMPROVED STABILITY

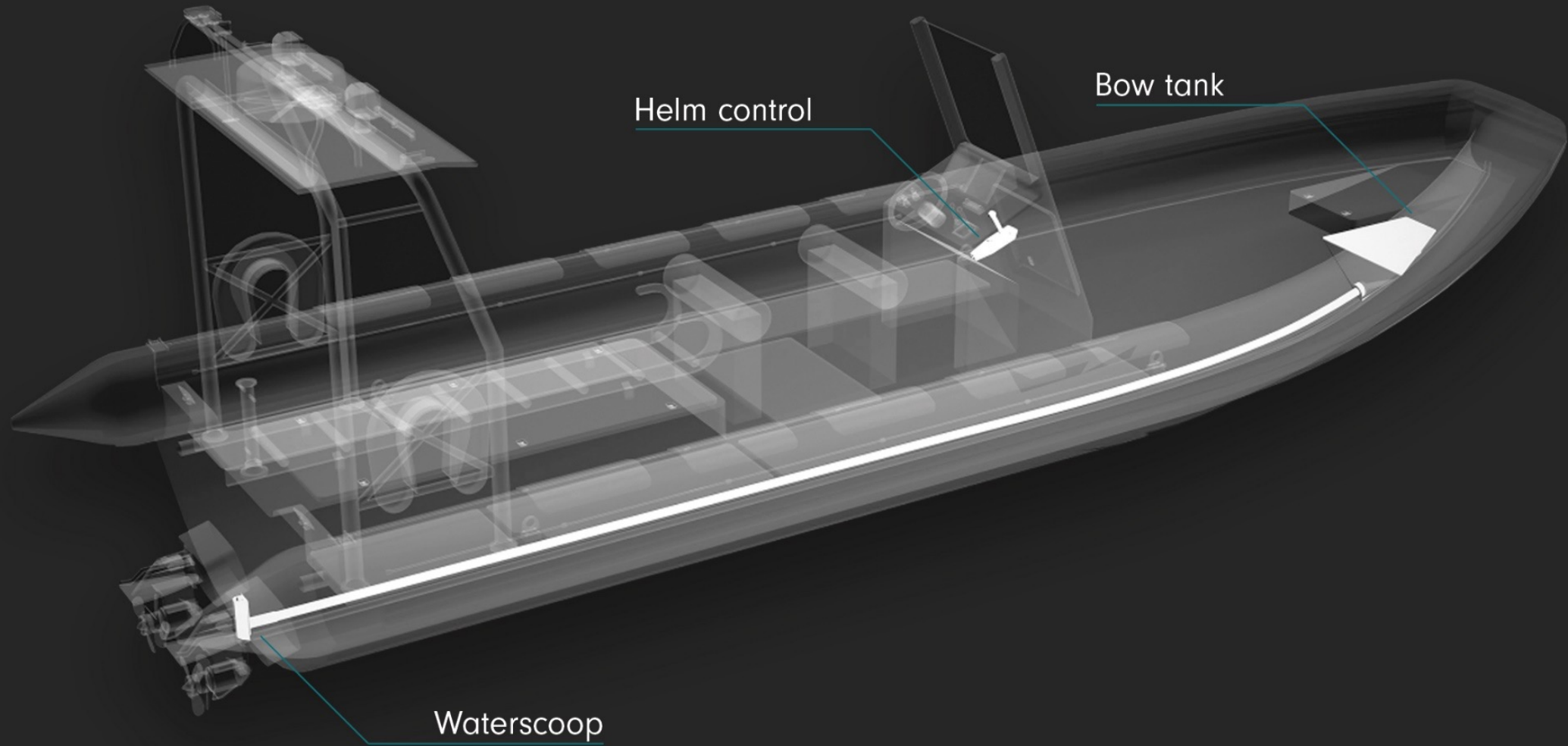


# THIRTY YEAR HERITAGE

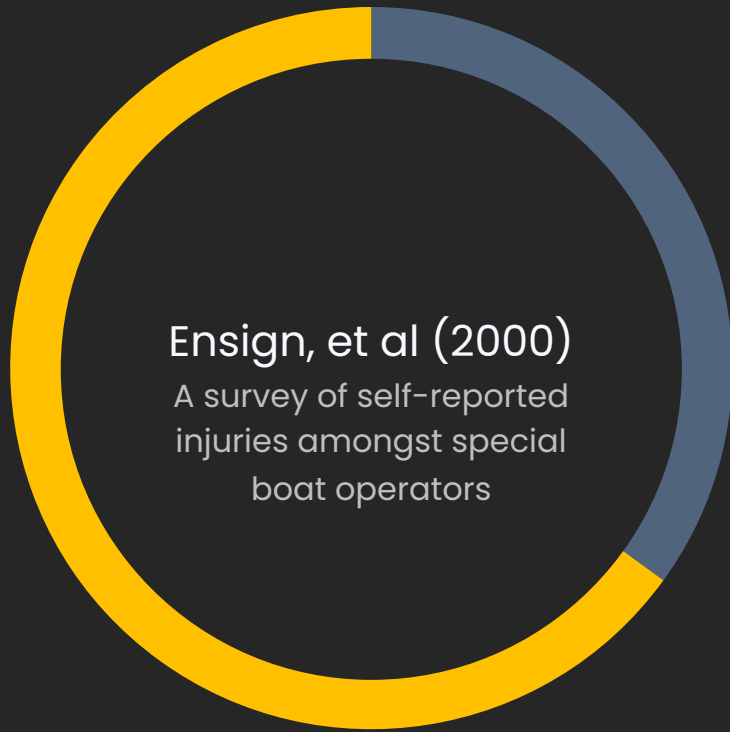
- Salmon Power Sports founded in 1987 by Steve Salmon, providing custom marine hardware and engineering
- System originally designed for use by offshore racers, used by world champion racers such as Steve Curtis MBE
- Soon adopted by Search and Rescue users, including RNLI and several other SAR organisations across Europe
- System in active use for twenty years, some independent stations still using original hardware



# ANTI-SHOCK VARIABLE BALLAST (AVB) SYSTEM



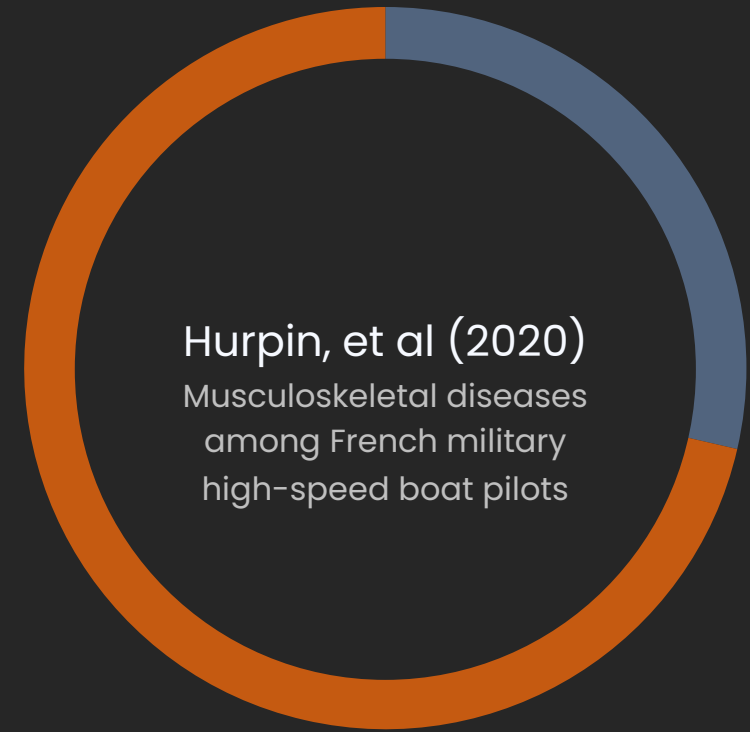
# SELF-REPORTED INJURY RATES



64.9%



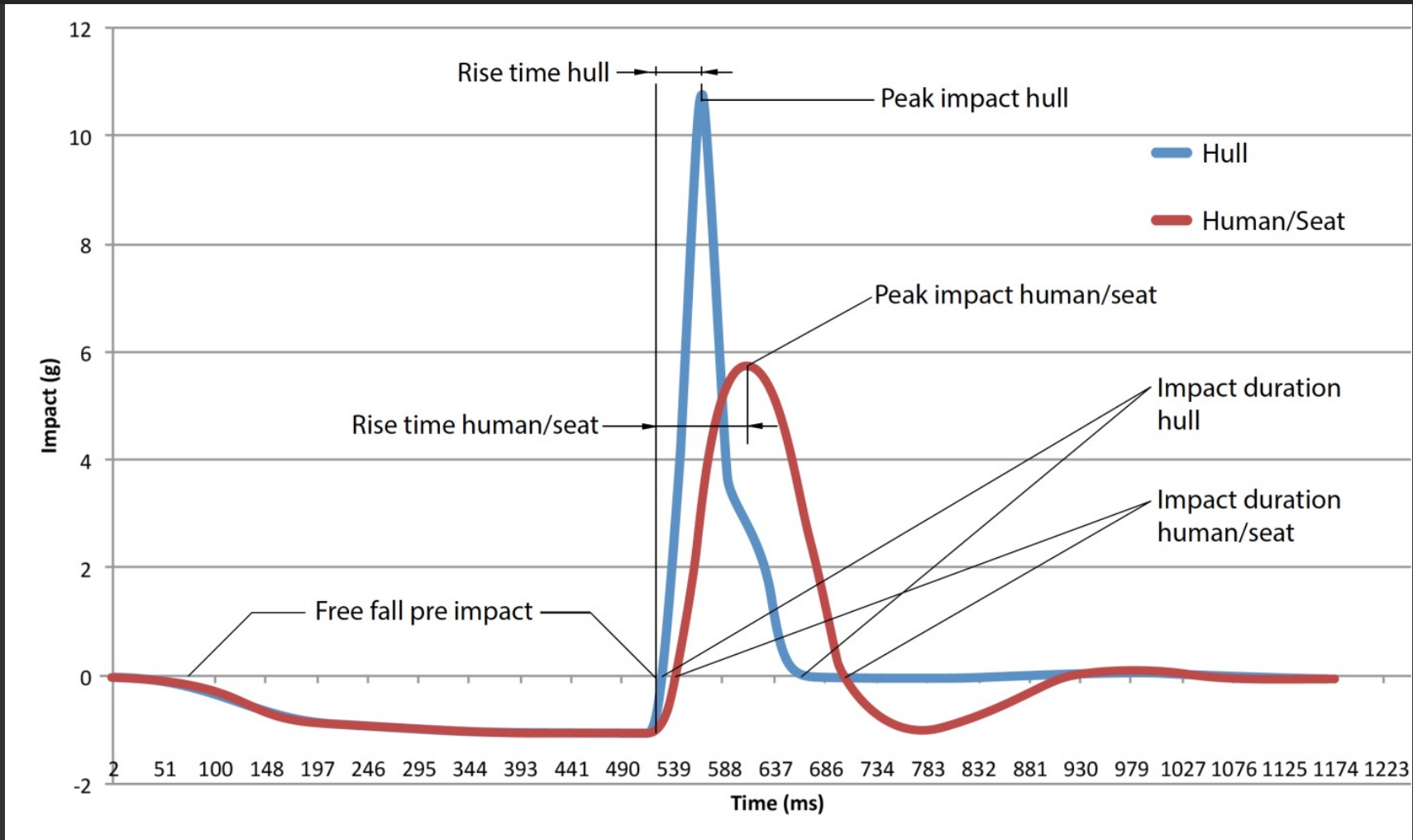
66.7%  
acute



71.4%  
chronic



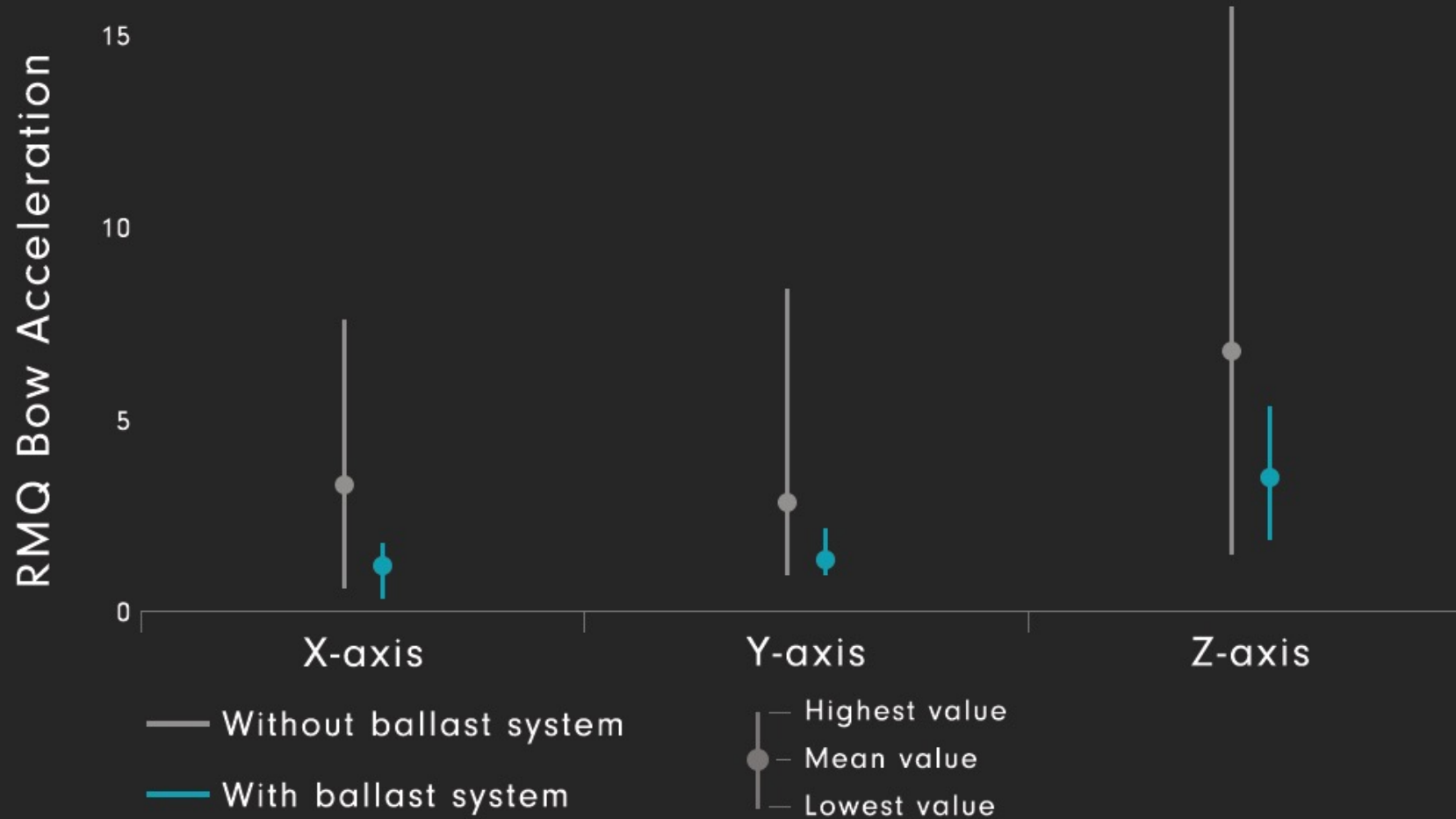
# MOMENT OF PEAK IMPACT



PROACTIVE

REACTIVE

# REDUCED BOW ACCELERATION



*What influences inflatable boat motions?*,  
N.C. Townsend, P.A. Wilson and S.Austen, University of Southampton



# KEY OUTCOMES



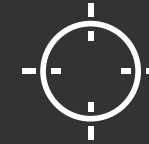
## REDUCE INJURY

Protect crews from injury caused by exposure to RS & WBV



## PROTECT VITAL SYSTEMS

Reduce risk of damage to sensitive equipment and vessel hardware



## IMPROVE PERFORMANCE

Measurable improvement to human performance when not exposed to RS



## SAFETY COMPLIANCY

Demonstrate best practice in protection of occupants of commercial craft



## REDUCE SEAT BOTTOMING

Optimise performance of suspension seating, enabling it to stay within intended travel range



## OPERATIONAL ENVELOPE

Enhanced craft capability means vessel can operate in rougher conditions for longer









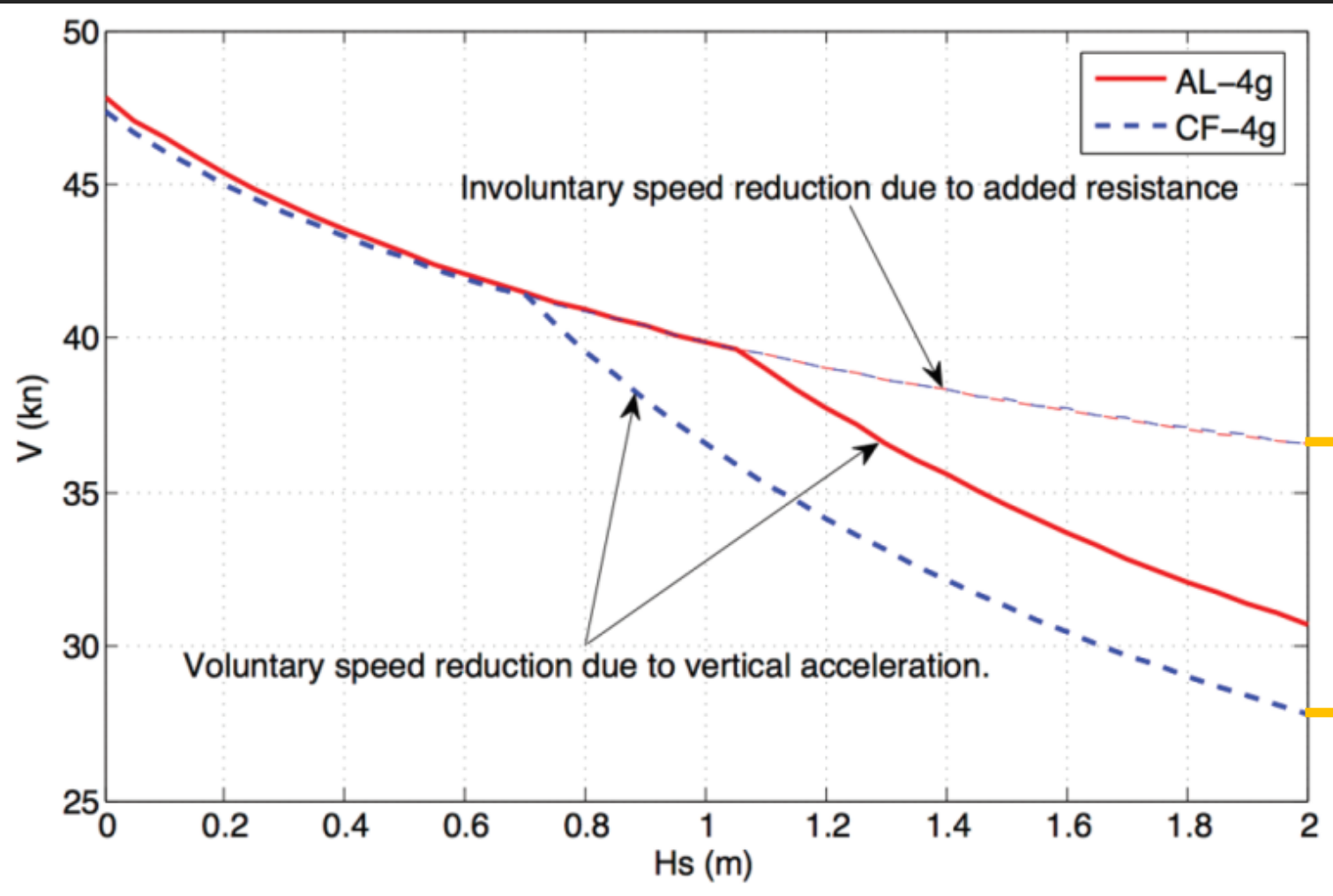






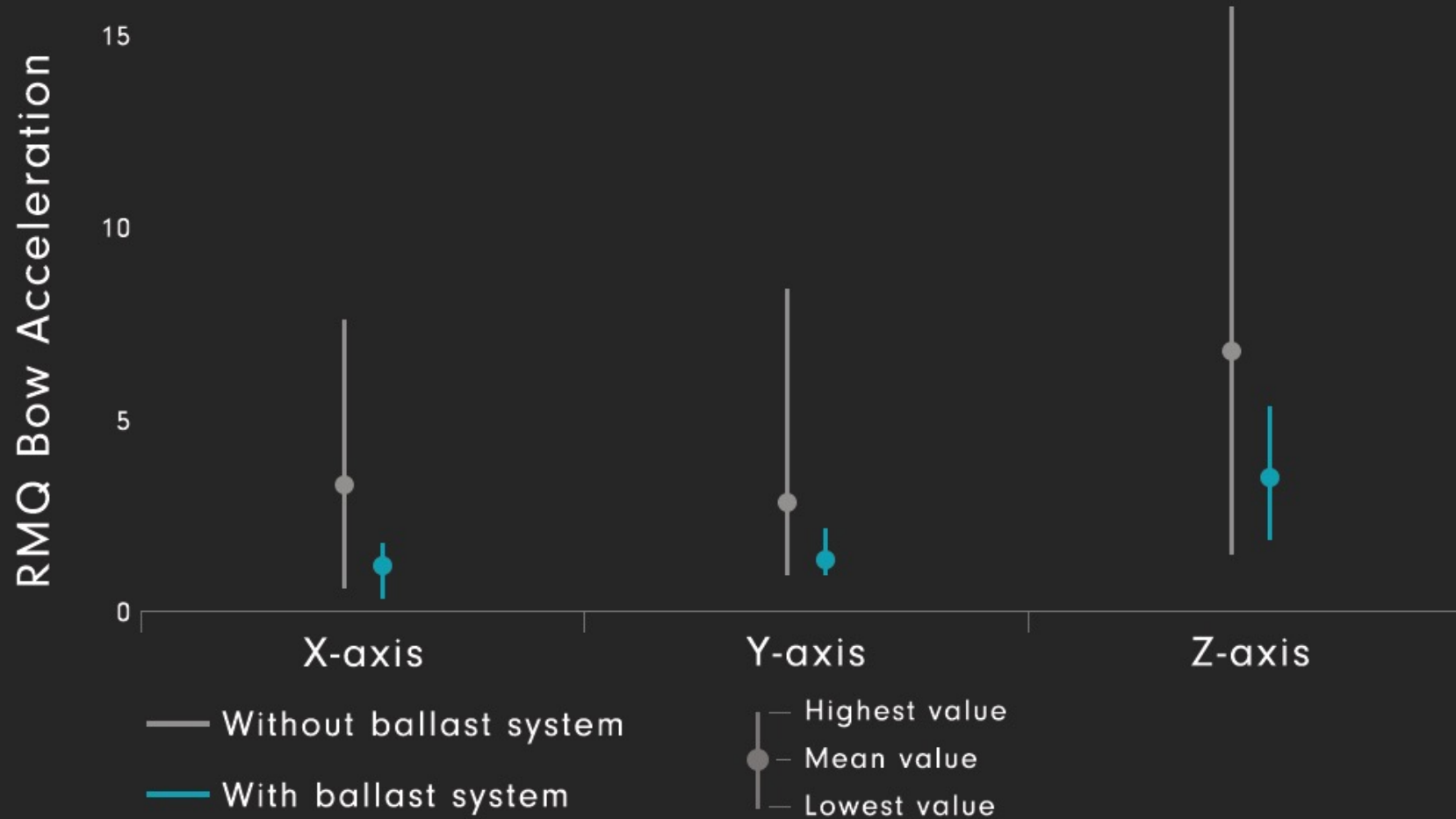


# HUMANS AS LIMITING FACTOR



*Rough water performance of lightweight high-speed craft.*  
Garne, et al. (2012)

# REDUCED BOW ACCELERATION



*What influences inflatable boat motions?*,  
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# salmon

power sports

*“In order to operate safely at high-speed in bad weather, the **RNLI Atlantic** class is fitted with an Anti-shock Variable Ballast (AVB) system, which keeps the bow of the lifeboat down and helps us to punch through the waves.”*

RNLI Training Co-ordinator

*“The ballast system on our **Arctic 24** works flawlessly to provide a stable boat in rough seas, improved boat handling, reduced crew fatigue, and increased comfort.”*

Sidmouth Independent Lifeboat

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