



**Halmatic**

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***HIGH SPEED CRAFT & HUMAN FACTORS  
A HSC Designer & Builder's Perspective***

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HIGH SPEED CRAFT

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## HIGH SPEED CRAFT

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# HIGH SPEED CRAFT



## HIGH SPEED CRAFT

### Different Applications - Common Requirements:

- To go faster
- In higher sea-states
- Carrying more
- Going further
- With increased reliability
- In more comfort
- With greater safety
- Often with weight and dimensional constraints
- Sometimes with additional requirements

## HIGH SPEED CRAFT

Different Applications - Common Requirements -

Typical result:

- The 'Lightship Squeeze':
  - Higher power engines
  - Lighter structures
  - Lighter fit out
- The 'Space Squeeze':
  - Naval Architectural considerations drive boat arrangement
  - Operational requirements get first claim on space

## HIGH SPEED CRAFT DESIGN

Too often Human Factors are considered only late in the design, after the primary operational requirements have been satisfied (ie. with whatever space and weight is left).

What is needed is an integrated approach, where Human Factors are considered from the start of HSC design, and in conjunction with all the other elements

## HIGH SPEED CRAFT & HUMAN FACTORS

### THE QUESTION OF HIGH SPEED

*“After sitting on a jetty all night we went out and did 110nm in Force 6/7 for 8 hours. That’s an average speed of just under 14 knots..... Everyone got off the boats shattered and just lay down to give their bodies a rest”*

*Is that high speed?*

# HIGH SPEED CRAFT & HUMAN FACTORS



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## THE CHOICE OF HULLFORM



# HIGH SPEED CRAFT & HUMAN FACTORS

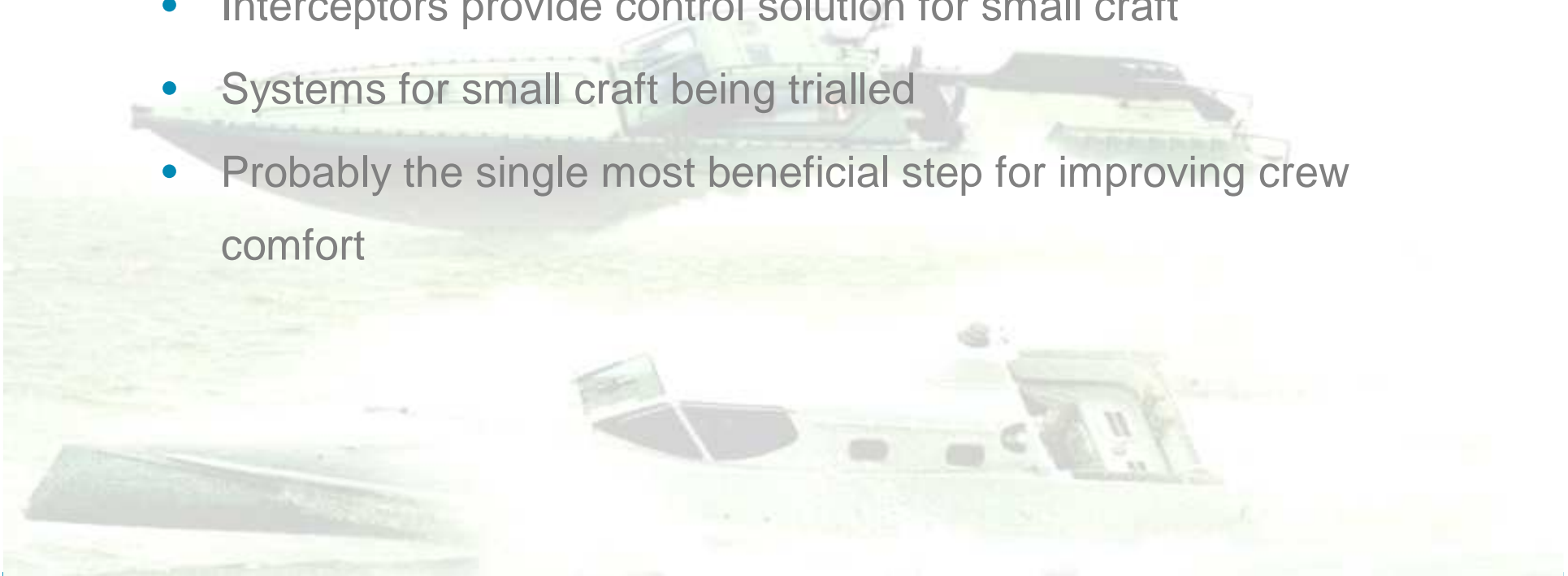
## RESILIENTLY MOUNTED CREW/PASSENGER COMPARTMENT



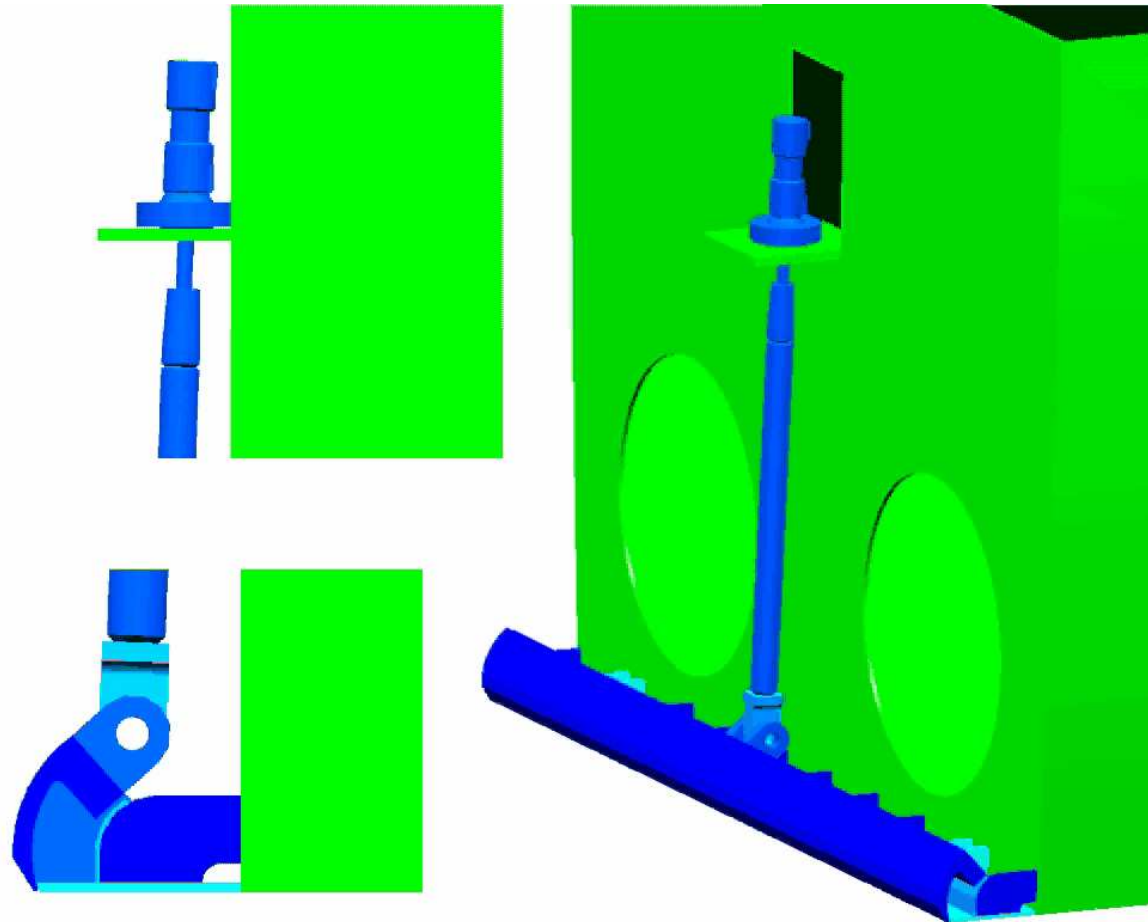
## HIGH SPEED CRAFT & HUMAN FACTORS

### RIDE CONTROL SYSTEMS

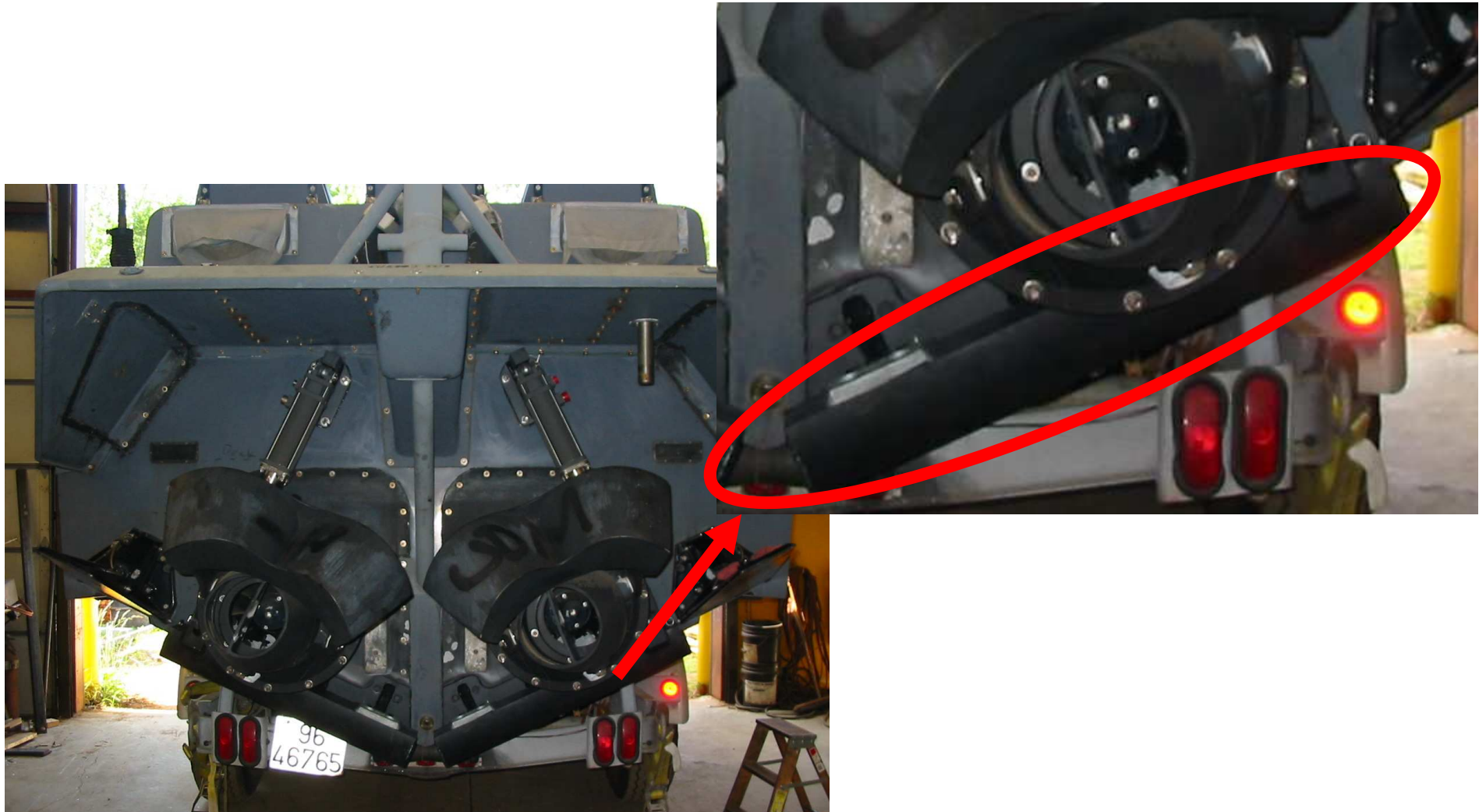
- Well proven on fast ferries
- Interceptors provide control solution for small craft
- Systems for small craft being trialled
- Probably the single most beneficial step for improving crew comfort



# Interceptor Actuation

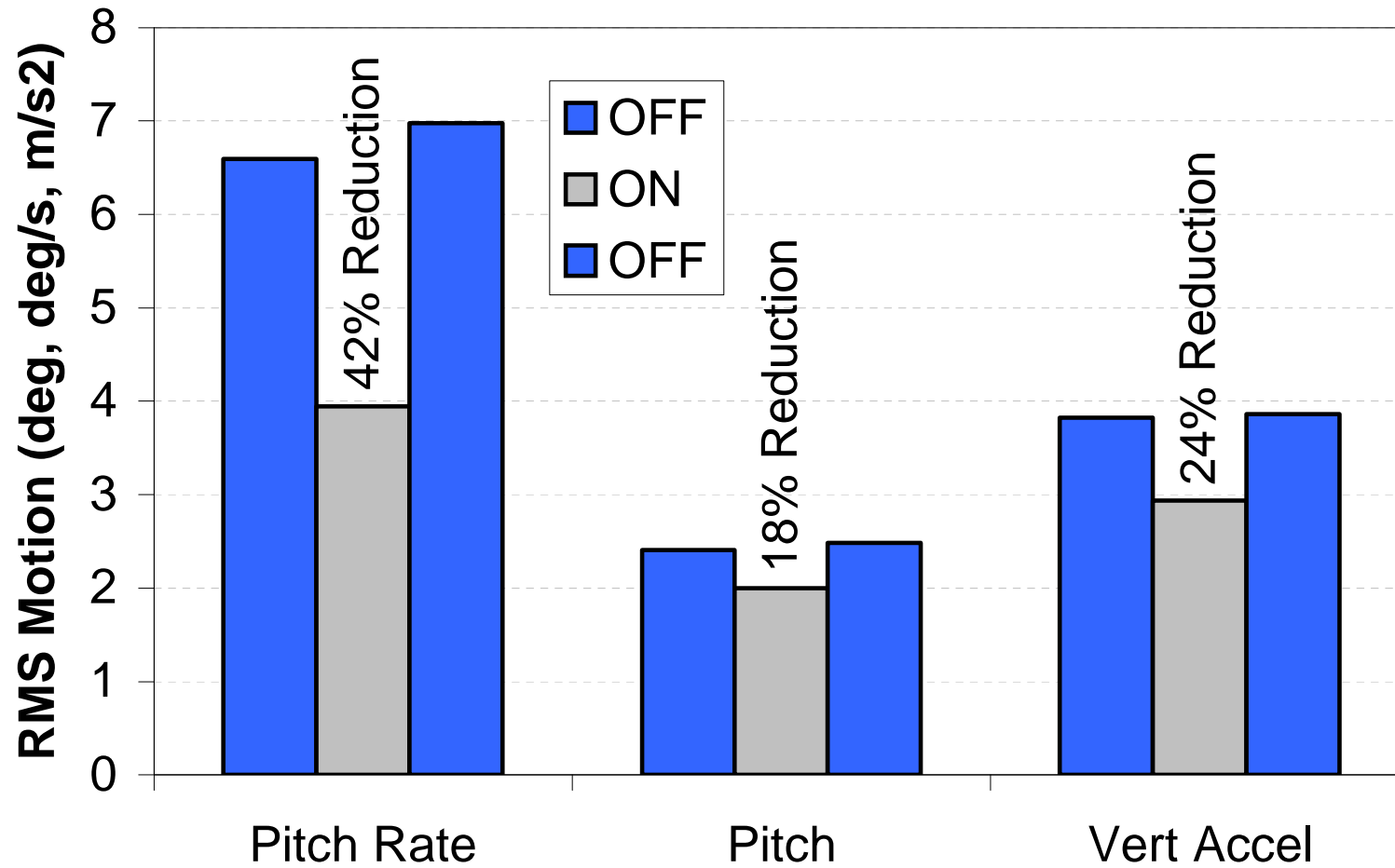


# 11m RIB Installation

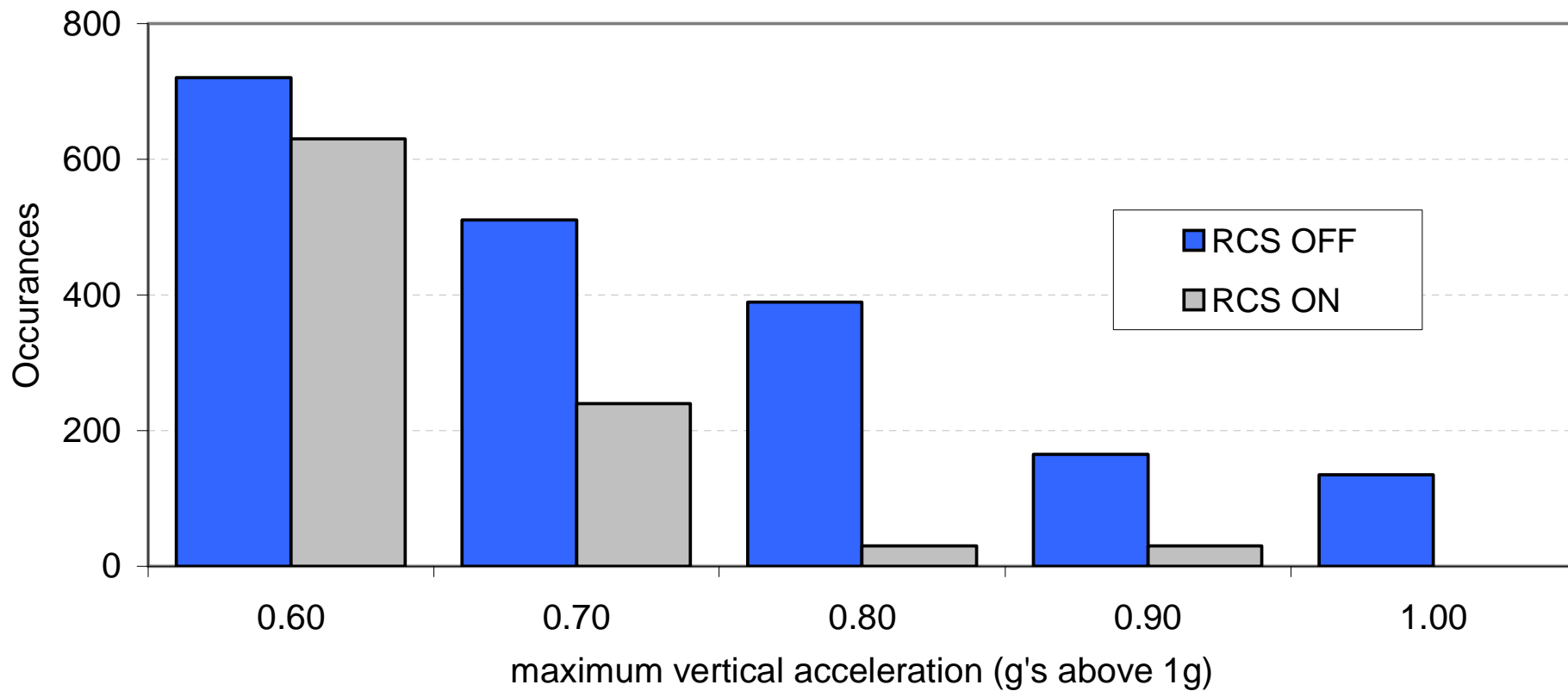


# Vessel Motion Data

(30-33 Kts, bow seas)



# Impact Data (30-33 Kts, bow seas)



## HIGH SPEED CRAFT & HUMAN FACTORS

### SUMMARY

The Challenge for Designers & Builders:

- To develop light weight, but robust solutions for HSC design and manufacture
- To develop higher power/weight engines and more efficient propulsion systems
- To work with other disciplines to incorporate Human Factors solutions into HSC designs
- To develop an integrated approach to design for Human Factors in HSC

## HIGH SPEED CRAFT & HUMAN FACTORS

### SUMMARY

The Challenge for Operators and Customers:

- To recognise the interdependencies and constraints within HSC design
- To recognise that there are trade-offs
- To stress Human Factors as a higher priority within new HSC Statements of Requirements
- To be absolutely clear about what it is you want, and what you want to do