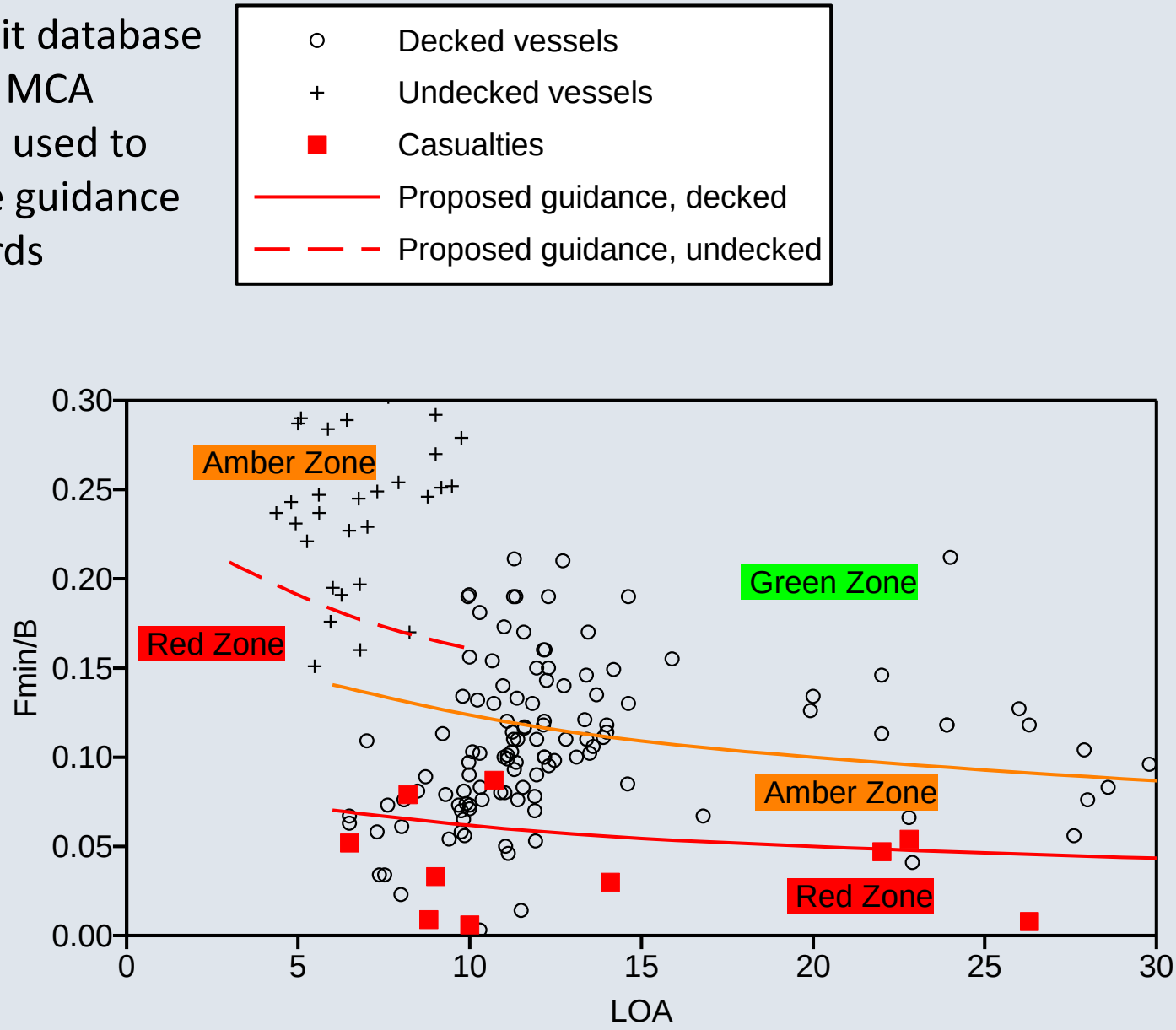
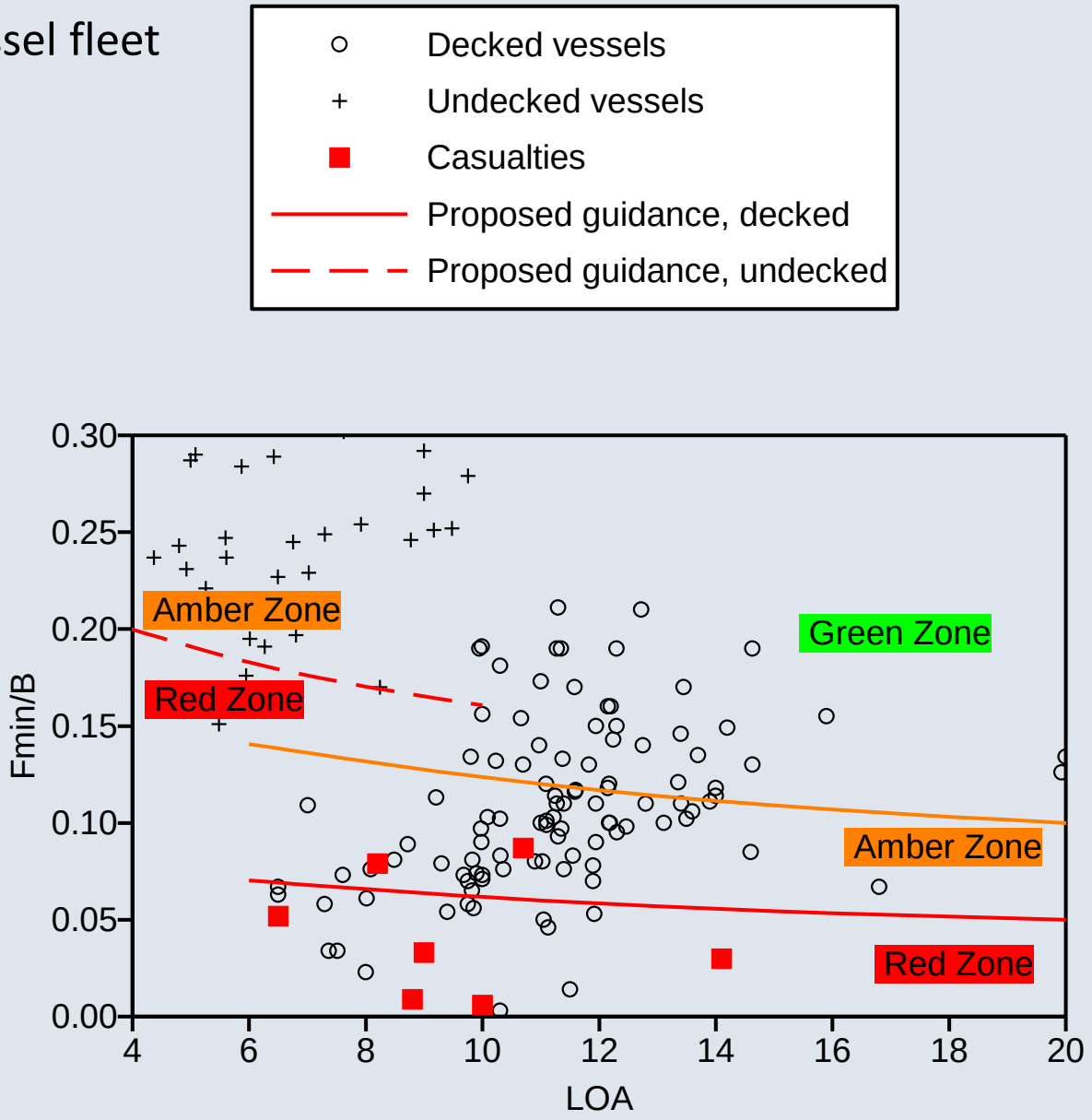
Freeboard Guidance.

What does it mean?

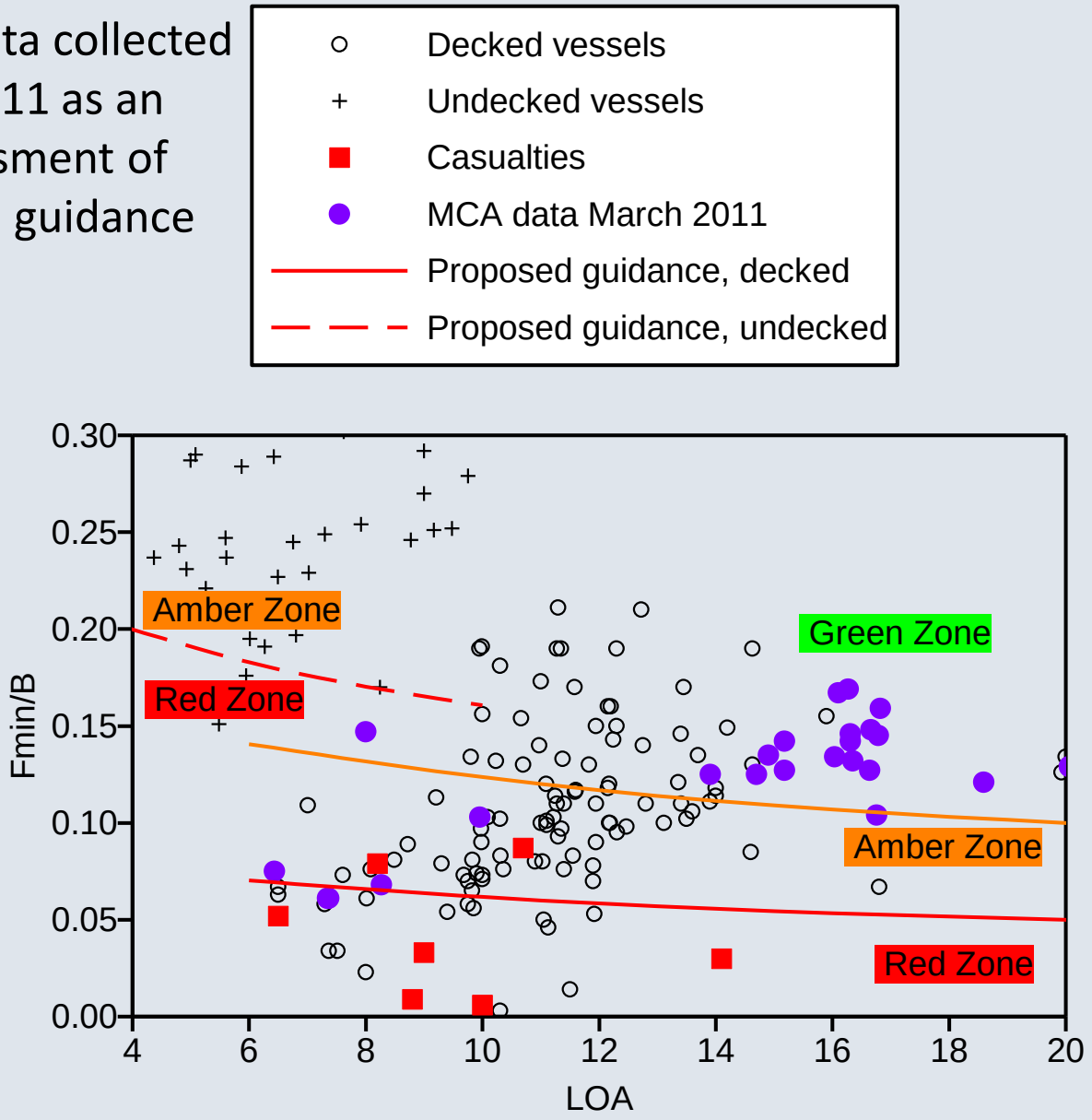
Wolfson Unit database collated for MCA in 2005 and used to develop the guidance on freeboards



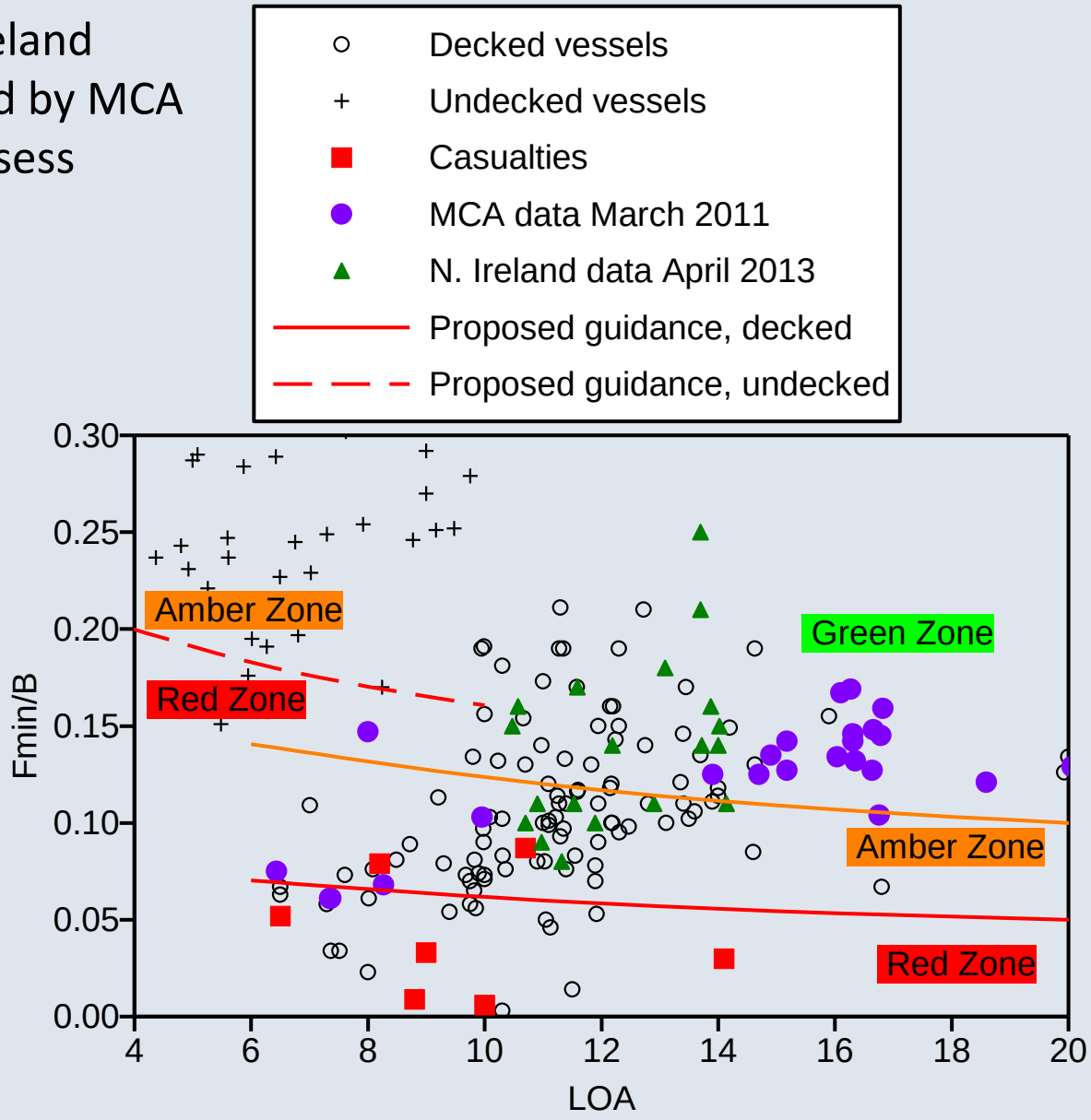
The small vessel fleet



Additional data collected by MCA in 2011 as an impact assessment of the proposed guidance



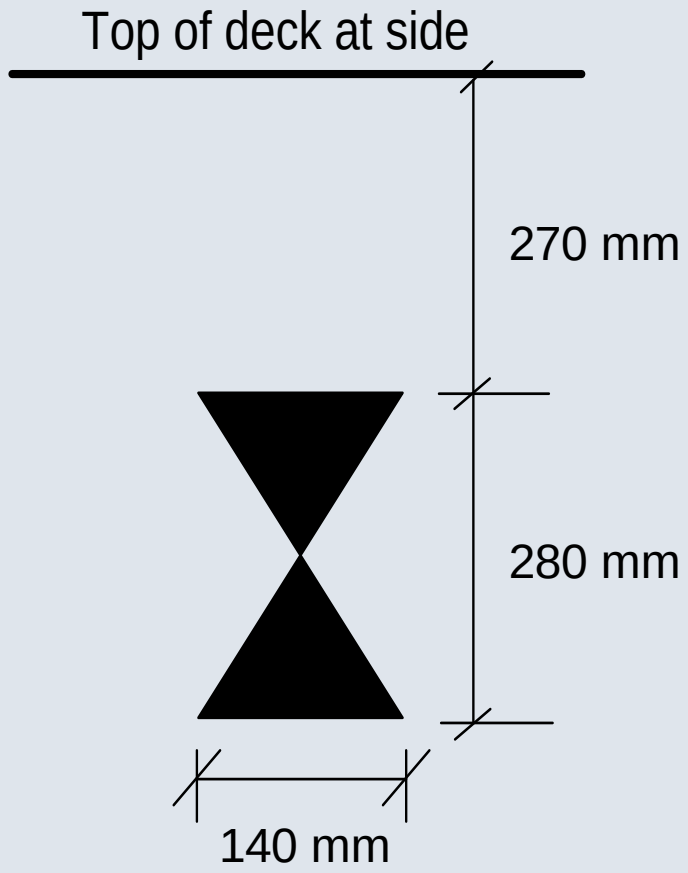
Further N. Ireland data gathered by MCA In 2013 to assess MGN 427



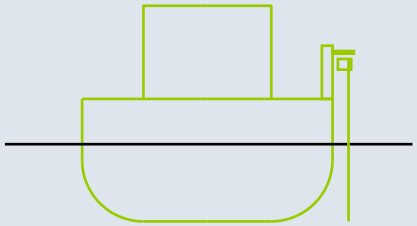
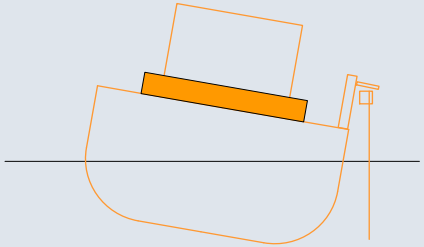
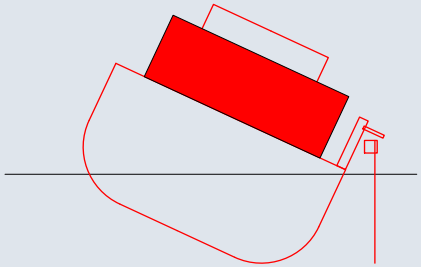
Aleyna - capsized in November 2008 when trawl came fast in strong tide
Length 14m, Beam 4.9m

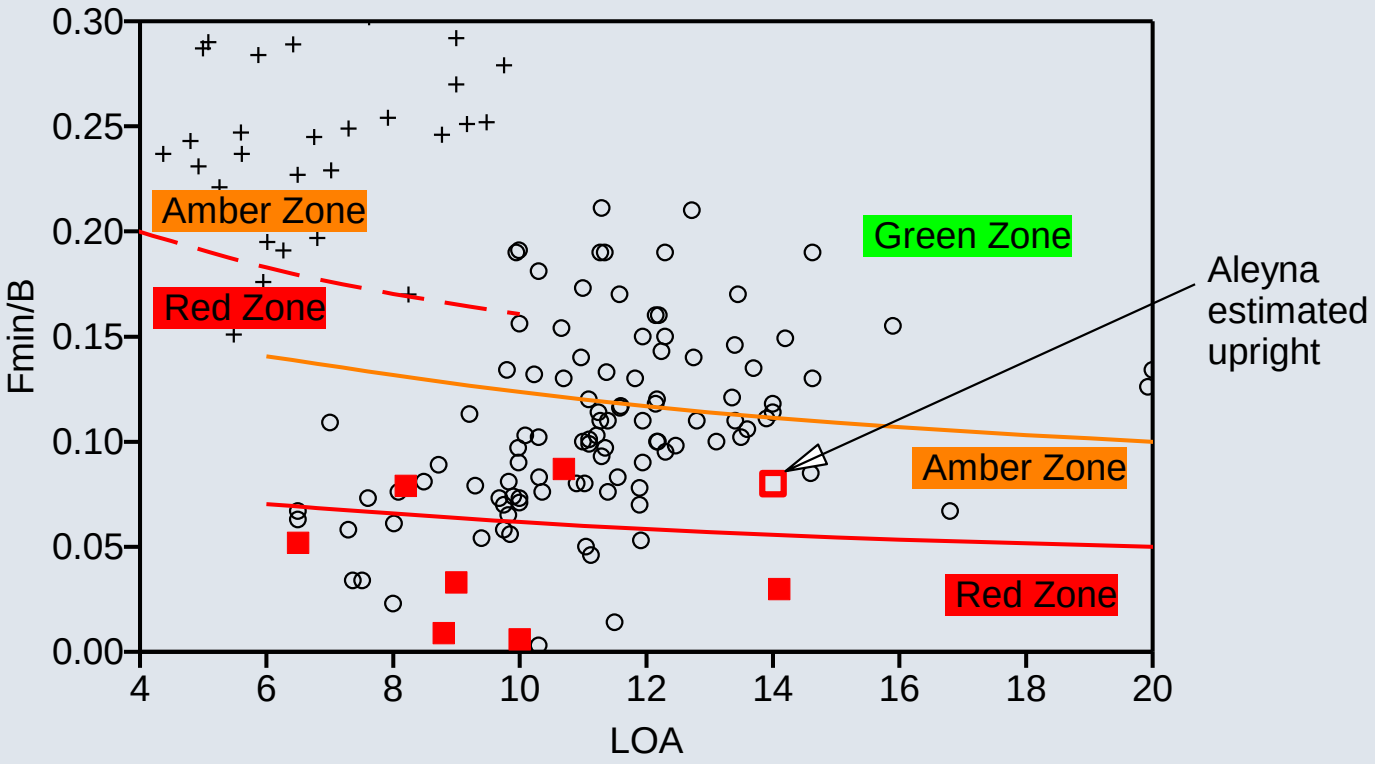
Proposed safety guidance suggests danger of capsize if freeboard less than 27cm

Freeboard Guidance Mark - size and location



STABILITY NOTICE

Name **Aleyna** No. **NN138** Owner **Mr Lucky** Length **14 metres** Beam **4.9 metres**	**Loading & Lifting Guidance**	**Safety Zone**	**Minimum Freeboard**	**Maximum Recommended Seastate**
	Good margin of residual freeboard	**Good margin of safety**	At least 55 cm	
	Loading or lifting reduces minimum freeboard to less than 55 cm	**Low level of safety**	27 to 55 cm	1.6 metres
	Excessive loading or lifting reduces minimum freeboard to less than 27 cm	**Danger of capsize**	Less than 27 cm	0.8 metres


Decked vessels
Undecked vessels
Casualties
Proposed guidance, decked
Proposed guidance, undecked
Amber Zone
Red Zone
Green Zone
Amber Zone
Red Zone
Aleyna
estimated
upright
Fmin/B
LOA
0.30
0.25
0.20
0.15
0.10
0.05
0.00
4
6
8
10
12
14
16
18
20

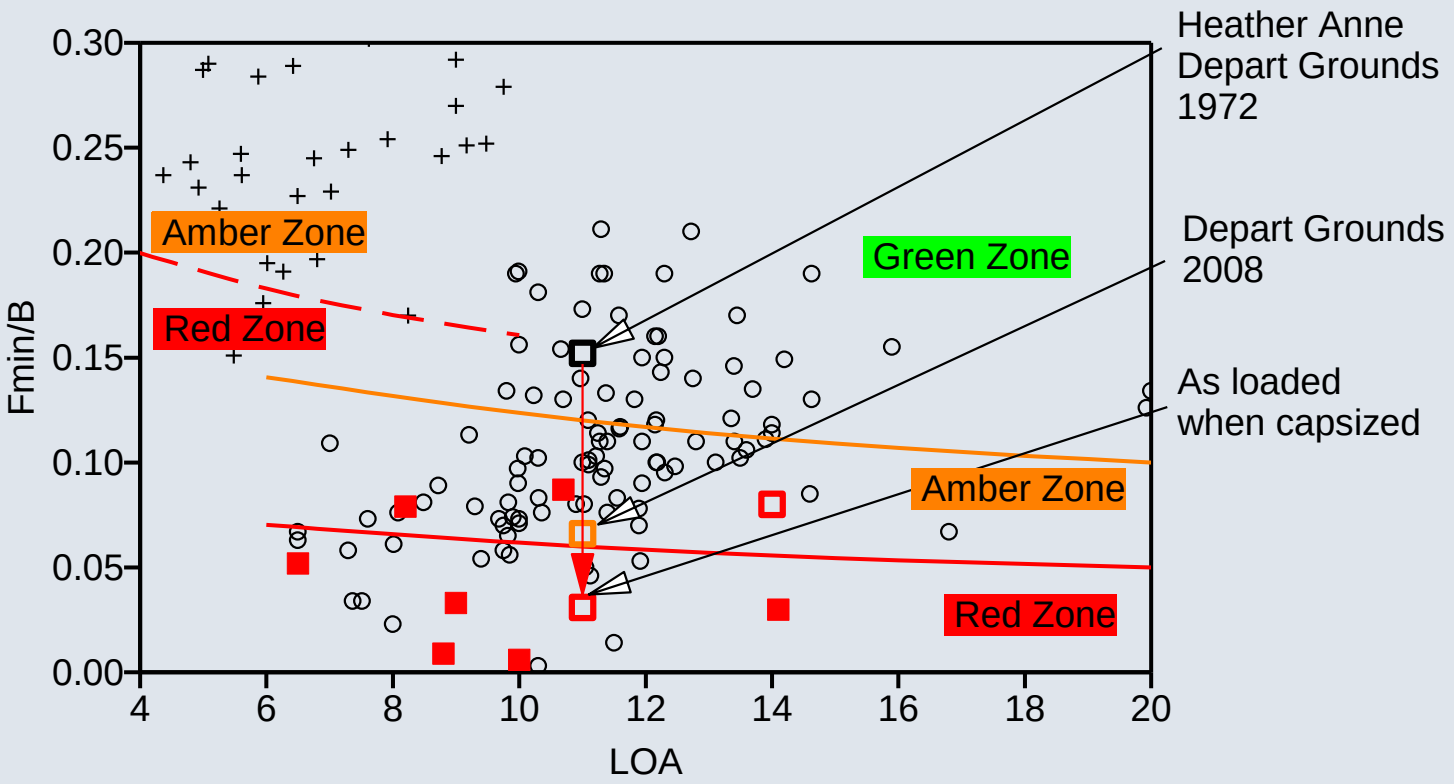
Aleyna

Very low freeboard - Amber safety zone in normal operation when upright

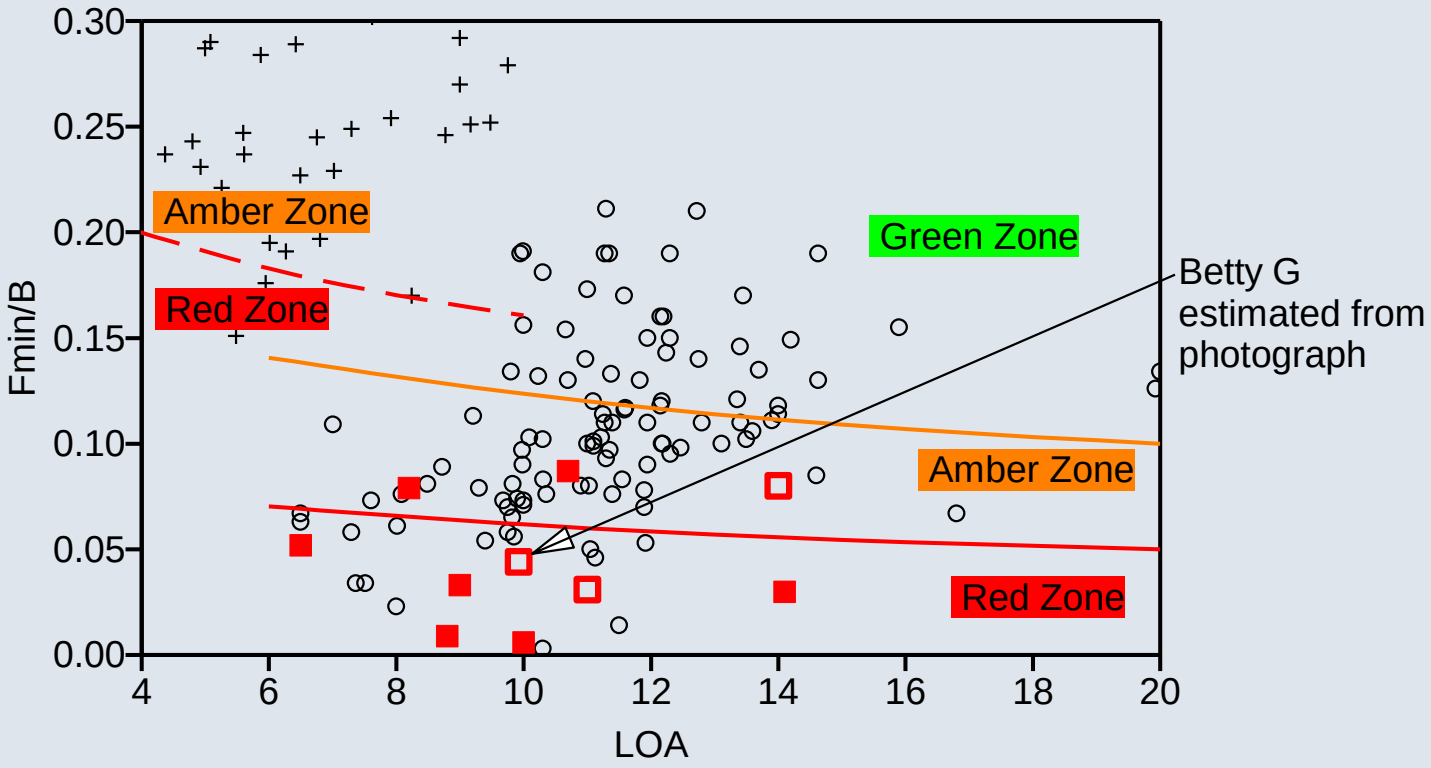
No margin for lifting - Any significant lift reduced freeboard to Red danger zone

Freeboard Guidance refers to the ***residual operational*** freeboard

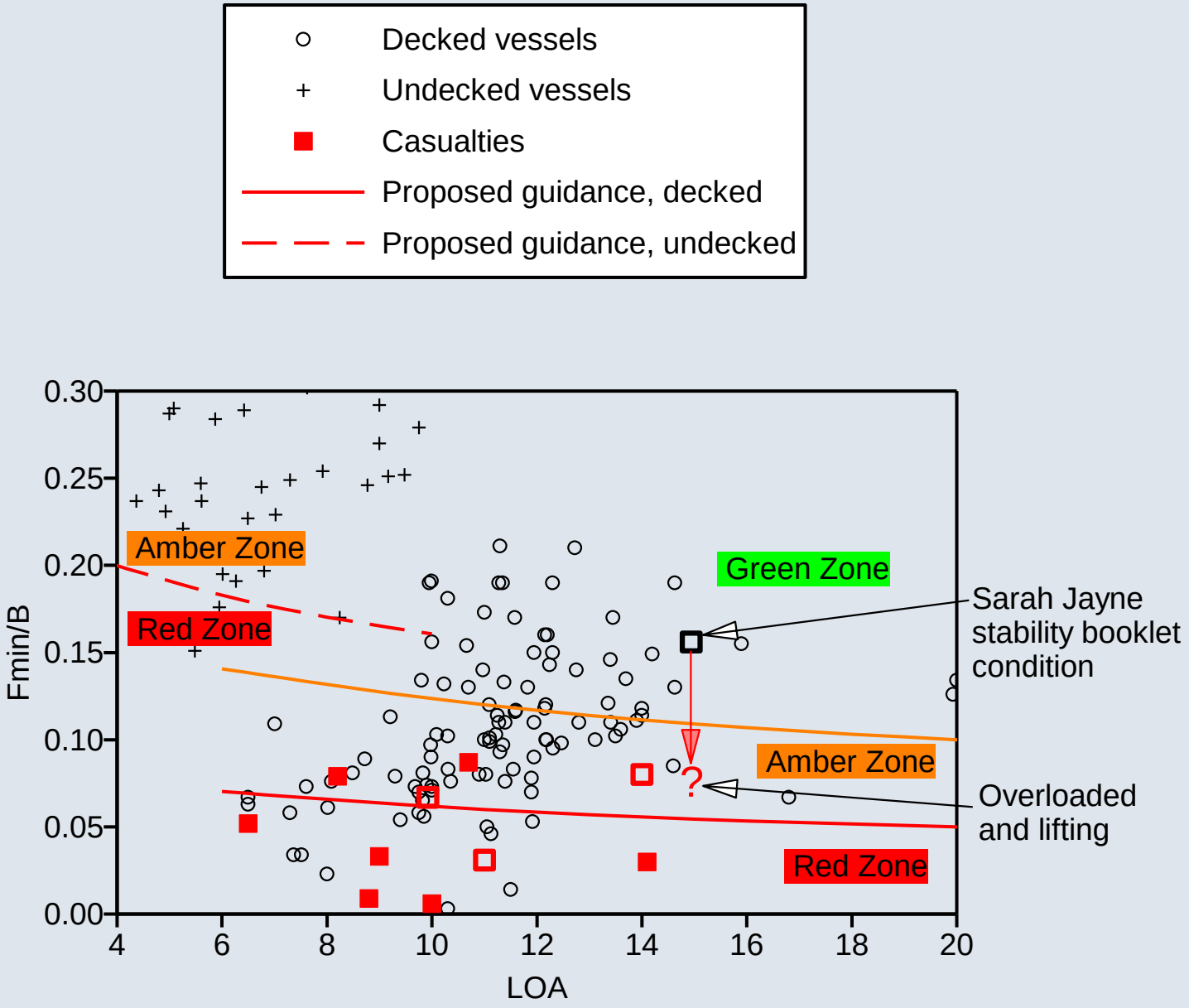
Heather Anne - Capsized in December 2011 while overloaded


Decked vessels
Undecked vessels
Casualties
Proposed guidance, decked
Proposed guidance, undecked
Heather Anne
Depart Grounds
1972
Depart Grounds
2008
As loaded
when capsized
Amber Zone
Red Zone
Green Zone
Amber Zone
Red Zone
Fmin/B
LOA
0.30
0.25
0.20
0.15
0.10
0.05
0.00
4
6
8
10
12
14
16
18
20

Betty G – Capsized in July 2012 when beam trawls were heavily loaded and one suddenly released


Decked vessels
Undecked vessels
Casualties
Proposed guidance, decked
Proposed guidance, undecked
Fmin/B
0.30
0.25
0.20
0.15
0.10
0.05
0.00
4
6
8
10
12
14
16
18
20
LOA
Amber Zone
Red Zone
Green Zone
Amber Zone
Red Zone
Betty G
estimated from
photograph

Sarah Jayne – Capsized in September 2012 when overloaded and lifting


Decked vessels
Undecked vessels
Casualties
Proposed guidance, decked
Proposed guidance, undecked
Fmin/B
0.30
0.25
0.20
0.15
0.10
0.05
0.00
4
6
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12
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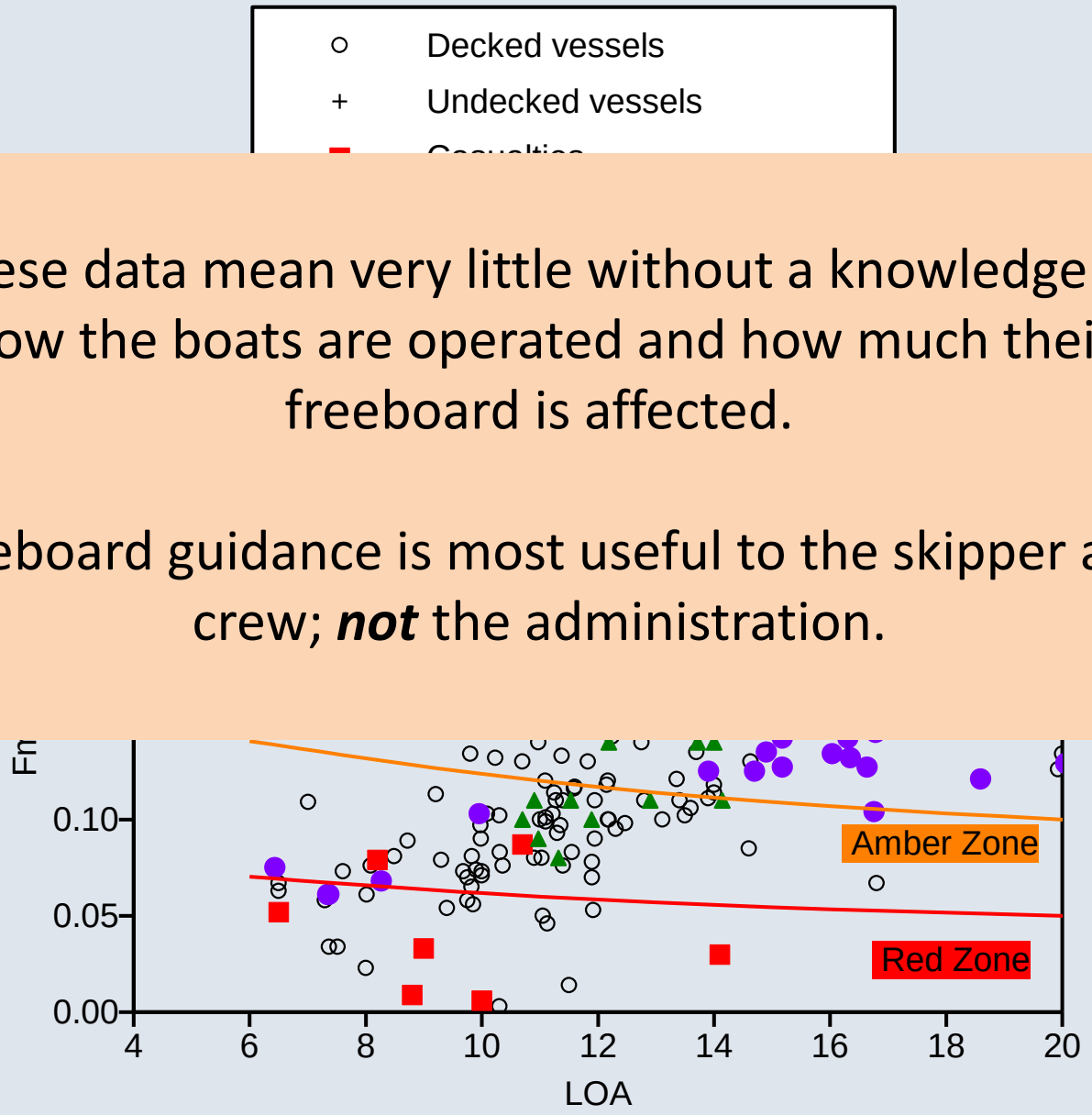
16
18
20
LOA
Amber Zone
Red Zone
Green Zone
Amber Zone
Red Zone
?
Sarah Jayne
stability booklet
condition
Overloaded
and lifting



These data mean very little without a knowledge of how the boats are operated and how much their freeboard is affected.

Freeboard guidance is most useful to the skipper and crew; ***not*** the administration.

Freeboard guidance gives meaningful information to the fishermen.

It should ***not*** give naval architects, insurers or regulators something to hide behind.

Why freeboard?

The most useful measure of vulnerability to capsize is range

Residual range

The second most important parameter is righting moment

Residual righting moment

Both are provided by freeboard

Residual freeboard

Why not GM?

High GM may provide a high righting moment

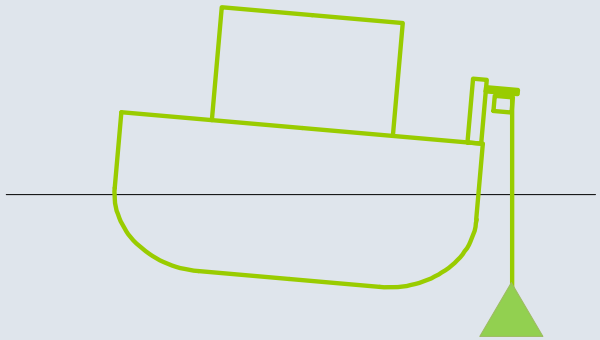
BUT

Often associated with wide beam:
low range,
low angle of maximum GZ,
low angle of deck edge immersion,
low resistance to capsize in waves

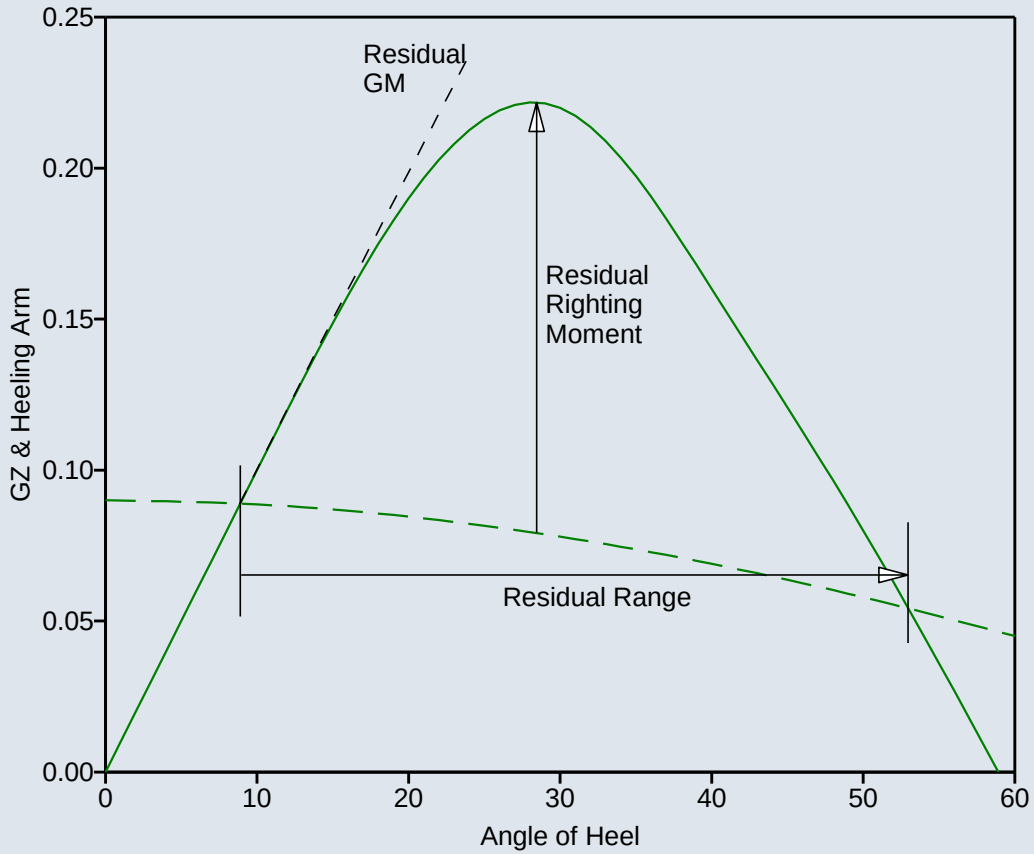
Many casualties had high values of GM

Normal operation, lifting gear

GM:	good
Freeboard:	good
Range:	> 40 degrees
RMmax:	0.14

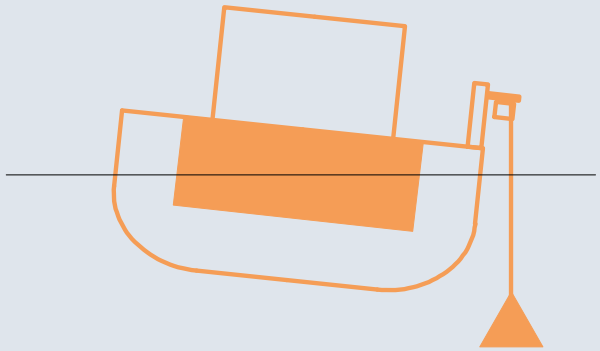


Freeboard mark exposed

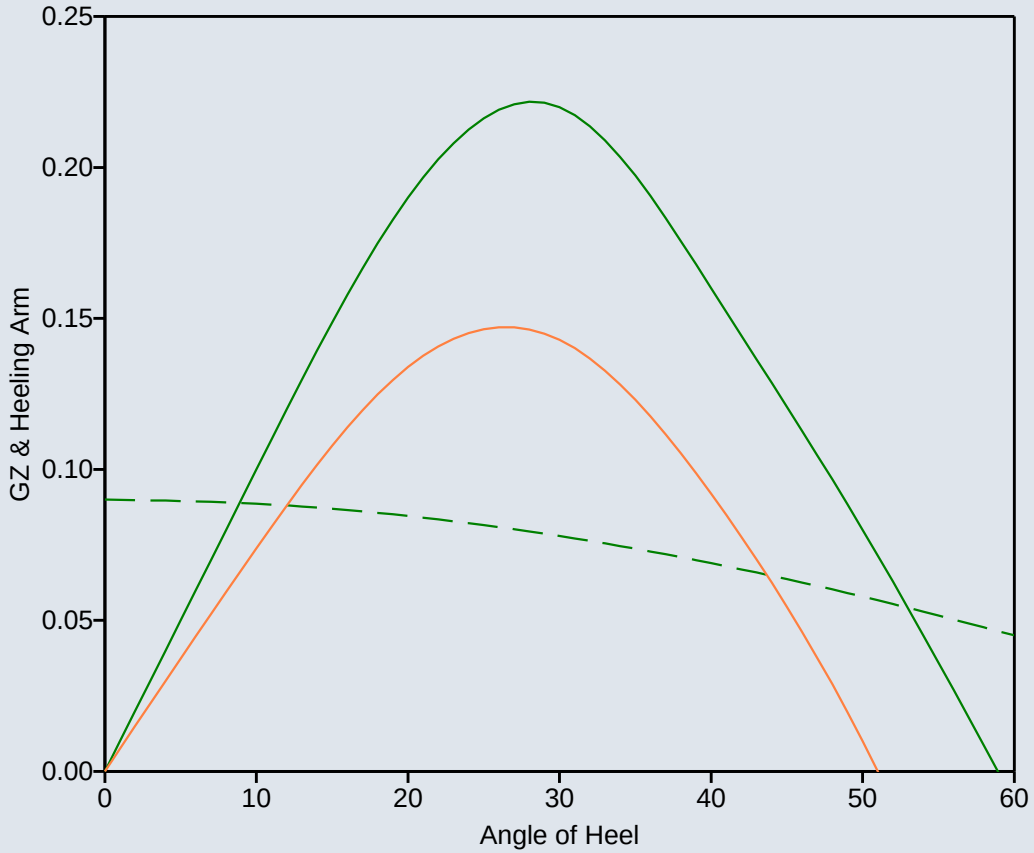


Vessel overloaded, lifting gear

GM:	good
Freeboard:	reduced
Range:	31 degrees
RMmax:	0.06

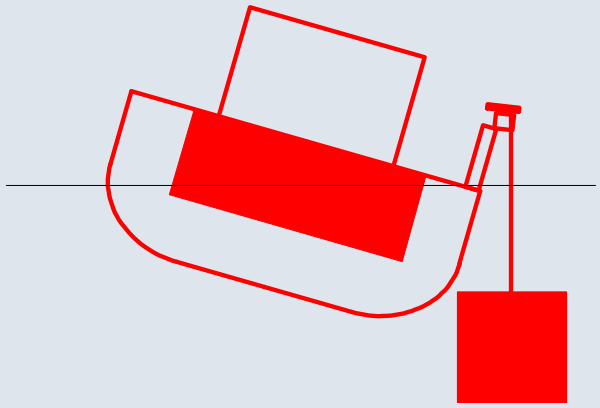


Freeboard mark at waterline

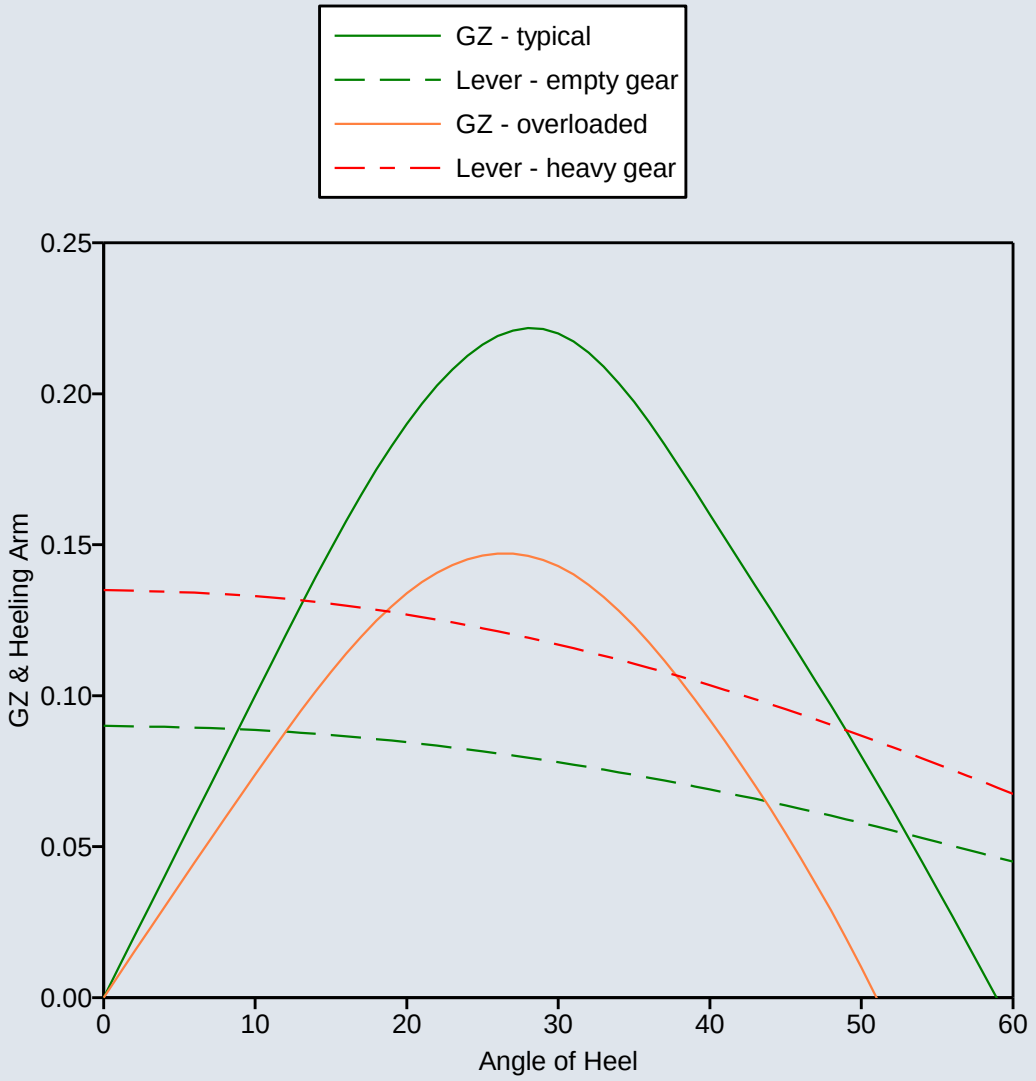


Vessel overloaded & heavy lift

GM:	adequate
Freeboard:	none
Range:	19 degrees
RMmax:	0.027



Freeboard mark submerged



If you can maintain some freeboard
You are probably safe

But you need to know ***how*** safe relative to the seastate

You need ***Freeboard Guidance***

STABILITY NOTICE				
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