

Week 19



Stability

Safety at Sea 1



Recreational Craft Directive (RCD)

- The Recreational Craft Directive is an EU directive.
- New boats built for sale in, or imported into the EU have to be surveyed and are then marked with carrying capacity and intended area of use.
- Surveying for the RCD includes a measurement of stability.



Post Brexit

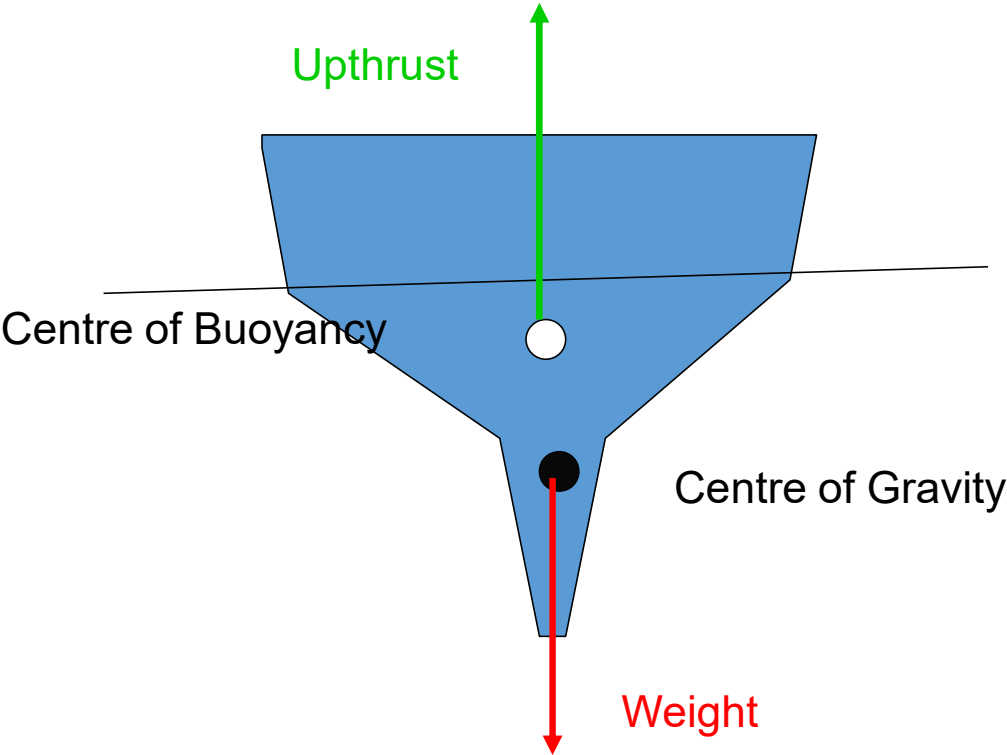
Statutory guidance

Recreational Craft Regulations 2017: Great Britain

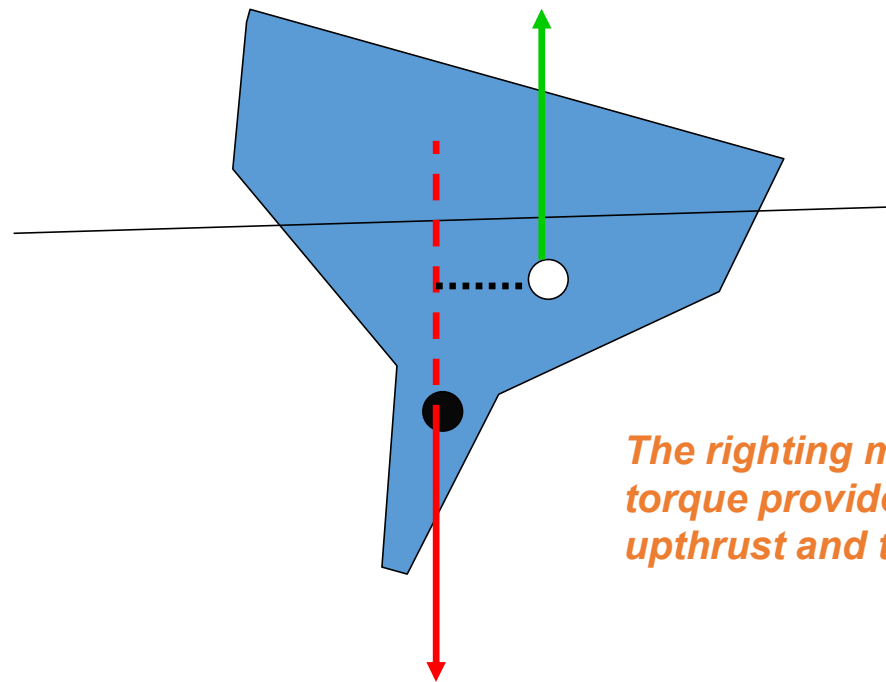
Updated 7 November 2023



The Mechanics



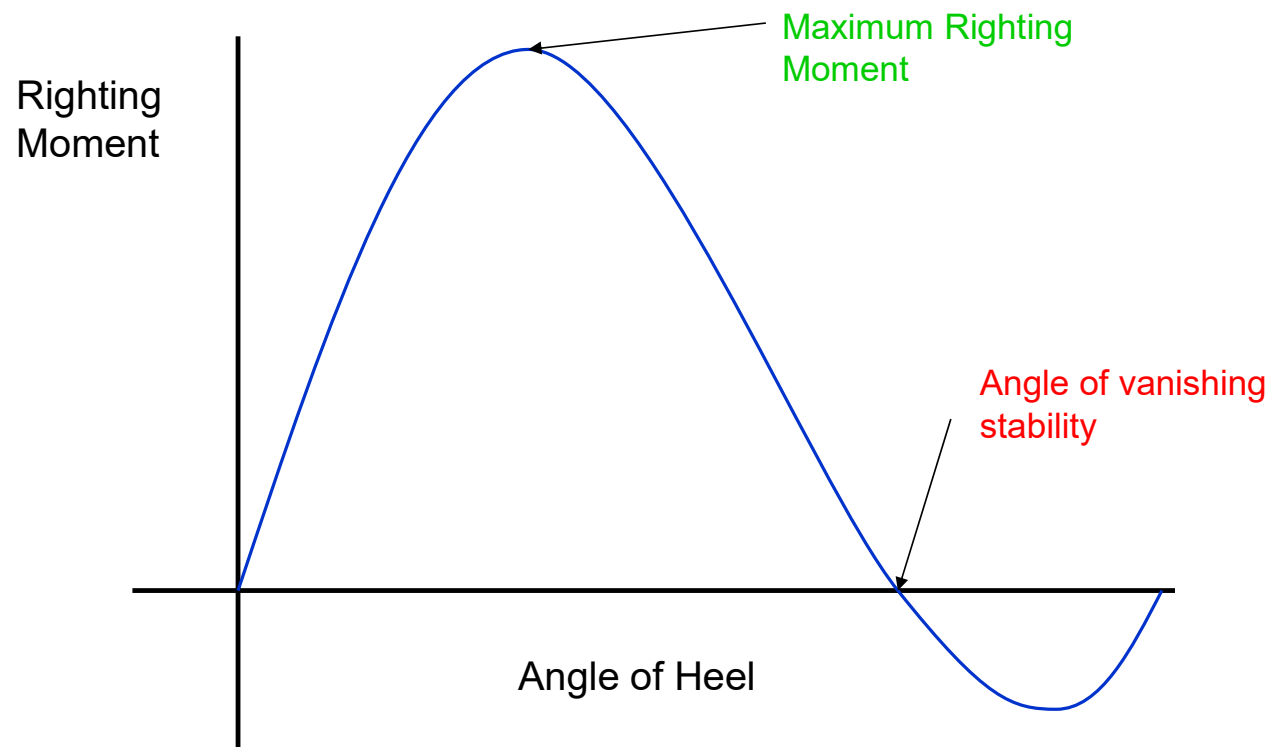
Righting Moment



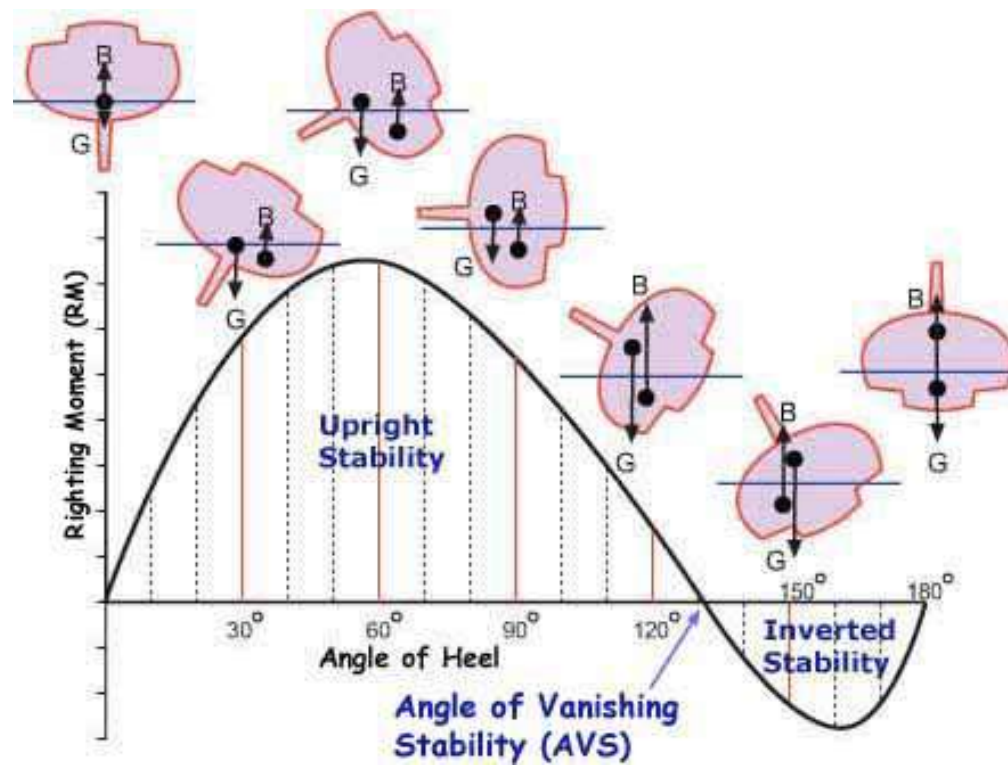
The righting moment is the torque provided by the upthrust and the weight.



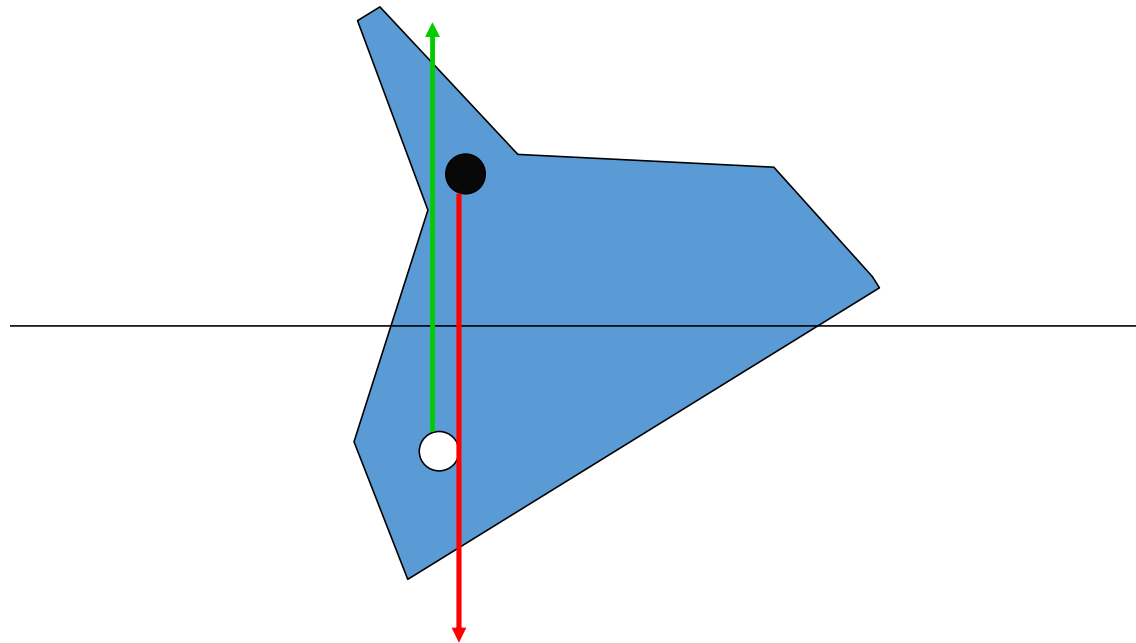
Righting Moment or G-Z Curve



G-Z Curve

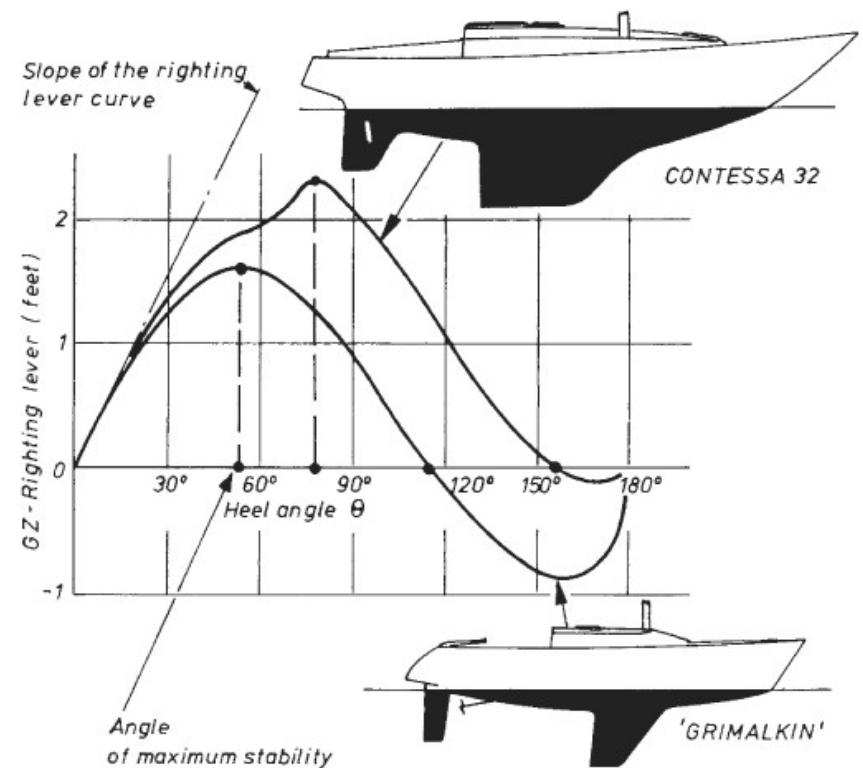


Inversion

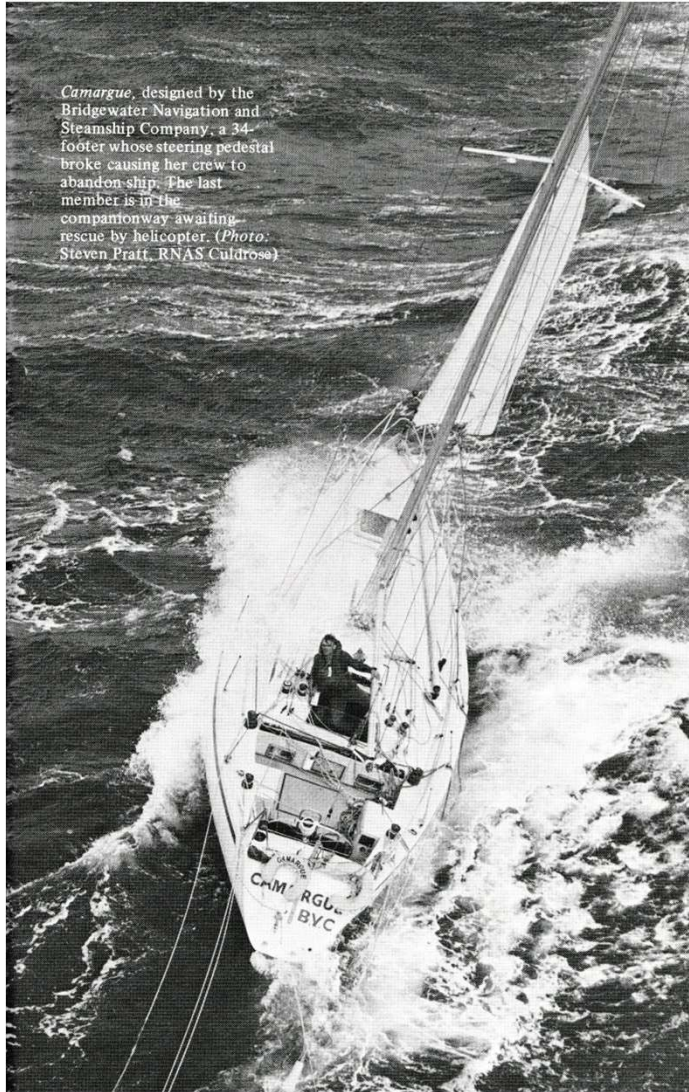


Fastnet 79

- “Assent”
 - Contessa 32, one of the smallest boats
 - completed the course –only boat to finish in ClassV
- “Grimalkin”
 - IOR Half Ton boat typical of the time
 - 5 knockdowns and 2 capsizes
 - 2 crew lost
 - Hull remained afloat and was recovered



Camargue, designed by the Bridgewater Navigation and Steamship Company, a 34-footer whose steering pedestal broke causing her crew to abandon ship. The last member is in the companionway awaiting rescue by helicopter. (Photo: Steven Pratt, RNAS Culdrose)



Changing Stability

- Any weight added above the centre of gravity will reduce the stability of the vessel.
- For the same weight, the further that it is placed from the CG, the greater the reduction in stability.



Examples

- Radar aerials
- Jib furling equipment
- In mast furling equipment



Greatest Danger

Breaking Waves!



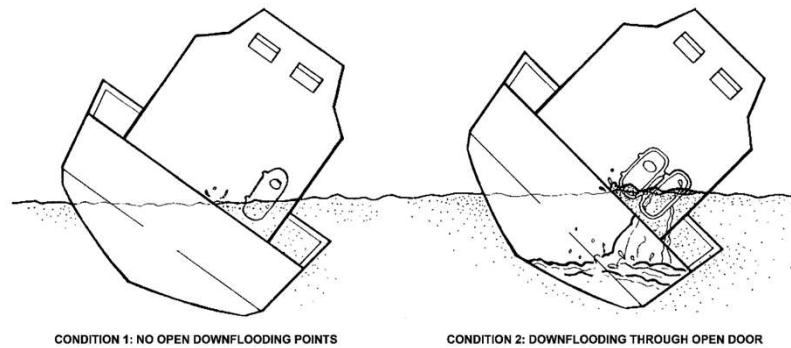


Classic Boat
Magazine

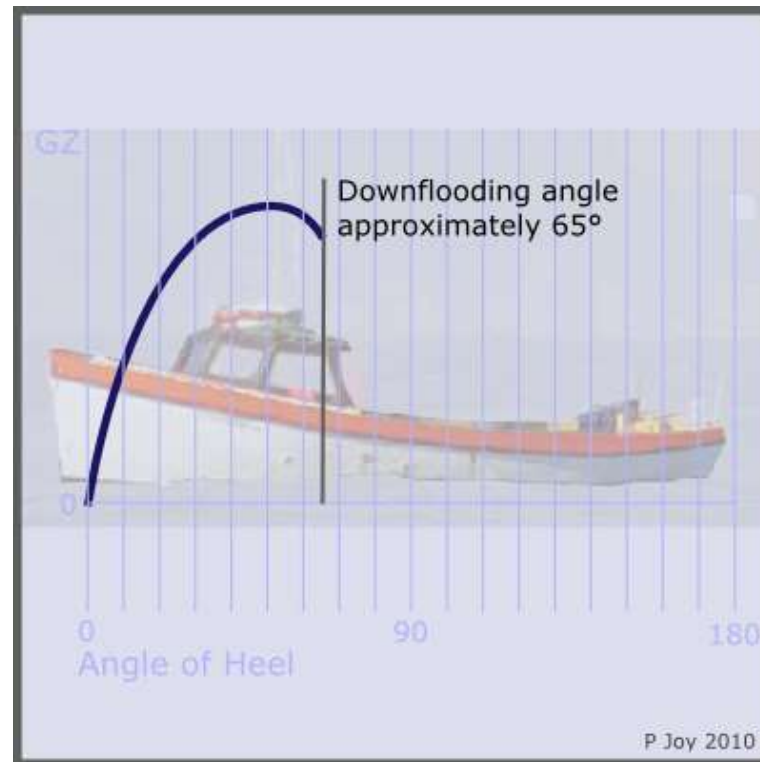


Down flooding

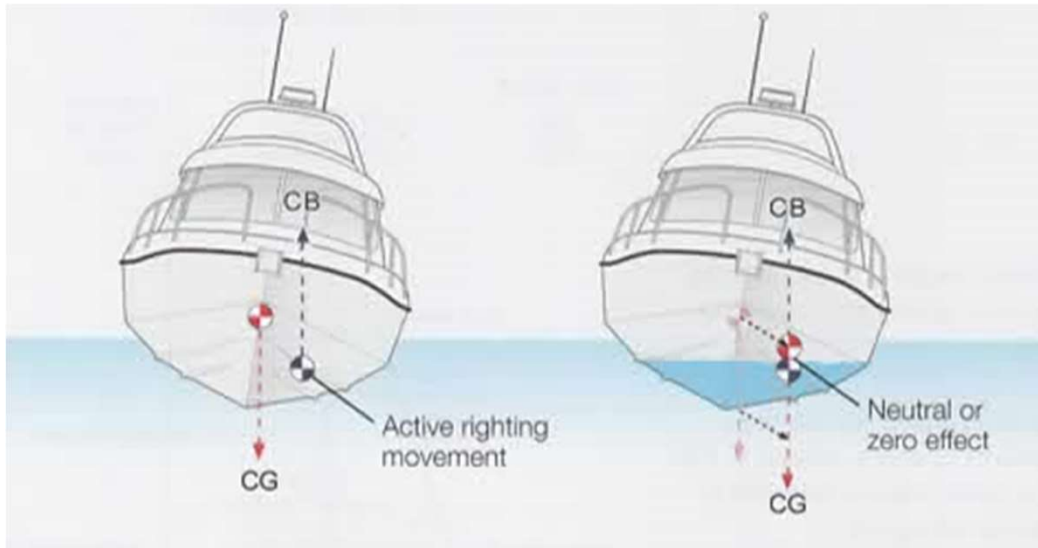
- Taking on water causes a reduction in stability by reducing the buoyancy (upthrust).



Down Flooding



Free Surface Area



Crew Briefing

Safety at Sea 2



Safety Briefing Checklist

Down below:

- Lifejackets and harnesses – fitting, when to wear, clipping on
- Gas – risks, precautions, gas bottles and taps
- Fire prevention – extinguishers, fire blanket, where and how to use
- Moving around – companionway, handholds, galley safety
- Heads – how to use
- Seacocks – location of
- Hatches – opening and closing, risks
- VHF – how to use
- Engine – basic operation
- Batteries – location



On Deck:

- Hazards – boom, tripping, slipping, hatches
- Clipping on – jackstays
- Heaving line
- Engine controls
- Instruments
- Lockers – contents
- Winches and clutches – safe operation
- Anchor – safe operation



Emergency:

- First aid – kit location
- MOB – equipment – throwing line, horseshoe buoy, Dan buoy
- Flares – where, when and how to use
- VHF – emergency procedure
- EPIRB – how to activate
- Liferaft – where, when and how to launch
- Grab bag – where, contents
- Steering failure – emergency tiller, where and how
- Flooding – seacock failure, plugs. Bilge pumps. Bailing



Welfare:

- Seasickness – what to do, how to avoid
- Food and drink – use of galley
- Kit – stowage
- “One hand for you – the other for the boat!”
- Concerns

