Offshore Racing Congress

Submission to WS Offshore & Oceanic Comm. 2023

Is RORC SSS a reliable alternative to AVS based screening methods?

If not, how can it be replaced?

Different Views on the validity of SSS

RORC.

- It has worked to date but may have shortcomings for modern boats.
- Therefore, ring fence the use of SSS to old designs.
- Years of incident free sailing demonstrate that it works in practice.
- All UK based Committees agree.

ORC.

- Based on the 2023 Fastnet fleet, the SSS method gives a pass to a large number of yachts that would be excluded from the race using the UK MCA methods. Note, any yacht taking paying crew would need to comply with these regulations. (Figure 1).
- The OSR are the only safety regulations that support the use of SSS to assess yacht stability.
- The MCA limits were not derived by assessing performance, they were derived based on casualty data. (Figure 2).
- Historically ship scantling requirements were based on safe in-service performance. This is entirely different from deriving resistance to capsize incidents.

All Yacht Stability safety codes are based on a Righting Moment Curve, and the Angle of Vanishing Stability (AVS).

You need:

1. Hull shape definition
2. Inclining test
3. Weight and Trim angle

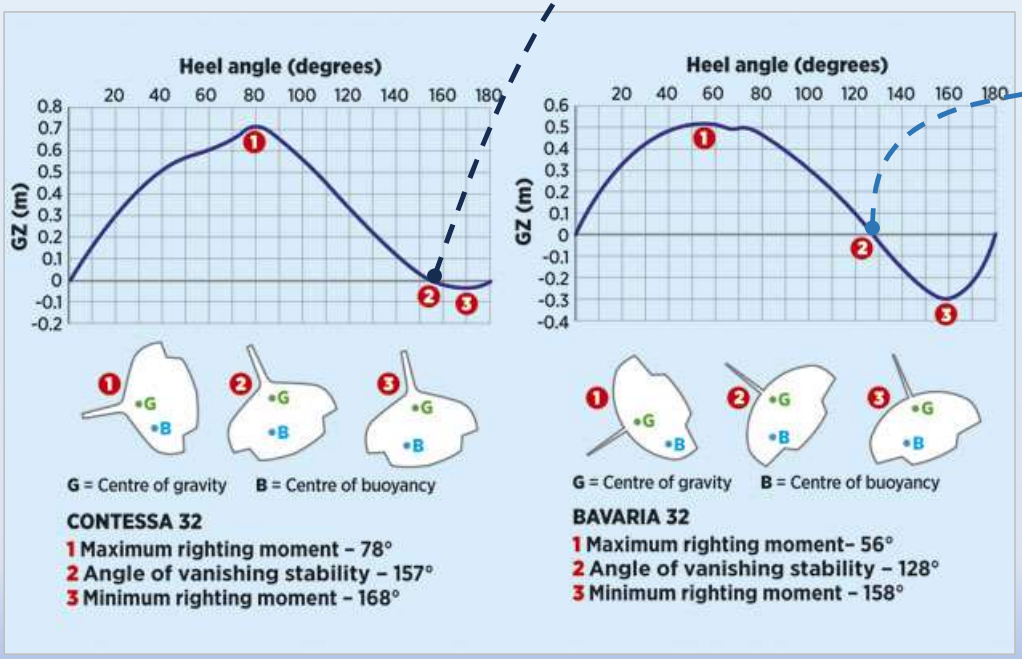
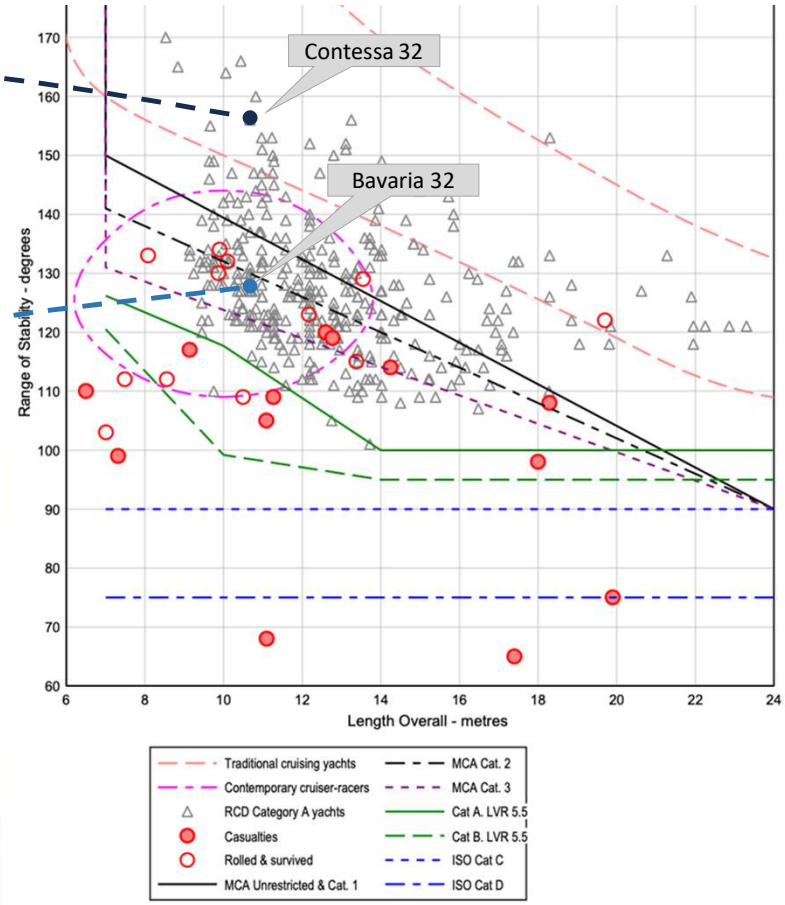
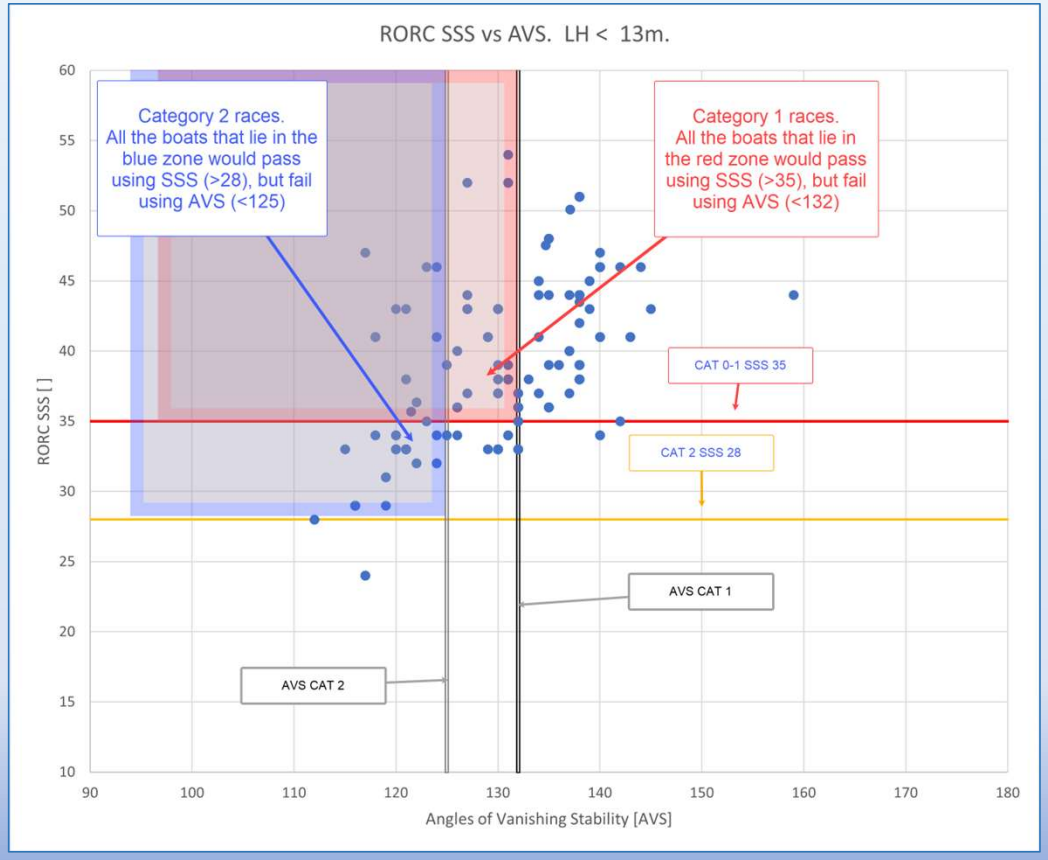


Figure 1.
Yacht Casualty Data. LOA vs Angle of Vanishing Stability (AVS).
Showing AVS limits for different Regulations.



Maritime & Coastguard Agency compared to SSS
2023 Fastnet Race Fleet

Figure 2.
Yachts in shaded zones pass SSS but Fail MCA regulations.



RORC Policy for post 1995 yachts.
What seems strange is that SSS is being used for some new yachts:
2014 Mills 72 Notorious, 2012 Ker 46, Iceni 39, Briand 76, 2023 Manuard Nivelt MN 35, 2019 Spirit 50#01
Production boats have the Notified Body produce the ISO STIX numbers to get the CE Mark (and the scantlings), some one-off racing boats because they don't need the CE mark, seem to dodge the WS Plan Approval required for Category 2 and then because the design/builder have not dealt with a Notified Body they have to use SSS ?

Conclusion:
SSS does not correlate with AVS based methods for a contemporary race fleet.
It should not be included in the OSR because its methodology will not bear scrutiny by Chartered Engineers.

SSS is being used by post 1995 yachts

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Problem Statement:

Removing SSS from OSR would mean 25-30% of a typical RORC fleet would need to be re-measured to qualify by accredited methods.
How can these boats be brought into a contemporary safety regime, **without** the financial cost driving them away?

Potential Solution:

The affected boats are easily identified.
The ORC will work with the RORC during 2024 to replace SSS with an ORC Stability Index for these boats.

The ORC database probably has Offset files for the boats.
An inclining test is ~ £750, less if several boats incline together.
An ORCi Handicap Certificate provides a Stability Index to comply with OSR.
Where hull scans are needed the cost can be minimized by doing several boats at once. ORC will process the scans at cost.

We have got the SSS Fastnet fleet down to:
- 20 boats that do not have STIX and AVS and don't have an offset file
- 11 boats (Mainly Sigma 33 and 38 that do not meet OSR Category 2 via STIX)