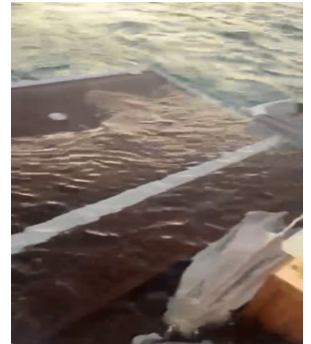


## **URGENT SAFETY RECOMMENDATIONS**

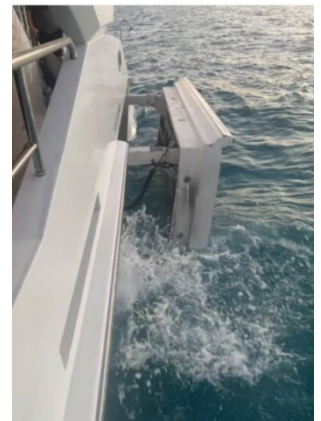
### **FLYER TO THE YACHTING INDUSTRY (01/2025)**

#### **Shell Doors in Yacht Hulls.**

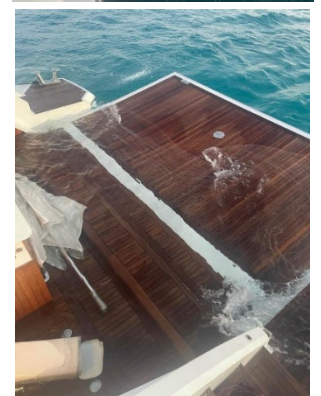
The Cayman Islands Shipping Registry (CISR) is aware of a sudden swamping of a vessel through the open shell doors during the recovery of a personal watercraft (PWC). The transom and port side doors were open at the time of the recovery operation which was taking place in the early evening after the day's watersports activities. The conditions at the time of the recovery were described as near flat calm but the vessel is known to have taken on a port list during recovery operations as reported by the crew.



During the recovery operation the vessel was hit by three large waves (larger than they were experiencing at the time) of unknown origin, which resulted in significant water ingress. The water ingress led to progressive flooding in all bilges and spaces aft of the Engine Room and the vessel taking on a 10-degree port list. The water ingress also led to failure of the hydraulic systems and consequently the doors could not be closed.



The vessel's main bilge pump was also not able to keep up with water ingress and fearing for the vessel's safety the Master elected to beach the vessel to prevent the vessel from suffering from a further loss of stability. The vessel had guests on at the time and fortunately all guests were safely relocated to shore and there were no injuries reported to any persons on board. The vessel was beached on to soft sand and there was no pollution or environmental damage. But for the quick actions of the Master the incident could have resulted in a serious marine casualty potentially leading to capsize or foundering of the vessel.



#### **The Vessel.**

The vessel is in Class, and is a 375 GT, twin screw, composite vessel built in Italy in 2014, commercially compliant and engaged in commercial activities at the time of the incident. The vessel is provided with a beach club/garage space for the stowage of PWC.

During the construction the vessel was assigned a virtual freeboard deck as defined on the Record of Conditions of Assignment as a line corresponding to a line running from the swim platform along the lower deck. Accordingly, the main deck would be considered as a superstructure deck.

The distance from the freeboard deck to the lower edge of the tender bay watertight shell door is 160mm. The distance from the freeboard deck to the lower edge of the transom watertight shell door is 1090mm as reported in the Record of Conditions of Assignment.

During the last lightweight survey the vessel draft was recorded as 2.249m and the lower edge of the tender bay door is at 2.45m which, even taking into account the inner sill, is significantly lower than the 600mm above the design waterline as proposed by LY3 and subsequent versions of the Code. The vessel was constructed under LY2 by virtue of the keel being laid in 2012.

## **Analysis**

Shell Door sill heights were not specifically addressed in LY2 but were specifically addressed in LY3 as per the below.

### ***4.4 Enclosed Compartments Within the Hull and Below the Bulkhead Deck Provided with Access Through Openings in the Hull***

*(1)...*

*(2) ...*

*(3) Openings in the hull shall comply with SOLAS II-1/15-1 - External openings in cargo ships. Provision shall be made to ensure that doors may be manually closed and locked in the event of power or hydraulic failure. Openings are generally to be fitted with a sill not less than 600 millimetres above the Design Waterline. Means shall be provided to prevent the unauthorised use of the doors locally through provision of secondary or remote control, through an interlock, dual control process or procedure.*

*(4) Openings in the hull with a sill height less than 600 millimetres above the Design Waterline may be specially considered by the Administration. This consideration shall include but is not limited to:*

*(a) doors from the space providing internal access are to have a sill height at least 600 millimetres above the Design Waterline;*

*(b) the effect of flooding on stability is considered;*

*(c) operational controls and limitations on when and where opening may be used.*

These requirements were further supplemented in the REG Yacht Code Part A (2019) and include the following text.

*(5) Protection of safety critical systems such as those for securing of the hull opening closed and any provided in accordance with Chapter 14, shall have a liquid ingress protection of*

*level 5 (e.g. IP 65) in accordance with the International Protection (IP) Marking, IEC Standard 60529 or equivalent.*

These requirements have been enhanced in the REG Yacht Code Part A (2024 edition) with the new Section 11.5<sup>1</sup> which deals with specific stability assessment in cases where the shell door sill heights are below 600mm above the design waterline.

### **Urgent Safety Recommendations.**

It is evident in this case that the relatively low freeboard of the tender door garage opening was a significant factor leading to rapid water ingress and although the vessel was experiencing relatively flat calm conditions, moderate water ingress occurred due to the list caused by lifting operations, which was further exacerbated by several larger passing waves. This led to significant flooding and the vessel was unable to close the watertight doors as a result.

Masters and Operators should take care during watercraft launching and recovery operations where openings in the shell may compromise the watertight integrity of the vessel, due consideration should be given to the appropriate risk assessment being undertaken with appropriate measures in place. This is of particular importance in those cases where the sill heights above the design waterline are below 600mm.

In addition to the potential for flooding and resulting loss of stability the effects of water ingress on critical systems such as the door closure mechanism to be identified and mitigated. A ready means of manual closure should always be available in the event of failure of electrical or hydraulic systems.

Where practicable, masters are advised to maximise the available freeboard in way of shell door openings during launching and recovery operations. Due regard should be taken of the prevailing sea-state, “*the maximum angle of heel induced during tender / PWC launching and recovery operations*” and the potential for passing traffic or other possible wave action.

In cases where the sill heights are significantly below 600mm, consideration should be given to the use of temporary sills or washboards where it is practicable to do so. If sill heights cannot be increased either temporarily or permanently then the requirements of REG Yacht Code Part A (Chapter 11.5) shall be considered, and appropriate measures implemented.

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<sup>1</sup> Currently under review by the Red Ensign Group Surveyors subgroup.