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Ship Handling Incidents at Low Speed

The Club has experienced two claims recently where, in separate incidents, a container vessel and a tanker inexplicably lost control whilst departing port under pilotage. One vessel subsequently made contact with an oil jetty causing notable damage to the face of the berth, while the other left the navigable channel, struck a light beacon, then ran aground on top of a submarine pipeline. Both incidents led to considerable claims.

In each case the vessels were following the customary route outbound from the port concerned, when, at relatively slow speed and due to reasons unknown to the bridge team at the time, they started to turn such that they were almost perpendicular to their original course by the time they made contact. Neither vessel was able to stop the turn by, in one case, applying full opposite rudder along with the use of the bow thruster, and in the other, despite using full ahead on the main engine with full rudder.

Each incident occurred when the vessel was passing through an area where strong tidal streams / cross currents could be experienced, respectively, where the tidal stream passed between two adjacent islands, and where there was a channel which was perpendicular to and joined the main navigable channel along which the vessel was proceeding, from which a strong outflow existed.

It is well appreciated by deck officers that steerage will be lost below a certain speed, the applicable speed being very dependent on the vessel itself. Another facet of ship handling which is less widely known is the consideration that a vessel's centre of rotation, commonly known as the pivot point, moves depending on if the vessel is at rest, going ahead, or going astern. When a vessel is at rest, the pivot point will approximately match the centre of gravity around midships. However, when a vessel is moving ahead the pivot point will move forwards to a position approximately one quarter of the vessel's length from the bow.

In these two cases, it would appear that although both vessels were proceeding at sufficient speed to ordinarily maintain steerage way, the rudder turning force available at low speed was overcome by the force of the tidal stream / cross current acting on the substantial area of the submerged hull abaft the pivot point. The large turning moment created by this external force caused the stern to be pushed sideways, with the rudder force - even when placed hard over - and in one case with the engine being robustly kicked ahead, being insufficient to counter this turning moment, hence the vessels became uncontrollable.

It is clear from these two incidents that although a low speed can give more time for watchkeepers to assess the navigational situation, there may be circumstances where strong localised tidal streams / cross currents are in existence and consequently where a higher speed may well be prudent to increase the effectiveness of the rudder and reduce the time the hull is exposed to the external water force. It does

however remain the case that a vessel should always comply with any applicable speed limits imposed within harbour limits. So far as possible, locations where strong localised tidal streams / cross currents may exist should be identified during passage planning and marked on the plan accordingly. In addition, the pilot should be utilised as a source of local knowledge in this regard.

Once directional control of a vessel is lost in such circumstances and it is apparent that attempts to stop the vessel turning have been unsuccessful, the vessel should be slowed as quickly as possible by use of astern movements on the engine and consideration given to dropping the anchors, providing it is safe to do so with no seabed obstructions.

Source of Information: West of English P&I Club

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