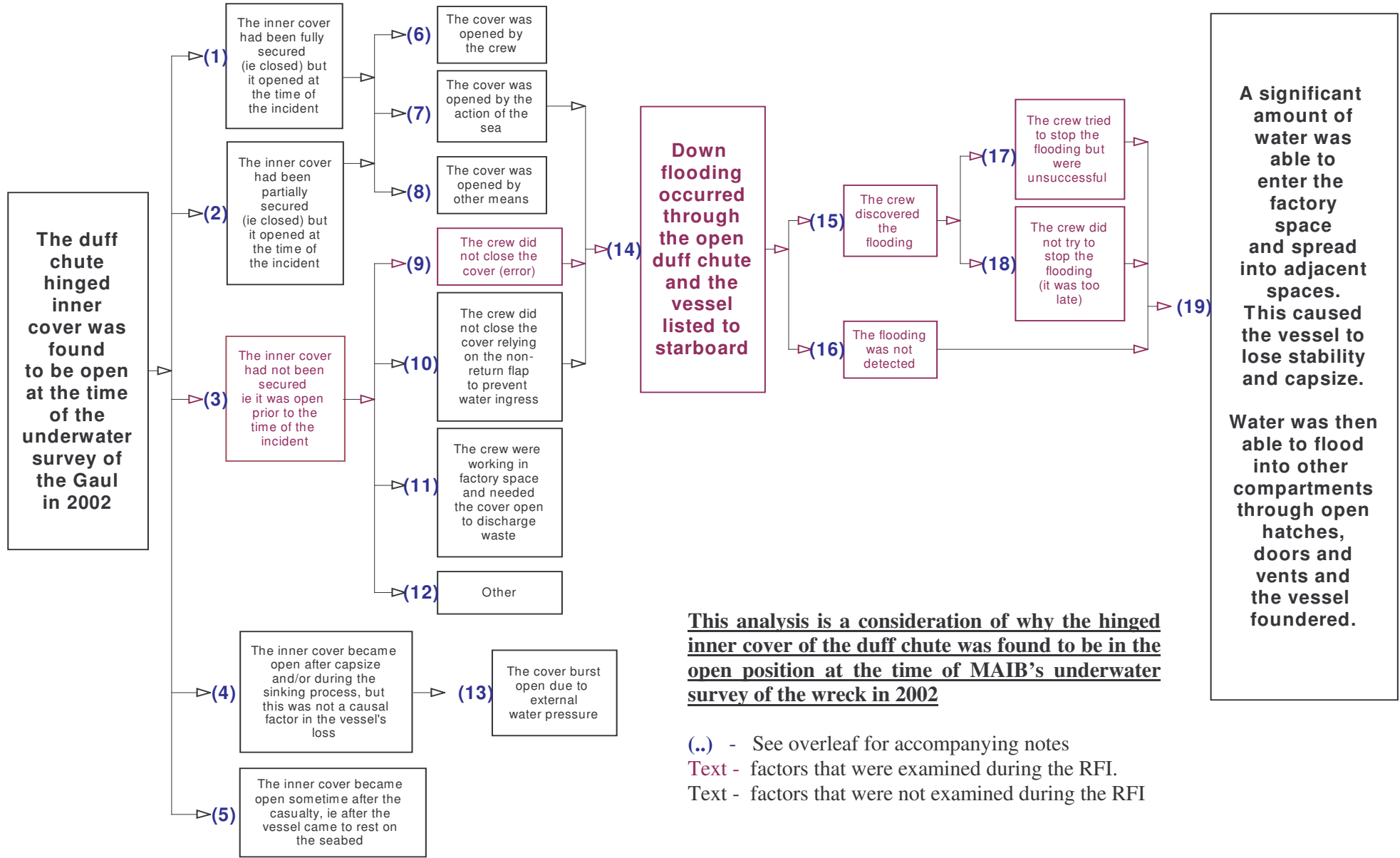


## Trawler Gaul: - Factor/event tree analysis relating to the duff chute's hinged inner cover



### Notes relating to the factor tree

- (1) This possibility was not explored during the RFI, however the disposition of the securing toggles indicates that the cover was not fully secured at the time of the incident (*it is also possible that they could have been **fully secured** and then worked loose due to the action of the sea – a phenomenon that was highlighted during the Derbyshire formal investigation for the securing toggles on the fore deck hatch to the bosun's store*)
- (2) This possibility was not explored during the RFI. However the disposition of the toggles indicates that the cover may have been secured at the time of the incident by one of the butterfly toggles (*the toggle is not in its natural position of repose and the forked lug that it mates with appears to be damaged*). It is also possible that the cover may have been secured by more than one toggle and that they worked loose as described in (1)
- (3) This possibility was examined (*to the exclusion of others*) and was accepted as fact by the RFI, however the arguments that were put before the court, to justify this conclusion, are quite weak:
  - i. The cover was found open on the seabed
  - ii. The cover appeared to be tied open
  - iii. The court suggested that crew fatigue may have led to an oversight
  - iv. There were no standing instructions to the crew to close this cover when it was not in use
  - v. The court argued that the crew were unaware of the importance of closing ship side openings and of the effects that floodwater could have on stability

There are strong counter arguments against this possibility eg. if both the non-return flap and inner cover were open, literally tonnes of water would enter the factory space every time an unfavourable sequence of vessel motions and external waves coincided - the crew were unlikely to overlook this factor. Additionally the suggestion that the cover was tied back with wire is unlikely and it does not stand up to critical scrutiny

- (4) This possibility was not examined during the RFI, however there is no real evidence to support this possibility other than the fact that the cover was found to be open on the seabed (NB. A 'knockdown' and internal flooding were effectively discounted by the RFI)
- (5) There is no evidence to support this possibility
- (6) There is no evidence to support this possibility
- (7) There is evidence to support this possibility:
  - i. The outer flaps had failed and were open, the sea was therefore able to act directly on the inner covers
  - ii. The inner covers were not strong enough to withstand direct sea loading
  - iii. The disposition of the toggle securing devices indicated that the covers may have been forced open by the sea
- (8) No other significant possibilities were identified
- (9) The discussions in paragraph (3) are relevant to this possibility
- (10) This possibility was not explored by the RFI even though it would have been more plausible than the possibility that was put forward in (9)
- (11) There is no evidence to support this possibility
- (12) No other significant possibilities were identified

- (13) This possibility was not explored by the RFI and there is no real evidence to support it other than the fact that the cover was found to be open on the seabed.  
NB. The direction of opening of the covers would mean that if they had failed due to external water pressure, they would have done so quite readily, with little apparent damage
- (14) There is evidence which supports the ‘down-flooding and a heel to starboard’ scenario
- (15) No evidence was found which supports this hypothesis
- (16) No evidence was found which supports this hypothesis
- (17) No evidence was found which supports this hypothesis, although it would be very difficult to close the cover against external water pressure
- (18) No evidence was found which supports this hypothesis
- (19) The only conclusion that can be drawn regarding the crew’s actions following factory deck flooding (14) is that this flooding was not discovered in sufficient time to allow preventive measures to be put in hand, or to allow a distress call to be dispatched.