



UKP&I

RISK AWARENESS

COLLISION CLAIMS

An aid to risk identification and loss reduction



UK P&I CLUB
IS MANAGED
BY **THOMAS
MILLER**

DEFINITIONS

In this checklist, colour is used to denote the various elements in the risk awareness process

Threat

Something that if not controlled could cause a P&I incident

Consequence

The monetary cost to the Club/Member

Control

Something which reduces the possibility of a 'Threat' causing an incident

Something that should be in place after the incident to help reduce the cost of the claim

How effective do you think the Controls are on your ship – are there any accidents just waiting to happen?

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USING THIS CHECKLIST / SCORING

This booklet is a guide to the Controls and key points that the UK Club's Risk Assessors look for when inspecting a vessel.

It will allow you to carry out a similar check on the Threats and Controls and make sure the vessel has a good risk profile.

Each booklet in the *Risk Awareness* series deals with an area of Risk – Personal injury, collision, pollution, etc – and these are sub-divided into Threats and then Controls.

Each Threat is followed by a 'score' section where the individual Controls can be graded according to how effective they are:

- 1 Very good control**
- 2 Good control**
- 3 Average control**
- 4 Poor control**
- 5 Very poor control (maybe non-existent)**

Furthermore, there is space to make comments on certain Controls; to note ways in which deficient ones could be improved.

At the back, there is a section on Consequences, which is also divided into Controls that should be in place to mitigate the cost of any claim, i.e. after the event controls. These too can be graded.

Collision

THREAT: NAVIGATION AT SEA

CONTROLS:

Minimum watch keeping/manning levels on bridge at all times

- Minimum watch keeping manning levels on bridge at all times
- Additional persons present at night or in poor weather, restricted visibility or when traffic density or navigational requirements dictate

Trade competency of personnel to perform required duties

- Do all personnel have required certification for the jobs they do, are these certificates valid?
- Training checks, HR and ship follow up on joining, full familiarisation and training on board the vessel as required for tasks to be performed

Continuous on board training as required carried out in all areas (ISM requirement)

- On job training to be carried out by supervisors, and not workmates
- Continuation training by senior officers for junior ranks and on job supervision during training
- Some workmate intervention is allowed in training as well, if appropriate

(Safety awareness for all can be enhanced if a 10 minute 'buddy overview' is used. A colleague watches what the worker is doing, makes notes on both the good and bad points, and then critiques the on job safety, starting with the good points. Both persons can learn from this type of interaction and safety awareness promotion on board)

- Ongoing training and proper familiarisation of all officers and ratings on vessel type

Proper lookout maintained at all times by all available means

- Almost 25% of collisions involve improper, poor or no lookout
- ColRegs Rule 5 – every vessel must at all times keep a proper lookout by sight, hearing and all available means
- Are there enough personnel on watch at all times?
- What watch keeping systems are in place on board ie 4 on 8 off/6 and 6/alternate/other?

- How do the watch keeping systems interact with port arrival/ departure requirements?

Bridge team and resources management understood/followed?

- Bridge team management (BTM) procedures understood, training undertaken?
- Bridge resource management (BRM) procedures understood and training undertaken?
- Techniques practised in clear weather and in open sea?
- Applied in all circumstances on board?

Passage planning per SOLAS V/34 and IMO Res A 893 (21) conducted?

- Good passage planning and awareness berth to berth?
- Procedures to ensure proper speed control under pilotage?
- Passage planning should indicate hazard areas and risk assessment of passage
- No-go and areas where fishing vessels may be present
- About 20% of collisions involve fishing vessels in or around port entrances and/or traffic separation schemes (TSS)
- SOLAS V, Reg 34
- IMO Res A893
- STCW pp 150 A/VIII
- Evidence of pilot/master interchange?
- Due consideration for bank effect in channels and rivers

Radar, ECDIS and AIS systems

- Dual redundant radar systems (ARPA)
- Automatic identification system (AIS) – is it being used properly?
- Radar system faults are self-diagnostic
- Aids to navigation – not over reliant
- Understanding of limitations and interaction with own and potential other vessel's navigational requirements (eg TSS, deep draught routes)
- Use of 'scanty' information – clearly understood?
- Use of scanty radar or other electronic information understood?
- Limitations and use of ECDIS systems are understood?

SOLAS collision regulations followed

- Most collisions occur when two vessels are in a crossing situation
- All collision regulations (steering and sailing rules) understood by all navigation officers?

- Followed in collision avoidance – including, but not limited to:
 - Following ColRegs requirements for communications via whistle (daytime)
 - Signal light (night) if other vessel perceived not to be taking sufficient action to avoid collision
 - Rule 7 – Risk of collision – Use all available means to determine risk of collision
 - Rule 8 – Action to avoid collision – Positive, made in ample time and due regard to good seamanship
- See also:
 - Rule 16 – Action by give-way vessel
 - Rule 17 – Action by stand-on vessel
 - Rule 18 – Responsibilities between vessels

Minimum separation distance between vessels

- Minimum separation distance between ship and other vessels set according to area and conditions
- Radar plotting understood and interaction with own and potential other vessel's navigation requirements (eg TSS, deep draught routes)?
- Plotting practised in clear Wx and open seas
- CPA (closest point of approach) laid down
- Basic plotting facilities available – paper version – and practised in clear Wx and open seas

Communications between vessels

- Are rules set in standing orders for communication between vessels in collision avoidance?
- VHF communications between vessels – secondary to ColRegs requirements as may cause confusion
 - Note VHF is used extensively in US waters when under pilotage
- ColRegs Rule 9 – Narrow channels
- Navigation with a pilot on board – STCW pp159

Use of engine to avoid collision

- What are the practices on board for use of engines at sea?
- OOW should not hesitate to use main engines but should be aware of manoeuvring data and effect of using engines on steering and manoeuvring
- ColRegs Rule 8 – any means necessary

Dual redundant running lights with alarm on light failure

- Navigation lights regularly checked – visually?
- Alarm panels tested daily?
- Spare lamps carried?

Standing and night orders issued

- Follow standing and night orders
- Call the master when required
- OOW familiar with ship's limitations
- Stopping distances
- Turning circles
- Manoeuvring characteristics
- Is restricted visibility defined in nautical miles?

SCORE

Threat: Navigation at sea

Minimum bridge watchkeeping/manning levels	
Trade competency of personnel	
Continuous on board training	
Proper lookout maintained at all times	
Bridge team and resources management understood/followed?	
Passage planning per SOLAS V/34	
Radar, ECDIS and AIS systems	
SOLAS collision regulations followed	
Minimum separation between vessels	
Communications between vessels	
Use of engine to avoid collision	
Dual redundant running lights with alarm	
Standing and night orders issued	

COMMENTS

THREAT: NAVIGATION UNDER PILOTAGE

CONTROLS:

Bridge team and resources management understood/followed?

- Bridge team management (BTM) procedures understood, training undertaken?
- Bridge resource management (BRM) procedures understood and training undertaken?
- Techniques practised in clear weather and in open sea?
- Applied in all circumstances on board?

Trade competency of personnel to perform required duties

- Do all personnel have required certification for the jobs they do, are these certificates valid?
- Training checks, HR and ship follow up on joining, full familiarisation and training on board the vessel as required for tasks to be performed

Continuous on board training as required, carried out in all areas (ISM requirement)

- On job training to be carried out by supervisors and not workmates
- Continuation training by senior officers for junior ranks and on job supervision during training
- Some workmate intervention is allowed in training as well, if appropriate

(Safety awareness for all can be enhanced if a 10 minute 'buddy overview' is used. A colleague watches what the worker is doing, makes notes on both the good and bad points and then critiques the on job safety starting with the good points. Both persons can learn from this type of interaction and safety awareness promotion on board)

- Ongoing training and proper familiarisation of all officers and ratings on vessel type

Passage planning per SOLAS V/34 and IMO Res A893 (21) conducted

- Good passage planning and awareness berth to berth?
- Procedures to ensure proper speed control under pilotage?
- Passage planning should indicate hazard areas/risk assessment of passage
- No-go and areas where fishing vessels may be present?
- About 20% of collisions involve fishing vessels in or around port entrances and/or traffic separation schemes (TSS)

- SOLAS V, Reg 34
- IMO Res A893
- STCW pp 150 A/VIII
- Evidence of pilot/master interchange?
- Due consideration for bank effect in channels and rivers

OOW aware of SOLAS Chapter V requirements

- Chap V – Safety of navigation
- Reg 20 – Casualty investigation (VDR)
- Reg 27 – Charts and publications updated for voyage
- Reg 28 – Recording of important navigational information
- ColRegs
 - Rule 2 – Nothing shall exonerate...
 - Rule 7 – Risk of collision
 - Rule 8 – Action to avoid collision

OOW aware of STCW requirements

- STCW pp 150 to 159 Watch keeping
- ColRegs
 - Rule 2 – Nothing in these Rules shall exonerate...
 - Minimum rest hours

Recording positions, written records in movement book

- Do NOT erase anything written in any log or plotted on the chart
- Record keeping – do NOT rely on electronics
- Importance of 'EVIDENCE' in a Court of Law – particularly contemporaneous evidence
- SOLAS V Reg 20 VDR is to assist in casualty investigation after the incident
- VDR does not record sufficient data to satisfy the Court or SOLAS V Reg 28.
- VDR only records 12 to 24 hours of material and then is over-written

Proper lookout maintained at all times by all available means

- Almost 25% of collisions involve improper, poor or no lookout
- ColRegs Rule 5 – Every vessel must at all times keep a proper lookout by sight, hearing and all available means
- Are there enough personnel on watch at all times?
- What watch keeping systems are in place on board ie 4 on 8 off/6 and 6/alternate/other?

- How do the watch keeping systems interact with port arrival/ departure requirements?

Minimum watch keeping/manning levels on bridge at all times

- Minimum watch keeping manning levels on bridge at all times
- Additional persons present at night or in poor weather, restricted visibility when traffic density or navigational requirements dictate

Radar, ECDIS and AIS systems

- Dual redundant radar systems (ARPA)
- Automatic identification system (AIS) is it being used properly
- Radar system faults are self-diagnostic
- Aids to navigation – not over reliant
- Understanding of limitations and interaction with own and potential other vessel's navigational requirements (eg TSS, deep draught routes)
- Use of 'scanty' information – clearly understood?
- Use of scanty radar or other electronic information understood?
- Limitations and use of ECDIS systems are understood?

Use of engine to avoid collision

- What are the practices on board for use of engines at sea
- OOW should not hesitate to use main engines but should be aware of manoeuvring data and effect of using engines on steering and manoeuvring
- ColRegs Rule 8 – any means necessary

Competency of pilot

- Procedures in place to ensure qualified, experienced pilots employed?
- Procedures in place to deal with pilot under performance?
- Procedures in place to deal with pilot not fit for duty?
- OOW familiar with STCW pp159 – Navigation with a pilot on board

SCORE

Threat: Navigation under pilotage

Bridge team and resources management understood/followed?	
Trade competency of personnel	
Continuous on board training	
Passage planning per SOLAS V/34	
OOW aware of SOLAS Chapter V	
OOW aware of STCW requirements	
Recording positions	
Proper lookout maintained at all times	
Minimum bridge watchkeeping/manning levels	
Radar, ECDIS and AIS systems	
Use of engine to avoid collision	
Competency of pilot	

COMMENTS

THREAT: ADVERSE WEATHER

CONTROLS:

OOW familiar with forecasting and how to 'read' weather maps

- Training in meteorological reports and 'reading' weather

Receipt of regular weather forecasts

- Facsimile Wx reports explained in simple terms to junior or OOW
- Navtext weather reports received regularly
- Internet based or electronically supplied Wx reports – how to use them?
- Weather updates plotted as required
- TRS reports plotted and understood (navigable and dangerous semicircles/quadrants in storms and how to react)

When in tropical revolving storm (TRS) areas – awareness of cloud formations

- TRS clouds massing (build up) areas to avoid – explain 'quadrants'

Training of junior officers in meteorology

- Explanation of what, where, how and why to junior officers

Bridge team and resources management understood/followed?

- Bridge team management (BTM) procedures understood, training undertaken?
- Bridge resource management (BRM) procedures understood and training undertaken?
- Techniques practised in clear weather and in open sea?
- Applied in all circumstances on board?

Trade competency of personnel to perform required duties

- Do all personnel have required certification for the jobs they do, are these certificates valid?
- Training checks, HR and ship follow up on joining, full familiarisation and training on board the vessel as required for tasks to be performed

Standing and night orders issued

- Follow standing and night orders
- Call the master when required
- OOW familiar with ship's limitations

- Stopping distances
- Turning circles
- Manoeuvring characteristics
- Is restricted visibility defined in nautical miles?

SCORE

Threat: Adverse weather

OOW familiar with forecasting/weather maps	
Receipt of regular weather forecasts	
Awareness of cloud formations in TRS areas	
Training of junior officers in meteorology	
Bridge team and resources management understood/followed?	
Trade competency of personnel	
Standing and night orders issued	

COMMENTS

THREAT: REDUCED VISIBILITY

CONTROLS:

Bridge procedures

- Increased bridge manning requirements and watch keeping
- Equipment operation
- Passage planning
- Engine readiness
- Safe speed

Audio and visual warning systems in reduced visibility

- Use of ship's whistle, gong, bell, as applicable
- Vessel lighting systems

Bridge team and resources management understood/followed?

- Bridge team management (BTM) procedures understood, training undertaken?
- Bridge resource management (BRM) procedures understood and training undertaken?
- Techniques practised in clear weather and in open sea?
- Applied in all circumstances on board?

Dual redundant running lights with alarm on light failure

- Navigation lights regularly checked – visually
- Alarm panels tested daily
- Spare lamps carried

Proper lookout maintained at all times by all available means

- Almost 25% of collisions involve improper, poor or no lookout
- ColRegs Rule 5 – Every vessel must at all times keep a proper lookout by sight, hearing and all available means
- Are there enough personnel on watch at all times?
- What watch keeping systems are in place on board ie 4 on 8 off/6 and 6/alternate/other?
- How do the watch keeping systems interact with port arrival/ departure requirements?

SOLAS collision regulations followed

- All collision regulations (steering and sailing rules) understood by all navigation officers?

- Followed in collision avoidance – including, but not limited to:
 - Following ColRegs requirements for communications via whistle (daytime)
 - Signal light (night) if other vessel perceived not to be taking sufficient action to avoid collision (Aldis lamp rigged)
 - Rule 7 – Risk of collision – Use all available means to determine risk of collision
 - Rule 8 – Action to avoid collision – Positive, made in ample time and due regard to good seamanship
- See also
 - Rule 16 – Action by give-way vessel
 - Rule 17 – Action by stand-on vessel
 - Rule 18 – Responsibilities between vessels

Standing and night orders issued

- Follow standing and night orders
- Call the master when required
- OOW familiar with ship's limitations
- Stopping distances
- Turning circles
- Manoeuvring characteristics
- Is restricted visibility defined in nautical miles?

Receipt of regular weather forecasts

- Facsimile Wx reports explained in simple terms to junior or OOW?
- Navtext weather reports received regularly?
- Internet based or electronically supplied Wx reports – how to use them?
- Weather updates plotted as required?
- TRS reports plotted and understood (navigable and dangerous semicircles/quadrants in storms and how to react)?

SCORE

Threat: Reduced visibility

Bridge procedures	
Audio and visual warning systems	
Bridge team and resources management understood/followed?	
Dual redundant running lights with alarm	
Proper lookout maintained at all times	
SOLAS collision regulations followed	
Standing and night orders issued	
Receipt of regular weather forecasts	

COMMENTS

THREAT: ANCHOR FAILURE

CONTROLS:

Inspection and planned maintenance/greasing

- Anchor windlasses are regarded as 'critical equipment' under the ISM code
- Planned maintenance procedures set up and followed?
- Brakes
- Gypsy
- Joining shackles/swivels
- Worn chain and missing studs
- Lashings/compressor bar
- Records maintained of tests and overhauls
- Anchor windlasses are 'critical equipment'
- Greasing should be conducted by a responsible petty officer

Crew familiarity with anchor equipment

- Training of all crew in use of equipment and systems?
- PPE available in area?

Anchor release points

- Bitter end pins free and greased (no split pins in securing them)?
- Large hammer standing by?

Receipt of regular weather forecasts

- Facsimile Wx reports explained in simple terms to junior or OOW?
- Navtext weather reports received regularly?
- Internet based or electronically supplied Wx reports – how to use them?
- Weather updates plotted as required?
- TRS reports plotted and understood (navigable and dangerous semicircles/quadrants in storms and how to react)?

Standing and night orders issued

- Follow standing and night orders
- Call the master when required
- OOW familiar with ship's limitations
- Stopping distances
- Turning circles
- Manoeuvring characteristics
- Is restricted visibility defined in nautical miles?

SCORE

Threat: Anchor failure

Inspection and planned maintenance/greasing	
Crew familiarity with anchor equipment	
Anchor release points	
Receipt of regular weather forecasts	
Standing and night orders issued	

COMMENTS

THREAT: LOSS OF PROPULSION

CONTROLS:

Inspection and planned maintenance

- Machinery and equipment in all areas is logged into an inspection and PMS on board?
- Either a written (running hours) or computerised system is OK
- Must be adequate for the task (ISM Code requirement)
- Machinery manuals up-to-date?
- Manuals in a language understood by all the engineers?
- Regular inspections of all equipment, tools and machinery?
- Regular maintenance performed?
- Toolbox talks conducted before the job?
- Equipment in poor condition is removed from service?
- Replaced as soon as possible for safety?
- All personnel are instructed to inspect all equipment prior to use
- Replace any worn or dangerous seeming tools
- PPE, other equipment available prior to commencing operations?

Alarm systems

- Alarms regularly tested
- No alarms by-passed or jumped
- No alarm ignored and no alarm PCB by-passed because of frequency

Chief engineer's standing orders

- Engineer OOW follows chief engineer's standing orders
- Standing orders clear and in a language understood by all engineers?

Emergency systems and procedures (engineering)

- Emergency systems and procedures understood by engineer OOW?
- Training and familiarisation of all emergency systems?
- Emergency system tested and explained?
- Routine practice tests done in good weather and clear of land each voyage?
- Awareness of flag state and USCG requirements (engine astern testing for CFR actually carried out)?

Bridge OOW familiar with passage plan abort procedures?

- Close communications between OOW engine room and bridge
- Passage planning must be detailed
- No-go areas clearly marked?
- Abort procedures clearly understood?
- Emergency anchorage locations marked?

Anchors prepared in narrow channels and under pilotage

- Standing procedure in place to have anchors prepared for emergency use?
- Stand-by PO or senior rating forward (if required)

SCORE

Threat: Loss of propulsion

Inspection and planned maintenance	
Alarm systems	
Chief engineer's standing orders	
Emergency systems/procedures (engineering)	
Bridge OOW familiar with abort procedures?	
Anchors prepared	

COMMENTS

THREAT: LOSS OF STEERING

CONTROLS:

Inspection and planned maintenance

- Planned maintenance system (PMS) in place?
- Inspections carried out at regular intervals each watch?
- See also SOLAS V Regulation 25 and 26

Alarm systems

- Alarms regularly tested?
- No alarms by-passed or jumped?
- No alarm ignored and no alarm PCB by-passed because of frequency?

Regular checks for leakages

- Leakage in steering flat – reported – no matter how small or insignificant?

Header tank levels

- Header tank must be 80% full at all time
- Should be checked each watch (80% is the minimum working level and should be clearly marked on the gauge)
- Ram type only – N/A to rotary vane Navigating officers familiar

Navigating officers familiar with emergency procedures?

- Emergency systems tested?
- Change over procedures understood?
- Procedures for using engines in an emergency?
- FU and NFU procedures understood?
- Both (all) systems on when approaching land – entering or leaving port?

Emergency systems and procedures (engineering)

- Training and familiarisation of all emergency systems?
- Emergency system tested and explained?
- Routine practice tests done in good weather and clear of land each voyage?
- Awareness of flag state and USCG requirements?

Anchors prepared in narrow channels and under pilotage

- Standing procedure in place to have anchors prepared for emergency use
- Stand-by PO or senior rating forward (if required)

SCORE

Threat: Loss of steering

Inspection and planned maintenance	
Alarm systems	
Regular checks for leakages	
Header tank levels	
Navigating officers familiar with emergency procedures	
Emergency systems/procedures (engineering)	
Anchors prepared	

COMMENTS

THREAT: COMMUNICATION

CONTROLS:

ER/Bridge

Mooring stations/Bridge

Ship-Shore/Tugs

Pilot/Bridge team

- Pilot/Master interchange and records

SCORE

Threat: Communication

ER/Bridge	
Mooring stations/Bridge	
Ship-shore/Tugs	
Pilot/Bridge team	

COMMENTS

Consequences

CONTROLS:

Damage mitigation procedures

- What procedures are in place to help reduce the effects of a collision incident, and how effective are they?
- All mitigation measures are logged?

Alarm/stop procedures

- Communications procedure in place for all incidents?
- General and fire alarms are functioning correctly?
- Verbal alarm raising system is defined and can be shown to be adequate?

Emergency drills/training

- Are drills/training procedures in place to cope with high risk incidents?
- Fire drills?
- Lifeboat and abandon ship drills?
- MOB rescue drills to include Williamson Turn and deployment of all equipment?
- Anti pollution drills?
- Emergency steering drills?
- Medical emergency drills and rescues for various areas of the vessel?
- Pollution drills – bunker leak, cargo leak, grounding, collision, etc?
- Watertight integrity drills – watertight doors, bulkhead valves, etc?
- Ballasting procedures in the event of a hull breach?

Emergency equipment adequacy/availability

- Is the ship's equipment available/adequate to deal with high risk incidents:
 - Fixed fire equipment?
 - Portable fire equipment?
 - SCBA?
 - EEBD and location suitability for all breathing apparatus?
 - Lifebuoys?
 - Life rafts?
 - Lifeboats?
 - MOB boats or designated MOB boats?

- MOB equipment including scrambling nets?
- Thermal protective aids – LSA and FFE?
- Fire plans, external and internal?
- Crew lists?
- Ventilation plans?
- Damage control plans?
- First aid equipment?
- Vessel hospital, medical equipment and treatment on board as required?
- Standard of hospital?
- Stretchers and equipment overall?
- Suitable portable winch equipment for enclosed spaces?
- Are crew familiar with the equipment?

Emergency reporting/communication procedures

- Are there reporting procedures in place and understood if an incident occurs?
- Reporting to owner, charterer, P&I correspondent?
- Categorisation of incident?
- Timing of incident?
- Communication requirements?
- Who was informed on board / on shore?
 - When?
 - How?
 - Why?
 - What did they do?
- Records of communications (ship management, third parties, national authorities, P&I, etc)?
- Letters of protest:
 - Are there procedures in place for issuing letters of protest?
 - Are the reasons for issuing letters of protest understood?
 - For all incidents, LOP should be issued and, where possible, notarised, signed for receipt, etc
 - Copies retained on file on board and entered in the evidence log for use in defending the claim should it arise?

Record keeping/evidence retention

- Information required to help process claims:
 - Log books preserved and records tallied with bell books (movement book – deck and engine)
 - Charts preserved and records kept as evidentiary chain
 - Voyage data recorder (VDR) information properly preserved and evidence used?

- Time of the incident GMT and local time?
- What happened and to whom?
- Where did it happen?
- When did it happen?
- What were they doing at the time?
- What were the immediate consequences?
- Full list of witnesses to the incident
- Witness statements
- Electronic records of ships operational position at the time of the incident
- Operational status of vessel: at sea, in port, tank cleaning, cargo operations, mooring, etc.
- Records of casualty communications and third party responses (salvors, other vessels, etc)
- Weather conditions:
 - Description of incident environment (hot, cold, stuffy, dark, confined, moving machinery, etc)
 - Description of weather
 - Description of sea state
- Use of NI publication *The Mariner's Role in Collecting Evidence*
- Photos of incident and location time/date stamped, camera set up recorded, full description given in title and/or in comments field under properties
- Photos to be secured from tampering by using security settings under properties
- Layout diagram
- Ship's logs

Capability of crew to deal with incident

- How capable is the crew to deal with the incident?
- Competence of individuals involved in incident (recruitment, certification, training records, fitness to work (medical records)?)
- Fatigue factors: hours of work/rest, time on shift?
- Contracted time on board vessel?
- Actual time on board vessel current period?
- Competence of individuals involved in response?
- Experience of crew involved in the incident?
- Language barriers of crew/shore personnel involved, if any?

Use of third party assistance

- Procedures for contacting third parties for assistance in the event of an incident
- By phone, radio, satellite link, etc

- General advice:
 - Club correspondent
- Stability advice:
 - Collision – classification society
- Pollution:
 - Authorities
 - Harbour master

Learning from incidents

- Are lessons learned from previous incidents?
- Incident/accident report correctly filled in?
- Incident is raised at safety meetings and full crew meetings:
 - Discussion of what went wrong and how this can be avoided in future
- Incident is discussed and appraised at Company level:
 - Actions to avoid future incidents are discussed and taken, improving barriers
- Incident promulgated to full fleet to avoid duplication, if possible
- Incident promulgated industry wide, if appropriate, to enhance safety culture
- Full risk assessment undertaken to improve barriers/controls in on board checklists
- Toolbox talks, job hazard awareness (JHA) systems and others, as appropriate, in all fleet vessels

SCORE

Consequences

Damage mitigation procedures	
Alarm/stop procedures	
Emergency drills/training	
Emergency equipment adequacy/availability	
Emergency reporting/communication procedures	
Record keeping/evidence retention	
Capability of crew to deal with incident	
Use of third party assistance	
Learning from incidents	

COMMENTS

METHODOLOGY

Following the well-known definition:

RISK = FREQUENCY x CONSEQUENCE

the Club has analysed the number and value of the Club's claims to prioritise high risk areas and determine what the THREATS are that cause these claims. Then, with the aid of those at the sharp end – our correspondents, surveyors, claims executives and underwriters and last but not least important, our crews – we have sought to determine what CONTROLS – be it engineered, procedural or managerial – have mitigated such claims, or would have done so if they had been in place. Those threats and controls can then be targeted for assessment, either with the help of the Club's own risk assessors, or by Members themselves in conjunction with their crews.

Although sixty per cent of UK Club claims are caused by 'human error', human error is often only 'the straw that breaks the camel's back' – the last event in a chain of causal events.

These causal events can normally be traced back to failures in one or more areas of ship operation, we sometimes refer to them as 'accidents waiting to happen'

How can we reduce the frequency of these 'accidents waiting to happen'. What 'controls' should we be looking at to ensure the 'threat' is contained and an 'incident' does not occur?

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