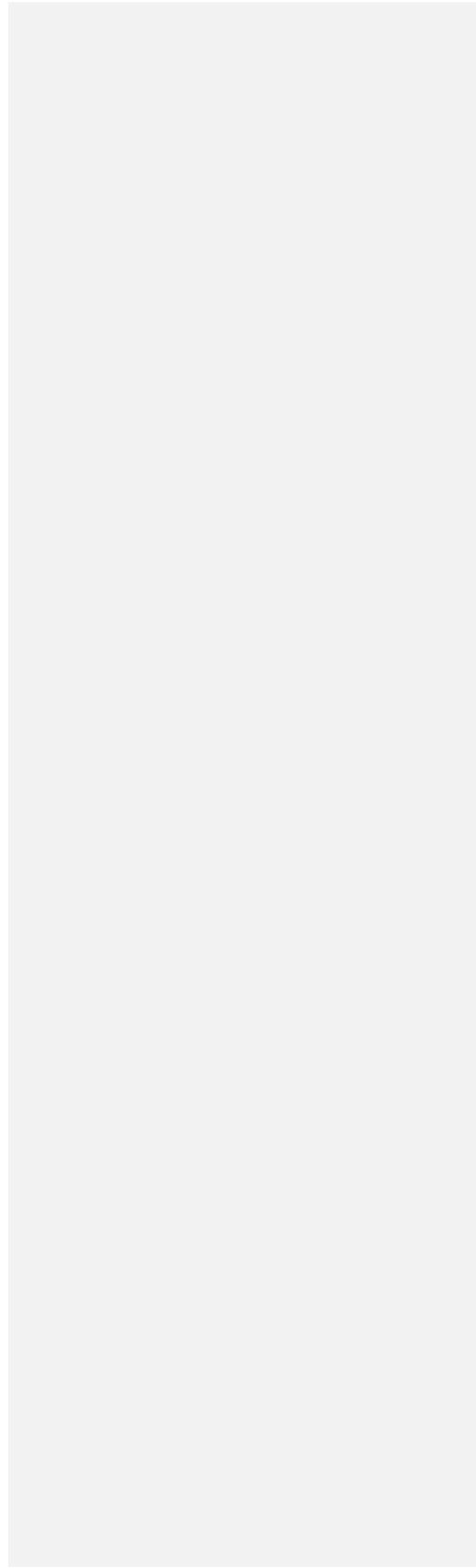


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APPENDIX G TRAINING

Model Training Course Offshore Personal Survival

With acknowledgements to IMO (International Maritime Organisation), AYF (Australian Yachting Federation) and RYA (Royal Yachting Association) whose publications have been consulted in the preparation of Appendix G.

INTRODUCTION

1 Purpose of the model course. To help provide training under ISAF Offshore Special Regulation Section 6. The model course is not the only means of providing such training. Other courses meeting the needs of Section 6 may apply to the appropriate MNA for ISAF Approval (see Introduction paragraph 7).

2 Use of the model course. The chief instructor should review the experience and knowledge of the trainees before the course starts and revise details of the course plan accordingly. Trainees, who should have practical offshore sailing experience, should be encouraged to prepare for the course by familiarising themselves with the topics in Special Regulations 6.02 and 6.03. See also the reading list in A 4.2. Particular skills when suitably documented, may be accepted to excuse a trainee from that part of the course.

3 Presentation. The presentation may have to be repeated in various ways until the instructor is satisfied that the trainees have attained a good understanding of each topic.

4 Evaluation. The final activities on each day are examinations, which should be used together with instructors' continuous assessments to provide an overall evaluation. The pass mark is to be taken as 60% in each of the marked units.

5 Implementation. Detailed requirements are given below. Thorough preparation is the key to successful implementation of the course.

6 Structure of the model course.

Part A describes the framework for the course, with aims and objectives and notes on suggested teaching facilities and equipment.

Part B provides an outline of lectures, and practical sessions. A suggested timetable is included but it is more important that trainees achieve proficiency in the required skills than that a strict timetable is followed.

Part C sets out the detailed syllabus.

7 ISAF Approved Training Courses and Trainee Certification.

7.1 The status of “ISAF Approved” together with authority to use the ISAF logo may only be awarded to a training course by an ISAF MNA (Member National Authority) who must be satisfied that the course delivers training as required by Special Regulation 6.01. A grant of approved status carries with it a duty on the MNA to ensure that the course provider continues to deliver appropriate training over the course of time. An annual review may be appropriate for this purpose. The MNA must remove approved status if and when it judges this necessary.

7.2 It is not necessary for a training course to follow Appendix G Model Training Course in order to receive approval as in 7.1 above. The overriding requirement is that the course must deliver the training required by Special Regulation 6.01.

7.2 An MNA which lacks experience in offshore training or for other reasons needs advice should contact the ISAF Secretariat – Offshore and Technical Department. The OTAP is appointed by and reports to the ISAF Offshore Special Regulations sub-committee.

7.3 A sailor holding an in-date “pass” certificate (each has a validity of 5 years) from an ISAF Approved Offshore Personal Survival Course shall be accepted by a race organiser as having complied with the requirements of ISAF Offshore Special Regulation 6.01.

7.4 “Pass” certificates issued at an ISAF Approved course shall carry the statement “ISAF Approved Offshore Personal Survival Course” and may carry the ISAF logo.

7.5 Unless otherwise stated in the Notice of Race, it is not mandatory that a training course for compliance with SR 6.01 is “ISAF Approved” however this status is encouraged wherever possible.

Part A Framework

A1 Class Size The maximum recommended class size is 20. When smaller work groups are established, this will allow for about four in each group. A suggested minimum number for the class would be ten. Otherwise it is difficult to promote discussion in smaller work groups.

A2 Instructors should have:

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- wide experience of offshore sailing including sailing in severe weather
- a thorough knowledge of the course material
- a thorough knowledge of the requirements of the ISAF Offshore Special Regulations
- a good understanding of teaching methods

A3 Facilities and equipment

A 3.1 A suitable classroom is required with desks or tables and chairs. It should be possible to move the furniture around so that a variety of room arrangements can be used. Ideally, extra rooms will be available for when the class is split into groups, since each group should have a separate space in which to work.

A 3.2 The main room should be provided with the following equipment:

- a whiteboard or blackboard
- a flip chart
- writing materials for trainees
- an overhead projector (OHP) for transparencies
- a computer projector (with additional sound channel if not integral)
- a video tape player compatible with the computer projector
- a PC or laptop with CD-ROM drive, all compatible with the computer projector
- a reflective screen designed for use with the computer projector
- adequate electric sockets located so that the equipment can be positioned safely.

A 3.3 Group rooms should be provided with a table and chairs and some form of board and writing materials.

A 3.4 A video camera may be useful and should be compatible with the computer projector or alternatively must produce video tapes compatible with the video tape player.

A 3.5 A warm-water swimming pool with all appropriate safety equipment, personnel and facilities making it suitable for demonstration and training with lifejackets and liferafts. A wave-generator may provide added realism.

A 3.6 An outdoor location with appropriate safety equipment, personnel and facilities making it suitable for demonstration and training with pyrotechnics and fire extinguishers.

A4 Recommended Reference and Display Material

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This section will be updated as information is submitted from MNA's. Course providers are encouraged to refer to materials relevant to their own areas of operation.

A 4.1 For the Instructors

Printed Material

- ISAF Offshore Special Regulations complete with separately-printed Appendices A2 (Liferafts) and G (the present document)
- ISAF RRS (The Racing Rules of Sailing)
- International Regulations for the Prevention of Collision at Sea
- Admiralty Summary of Notices to Mariners (NP 247)
- IAMSAR (International Aeronautical and Maritime Search and Rescue) manual, or manual for small craft (in preparation)
- ALRS (Admiralty List of Radio Signals) Volume 5 GMDSS (NP 285)
- SOLAS (Safety of Life At Sea Convention) Consolidated Edition
- International Life-Saving Appliance (LSA) Code
- Appropriate ISAF MNA Training Booklet or if none, at least one of
 - RYA Practical Course Notes on Sea Survival
 - AYF equivalent
 - US Sailing Equivalent

Video Tapes

A Highway of Low Pressure

CD-ROMs

COSPAS-SARSAT

A 4.2 For the Trainees

A 4.2.1 Possession of:

- ISAF Offshore Special Regulations
- ISAF RRS (The Racing Rules of Sailing)
- International Regulations for the Prevention of Collision at Sea
- Admiralty Summary of Notices to Mariners (NP 247)
- IAMSAR (International Aeronautical and Maritime Search and Rescue) manual, or manual for small craft (in preparation).
- First Aid at Sea (Justins and Berry, published Adlard Coles) or equivalent
- Appropriate ISAF Member National Authority Training Booklet or if none, at least one of
 - RYA Practical Course Notes on Sea Survival
 - AYF equivalent
 - US Sailing Equivalent

A 4.2.2 Knowledge of:

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- ALRS (Admiralty List of Radio Signals) Volume 5 GMDSS (NP 285)
- SOLAS (Safety of Life At Sea Convention) Consolidated Edition
- International Life-Saving Appliance (LSA) Code
- International Medical Guide for Ships (WHO, World Health)

A 4.2.3 Recommended further study:

- The Offshore Special Regulations Handbook by Alan Green (Adlard Coles)
- The Grab Bag Book (F & M Howorth, Adlard Coles)
- Instant Weather Forecasting (A Watts, Adlard Coles)
- Heavy Weather Sailing (A Coles & P Bruce, Adlard Coles)
- Essentials of Sea Survival (F Golden and M Tipton, Human Kinetics)

Part C Detailed Syllabus

paragraph numbers refer to session numbers in Part B

Session 1 Introduction

- 1.0 The instructor gives an overview of the course and administrative arrangements, and explains the assessment and exam procedures. If the course has ISAF Approval (see introduction paragraph 7) the certificate will be so endorsed. The instructor should also deliver a final course timetable.
- 1.1 The importance of training both in formal sessions and also as part of the routine in running a sailing yacht.
- 1.2 The importance of a "safety ethos"
- 1.3 The crew brief including safety equipment, stowage details, emergency procedures, responsibilities and how to send a Mayday call and use EPIRB and flares in case the skipper and key crew members are incapacitated. Show stowage chart required in Special Regulations: crew experience and fitness must be adequate
- 1.4 Responsibility of person in charge for safe conduct of vessel and oversight and direction of crew actions. Responsibility of crew members for their own safety and in the discharge of their duties, to contribute to the safety of the vessel and the rest of the crew.

Session 2 Care and maintenance of safety and other equipment

- 2.1 Routine to check, service, clean, dry, fit and adjust to wearer, and correctly store safety equipment. Give examples eg safety harness, inflatable lifejackets, liferafts etc.
- 2.2 Checks to continue under way including eg rigging (pins in place and undistorted, wires not fractured, running rigging not unduly chafed, shackles seized when appropriate), seacocks, stern gland, toilet plumbing, etc.
- 2.3 Availability of reserve navigation lights and general spares.

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- 2.4 Marking of floating equipment with vessel name.
- 2.5 Check and overhaul dan buoy, jon buoy, MoB modules, lifeslings etc.
- 2.6 Understand that dormant water or dirt in a fuel tank may be kicked up and taken into the engine in very rough weather - ensure that engine oil and fuel filler caps etc are kept clean and secure.

Session 3 Storm sails

- 3.1 Storm and heavy-weather sails including those on board the trainee's boat.
- 3.2 How are they set?
- 3.3 Where are they stowed?
- 3.4 importance of practicing from time to time even in light weather.
- 3.5 Understand the changed pressures on the rig when using reduced sail in very heavy weather.
- 3.6 Dangers of heavy water breaking over the boat and carrying away poorly-stowed sails and sails set too low down.
- 3.7 Danger of heavy metal shackles in storm sails
- 3.8 Importance of bright colour in storm sails.
- 3.9 Value (in some boats) of lashing down the main boom in heavy weather and setting a trysail without the boom.

Session 4 Damage Control and Repair

- 4.1 Plan to minimise damage in forthcoming heavy weather
- 4.2 Remedial action including use of spare materials and tools to cope with:-
 - .1 loss of rudder/steering
 - .2 loss of mast
 - .3 flooding due to (a) collision damage forward, (b) amidships, (c) aft,(d) seacock failure
 - .4 stranding
 - .5 severe weather damage eg (a) hatch ripped off, (b) coachroof split
 - .6 loss of keel and/or capsize
 - .7 collision with another vessel, a submerged object (eg container), sea life, etc.

Session 5 Heavy Weather – crew routines, boat handling, drogues

- 5.1 Detailed examination of risks, solutions and contingency plans including crew routines for:-
 - .1 general working in exposed positions – hooking on before leaving hatchway, remaining hooked on at all times (dual hooking), telling someone when going forward, when lifejackets and harnesses shall be worn, value of personal EPIRBs (PLBs) especially with on-board D/F

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- .2 preparation for rough weather – secure stowage for moving items.
 - .3 ensure jackstays rigged
 - .4 rough weather operations
 - .5 severe weather strategies
 - .6 galley operations lee strops, preparing hot food in thermos containers in advance of heavy weather
 - .7 importance of high visibility of yacht in heavy seaway: display of orange surface, use of white light or strobe light on deck or in rig (also of use on a dull day) consider flying radar reflector if robust type.
- 5.2 boat handling in a seaway noting in particular helming techniques and effect of conditions on boat and crew taking into account:-
- .1 strength of wind
 - .2 duration of high wind
 - .3 length of fetch
 - .4 wave pattern
 - .5 definition of wave height and length including assessment methods
 - .6 wave refraction
 - .7 multiple wave patterns
 - .8 waves in tidal/current conditions
 - .9 predicting dangerous wave conditions
 - .10 angle of boat to a seaway and to individual waves
 - .11 early sail changes, sail change procedures, knowing the boat and its characteristics and tendencies
 - .12 heaving-to
 - .13 assessing options eg to stand off or cross a barred entrance
- 5.3 Effect of a drogue on a boat in severe weather

Session 6 Man overboard prevention and recovery

6.1 Prevention

- .1 lifelines to be maintained in accordance with Special Regulations
- .2 harness to be clipped on at night and in rough weather (see C5.1.1)
- .3 drawback of plain harness hooks
- .4 harness crotch straps prevent “slip-out”
- .5 use the sea toilet in bad weather not the stern
- .6 encourage the use of shorter safety line and in particular lines with mid-line clips as being most adaptable (highlighting issues with being towed in the water at speed while in a harness and

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how a shorter line (less than 1m) both aids recovery and reduces potential risk particularly on high performance boats)

6.2 Recovery

- .1 well-drilled routine (see Special Regulations Appendix D)
- .2 "Mayday" on radio is valid if necessary
- .3 quickly accessible hoisting rig
- .4 value of horizontal lift and retention of horizontal position
- .5 procedure and team ready to re-clothe, re-warm and check recovered person for injury, advising shore if necessary
- .6 use of whistle, SOLAS-type lifejacket light, strobe light.

Session 7 Giving Assistance to other craft

7.1 Legal and rules requirements

- .1 SOLAS obligations apply to all ships on all voyages**
- .2 Racing Rules of Sailing**
- .3 moral imperative
- .4 communications obligations**
- .5 log-keeping obligations**

**see supplement one (below)

7.2 manoeuvring close to a vessel sinking

- .1 keep other vessel and shore informed
- .2 be prepared to recover personnel from the water or a liferaft
- .3 tactics if other vessel is on fire

7.3 understand that another yacht may be the only source of help.

7.4 towing and being towed

Session 8 Hypothermia

8.1 Actively counter its development by wearing proper protective clothing

8.2 Know the symptoms- shivering, irritability, lethargy, stumbling, slurred speech, loss of memory, victim feels cold, looks pale, breathing slow, pulse weak, leading to collapse and unconsciousness.

8.3 treatment - see First Aid at Sea by Justins and Berry or other textbook

8.4 do not – give alcohol, rub the skin to warm, or give up resuscitation.

8.5 value of immersion suits, thermal protective aids (TPA's)

Session 9 SAR organisation and methods

9.1 with regard to the SAR authorities in the areas sailed, know:

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- .2 their landline number to advise them of passage planning if appropriate
- .3 how to call them in emergency
- .4 what facilities they have (and don't have)
- .5 if helicopters are in use, know the sea-rescue system (hi-line, basket pick-up, winchman bridle, etc.) and whether a pick-up from a deck, in the water, or in a liferaft is preferred
- .6 know what radio frequency to expect to use for direct contact
- .7 know what fixed-wing aircraft may be deployed
- .8 understand fixed-wing search patterns, signal flares
- .9 have a knowledge of global SAR organisation
- .10 how to cope with rescue attempts from passing ships
- .11 knowledge of new IAMSAR for small craft

Session 10 Weather Forecasting

- 10.1 sources of weather forecasts
- 10.2 terms and definitions and their exact meaning
- 10.3 Beaufort wind scale compared with mph (statute miles per hour) and speed in knots (nautical miles per hour), and sea state scale. Know that wind gusts may exceed forecast speeds by 40% or more and wave height may exceed forecast height by 87% or more
- 10.4 logging own weather observations of cloud, wind, sea, barometer, sea temperature (sometimes critical) and air temperature, etc.: making own deductions
- 10.5 be prepared for local abnormalities

Session 11 Liferafts and Lifejackets (theory)

11.1 Liferafts (theory)

- 11.1.2 knowledge of liferaft standards: SOLAS, ISAF Appendix A Part II and ORC and ISO 9650 Part 1 Type 1 Group A plus OSR requirements.
- 11.1.3 stowage, care and servicing of liferafts
- 11.1.4 liferaft emergency packs
- 11.1.5 grab bag contents and application
- 11.1.6 two key elements in combating liferaft capsize – drogue, ballast water pockets
- 11.1.7 the capsize mechanism and the re-righting procedure
- 11.1.8 when and how to launch a liferaft
- 11.1.9 protecting a liferaft in the minimum time it is alongside after launch
- 11.1.10 boarding a liferaft if possible dry: use of dry suits if possible
- 11.1.11 boarding a liferaft from the water: importance of boarding ramp and grab lines

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- 11.1.12 crew organisation both before boarding and within liferaft:: signalling for help, watchkeeping, damage repair, medical, water, food, keeping up morale, psychology of survival.
- 11.1.13 knowledge of physiological shock of cold water and hypothermia (see session 8) and its effect on human performance in tasks like liferaft operation and survival.
- 11.1.14 use of SART (optional in grab bag).

Session 11.2 Lifejackets (theory)

- 11.2.1 Understand the terminology in your part of the world: know the difference between a 150N lifejacket (or equivalent title) capable of turning over an unconscious person in the water to the face-up position within 30 seconds, and a lesser device which may only aid buoyancy.
- 11.2.2 Understand the accessories required in Special Regulations: whistle, marine-grade retro-reflective material, yacht's or wearer's name
- 11.2.3 Understand the accessories and attributes recommended in Special Regulations: light in accordance with the SOLAS LSA code, compliance with EN376 (ISO 12402) or near equivalent, crotch strap, splash guard
- 11.2.3 Know the relative merits and methods of use of all-inflatable buoyancy and part-fixed, part-inflatable, automatic inflation, gas inflation on demand, mouth-only inflation.
- 11.2.3 Know the importance of a good fit, lifejacket organised for quick donning, compatibility with harness.

Session 12 Exam (1)

This exam is one of two. Time for answering questions -about 15 minutes, with 5 minutes for marking after swapping the papers amongst the class. Questions should be set to be answered quickly, eg multiple-choice, with at least two questions needing some narrative or listing. Overall assessment for the course will be a combination of the two exams plus the tutors' assessments during class and practical work. (See introduction paragraph 4)

Session 13 Liferrafts and Lifejackets (practical)

- .1 a pool with a wave-making facility will add realism
- .2 trainees to don shirt and trousers plus oilskins and to try swimming first without, then with 150N lifejackets. Majority of exercises with all trainees wearing 150N lifejackets.
- .3 inflate a liferaft and transfer a full complement into the raft (a) from the poolside (b) from the water (show difference between boarding with ramp and without): paddle the liferaft for a distance.

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- .4 capsize a liferaft and have each trainee right the raft whilst swimming
- .5 trainees to haul into a raft one survivor who plays helpless
- .6 In fully-loaded raft trainees to check out all equipment, including that in grab bag, deploying or using everything including food and water.
- .7 trainee to attempt heliograph signalling (using spotlight in roof) from liferaft (more difficult if in wave-making pool).
- .8 trainees to operate WT VHF hand-held and WT hand-held GPS talking to instructor as if a rescue vessel.
- .9 trainees to try lifejackets both with and without crotch straps in place.
- .10 each trainee to experience use of the splashguard in wave conditions.
- .11 group to investigate ability of lifejacket to self-right.
- .12 forming circle in water to aid visibility/morale – HELP/Huddle techniques
- .13 towing an unconscious person
- .14 assistance using throwing line to recover nearby survivor
- .15 the opportunity of using the pool may be taken to demonstrate MOB modules, Lifeslings, lifebuoys etc.
- .16 if a darkened pool is available, demonstrate retro-reflective tape.
- .17 trainees who depend on spectacles may consider having an indestructible pair as part of their personal survival kit.

Sessions 14/15 Fire precautions and fire fighting (theory and practical)

- .1 fire theory
- .2 most common causes of fire in small craft
- .3 prevention
- .4 equipment – fire extinguishers, fire blankets, services, tested, maintained, fit for purpose. Advantages/ disadvantages of various types of extinguisher.
- .5 practical operation of fire extinguishers (actual fire is not required in this training course)

Sessions 16/17 Communications equipment (VHF, GMDSS, satcomms) (theory and practical)

- .1 VHF main installations and hand-helds.
- .2 Special Regulations requirements for VHF 25W output, masthead antenna, emergency antenna.
- .3 SSB (knowledge of email and other services via some shore stations, daily cruising yacht schedules, etc.).
- .4 Satcoms: A, B, C, D and M. Non-INMARSAT types (eg Iridium).

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- .5 Terrestrial cellphones. Limitations.
- .6 GMDSS, DSC, AIS.
- .7 Aviation VHF and its use in SAR.
- .8 Obligation to log communications connected with distress working**

**see Supplement below

Sessions 18/19 Pyrotechnics and EPIRBs (theory and practical)

- .1 pyrotechnics required in Special Regulations: hand flares, parachute flares, smoke signals. Usage, precautions, range of visibility, duration, behaviour in high winds, altitude of parachute flares and avoiding conflict with aircraft, different operating mechanisms.
- .2 stowage of pyrotechnics including some for ready use.
- .3 use of white flares
- .4 understand the operation of the 406 MHz EPIRB and its ancillary 121.5 beacon; the phasing out of 121.5 MHz as a distress alert system but its use in local area homing by SAR units and yachts with special-purpose D/F receivers on board in conjunction with PLB's.
- .5 understand the operation of ARGOS-type beacons.
- .6 understand the integration of distress beacons in the GMDSS framework.
- .7 Draw attention to Inmarsat Safety Services' web link: www.inmarsat.com/safety which contains a wealth of information about maritime safety and security – including reception of maritime safety information via Inmarsat C or mini-C. It is useful for more than GMDSS alone.

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Session 20 Exam (2)

This exam is one of two. Time for answering questions -about 15 minutes, with 5 minutes for marking after swapping the papers amongst the class. . Questions should be set to be answered quickly, eg multiple-choice, with at least two questions needing some narrative or listing. Overall assessment for the course will be a combination of the two exams plus the tutors' assessments during class and practical work. (See Introduction paragraph 4 for marking details).

Supplement One

1 The Racing Rules of Sailing state:-

"1 SAFETY

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1.1 Helping Those in Danger

A boat or competitor shall give all possible help to any person or vessel in danger”

2 SOLAS Convention Chapter V

Regulation 33 (replaces old Regulation 10) states:-

“The master of a ship at sea which is in a position to be able to provide assistance, on receiving a signal from any source that persons are in distress at sea, is bound to proceed with all speed to their assistance, if possible informing them or the SAR service that the ship is doing so. If the ship receiving the distress alert is unable or, in the special circumstances of the case, considers it unreasonable or unnecessary to proceed to their assistance, the master must enter in the log-book the reason for failing to proceed to the assistance of the persons in distress and, taking into account the recommendations of the Organization++, inform the appropriate SAR service accordingly.

++Refer to the immediate action to be taken by each ship on receipt of a distress message in the IAMSAR Manual, as it may be amended.”

Reference to the original text and its context is strongly recommended.

3 Annual Summary of Admiralty Notices to Mariners NP 247 Section 4 Paragraph 1 states:-

“The radio watch on the international distress frequencies, which certain classes of ships are required to keep when at sea, is one of the most important factors in the arrangements for the rescue of people in distress at sea, and every ship should make its contribution to safety by guarding one or more of these distress frequencies for as long as is practicable whether or not required to do so by regulation.”