COASTAL NAVIGATION FOR SMALL BOATS

Notes for Instructors

Aim:
The aim of this course is to provide participants with the skills and knowledge required to safely navigate a boat by day and by night in coastal waters with which they are familiar. It is intended as preparation for;

- ISA Advanced Powerboat Certificate (open powerboats)
- ISA Advanced Sailing Certificate (sailing dinghies, keelboats or catamarans).

Previous experience / knowledge required
Participants should have completed either,

- ISA National Powerboat Certificate (open powerboats)
- ISA Improving Skills Certificate (sailing dinghies, keelboats or catamarans)
- ISA Competent Crew Certificate (sailing yachts)
- ISA Helmsman Certificate (motor yachts)

Duration:
Coastal Navigation for Small Boats must consist of a minimum of 8 hours contact time. However; the length of the course may be extended where it suits, or is necessary, for participants to take a more relaxed approach to the programme.

The course may be broken into modules, however where this is done the modules should be of no less that 2 hours each and spread over no more than 2 weeks. Addition time may be need where this approach is taken unless participants are completing exercises as “homework”.

Types of Boats
The course is entirely shore-based. No boats are used.

Instructor Qualifications
This course may be run by;

- ISA Advanced Powerboat Instructor
- ISA Advanced Sailing Instructor
- ISA Yachtmaster Instructor

Teaching Ratios
12 participants : 1 instructor

Advanced Powerboat Instructors who qualified before 1/9/06 must attend a one day workshop on the new Coastal Navigation for Small Boats course before 1/9/07 in order to retain their Advanced Powerboat Instructor qualification beyond 1/9/07.

Instructors holding the following qualifications are exempt from this but must still contact the ISA in order to have their qualifications ratified.

- ISA Yachtmaster Coastal, Offshore or Ocean
- ISA Yachtmaster Shorebased Instructor or ISA Yachtmaster Instructor.

Assessment
The certificate is a course completion certificate only. It is not a competency certificate. Consequently, there is no assessed element. Participants attending the entire programmed course and who have demonstrated an understanding of the principals taught during the course may receive a certificate.

Weather	
Be able to identify common weather conditions and describe how they may affect your powerboating activities.	Participants should be able to Describe the weather conditions associated with high and low pressures, cold/warm/occluded fronts, sea breezes, fog, thunderstorm activity Describe how these weather conditions can affect powerboating activity and what steps they would take to avoid or reduce risk.
Be able to identify sources of weather forecasts	Sources should include: ▪ Website ▪ Weatherdial / Weatherfax ▪ IRCG Weather reports ▪ RTE Sea Area Forecasts ▪ TV / Radio / Papers ▪ Marina offices, club noticeboards etc
Be able to interpret the forecast with regard to planned activities.	Using the weather forecast for the day, the participants should be able to: • Determine the wind speed and direction, visibility, precipitation, temperature etc for the day and any • Describe how prevailing and expected weather conditions will affect their powerboating activity for the day.
Be able to explain the significance of commonly used terms in marine forecasts.	Be able to identify the terms used to ▪ describe visibility ▪ describe the speed of movement of weather systems and relate these to boating activities.
Be able to identify the significance to powerboaters of common weather patterns illustrated on synoptic chart	Using the current synoptic chart for the day, participants should be able to identify the air masses, fronts, wind speed, likely frontal activity, cloud type and amount and explain how these are significant in planning a powerboat passage or days activities

Navigation	
Have demonstrated that you can;	
• Orientate a chart or map using topographical features, navigation marks and / or a compass.	Using a local chart or map (inland waters only), the participant should be able to: • orientate a chart / map correctly (line it up with the surrounding features). • be able to identify their location on the chart. • Correctly identify visible topographical features or navigation marks on the chart by using the compass and other means available.
• Identify features, including hazards, from a chart.	The participant must be able to identify common features including; harbours, drying areas, rocks, beaches, navigation marks, depths, drying heights and be able to describe where to find out others.
• Identify your position on the chart.	Using a hand bearing compass to obtain a number of bearings, the trainee should be able to determine their position on the chart / map.
• Identify distances from the chart and accurately predict expected progress	Using the chart and an appropriate measuring device, the trainee should be able to obtain the distances between any two objects or positions.
• Describe the effects of compass deviation and variation.	**Useful teaching tip:** pass a mobile phone over a hand bearing compass and demonstrate the affect of the magnetic field of the mobile on the compass needle, and then translate the concept to the earth's core for variation and equipment, metal etc on board the vessel for deviation.
• Use transits to fix position and hold a course.	The participant must be able to: • Identify transits from chart and use them on the water to hold a course for a specified distance. • Use transits as a position fixing aid.
• Plot a course to steer, taking account of the effects of wind & current.	The trainee must be able to plot a course to steer using tidal and leeway vectors, showing the correct arrow symbols for course over water, over ground and tidal vector
Be able to describe the principal features of, and considerations to be made, when using the following equipment to navigate by day and by night.	
▪ GPS	Participants must be able to • Identify appropriate waypoint from a chart and input these into GPS • Establish the range and bearing from waypoint to waypoint using the GPS. • Identify cross track error and correct his/her course accordingly.
▪ Electronic Chart plotter	Participants must be able to • Identify the role chart plotters can play in developing and execution a passage plan.
▪ Radar	Participants must be able to; Identify the principal functions & capabilities of radar – collision avoidance, position fixing, range finding. Identify limitations of radar when used on a powerboat – limited height, changing beam angle etc.

	▪ Depth sounder	Participants must be able to • Identify depth of water from the depth sounder. • Relate depth of water to the chart to the chart to confirm position. • Demonstrate the use of the depth sounder to stay in a channel or deep water as required.
	▪ Compass	Participants must be able to • use a hand bearing compass to obtain bearings from a number of landmarks establish their position on a chart from these bearings
Be able to identify		
The principal day marks used in IALA A buoyage system and describe their significance.		Participants must be able to: Identify and describe the characteristics of(shape, colour etc) of the following: ▪ Port and starboard lateral marks ▪ North South East and West Cardinal Marks ▪ Special Marks ▪ Isolated Danger Marks ▪ Safe Water Marks Identify each of these marks on a chart. Describe what each of these marks signifies, how to approach the mark and on which side to pass the marks
Be able to identify these buoys at night.		Participants must be able to: • Describe the light characteristics (sequence and colour) the marks listed above. • Identify a mark on the chart from its light. Teaching tip: Cardinal Lights – Relate cardinal points of compass to a clock – continuous flashes for 12 o'clock, 3 flashes for 3 o'clock, 6 short and one long for 6 o'clock and 9 flashes for 9 o'clock. Reason for 6 short and 1 long is to avoid confusion in counting 6 and 9 and avoid confusing South and West light sequences.

Passage Planning	
Have devised passage / pilotage plans for;	
• A coastal passage by day	Participants must be able to discuss and answer questions on their prepared passage and pilotage plans. They should be able to show how courses to steer were calculated, the tidal information used, use of transits and clearing lines if appropriate and estimate times for each leg of the passage.. Pre-passage checks should be included.
• A coastal passage by night	As above but including relevant lit navigation marks.
• entering into and departing from a harbour.	Pilotage plans should include buoyage, transits, clearing lines, distances etc and include full details of any lit navigaion marks
Be able to identify where to obtain the information needed to devise a passage plan.	Participants must be able to describe where they obtained the information used to prepare the passage plan, including almanacs, tide tables, coastal pilot guides, charts, etc
Be able to programme a passage plan into a GPS set.	The waypoints determined on the passage plan must be correctly entered in the GPS, named or numbered appropriately, and route established.
Be able to accurately predict how much fuel you will need	Participants must be able to accurately predict how much fuel will be required for the passage based on average consumption per HP and be able to determine how much spare fuel should be carried using the “one third rule”

Coastal Knowledge	
Be able to describe the effect tides can have on your powerboating activities.	Participants must be able to describe the effect of tidal streams and ranges on powerboating activity, including : • Effect on launching and recovery, clearing navigational hazards, wind against tide, overfalls, rips etc, • Tidal vectors for longer legs or passages where it may affect course to steer.
Be able to identify relevant tidal information on charts and in almanacs.	Using a chart and almanac, the trainee must demonstrate where to find the relevant tidal information required to calculate tidal heights and rates of flow for the planned passage(s).
Be able to calculate tidal heights and rates of flow for any port and apply these when planning activities.	Participants need to be able to determine tidal heights for secondary ports and apply this to passage planning. A useful exercise to include on the passage plan is to determine the times that one can enter a restricted harbour based on height above datum required for the boat used to enter safely.

Application of "Rules of the Road"	
Be able to identify the type, aspect and behaviour of vessels by day and by night from navigation lights and day shapes	The trainee must be able to identify the day shapes and navigation lights for the following vessel types: ▪ Vessel motor-sailing ▪ Vessel at anchor ▪ Vessel not under command ▪ Vessel aground ▪ Vessel engaged in fishing ▪ Vessel restricted in ability to manoeuvre (including safe side to pass) ▪ Vessel constrained by draught ▪ Vessel engaged in diving operations Vessel towing (and being towed)
Be able to identify the correct navigation lights and day shapes to use on powerboats used.	Participants must be able to identify: • Side lights, steaming light and stern light and all round white as appropriate and explain how and when these might be used on a powerboat. • Daymarks used on a powerboat including the anchor ball, (Code flag A)"Diver Down" shape and show where & how these should be displayed.
Be able to use and understand manoeuvring (sound) signals.	Participants must be able to identify and use sound signals for the following: ▪ Altering course to starboard ▪ Altering course to port ▪ Engaging astern propulsion ▪ I do not understand your intentions ▪ Making way in restricted visibility (normal and RAM etc vessels) ▪ Towing in restricted visibility ▪ Overtaking port and starboard and answering signals Distress sound signals

Safety	
Be able to describe when and how to summon assistance.	Participants must be able to; • Describe the correct use of radio, sound and visual communications in emergency situations including VHF radio, distress flares, mobile phones hand signals and sound signals. • Describe in what circumstances they should request assistance. It should be explained that if in doubt, they should call the Coast Guard and explain their situation, Often the Coast Guard will make the decision whether and if so what mean of assistance will be rendered.
Be able to describe how to manage a medical emergency afloat.	Participants must be able to • Describe how to obtain medical assistance by VHF (using the Medico Cork leaflet) and in what circumstances they would seek medical assistance. • Describe the use of and limitations of a first aid kit on board a small open vessel.
Be able to describe causes, symptoms & remedies for;	
• Hypothermia	Participants must be able to describe the symptoms and treatment for hypothermia, the need for maintaining body temperature and warming up if possible.
• Sea sickness	Participants must be able to describe the symptoms and treatment for sea sickness, including returning to shore, and be able to identify by how much a crew is reduced by sea sickness (usually by two persons – one who is sick and one who should be looking after him/her).
• Sun stroke	Participants must be able to describe the symptoms and treatment for sunstroke and the importance of protection from the sun and overheating.
• Dehydration	Participants must be able to describe the symptoms and treatment for dehydration and the need for constant intake of fluids while afloat, especially in hot sunny weather.

Further training	
Be able to identify what further training courses are available and where to find out about them.	ISA Recreational Powerboat course, Safety Boat and Dive boat courses ISA Yachtmaster Coastal Sea Survival, VHF Radio and First Aid. Details from ISA website, ISA Training Centres, ISA Office