

Guidance Notes

Passenger Safety on Small Commercial High Speed Craft

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Foreword

This guide provides skippers with information on the safe operation of small commercial high speed craft, such as Rigid Inflatable Boats (RIBs), sports boats and other purpose built vessels engaged in carrying passengers on fast sightseeing and adventure trips. It should be considered as a guide to best practice to ensure there is a balance struck between passenger enjoyment and their welfare.

For many passengers, this trip may be their first experience afloat in this type of craft. However competent skippers may be, with time they can become accustomed to the thrill and thus provide a ride that is exciting to themselves but, at the same time, could be considered terrifying by their passengers.

Another important consideration is that most passengers will probably have little, if any, boat awareness and will not be able to anticipate what will happen as the craft encounters varying sea conditions. In contrast to a thrill ride at a theme park where every twist, drop and turn is calculated to remain within acceptable safe parameters, a ride on a small high speed craft can be unpredictable and relies heavily upon the skill and judgement of the skipper at the helm.

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Photo courtesy of Ribcraft

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1. Introduction

This guide covers the practical aspects of passenger safety and comfort afloat. It should be read in conjunction with the 'Small Passenger Craft High Speed Experience Rides Guidance' published by the Passenger Boat Association (PBA) which is an owners' and operators' guide giving details on best practice for the safe management of the vessel and dealing with passengers before they step on board.

2. Managing Phases of the Passage

The management of passage phases is jointly addressed in this document (for operational considerations) and the PBA's 'Small Passenger Craft High Speed Experience Rides Guidance' (for management considerations).

The following suggestions for all aspects of carrying passengers from initial booking to disembarking, have been gleaned from experience and should, as a minimum, be evaluated in respect of high speed passenger operations.

3. Management Considerations

Manning and qualification requirements and the suitability of potential passengers are addressed in the PBA's document 'Small Passenger Craft High Speed Experience Rides Guidance', which should be read in conjunction with this document.

4. Crew:Passenger Ratio

- 4.1 The maximum number of passengers that can be carried safely on the vessel will be described in the Small Commercial Vessel (SCV) certificate. Under this Code the number of passengers will never exceed 12.
- 4.2 For vessels carrying more than 12 passengers, the maximum number of passengers must never exceed the vessel's Passenger Certificate.

While the Code of Practice for Small Commercial Vessels allows for craft in this category to operate with only a skipper, it is recommended that operators carry an additional trained crew member to assist in the safe operation of the craft and to monitor crew comfort. The additional crew member could prove essential in the event of an emergency requiring attention to a passenger, while the vessel returns to a safe haven.

When operating a vessel without an additional crew member, the SCV code of practice requires that the skipper should ensure that at least one other person on board is briefed on the following:

- Location of liferafts and the method of launching
- Procedures for the recovery of a person from the water
- Location and use of pyrotechnics
- Procedure for the operation of radios carried on board
- Location of navigation and other light switches
- Location and use of fire fighting equipment
- Method of starting stopping and controlling the main engine
- Method of navigating to a suitable port of refuge

5. Area of Operation

- 5.1 The majority of sightseeing trips follow a predetermined route to take in specific sites as advertised in the company's literature, eg bird watching at certain predetermined view points. However, it is recognised that some trips will require the vessel to seek out its attraction. For example, dolphins may frequent an area but it is down to the skipper to locate them on a particular day.
- 5.2 Thrill experience operators should ensure that, where practical, their procedures take into account interaction with other craft, avoid unacceptable hazards and clearly define routes to be taken.
- 5.3 In all cases it is important that operating parameters are set by the operator and that the skipper does not stray from the agreed area. Skippers, even if operating within the set parameters, should continue to dynamically risk assess the developing situation and always be prepared to curtail a trip. Operating procedures should take account of this.
- 5.4 Small high speed craft can be highly susceptible to changes in local sea conditions, so it is essential that skippers and crew are aware of all risks within their agreed operating area.
- 5.5 Operating in an area that is not covered by the operating procedures should be avoided.

6. Weather Limitations

- 6.1 When planning a trip on a given day, always take into account the weather forecast and make an assessment of the conditions that may be encountered.
- 6.2 If the conditions are less than favourable, consider reducing passenger numbers, reviewing seating positions and limiting speed. It may even be prudent to consider postponement or cancellation.
- 6.3 If approaching an area known to be hazardous in the prevailing conditions, stop and reassess your passage plan. If, by entering this area, you are committing the vessel to a potentially unacceptable risk, you should divert around the hazard or even consider turning back.

7. Passenger Safety Briefing

- 7.1 Operators have a responsibility of care to passengers and as such must ensure that skippers are sufficiently competent to drive the vessel and brief and assess passengers' suitability for the forthcoming experience. Monitoring the passengers during the voyage is essential



7.3 Not all passengers are suitable to engage in fast craft experiences. Very young children, elderly persons, people with reduced mobility and, in particular, pregnant ladies, post menopausal women, particularly those with a family history of osteoporosis, people with back or spine conditions and people with long term medical problems (particularly those who take steroids regularly) are examples of unsuitable passengers who will be exposed to increased risk.

The frail or elderly and those who cannot effectively brace themselves should also be discouraged from boarding. Passengers of many of the above descriptions have sustained injuries in the past. Refusal of passage for the above reasons should be handled with sensitivity.

7.3 Key to passenger safety onboard a craft of this type is a good pre-departure safety briefing. It sets the scene for what is to follow and gives the opportunity to assess the passengers' suitability and build their confidence and understanding of what is expected. Getting passengers to interact at this point should ensure they are more likely to inform you of any discomfort encountered during the voyage.

7.4 Before the start of every voyage the skipper must ensure that a safety briefing is given, which should include correct fitting and operation of lifejackets, the location and use of thermal protective aids and lifebuoys, and the procedures to be followed in an emergency. Suitable outdoor clothing and footwear is recommended.

It is acceptable to use safety cards in order to provide the information above, but it is prudent to check passengers' understanding if using this method.

See Annex 'A' – Fitting of Life Jackets

7.5 During the pre-departure brief, skippers should give an overview of the passage with details of any areas of significance, ie possible turbulence that may be encountered.

7.6 It is essential that advice is given on the importance of using correct handholds and adopting a good posture.

7.7 The magnitude of impact and movement on a small high speed craft is greater at the bow and reduces towards the stern. When deciding on where each passenger will sit, the skipper should take this into account.

7.8 It is important that you establish a method of communication for passengers to indicate if they are in discomfort or wish to speak to a crew member. This is often achieved by the individual passenger raising their hand.

7.9 Finally, in order to check that passengers have understood and are happy, encourage them to ask questions. Often, due to perceived peer pressure, personal pride or a desire not to spoil the fun of the majority, passenger feedback will be limited. Nevertheless a good skipper must be confident that all passengers are happy to proceed.

8. Passenger Boarding and Departure

- 8.1 Passengers must be supplied with, and briefed on the use of life jackets, and wear them at all times afloat. MCA requirements are specified in the SCV Codes of Practice.
- 8.2 During the boarding process passengers should be allocated to the most appropriate seating mindful of the ergonomics described in paragraph 7.6 above.
- 8.3 They should be assisted aboard, shown to their seats and advised how to sit, how to prevent vertical shock and how to use the handholds. 8.4 It is recommended that the following procedures and checks are undertaken as the vessel departs from the mooring or quay:
- Mooring ropes and warps inboard and secured ready for use.
 - Passengers remain comfortable and relaxed.
 - Controlled, safe, slow departure with suitable lookout.
 - Vessel systems including engines, electrics and communications equipment functioning correctly.
 - Subject to area of operation, build up speed slowly while monitoring passengers for comfort and posture.
 - Maintain lookout and comply with navigation rules and other waterway users.

9. Safety During Passage

- 9.1 The guiding principle of ensuring a safe ride is to keep the craft in contact with the water. Launching a boat off a wave, or even the wash of another boat, may generate excitement but the forces encountered on landing can be extreme and can cause serious injury. Therefore seeking rough conditions to enhance the thrill of the trip should be considered less than best practice. Even in relatively benign conditions, the shock and vibration experienced can be surprisingly high.
- 9.2 Even in relatively calm conditions, high speed craft have been shown to experience impacts of 20g perpendicular to the deck, and in excess of 10g parallel to the deck.
- 9.3 High speed U and S turns should be carried out gently and at a safe speed. As each vessel will have specific ride characteristics, operators should ensure that their operating procedures clearly state maximum operating parameters to this effect. Again, it is important to remember that a boat travelling at speed and heeling to 15-20° may be exciting to the majority of passengers while frightening the less confident ones. Maintaining a safe speed and correct trim is critical. What can be considered safe on a calm day may become reckless in less favourable conditions. However, this does not mean that reducing speed and/or power is always the correct approach to challenging sea conditions.

- 9.4 Handling a small high speed craft in heavy sea conditions presents many challenges, even to the most experienced skipper, and the ability to find a safe passage through waves using an appropriate speed and correct trim of the vessel is essential. Skippers and crews should be familiar with the type of craft and experienced in the sea conditions they may encounter.
- 9.5 Passengers must be seated in the seats provided. Some small commercial vessel certificates allow for passengers to be seated on the inflatable collar of a RIB, but those passengers may be exposed to an increased risk of back injury due to the rotated posture they will have to adopt. If passengers are to sit on the inflatable collar, operators and skippers should be aware of the additional risks and consider adapting their operating procedures, passage plans and itineraries, especially if sea conditions are less than favourable.
- 9.6 When a boat jumps off a wave, it is usual for the passengers to part company with their seats. When the boat then impacts with the water the passenger can land on the seat with considerable force - increasing their risk of injury. The seats design features, such as the cushioning/padding can increase this risk of injury. While a thick, soft seat pan cushion may be comfortable at rest and in benign sea conditions, when exposed to choppy sea conditions this type of cushioning results in the passenger still travelling downwards - squashing the cushion - while the boat has landed with an impact, and is travelling upwards. This results in an increased impact force on the passenger as they and the boat seat are travelling in opposite directions at the point of impact. Therefore it is better to have seats with thinner, firmer padding.
- 9.7 Passengers should remain seated at all times when the craft is underway and only leave their position when the craft is properly secured alongside and they are instructed to do so by the skipper.

10. Hazard Perception

- 10.1 Hazards (or risks) can be identified and mitigated by applying simple planning based on experience. Many hazards can be recognised and addressed by reviewing the operator's intended business plan and scope of operation throughout the year. These may be considered 'foreseeable' and can be identified through a simple review meeting undertaken by all the key management and staff.
- 10.2 During the trip hazards may also arise spontaneously and without warning. These could occur during any of the trips undertaken in the company's operating area. Identification of hazards within an operating area is essential to the safety of a vessel, but identification alone will not necessarily remove the danger. It often rests with the skipper to make a decision, based on prevailing conditions at the time. What can be perceived as an unacceptable risk to one person may be considered safe by another. With this in mind operators should review carefully all actual and potential hazards, and ensure that robust procedures are in place and that all skippers and crew work within the operating parameters. These hazards may be considered 'spontaneous' and will need quick assessment and mitigation on the part of the skipper and crew while the vessel is underway.

The key to recognising and mitigating hazards is the development of robust and resilient Safety Operating Procedures.

11. Communications

- 11.1 Effective communication is essential, but can only be achieved by maintaining a listening watch on the appropriate channel for the area that you are operating in. Turning down the volume of the marine VHF radio could result in the skipper missing an essential weather or safety broadcast.
- 11.2 In many areas it is a local requirement to report all commercial vessel movements to the relevant authority at the start and finish of each voyage. Operators should ensure that adequate procedures are in place to meet any such requirement.
- 11.3 If mobile phones are used as part of the operator's communication network, their effective range should be assessed in all areas that the vessel may operate.
- 11.4 Skippers and crew members should be familiar with the company's emergency communication plan. This should be developed from experience, local knowledge and risk assessment. To be effective, procedures must be followed regardless of any potential local or commercial embarrassment.
- 11.5 Some operators use their own private channels. However, in an emergency, when the rescue services are required, contact the Coastguard at the earliest opportunity.
- 11.6 Should an emergency occur at sea, it is required that initial Coastguard contact is established by VHF Marine Band radio. A mobile telephone however may be utilised as a potential secondary device.

Annex A – Example of Fitting Life Jackets

(NB Although not illustrated here, life jackets with an additional crotch fitting are recommended)

Explain the waistcoat style and fitting



Assist passenger with fitting



Ensure zip is fastened to the top



Ensure adjustable cords are pulled both sides to give a firm fit



Check that jacket is fitted firmly and correctly



Point out the manual inflation toggle should jacket not inflate automatically



Bibliography

The following references and documents are provided as a source of further information.

The MCA Code of Practice for the Safety of Small Commercial Motor Vessels (Yellow Code)

Marine Guidance Note MGN 280(M) Small vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats

High Speed Craft Human Factors Engineering Design Guide. ABCD-TR-08-01
www.highspeedcraft.org

High Speed Motion, Ergonomics & Injury. Published by ST Research Ltd.

Marine Accident Investigation Branch (MAIB) *Celtic Pioneer* Report No 11/2009

RYA Powerboat Handbook by Paul Glatzel ISBN 0-901501-99-9