Government of **Western Australia**
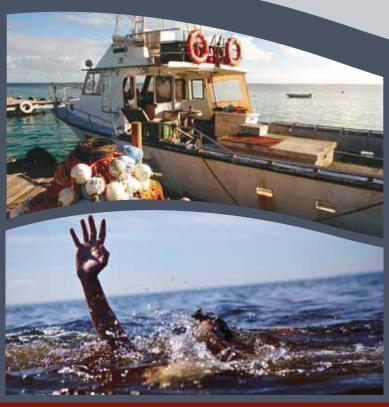Department of **Commerce**

Code of practice
Man overboard:
prevention and response
2010

c o m m i s s i o n
for occupational
safety and health

Code of practice
Man overboard: prevention and response

2010

commission
for occupational
safety and health

Foreword

This code of practice is issued by the Commission for Occupational Safety and Health (the Commission) under the *Occupational Safety and Health Act 1984* (the OSH Act). The Commission's objective is to promote comprehensive and practical preventive strategies that improve the working environment of Western Australians.

To develop this code of practice, the Commission was advised by a tripartite working party consisting of representatives from the Western Australian Fishing Industry Council (Inc), the Department of Transport, UnionsWA, the Commission and WorkSafe in 2008-09.

Scope and application of this code

In June 2010, the Minister for Commerce approved this code under section 57 of the OSH Act.

This code provides general guidance for all commercial fishing industry vessels in Western Australia on the management of occupational safety and health issues relevant to the prevention of and response to man overboard incidents. While there are systems of work considerations in relation to eliminating and reducing the risks, this code's focus is on general safety and health issues relevant to man overboard events.

Users of this code will need to look at their operation and its level of risk in relation to man overboard, as this code does not deal with every situation that may be found on commercial fishing vessels. Capability, operations, situations, equipment, machinery and tasks vary and hazards and risks not referred to in this code may arise requiring controls other than those recommended in this code.

Relationship between this code and the *Western Australian Marine Act 1982*

The *Western Australian Marine Act 1982* (the Marine Act) and supporting regulations contain specifications in relation to vessel safety and vessel survey, which must be met. However, where the OSH Act applies, there is also a general 'duty of care' obligation to ensure the safety and health of crew and to comply with specific regulations for safety under the Occupational Safety and Health Regulations 1996 (the OSH Regulations). In effect, this means that both the Marine Act and the OSH Act and supporting regulations must be complied with. This code's focus is on meeting the obligations under the OSH Act and the OSH Regulations.

Working arrangements and general 'duty of care' responsibilities for safety and health

While vessels will have different working arrangements, such as an employer/employee relationship, a share fishing arrangement or a self-employed operator, all people and parties involved will have general duties to ensure the safety and health of crew on a vessel.

The employer's general 'duty of care' obligations for safety and health under the OSH Act includes:

• providing a safe workplace and system of work, as far as practicable, so crew are not exposed to hazards;

• providing crew with information, instruction, training and supervision to enable them to work in a safe manner;

• consulting and co-operating with crew and safety and health representatives (where they exist) in matters related to safety and health at work; and

• where it is not practicable to avoid hazards at the workplace, providing crew with adequate personal protective clothing and equipment.

Where crew are employees, they must:

- take reasonable care to ensure their own safety and health at work and that of others who may be affected by their work;

- use protective clothing and equipment in the way they have been instructed;

- report hazards; and

- cooperate with their employer on safety and health matters.

People who engage contractors and their workers, or have a labour arrangement or hire labour, have the above-mentioned responsibilities of an employer towards their workers in relation to matters over which they have the capacity to have control. Crew in these arrangements have the above-mentioned duties of an employee.

In addition, self-employed people, under the OSH Act, must:

- take reasonable care to ensure their own safety and health at work; and

- ensure their work does not affect the safety and health of others.

People who have, to any extent, control of a workplace where people work must undertake measures to ensure there are no hazards that could arise from the state of the workplace.

Whatever the working arrangement on the vessel, all crew need to receive adequate information, instruction, training and supervision to meet their duties and work safely.

Who should use this code of practice?

This code of practice has been developed by the Commission to assist all people and parties involved in the commercial fishing industry.

Contents

1.   Introduction

Accidentally falling overboard from a commercial fishing vessel has led to the death of many workers over the years. To address the risks, 'man overboard' is a safety and health issue requiring constant review to ensure the best possible measures are in place to prevent and respond to incidents.

People with responsibilities for the safety and health of crew on fishing vessels must ensure that there are:

- safe systems of work in place to prevent man overboard incidents;

- effective emergency measures in place to minimise the risks of injury, harm or death if man overboard incidents occur; and

- a systematic risk management process in place to address potential hazards and risks in relation to man overboard.

This code provides an overview of the risk management processes to be conducted for all types of commercial fishing vessels in relation to prevention of and response to man overboard incidents. While there are systems of work issues to look at when eliminating and reducing the risks of falls overboard, this code's main focus is on addressing general issues in relation to man overboard.

> See the Glossary in Appendix 5 for an explanation of 'safe systems of work'.

To help you get started carrying out the risk management process for a vessel and/or operation, the MOB risk management tool in Appendix 1 is provided. The risk management process must be tailored for each vessel and the conditions in which it operates, as vessels and situations in which they operate and the tasks on board differ. Recommendations for controls to implement are in Section 2.5.

Man overboard deaths of skippers and crew in Western Australia

Many workers in Western Australia have died as a result of accidentally going overboard from a commercial fishing vessel. These deaths have included:

- a deck hand who drowned at sea when he left the wheelhouse of a cray fishing boat to urinate over the side. When he had not returned after several minutes, an alarm was raised;

- a crew member who went missing while on watch, with the skipper waking later to find him missing;

- a deck hand who went missing, after he was last seen at the rear of a fishing boat smoking a cigarette;

- a deck hand who fell over board at night from a prawn trawler when trying to reach a lazy line rope; and

- a skipper/owner of a cray boat who drowned when he was washed overboard.

Two types of falls to address in risk management

The types of man overboard incidents on commercial fishing vessels that have led to deaths of crew include:

- falls nobody sees, for example when working alone or on watch, having a cigarette or urinating over the side; and

- falls when working or being on deck, which crew see as they happen.

The potential for both types of falls to occur, and a quick response to them, must be addressed as part of the risk management for a vessel and emergency planning.

1.1   Ensuring safety and health on a vessel

Multiple safety issues can contribute to a death from falling overboard

The deaths of fishing crew in Western Australia from accidentally falling overboard have shown that more than one safety issue has played a role, both with the prevention of the fall in the first place and the emergency response. For example, with the death of a deck hand at night off a prawn trawler:

- there was an unsafe safe work practice, as the deck hand fell when he was trying to reach a lazy line by stepping onto a gunnel;

- there was an inexperienced worker, as the deck hand was a first timer and had been on board less than a week;

- there was inadequate training and supervision;

- the search lights were not working and there was no light from the moon;

- the vessel failed to complete a Williamson Turn and get back close to the original track; and

- the deck hand was not wearing an automatically inflatable personal floatation device (PFD), which may have helped him float and be visible in the water.

Important measures to ensure the safety and health of crew to prevent and respond to man overboard include:

- ensuring there is a safe system of work for all tasks so crew are not exposed to hazards, which takes into account any unique vessel characteristics and specific vessel requirements;

- ensuring there are adequate inductions, information, instruction and training on safe working practices that address any hazards that cannot be eliminated and enable crew to work safely. This must include training and drills on emergencies. Note that there is also a requirement under the marine safety legislation that training and inductions must occur;

- checking the safe working order of vessel, machinery and equipment;

- ensuring that day to day practices, such as standing on bollards, hatches or other raised surfaces or using ladders close to the gunnels/bulwark, do not place crew at risk of falling overboard;

- ensuring there is adequate supervision according to each crew member's skills and experience;

- consulting and co-operating with crew about safety on board and hazards and risks they are aware of;

- implementing a procedure for reporting hazards, letting crew know about them and getting them addressed through the risk management process; and

- where it is not practical to avoid hazards at the workplace, providing crew with adequate personal protective clothing and equipment.

As many general safety issues are relevant to the prevention of man overboard incidents and the response to them, the control measures implemented for man overboard should be incorporated into **a vessel safety management plan** to address multiple hazards.

The role of crew

Crew have a role to play in safety and health on a vessel as well. This includes:

- ensuring they work safely and do not affect the safety and health of other crew;

- using protective clothing in the way they have been instructed;

- reporting situations that may be hazardous; and

- cooperating on safety and health matters.

Crew must be consulted on safety and health matters. The benefit of consulting crew and getting their involvement in the risk management process is that:

- they are most likely to know about risks with their work;

- they may see things with fresh eyes and be able to come up with newer and safer ways of doing things; and

- it may result in crew members' ownership of the safety measures put in place.

Practicable safety measures

The general 'duty of care' to ensure the safety and health of workers under the OSH Act is qualified by the words 'so far as is practicable'. This means that the practicability of different control measures to implement on a vessel must be considered and advances in technology and equipment taken into account.

Under the OSH Act, 'practicable' means 'reasonably practicable' taking into account:

- the severity of any potential injury or harm that may occur and the degree of risk of that injury or harm occurring;

- how much is known about the risks and ways to eliminate, reduce or control them; and

- the availability, suitability and cost of safeguards, which means taking into account whether new equipment, as it comes onto the market, is practicable.

To be practicable, something must be capable of being done, and reasonable in light of the above factors. Common practice and availability of information and knowledge throughout the industry are taken into account when judging whether a safeguard is reasonably practicable.

When a man overboard incident happens

Use man overboard incidents as an opportunity to review general safety issues on the vessel and the system of work to see if there are safer ways of doing things.

All man overboard incidents, even minor ones, must be reported to the Department of Transport (the former Department for Planning and Infrastructure). They can be reported by completing a marine incident report form, available at: www.transport.wa.gov.au/marine

2.   The risk management process for man overboard: the three step process

The risk management process to address safety and health on a vessel in relation to man overboard involves the following three-step process:

1. **identify hazards**;

2   **assess risks of injury or harm** arising from each identified hazard; and

3. **control risks** through implementing control measures to eliminate or reduce the risks.

The risk management process should be conducted and monitored on an ongoing basis to ensure control measures are working as intended and no new hazards have been introduced when, for example, equipment or tasks change.

> **Undertaking the risk management process for your vessel**
>
> The following sections of the code provide guidance on how to undertake the three risk management steps. The MOB risk management tool in Appendix 1 is provided to help you do this. It lists a range of hazards to consider and can be easily adapted to each vessel. Section 2.5 provides some recommendations for possible controls to implement.

2.1   The first step: hazard identification

As mentioned above, the first step in the risk management process is identifying hazards relevant to the prevention of man overboard incidents and the response to them. This involves identifying anything that may cause a man overboard incident or increase the risk of injury, harm or death if it occurs.

Choosing appropriate processes or procedures for identifying hazards will depend on their nature and the work environment.

Hazard identification processes or procedures may include:

*   using the list of hazards in the MOB risk management tool in Appendix 1 of this code to consider potential hazards on the vessel or developing your own hazard checklist;

*   organising a walk-through inspection of the vessel;

*   listing all the tasks/work activities carried out and breaking them down into a sequence of steps so that it is easier to spot hazards;

*   looking at the ways in which different tasks/work activities may interact to cause a hazard;

*   looking at previous man overboard incidents;

*   consulting with crew, contractors and skippers and collecting relevant information; and

*   talking to industry associations and similar businesses.

Potential man overboard hazards

A.   Prevention

Potential hazards in relation to the prevention of man overboard include but are not limited to:

- working alone on deck, for example when on watch, checking gear or being on deck unsupervised;
- being alone on deck when not working, for example when out the back smoking or hanging washing;
- urinating over the side or smoking near gunnels;
- inexperienced or new crew;
- lack of training on safe work practices;
- inadequate supervision;
- alcohol and other drugs;
- physical demands of work;
- length of work shifts leading to risk of fatigue;
- activities and practices on deck where there is a risk of a fall overboard, for example standing on bollards, gunnels/bulwark, hatches or other raised surfaces;
- working in low visibility, for example at night with inadequate light;
- working in rough sea conditions;
- breaking waves;
- storms/cyclones;
- unsafe ladders, for example access ladders close to edges;
- low gunnels/bulwark, for example below 900mm;
- falls from booms or boards;
- falls from rigging, superstructure or high points;
- slippery decks/components;
- equipment (ropes, nets etc); and
- individual factors relating to the crew, for example swimming skills.

B.   Response

Potential hazards in relation to the response to man overboard include but are not limited to:

- an inadequate emergency plan, systems and procedures;
- inadequate emergency equipment, for example recovery equipment;
- inadequate checks and maintenance of emergency systems and equipment;
- inadequate induction and refresher training on emergency procedures and equipment;
- inadequate first aid equipment; and
- inadequate search lights.

Combination of hazards – when looking at hazards, consider whether a combination of them may increase the risks of accidentally falling overboard and/or an inadequate response if incidents occur.

2.2   The second step: risk assessment

Risk assessment for man overboard

What are the chances of crew accidentally going overboard?

What are the chances the response to a man overboard could fail?

The second step in the risk management process is assessing the risks from the hazards identified on the specific vessel in relation to both the potential for crew to accidentally fall overboard and the response to such incidents.

To carry out a basic risk assessment:

- gather information about each hazard identified in step one;

- work out the chance or likelihood of a man overboard incident occurring and the potential harm if it does (ie the consequences). Different situations and conditions that could increase risk will need to be taken into account; and

- rate the risk – use the risk rating table below to work out the risk associated with each hazard.

Note that when assessing risk:

- the potential for any man overboard incident to occur and an inadequate response if it does should be viewed as **an extreme risk**, given that these incidents may lead to a crew member's death; and

- take a **holistic approach** – that is, look at all the risks and whether there is an inter-relationship. It is important to recognise that risks should not be considered in isolation as an inter-relationship between them may increase the risks.

Table 1 Risk rating table – for working out level of risk

Use the vertical and horizontal columns to consider both the likelihood of injury or harm to health and the consequences to work out the level of risk

Likelihood of injury or harm to health	Consequences of any injuries or harm to health			
	Insignificant eg no injuries	Moderate eg first aid/ medical treatment	Major eg extensive injuries	Catastrophic eg death
Very likely	High	Extreme	Extreme	Extreme
Likely	Moderate	High	Extreme	Extreme
Moderate	Low	High	Extreme	Extreme
Unlikely	Low	Moderate	High	Extreme
Highly unlikely (rare)	Low	Moderate	High	High

Risk assessment is a 'best estimate' on the basis of available information. It is important the responsible person undertaking a risk assessment has the necessary information, knowledge and experience of the work environment and work process, or such a person is involved. It is equally important that crew are consulted as they may be able to advise on the hazards and risks with different work activities.

Risk assessment methods

Methods may include:

- conducting a review of deck operations;

- conducting a review of the vessel;

- conducting a review of the vessel safety management system;

- assessing emergency systems and procedures to determine adequacy and whether there is a system specific for the vessel;

- assessing the potential for 'out of the ordinary' events that may result in a man overboard incident;

- using the MOB risk management tool in this code in Appendix 1 to review individual jobs and the fishing operation and when investigating man overboard incidents;

- consulting crew;

- identifying crew's level of knowledge of work and emergency systems;

- reviewing incidents in regard to identified hazards; and

- consulting industry associations who may be able to assist with risk assessments for the type of work and operation.

When the risk assessment is completed, hazards requiring control measures should have been identified.

2.3   The third step: risk control

The third step in the risk management process is to implement control measures to eliminate or reduce the risks of crew going overboard or being harmed should an incident occur. The controls selected should aim to achieve the desired safety outcome.

There is a recommended order for control measures to implement on a vessel, ranging from the most effective to the least effective, to eliminate or reduce the risks of injury, harm or death. This is outlined in the following table.

Table 2 Safe or safer

The recommended order of control measures to implement to eliminate or reduce the risk of going overboard and injury or harm occurring if it happens is set out below in order.

1. **Elimination** – removing the hazard or hazardous work practice from the vessel.

2. **Substitution** – if the hazard or hazardous work practice cannot be eliminated, substitute it with a less hazardous one.

3. **Isolation** – if the hazard or hazardous work practice cannot be eliminated or substituted, isolate or separate it from crew involved in the work or people in the general work area.

4. **Engineering controls** – if the hazard cannot be eliminated, substituted or isolated, an engineering control is the next preferred measure to implement on a vessel.

5. **Administrative controls** – where hazards cannot be eliminated, substituted, isolated or engineered out, consider introducing work practices that reduce the risk, such as providing procedures, instruction and training.

6. **Personal protective clothing and equipment** – these should be considered only when the above control measures are not practicable, or to increase protection. While essential for some work procedures, these should be last in the list of priorities.

Most effective control measure

Least effective control measure

Implementing control measures

When implementing control measures for man overboard, both for the prevention of incidents and responses to them:

- consider a combination of control measures, as often this will be appropriate;

- assess whether a control measure may introduce new risks;

- take a **holistic** approach. For example, a potential hazard may not necessarily require a single matching control measure. A response could be to implement a control measure that addresses a number of potential hazards;

- consult with crew about hazards, risk and controls, as they are most likely to know about risks and may be able to come up with alternative ways of doing things; and

- look at new and different ways of doing things and assess their practicality. This might include for example providing a designated safe place to go to the toilet over the side.

Examples of possible control measures to implement for man overboard include:

- providing an alarm system to set off an immediate alarm if a person falls overboard. These types of alarms are discussed in Appendix 3;

- removing the requirement for crew to stand up high when sorting catch by using a conveyor system, where practical, to remove the risk of falling back and overboard;

- providing a designated safe place or procedure for people to smoke or urinate off the side of the boat;

- implementing a buddy system to team up experienced crew members with new ones; and

- wearing inflatable PFDs while on deck, where a risk assessment indicates they are an appropriate measure for the work being done. It will need to be determined whether other risks may arise if they are worn, for example risks of the PFDs getting caught in something. An option is to require inflatable PFDs be worn at certain times where there are greater risks of falling overboard, for example when steaming out, setting up, doing maintenance, working in low visibility or going into the breakers. See Appendix 2 for more information on automatically and manually inflating PFDs.

There is an expanded list of recommendations for possible control measures in Section 2.5.

2.4   Monitoring and review of control measures

Constantly monitor and review the control measures to ensure they continue to prevent or control exposure to hazards and are not introducing new hazards or risks.

In determining the frequency of the monitoring and review processes, consider:

- the level of risk. High risk hazards will need more frequent assessments;

- the type of vessel, operation and task involved; and

- further review of control measures when new work practices, tasks, equipment or procedures are introduced, the environment changes, or there is any indication risks are not being controlled.

2.5   Control measures

The control measures on the following pages are presented as examples of ones that could be implemented on vessels after the first two steps of the risk management process are undertaken. The list is not exhaustive and other control measures not recommended may be required according to the type of vessel, operation, sea conditions and task.

A. Prevention of man overboard incidents

Working alone on deck, for example when on watch, checking gear or being on deck unsupervised

A safe system of work for working alone must be identified, implemented and included in safety training and vessel inductions for all new crew. It should also be included in refresher training and as part of safety discussions.

In addition, other potential control measures to implement include:

- ensuring crew wear an inflatable PFD when alone on deck (except in the wheel house), where a risk assessment indicates they are an appropriate measure for the type of work being done. This includes wearing one when going to urinate, have a smoke or check something. Note that crew are required to wear floatation devices, where practical, when working alone – see regulation 3.31 of the OSH Regulations;

- providing an alarm system or procedure to immediately alert crew if a person accidentally falls overboard. Examples of alarm systems include:
  - a radio transmission man overboard alarm system – see Appendix 3 for more discussion on these systems; or
  - fixing a 'Dead Man Switch' into the wheel house so that when, for example, the person on watch goes to do a high risk activity, an alarm will sound at a certain point in time unless they press the switch;

- in relation to going to the toilet over the gunnels or smoking near the gunnels/bulwark, see the recommendations on the following page;

- developing a procedure for keeping watch on the skipper when he checks gear;

- where practical, implementing a rule of no crew accessing the deck area alone, except when on watch;

- ensuring the procedure for safety when working or being alone on deck is well understood through refresher training; and

- to support control measures, implementing signs or slogans to convey the safety message that working alone can be a high risk activity and use of control measures is required.

  Examples of signs or slogans to use

Need a break -
TELL A MATE

Nobody sees you fall -
WHO YOU GONNA CALL?

Being alone on deck when not working, for example when out the back smoking or hanging washing

For potential control measures to implement, see the ones listed above for 'working alone on deck' and those listed for 'urinating over the side or smoking near the gunnels'.

Urinating over the side or smoking near the gunnels

Using the toilet or going over the side

Urinating off the side of the boat should be discouraged for safety reasons and it is best practice to ban this. However, as it does happen and can be a high risk activity in relation to accidentally falling overboard, measures should be in place to deal with it. For example, use the following measures, or work out others that ensure the safety of the crew.

Potential control measures to implement include:

- providing a designated safe place to urinate over the side or go for a smoke that has adequate railing or a fall prevention system in place;

- implementing a procedure where, before crew go for a smoke or to the toilet, they let someone else know or get someone to keep watch; or

- for times where there is a heavy sea and the vessel is under steam, implementing a procedure for going to the toilet such as the one below.

Procedure for urinating when there is a heavy sea and vessel is under steam

1. Put on a PFD;

2. tell the watch person that you are going to urinate; and

3. only step one foot outside onto the deck to urinate – walking any further out onto the deck in heavy seas under full steam may be too dangerous as the deck will be at a high angle and you could fall overboard.

Working in low visibility

A safe system of work for working in low visibility (eg night time) must be identified and implemented where it may occur and included in safety training and vessel inductions for all new crew. It should be reviewed as part of safety discussions before work begins.

In addition, other potential control measures to implement include:

- ensuring search lights are in working condition and installed to give maximum effect and optimal coverage around the vessel;

- providing portable, rechargeable search lights for the stern deck area to be able to quickly spot a person in the water;

- using all available means, for example radar, to identify other vessels;

- requiring crew wear inflatable PFDs, where a risk assessment indicates they will be an appropriate measure for the work being done;

- where appropriate, requiring crew wear a personal beacon – see Appendix 3;

- requiring crew wear high visibility gear;

- providing strobe lights for clothing;

- using reflective tape to indicate sides of gunnels/bulwark;

- ensuring there is an alarm system installed or procedure to immediately alert crew if a person accidentally falls overboard; and

- developing safe systems of work for fishing gear.

Working in rough sea conditions

Potential control measures to implement may include:

- developing a procedure for working in rough or choppy seas. This should include reviewing the necessity to be on deck and/or working alone and, where practicable, minimising the time spent on deck;

- ensuring crew wear a PFD and, where appropriate, a marine personal beacon. The PFD could be an inflatable PFD, where a risk assessment indicates they are an appropriate measure for the work being done;

- ensuring there is an alarm system or procedure to immediately alert other crew if a person accidentally falls overboard;

- where practicable, providing a harness/tether arrangement;

- having a rule that crew not use ladders adjacent to gunnels/bulwark in rough or choppy seas or only use them when under supervision; and

- implementing a procedure for urinating when there is a heavy sea. See the recommendations earlier in this section.

Storms/cyclones

Potential control measures to implement include:

- developing contingency plans for storms and cyclones and including these in the vessel safety management plan;

- including the above contingency plans in the emergency procedures. These should address what happens with storms and cyclones and ensure a risk assessment is performed in relation to continuing work or returning to shore; and

- requiring crew wear PFDs until safely moored.

Inexperienced or new crew

Inexperienced and new crew must have adequate training on safe work practices and emergency procedures. These should be recorded in a training record book on the vessel.

In addition, other potential control measures to implement include:

- ensuring there is a full induction for all crew, no matter what time of the season they join the vessel or how experienced they say they are. It should be ensured that the induction covers unusual vessel characteristics, emergency systems and procedures for man overboard;

- implementing boat function training;

- implementing safety awareness training;

- where practicable, implementing a practice where all new deckies complete some work experience to attain acceptable competency levels;

- implementing a policy of the skipper leading by example;

- implementing a buddy system where experienced crew mentor inexperienced crew;

- standard operating procedures (SOPs); and

- carrying out drills regularly and when new crew come on board.

Training on safe work practices

Inductions and training on safe work practices that are specific to the vessel, operation, conditions and tasks must be provided. In addition, other potential control measures to implement include:

- implementing vessel orientation and, where required, an induction for crew who have returned to a vessel after an extended absence, for example after working elsewhere; and

- implementing a review of any altered work practices when crew return from an extended absence.

Supervision

Adequate supervision for new and inexperienced crew appropriate to their level of skill and experience must be provided. In addition, other potential control measures to implement include:

- implementing a formal deckhand buddy system where experienced crew mentor inexperienced crew;

- where applicable, providing adequate supervision during net retrieval and sorting;

- supervising crew accessing the booms and boards at all times; and

- keeping crew focussed on the task at hand.

Alcohol and other drugs

Look at whether attitudes encourage or accept consumption of alcohol and/or other drugs on the vessel.

Potential control measures to implement include:

- implementing an alcohol and other drugs policy and procedure. See the Commission's *Guidance note: Alcohol and other drugs at the workplace* for more guidance;

- where appropriate to the level of risk, implementing drug and/or alcohol testing as part of a comprehensive safety and health program and in consultation with crew. The Commission's *Guidance note: Alcohol and other drugs at the workplace* provides guidance on issues to consider before implementing testing; and

- having a dry vessel with a rule of no alcohol or other drugs on board.

Physical demands of work

Potential control measures to implement include:

- matching work demands to crew on board;

- allowing sufficient time for tasks;

- where necessary, providing training for tasks; and

- installing mechanical aids.

Activities and practices where there is a risk of a fall, for example standing on bollards, gunnels/bulwark, hatches or other raised surfaces

Potential control measures to implement include:

- implementing a rule of no standing on certain items; and

- wearing inflatable PFDS, where a risk assessment indicates they are an appropriate measure for the work being done.

Length of work shifts leading to risk of fatigue

Potential control measures to implement include:

- implementing a full fatigue management policy, which includes reviewing the shift length, rest breaks and break for sleep, and making changes where practicable. See the Commission's *Code of practice: Working hours* for more guidance;

- after developing a fatigue management policy, addressing policy roll out, education and inclusion in inductions;

- ensuring there are adequate breaks and, where there is a watch, ensuring that they have opportunities to have breaks and get some sleep;

- educating crew on lifestyle factors that might affect level of fatigue, for example crew coming to work tired due to socialising or family commitments. Where relevant, encouraging crew to get some sleep during quiet times or between shots;

- where relevant, reviewing issues on board that might affect amount of sleep and level of fatigue, such as provision of food, the quality of bunks and too much light or excessive temperature in sleeping quarters;

- developing a policy on alcohol and other drugs (see previous recommendations); and
- monitoring fatigue levels.

Ladders, for example access ladders close to edges

Potential control measures to implement include:

- relocating ladders, for example relocating vertical ladders from the sides of vessels to prevent people falling over the sides when using them;
- implementing procedures requiring ladders not be used, where practicable, during rough sea conditions;
- including in the SOP that certain ladders are not to be used; and
- installing non-slip rungs.

Low gunnels/bulwark, for example below 900mm

Potential control measures to implement include:

- where practicable, ensuring crew wear a PFD, for example an inflatable PFD, when on deck, on a risk basis;
- where practicable, ensuring crew wear a safety harness;
- providing an alarm system or procedure to immediately alert crew if a person accidentally goes overboard; and
- where practicable, redesigning work stations so crew are at deck level. For example, installing a conveyor system for sorting catch to reduce the risk of crew falling back and going overboard.

Falls from booms and boards (trawlers)

A safe working procedure for working on the booms or boards must be developed and training provided on it, including where applicable the use of PFDs. This should include the need to maintain three points of contact at all times.

Potential control measures to implement include:

- ensuring only crew with adequate experience access the boards or booms;
- where a risk assessment indicates they are an appropriate measure, ensuring crew wear PFDs, such as inflatable PFDs, when they access the boards or booms;
- ensuring there is supervision at all times when crew are on boards or booms;
- developing a procedure for when crew are required to access the booms or boards in rough weather, which includes maintaining three points of contact at all times;
- after a risk assessment, where practicable, installing hand rails on the booms; and
- providing a fall prevention system.

Falls from rigging, superstructure or high points (trawlers)

Potential control measures to implement include:

- requiring crew wear fall prevention equipment with safe anchorage points, with an appropriate system and method of installation that meets Australian New Zealand standards' requirements. Three points of contact should be maintained at all times. See also the OSH Regulations for requirements for inspections of equipment and the Commission's *Code of practice: Prevention of falls at workplaces*;
- when selecting a fall prevention system, considering safe anchorage points, the potential for different types of falls, fall distances and clearances and a location where it will be possible to assist or rescue a person if they fall;
- ensuring there is a crew member on watch while another is working at height; and
- ensuring there are emergency rescue procedures for falls from rigging, superstructure or high points.

Slippery decks/components

Potential control measures to implement include:

- where practicable, installing non-slip surfaces;

- requiring crew wear non-slip shoes; and

- including a SOP on the maintenance of spills on decks.

Equipment (ropes, nets etc)

Potential control measures to implement include:

- implementing a safe system for work around equipment; and

- installing guarding.

Breaking waves

A potential control measure to implement is to ensure crew wear a PFD when on deck. Where a risk assessment indicates it is an appropriate measure for the work, the PFD could be an inflatable PFD.

Individual factors relating to the crew

Potential control measures to implement include:

- checking each crew member's experience and skills in relation to the particular demands of working on the specific vessel. This may include checking copies of their relevant qualifications. It must be ensured that crew have received adequate information, instruction and training on procedures and safe systems of work, for example how to retrieve a lazy line. See also the earlier recommendations for 'inexperienced or new crew';

- checking crew members' level of swimming skills and, if they are not adequate, taking appropriate action;

- considering crew members' ability to react and follow emergency procedures, For example, where there are crew members with English as a second language, this may require providing information and training in alternative formats to assist in understanding;

- providing training on how to throw a life buoy and rope for the maximum distances;

- ensuring each crew member understands their role in emergency situations; and

- reviewing whether gear worn on deck, other than PFDs, can be easily removed in the event of falling overboard. For example, looking at whether oversize boots would be appropriate.

Smoking in enclosed workplace areas

Employers, employees and self-employed people must not smoke in enclosed workplace areas, under the OSH regulations (regulation 3.44B). A workplace area is an enclosed workplace area if it has a ceiling or roof and is more than 50% enclosed by walls, or other vertical structures or coverings. Examples of enclosed workplace areas are wheelhouses, sleeping quarters, bilges, engine rooms and galleys. Note: If a workplace area does not have a roof or ceiling then it is not an enclosed workplace area.

B. Response to man overboard incidents

Quick thinking and quick acting – the best response to a man overboard incident

When a person falls overboard, there must be:

- a quick response; with

- the quick implementation of a well practised, controlled, efficient and safe man overboard procedure.

Sometimes in emergencies, such as man overboard, there is confusion with nobody clear on what to do. To avoid this, an emergency plan, systems and procedures must be in place so that all crew know what is required and there is a quick and effective response.

Key factors for an effective emergency response to man overboard include:

- having an alarm system or procedure that sets off an immediate alert when someone has fallen overboard;

- having step by step procedures for falls nobody sees and falls seen by others and ensuring everybody knows these through inductions and regular training;

- ensuring everybody knows what their role is in the emergency system, for example the longest serving deck hand to lead by example;

- ensuring crew know what to do if they fall in the water;

- having effective recovery equipment that works when it is needed; and

- having a quick response to rescue a crew member from the water.

Emergency plan, systems and procedures

It is important that each vessel has, through prior risk assessment and contingency planning, an emergency plan, systems, equipment and procedures, which take into account the operation and specific vessel characteristics and requirements and hazards in relation to potential man overboard incidents. For example, vessels have different means of access and this will need to be taken into account when planning for rescues.

Important parts of the emergency plan to be addressed include:

- preventative control measures in place to reduce the risk of crew falling overboard. See Part A of this section of the code;

- the systems or procedures to immediately raise an alarm and alert crew if someone accidentally falls overboard, for example a radio transmission man overboard alarm system. See Appendix 3 for more details;

- a list of who is responsible for implementing various procedures during an emergency;

- floatation devices for people in the water;

- adequate search lights if a man overboard may occur at night;

- a means of marking position of person who has fallen into the water, eg logging the GPS position;

- a step by step procedure for quick retrieval when person overboard is in sight;

- a step by step procedure for raising the alarm and search and recovery of missing crew, presumed to have gone overboard;

- a step by step procedure for retrieval of unconscious people from the water;

- a step by step procedure for crew on what they should do when they have fallen into the water;

- a step by step procedure for seeking assistance;

- first aid/medical attention;

- recovery equipment;

- emergency preparedness training for all crew, ie inductions, instructions, training and refresher (ongoing) training for individual crew members and the whole team on the emergency plan, systems and procedures and ensuring all crew know the location of emergency equipment and the procedures for sending radio distress calls, urgency calls and safety calls;

- holding of regular drills. Note that there is a requirement for drills to be practiced twice per year, under legislation administered by the Department of Transport (the former DPI);

- sea survival training for all crew;

- there is a follow up on man overboard incidents with action taken to correct identified problems; and

- a procedure to check that critical safety procedures are being followed.

Other important factors relating to the emergency plan and system include:

- **alternative PFDs** – after conducting a risk assessment, ensuring crew wear an automatically or manually inflating PFD when on deck or on booms on a risk basis;

- **additional life rings** – providing additional smaller and lighter life rings that can be quickly thrown into the water, as it can be difficult to throw the survey vessel life buoys very far;

- **clothing and boots** – reviewing whether there would be any safety issues with clothing and boots worn by crew if they fall in the water, for example boots and jackets that are hard to remove; and

- **workers from a non-English speaking background** – where there are workers from a non-English speaking background, ensuring that information and training on emergencies is provided in an appropriate format. In some circumstances, this may require alternative formats and additional training.

Training including induction and refresher training on emergency procedures and equipment

Providing training to crew on what to do in an emergency is a key part of safety and health management for a vessel. The training needs of all crew to support the safety management system and work safely should be identified.

In relation to emergency preparedness training for potential man overboard incidents, it is important that:

- the training should check and maintain the competence and capacity of the crew to respond rapidly and effectively to an emergency situation;

- the training is tailored to the duties of each crew member to ensure they are able to carry out the role expected of them in an emergency;

- regular training is provided on use of emergency systems, equipment and the procedures. The frequency of the training needs to be sufficient to maintain the crews' competence to quickly and effectively respond to emergencies at all times. The training should address:

  - the need to keep crew familiar with what will be required in an emergency through regular practice;

  - variations to the plan due to planned and unexpected changes to the crew, eg leave, changes to schedules and ill health; and

  - situations where new crew members join the vessel and will need the opportunity to practice with and learn from other members of the crew;

- training on the maintenance of emergency equipment is provided;

- inductions are provided to new crew on use of emergency systems, equipment and procedures;

- regular emergency drills are held and the date, crew participating, nature and location of the drill are recorded in a log book. Note there is a requirement to practice drills twice per year under the marine legislation;

- sea survival training is provided to all crew so they know what to do if they fall into the water;

- the skipper is trained in search and rescue patterns and can demonstrate them; and

- care should be taken to identify any risks inherent in training. These should be assessed and measures taken to eliminate or minimise the risks and control measures included in the procedures.

To keep the training fresh, the period for repeat training of emergency preparedness should be at appropriate periods. Some training could be conducted as a simulated man overboard emergency on a calm day. Other training may involve a discussion or review of actions relevant to a man overboard situation.

Inexperienced and new crew

Inexperienced and new crew:

- are potentially at greater risk if they fall overboard and don't know what to do and what should happen; and

- may not be able to effectively help in the search and rescue in a man overboard emergency.

Adequate training on man overboard, including an induction on the procedures, must be provided to crew before they go to sea or as soon as practicable after they join vessel so they know what to do in an emergency.

Checks of safety equipment, including search and recovery equipment

Ensuring emergency equipment will work when needed is a critical part of safety and health management for a vessel. It is important that each vessel has:

- a maintenance plan based on the manufacturers' recommendations to ensure regular maintenance and checks of emergency equipment, including recovery equipment and PFDs, to check all is in working order;

- checks that emergency equipment is in working order at start of the season and regularly according to the manufacturers' instructions. For example, checks of the EPIRB, GPS, Digital Selective Calling (DSC), personal beacons (if provided), inflatable PFDs (if provided) and man overboard alarm system (if provided); and

- checks that search lights and hand held portable search lights are in working order.

Adequate first aid equipment

Ensuring there is adequate first aid equipment when needed is another critical part of the safety and health management for a vessel. A first aid kit that is appropriate for the type of hazards and risks that could occur in the course of work must be provided.

In relation to potential man overboard incidents, where required, this should include first aid measures, such as a thermal blanket, to deal with potential 'immersion hypothermia'. This occurs when a person is immersed in cold water and their body temperature drops below 35 degrees Celsius. The signs and symptoms include gradual loss of mental and physical abilities. Severe hypothermia can lead to death.

Search lights

Where there is potential for a man overboard incident to occur during times of low visibility, for example at night, it is important that each vessel has:

- search lights installed to give maximum effect and optimal coverage of the vessel and maintained in working order; and

- a hand held portable search light available and in working order.

Appendix 1   MOB risk management tool

The MOB risk management tool is provided on the following pages for use in conducting a risk management process, development of vessel safety management plans and reviews of safety. It may also be used in pre-season risk assessments and inductions.

How the tool works – start the three step risk management process for man overboard (prevention and response) for a vessel by using the tool to identify potential hazards, assess their risks and look at control measures to implement. Follow the three steps set out in each column. Use a holistic approach to assess risks and implement control measures. This means looking at whether there is an inter-relationship that could increase the level of risk, and whether a control measure may address more than one risk.

*Example of how the MOB risk management tool works – note that it is **an example only** and hazards and risks on a specific vessel should be identified, assessed and addressed.*

Vessel: *MV Joondanna*		Date: *1 June 2010*	
Step 1 Hazard identification – identify potential hazards on the vessel that may result in somebody accidentally falling overboard or the man overboard emergency response failing.	**Step 2 Risk assessment** – assess the risk for the hazards identified under Step 1. This means looking at the likelihood that a hazard could lead to a man overboard incident or affect the emergency response and the consequences. Then work out whether the risk is low, moderate, high or extreme.	**Step 3 Risk control** – identify practicable controls to put in place to control the risks identified in Step 2. See Section 2.5 of this code for types of controls to implement.	Note the people responsible	Action completed – date and sign
Being alone on deck when not working, eg when out the back smoking or hanging washing	*Extreme risk (very likely and the consequences could be catastrophic (eg death) if nobody sees a fall overboard)*	*Work out a designated safe place to smoke and urinate off the side.*	*Company, Skipper*	*J. Smith, 30 June 2010*
		Install alarm system and require crew wear alarm tag/device.	*Company, Skipper, crew*	*J. Smith, 30 June 2010*
		Introduce procedure that crew must tell another person when going for a smoke or to the toilet off the side.	*Skipper, Crew*	*J. Smith, 30 June 2010*
		Require crew wear inflatable PFDs on deck.	*Company, Skipper, Crew*	*J. Smith, 30 June 2010*
		Include training on the above controls in inductions and refresher training.	*Company, Skipper*	*J. Smith, 30 June 2010*

MOB risk management tool – follow the three steps to carry out risk management and review safety on vessels in relation to man overboard

PHOTOCOPY FOR USE

Vessel:		Date:	
Step 1 Hazard identification – identify potential hazards on the vessel that may result in somebody accidentally falling overboard or the man overboard emergency response failing. Consider all the hazards below plus others that might be relevant. **Note:** Most of the hazards below will be high risk. Ensure that you review each one.	**Step 2 Risk assessment** – assess the risk (likelihood and consequence) for the hazards you have identified in Step 1. This means looking at the likelihood that a hazard could lead to a man overboard incident or affect the emergency response and the consequences. Then work out whether the risk is low, moderate, high or extreme. Consider whether interaction between hazards could influence level of risk.	**Step 3 Risk control** – identify practicable controls to put in place to control the risks identified in Step 2. See Section 2.5 of this code for controls to implement.	Note the people responsible
			Action completed – date and sign
A. PREVENTION OF MAN OVERBOARD INCIDENTS			
Working alone on deck, eg when on watch, checking gear or being on deck unsupervised			
Being alone on deck when not working, eg when out the back smoking or hanging washing on the wheelhouse			

19

Vessel:

Date:

Step 1 Hazard identification	Step 2 Risk assessment	Step 3 Risk control	Note the people responsible	Action completed – date and sign
Urinating over the side and/or smoking near gunnels				
Inexperienced or new crew				
Lack of training on safe work practices				
Inadequate supervision				
Alcohol and/or other drugs				

Vessel:

Date:

Step 1 Hazard identification	Step 2 Risk assessment	Step 3 Risk control	Note the people responsible	Action completed – date and sign
Physical demands of work				
Length of work shifts leading to risk of fatigue				
Activities and practices on deck where there is a risk of a fall overboard, eg standing on bollards, gunnels/bulwark, hatches or other raised surfaces				
Working in low visibility, eg at night				
Working in rough sea conditions				

Vessel: **Date:**

Step 1 Hazard identification	Step 2 Risk assessment	Step 3 Risk control	Note the people responsible	Action completed – date and sign
Breaking waves				
Storms or cyclones				
Unsafe ladders, eg access ladders close to edges				
Low gunnels/bulwark, eg below 900mm				
Falls from booms or boards				

Vessel: **Date:**

Step 1 Hazard identification	Step 2 Risk assessment	Step 3 Risk control	Note the people responsible	Action completed – date and sign
Falls from rigging, superstructure or high points				
Slippery decks/components				
Equipment (ropes, nets etc)				
Individual factors relating to the crew, eg swimming skills				

Vessel:

Date:

Step 1 Hazard identification	Step 2 Risk assessment	Step 3 Risk control	Note the people responsible	Action completed – date and sign
B. RESPONSE TO MAN OVERBOARD INCIDENTS				
Inadequate emergency plan, systems and procedures. See the template in Appendix 4 for issues to look out for.				
Inadequate emergency equipment, eg recovery equipment				
Inadequate checks and maintenance of emergency system and equipment				

Vessel:

Date:

Step 1 Hazard identification	Step 2 Risk assessment	Step 3 Risk control	Note the people responsible	Action completed – date and sign
Inadequate induction and refresher training on emergency procedures and equipment				
Inadequate first aid equipment				
Inadequate search lights				

Appendix 2   Inflatable personal floatation devices (PFDs)

Following a risk assessment, there may be a need for inflatable PFDs to be worn by crew on a vessel as personal protective equipment when doing certain work or at certain times when the risks of falling overboard are greater. The risk assessment must determine whether inflatable PFDs will be an appropriate measure for the type of work being done.

The slim yoke style automatically or manually inflatable PFDs containing CO_2 activated inflation systems are less bulky than the traditional SOLAS/Coastal survey life jacket, made to fit different body sizes through adjustable straps, and allow maximum movement and minimal discomfort, meaning that they are potential protective equipment for wearing when on deck.

Vessel survey life jackets

The life jackets required as part of the vessel survey are a primary life support for emergency situations, such as when a boat capsizes. It is important that these are readily available for major events where all crew will need a life jacket. It is equally important that there are measures in place to ensure the floatation of crew in the event they accidentally fall overboard, such as inflatable PFDs, where a risk assessment indicates they are appropriate measure for the type of work being done.

Depending on the outcome of your risk assessment, there may be situations where the vessel has two sets of PFDs on board – that is, inflatable PFDs worn as protective equipment on deck and the vessel survey life jackets on hand for an emergency.

Note: The use of inflatable PFDs does not substitute or replace, in any way, the need to have the vessel survey life jackets that are part of the required safety equipment for each vessel under its individual certificate of survey.

Selecting inflatable PFDs

The types of inflatable PFDs that are available are:

- automatically inflatable PFDS, which inflate automatically when submerged in water;
- manually inflatable PFDs, which can be inflated through using a toggle or a mouthpiece; and
- PFDs that are both automatically and manually inflatable.

As a minimum, inflatable PFDs selected should comply with Australian Standard, *AS1512-1996 Personal floatation devices – Type 1*, the Australian Standard, A*S4758-2008 Personal floatation devices* series or another standard such as a European standard. These require the PFDs to provide a high level of buoyancy and keep the wearer in a safe floating position, ie with the body inclined back to the vertical with the nose and mouth clear of the water. They are made in high visibility colours with retro-reflective patches.

Issues to consider when looking at the suitability of inflatable PFDs include:

- **the way they are made**, ie whether they are of a strong construction suitable for the working environment;
- **the worse case scenario they will be needed for**. That is, would an automatically inflatable or a manually inflatable PFD be better? For example, where it is possible that a person may fall overboard and be unconscious in the water, an automatically inflatable PFD may be the better option. In other scenarios, a manually inflatable PFD may be suitable where the person who falls is able to swim back to the boat but has a choice of inflating the PFD if needed;
- **risks that could arise if they are worn**. For example, whether there could be any risks of entanglement with machinery or equipment such as pots. Different models may have less risks of entanglement;
- **how they fit on the body**. The PFD should have the ability to be adjusted to be a snug fit. While inflatable PFDs are made to suit different body types through adjustment of straps, particular models should be checked to see that they can be adjusted to be snug and won't confine or ride up;

- **how they will be worn on the body**, ie whether they would be worn over or under outer clothes;

- **ease of use**, ie whether they are easy to put on, wear and remove;

- **level of comfort**, for example, whether they are comfortable to wear when working and there is ease of arm movement. With some work, a consideration may be whether they would there be chafing when doing strenuous work such as pot lifting. There may be models available with a neck collar that could reduce these risks;

- **visibility in the water**, for example, some are made in high visibility colours with retro-reflective tape;

- **inclusion of a light,** ie where required, there is a water activated light or the ability to carry one in a pocket for incidents at night;

- **inclusion of a pocket or pouch**, where required, to hold a whistle or a personal beacon;

- **inclusion of an attachment point**, where required, so the PFD can be used with fall prevention equipment; and/or

- in relation to **work in humid conditions** and automatically inflatable PFDs, checking whether there are water soluble bobbins or paper element cartridges. These may cause PFDs to accidentally inflate in humid conditions.

Safety considerations

Where inflatable PFDs are used, safety considerations include:

- following the manufacturers' recommendations for cleaning, performance checks, servicing and storage;

- following the manufacturers' recommendations for replacement and recharging of gas cylinders after the PFD is used or a cylinder has deployed; and

- ensuring there is instruction and training on correct use of the PFDs.

Appendix 3   Man overboard alarm systems and personal beacons

With some man overboard deaths in Western Australia, nobody has known immediately that the crew member has fallen overboard. These deaths have included a crew member on watch found missing later by the skipper when he awoke and a deckhand who went missing after he was last seen smoking at the back of the boat.

A procedure or system to immediately alert crew that a person has fallen overboard is an important part of a vessel's emergency system to ensure falls are quickly detected and crew only remain in the water for a short period of time. The longer a person is in the water the harder it will be to locate them, affecting their chances for survival.

There are various measures that can be put in place to ensure there is an immediate alarm when someone has fallen overboard. These include:

- requiring a crew member keep watch when certain tasks are done or when crew go out the back to have a smoke or urinate or go to the top of the wheel house to hang washing;

- installing a Dead Man Switch in the wheel house so that when a person goes to do a high risk activity, for example when the watch leaves the wheelhouse, an alarm will sound at a certain point unless they press the switch;

- installing a radio transmission man overboard alarm system that sets off an automatic alarm when somebody goes overboard; and

- as a possible additional measure, requiring crew wear a personal beacon when doing certain work, working alone or being on watch so that, if they fall overboard, they can set off a distress signal.

1. Radio transmission man overboard alarm systems

The types of radio transmission alarm systems that can set off an immediate alarm when someone falls overboard include:

- 'alert and locating systems'/'homing systems' also known as 'man overboard alerting units'. These consist of a transmitter, which is a personal device that crew wear. Depending on the product, when a person falls overboard, it may be manually activated and/or automatically activated when submerged in water. When activated, it sets off an alarm via a receiver on the vessel. These systems also include a means of tracking the person in the water through, for example a directional antenna or a directional finder as part of the system itself; and

- 'proximity alert systems', which consist of a wireless network of routers and transceivers, with crew wearing a tag, which is a transceiver, and an alarm is set off when there is a break in the link between the routers and the transceivers.

There are various radio transmission man overboard alarm systems currently available, which have different features. These include the Sea Marshall Self Managed Rapid Alert & Locate 'SOS' Man Overboard Systems, the Mobilarm Crewsafe system and the Seasafe Man-Overboard & Lost-Diver Tracking and Location System*. In assessing suitability of an alarm system for a vessel, consideration should be given to the conditions in which it will be used and its maintenance requirements.

*The above references to alarm systems are not endorsements of these products. People considering purchasing these systems should verify all relevant representations, statements and information and consider applicability to their vessel and its operating conditions.

2. Personal beacons – personal locator beacons (satellite distress beacons) and VHF position indicating beacons (locating aids)

Depending on the level of risk, an option may be to provide individual crew members with a personal beacon* made for use in a marine environment to set off an alert or distress call. For example, when crew work alone, on watch or in rough conditions and/or access areas where there is a higher risk of a fall overboard.

The benefit from providing a personal beacon is that, in the event of a fall overboard, crew have the ability to set off their own distress signal or, depending on the type of beacon, a distress alert may be automatically activated. Depending on a vessel's DSC, a VHF position indicating radio beacon may also provide a means of tracking a person in the water. Provision of personal beacons may be of particular use where vessels work at longer distances from shore and there may be some time before the search and rescue support attend a man overboard event.

Personal beacons are different from EPIRBs and care should be taken to select an EPIRB or personal beacon according to the intended purpose. Some of the differences between EPIRBs and personal beacons are that:

- when activated, EPIRBs set off a signal that is received and processed by satellites and passed to the Australian Maritime Safety Authority's (AMSA) Rescue Coordination Centre. They are designed to be mounted in a bracket or carried in a bag and float in the water to optimise their signal and can be manually or automatically activated in the water; while

- personal beacons are small portable devices designed to be carried or worn in pockets, holsters, around the neck or attached to a PFD. They need to be above the water to work. Depending on the product, they may be:

    - a **personal locator beacon**, which is an electronic device operating on 406MHz that can be manually activated to set off a signal that is received and processed by satellites and passed to the Rescue Coordination Centre; or

    - a **VHF position indicating radio beacon**, which is a device that operates on VHF radio band and, when activated, sends out a VHF DSC distress signal to the vessel and others with a VHF radio if they have DSC and are within range, a GPS signal via DSC and a message via the vessel's VHF marine radio emergency channel. These beacons automatically activate when submerged in water or can be manually activated.

*The references to types of personal locator beacons are not endorsements of any particular type or product. People considering purchasing these should verify all relevant representations, statements and information and consider applicability to their vessel and its operating conditions.

Note that personal beacons are not considered a substitute for the EPIRBs required for most vessel surveys under the marine legislation.

Personal locator beacons operating on 406 MHz

Depending on the type of personal locator beacons, there are ones that:

- operate on 406 MHz; or

- operate on 406 MHz and have GPS capability and provide an encoded GPS location in their signal.

When activated, alerts from personal locator beacons operating on 406 MHz are received and processed by satellites and passed to the Rescue Coordination Centre and can be picked up by aircraft flying over.

Both types of personal locator beacons provide an initial alert via satellite within minutes to the Rescue Coordination Centre. However, where a beacon has GPS, locating the distress site is usually much faster. Rescuers must wait for confirmation of the non-GPS beacon's position before sending a search and rescue team, which takes more time. In addition, according to the AMSA, the GPS beacons have an accuracy locator of 120 metres compared with five kilometres for non-GPS beacons.

The 406 MHz beacons transmit a unique identification code. When the registration form that comes with the beacon is properly registered with the Rescue Coordination Centre, the unique code identifies it, the vessel it was on and emergency contact details, which may assist with a rescue. Registration can be done for free at: www.beacons.amsa.gov.au

For any 406 MHz beacon to be registered, it will need to be coded with an Australian country code, which should be checked at time of purchase. The registration expiry is two years from the date of issue. Details should be amended with the Rescue Coordination Centre, if a beacon is transferred to another vessel.

VHF position indicating radio beacons

VHF position indicating radio beacons send an automatic 'Mayday – Man Overboard' alarm via the VHF DSC channel to alert the vessel and others, if they have DSC and are in range, that there is a person overboard. When there is a GPS lock, the distress call is also transmitted again with latitude and longitude coordinates via DSC and as a voice message on the emergency VHF channel. The DSC and voice message will be repeated at regular intervals. Each device has a unique DSC Maritime Mobile Service Identity (MMSI) number. The Rescue Coordination Centre maintains a database of MMSI numbers, which includes details of the vessel and may assist with search and rescue.

Depending on the vessel's type of DSC radio, this type of beacon may provide regular tracking of where a person is in the water via GPS or a chart plotter. However, the GPS signal depends on satellite system coverage and reception.

Compliance

The operation of radiocommunications man overboard alarm systems and satellite distress beacons must comply with the provisions of the *Radiocommunications (Emergency Locating Devices) Class Licence 2006*. Personal locator beacons operating on 406 MHz should comply with Australian New Zealand Standard, *AS/NZS 4280.1 406 MHz satellite distress beacons: Part 2: Personal locator beacons (PLBs)*.

When purchasing a system or personal locator beacon, the supplier should be able to let you know about the compliance with the above licence or standard.

Appendix 4   MOB template

A template for use in developing an emergency system and man overboard procedures and conducting drills is provided below.

Thinking through and addressing all the possible scenarios when planning and using a combination of emergency equipment will provide the greatest chance of the survival of a crew member if a man overboard incident occurs.

While some rescue equipment is required as part of the vessel survey, consider additional products and their practicability on the vessel.

MOB template Issues to consider when developing man overboard procedures and conducting man overboard drills include the following.	Yes	No	Addressed
Alert/alarm			
Is there a procedure or system to set off a quick alert if someone falls overboard?			
Are the crew aware of what noise they must make when a person falls overboard? For example, should they whistle or hit metal parts of vessel?			
Has it been worked out who will be responsible for going and telling the skipper straight away that somebody has fallen overboard?			
Is there also a procedure or system to set off a quick alert/alarm when people are alone on deck and accidentally fall overboard? For example, when on watch or out the back having a cigarette?			
Keeping sight of the person in the water			
Where possible, is there a person designated to take responsibility to keep the person in the water in sight at all times?			
Floatation in the water			
What things will a person have to help them float in the water?			
Could automatically or manually inflatable PFDs be worn when on deck or during certain activities, where a risk assessment indicates they are appropriate for the type of work?			
What things should crew throw overboard to mark the area of the fall? For example, a floating torch that can be turned on and thrown over if a fall happens at night.			
Are there additional easy to throw life rings and other equipment on board? For example, rescue grenandes, grab bags or horse shoe life rings.			
Visibility and sound in the water			
Are there ways of increasing visibility of a person who has fallen into the water? For example, retro-reflective tape on PFDs or strobe light or light stick to be worn on the PFDs or in pockets when working alone or on watch or in low visibility conditions.			

MOB template Issues to consider when developing man overboard procedures and conducting man overboard drills include the following.	Yes	No	Addressed
Searchlights			
Where rescues may take place at night, are there adequate search lights?			
Are the search lights included in the drill sheets?			
Have crew been trained in the use of search lights?			
Rescue response			
What will the first response by the skipper be if someone falls overboard? For example, press MOB button on GPS or mark a waypoint in similar fashion to setting a rock lobster pot.			
Are there procedures for different man overboard situations? For example, falls people see and situations where it is some time before it is known that somebody has fallen.			
Do all crew know how to mark the spot when somebody has fallen?			
Do all crew know their individual role in a rescue?			
Is the skipper aware of all the contingencies for search and rescue procedures? Has the skipper been instructed to implement, where required, a Williamson turn or another method of getting back on the track of the vessel when a man overboard has occurred?			
Is there a procedure if it is the skipper who accidentally falls overboard?			
Has it been decided at what point a call for assistance in the search and rescue should go out?			
Distress signals			
Can a distress signal be sent quickly?			
Are all the crew trained on how to send signals?			
If crew are working alone, do they need to wear a personal beacon so that an immediate distress signal can be sent if they fall?			
Retrieval/access/lifting			
Is there a means of getting a person who has fallen overboard back on board?			
Has it been decided which side of the boat recoveries will take place? For example, is it better to retrieve on the windward or leeward side?			
Is there a safe access point? If not, how will rescues take place?			

MOB template	Yes	No	Addressed
Issues to consider when developing man overboard procedures and conducting man overboard drills include the following.			
Has it been worked out how a person can be best retrieved or lifted? Is there a need for rope/net stretcher, tarpaulin, door to stern running board, horseshoe collar (as per rescue helicopters), nets, slings or ladders that can be used in the retrieval?			
Has it been worked out how an unconscious person will be retrieved from the water?			
Has the danger of lifting a person by their clothing or a PFD been highlighted? These could release the victim if they raise their arms. If crew are wearing an inflatable PFD with a crotch strap, then the PFD may work as a harness and an option may be to lift them by the PFD.			
Have crew been shown the retrieval methods and how to use equipment? Do they practice this in drills?			
First aid			
Has it been worked out what first aid equipment will be needed? For example, will a thermal blanket be needed?			
Is there adequate first aid training? For example, are there a sufficient number of people trained?			
Do the crew know what will happen if the skipper accidentally falls overboard? Can anybody else carry out first aid?			
Training/drills			
Will each crew member know their role in an emergency?			
Does the training need to be increased to reinforce crews' understanding of what they must do in an emergency?			
Have regular emergency drills been scheduled?			
Are there practice drills where the skipper arranges for a crew member to jump overboard wearing a PFD on a calm day and all the crew get to experience first hand what needs to be done?			
Travelling at night/only one person on watch			
Is there a procedure for travelling at night or on watch to prevent man overboard and raise alarm if it happens? For example, leave 'track on' on the GPS.			
Should crew on watch wear a PFD when on deck at night time or when on watch? See Section 2.5 of the code for different recommendations for control measures when working alone or being alone on deck.			
Note: The more questions you have answered no, the greater the risks if man overboard occurs. There may also be additional issues to review according to your vessel/operation.			

Appendix 5   Glossary of abbreviations and terms used in this code

Bulwark – this term refers to the side of the vessel from the deck level to the gunnel.

DSC – refers to VHF radio with Digital Selective Calling.

EPIRB – refers to Emergency Position Indicating Radio Beacon.

Gunnels (also known as 'gunwales') – this term is used to refer to the upper edges of the side of a vessel.

MOB – refers to man overboard.

Man overboard – this term refers to accidental falls off vessels and not personnel transfer. The term 'man overboard' is used in this code rather than 'person overboard' as it is the commonly used term in the industry.

OSH Regulations – this term refers to the Western Australian Occupational Safety and Health Regulations 1996. A copy can be downloaded from www.slp.wa.gov.au

Inflatable personal floatation device (Inflatable PFD) – this term means inflatable buoyancy garments containing CO_2 activated inflation systems. These become personal floatation devices (PFDs) when inflated. Depending on the model, inflation can occur manually by inflating the PFD by the mouth or pulling a toggle or automatically when it is submerged in water, either by a hydrostatic mechanism or a cellulose cartridge type of mechanism without the wearer carrying out any action.

Personal floatation device (PFDs) – this term refers to life jackets and other buoyancy garments worn on the body, which are capable of maintaining an unconscious wearer in a safe floating position in the event of a fall into water.

'Safe system of work' – this term means the provision and maintenance of a vessel and its plant and systems of work so that, as far as practicable, crew are not exposed to hazards. It involves coordination of all work activities so that one part does not endanger other crew. Developing a safe system of work includes taking into account:

- the layout of the vessel;
- the planning of work, equipment and appliances;
- the storage and handling of all materials;
- all the crew on the vessel and their location and movement;
- potential hazards and risks that crew could be exposed to; and
- plans and procedures for problems or mishaps.

SOLAS – this abbreviation refers to the International Convention for the Safety of Life at Sea.

SOP – this refers to standard operating procedure.

Vessel safety management plan – this is a plan that outlines how it is intended to manage safety on a particular vessel. It should address provision of safety and health information, instruction, inductions, training and supervision, control measures in place to address identified hazards, safe working procedures (see above definition for 'safe system of work'), emergency procedures and incident reporting. It is a 'living' document, which should be updated as things change and available to all persons involved.

Williamson turn – this is a manoeuvre used to bring a vessel under power back to a point it previously passed through.

Appendix 6   Legislative framework for occupational safety and health

The *Occupational Safety and Health Act 1984*

The OSH Act provides for the promotion, co-ordination, administration and enforcement of occupational safety and health in Western Australia. It applies to all industries with the exception of mining and petroleum.

With the objective of preventing occupational injuries and diseases, the OSH Act places certain duties on employers, employees, self-employed people, manufacturers, designers, importers and suppliers. Principal contractors, contractors and those involved in labour hire and labour arrangements have the duties of an employer or employee, as applicable.

The broad duties established by the OSH Act are supported by a further tier of statute, commonly referred to as regulations, together with lower tiers of non-statutory codes of practice and guidance notes.

Occupational Safety and Health Regulations 1996

The OSH Regulations have the effect of spelling out specific requirements of the legislation. They may prescribe minimum standards and have a general application, or define specific requirements related to a particular hazard or type of work. They may also allow licensing or granting of approvals and certificates etc.

Codes of practice published under the OSH Act

Codes of practice published under the OSH Act provide practical guidance on how to comply with a general duty or specific duties under the legislation.

Codes of practice may contain explanatory information. The preventive strategies outlined do not represent the only acceptable means of achieving a certain standard.

A code of practice does not have the same legal force as a regulation and is not sufficient reason, of itself, for prosecution under the legislation, but it may be used by courts as the standard when assessing other methods or practices used.

Regulations and codes of practice

If there is a regulation about a risk in the OSH Regulations, it must be complied with.

If there is a code of practice about a risk, either:

• do what the code of practice says; or

• adopt and follow another way that gives the same or greater level of protection against the risk.

If there is no regulation or code of practice about a risk, choose an appropriate way and take reasonable precautions and exercise proper diligence to ensure obligations are met. Note, there may be additional risks at the workplace not specifically addressed in this code of practice. The OSH Act requires identification and assessment of those risks and implementation of control measures to prevent or minimise exposure.

Appendix 7   Other sources of information

Legislation

Occupational Safety and Health Act 1984

Occupational Safety and Health Regulations 1996

Wes*tern Australian Marine Act 1982*

Codes of practice, guidance material and other documents

Commission for Occupational Safety and Health

Codes of practice: First aid facilities and services, workplace amenities and facilities, personal protective clothing and equipment

Code of practice: Manual tasks

Code of practice: Prevention of falls at workplaces

Code of practice: Working hours

Guidance note: Alcohol and other drugs at the workplace

Guidance note: General duty of care in Western Australian workplaces

The above can be obtained from www.worksafe.wa.gov.au

Contacts

**Department of Commerce
WorkSafe**

Level 5, 1260 Hay Street
WEST PERTH WA 6005

Tel: 1300 307 877
Fax: (08) 9321 8973
National Relay Service: 133677

Email: safety@commerce.wa.gov.au
Internet site: www.worksafe.wa.gov.au

Western Australian Fishing Industry Council (Inc)

Suite 6, 41 Walters Drive
OSBORNE PARK WA 6017

Tel: (08) 9492 8888
Fax: (08) 9244 2934

Email: wafic@wafic.org.au
Internet site: www.wafic.org.au

**Department of Transport
Marine Safety**

1 Essex Street
FREMANTLE WA 6959

Tel: (08) 9216 8999
Fax: (08) 9216 8979

Email: marine.safety@transport.wa.gov.au
Internet site: www.transport.wa.gov.au/imarine

Chamber of Commerce and Industry Western Australia

180 Hay Street
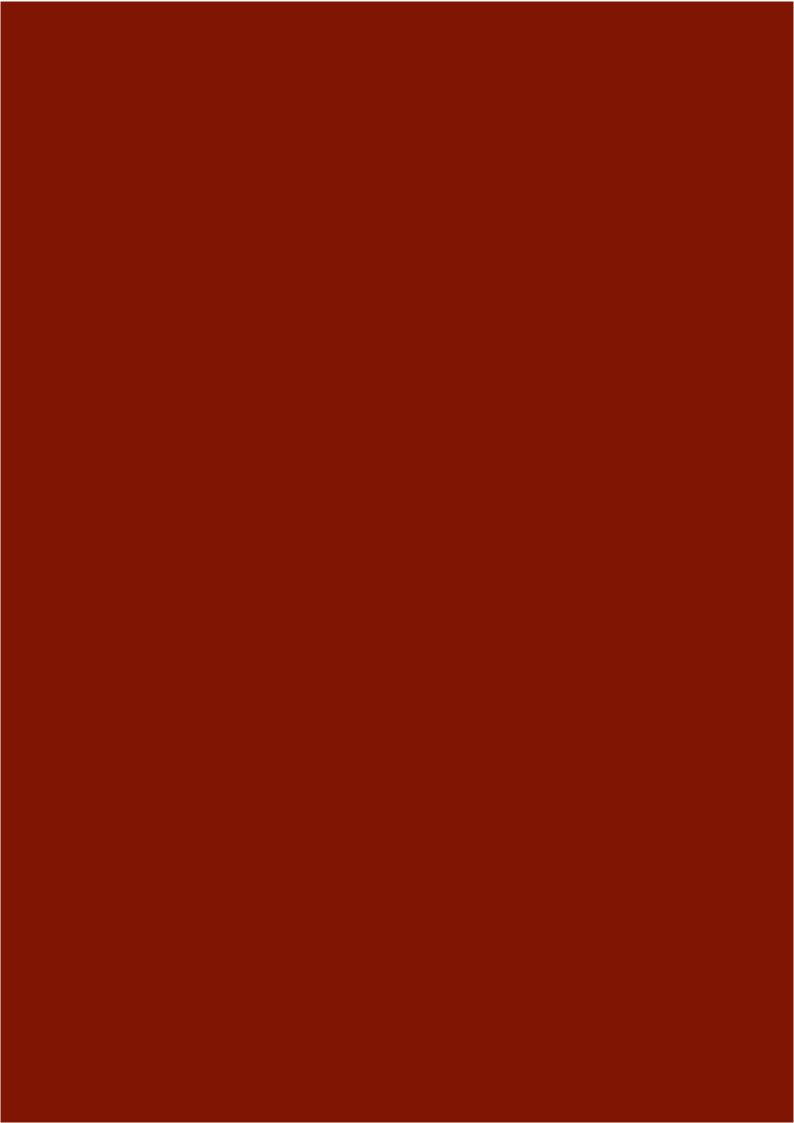EAST PERTH WA 6004

Tel: (08) 9365 7415
Fax: (08) 9365 7550

Email: osh@cciwa.com
Internet site: www.cciwa.com

UnionsWA

Level 4, 445 Hay Street
PERTH WA 6000

Tel: (08) 9328 7877
Fax: (08) 9328 8132

Email: unionsyes@unionswa.com.au
Internet site: www.unionswa.com.au

c o m m i s s i o n
for occupational
safety and health

This document is available on request in other formats to
assist people with special needs