



## Chapter 16: Person-in-the-Water Recovery

---

### Introduction

“MAN OVERBOARD!” is one of the worst alarms to hear while underway. Decisive action is of primary importance when a person falls overboard. Even the best swimmers can become disoriented when unexpectedly falling into the water. Prolonged exposure to rough seas or cold weather can quickly weaken a swimmer. This chapter addresses man overboard (MOB) and person-in-the-water (PIW) recovery procedures, as well as water survival skills. Lives depend on every crewmember performing these procedures completely and effectively.

### In This Chapter

This chapter contains the following sections:

Section	Title	See Page
A	Recovery Methods	1
B	Water Survival Skills	22

**WARNING:** The wearing of jewelry, including rings, wristwatches, necklaces or other items not consistent of organizational clothing, PPE, or uniform articles by boat crew members engaged in towing or other deck evolutions where potential for snagging exists is discouraged.

---

## Section A. Recovery Methods

---

### Introduction

All crewmembers must be prepared when someone falls overboard. Rehearsing how to react is vital to a successful and safe recovery of the individual. When someone falls overboard, crewmembers should always assume the worst has happened. The person could be suffering from shock, may be unconscious and possibly injured. Rapid recovery of the person is a must.

The information here is a general guideline. Actual situations may vary and all details pertaining to each are beyond the scope of this manual. A professional understands and rehearses each possibility remembering that the key to a successful rescue is preparation, practice, and alertness.

## In this Section

This section contains the following information:

Title	See Page
General Man Overboard Procedures	2
The Approach	6
Approaching in Low Visibility	11
Approaching Under Surf Conditions	17
Recovery	18

## General Man Overboard Procedure

### A.1. Description

The action taken in the first few seconds after a crewmember falls overboard decides the success of the recovery. An alert crewmember can do much to save the life of someone who might otherwise drown. First actions should be swift and certain.

### A.2. Prevention

The first thing every crewmember needs to learn about recovering a person-in-the-water is how to prevent it in the first place. It is every crewmember's responsibility to protect themselves and their fellow crewmembers from falling overboard. Some things to pay particular attention are:

- Ensure jacklines are up and in good condition. *Rescue One* is equipped with jacklines and safety harnesses.
- Keep decks clear of trip/slip hazards
- Repair/replace cracked or damaged stanchions.
- Ensure two persons are used when conducting an evolution that might result in falling overboard (anchoring, towing, etc.).

Another important piece of the safety of the crew is ensuring that everyone onboard is wearing appropriate PPE. If someone should fall overboard, proper PPE will keep him or her afloat if unconscious and prolong exposure time in the water.

NOTE: More information concerning PPE can be found in Chapter 6 of this manual.

### A.3. First Sighting

If a person enters the water, the first crewmember to realize that someone has fallen overboard should follow these procedures:

Step	Procedure
1	Spread the alarm in a loud voice by repeatedly calling out, "MAN OVERBOARD!" It is also very important to shout out the location the person fell overboard (port/starboard side, the bow, the stern) For example, if the person fell over the port side, the alarm should be, "MAN OVERBOARD, PORT SIDE!"
2	Maintain sight of, and continuously point (open handed) to the individual in the water while carefully moving to a position in sight of the VO or operator. Give clear, loud verbal

	directions as well as the condition of the PIW (conscious, unconscious, injured, etc.) to the VO.
3	If crewmember loses sight of the PIW at any time, throw a ring buoy with strobe light (or anything that floats) over the side as quickly as possible.

#### **A.4. VO or Operator Actions**

Once the alarm has been sounded, the VO has several actions to complete in order to successfully recover the PIW. Though a quick recovery is preferred, at times it is better to slow down, assess the situation, and ensure everything is done properly the first time. Not every MOB/PIW recovery is the same. It is always better to make a correct approach slowly and recover the person on the first attempt rather than an incorrect fast approach resulting in the need for a second try.

There is no single correct order in which the steps below should be executed. Everything depends on the situation at hand. Starting a turn to maneuver back to the PIW is a common first step, but if boat traffic in the area is heavy, turning the vessel might endanger others. Each task is important in its own way and needs to be conducted to ensure a successful recovery.

NOTE: Remember - - - Assess the situation before rushing to action!

WARNING: Increasing speed during the recovery turn is not always the best maneuver! A sudden burst of speed or a rougher ride from going faster through the water can make for an unstable platform. Instead of just one person in the water, there could end up being more.

CAUTION! Always operate at a safe speed!

#### **A.5. Maneuvering Boat to Recover PIW**

If someone falls overboard, the boat may have to be maneuvered for a pickup. In most cases, it starts by turning in the same direction the person fell overboard. Turning towards the same side the person fell overboard will “kick” the stern away preventing the propellers from injuring the PIW. If the person falls off the bow, the turn should be in either direction to kick the stern clear. If the person falls off the stern, in some cases, the eddy current located off the transom can hold the PIW tight against the stern. Applying additional power while turning sharply to either port or starboard will push the PIW clear.

In some cases, turning the boat is not possible due to vessel traffic or a narrow channel. In these cases, slowing down and stopping are other options. Once the boat has stopped, the PIW may swim back towards the boat for recovery or after slowing to bare steerageway, spin the boat around and recover the PIW.

An increase in speed is not necessary during the turn. Recovering the PIW as soon as possible is important, but sometimes an increase in speed by the VO will catch the remaining crewmembers off guard and possibly eject them from the boat. If operating at high speed when the MOB takes place it might be best to slow down before starting a maneuver. The VO should carry out the turn at a safe speed to ensure a more stable platform for the recovery crew.

#### **A.6. Mark Position**

Another important step is to record the vessel’s position by pressing the appropriate button on the chartplotter or GPS receiver to mark the exact position (datum) of the distress electronically. This will

give a position to return to if unable to locate the PIW and the search must be started. Consult the chartplotter manual for your Division vessel so you clearly know how to activate the MOB feature for the chartplotter installed on that particular vessel.

NOTE: A good boat crewmember will know how to proficiently work all electronic equipment aboard any vessel he/she may be assigned to.

All possible means must be used to identify the position (dead reckoning, visual landmarks, radar, etc.), if the vessel is not equipped with a GPS receiver.

#### **A.7. Alerting Boats in the General Vicinity**

Sounding five or more short blasts on the sound signal, horn, or whistle alerts boats in the area that a danger exists (i.e., a MOB is occurring). Boats in the vicinity may not be aware of what the signal means but at least they will realize something unusual is happening.

#### **A.8. Deploying a Flotation Device**

If at any time the crew loses sight of the PIW, the VO should ensure a ring buoy with strobe light (or anything that floats) is thrown over the side (see **Figure 16-1**). This flotation device will serve two purposes. First, the PIW may see the flotation device and be able to get to it increasing their chances of being located and providing additional flotation. Second, the ring buoy or any floating object thrown over the side (if a ring buoy is not available) serves as a reference point (datum) marking the general location of the incident and for maneuvering the boat during the search for the PIW.

CAUTION! Do not throw the floatable object(s) directly at the PIW. It could cause injury if it hits the individual.



**Figure 16-1**  
**Ring Buoy with Strobe**

#### **A.9. Assigning Crew Duties**

Upon hearing the initial “Man Overboard” alarm, the VO will assign duties to each crewmember as follows:

- A pointer will be positioned on or near the bow of the boat (if weather conditions permit). This will normally be the crewmember making the initial report. The pointer will maintain constant sight of the PIW and continually use their hand to indicate the location of the PIW. The pointer will also call out the physical condition of the PIW to affect an appropriate rescue attempt.

- A recovery/pick-up crewmember will be assigned to prepare a heaving line to be used in retrieving the PIW. If the PIW is reported to be unconscious, the recovery/pick-up crewmember will assist in dressing out and tending the surface swimmer. If at any time the PIW can no longer be seen, the recovery/pick-up crewmember will be instructed to deploy a ring buoy with strobe light (or anything that floats) over the side.
- A surface swimmer will be made ready if needed, as well as another crewmember on the tending line to the surface swimmer's safety harness, whenever the swimmer is in the water.

NOTE: Review section A.33 of this chapter for important information regarding surface swimmers.

#### **A.9.a. The Pointer**

The pointer will visually search for the person overboard, and when located, will point to the person overboard at all times. The DOV will guide on the pointer's hand signals in maneuvering the boat for the recovery approach.

The VO should ensure that the pointer is relieved of any other duties that could be distracting.

#### **A.10. Crew Briefing**

When the VO is ready to commence the recovery approach, he/she must brief the crew on how the recovery will be made and whether it will be accomplished on the port or starboard side. The approach will be influenced by:

- Wind
- Sea/surf conditions
- Maneuverability of the boat
- Maneuvering space restrictions

#### **A.11. Informing Incident Command**

When circumstances and time permit, the VO must notify the Incident Command of the man overboard situation. This should be done as soon as possible after the occurrence.

#### **A.12. PAN-PAN Broadcasts**

If the person overboard has not been located and immediately recovered and assistance of other boats is needed, the emergency call signal Pan (pronounced pahn) should be transmitted in sets of two for three sets (PAN-PAN . . . PAN-PAN . . . PAN-PAN) on channel 16 of the VHF Marine Band radio. This should be followed with the boat's identification, position, and a brief description of the situation. "Mayday" shall not be used. A boat uses a mayday call only when threatened by grave and imminent danger. After returning to datum and completing a quick scan of the area, if the PIW is not found, a datum marker (if one was not dropped initially) should be dropped and a search pattern commenced. The search should be continued until otherwise directed by the Incident Command. More information concerning search patterns can be found in *Chapter 15, Search and Rescue* of this manual.

#### **A.13 Requesting Additional Assistance**

Requests for additional assistance may be made to the Incident Command by radio or cell phone. Also, air assets, such as the UPD helicopters or Air-Med/LifeFlight may be requested by the VO to assist as needed.

### A.14 Summary

The general PIW recovery procedures described below apply when an individual falls overboard from any vessel. These procedures are in a sequence as it occurs in time:

Step	Procedure
1	Someone falls overboard
2	The first crewmember to observe the incident calls out “MAN OVERBOARD” and follows this exclamation with the side from which the event occurred or the person was sighted; then maintains sight of and continuously points to the individual in the water
3	VO will perform the following tasks. The order depends on the situation at hand. Remember – slow down, assess the situation, and take action: <ul style="list-style-type: none"><li>• The VO turns the boat in the direction indicated in the alarm. The VO maintains a safe speed to ensure crew safety while setting up for recovery</li><li>• Position is recorded by depressing the MOB feature on the GPS receiver (chartplotter), if this equipment is on the boat</li><li>• Alert boats in the general vicinity by sounding 5 or more short blasts on whistle or horn</li><li>• Ensure a flotation device has been deployed if PIW is no longer visible</li></ul>
4	The VO assigns crewmembers duties: <ul style="list-style-type: none"><li>• The pointer (or first person to see the member go overboard) moves forward near a pilothouse window (weather permitting), locates the person overboard and points to the location of the person at all times</li><li>• The recovery crewmember makes preparations for the pickup</li></ul>
5	The VO makes the recovery approach, briefs the crew on the recover procedure including which side of the boat the pick-up will occur. Based on existing conditions, the VO will select either a leeward or a windward approach
6	As soon as circumstances permit, VO informs Incident Command of the situation
7	If additional assistance required, request help from Incident Command and boats in the vicinity. Issue “PAN-PAN” broadcast.

## The Approach

### A.15. Description

The VO must select an approach that is suitable for the existing conditions. There are two basic approaches:

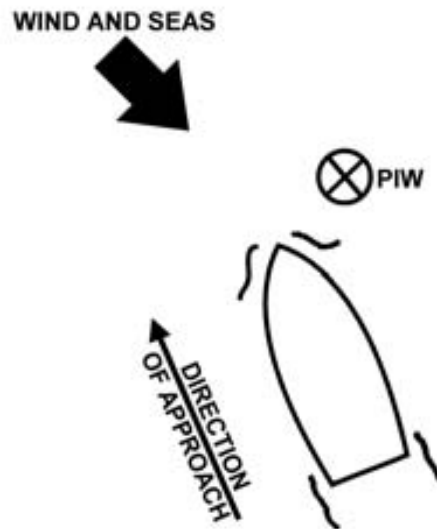
- A leeward approach (against the wind and current).
- A windward approach (with the wind and current).

**WARNING:** If the PIW does drift aft of the boat, do not back down to effect the recovery. The propeller could injure the person.

### A.16. Leeward Approach

The leeward approach is performed with the bow facing into the greatest force of oncoming resistance at the time of pickup using the following procedures: (see **Figure 16-2**). This may be the wind, current, seas, or any combination of the three. There are times when the wind and current are from different directions.

Step	Procedure
1	Select the heading that will best ease the approach, and balance the effect of any swell that might be present
2	Make the approach rapidly, but as the boat nears the person, reduce wake and slow the boat enough to stop headway with a short backing down burst. The PIW should be next to the recovery area on the boat and the boat should be DIW.
3	Place the engines in <i>neutral</i> and, when the person overboard is alongside, have a crewmember make the recovery
4	For better control during the approach, try to make all pick-ups with your boat heading into the prevailing weather and sea conditions
5	Take care not to overrun the person overboard or have so much headway that the boat drifts beyond the person overboard
6	If the PIW does drift aft of the boat, do not back down to effect the recovery. The propeller could injure the person. The best course of action should the boat over shoot the PIW is to swing around and make another approach. It is best to make one correct approach slowly than several attempts quickly.



**Figure 16-2**  
**Leeward Approach**

### A.17. Windward Approach

The windward approach (see **Figure 16-3**) is performed with the wind coming from behind the boat, when the person overboard is in a confined space, and a leeward approach is impossible. However, a situation where the boat cannot turn into the wind due to superstructure or bow sail area should be avoided. [This can be the case in \*Rescue One\*](#). The following procedures should be used for a windward approach:

Step	Procedure
1	The operator must maneuver into a position upwind and up current from the person overboard

2	Place the engine in neutral
3	Drift down to the person
4	Ensure that the boat drifts so it places the person overboard along the “recovery” side, but do not allow the boat to drift over the person

WIND AND SEAS

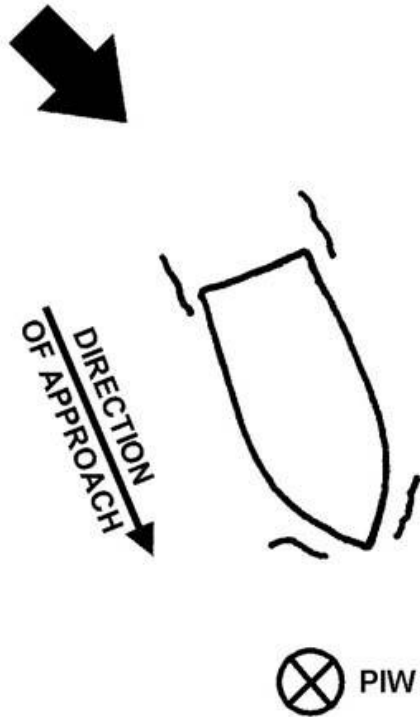
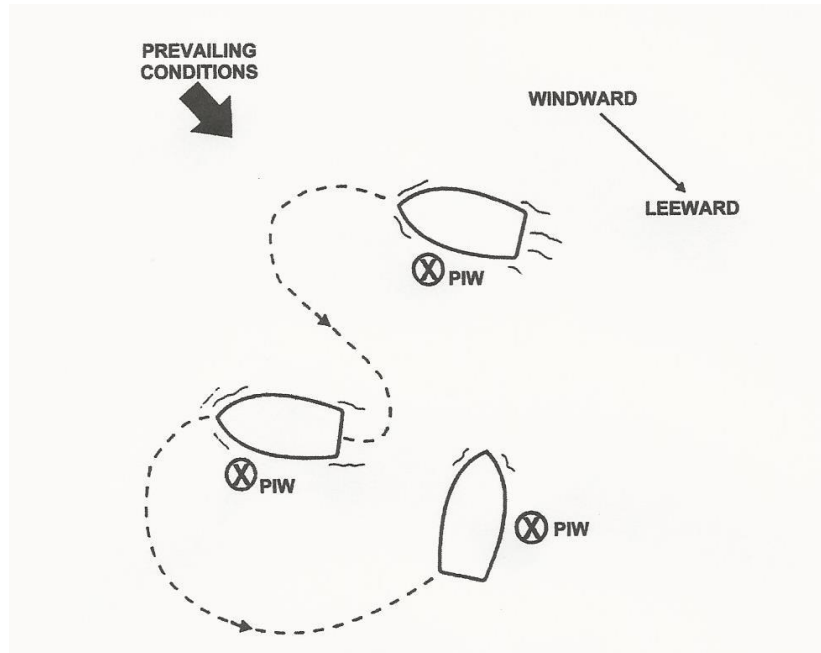


Figure 16-3  
Windward Approach

**A.18. Windward to Leeward of Multiple PIW's**

Depending upon skill and experience, a combination of the windward and leeward approaches may be necessary. One instance may be in the case of recovering multiple PIWs. (see **Figure 16-4**)





**Figure 16-4**  
**Windward to Leeward Approach of Multiple PIWs**

**A.19. Stopping Immediately**

There may be instances when stopping the boat and allowing the person overboard to swim back to the boat, or at least to reach the tethered floating object, is the most appropriate action. This is effective especially if the boat can be stopped quickly after the person falls overboard. The VO should always ensure propellers are not engaged anytime someone is in the water near the stern of the vessel.

**A.20. Stop, Pivot Return**

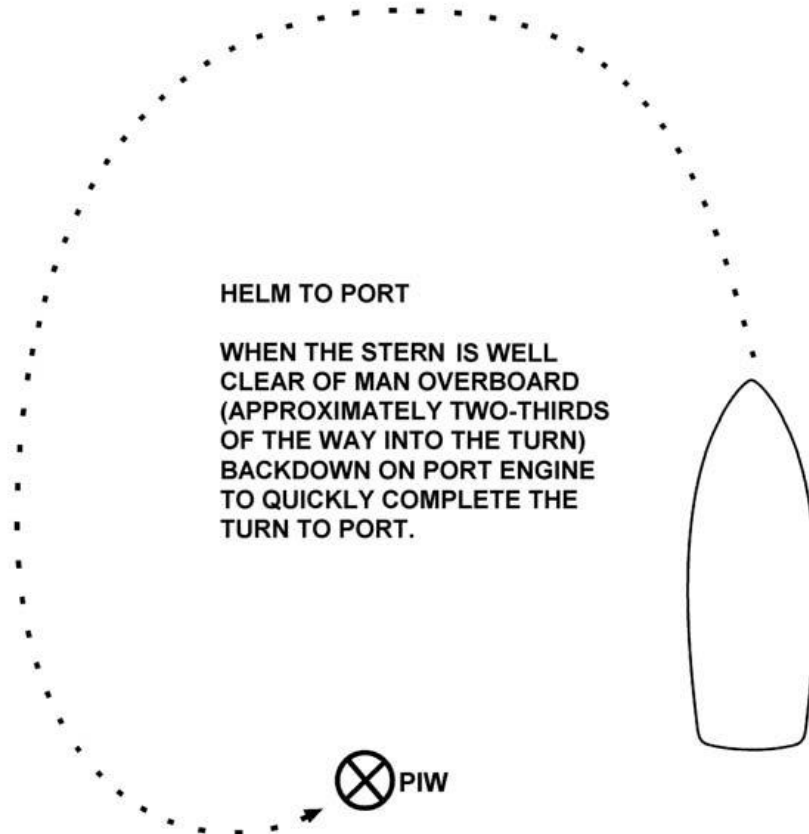
Another option, particularly in a restricted waterway, is to stop, pivot/back and fill, then return to the PIW. The turning and backing characteristics of the boat and the prevailing wind and sea conditions will dictate how the approach is made. The VO will maneuver the boat to the weather side of the PIW so that the boat is set by the wind or seas toward the person rather than away.

**A.21. Destroyer Turn**

Except in a narrow channel, the VO should make the turn to the side that the person fell overboard. This will kick the stern of the boat away from the person preventing injury. This maneuver can be modified for use by twin-propeller boats. Twin-prop boats are pivoted by putting one engine ahead and the other in reverse. With a single-prop boat, the rudder/outboard should be placed hard over and additional power applied, if conditions permit. (see **Figure 16-5**)

Step	Procedure
1	Make the turn to the side that the person fell overboard
2	Continue making a complete turn, coming around and approaching the person

	that fell overboard with the boat's bow directly into the wind/current
3	Once pointed toward the person, proceed rapidly until close
4	Then make a slow and deliberate approach to the person, coming to a stop when alongside



**Figure 16-5**  
**Destroyer Turn Man Overboard, Port Side**

CAUTION! Never have the propeller turning when the person overboard is next to the boat. If it is necessary to add power and maneuver with the PIW in close proximity to the boat, turn the bow toward the person, swinging the stern and propeller(s) away and at a safe distance.

**A.22. Approaching in Severe Weather Conditions**

Severe conditions may dictate that the approach be made from leeward with the bow dead into the seas and/or wind in order to maintain control of the boat. In severe conditions, particularly aboard single propeller boats, this will test the experience and skill of the VO (see *Chapter 20, Heavy Weather Addendum* for more information.)

## Approaching in Low Visibility

### A.23. Description

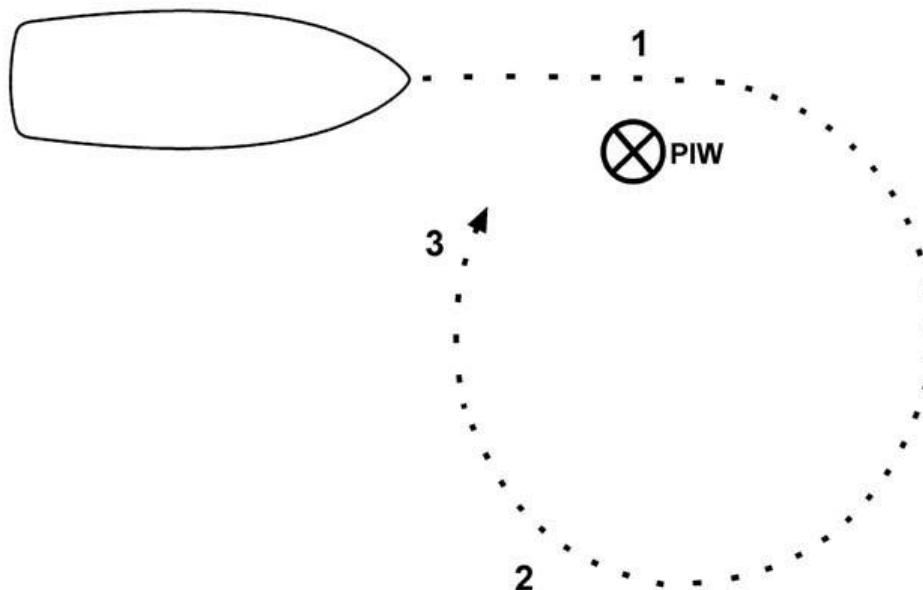
During low visibility and night operations, when a crewmember sees another person go over the side, the same general procedures apply. The crewmember seeing the person go overboard shouts, "MAN OVERBOARD!" The VO should direct the deployment of a flotation device with strobe (or any other light) attached, if available. They also continue to observe and point to the person overboard as long as possible. The VO presses the MOB button on the GPS/Chartplotter, if so equipped, sounds signals, and goes to the datum using one of the following turns:

- Anderson turn
- Race track turn
- Williamson turn

### A.24 Anderson Turn

An advantage of the Anderson turn is that it is the fastest recovery method. A disadvantage is that it is not meant for use by a single propeller boat. The Anderson turn is performed using the following procedures:

Step	Procedure
1	Put the rudder over full in the direction corresponding to the side from which the person fell. Increase power (if conditions permit) on the outboard engine only.
2	When about 2/3 of the way around, back the inboard engine 2/3 or full
3	Stop engines when the person overboard is within about 15° of the bow.
4	Ease the rudder and back the engines as required to attain the proper final position (see <b>Figure 16-6</b> )

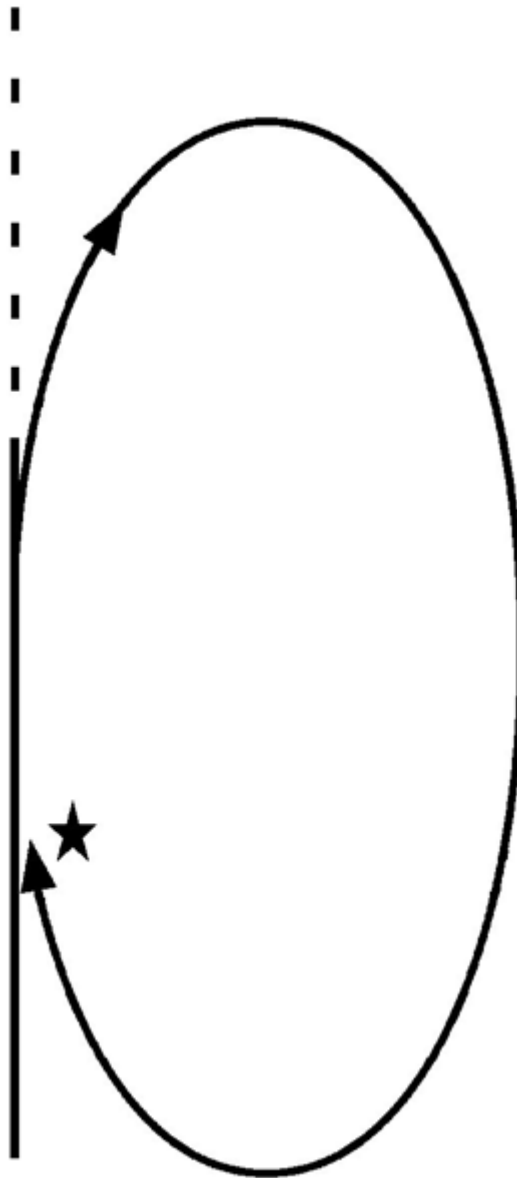


**Figure 16-6**  
**Anderson Turn**

### A.25. Race Track Turn

The final straight leg approach of the race track turn helps for a more calculable approach. The race track turn is performed using the following procedures:

Step	Procedure
1	Put the rudder over full in the direction corresponding to the side from which the person fell and increase speed (if conditions permit).
2	Use full rudder to turn to the reciprocal of the original course
3	Steady up on this course for a short distance, then use full rudder to turn to the person overboard (see <b>Figure 16-7</b> )



**Figure 16-7**  
Race Track Turn

### A.26. Williamson Turn

If an individual falls overboard during periods of darkness or restricted visibility, and the exact time of the incident is unknown, a maneuver known as the Williamson turn should be used to search for the person overboard. The advantage of the Williamson turn, when properly executed, is that it will position the boat on a reciprocal course on its exact original track. This allows the search to commence on the track where the victim fell over, not form a parallel track. Of course, as soon as the alarm is spread the general person overboard procedures will be initiated.

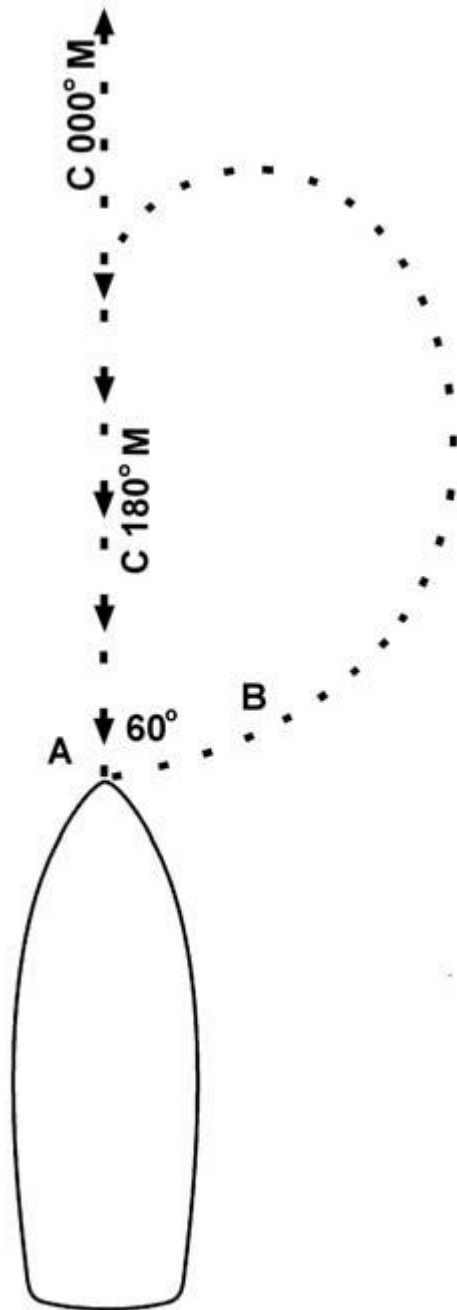
#### A.26.a. Procedure

The Williamson turn is performed using the following procedures:

Step	Procedure
1	Mark the original course when the alarm was initially spread. Put over a ring buoy strobe or other float to work datum
2	Alter the course 60° to port or starboard from the original course. It does not matter which direction is chosen. Naturally, if turning to starboard, 60° will have to be added to the original course to know when the correct number of degrees has been transited. If turning to port, the 60° will be subtracted from the initial course.
3	The turn is actually executed while the first two procedures are in progress. In this step, the reciprocal course must be calculated from the original course. That is to say, an new course which runs in the exact opposite direction (180°) from the original course must be figured
4	Once the correct reciprocal has been calculated and the compass reaches the 60° mark after turning off the initial course, shift the rudder in the opposite direction from the 60° turn and come to the reciprocal course.

#### A.26.b. Starboard Turn

**Figure 16-8** shows how the Williamson turn would look if the 60° turn was to starboard. Point “A” represents the initial course and is illustrated as 000°. At Point B, the compass reads 060°. At this point, the reciprocal course (180°) has been figured. When the compass reaches the 060° mark, the rudder is shifted to the opposite direction (port) of the 60° turn and the boat comes around to the reciprocal. When the 180° course is marked, the boat will continue this new course and if the person overboard has not been sighted by this time, the boat crew will conduct a search for the victim along this heading. If the individual is not located, the boat should proceed along the track to a point where the member was last known to be aboard. At this point a second datum marker (ring buoy, fender, etc.) is deployed.



**Figure 16-8**  
**Williamson Turn**

**A.26.c. Maintaining Speed**

Speed should not change during a Williamson turn. Any speed adjustments should be made prior to beginning the turn. Speed changes may bring the boat around to the reciprocal course in a different position than the line of the initial course. The danger is that the person overboard may be too far away



### **A.27.a. Vessel Maneuverability**

When boat towing astern:

- A decrease in speed could cause the towed boat to overrun the towing boat. If the towing boat slows and does not tend the towline, the towline could sink and foul the rudder(s) and propeller(s).
- If the towing boat turns sharply to either side, tripping can occur. Tripping is when a boat is pulled sideways by an opposing force. If the towline is out of alignment (not in line) and pulls sideways, the towing boat will heel over, often beyond its ability to right itself.

NOTE: Tripping occurs more frequently when the tow is larger than the towing boat.

### **A.27.b. Weather Conditions**

Current, wind, sea, or swell from astern can cause yawing and add to the problem of the tow overrunning the towing boat. Current broadside to the tow creates difficulty in holding the tow due to side slip, causing the tow to yaw.

NOTE: Bar or inlet conditions on the Great Salt Lake during heavy current or storm surge conditions will compound all these problems.

### **A.27.c. Pre-Planning**

Considering the number of potential problems that can occur, the operator should carefully assess all possible situations and conditions to pre-plan steps to take in case of an MOB emergency.

CAUTION! Slow calculated moves are better than a “knee jerk” response.

### **A.27.d. Additional Procedures**

If a person falls overboard during a towing evolution, the initial steps discussed earlier in this section (sound alarm, throw ring buoy) should be followed. The following are additional considerations to take which apply to MOB situations specific to towing evolutions.

- If another boat is nearby, get that boat to make the pickup.
- Since tows are made at slow speeds, it may be possible that the towed boat can make the pickup. If the towed boat still has steerage, have them attempt to steer on the PIW and pick them up when alongside. The towing boat should aid in any way possible by slowing down or steering towards the side the PIW is located.
- If towing astern, advise the towed boat of the MOB situation, and have the people on the tow assist in looking for the PIW.
- Be sure to advise the people on the tow that there is a real danger of tripping or broaching of the towed boat shears away violently from alignment.
- Ensure the towline does not sink and become fouled around the rudder(s) or propeller(s).
- It might be necessary to drop the tow in order to perform a MOB operation. Consider the environmental factors and water traffic when/if dropping the tow to minimize the possibility of a hazardous situation. Have the tow anchor if possible until the towing vessel can return and continue the tow.
- Never forget that the MOB might be injured if hit by the tow.
- A person who has fallen off the bow or side can be seriously injured or killed by the propellers. Any turns made should move the stern away from the PIW.



#### **A.27.e. Man Overboard from the Towed Vessel**

If a person falls overboard from the boat being towed, the initial steps discussed earlier in this section (sound alarm, throw ring buoy) should be followed. If there is no other boat in the area to assist, dropping the tow to recover the PIW is the best choice.

If the MOB takes place in restricted waters, the disabled vessel should be anchored as soon as the tow is released.

NOTE: Always ensure everyone onboard the vessel being towed is wearing a PFD.

#### **A.27.f. Towing Alongside**

When towing a boat alongside, the initial steps discussed earlier in this section (sound alarm, throw ring buoy) should be followed. Towing alongside allows more freedom to turn. Consider the following points:

- Engines, while useful, will not respond as usual. Remember, the engines were designed to propel one boat, not two.
- When making a turn, turn slowly towards the side with the tow and pivot on the tow. Be careful not to swamp the tow.
- The best approach is to make the pickup on the free side since the operator can better observe the person-in-the-water and the pickup.
- Again, consider dropping the tow.

The procedure will remain the same, whether the person falls from the tow or towing vessel.

#### **A.27.g. Summary**

The effect of each action on all of the boats and persons involved should always be considered. People before property. People's safety is the number one priority. People onboard the tow are just as important as the PIW. If the towed boat is not manned, the VO should consider dropping the tow! All people and vessels involved should always be informed of every situation.

The best way to handle an MOB emergency is to prevent one from happening. Being aware of the crew, knowing where they are and what they are doing is essential.

## **Approaching Under Surf Conditions**

#### **A.28. Description**

Recovering a person overboard in heavy weather requires special precautions beyond the routine described in the section on general person overboard procedure. The general procedure is to put in effect as soon as the alarm is sounded. See Chapter 20, *Heavy Weather Addendum, Section D*, for more information.

## Recovery

### A.29. Description

Recover techniques for a PIW are the same for any type of distress. Situations could vary from recovering someone from the crew as an MOB, passengers from a ditched aircraft, fisherman from a sinking boat, someone washed off a break wall, or any other form of emergency where people are in the water.

### A.30 Recovery Methods

The condition of the PIW will dictate the type of recovery procedures used. Once the condition of the PIW can be determined, that is, conscious, unconscious, or injured, the VO will select one of the procedures below and assign crewmember duties accordingly. Generally, the pickup is completed at the lowest point of freeboard and away from the propellers.

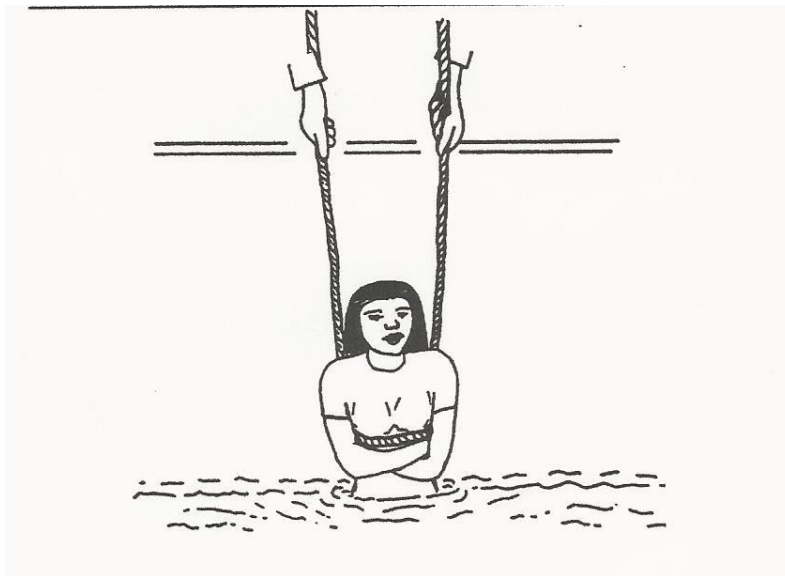
NOTE: Training boat crews for Person in the Water Recovery requires the use of a life-like dummy (OSCAR). The recommended OSCAR is stuffed and weighted (approximately 180 lbs. dry).

### A.31. Person Overboard is Uninjured and Conscious

Perform the following recovery method when the person is conscious and able to move freely in the water:

Step	Procedure
1	Upon command of the VO, a crewmember casts out a heaving line or a float line to the PIW
2	The person will hold onto the line and be hauled in for recovery by the crewmember tending the line
3	If the person needs assistance to board the boat: <ul style="list-style-type: none"><li>• Two crewmembers could be used to pull the person up out of the water and onto the boat by each placing a hand under the person's armpit (use the other hand to hold onto the boat);</li></ul> Or <ul style="list-style-type: none"><li>• A recovery strap/piece of line (see <b>Figure 16-9</b>) or a boarding ladder may be used if available.</li></ul>

NOTE: Rescue One and Rescue Four are both equipped with towing bridles, which can be used as a recovery strap, and with boarding ladders.

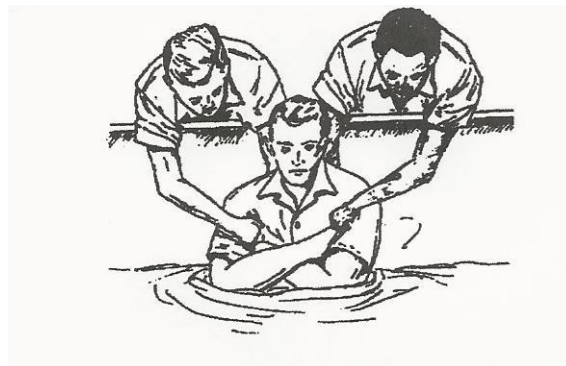


**Figure 16-9**  
**Recovering a PIW with a Recovery Strap or Line**

**A.32. Additional Procedures**

The construction of some boats allow the rescue team to reach the victim at the surface of the water.

- The boat crewmembers should physically pick the person straight up out of the water to a sitting position on the gunwale (gunnel). (see **Figure 16-10**)
- Be careful not to drag the person’s back across the rail.



**Figure 16-10**  
**Recovering the PIW at the Surface of the Water**

If only one person is available to lift an uninjured person from the water, perform the following procedures:

Step	Procedure
1	Position the victim facing the boat with both arms reaching upwards
2	Boat crewmember should reach down with arms crossed and grasp victim’s wrists
3	Boat crewmembers should lift the victim straight out of the water while simultaneously uncrossing the arms. This should extract the victim from the water in a corkscrew motion.

If the freeboard of the boat is too high to recover the victim safely, perform the following procedures:

Step	Procedure
1	Use a rescue strap/line under the armpits in a horse collar fashion. (See <b>Figure 16-9</b> )
2	The line should cross the chest, pass under each arm, and up behind the head
3	Use padding for comfort, if available

A person is light in the water due to buoyancy; however, once free from the water, the person becomes “dead weight.” This should be kept in mind and special care should be taken when recovering injured persons.

### **A.33. PIW is Unconscious or Injured**

In the event that the PIW is unconscious or injured, a direct pick up from the boat may be attempted if on scene conditions permit a safe recovery. IF conditions are such that a direct pick up would be unsafe, utilizing a surface swimmer to recover the PIW may be considered. The procedures from deploying a surface swimmer are as follows:

**CAUTION!** Always use extreme caution when using a boat hook to maneuver an unconscious or injured PIW alongside for pick up.

Step	Procedure
1	The VO will designate one of the crewmembers as a surface swimmer
2	The surface swimmer will don PPE appropriate to the weather conditions. See Chapter 6 of this manual. Other pieces of equipment the swimmer could use are swim fins, a mask and snorkel, and a PFD with a tending line. (see <b>Figure 16-11</b> )
3	For quick deployment, the line should be coiled and attached to the back of the quick release harness of the swimmers PFD.
4	When the surface swimmer has reached the unconscious or injured victim and has obtained a secure hold on the person, the crewmember tending the harness line will haul both back to the boat.

A flotation equipped stokes litter is employed to recover a person only if that person is seriously injured and seas are calm. (see **Figure 16-12**)

#### **A.33.a. Surface Swimmer**

Surface swimmers are any swimmers not trained as rescue swimmers as the Division does not train or utilize rescue swimmers. Surface swimmers are deployed from floating units, docks or the shore. A surface swimmer must wear the appropriate PPE including a PFD with a quick release harness attached to a tending line. Another crewmember will tend the harness whenever the swimmer is in the water.

**NOTE:** A surface swimmer should only be deployed as a last resort and only wearing proper PPE.

**NOTE:** Many county SAR units around the Great Salt Lake have trained surface swimmers that can be called on to assist in SAR activities when recovering PIWs is likely.



**Figure 16-11**  
**Surface Swimmer PFD with Quick Release Harness**



**Figure 16-12**  
**Stokes Litter**

#### **A.34. Multiple PIW Recovery**

For multiple PIWs, the question becomes which person-in-the-water is recovered first. The answer to this requires the VO's best judgment. An accurate assessment once on the scene will dictate the VO's response. Consideration should be given to the following:

- Are one or more persons in the water injured?
- Which persons in the water have on PFDs and which do not?
- How close are the persons in the water to the beach or break wall?
- How old are they and what is their physical condition?

## Section B. Water Survival Skills

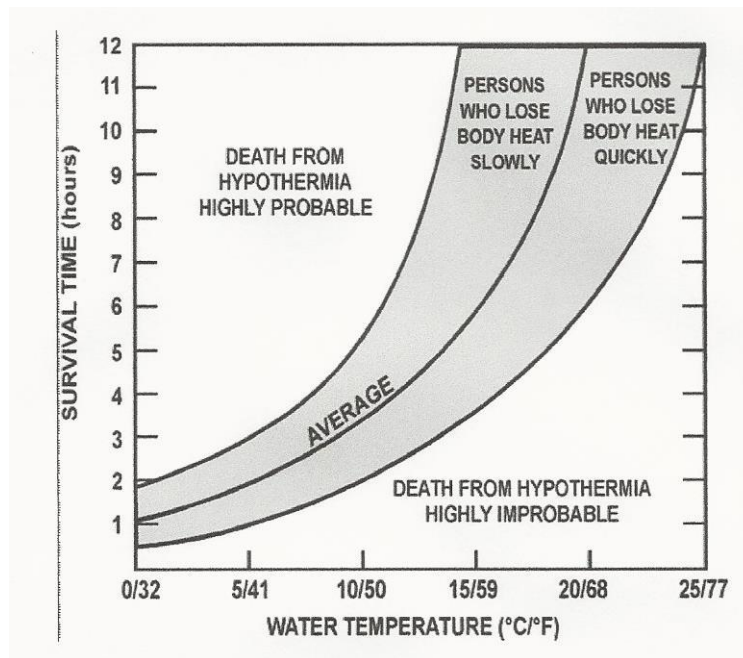
### Introduction

In the event a crewmember enters or ends up in the water due to an emergency, survival procedures should be pre-planned. By doing so, the chances for a successful rescue are increased.

This section addresses the survival techniques that will greatly increase the survival for a PIW. Crewmembers should never forget that wearing all required PPE is the best insurance for survival.

### B.1. Cold Water Survivability

The length of time a person can stay alive in cold water depends on the temperature of the water, the physical condition of the survivor, and the action taken by the survivor. **Figure 16-14** and **Table 16-1** illustrate the relationship between an uninjured victim's activity, water temperature, and estimated survival time. Swimming typically reduces a person's chance of survival due to more rapid loss of body heat.



**Figure 16-14**  
**Water Chill and Hypothermia**

**Table 16-1**  
**Survival Times vs. Water Temperature**  
**How Hypothermia Affects Most Adults**

Water Temperature °F	Exhaustion or Unconsciousness	Expected Time of Survival
Less than 32.5	Under 15 min.	Under 15 to 45 min.
32.5 to 40	15 to 30 min.	30 to 90 min.
40 to 50	30 to 60 min.	1 to 3 hrs.

50 to 60	1 to 2 hrs.	1 to 6 hrs.
60 to 70	2 to 7 hrs.	2 to 40 hrs.
70 to 80	2 to 12 hrs.	3 hrs. to indefinite
Over 80	Indefinite	Indefinite

NOTE: Great Salt Lake can get well below 30 degrees and averages 24 to 27 degrees during the coldest parts of winter. The survival time in the coldest temperatures of Great Salt Lake could be as low as 7 to 22 minutes.

### B.2. Critical Factors

Time is critical when forced to enter cold water. The loss of body heat is one of the greatest dangers of survival. Critical factors that increase the threat of hypothermia and other cold-water injuries include:

- Prolonged exposure to cold-water temperatures
- Sea spray
- Air temperature
- Wind chill

### B.3. Survival Techniques

Several preventive measures that can be used to increase the chances for successful cold water survival include:

- Put on as much warm clothing as possible, making sure to cover head, neck, hands and feet.
- If the hypothermia protective clothing does not have inherent flotation, put on a PFD.
- Avoid entering the water if possible. If it is necessary to jump into the water, hold elbows close to sides, cover nose and mouth with one hand while holding the wrist or elbow firmly in the other hand.
- Before entering the water, button up clothing, turn on signal lights (only at night), locate the whistle attached to your PFD and make any other preparations for rescue.

### B.4. Water Survival Skills

Water survival skills that should be utilized to increase the chances for surviving cold water immersion include:

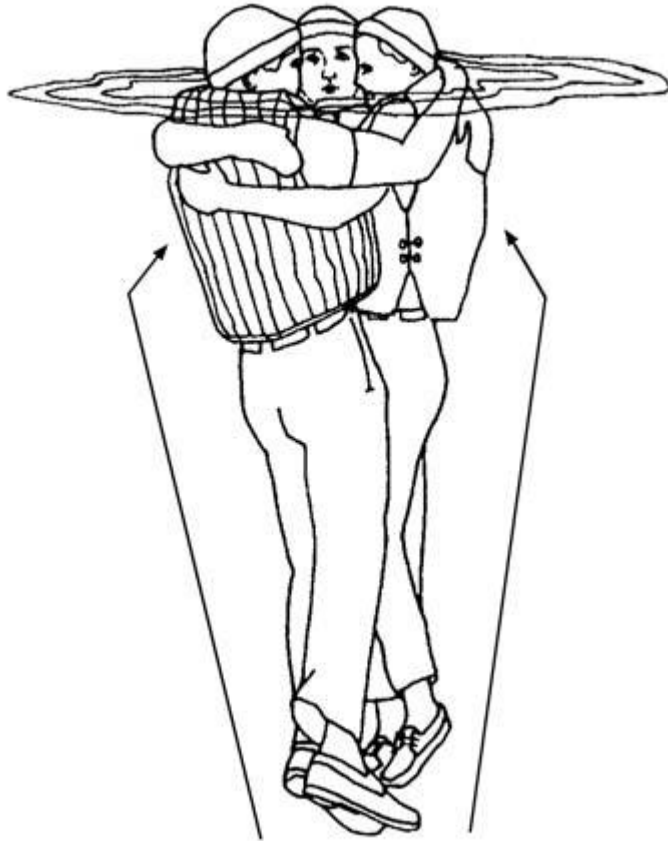
- Immediately upon entering the water, become oriented to the surrounding area. Try to locate sinking boat, floating objects, and other survivors.
- Try to board a lifeboat, raft, overturned boat (if floating), or other floating platforms as soon as possible to shorten the immersion time. Body heat is lost many times faster in the water than in the air. Since the effectiveness of the insulation worn is seriously reduced by being water soaked, it is important to be shielded from wind to avoid a wind-chill effect. [If able to climb aboard a survival craft, such as the RIB located on \*Rescue One\*, use the cover as a shield from the cold. Huddling close to the other occupants in the craft will also conserve body heat.](#)
- While afloat in the water, do not attempt to swim unless it is necessary to reach a fellow survivor or a floating object which can be grasped or climbed onto.
- Unnecessary swimming will pump out any warm water between the body and the layers of clothing and will increase the rate of body-heat loss. Also, unnecessary movements of arms and legs send warm blood from the inner core to the outer layer of the body resulting in a rapid heat loss.

- The body position assumed in the water is very important in conserving heat. Float as still as possible with legs together, elbows close to your side and arms folded across the front of the PFD. This is called the HELP (Heat Escape Lessening Position) and minimizes exposure of the body surface to the cold water. Try to keep head and neck out of the water (see **Figure 16-15**). However, if wearing a Type III PFD, or if the HELP position turns the body face down, bring legs together tight and arms tight to the sides and head back. [This may be the case in the extra buoyant water of Great Salt Lake. It is imperative on Great Salt Lake to find a position where you are not struggling to stay head upright.](#)
- Another heat conserving position is to huddle closely to others in the water making as much body contact as possible. A PFD must be worn to be able to maintain these positions in the water (see **Figure 16-16**).
- Avoid drown-proofing in cold water. Drown-proofing is a technique where the person relaxes in the water and allows their head to submerge between breaths. It is an energy saver in warm water when a PFD is not worn. The head and neck are high heat loss areas and must be kept above the water. That is why it is even more important to wear a PFD in cold water. If a PFD is not worn, tread the water only as much as necessary to keep head out of the water. [In Great Salt Lake it will be possible to pull your legs up and arms in tight and jut lean back a bit to keep your head upright as you will float without treading water.](#)
- Keep a positive attitude about survival and rescue. This will extend survival time until rescue comes. A will to live does make a difference.



**Figure 16-15**  
**Single PIW**





**HUDDLE TOGETHER  
AS CLOSELY AS POSSIBLE**

**Figure 16-16  
Multiple PIW**