

Crew Overboard Techniques

The Problem

A yachtsman can end up in the water for a variety of reasons:

- he falls overboard,
- the boat capsizes,
- the boat can collide with objects in the water or even other boats.

Once a person enters the water, for whatever reason, it is paramount for him/her to get out of the water before drowning or hypothermia occurs. Many yachtsmen who end up in the water could be saved by the use of improved crew overboard techniques.

The Crew Overboard Challenge

Flotation

There are a variety of challenges that present themselves when rescuing a person from the water. One of the most critical from a time standpoint, is that victims don't stay afloat nearly as long as one would suppose. This is due to a number of reasons:

- rough sea conditions;
- bulky boating clothing, including shoes and boots;
- lack of swimming ability;
- intoxication;
- sudden Drowning Syndrome;
- injuries sustained during the accident;
- exhaustion.

The answer to staying afloat is simple:

- wear flotation which is appropriate for the type of boating.

Unless the victim has been injured while falling overboard, proper flotation can keep a victim alive until rescued, or until hypothermia kills the victim. This is so basic, and has been repeated so many times, that many of us overlook it and search for more complicated and technical solutions. But wearing flotation is the primary solution.

Likewise, crew assist devices that are deployed, or thrown, cannot be guaranteed to land in the water sufficiently close to the victim that he/she can reach it. The device frequently drifts faster than the victim can swim.

The boat doesn't return

In some circumstances, the boat cannot, or does not, return to pick up the victim. This is certainly true with single-handed sailors or power boaters, and this emphasizes why solo boaters must wear harnesses or otherwise ensure that they will not become separated from the boat. There are other possible reasons:

- the rest of crew does not know that person has gone overboard;

- the boat is sailing under combination of sails or equipment which make it difficult for the crew to reverse direction (poled out genoas, spinnakers, bloopers, unreefed sails, sea anchors, drogues);
- or the crew remaining aboard does not have the ability to handle the boat (injuries, lack of skill).

While each case is different, the bottom line is that you are most likely to be rescued by your own boat and crew. Harnesses, and skilled crew members, are part of the solution. Furthermore, COB methods which assume a rapid return to the victim cannot guarantee that this will always be possible. Winches override, sails jam in sail tracks, engines don't start, and victims may not be found on the first pass.

Inability to find the victim

In many cases it is difficult or impossible to find the victim in the water. Various studies have shown that once visual contact has been lost with the victim, the chances of finding the victim are greatly reduced. While COB accidents occur in all weather conditions, large seas and reduced visibility, especially at night, can make it possible to lose sight of the victim almost immediately.

There are two strategies to deal with this:

- the victim must make himself as visible as possible to his rescuers, and
- the boat must stay in the vicinity of the victim.

To increase personal visibility, strobes, SOLAS tape, flares, and other devices must be carried and used. To stay in the vicinity, you need a trained crew able to use a maneuver which does not involve sailing too far away from the victim.

Inability to make contact with victim

Even when the boat comes alongside the victim, it can be difficult to make contact with him/her. In rough seas, even experienced drivers have a tough time coming close, but not too close, to the victim so that contact can be made. In other cases, the victim will be near some object or hazard which will preclude the boat's returning to him.

Devices such as throw rope bags, heaving lines, or the Lifesling can be used to bridge the gap between rescuers and victim, and reduce the need to risk injury by approaching too closely.

Hypothermia

The abnormal loss of body heat to the environment, or hypothermia, occurs rapidly when people are immersed in water due to water's great ability to absorb heat (25 x greater than the equivalent temperature air).

Hypothermia causes individuals to lose motor skills, judgment, and eventually consciousness with death following. While cold water (less than 60degrees F) acts much more quickly than warm water, hypothermia is a threat in waters less than 85 degrees or so.

What many COB techniques fail to take into account is that a victim will rapidly lose ability to self-rescue as hypothermia progresses. Even strong swimmers, and individuals trained in survival methods, will gradually lose their ability to swim, think, use ladders, communicate, tie knots, or hang on.

Inability to re-board

While many COB techniques deal with the boat's path through the water as it returns to the victim, few have addressed the need to have a foolproof method to re-board. A person in the water is a difficult object to

retrieve, especially from a boat with high freeboard, in rough conditions, or if the victim is disabled. Below is our comparison of boarding methods.

Reboarding Technique:

1. Stern or side ladders

Pros: Easy to deploy, multi-purpose gear, no technique involved

Cons: Does not work with hypothermic victims, or in rough conditions

2. Swim steps, open transoms, or transom scoops

Pros: Permanently in place, nothing to buy, multi-purpose

Cons: Cannot be used in rough weather, puts "assistants" at risk outside lifelines

3. Using a rope sling or bosun's chair

Pros: Uses on-hand gear, some hoists are difficult for a weakened victim to "get in to" in the water

Cons: Uncomfortable, can be difficult

4. The Lifesling

Pros: Provides flotation, hard to slip out, can be towed to victim

Cons: Single purpose gear, requires some technique/skill

5. Use of a platform like a MOM 9 raft

Pros: Provides flotation, hypothermia reduction

Cons: Very difficult to stand on, expensive, requires maneuvering close by

6. Brute force, using the strength of the remaining crew

Pros: Fast, uses no gear, still works in spite of victims weakness

Cons: Puts crew at risk, requires 2-4 strong persons, can strip gear from victim

7. Self-rescue, by climbing over the side of the boat

Pros: Single-handed method in stationary conditions (at mooring or anchor)

Cons: Physically difficult, does not work if boat has way on

8. Use of a sail which is dropped into the water

Pros: None

Cons: Almost impossible, victim not likely to want to crawl into sail, theoretical, not practical

9. The Elevator method (line assist using cockpit winch)

Pros: Fast, uses on-hand gear

Cons: Danger of pinched toes requires non-hypothermic crewmember

Maneuvering Techniques

Most boaters would describe their COB technique by the maneuvering method used, which would generally be one of the following techniques. Each has its advantages and disadvantages, and each has its advocates.

Figure Eight:

Sail away from the victim on a beam reach for a 5-7 boat lengths, tack, and drop back onto the same track or lower. Approach the victim from slightly to leeward, round the boat into the wind to slow down and make contact.

Advantages:

Boat is under control the entire time, and does not jibe.

Crew has time to react. Distance sailed away allows speed control on approach.

Disadvantages:

Boat sails too far away, can lose sight of victim.

Fast Return:

If upwind, boat goes to a beam reach, then tacks in a few boat lengths. If reaching/downwind, boat heads up to a close reach and tacks. In both cases, as boat crosses the eye of the wind, helmsman cries BANG, so that a reference of the boat when it is head to wind vs. victim is established. Boat continues to tack and leaves jib aback, and either reaches off to drop behind victim, or continues slightly upwind to victim. As boat gets close, helmsman stuffs boat into wind, eases the sheets, and sails slowly by victim. It may be best not to try stopping adjacent to victim, but rather sail by slowly maintaining boat control and allow victim to grab a line and be towed as boat slows down.

Advantages:

Very short time before boat is alongside victim. Maneuver is similar upwind and down. No jibing.

Disadvantages:

Can be so quick that speed is not under control. Crew must be ready all the time. Must sail close by to make contact.

Quickstop/Lifesling:

Involves an immediate throwing of flotation, tacking with jib aback, and circling victim. If crewed, drop jib on downwind part of circle. If short-handed, deploy Lifesling by dropping in water. If single-handed, leave jib strapped in. Continue in circle around the victim until

1) you come alongside him/her, or

2) victim gets Lifesling.

Kill boat speed, drop sails, haul in victim to boat, cleat off. Arrange lifting tackle, or use a halyard and a powerful halyard winch, and hoist victim out of water.

Advantages:

If crewed, rescue takes about 90 seconds, and works very well with a spinnaker up. If single-handed, rescue takes 4-20 minutes, but is almost guaranteed to work if remaining crew has modest boat handling skills.

Disadvantages:

Requires jibing. Requires Lifesling if short handed. Multistep process is not as quick as the Fast Return.

Racing vs. Cruising

A fundamental difference in the effectiveness of these methods will be the driver's familiarity with the boat, and his/her overall sailing and boat handling skills. Racers, due to their frequent encounters with other boats on the race course, are frequently more comfortable with tight turns, rapid tacks, slowing and speeding up the boat, jibing, and other maneuvers. The cruising or day sailing boater on the other hand, may go to some lengths to avoid these maneuvers. This may also be related to the type of boat that a sailor is used to: higher performance boats may lend themselves to fast changes of course, and precision maneuvers under sail.

Conclusions

1. You cannot depend on throwing flotation to the victim in the water, or deploying gear in close proximity. Even in circumstances where a person is prepared to throw a Type 4 PFD to a victim, it is impossible to get it to the victim every time. PFDs drift faster than a person can swim in winds about 10-15 knots. Crew members have to wear flotation at all times-period.
2. Rescues where the helmsperson took control and talked everyone through the rescue were much more successful. Leadership makes a giant difference. Talking and explaining what would happen next REALLY allowed the crew to do the right thing. Even if the helmsperson was not a "rock star", basic communication contributed to the success of the recovery.
3. Panic is a common reaction when a person falls overboard, and the best way to deal with panic is to drill your crew so that they a) know what to do instinctively, and b) have confidence in the process.
4. It makes a giant difference if you know how to handle a boat. Many sailors who have not started in the sport by sailing dinghies, or have not received competent instruction, are not able to sail well and are very nervous about sailing close by someone in the water.
5. Practice is critical so that you know a) how fast your boat sails, b) how fast your boat turns, c) how fast your boat loses speed head to wind, d) how long your boat will stay head to wind if you have to drop sails, etc. Even very good sailors screwed up once or twice.
6. Crew overboard recovery is a combination of a) returning to the victim, b) making contact with him/her, and c) getting him/her back on deck. When you compare methods and techniques, make sure that they address all three aspects of the problem. Partial, inadequate, solutions abound.
7. Stern ladders work well in calm sea conditions, with non-hypothermic victims. In rough conditions, a stern ladder is damned dangerous to the victim in the water. You have to have a alternative method to retrieve crew when it is a) rough, or b) when they are cold.
8. If you are sailing with a skilled crew, it's probably best to do a Fast Return. You sail no more than a few boat lengths away from the victim, but the crew has to be ready for the maneuver or you will get into trouble.