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## **Bring Your Own Boat (BYOB) SAS Training Day**

### **Storm Trysail Educational Material**

Prior to Training Day, your crew should access our video “Advances in MOB Recovery.” Also review our SAS Handbook, especially Fire Fighting/ Abandon Ship (pages 8-9), Damage Control Grid (p.16), Man Overboard (p.18-29 including sample MOB Plan (p.29)). All skippers, crew and coaches should attend our Zoom the prior week, and Zoom Debrief the week after Training Day.

### **Sails & Equipment**

Bring a reefing mainsail, heavy weather jib (3 or 4), storm jib (if you have one), and ideally two older spinnakers (light and heavy). If conditions are windy, chose a smaller headsail and do not hesitate to reef.

Storm Trysail will supply a MOB Dummy and Tallboy Buoy at the Rendezvous. Ideally you are equipped for an offshore race and have aboard: a Lifesling, throwbag, handheld VHF, (at least) one tether, chart plotter with MOB and AIS, and one dinghy PFD.

One of your agile crew should be designated “**Rescue Crew**” who will be lowered by spin halyard to the waterline to retrieve an “unconscious” MOB (Dummy). That crew ideally has a wetsuit (drysuit) and should bring a towel and change of clothes. You must have a bosun chair (climbing harness style recommended), helmet, and one tether to be used by the Rescue Crew to secure the MOB. Storm Trysail will provide a “Rescue PFD” but bring a dinghy vest as a backup for the Rescue Crew.

For training purposes, it is recommended jacklines are rigged and crew use tethers. All crew should wear a PFD.

### **Preparing Your Lifesling**

Your Lifesling bag should be mounted on the preferred side of your quarter with the bitter end secured to a strong point (padeye or cleat). There should be two pre-set loop knots in the Lifesling rope, one about 12 feet up from the Lifesling; another about 35 feet (one boat length usually works well). The “short” knot is used when the Lifesling is tossed to a nearby MOB; the “long” knot is used when the Lifesling is towed. The benefit of the long knot is that the halyard can be attached while the MOB is a safe distance from the hull eliminating any time spent alongside the hull while preparing the halyard.

## Assignments

Best to start with sailors in positions they are most familiar with, especially foredeck and helm. With larger crews, it is difficult to rotate every person through every position. It is sometimes better to have three or four helmsmen, preferably the same who will steer races, significantly improve their MOB recovery skills, than have everyone make marginal improvements. To best simulate offshore sailing, assign two watches and begin drills with one watch below. All should be dressed and wearing PFDs.

For the day, one of your crew should be a recorder/photographer keeping track of maneuvers, timing, comments, successes and failures. Upon return to the harbor, hold a crew meeting (over beer) so nothing is lost. This will enable you to make improvements and for MOB, create the best Plan for your boat and crew. The information will also be helpful during the Zoom Debrief the week after the Training Day.

## Tour of the Boat

On Training Day, check that all your crew have proper footgear and PFDs. Walk around the boat pointing out key safety equipment and rigging. Locate thru-hulls, fire extinguishers, engine and fuel shutoffs, and MOB gear. Demonstrate engine starting. Turn on the VHF and test Channel 16.

Review the **Damage Control Matrix**. Make enough copies so each crew can have one in their hand. Discuss whether the recommendations work on your boat, and ask yourselves what key equipment you might be lacking even for local sailing (such as fire extinguishers).

Now you are prepared to head out of the harbor.

## 1) Abandon Ship Exercise

Your **Watch Standing Bill** should include assignments in case of the two major causes of having to Abandon Ship: Fire and Flooding. Storm Trysail recommends that the Off Watch fight the fire or stop the flooding. Without foul weather gear, they are best attired to deal with fire (foul weather gear melts against the skin) or fight the flooding (less encumbered by gear and PFD). Meanwhile the On Watch handles the sails and makes other preparations to Abandon Ship. See the Damage Control Grid and SAS Handbook. Never put the raft over the side until you have decided to Abandon Ship- it is likely to inflate and blow away.

For your Abandon Ship Exercise, do a mock walk-through of the steps for Fire and then Flooding. For fire, dropping sails and pointing the boat on a broad reach reduces apparent wind and allows smoke to be blown away. For flooding, heaving to and heeling to lift the hole closer to the surface (or out of the water) can slow the flooding. In any case, the boat needs to be stopped/slowed. Refer to the Damage Control Grid.

## 2) Heaving To Exercise

“Heaving To” is an essential technique to stabilize and slow down a vessel in emergency conditions: extreme weather, man overboard, serious injuries, flooding, or any time the situation is “out of control.” It provides stability and buys time to deal with the situation. Every boat has unique preferences for techniques to Heave To. You should know what works best on your boat in various conditions and sail combinations.

Most boats ideal setup is a backed small jib (#4 or storm jib) combined with a reefed mainsail. With a windward helm balancing the backed jib, a good offshore design should settle on a close-hauled/close reach course proceeding at less than 3 knots.

Test your boat and take photos of the sail plan and instruments (true wind angle and boat speed). Practice the Man Overboard “QuickStop” combined with an immediate heaving to.

This is also a good opportunity to deploy your emergency tiller and test its strength and effectiveness.

### **3) Man Overboard Drills**

**Tallboy and Dummy:** Your Storm Trysail Dummy and Tallboy do not blow downwind (like a cushion) therefore best simulate a MOB. Use the Tallboy for Alongside Recovery practice. Then shift to Lifesling towing practice, attempting to “hook” the Tallboy with the Lifesling rope. Then the Tallboy slides along the rope until reaching the Lifesling. Then switch to the Dummy for actual recovery practice (bringing the MOB up on deck). The MOB dummy fills with water and weighs 200 lbs like a big crew.

**Basic Principles:** Towed Lifesling Recoveries work for a MOB who is mobile and able to get into the Lifesling and not slip out. “Alongside Recoveries” are required for an unconscious or injured MOB who cannot use a Lifesling. The towed Lifesling recovery is safer since the MOB is not at risk of being run down by the boat. In light and medium air towing a Lifesling under sail is feasible. In moderate-heavy air the boat is moving too fast. At boat speeds in excess of 3.5 or 4 knots, the Lifesling submerges and can be damaged. The engine is your best friend and is always a better option, assuming the engine is operational and you have not fouled a line around the propeller. With the engine (and no sails) you can control your speed and approach the MOB from any wind angle.

#### **A) Alongside Recovery Practice: Under Sail then Power (Tallboy as MOB)**

To best use your time, it is most efficient to go upwind practicing repeat upwind MOB maneuvers, then set chute and practice downwind recoveries. Try to do a one-mile upwind/downwind loop with 4 upwind MOB recoveries (including one chicken tack figure 8 instead of gybe) and 2 or 3 downwind (as conditions permit).. Try your first downwind MOB under jib; then move on to spinnakers. After the QuickStop, always check for lines then start the engine in neutral.

For Alongside recoveries under sail, approach the MOB close-hauled or close reaching so speed can easily be reduced to about 2 knots maximum as the bow passes the MOB. Always have a foredeck crew toss the throw line as the MOB passes the bow. The hardest job is to make the Pointer shout the bearing and distance loud enough and accurately, relocate forward when the boat is heading back to the MOB, and continuing the hails until safe contact is made.

After several Upwind and Downwind sailing pickups, practice coming alongside the MOB under mainsail but using the engine to get back faster, and stop accurately alongside the MOB. **The engine assures that your first pass is successful.** With the boat alongside the MOB, there are two methods to recover the MOB: lowering the Lifesling to the MOB (if conscious and uninjured) or lowering a Rescue Crew on a halyard to secure the MOB. The Rescue Crew operation will be practiced later.

#### **B) Towed Lifesling Practice: “Hooking” the Tallboy - Under Sail then Power**

First practice towing the Lifesling and maneuvering under sail. Try to “hook” the Tallboy with the Lifesling rope; then stop immediately before the Lifesling goes whipping past the MOB. It is hard to stop quickly under sail. Even coasting at a few knots will likely pull the Lifesling away from the MOB.

Assuming your Lifesling is mounted on the **starboard** quarter (reverse the following instructions if you prefer port quarter): after QuickStop, drop headsail, check for lines, start engine in neutral, and if it starts drop the mainsail on the **port** side. This keeps the starboard deck clear for a starboard side recovery. Check for lines overboard again, then hook the MOB under engine with no sails up. The boom is not flying around, and the main doesn't try to sail the boat. **This engine-only technique should become part of your Go-To new MOB plan.**

As you motor back to the MOB and are about 100 yards away, slow to 3-4 knots, and trail the Lifesling astern. The helmsman with the assistance of a “throttle-man” follows the Pointer’s directions on the approach. Leave the MOB about one boat length to **starboard**, and as the MOB passes the cockpit, turn sharply 90 degrees **to starboard**. After two lengths turn sharply again to starboard. The MOB should now be in contact with the rope and can get into the Lifesling. (If contact has not been made, keep making sharp turns to starboard.) Stop the boat immediately when the MOB makes contact with the rope. You have been turning clockwise (to starboard) because your Lifesling is mounted to starboard. If you turned to port, the Lifesling rope would slide under your stern and risk fouling the rudder or propeller.

Once the boat is stopped, the helmsman and throttle man must maintain the 90 degrees (perpendicular) orientation so MOB can be pulled in abeam, staying clear of the dangerous bow and stern. The propeller is not a risk to the MOB unless the MOB slides under the boat.

In breeze and waves, most boats prefer to sit beam to the wind, or stern to the wind. Even with the assistance of the engine, it is difficult to stay bow to the wind at zero speed. If the boat will not maintain the 90 degrees, the helmsman/throttle man can very slowly keep circling until a favorable angle to the wind/waves is found.

With the MOB in the Lifesling, now the only objective is to safely bring the MOB to the boat and up on deck in one smooth motion, with minimal risk of getting smashed against the hull or going under the hull. There are two basic recovery methods described next using the MOB Dummy tied to the Lifesling then trailed astern.

### **C) Recovering MOB in Lifesling: Hoisting MOB Dummy Aboard**

To simulate a conscious uninjured MOB in the Lifesling, tie the Dummy to the Lifesling bridle, lower the Dummy into the water allowing it to fill to the brim, then trail the Dummy until the Lifesling rope is stretched out. Stop the boat and turn 90 degrees so the MOB is perpendicular on the starboard side.

**1) Basic Lifesling Lift-** Pull (don’t drown the MOB!) the MOB towards the boat midships, clip halyard to the “long” knot, and hoist smoothly without stopping until the MOB is on deck. This minimizes the exposure time of the MOB alongside the hull. Helmsman and throttle man must keep boat perpendicular until the MOB is on deck.

**2) Mid-line Lift with Lifesling** – This is a great technique created by professionals but must be tested on each boat before becoming your primary method. Due to its 1:2 mechanical disadvantage, there is more load on the Lifesling rope which must be upgraded to a dyneema- polypropylene blend (White Water rescue rope). Its length must be shortened to about 2.25X the P2 (mainsail luff length) so the halyard does not two-block.

For this exercise, try the Midline Lift with the normal Lifesling rope trimmed in and cleated to a shorter length. Trail the Dummy again, stop boat, turn abeam, walk halyard to stern and hook to rope. The halyard then slides outboard along the rope. Hoist smoothly pulling the MOB towards the boat and up over the rail without a stop. The MOB comes in and up in one motion minimizing the risk of the MOB slipping underneath the boat.

This technique works well on a full crew boat where there is adequate crew power. It is also good for shorthanded crew (double handers, cruising couples, small crew number) if there is adequate winch power or one very strong crew. The Midline Lift has a 1:2 mechanical disadvantage so short-handers should consider an electric winch or winch handle!

## **D) Recovering MOB Alongside with a Rescue Crew (RC)**

If an MOB is conscious and uninjured, Storm Trysail recommends the Lifesling towing technique to reduce the risk of running down the MOB. But if for whatever reason, you do stop alongside an MOB capable of using the Lifesling, the Lifesling can be carried forward to midships and tossed to the MOB who can slip into it. A halyard to the “short” (12 foot knot) allows the MOB to be hoisted to the deck.

**The only way to reliably recover an injured/unconscious MOB is to use a Rescue Crew.** The challenge in real life is how to be sure if the MOB is conscious and uninjured? Therefore, whenever there is the hail “Man Overboard”, the designated Rescue Crew (RC) immediately dresses below: wet/dry suit, bosun chair harness, rescue PFD (or dinghy style), helmet, and tether, and goes on deck to quietly wait near the mast.

In real life you might not know the condition of the MOB so you would be trailing a Lifesling, while your RC is crouching by the mast in case needed. As you near the MOB, a conscious uninjured MOB should know to give the OK sign - a calm patting of the top of their head with one hand- in which case the boat continues with the Lifesling approach. However without the OK signal, the crew quickly shifts gears to prepare for an Alongside Rescue Crew recovery.

To simulate this situation, lower the Dummy in the water (not tied onto a Lifesling). Then motor 100-200 yards away, with your RC standing by at the mast. Head back at 3.5-4 knots towing the Lifesling. When 100 yards away, with the Dummy not making the “OK” sign, quickly switch gears.

One crew at the stern pulls in the Lifesling being careful not to allow the loose rope to foul the propeller. Midships, the halyard is quickly bowlined onto the RC who then steps over the lifelines facing inboard holding the shrouds. As the bow passes the MOB, the RC is lowered to the waterline. As the boat stops, the halyard is slacked allowing the RC to swim a few strokes to the MOB, secure the short tether from the bowline to the MOB harness, and give the thumbs up for the halyard to be raised. Ideally, the RC pins the MOB’s arms to their side by wrapping the RC’s legs around the MOB.

## **4) AIS Navigation to MOB**

When signaled by the Training Day Command boat, all participants should stand by for an AIS drill. The Command boat will position itself about 1.5 miles from the fleet, and after announcing on Channel 16, will deploy an active AIS beacon taped onto a Tallboy about one foot above the water, simulating a MOB. It is recommended that most of the crew gather around the navigation station below as the navigator “blindly” cons the boat to the MOB. When the navigator announces the boat has arrived at the MOB, record the range and bearing of the Tallboy and report it to the Command boat.

**You may now return to your harbor, debrief and join the Zoom call.**

**Thank you for participating and Storm Trysail would be pleased to review your revised MOB Plan and Watch Bill (with Abandon Ship notations).**