

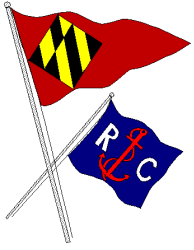
MARK Setting & Bots

- Michael Lovellette
- Steve Kling



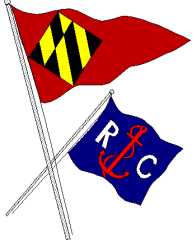
HERE WE GO!





WHAT DOES THE MARK BOAT DO?

- More than just throw some marks and anchors overboard!
- The “PRO” relies on the mark boats to supply information to him/her before, during and after the race to set and keep the race course square and supply any additional information during the race.



PRIMARY MARK BOAT DUTIES

- Collect information
- Set the marks that determine the field of play
- Observe what is happening on the race course

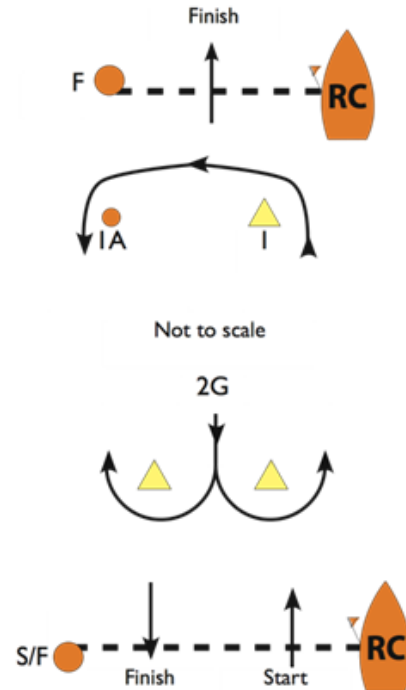


WHO IS ON THE BOAT?

- Mark boat crews are generally made up of three people who work as a team, one of who is the skipper of the boat.
- Two mark boats are usually used to support a race - Windward and Leeward/Pin. Separate Mid-Line and Pin boats can also be added for larger regattas.



TYPICAL WINDWARD-LEEWARD COURSE



Course 2: Start-I (port)-IA(port)-Finish (downwind)

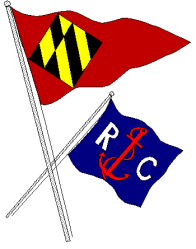
Course 3: Start-I (port)-IA(port)-2G-Finish (upwind)

Course 4: Start-I (port)-IA(port)-2G-I (port)-IA(port)-Finish (downwind)



MARK SETTING

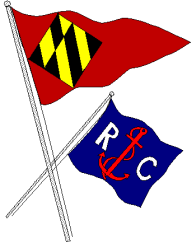
- Rigging the marks
- “Stream and Drop” technique
- Mark recovery system
- “Pinging” the mark



MARK TYPES

- AYC uses “Cylinders” and “Tomatoes”





INFLATING THE MARK

- The marks will generally require some inflation before use
- Find the inflation valve (usually on top of the mark)
- Use the vacuum cleaner rigged to blow air to inflate. Marks should be soft – not hard – since the air will expand as they sit in the sun and could rupture a seam





ANCHORS, LINES AND COUNTERWEIGHTS

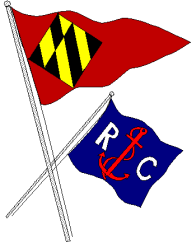
- We normally use the Cylindrical Marks for the “Bay” courses – those outside the Severn River. These marks require counterweights to stand upright and used Danforth anchors.
- We use Tomato Marks for the “Inside” courses, in the Severn River or in front of the Clubhouse in Spa Creek. These marks use Mushroom anchors and no counterweights.



Danforth-type anchor for a racing mark

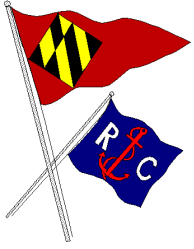


Mushroom anchor



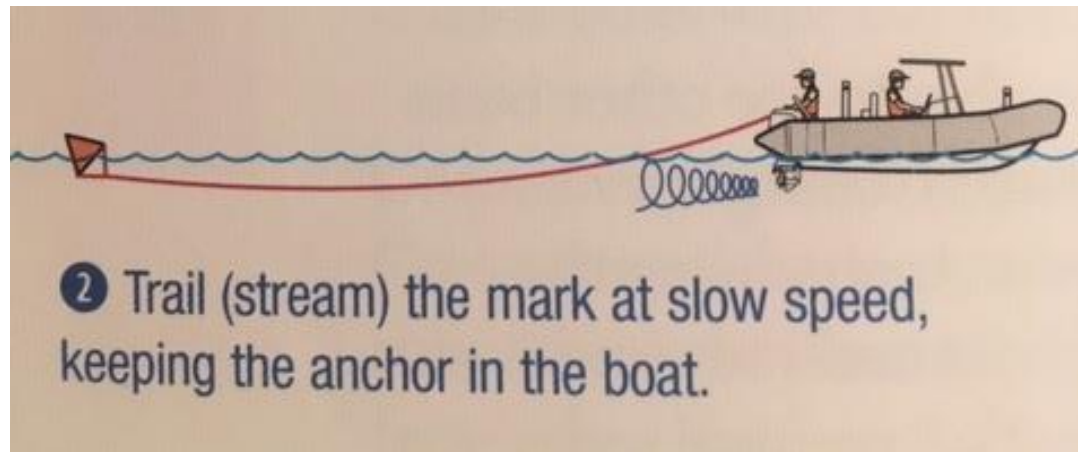
Rigging the Mark - there will be a demo

- Select line length based on depth – about 2x - 3x the depth (more if there is current)
- Counterweight – 25# bag – keeps mark upright and keeps anchor line away from keels of boats rounding
 - Clip to the black line mark and run anchor line through handle – or – the loop on the back line
 - Clip the other end of the black line to the mark bridle
- Tie line to mark and anchor using bowlines (a locking half hitch is also handy)



STREAM AND DROP MARK SETTING

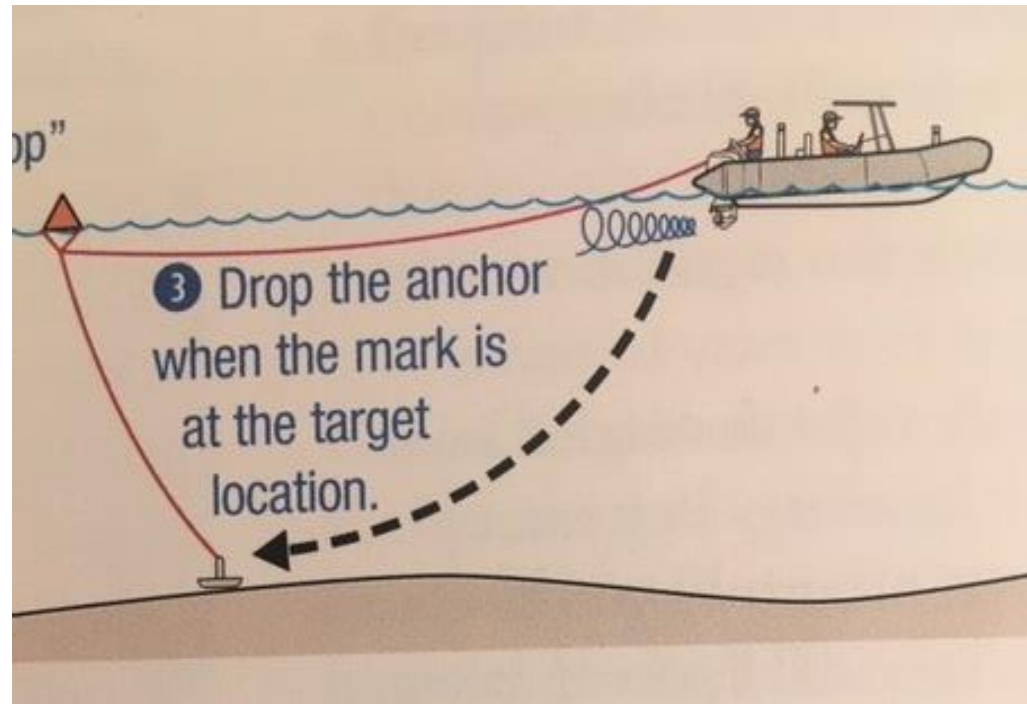
- Make sure mark is properly rigged
- As the position for the mark is approached, slow the mark boat to idle and ease mark into the water. Let the anchor line and chain out until the anchor is reached

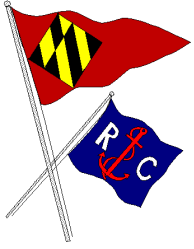




STREAM AND DROP MARK SETTING

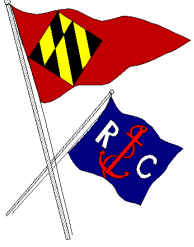
- Hold the anchor, dragging the mark until the order to drop
- Drop the anchor straight down on the command – “DROP – DROP -DROP





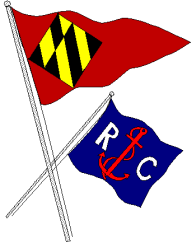
“PINGING THE MARK”

- Used to obtain the exact position of the mark
- Approach anchored mark slowly and when adjacent to mark (being careful not to hit or snag the mark or anchor line), use GPS “Mark” or “MOB” function to determine the coordinates of the mark



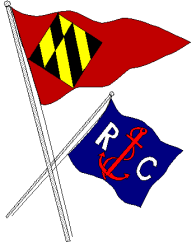
Mark Recovery

- Mark recovery system:
 - Red line
 - Ball
- Before recovery
 - Rig the red line to a cleat on the markboat
 - Usually somewhere near amidships is best
 - Put the ball in an easy to reach location



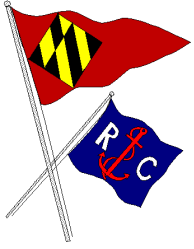
Using the recovery system

- Hook the mark with a boat hook as usual
- Attach the hook on the red line through the bowline on the mark rode
- Push the attach the ball below the weight bag
 - You can pull the black line to help get the bag out of the way
- Mark boat driver starts the boat moving
 - The ball will travel down the line and bring the anchor to the surface
- There will be on water particle later in the year



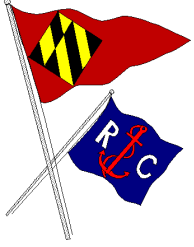
Bots





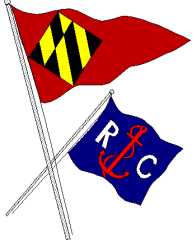
A much larger subject

- When they work well they are a pleasure
 - But when they don't...
- The main things the mark boats need to worry about are:
 - Minor on water repairs
 - Towing
 - Anchoring



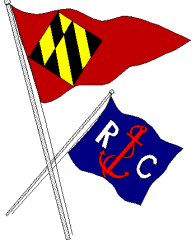
Minor repairs - not often

- Motor can be fouled
- Motor can disengage from the steering mechanism
 - Lift and reset motor
- Generally if the bot is misbehaving it will need to be anchored



Towing

- Be sure the bot master has stopped the bot.
- Usually a good idea to turn off bot
 - Button on top of the battery box
- Raise motor before towing
- Maximum speed 6 knts



Anchoring

- This is still a work in progress.
- It is easy to anchor the bot
- It has been much less easy to recover the anchor