

MARK BOAT 1 – 2 – 3

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HERE WE GO!



WHO IS ON THE BOAT?

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





WHAT DOES THE MARK BOAT DO?

More than just throw some marks and anchors overboard!



PRIMARY MARK BOAT DUTIES

- Collect information
- Set the marks that determine the field of play
- Observe what is happening on the racecourse
- Help adjust course when needed
- Watch weather and report any changes



WHAT INFORMATION?

- Before the race
 - Wind direction and strength and trends in direction and strength
 - Anchored boats and other Race Committees near the course
 - Other pertinent info that might affect course placement



WHAT INFORMATION? (Cont.)

- During the race
 - Time to the weather mark
 - Wind Shifts and Sailing angles (are the boats “reaching around the course”).
 - Continue to take and plot wind information – When the PRO asks for the latest wind, “Wait one while I check” is not the right answer!
 - Indication of safety issues: capsized boat (count heads if possible), boat adrift with sails fluttering, crew or skipper waving for assistance, any other unusual behavior



WHAT INFORMATION? (Cont.)

- At the end of the race
 - Assist Signal boat in taking finishes
 - Monitor fleet as they return to dock



SETTING THE COURSE

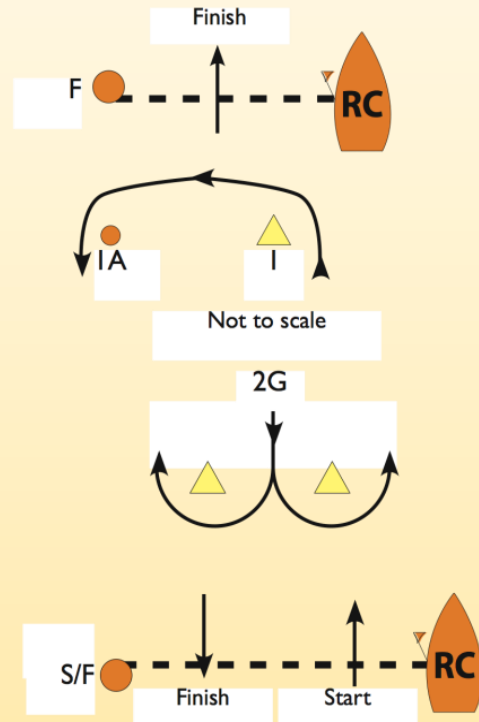


3 BASIC COURSE TYPES

- **WINDWARD – LEEWARD/DROP MARK**
 - Uses inflatable drop marks at each rounding point of the course
- **GOVERNMENT MARK**
 - May use inflatable drop mark for start and finish lines – uses Government marks for rest of course
- **DISTANCE**
 - May use inflatable drop mark for start and finish lines – starts one place and ends at another



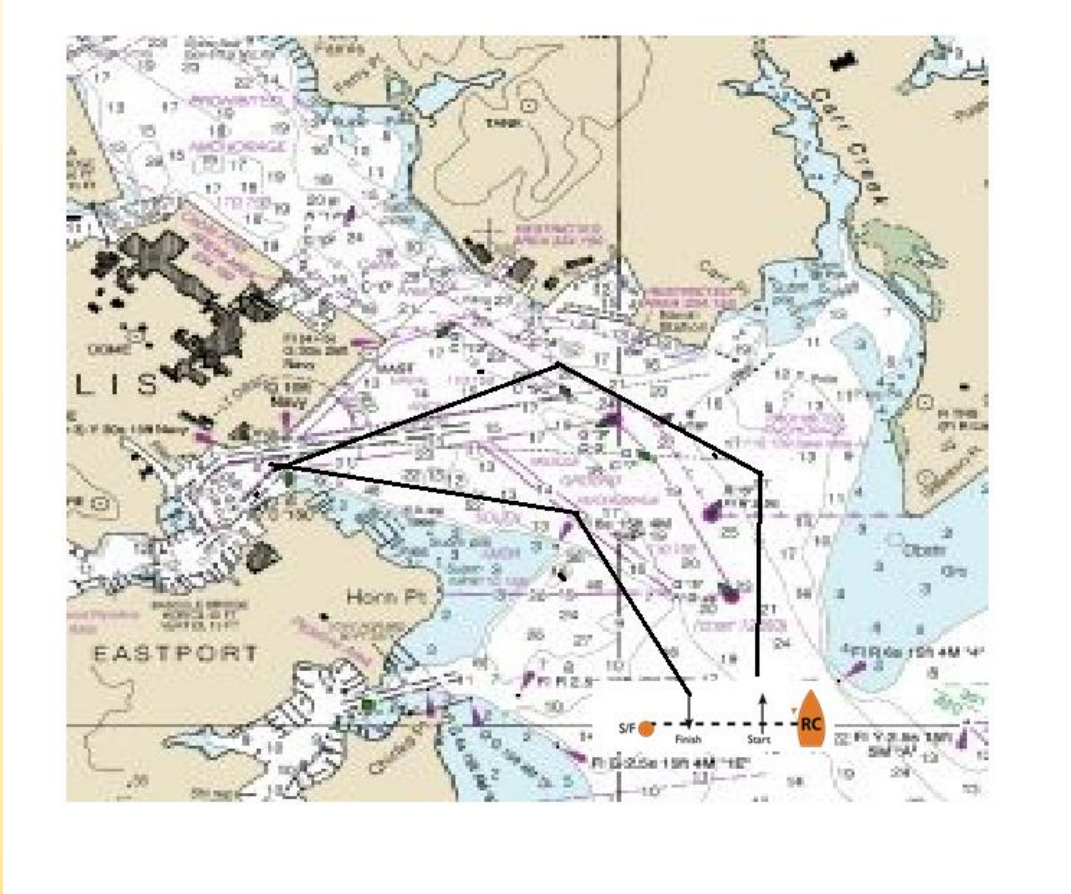
TYPICAL WINDWARD-LEEWARD COURSE



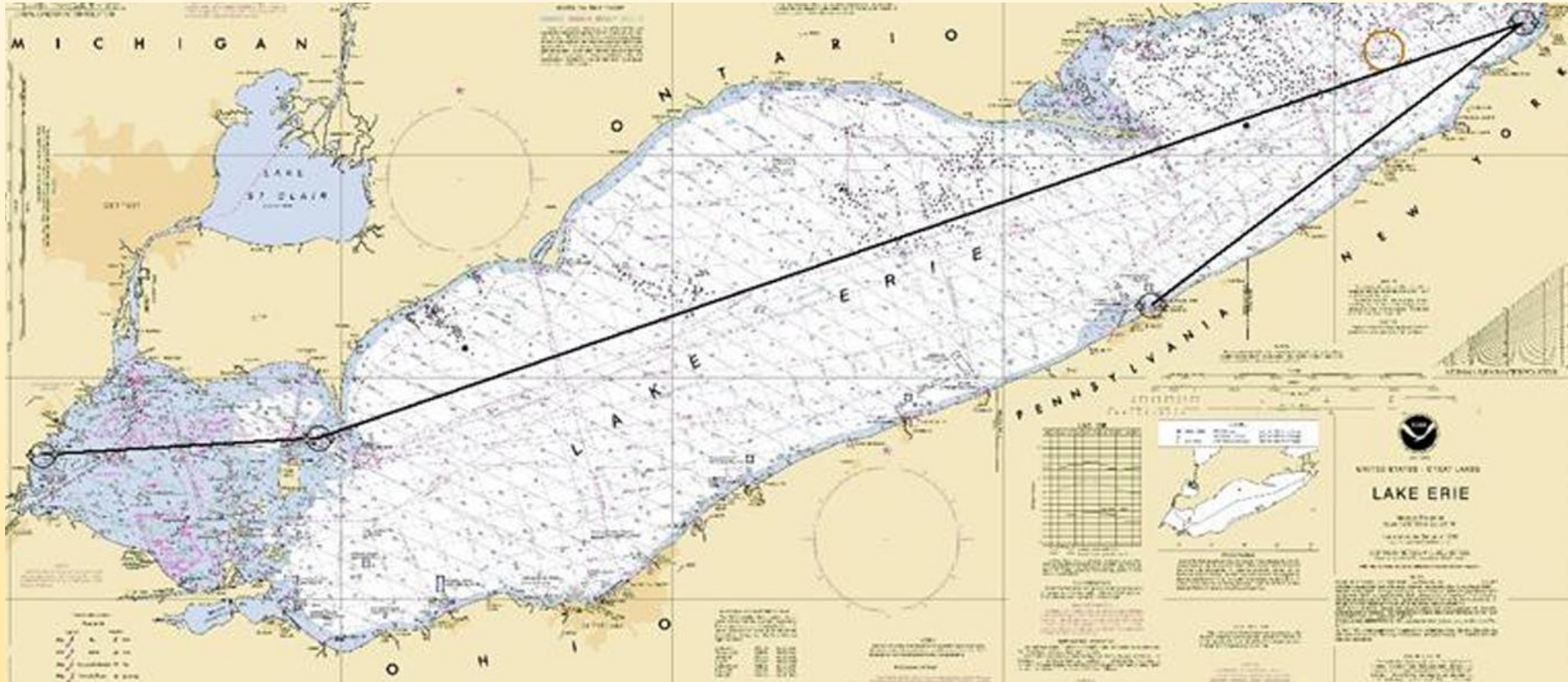
- Course 2: Start-I (port)-IA(port)-Finish (downwind)
- Course 3: Start-I (port)-IA(port)-2G-Finish (upwind)
- Course 4: Start-I (port)-IA(port)-2G-I (port)-IA(port)-Finish (downwind)



GOVERNMENT MARK



POINT – TO – POINT



MARK SETTING

- Rigging the marks
- “Stream and Drop” technique
- “Pinging” the mark
- Attend the separate presentation for “BOTS”



TYPICAL MARK TYPES

- “Tetrahedrons, 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

- Cylindrical Marks and Tomato Marks typically require counterweights to stand upright. The counterweight needs to be deep enough to keep the anchor line away from the keel of the boat.
- Tetrahedrons and some tomatoes can normally be used without counterweights provided the draft of the boats racing is less than 4 feet. If the draft is deeper than 4 feet, a counterweight should be set on the anchor line at the approximate depth of the deepest keel.



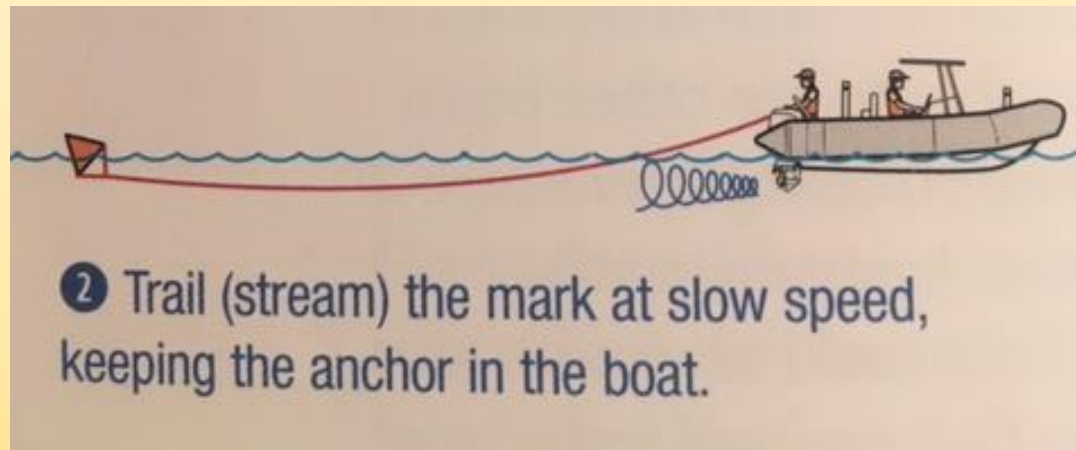
Rigging the Mark

- Select line length based on depth – about 2x the depth
- Counterweight – 10 to 25# bag – keeps mark upright and keeps anchor line away from keels of boats rounding
 - Clip to mark and run anchor line through handle – or –
 - Tie overhand loop in anchor line about 5 to 7 feet below the surface and clip mark into loop
- Tie line to mark and anchor using bowlines (you may also want to use a locking half hitch)



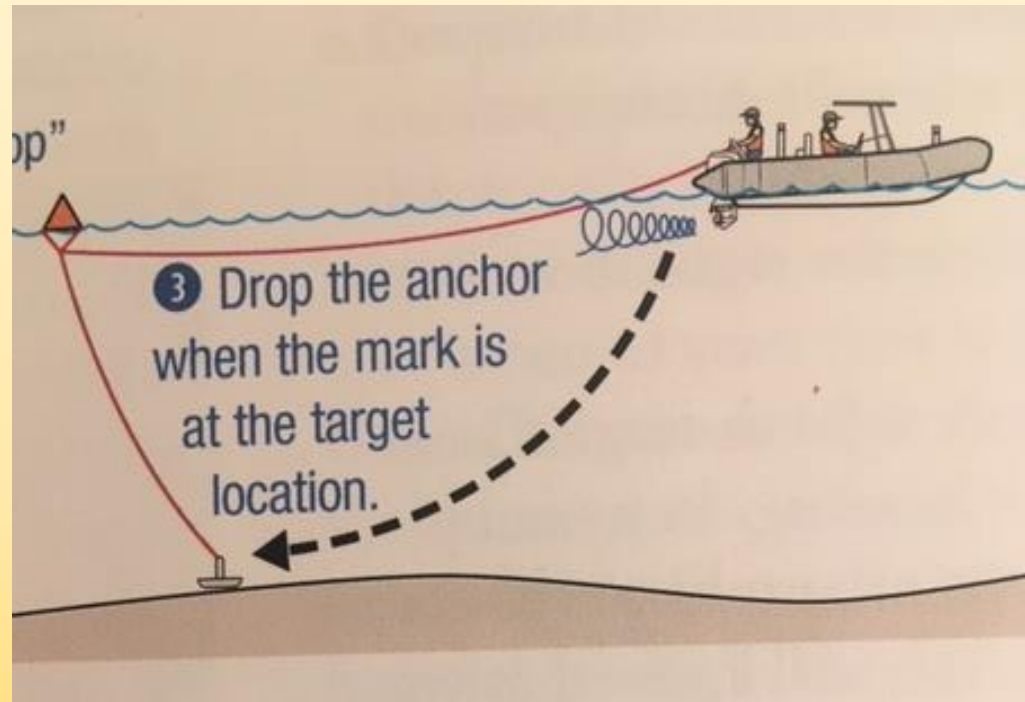
STREAM AND DROP MARK SETTING

- 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 slowly 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 co-ordinates of the mark
- Report the co-ordinates to the Signal Boat and other Mark Boats



SETTING THE WINDWARD-LEEWARD COURSE

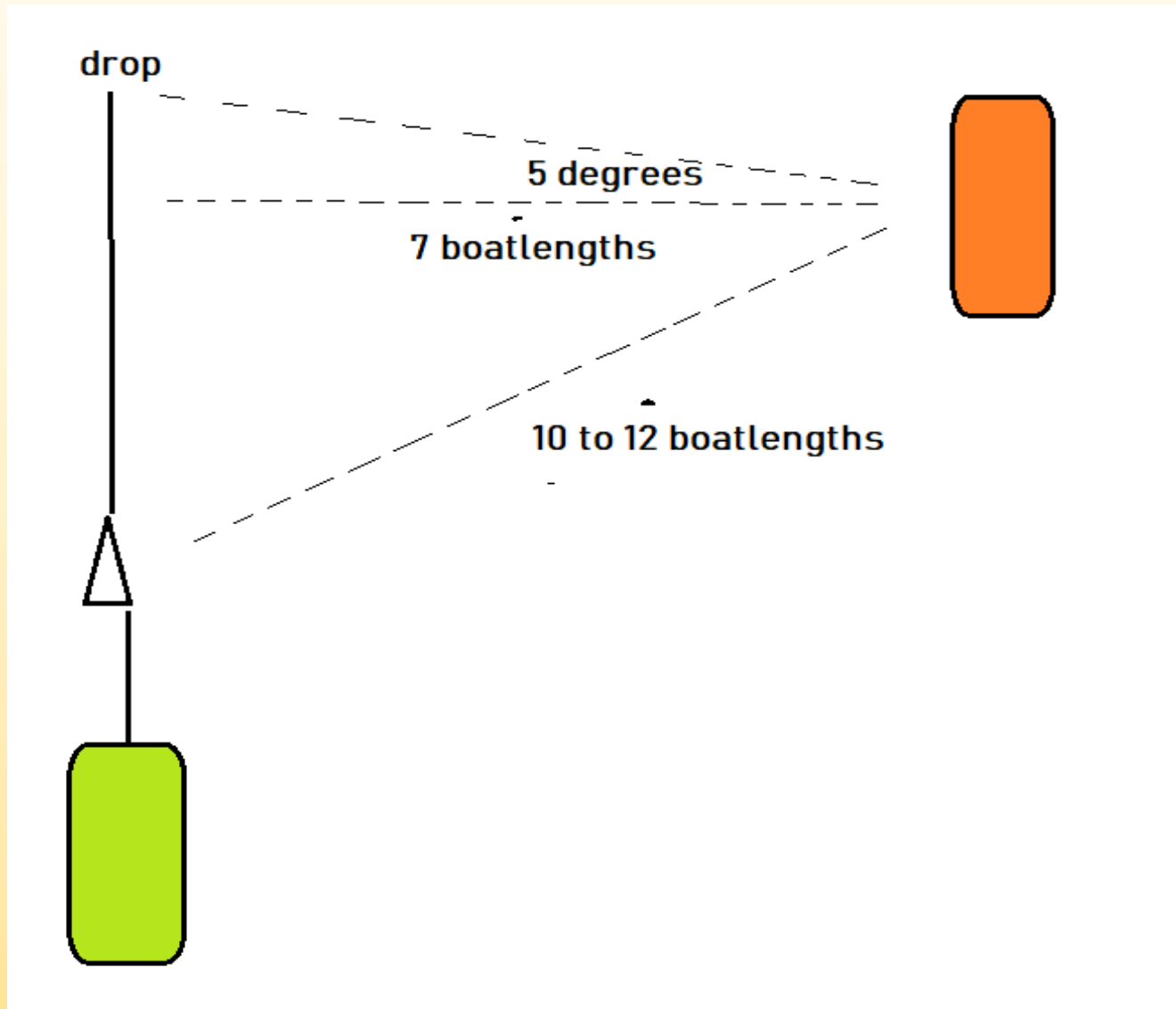
- PRO uses information from observations to determine average wind direction and speed
- This is used to set course “axis” (direction). The leeward/gate (Mark 2) is set as the “Reference Mark” that the course will pivot around. This will typically be about 0.1 NM directly to weather of the starting line. Distance to the windward mark will be set depending on wind strength and desired overall time of the race.
- Starting and finishing mark positions are determined using wind direction and number of boats racing
- Remember the direction to the Signal Boat will be 180 degrees from the “axis”. If the axis is 040 degrees, the weather mark boat will see the Signal boat at 220 degrees from them



OFFSET MARK (if used)

- Used to prevent boats rounding the Weather Mark from immediately jibing into the oncoming boats
- Typically set about 7 boat lengths at a 90-degree angle to the course axis. Exact distance and angle depends on types of boats, number of boats and class preferences
- For a normal port rounding course, set the mark boat up to leeward (below) and about 10 or 12 boat lengths from the Weather Mark leaving it on the starboard side of the mark boat. Motor slowly forward directly into the wind streaming the mark and adjusting the course so that when the offset is perpendicular to the Weather Mark it will be about 7 boat lengths away; continue forward and drop the mark when the mark boat is about 5 degrees above the 90-degree position
- After the mark has settled, go back and check the angle between the marks and adjust if needed

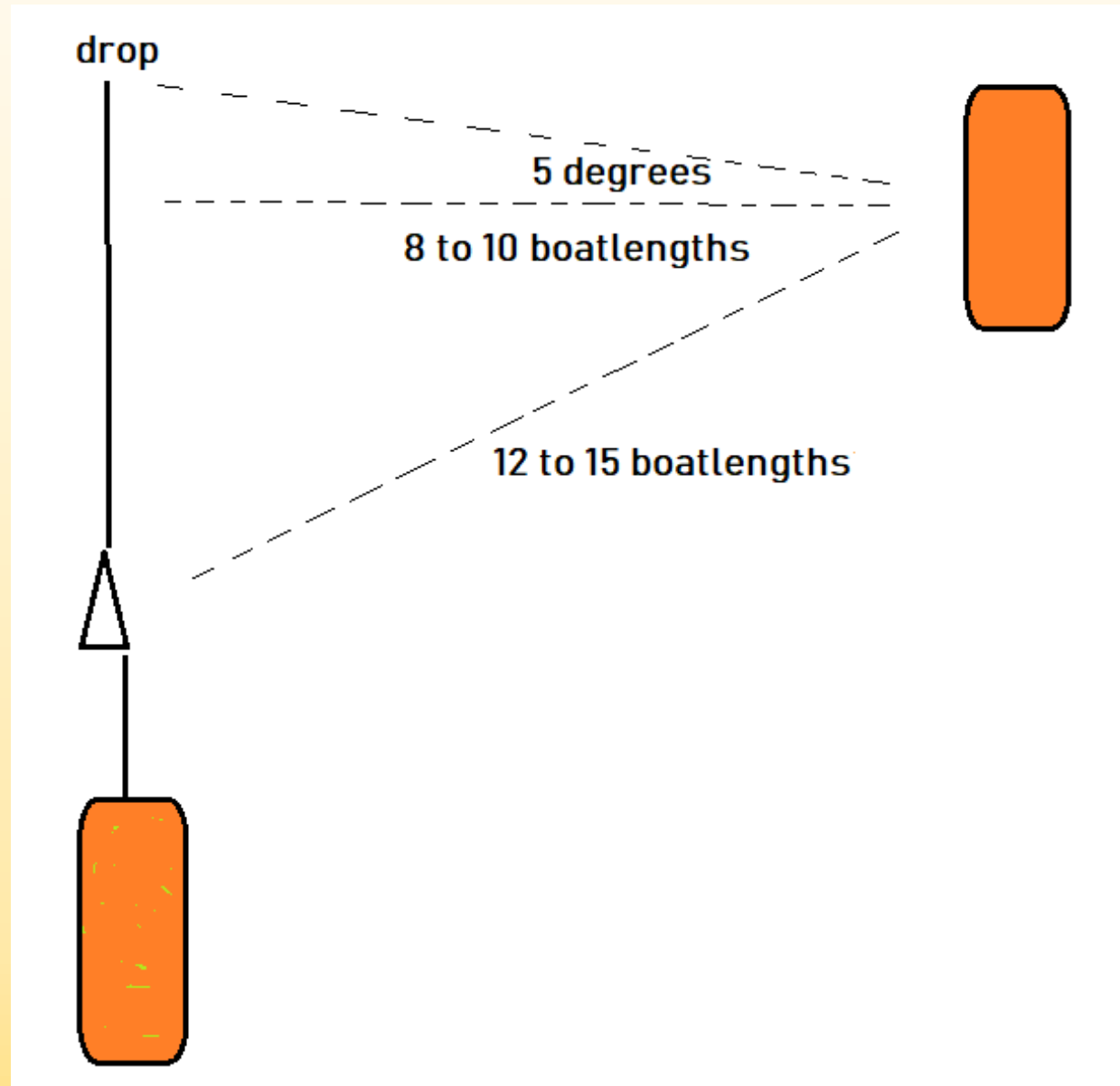




GATE MARKS

- The first side of the gate will already be in the water
- The other side of the gate is set the same way as the Offset Mark except that the distance is usually 8 to 10 boat lengths
- The gates are normally set perpendicular to the course axis unless there is strong current or shore effects that would make one gate preferred. In this case, a gate can be “favored” by setting it further up the course by a few degrees
- Other ways to position the gate drop include having a second boat sight across the first mark and call the drop, drop a marker in the water at the mark position and stream the mark up to that position, rev the engine to put a prop swirl in the water and drop at that position, etc.





OBSERVE CONDITIONS/ADJUST THE COURSE

- Look for wind changes in direction or strength
- Signal adjustments as determined by the PRO



WATCH THE WEATHER!!!!

- Signal boat may have radar but watch the horizon and sky anyhow
- May need to shorten or abandon!



RADIO PROTOCOL

- To avoid confusion, especially when things start to get exciting, we try to use some common language on the radio.
- Note that as of 2017, US Channels designated with an “A” (22A, 65A, etc.) are now preceded by “10” and the “A” has been dropped – so 22A is now 1022 and so on. West Marine and other suppliers are selling handhelds that may use the older or newer designations so be sure you check and know how to find the correct channel.
- HAILING: when hailing another boat, call them by boat name or position, give your boat name or position, and then wait for their callback. Then pass along the information. For example:
 - Weather mark might call: “Signal, this is Weather”
 - Signal would reply: “Go ahead Weather”
 - Weather replies: “I have 6 knots of breeze at 165”



RADIO PROTOCOL (cont.)

- POSITION INFORMATION: When giving position in Lat/Lon, normally degrees, minutes and decimal minutes are used. In most cases, only minutes and decimal minutes are needed since the location typically always has the same degrees. Give the information clearly and slowly. For example:
 - Weather boat says: “The weather mark is at 56 decimal 398 minutes north; break; 25 decimal 473 minutes west”.
 - The receiving boat should then repeat the transmission back exactly number for number (not “I got it”).
 - If the readback is correct, the original transmitting boat says : “that’s a good copy”.



RADIO PROTOCOL (cont.)

- Other points:
- Don't clutter the air with extraneous information or by calling every minute or two
- Once the Signal Boat goes into the 5 minute sequence, do not call in except for a significant wind shift or safety issue
- Make sure your radio is keyed off when not speaking and remember to key on a few seconds before speaking
- If there is a lot of wind, bring a sandwich baggie to put the radio in – sound will pass through the baggie but wind noise will not.



HAVE FUN !!!!



QUESTIONS?



THANK YOU – SEE YOU ON THE WATER

