

Sailboat Racing Basics

Getting Ready

Sailboat racing is all about getting your boat around a set course in the shortest time possible without violating any rules of sailing – the “Racing Rules of Sailing” or RRS. That’s the most basic definition of a race. Of course, as you might expect, the devil’s in the detail and afford any competitor many opportunities to grow in your understanding and execution of a race.

Races typically are categorized either as:

One-Design All boats are of the same make and are thus deemed to have equal speed potential. First boat around the course wins. At LSYC we have one-design fleets such as Stars, Interlakes and Jet-14s.

Handicapped Boats competing are of varying and dissimilar design. But a time handicapping system is used to account for differences in speed potential and to make competition more “equal.” In a handicap system each competitors’ time to complete the course is taken and adjusted by their handicap rating. The corrected times are then used to determine which boat actually won. At LSYC the handicap system we use is PHRF. PHRF stands for Performance Handicap Racing Fleet.

All races come with instructions. We call them “Sailing Instructions” or “Sis” These provide useful information such as where the racing will happen, what course designs will be used and how will the choice of a course layout be signaled, how General Recalls will be handled (if different from the RRS rules), what are the signals being used to identify each class that is racing today, are there time limits for running the course (the default is no time limits), what VHF radio channel is being used to communicate with competitors and many other facts – especially changes to the standard RRS racing rules.

Be sure to review the SI’s well before you arrive at the racing area. It’s your homework before racing.

The Start

The start of any race is a start line. In sailboat racing this line is an imaginary line between two marks or flags or some combination. The most common line is between a mark (buoy or “pin”) and a flag on a Race Committee (or “RC”) boat. The RC boat holds the race officers whose job it is to setup, start, monitor and record finishes for the race. If you put your boat in irons facing dead upwind you will find the pin to port and the RC boat to starboard. This is the most common setup seen. Your Sailing Instructions (“SI”) will provide you with information about where to find the start line on the water and information about starting, course layout, time limits etc. The SI’s also tell you the signal flag being used to identify when your class is being started and/or referred for any other signaled information.

Five Minutes to the Start

The starting process is a five minute “start sequence.” This five minute sequence begins with the display of the class flag(s) of the class(es) whose start sequence has begun. The display of the class flag(s) is considered the “warming” signal. If all goes normally the start (the time when you are permitted to cross

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the start line and begin racing) will happen five minutes after the display of the warning flag.

Be aware that time is marked from the display or removal of each signal flag during the start sequence, not from any horn or sound produced. In fact sounds are actually optional, but normally are used.

Four Minutes to the Start

One minute after displaying the warning signal the RC boat will display the "preparatory" signal. This is most often the code flag for "P" (a square blue flag with a white square in the middle). There are alternative preparatory flags that can be used instead and add special restrictions to the start, but most commonly the "P" flag is used. The display of the preparatory signal is actually the formal start of the race. Its appearance indicates that all competitors must abide by the RRS as racing has formally started even though you have not yet crossed the start line.

One Minute to the Start

Three minutes after the display of the preparatory flag this flag is removed. It's removal is usually accompanied by a substantially longer sound than the others you may hear. The removal of this signal indicates that the start is one minute away.

Time to Start

Finally the start happens with the removal of the warning flag(s) of the classes that are starting. You may now cross the start line and begin to navigate around the course. Be aware that when the RC is "rolling starts" (starting different fleets in successive five minute periods) the removal of your class flag at your start may be accompanied by the display of the class flag(s) of the next class(es) to start.

During the starting sequence each competing boat is maneuvering to position their boat for the best starting position. Since starboard is the favored tack over port, most starters seek to start on starboard tack which means starting at the RC boat end of the line. Thus most boats are attempting to get the most starboard position on the line to assure the cleanest wind and best performance without being so far to the right as to not be able to cross the start line. Remember that after the prep signal has been displayed you must observe all RRS which includes staying out of the way of right-of-way boats and not being taken-up by a leeward boat in such a way that you are over the start line before the start (OCS).

A couple good tactics during the start are to run the length of the start line to time the length of the line and determine true wind direction and whether the wind direction is oscillating. Knowing the time it takes to traverse the length of the start line allows you to factor in a fudge factor should you arrive early at the start line.

Later you'll learn about "the zone" and gaining "room at the mark." But during the start this rule does not apply. Instead boats that are sailing their "proper course" toward the start line do not need to give you room to pass between them and the marks designating either end of the start line. If you attempt to force your way into such a gap you may be protested for "barging" – that is forcing your way into a gap that is too small and for which you have no rights to expect a competitor to allow you enough room to pass.

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When Things Go Wrong – Postponement

Sometimes the start sequence does not go as expected. For example the RC crew makes a mistake (forgets to alter a signal at the appointed time) or there's been a major change in conditions (such as the wind drops or substantially alters direction). If such a thing happens in the five minute start sequence the RC crew may display the "AP" flag (a pennant with alternating white and red stripes). The appearance of this flag, accompanied with two horn blasts, means the current sequence is suspended and will be restarted, from the beginning, later.

When the issues have been sorted out the RC crew will restart the start sequence from the beginning, five minute point. This is done by dropping the "AP" signal along with a single horn blast. One minute later the warning flag(s) to indicate the restart of the start sequence will be displayed.

When Things Go Wrong – Over early

You are required to stay on the non-course side of the start line until your class has started (the end of your five minutes start sequence). If any part of your boat or its crew is on the course side of the start line at the start you are deemed to be "OCS" or "On Course Side." Any boat that is OCS at the start must move wholly back to the non-course side of the start line and then immediately start again. If any boats are OCS at the start the RC crew may elect to take one of two actions.

Individual Recall The display of the "X" code flag indicates that at least one boat was found to be OCS at the start. It is the responsibility of any skipper to know that they started correctly and were not OCS at the start. Most RC crews will attempt to hail the boat(s) that are OCS at the start, but this is a courtesy and not required by the rules. The "X" signal will be displayed until either A.) until all OCS boats have returned to the non-course side or B.) after four (4) minutes has expired since the start was posted.

General Recall The display of code flag "first substitution" indicates a general recall. This is generally displayed when a large number of starting boats are OCS at the start. But it may also be used, like the "AP" flag, to indicate that the RC crew needs to restart the whole class due to some external change in conditions. When a General Recall signal is displayed the entire fleet must return to the non-course side of the start line and await an immediate restart of their five minute start sequence. That sequence will start one minutes after the "general recall" signal is dropped.

After a general recall the default process is to immediately restart the class whose start was just recalled. This causes the start time of any subsequent class(es) to be pushed back. However, often the Sailing Instructions will indicate a different handling of a general recall so be sure to review the SI's for any variation.

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Now You're Racing – What Next?

Well obviously you're sailing around the course designed by the RC boat. This includes getting around without fouling another competitor who, during an encounter on the course, has rights over you according to the RRS. Almost always the first leg of a race will be dead upwind. You'll proceed upwind to a "windward" mark which you'll round and head back downwind. Depending on the course you may repeat this pair of legs. But check your SI's for course definition and how the course selection is communicated on the water.

As you move about the course there are a few primary rules to observe to stay out of trouble.

Crossing Boats on Opposite Tacks

Of course Starboard tack boats have right-of-way over Port tack boats. If you are on port tack you must stay out of the way of a starboard tack boat should your paths cross. It is your obligation to alter course to avoid either hitting the starboard boat or even causing that starboard boat to have to alter course to avoid a collision. If you're the Starboard tack boat instead then your obligation on a crossing with a port tack boat is to hold your course steady while the port tack boat maneuvers to avoid you.

Encountering Boats on the Same Tack

When your path cross a boat on the same tack then the boat which is sailing closer to the wind (for example close-hauled) has right-of-way over a boat sailing more off the wind (ie running).

Being "Taken Up"

When two boats on the same tack are next to each other with "overlap" (Overlap means that a perpendicular off your boat's center line would cross another boat's centerline) then the boat to leeward has the right-of-way to maneuver and can force you to sail higher into the wind in order to avoid contact with the leeward boat should they alter course. This rule is often seen during starts when a boat to your leeward on the same tack can force you to sail higher into the wind and thus possibly cross the start line before the start (and be OCS).

Mark Room and "The Zone"

The zone is a circle around any mark of the course with a radius of three "boat lengths." When two boats meet inside this zone – especially if they're "overlapped" – then special rules apply. The most common application is that the boat to leeward may call for "room at the mark." This means if you're the windward (or outside) boat you must provide space between your boat and the mark for the boat to leeward, that is overlapped with you, needs to round the mark.

Don't hit a mark

Never hit a mark of the course. This includes marks denoting the legs as well as the start pin and RC boat. If you hit a mark you may immediately make a single, full circle with your boat to exonerate yourself. And remember the anchor rode is not considered part of the mark for purposes of this rule.

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Room to Avoid an Obstruction

Should you be a boat caught between an obstruction (breakwall, shoals etc) and another boat, you can call for "room to tack" in order to avoid hitting the obstruction. Of course the obligation is applied to you if you're the "outside" boat in such an encounter.

Avoiding Collisions and Keeping Hands to Yourself

Sailors are required not to make contact with a competitor's boat or crew. Of course this means avoiding a collision. But it also includes avoiding other forms of making contact up to and including unwarranted fending off. Having said that one of the most important rules of sailing is to avoid collisions. Even a boat that has right-of-way in an encounter ultimately may not push their right to the point that a collision results. So even in a Starboard/Port crossing where you have rights, you must still steer to avoid any collision that in your opinion appears imminent.

Recourse when Rules are Broken

When your rights are infringed you may protest the offending boat. This entails displaying a red protest flag from your backstay and immediately hailing the other boat that you are protesting. The other boat may acknowledge their mistake and "take a turn" or perform one or two 360 degree circles to accept that they were in the wrong. In most cases taking a turn eliminates the protest. But failure to take your punishment on the course means you're destined for a protest hearing following the race back on shore. A protest hearing may result in your disqualification (DSQ) from that race. As you finish you should report your intention to protest another boat to the race committee.

Boats that are guilty of hitting a mark are required to take one (1) turn to clear the error. Boats that are guilty of infringing on another boat's rights must take two (2) turns.

Finally at the next mark

As you reach each mark you must keep your eyes and options open. As you come into the mark thinking about "escape" routes should something go wrong. Boats around you are very busy changing sails at marks and such maneuvers can result in unexpected problems that can cause back-ups and collisions. So think about where you'll sail if you must avoid someone else.

You also need to remember which side to leave marks to. In most cases the side is the port side. That is pass the mark with the mark sliding past your boat's port side. But sometimes the side will change. This will often be identified in the SI's where the courses are explained. Another way to verify which side to pass marks on is to check for the display of a red or green flag on the RC boat. Of course a red flag means "marks (left) to port" and green means "marks to starboard."

Special Marks

Sometimes the Leeward mark is not a single buoy but two and are called a "gate." While a single buoy has a prescribed side of the boat it should be left to while passing, when a gate is used you are permitted to round the buoy of your choice as long as you pass between the two buoys on your downwind course before turning around one of the buoys and heading back up-wind.

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Another mark to be aware of is an "offset." An offset is an additional mark deployed near the windward mark and positioned such that you pass the windward mark first and then proceed to the offset mark before turning downwind. The offset is meant to reduce congestion at the windward mark rounding.

Change of Course

Each mark rounding is a chance for the RC to alter the planned course to adjust for things like changes in wind direction and speed. This is accomplished by the displaying of a "C" code flag ("C" for Change course) along with repeated sound signals (horns, whistles or bells). Also with the "C" flag will be information about how the next leg will change.

Most often you'll get a new course heading to a new mark relocated to keep the relationship of the next leg consistent with changes in the wind. But how the information is transmitted may be instead a symbol. The rules define the use of a green triangle or red rectangle. The green triangle means the course of the next leg has been shifted to starboard of the original course, the red symbol means the opposite. You may also see the "+" or "-" symbol meaning that the length of the next leg is has lengthened (plus) or shortened (minus).

Once an RC displays a new direction there will be no further notifications if the new wind holds. Instead the RC is responsible for altering the other, subsequent marks of the designated course to keep the general course shape constant in the new breeze.

Shorten Course

Sometimes instead of changing a next leg the RC elects to simply end the race at the next mark that all boats in a class have not yet rounded. This is done by positioning the RC or mark boat next to the next mark thus forming an alternative finish line. The mark boat must also display the "S" code flag (S for Shorten Course). The "S" flag is kind of the color/pattern opposite of the standard preparatory "P" flag at the start. In a shortened course situation the new finish line is between the mark and the "S" flag.

Race Abandoned

Sometimes it is necessary to abandon a race. This is most often due to the arrival of a change in weather either heavier or possibly no wind. When the RC decides to abandon a race they will fly the "N" code flag (blue and white checkered pattern) with repeated sounds. At this point the race is over and will be scrubbed from the record as if it never was run.

Time to Finish

Finishing a race entails crossing the finish line. Specifically causing some part of your boat, crew or rig positioned in a normal manner, to cross the line formed by the RC boat's flag and the adjacent mark. This may be at the end of the intended race or it may be at some coming mark where a shorten course has been signaled. Once your boat crosses the line you may either continue through and past the line to the other side or simply fall back in the reverse direction you were heading why you passed. Either way of disconnecting from the finish line is permitted. So keep in mind if the wind or current is against you, you can simply punch the boat over the line and fall back away and that's a perfectly legal finish.

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However, there are some things to think about before you can legally finish.

If you fouled another boat and did not but intend to take some turns to clear yourself you must take those turns before crossing the finish line for the turns to count. Likewise, if you incorrectly sailed the course your finish may not count unless you sail back to where you made your navigational mistake and re-sail the remainder of the course from there to the finish correctly.

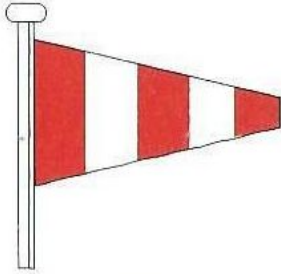
Once you've finish move immediately away from the finish line in a manner that does not obstruct the travels of other boats still on the course and heading in. If you'll be doing another race, move away from the finish area (which is usually also the start area) until your next race's start sequence has begun.

Remember, if you're protesting another boat, you should report your intentions to the race committee after finishing.

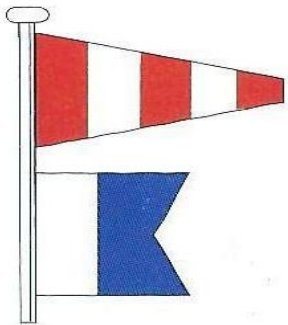
If you've been racing in a "one-design" competition then the place you finished is your finish position. But if you're racing under a handicapping rule, then the RC will take your finish time and deduct from it your handicap for that race. To apply a handicap the RC takes your rating (which is expressed as seconds per mile) and multiplies it by the miles of distance the course is rated for. Then this time is deducted from your finish time to calculate a "corrected" finish time. The corrected finish time is then compiled with those of your competitors to determine who finished earliest based upon the corrected finish times.

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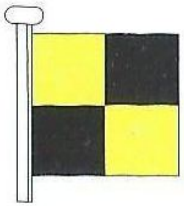
Flags seen before and during a Race



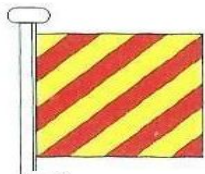
"AP" Signal. Displayed with two horn blasts, removed with one blast. This signal can appear anytime prior to the start of a race and means that the current start sequence and/or start time is postponed and will be restarted later. You can expect a 1 minute delay between the time the AP flag is dropped and when a start sequence will begin.



"AP" over "A" signal. This is used when a series of races is planned and the RC has decided to end racing early for the day. So the instructions may say we are to run four races today, but after the third race, perhaps because of earlier time delays, it is decided to end racing for the day.



"Come within Hail" signal. This is displayed when the RC boat needs you to come close to receive new instructions and/or to ask you to follow the RC boat as it changes positions. It's also displayed to allow "check-in" of boats.



"Wear PFDs" signal. Competitors are expected to wear PFDs during the race.



"Mark Replacement" signal. The boat displaying this signal is serving as the replacement for a mark that is missing.

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The Start

The start of a race involves a five (5) minute preparatory period just before the race is considered started. This five minute period is identified by the display of flags and horn blasts. The horn blasts are actually optional since sound takes longer to travel over greater distances. The timing is actually denoted by the movement of the flags. The following shows the flags and sounds you'll see and hear during the start:

6 Minutes

"Wake-up call" – five horn blasts only (Wake-ups are optional). If the "AP" flag was up before the start sequence, it will come down one (1) minute before the five minute start sequence starts.

5 Minutes

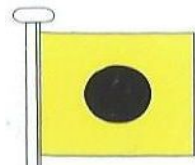
Raise "Class Flag" with one horn blast – starts five minute sequence. See the Sailing Instructions for a definition of the "Class Flag" your class is using.

4 Minutes

Raise "Preparatory Flag" with one horn blast. There are different kinds of preparatory flags as listed here. The most common is the "P" flag. One only choice will be used.



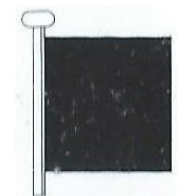
"P" or Preparatory Flag. This is the most common flag used as the preparatory flag. If on wrong side of start line at start you must dip fully below the start line and start again.



"I" or "Around the Ends" (Rule 30.1) Flag. If on wrong side of start line at start you must sail around either end of the start line (around the ends) and start again to have started legally.



"Z" or "In the Triangle" (Rule 30.2) Flag. If inside the triangle formed by the two ends of the start line and the first mark in the last minute of the start sequence the boat is assessed a penalty and must also start legally if OCS.



"Black Flag." Any boat inside the triangle formed by the two ends of the start line and the first mark in the last minute of the start sequence will be disqualified.

1 Minute

Lower "Preparatory Flag" with one long horn blast

Start

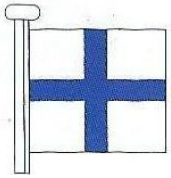
Lower "Class Flag" with one horn blast. The race has started.

If a group of classes will be starting in successions the RC may use a "rolling start" procedure where the start of the class ahead also denotes the start of the five minute start sequence for the class behind. See the Sailing Instructions. Always watch for your class flag to appear to know when your class is in start sequence!

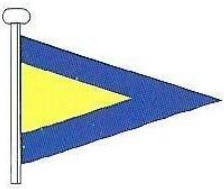
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Right After the Start

Immediately after the start you should watch for two flags that may indicate that you or the whole class started early (over-early or OCS). These are the individual and general recall flags.



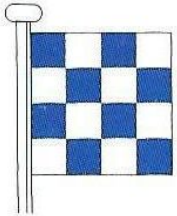
"Individual Recall" signal. A small proportion of the starting class is over early at the start (OCS). This signal is displayed usually with the announcement of sail numbers of those over early although announcing sail numbers is optional. The flag remains displayed until all the offending boats have re-started or four minutes after it is displayed. Displayed with one horn blast. Lowered in silence.



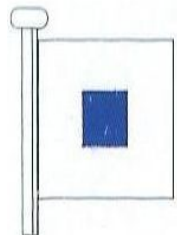
"General Recall" signal. Most of the boats in this class were over-early and the entire class will be called back to attempt a new start (and start sequence). The default recall method is to restart the class immediately delaying other class starts that may follow, but see the SI for any alternative handling. This flag is usually displayed along with two horn blasts.

During the Race

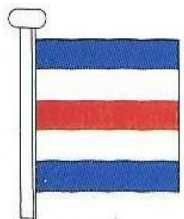
The following flags may be seen during the race depending on conditions and needs.



"Abandonment" signal. The current race is abandoned. Return to the starting area to await further signals. This is often displayed due to drastic changes in wind conditions or perhaps an approaching storm. The display of the flag comes with three horn blasts to get your attention.



"Shorten Course" signal. This flag is displayed by an RC boat that has setup an alternate finish line next to a mark of the course that has not yet been rounded by any competitor. Finish between the RC boat displaying this flag and the mark of the course closes to that boat. This is the end of this race. This is often displayed when wind conditions are such that the course may not be able to be completed within the time limit.



"Change of Course" signal. This flag is displayed by an RC boat at a mark of the course along with information about where the next mark is located. Typically the information is a compass bearing to the new/replacement mark. You should also hear repeated sounds with the display. If a green form is displayed the new course is further to starboard than the old, a red form means further to port. A "+" or "-" displayed means the next leg is longer or shorter, respectively, than originally planned.

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PHRF Handicapping

PHRF (Performance Handicap Racing Fleet) is a system of assigning each make/model of boat a rating which, when applied to your actual finish time, brings all competing boats into an equivalent speed level. The rating is expressed as "seconds per mile" of the defined race course. Once your actual finish time is taken, your rating times the distance of the course is deducted from the actual finish time to create a "corrected" finish time. The rankings are then set upon "corrected" time. Slower boats have larger numbers, faster boats' rating are smaller.

The basic PHRF rating implies the combined speed potential over all points of sail and assuming that a spinnaker is used. This rating is expressed in multiples of 3 seconds per mile and can be adjusted based upon things like Keel or Centerboard, hank-on or roller-furling jibs, inboard or outboard engine etc.

There is also a larger/slower rating assigned called the JAM (Jib and Main) rating which can be used when competing without a spinnaker in a JAM class. The JAM rating is usually not a multiple of 3.

Areas of the country have different regulating entities to assign PHRF ratings. On Lake Erie we have "PHRF-LE." Their website provides access to their database of assigned ratings by boat. Many clubs allow you to race in your own club without a current certificate. But for most inter-club racing you will need to apply and pay for your own PHRF rating certificate.

Conclusion

While there are many additional rules, the basics have been included here. They are designed to provide a common understanding of what is expected of each competitor. They are also designed with an overriding interest in keeping people and boats safe from accidents/collisions on the race course. You can get your own rule book for free by becoming a member of US Sailing. The Racing Rules of Sailing are also available on-line in PDF format which makes for easy searching. Many clubs are already members and offer their club members a discounted US Sailing individual membership through the "Golden Anchor" program.