



**PEWAUKEE  
YACHT  
CLUB**

## Race Officer Manual

April 2012

**Pewaukee Yacht Club  
Race Officer Manual**

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## **Introduction**

Welcome and thank you for volunteering to participate as a member of the PYC race management team. Your involvement is vital to our sailing program and is greatly appreciated.

A good race management team is:

- Prepared for the race
- Knowledgeable about sailing and local conditions
- Decisive on running the race
- Fair to all participants
- Concerned about safety
- Able to make racing fun for all participants

Preparation and time are key ingredients to judging a successful race. Make all possible preparations in advance of the race and take sufficient time to set up a good race course.

This manual is designed to provide simple, pragmatic guidelines for regular club racing on Pewaukee Lake. All races are governed by the US Sailing Racing Rules of Sailing, US Sailing Prescriptions, ILYA Rules, related Class rules, and the Pewaukee Yacht Club Sailing Instructions.

## **The Race Management Team**

Each member of the race management team has an important role to play in conducting the race. On our lake, each team member often performs several duties.

The first person listed on the schedule is the Primary Race Officer. Duties for other members should be agreed to in advance so that everyone knows their roles.

The primary duties are:

**Principal Race Officer:** Leads the race management team and makes major decisions.

**Wind Reader:** Observes wind direction and speed at regular intervals.

**Mark Setter:** Positions, sets and relocate marks on the course.

**Timer:** Calls the time sequence aloud at the start.

**Line Sighter:** Sights the starting line to identify boats over early and track boats returning to start. Also, sights the finish line to determine order of finish.

**Sounder:** Makes all sound signals at the appropriate time.

**Signaler:** Makes all flag signals at the appropriate time.

**Spotter:** Identifies and records boats starting and finishing, protest flags and unusual events.

**Boat Operator:** Run the race committee boat, checks for gas and organizes equipment.

## **Boat II Duties**

Boat II is an integral part of the Judging Team.

Boat II should be equipped with:

1. 2 buoys, lines & anchor
2. Charlie Flag
3. Green & Red Course change boards
4. Compass
5. Rounding worksheets & pencil
6. VHF Radio
7. Wind Stick
8. Horn or Whistle

Boat II may be called upon to:

1. Adjust windwark mark prior to race.
2. Reposition and verify squareness of line prior to warning flag and start
3. Take roundings at mark opposite of boat I
4. Monitor wind changes and report to boat I
5. Communicate to fleet course change if PRO calls to adjust course. Before first boat reaches your buoy:

1. Raise Charlie flag with horn or whistle.
2. Hold up green course board if boats need to head starboard (right) after rounding buoy. Hold red course board if boats need to head Port (left).
3. Continue to notify boats until all boats are notified. Lower Charlie flag at that point.
4. If leg is being lengthened or shortened use the plus or minus board with or in conjunction with the green or red course boards.
6. Radio back to boat I time of boats arriving at their mark.

Please Note: You cannot change the course for the next leg after the first boat to the mark has already rounded and initiated the new leg.

## Equipment Preparation

You should have the following equipment on board:

- Flags

o Starting I



o Line



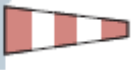
o General Recall



o Individual Recall



o Postponement



o Abandonment



o Life Jacket Required



o Race Committee



o Change of Course



- 4 Buoys
- Buoy Marks, Line and Anchor
- Offset Mark, Line and Anchor
- Hailer
- Starting Board and Markers
- Timer
- Score Sheets and Pencils

- Watch set to GPS time or a GPS
- Windward & Port Course change boards
- Horn
- Compass
- 2 VHF radios

## Watching the Wind

- Prior to leaving the house:
  - Check the weather forecast and know what to expect.
    - TV Weather Channel
    - Call 1-414-936-1212
    - Weather.com or wunderground.com
    - Print wind direction and velocity charts
  - Check the local weather – clouds, wind direction, wind strength and gusts.
  - Call other race committee members to make arrangements.
  - Call the fleet captain if there is a question on weather.
- Depart from the dock at least one hour before race time to allow enough time to observe local wind conditions.
- Raise the race committee flags as you leave the docks.



- Make the first wind check from the middle of the course while drifting. Use the wind stick rather than one of the flags to get the most accurate wind reading.
- Look for tendencies in the wind speed and direction, and compare to the weather forecast.
- Note wind shifts. You may want to favor the windward leg, toward these shifts.

## Wind Tendencies

Meteorologists and pilots classify wind into 3 types. Determining the type of wind is critical to setting a good course.

**Type 1.** Shift left, return to course, shift left and continually return to heading

**Type 2.** Shift right, return to course, shift right and continually return to course

**Type 3.** Shift right, return to course, shift left and return to course. This right and left shift continues over and over in an oscillating fashion

Most wind tendencies continue for 2-3 hours. Between 60 and 30 minutes before the start take wind directions every 3-5 minutes and create a chart like below. Below are examples of what the three types look like.

Type 1	Type 2	Type 3
190°	190°	190°
188°	195°	178°
175°	210°	189°
189°	190°	200°
190°	195°	210°
177°	190°	190°
188°	205°	175°

**For Type I:** set course heading the average between the farthest left shift and the prevailing wind. Average 190° and 175° for a 183° heading.

**Type 2:** Average the right shift and the prevailing wind. Average 190° and 210° for a 200° heading.

**Type 3:** Determine the average between the right and left shift. Here 190° would be the heading.

Continue to add to your wind chart throughout the race. This chart is very valuable to refer to during the race to determine if the wind is actually changing or just continuing the earlier pattern.



## **Lack of Wind**

- As a rule of thumb, there should be wind intensity across the entire sailing area.
- The wind should be fairly constant, not off and on.
- A minimum wind velocity of 3 to 4 MPH is necessary to start a race.
- Do not hesitate to postpone the start of the race and wait for better conditions if the wind becomes spotty and inconsistent.
- If winds are light but steady, continue the race until the time limit expires or until a competitor finishes.
  - The time limit is measured from the start to the finish of the first boat in each class.

## Too Much Wind

- SAFETY should be uppermost in your mind!
- The safety of sailing in heavy wind is influenced by:
  - o Cold air temperature
  - o Cold water temperature
  - o Large waves
  - o Experience of sailors
  - o Presence of spectator boats who are willing and able to help
- No race should start with a steady wind over 20 mph and gusts exceeding 25 mph.
- If the wind builds to be consistently over the limits or if more boats are in trouble than you or the spectator boats can handle, abandon the race.
- Check with one of the chief judges or fleet captain for advice in extreme conditions.
- Do not hesitate to require life jackets in heavy winds. To require the use of life jackets raise the life jacket flag before or with the warning signal with one sound blast.



- X sailors are always required to wear life jackets from shore to shore.
- Any boat not complying with the life jacket rule should be noted on the score sheet and will be disqualified.

# Course Selection

- The preferred race course is the Windward-Leeward (W.)
- These courses are described in Appendix 2.
- Refer to the chart below for ILYA fleet guidelines.

## ILYA & FLEET GUIDELINES FOR THE RACE COMMITTEE

Revised 02/14/12

FLEET >>>	A	E	C	I-20	MC	Melges 17	X	IOD	IOD G	IOD NT	420
PREFERRED COURSE(S)	W,L	W,L	W,L	W,L	W,L	W,L	W,L,O,WT	W,L	WM	WM	TRAP
PREFERRED # WW LEGS	3				3	MIN. 2		3	2	2	
TARGET RACE TIME - MINS	90±10 ONE 65 B2B	60 ± 10	60±10	60±10	60±10 ONE 50±10 B2B/HVY AIR	55±10	60±10	30	20	20	45
RACE TIME LIMIT - MINS	120 ONE 100 B2B	90	90	90	90 ONE 75 B2B	90	90	45			60
TIME LIMIT ANY LEG - MINS	30										
SECONDARY TIME LIMIT-MINS	30	30	30	30	30		30				75
MAX. WIND, STEADY - MPH	25 <sup>(1,7)</sup>	25	25	20	20 <sup>(1)</sup>	22	20	20	15	15	25
MAX. WIND, GUSTS - MPH	30	30	25	25	23 <sup>(1)</sup>	25	25	25	20	20	30
MIN. WIND, STEADY - MPH	5	5	5 m.p.h.		5 m.p.h.	6 m.p.h. <sup>(1)</sup>					5 m.p.h.
DOWNWIND FINISHES	USE	USE <sup>(9)</sup>	USE <sup>(5)</sup>	USE <sup>(5)</sup>	USE <sup>(5)</sup>	USE	USE <sup>(5)</sup>	USE <sup>(4,5)</sup>	NO	NO	USE
ABANDON IF WIND EXCEEDS			28	28	23	28					
MID-LINE START BOAT			AR <sup>(2)</sup>		AR <sup>(2)</sup>						
MAX # RACES BACK-TO-BACK	2	3 <sup>(8)</sup>		2 <sup>(1)</sup>	2	5	3 <sup>(3)</sup>	3	3	AR <sup>(2)</sup>	
MAX # RACES PER DAY	3 <sup>(1,5)</sup>	3	3	4 <sup>(1)</sup>	4	5	4	5	6	AR <sup>(2)</sup>	
LAST START TIME (IF NOT STATED IN SI'S)	5:00 P.M.	6:00 P.M.				5:00 P.M.					
WIND REQ'D FOR 3RD RACE	NA		5-18								
LEEWARD GATE	USE	PREFER	USE	PREFER	PREFER	USE	YES	YES	NO	NO	YES
RC COMMUNICATION BY VHF	PRIME	PRIME	PRIME	PRIME	PRIME	PRIME	NO	NO	NO	NO	NO
RC COMMUNICATION BY HAIL	SECOND	SECOND	SECOND	SECOND	SECOND	SECOND	ONLY	ONLY	ONLY	ONLY	ONLY
10 MINUTE ATTENTION <sup>(11)</sup>	NO	YES									
BLACK FLAG <sup>(10)</sup>	NO		OK	OK	OK	OK	DISCOURAGE	OK	NO	NO	DISCOURAG
Z FLAG	NO	OK	OK	OK	OK	OK	PREFER B4 BLACK	OK			
OUTSIDE HELP AFTER CAPS	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
SHORTEN COURSE OPTION	NA	DISCOURAGE	NO		DISCOURAGE	DISCOURAGE					DISCOURAG

### NOTES:

1. Consult fleet representative
2. As required
3. If needed to complete a regatta
4. Use Dogleg with downwind finishes
5. To facilitate back-to-back racing when time is an issue
6. A third race may be sailed in a day if it is likely that 3 races will not be completed by the end of the regatta.
7. These maximums assume ideal conditions—waves, temperatures, support, etc.
8. Provide a reasonable on-the-water break if a third back to back is to be sailed.
9. On the first of two back-to back-races
10. Although a fleet may express a preference as to when the black flag is employed, it is the PRO's exclusive decision
11. Use sound signal and departure of Boat 2 (Mark Boat) as unofficial 10 min. attention signal

## Time Based Sailing

The ILYA & PYC have adopted time based sailing replacing prior rules and guidelines based on mileage.

Refer to the chart below for time based guidelines.

Course Leg Lengths By Wind Velocity Category (60 minutes)

Revised JUNE, 2011

X				M				MC						
5-8mph	8-12mph	12-15mph	15-20mph	5-8mph	8-12mph	12-15mph	15-20mph	5-8mph	8-12mph	12-15mph	15-20mph			
L4	0.88	1	1.13	1.25	L4	1	1.25	1.37	1.5	L4	1	1.25	1.37	1.5
W5	0.7	0.8	0.9	1	W5	0.8	1	1.1	1.2	W5	0.8	1	1.1	1.2
L6	0.58	0.66	0.75	0.83	L6	0.66	0.83	0.92	1	L6	0.66	0.83	0.92	1
W7	0.5	0.57	0.64	0.71	W7	0.57	0.71	0.79	0.86	W7	0.57	0.71	0.79	0.86
L8	0.43	0.5	0.56	0.63	L8	0.5	0.63	0.68	0.75	L8	0.5	0.63	0.68	0.75
W9	0.4	0.44	0.5	0.56	W9	0.44	0.56	0.61	0.66	W9	0.44	0.56	0.61	0.66
L10		0.4	0.45	0.5	L10	0.4	0.5	0.55	0.6	L10	0.4	0.5	0.55	0.6
W11			0.4	0.45	W11		0.45	0.5	0.54	W11		0.45	0.5	0.54

C				E				A						
5-8mph	8-12mph	12-15mph	15-20mph	5-8mph	8-12mph	12-15mph	15-20mph	5-8mph	8-12mph	12-15mph	15-20mph			
L4	1.13	1.65	1.87	2	L4	1.49	1.8	2.05	2.34	L4	1.65	1.87	2.25	2.5
W5	0.9	1.3	1.5	1.6	W5	1.19	1.42	1.64	1.87	W5	1.3	1.5	1.8	2
L6	0.75	1.08	1.25	1.33	L6	1	1.18	1.37	1.56	L6	1.08	1.25	1.5	1.66
W7	0.64	0.93	1.07	1.14	W7	0.86	1.01	1.17	1.33	W7	0.93	1.07	1.28	1.43
L8	0.56	0.81	0.94	1	L8	0.74	0.88	1.03	1.17	L8	0.81	0.94	1.3	1.25
W9	0.5	0.72	0.83	0.88	W9	0.66	.78	0.91	1.03	W9	0.72	0.83	1	1.11
L10	0.45	0.65	0.75	0.8	L10	0.6	0.71	0.82	0.94	L10	0.65	0.75	0.9	1
W11	0.4	0.59	0.68	0.73	W11	0.54	0.64	0.74	0.85	W11	0.59	0.68	0.82	0.91

## **Setting the Course**

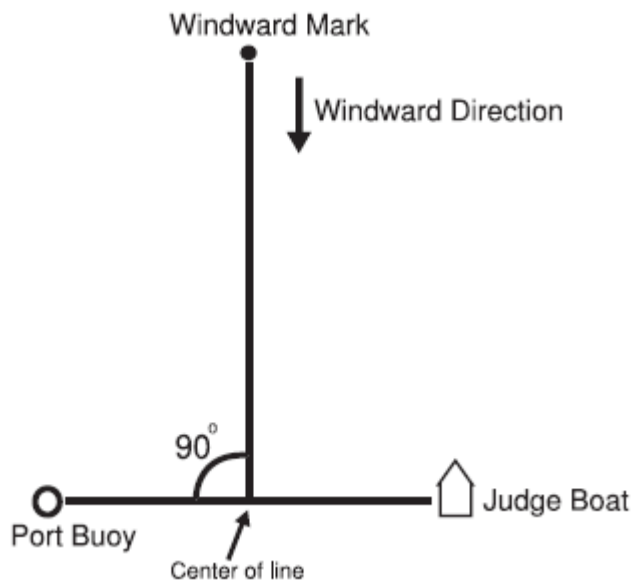
- In general, make the windward leg as long as possible for the wind conditions.
- However, keep the marks sufficiently far from shore to avoid artificial wind shifts.
- Work systematically to set up the course. One method is:
  - o Go to the center of the course and take wind readings for 15 minutes or so while drifting.
  - o Identify the general location for the starting area and windward mark.
  - o Go to the windward mark area, stopping once or twice in route to reconfirm wind direction, and set the windward mark. Set the offset buoy next to the windward mark, about 75 feet from mark.
  - o Set a triangular mark if you decided on an Olympic course.
  - o Return to the approximate center of the course and reconfirm wind direction.
  - o Proceed to the starting area, reconfirm the wind direction, and drop the leeward mark.
  - o Set the starting line.
- Post the race course on the marker board before the warning flag where it can be seen clearly by all sailors.
- If the wind shifts and the course goes bad in the last few minutes before the start, postpone the race and re-set the course.

## Setting Windward/ Leeward Course

Set the Windward Mark first about 25 minutes before the start of race. Have boat 2 stay at mark if adjustments need to be made.

Retreat from the windward mark on a course directly opposite the course heading you determined (Heading + 180°). Go as far as the Lake allows, at least .5 miles hopefully longer if Lakes allows. When you have gone as far as possible making sure you stay at least 200 feet from shore. This point will be the middle of the line. Stop and go right 90° and go half the distance of your line and drop the port buoy. Retreat back up the starting line 90° of your course heading. Use a compass to stay on course. When you go the length of your starting line stop, turn 90° toward the Windward Mark about 50 feet and anchor. Drop back until your compass heading back to the Port Buoy is correct.

If your course heading remains true, instruct boat 2 to come down to Port Buoy and adjust if necessary.



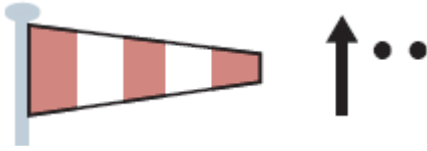
## Leeward Gates

- Leeward gates will be used in place of a leeward mark.
- Boats must pass through the gate and then round either of the gate marks.

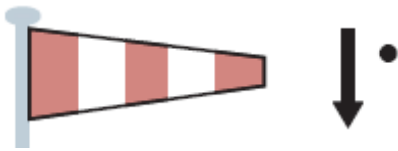


## Postponement

- If for any reason you are not ready for the warning signal, then a postponement flag should be raised at the original warning signal time with two sound blasts.



- If the wind is light or inconsistent, postpone the start of the race until the wind fills in.
- Refer to the PYC sailing instructions for guidelines on Postponement times.
- When ready to start, lower the postponement flag with one sound blast.



- Give the warning signal one minute later.
- Complete the starting sequence.



## Setting the Starting Line

- Unless there is a good reason to do otherwise, set the starting line square to the wind.
- Place the race committee boat to the right of the leeward mark when facing the wind.
- Head upwind as far as necessary to drop anchor. If in doubt, head further upwind as it is easier to drop back once the anchor is set.
- In heavy air, you may need more than one anchor.
- Let the line out until the starting line is perpendicular to the wind.
- When satisfied the line is correct raise the line flag.



- Set the length of the starting line so that all boats have room to maneuver on the starting line. This means 1.0 to 1.5 times the aggregate length of the boats expected to start for the largest class.
- The starting line is the imaginary line between the leeward mark and the line flag on the race committee boat.
- If you need to move the line, lower the line flag.
- You must be anchored and set the line before making the preparatory signal.
- Set the line port favored by about 5 degree's to encourage sailors use of the entire line. This is done by moving Port Buoy closer toward windward by 5 degree's.

## **The Starting Sequence**

- Be ready to start on time.
- Record the sail number of all boats in the starting area.
- Remember, visual signals govern all commands made from the race committee boat. Therefore, the raising and lowering of flags should be done accurately and crisply. The flag should be fully raised as the appropriate time is reached on the watch.
- No boat should be under tow, be paddling or make any personnel or equipment changes after its fleet preparatory signal is made. Record any violations on the scoring sheet.
- The 1 minute rule is always in effect. This means that any boat over the starting line within one minute before the start of the race must sail around either end of the line and restart.
- You may hail boats that are over the line before the start, but are not required to do so.
- Record the sail number of any boats who did not start the race.
- Record the starting time for each fleet.
- No boats shall start later than 10 minutes after her starting signal. If this occurs, make a note on the score sheet.

## **Use of Radio**

All judges are required to use the radio to communicate with the fleet(s) racing that day. Sailors in the A, E, C, M17 & MC fleets should also have radios.

Judges are encouraged to communicate with the fleet as much as possible.

1. At 45 minutes and 15 minutes prior to start to communicate conditions and intentions
2. Before start of sequence to communicate race conditions, exact start of race, course heading
3. During individual recall to call back sailors
4. Emergency announcements during race
5. Refer to the PYC sailing instructions for appropriate VHF channels to use.

## Individual Recalls

- Use the individual recall when you can clearly identify which boats are over the line before the start.
- When invoking the individual recall, be absolutely certain that named boats were over the line early.
- Identify premature starters on your score sheet and immediately after the start raise the individual recall flag accompanied by one sound blast.



- If possible, call the numbers of the premature starters using the competitor channel on your radio. Notification is not required, however.
- Lower the individual recall flag when premature starters have restarted or after four minutes have elapsed.



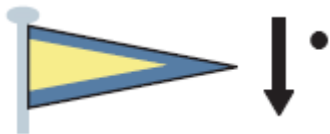
- For our lake the 1 minute rule is always in effect. This means that boats over the line 1 minute before the start must round one end of the starting line before starting.
- Note any boats not complying with the individual recall and the 1 minute rule on the score sheet.

## General Recalls

- Use the general recall only when the starting conditions are fair but there are too many premature starters to identify.
- Make the general recall immediately after the start. Raise the general recall flag accompanied by two sound blasts.



- As soon as possible, lower the general recall flag with one sound blast.



- The warning signal should be given one minute after the general recall flag is lowered.
- Complete the starting sequence.
- When there are multiple fleets, the recalled fleet goes to the end of the starting order and the next fleet starts as usual.

## **During the Race**

- Monitor the wind and change the courses as necessary. Don't change course too quickly as wind normally returns to original tendency.
- Observe and record mark roundings of all boats during all roundings. These roundings are very important in keeping track of multiple fleets.
- Look for protests and acknowledgements (flags or penalty turns). Record them on the score sheet and note when and where they were first seen.
- Observe that all boats sail the proper course. Record any deviation on the score sheet.
- Remember that it is the sailor's responsibility to follow the rules and sail the proper course. It is not your responsibility to police or notify sailors of possible rule infractions. When in doubt, make a note on the score sheet.
- If flagrant violations of the rules occur, such as physical contact or injury, record these incidents on the score sheet. Be as specific as possible as these facts will be very relevant in any potential protest and/or appeal.
- Do not leave the course unless it is imperative to do so.
- Watch for boats in trouble and provide assistance as necessary. Use discretion in deciding when safety outweighs race management needs.
- Watch for changing weather conditions and abandon the race if there is a significant threat.
- Note any unusual happenings on the score sheet.
- Communicate with the racers during the race by radio when needed. While it is Ok to discuss upcoming course changes, weather or wind conditions this does not eliminate need for proper flag & sound protocol. It is often helpful to know what spectator boats have radios to summon their help during bad weather or to assist boats in need. Announce to spectators shortly after start to communicate back to you if they are available.

## Changing the Course

- A course change may be justified if there has been a permanent wind shift of more than 15 degrees.
- A course change must be signaled before the leading boat has begun the next leg, even though the new mark may not yet be in position.
- The new mark should be laid and the original mark removed as soon as possible.
- Be very careful when changing marks with combined fleets, you may need to leave in the old mark for one fleet and change the mark for the other fleet.
- Raise the change of course flag with a sound blast.



- Indicate direction of new mark by holding up the green triangle board for starboard and red square board for port.
- While hailing is not necessary, periodically continue to inform the remaining fleet.
- Lower the change of course flag after directing all boats.
- You can ask a spectator boat to help change the new mark. If you do not have a second judging boat assisting.

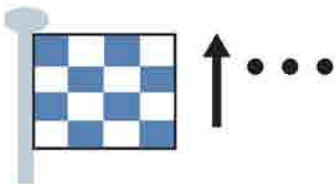
## **Shortening the Course**

- The PYC Sailing Instructions do not allow for the shortening of a course once a Race has been started.



## Abandonment

- You may abandon the race because of:
  - An error in the starting procedure.
  - Foul weather that threatens the safety of competitors.
  - Insufficient wind making it unlikely that any boat will finish within the time limit.
  - Any other reason directly affecting the safety or fairness of the race.
- If you see lightening or hear thunder, abandon the race immediately.
- Abandon the race by raising the abandonment flag with three sound blasts.



- You can also abandon and restart a race that has gone wrong, such as a major wind shift on the first leg of the race.
- You must abandon the race if the time limit expires and no boats have crossed the finish line.
- If the wind is consistently over the limits or if more boats are in trouble that you can handle, abandon the race.
- Ask spectator boats to help you get boats off the lake in the event of severe weather.

## **The Finish Line**

- Bring in the offset mark if it is no longer needed by another fleet.
- Place race committee boat on the right side of the windward mark when facing into the wind.
- Pull the race committee boat ahead of the windward mark and throw out the anchor.
- Let the anchor line out so the finish line is perpendicular to the wind.
- Raise the line flag and the blue flag.



- The finish line should be XXX boatlengths of the longest fleet racing
- If you need to move the finish line, lower the line flag.
- The finish line is the imaginary line between the windward mark and the line flag.
- A boat finishes when its bow crosses the finish line.
- Give the winner a congratulatory sound blast.
- Record the number of each boat in the order it crosses the finish line. A boat's finishing position should be noted each time she crosses the finish line after a foul has been committed. It may take a hearing to determine the actual finishing position.
- Note any protest flags on the score sheet.
- You should not change finishing positions due to any protests or rule infractions. This is the job of the rules committee.
- Account for all boats that started the race.
- If a boat did not/start the race she should be scored DNS.
- If a boat did not finish the race she should be scored DNF.
- Complete the score sheet and place it the mailbox within the PYC

## **Recording**

Recording is an essential part of every race and requires a lot more than simply logging boats starting & the finishing positions. A recorder needs to make note of all events happening before the race & up until all boats are finished or retired. There are usually more detailed notes taken during regattas as opposed to regular weekly fleet races, but it is best to get into the habit of good detailed recording on every race. These detailed accounts will become crucial in the event of questioning best positions or protests.

Information to record:

- Date
- Time of start for each class
- Race # (i.e. Sunday #1)
- Wind direction & speed
- # of starters in each class
- All recalls (general & individual) & black flag starts also time of restart
- # of starters who are DNS or DNF
- # of boats OCS in individual recall – note if those boats have restarted and are “clear”
- Rules breaches noted during race with boat #s – note if 360° or 720° are completed
- The finishing positions of each boat
- The finishing time of 1st boat across line & time of last boat
- Competitors who did not finish DNF
- Protest flags or protest information

## **Recording**

Obtain a list of all competitors

Before Start

- Record each sail # seen in vicinity of race (for bigger fleets you may need another person to help)
- Keep record of all missing boats

At the start

- Record information called for by PRO & line sighter this may include sail # of any OCS boat or rule breaches
- Verify sail #s and/or total boats starting to account for all DNS boats
- Record any recalls, black flags

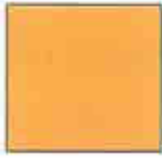
At the finish:

- Record time of start at the finish
- Record sail #s & finishing order of boats
- Record time of 1st boat over finish line
- Record time of last boat finishing
- Check list of finisher with list of starters to identify any missing boats and note any discrepancies on the scoresheet

Write everything down. It is better to scratch it off than miss it.

- PRO – Principle Race Officer
- OCS – On Course Side – (over at start)
- DNS – Did Not Start
- DNF – Did Not Finish
- DNC – Did Not Complete
- DSQ – Disqualified
- During the Race
  - Note all breaches & keep track of exonerations (360° or 720°)
  - Note any disqualifications
  - Keep track of rounding making note of your mark position (Windward, Leeward, Reach)

## 5 Minute Starting Sequence

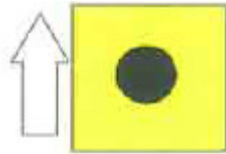


Orange flag is up throughout the whole sequence to create the starting line



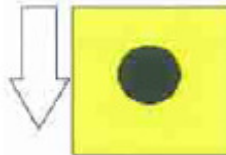
5 Minutes

The warning signal is raised at 5 minutes to begin the sequence. This is done with a gun.



4 Minutes

The Preparatory flag ("I" flag) is raised at 4 minutes left in the sequence. This is done with a gun. No crew changes, towing, or other assistance after this signal.



1 Minute

With 1 minute left in the sequence the "I" flag is taken down with a long horn sound (approx. 2/3 seconds).



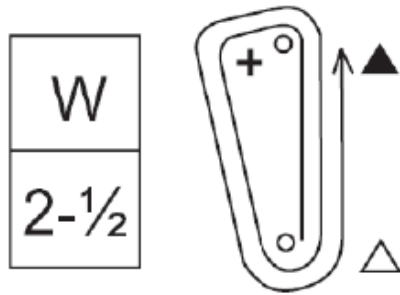
0 Minutes The start. The warning flag is taken down with a gun.

## Appendix 1 – Signal Flags

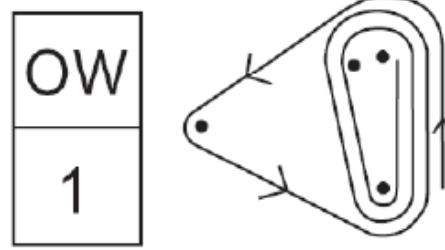
Appendix 2 - Standard Course Diagrams

- △ -Start
- ▲ -Finish
- ⊕ -Offset Mark

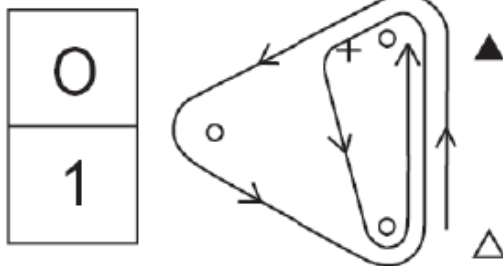
Winward-Leeward



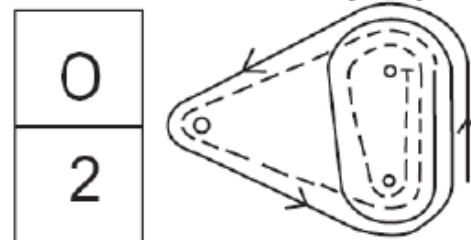
Olympic plus Winward



Olympic



Double Olympic



*The 2nd half of the course is shown as a dashed line.*

# Appendix 3 Race Course Worksheet

Use numbers in your GPS

