

# Sailing Safety Cheat Sheet ... Dinghy Training and Race Management ... Safety Calls

[www.2sail.net](http://www.2sail.net) ... Online Sailing Game for learners and experienced

[www.miboat.com](http://www.miboat.com) ... Photos from regattas

## ***Wind Speed Observations for partially protected, deep, inshore waters***

Always observe wind on water conditions by:

- looking UPWIND
- being stationary

If looking downwind:

- It always looks quieter and appears less breeze
- wind can easily be misjudged ie actual 25 knots looks like only 15, 12 looks like 6.
- As you go further from shore it gets worse

## ***Common Mistakes (Issues)***

- Wind strength and what it will do next is often under-estimated
- Skill levels of sailors are over-estimated
- When crossing a skill “hurdle” (described below), it is like a light switch, if similarly skilled, the entire fleet will capsize at the same time.
- It is OK for less skilled sailors to consider other options ... like stay onshore or 1 to 1 training rather than joining the race.
- Support can take a long time to do anything and requires very intense focus on the problem ... not aware of other issues
- If the race area is long way from the beach, tows home take ages. Consider options eg. people first, or short tow to safe haven or bigger “mother ship”.
- Position of course (or training) does not take into consideration “drift speed” (see table below) of a capsized boat, before a problem (eg shore line).
- Drift speed refers to capsized sailing boat (on side) or disabled support boat, turtle’d sailing boat is about 50% (still moves with wave action).

## ***Support Boat Considerations***

- Overloading (eg with spectators) reduces speed and functionality
- Under resourced (eg 1 onboard) depends more heavily on skills: boat handling, experience and coaching expertise (may be faster to get there)
- Long independent towlines essential in windy conditions, need to be ready, useable, with attachment points
- Suitable lifejackets that can be worn comfortably without restriction ... essential, particularly in poor conditions, put them on!
- Wet weather gear for all onboard (and a cold child)
- Sufficient fuel for the day, + 50% spare to allow for a long tow home at the end.
- Radios useful, but must be monitored closely by all ... every call heard, or just turns into waste of time. (separate mic/speaker that can be clipped inside wet weather gear ... near ear, stays dry and is brilliant)
- Reliable boat / engine and skilled operator ... do service and training ... have enough boats to cover the fleet concerned.

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[www.2sail.net](http://www.2sail.net) Online Sailing Game to help sailors Learn more (learner to experienced), [www.miboat.com](http://www.miboat.com) photos and more

Conditions below need about 1km of “fetch” upwind to form. At distances less than this, waves will appear less and wind may be protected. Ie conditions get more severe as you go further out. If there is current and wind in opposite directions, conditions become significantly worse (equivalent upto to an extra 15 knots)

<b>Knots</b>	<b>Observation</b>	<b>Drift Speed 100m in ??</b>	<b>3.5m support boat</b>	<b>3.5m Support boat helping recovery</b>
0~2	Water glassy, smooth	Ages	Engine off fine	Turn off engine and drift around
3~6	Small ripples	10 mins	Putter around, perfect	Towing alongside by hand possible
5~10	Gusts observable as dark patches on the water		Can drive at any speed, any direction	Happy days
12	Occasional brief “white horses”, last for say 1 sec. 1 per say area of: 10 Olympic swimming pool size Small waves building, 20~30cms trough to crest		speed upwind possible but bouncy and “thuds”	Towing must be on towline, speed restrictions if going upwind or sails are flogged to pieces, alternatively take the time to wrap sails prior to tow.
18	Regular “white horses” last say 2 secs 1 per say 2 or 3 pools area Aggressive gusts observable Waves regular with depth	3~4 min	Difficult to go upwind fast	Need at least 10m of towline, upwind slow, downwind care of towed boat catching up on waves, Unwrapped sails will cause major issues
22	Frequent “white horses” may last 3 or 4 secs More than 1 per Olympic pool 50cm+ waves possible		Can go upwind slowly Wet and care required	Skilled driving required, may need 30m of towline. Communication with towed crew essential (hand signals, OK)
28	“white horses” last 5 secs spray hurts as blown into face If onshore, you get blown about while walking	under 1 min	Need to constantly “read” waves or may roll	Skilled driver ONLY, attachment point on towing boat becoming critical to maintain safe steerage.
32	Spray is blown off top of waves If onshore, difficult to stand in one spot. Boats can be lifted out of the water as they capsize.		Boat must be correctly balanced, low speed and held bow to wind by skilful driver or swamping will occur.	May not be possible to take boat under tow, safety of people more important than boats. May need 100m of towline. Need to get more suitable support boat. Anchor boat to reduce drift. May need to wait until wind has passed.

## Capabilities of sailors

Small Dinghy eg MJ, F11, Sabot or Opti “Open Fleet”. With the right skills may have the capacity to sail & race in over 25 knots of breeze.

Beginners will struggle in over 5 knots.

Knots	Skill level required	Technique	Comments	Who
0~2	Not much		Drift around and get wet	
3~5	learner	Hurdle 1 Know where the wind is coming from, set sails and steer accordingly	Perfect learning conditions	Learner
6~10	Beginner / Novice / Green	Hurdle 2 React in gusts by letting out sails and moving weight		Learners will be struggling and need to go home. Beginner / novice fine
12+	Open	Hurdle 3 Need to coordinate sails, steering and weight	One of the biggest hurdles to achieve however distinct satisfaction by sailors on “getting there”.	Beginners should not be out in this unless with other experienced sailors. Novice sailors will need help or go home.
18+	Experienced	Hurdle 4 Timing while tacking and gibing critical	Good communication required onboard. Observation of gusts critical	Novice sailors should not be out in this. Some “Open fleet” will need help.
22+		All the skills come together and the boat will be flying. Need to sail aggressively.	Very skilled “Open fleet” will be really enjoying this for a while. Flapping sails are noisy, hurt if they hit you and quickly destroy themselves. Effort required to control flapping sails	Care of sailors getting tired or exhausted, after say 2 hours accidents start, or only 30~60 min if capsizing Lighter weight crews will struggle.
28+	Competitive	Hurdle 5 Boat must be kept moving with sails on. Flogging sails may capsize boat. Settings, steering and weight balance critical.	Need to train in this to be successful, can’t let sails off when healing over, as flogging sail will capsize you.	Experienced sailors need to go home. Racing should be cancelled if not left beach. Consideration for abandoning current racing.
32+		Must be prepared for every gust. Communication and timing is everything.	Experienced competitive sailors ONLY Damage to boat or gear likely.	Training only for very top end, 1 on 1 support required, expect trouble. Good for very competitive sailors to “taste this”.
35+	stupidity	If you have skill and sufficient weight to control boat ... then you will almost certainly break something.	Small dinghys are NOT designed for these conditions and will break	Need to prevent “gung-ho” teenagers going out and busting the boat or worse. Suitable 1 on 1 support essential to recover or tow broken boat home.

## Adverse Weather observations

Type	Description	Risk	Action
thunderstorms	Tall dark, clouds	Strong winds possible underneath from unpredictable direction Direction of movement of storm not necessarily reflects wind direction Hail in some circumstances	Monitor closely Allow sufficient time to reach safety if threatened.
thunderstorms		Lightning	Seek shelter early, if out on water and unable to return to shore ... capsize boat. Do not seek cover under trees or near masts.
Clouds	Rain	Risk of cold ... see hypothermia	
Clouds	Rain	"white out", reduced visibility, possibly no visibility	Need to know before white out ... where all boats are. Position support boats to "Shepard sailors". Decision to continue or not depends on predicted time / duration of rain, wind conditions, temperature, experience of sailors
Clouds	Green clouds	Hail imminent	Get under cover or as last resort under upturned hull, noisy and scary. Can get 1 minute visual warning over a 1km fetch. Can be very noisy if hail heavy. Some protection may be gained from bouancy vest, with "golf ball" size hail, injury or worse possible.
Unpredictable wind	Clear sky, severe wind changes	Significant change in direction and strength possible. Impossible to predict visually	Depend on forecast If severe forecast, sailing risky unless very high support ratio (1 to 1), May look fine and change quickly eg Sydney - "Westerlies"
Temperature	Cold	Hypothermia, particularly if windy and after cold change	Prepare by suitably dressing. In open boat ... get down low (on floor) out of wind wrap up to reduce wind chill Get into shelter, Get dry and into warm area eg inside cabin of boat Sydney - "Southerly Busters"
Temperature	Hot	Hyperthermia, eg sunny, no wind and drifting around	Take and drink water, wear hats, covered clothing swim to cool off ... do not swim away from boat. go ashore to seek relief, get out of sun. Careful of "overdressed" children with wetsuits. Consider Ice packs on head / neck / armpits / groin
Strong Current	Nasty waves	Significant increase in difficulty	Stay out of the area at that time, particularly if wind is against current.

## **Observations**

### Visual ...

- Clouds
- wind on water ... looking upto 1 km away ... white if windy ... +25knots
- leading edge of rain or hail ... like a veil
- sailors, how many capsized boats are there and how are the rest handling the conditions
- Clouds get “green tinge of colour” ... hailing inside cloud, hail on water (ground) imminent.
- Waves in strong adverse current, can be close and high, in extreme conditions become near vertical “standing” waves. Like a surf wave but stays still.

### Internet ...

- wind prediction
- wind observations at other stations nearby ... particularly in the direction that weather is coming from
- Radar Observations ... show rain (hail) intensity, thunderstorms and direction of movement
- Radar – Dopler wind ... show wind strength and direction (towards or away from Radar) , useful tool in clear sky, particularly for Sydney Westerlies

### Local Advice

- Sometimes local thunderstorms follow a typical track ... or pattern ... seek local advice
- Current in particular pattern of rough and safer areas.

## **Considerations as conditions deteriorate**

- How bad are the conditions now
- How bad are they guaranteed to get ...
- How bad could they get ... what is the unpredictable component?
- How fast is it changing, eg. thunderstorms can be visually rapidly different inside 20 minutes ... longer warning possible if watching on radar
- How reliable and current is the information at hand
- How skilled are the sailors ... could they handle the predicted changes ... is it possible to send the less experienced ashore?
- What condition are the sailors currently in? eg. “tired & cold” or “fresh and ready”.
- If conditions did change, what action (if any) would be required to help sailors
- Is there sufficient resources (and skilled personal) to provide this help.
- Could sailors be seriously hurt ?
- Is the racing just starting or about to finish? ie Is there sufficient time to complete the racing, prior to the problem
- If racing were to continue ... would it be fair or is radical wind direction changes possible.
- Support boats that are actually “fair weather” spectator boats ... often go home, leaving less on water support.

## Options

- Nothing, continue as per plan
- Restrict who goes (or remains) on the water ... verbally, radio or flag certain divisions or individuals
- Encourage (insist ?) less experienced sailors to stay on shore
- Increase level of support, use radio as required.
- Change where support will be located, eg onto the racing area, near to the boats, near gybe marks, near lee shores
- Change the racing area eg. Closer to home, more sheltered area, further away from lee shore, smaller course (to increase safety).
- Delay start ... hold sailors onshore ... AP flag onshore ... 2 horns up
- Delay start ... hold sailors on water in a defined area. ... AP flag on start boat
- Abandon racing ... return to start area ... N flag ... 3 horns up
- Abandon racing ... return to shore and await more signals ... N over H flags
- Abandon racing ... return to shore, no more racing today ... N over A flags
- Shorten race ... to allow boats to finish (and go home)
- Follow me (to safer area) ... L flag on boat. ... normally in conjunction with AP or N flag
- Wear personal flotation device (dinghies should always have them on anyway, yachts / support boats may not) ... Y flag.

## Disclaimer

This document:

- Is a collection of personal observations made as a Sailor, Coach, Officials trainer, Race Officer, Support boat driver, Safety representative and umpire over nearly 50 years. There is no undertaking that is either accurate or complete.
  - Is not to be used as the only reference in making a decision.
  - Is intended to assist (providing some hints) in making a safe decision.
  - Assumes that boats are in a race ready state, in good condition and strong enough to normally sail in 25 knots.
- Specific situations may well be different and dramatically change the decision process and outcome. For example, current flow, tide, waves, water temperature, water depth, other marine traffic (power or sailing boats, shipping), personal fitness, personal abilities, preparedness of sailing or support boats and other things all may significant impact managing a situation safely. These all need to be allowed for in addition to this document.

The writer takes NO responsibility for the outcome of any event or on water activity Nor the safety of any personal or equipment, sailing or otherwise.