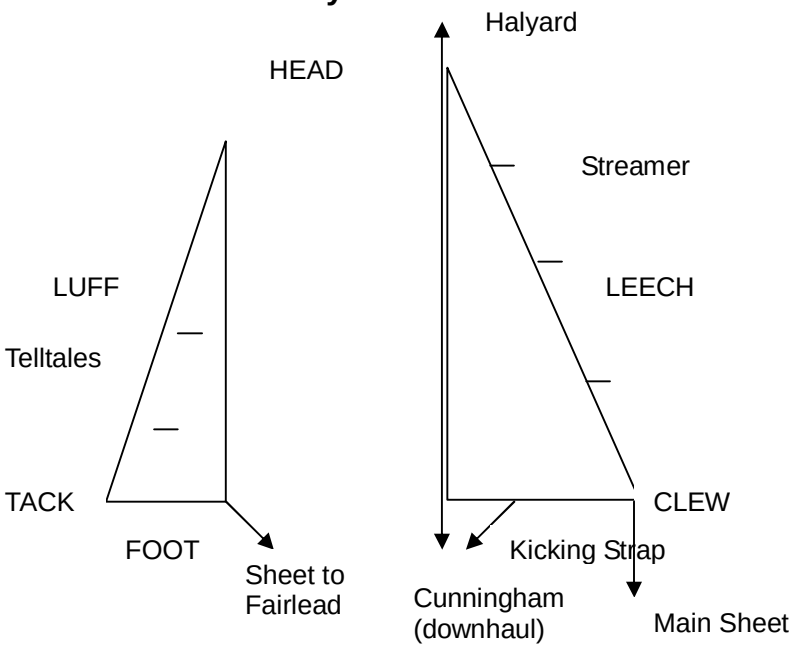
SMARTER SAILING

The 5 Essentials: (ex RYA training)

- ***SAIL SET***
- ***BALANCE***
- ***TRIM***
- ***CENTREBOARD***
- ***COURSE***

<u>SAIL SETTING :</u> - Controls and what they do



SAIL CONTROLS (Not tuning which is permanent mast and rigging)

CONTROL	**What it does**	**The effect**
JIB Sheet	Moves sail in and out	Improves wind flow over back of main – don't pull too tight in light winds – to windward top 1/3 of leech should be parallel with centreline
Jib Sheet fairlead	Alters angle of sheet –	–opens and closes leech- usually point about 1/3 up luff-look for all telltales to lift at same time
Main Sheet	Moves sail in and out, also pulls sail down & tightens leech	Determines angle of sail luff– get luff in line with wind, just full. Also provides twist or flattens sail = more or less power
Traveller	(When applicable) adjusts position of boom without affecting down pull	Allows boom up to centreline but allows twist to be maintained

Halyard	Hoists main –provides tension	Stretches luff of sail and moves camber forward
Cunningham	Increases luff tension after full tension on halyard	Stretches luff of sail flattening it and pulling camber forward – better shape to windward
Outhaul	Flattens bottom 1/3 of sail	Reduces fullness – de-powers sail when in
Kicker	Bends mast forward & flattens top 2/3 of sail. Tightens leech, reducing twist.	De- powers sail Twist shape:- try to get top or 2nd batten parallel to boom

Telltales and Streamers

Draft Telltales: Windward one flutters – draw sheet in

- Leeward one flutters – ease sheet
- On jib all stall/fly at once if fairlead right angle –
- If top stalls first move fairlead forward, if bottom, move aft

Streamers on Leech - If they stall and wrap inside – Draw sheet in

- If they wrap outside –Ease sheet
- If twist is correct all will fly together with top one flying 60% - 80% of the time

What we need from sail for different wind strengths

WIND	**V. light air F1-2**	**Light wind F2-3**	**Medium F3-4**	**Strong F5 +**
SAIL	flat	Max draft	Medium draft	V. flat
Halyard	Not tight	Tighter	Tight	Tight
Cunningham	Off	Off	Off - slight	On
Outhaul	Full on	Full off	Tighter	Full on
Kicker	Off	Slight tension	More tension	Full tension
Mainsheet	Eased	Tighter	Full in	Out a bit

BALANCE; -**athwartships – heeling**

Keep boat upright to -

A. maximise sail area
B. maximise lateral resistance
C. maintain neutral 'helm'

Light winds may require heel to let sails 'fall' into shape.

TRIM: fore & aft – where you sit

This affects -

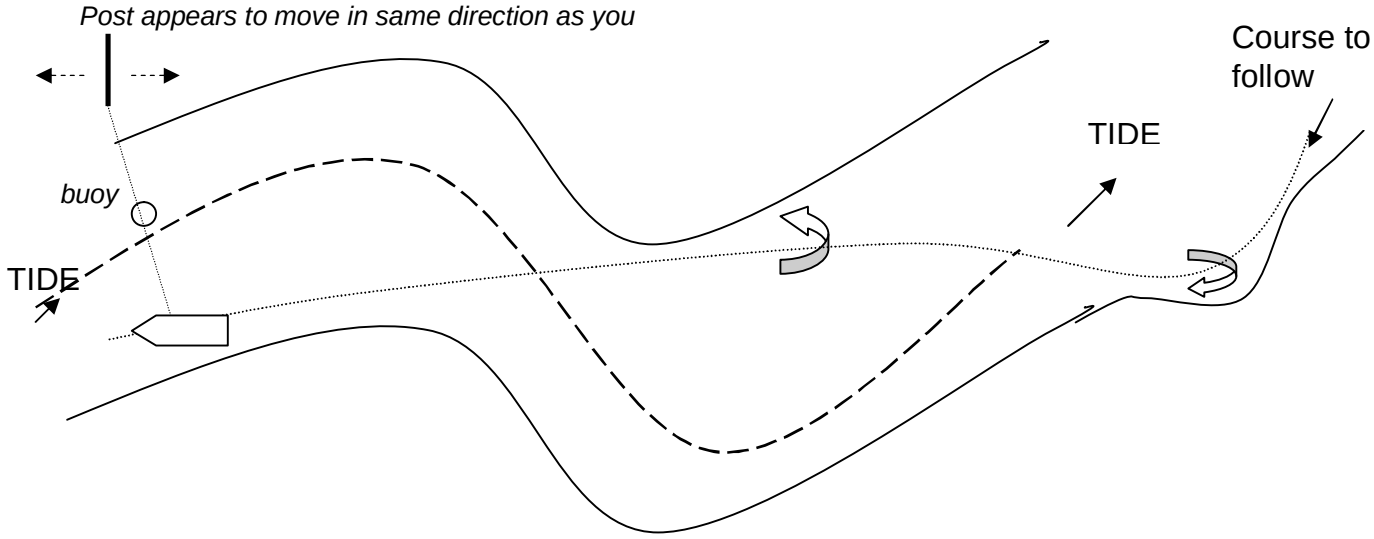
A. Mast rake which moves centre of effort and therefore effects 'feel' of helm ie amount of pull (or push) on tiller.

B. Amount of bow and stern in water. -To windward move forward to dip bow for more lateral resistance from hull. In light weather keep forward to lift stern and minimise wetted surface area (drag) For Planing move aft to lift bow.

Centreboard (plate)
This is the main lateral resistance to the wind force. As the wind comes aft you need less resistance so can lift it progressively further till you need very little on the run

TIDES & EDDIES

- *Most tide in centre, least on the edges of the river*
- *Most tide on outside of bends, least tide on the inside of bend*
- *When to cross river from inside corner to inside corner – look at mud slopes (strong tide scours the edge, weak tide deposits the mud)*
- *For direction and strength - look at the moored craft & buoys*
- *Look at the water – slicks and ruffles show eddies or slack patches – 'wind against tide' produces steep waves showing strong tide running*
- *Look for Counter-eddies in 'bays' and down-tide of inside bends*
- *Check progress on buoy or bank –use transits – the far mark moves with you. If buoy is "stationary" you are going straight to it.*



COURSES
Upwind : In general:
Tighten sail controls, keep boat flat – sit right out and spill a bit of wind if necessary, sit forward to keep bow in. Don't overtighten main or jib in light to medium winds.

For more advice see separate handout **Improving upwind performance**
- Apparent Wind
- Tacking
- Pointing - telltales
- Using Wind shifts & Tides

Reaching, raise centreboard halfway, ease sail controls to put more draft (power) into the sail, keep telltales on jib (sheet)and streamers (sheet and kicker) streaming correctly

Running: ease main right out, all controls eased. Plate nearly up. Don't sail by the lee – it's slower and you may gybe unexpectedly.

Gybing – Plate up, when you are ready bear away a bit and get crew to pull boom over. As boom passes pull tiller quickly back to downwind course. Crew must be prepared to stay on same side and sit out if boat starts to round up

RULES FOR RIGHT OF WAY

RULE 10 Opposite tacks: Port tack or gybe gives way to Starboard tack or gybe

RULE 11 Same tack overlapped: The Windward boat shall keep clear

RULE 12 Same tack not overlapped: A boat clear astern shall keep clear of one clear ahead

RULE 13 While tacking: A boat has no rights after passing head to wind until her sails are full on a close-hauled course

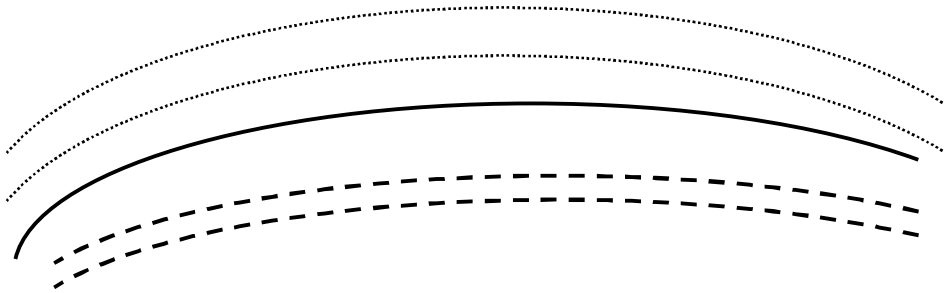
& RULE 14 - Avoiding contact if reasonably possible

THEORY

How the sail works - high pressure on one side and low pressure on the other push & suck sail forward
examples – hang spoon under water, blow on top of paper.

Effect of wind on sail
- On the outside wind has to travel further so it travels faster and becomes less dense and so is at lower pressure.

FIG 1



Wind on inside travels less distance, therefore slower and more dense, so is at a higher pressure –
Therefore sail is pushed and 'sucked' to the outside.

Why a boat goes forward - Theory: the basic force at an angle is split into sideways and forward.

Latera*l* :– (centre) of effort from sails counteract ed by (centre of) lateral resistance from centreplate and hull (Fig 2)
Forward : because sideways element of force is resisted the remaining forward lement drives the boat forward (Fig 3)
example: squeeze bar of soap

THEREFORE, we must maximise forward element of force and the lateral resistance. Sail shape is important, and different for different points of sailing. Thus we have sail controls

FIG 2

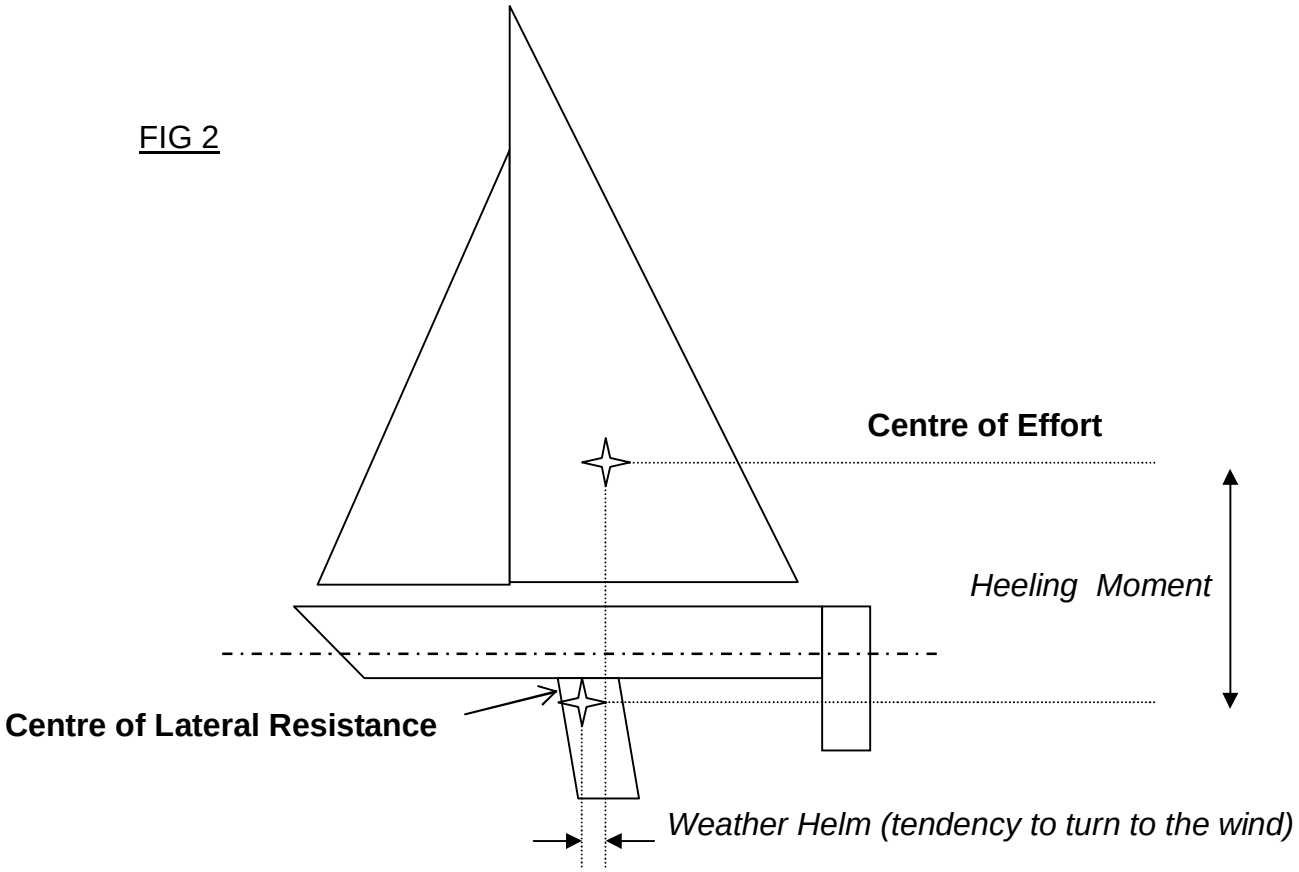
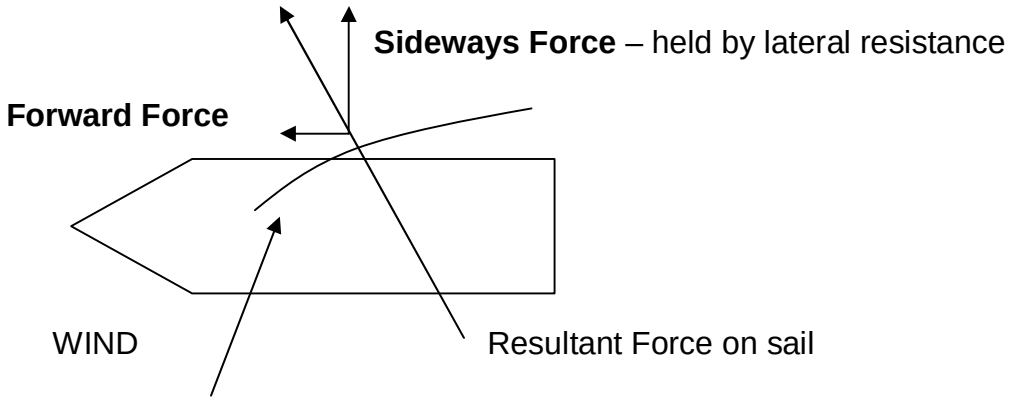



FIG 3