

Technical Course for Coaches – Level 3 Downwind Tactics



Tactical priorities

Clear wind

Phase 1



Follow your strategy

Phase 2

Follow new strategy

Phase 3

Approaching the mark

Phase 4

Mark rounding

Phase 5



Phase 1

Phase 2

Phase 3

Phase 4

Phase 5



Sailing Aerodynamics

Now watch this video from WB-Sails, which simulates Dragons on the run.

<https://www.youtube.com/watch?v=udoba8xcYzQ>

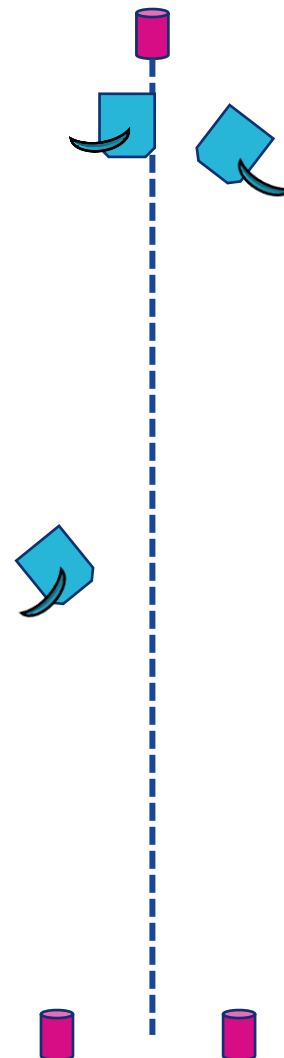
Useful tips

- The shadow can affect the performance of the sail from a distance
- Follow the shifts
- Stay in the pressure
- Go with the current
- Stay with the waves
- You can play with bigger VMG

The Rhumb Line

Following the rhumb line is the shortest way **but is it the fastest?**

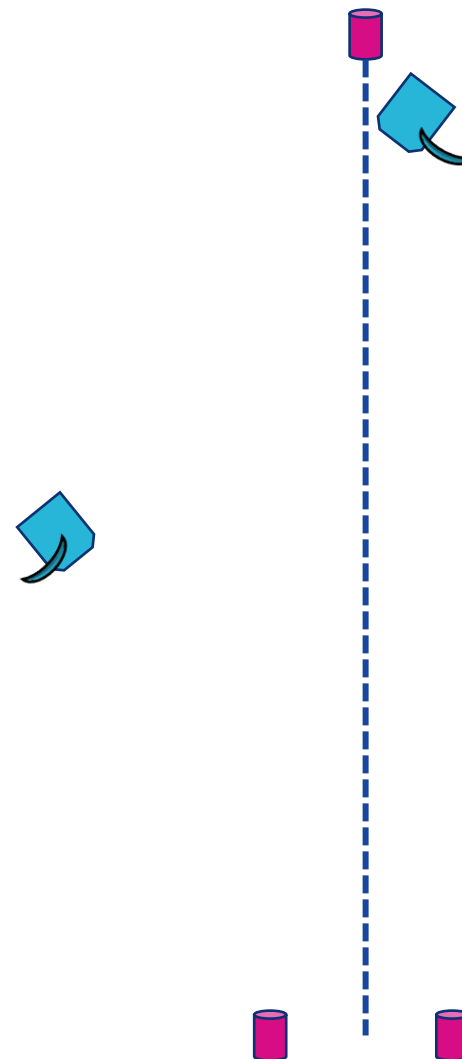
A boat moving dead downwind goes the shortest way but it has less speed .



The rhumb line is the straight line connecting the two marks

The Rhumb Line

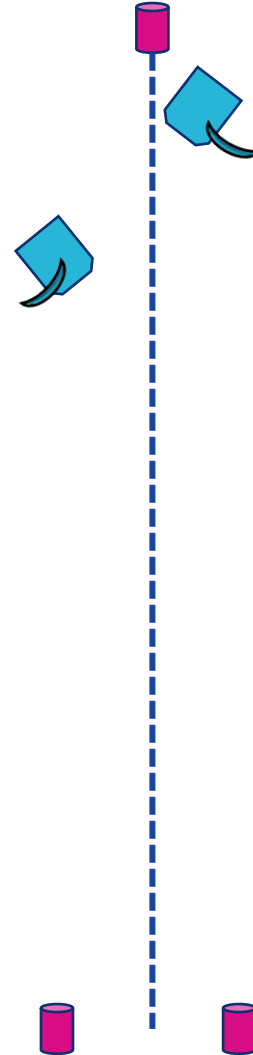
The more you deviate from the rhumb line the more speed you have but you sail more distance.



Every class has developed their best VMG for every weather condition

The Rhumb Line

- You need to find the right combination of speed and angle to get you to the mark as fast as possible.
- That depends on wind strength and direction as well as waves and current



For the single handed as the boats can sail “by the lee” they can also move around the rhumb line without gybing

The Shifts

As you deviate from “dead down wind” you have better speed

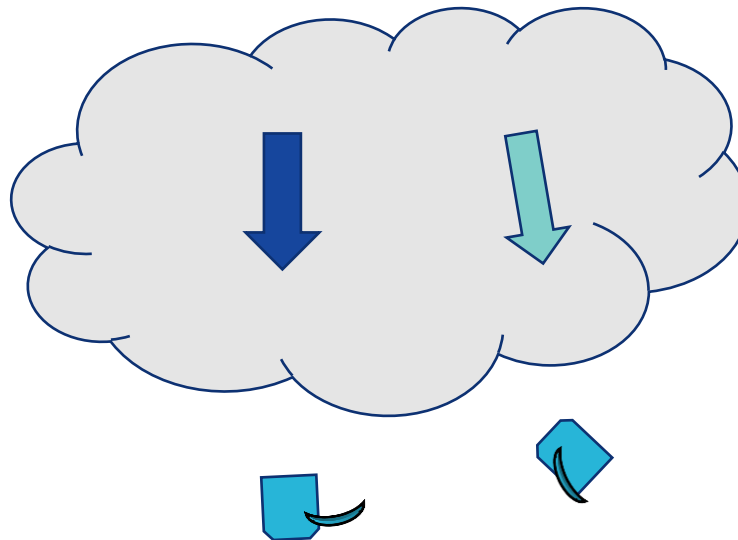
For the boats with spinnaker , catamarans, windsurfing and skiff is vital to stay coordinated with the correct shift



Have in mind that the effect is multiplied downwind than upwind

Shifts and Pressure

A boat moving upwind on 10kts breeze with 5 kts speed it crosses the pressure or the shift with $10+5= 15\text{kts}$ speed or 7.7m/s



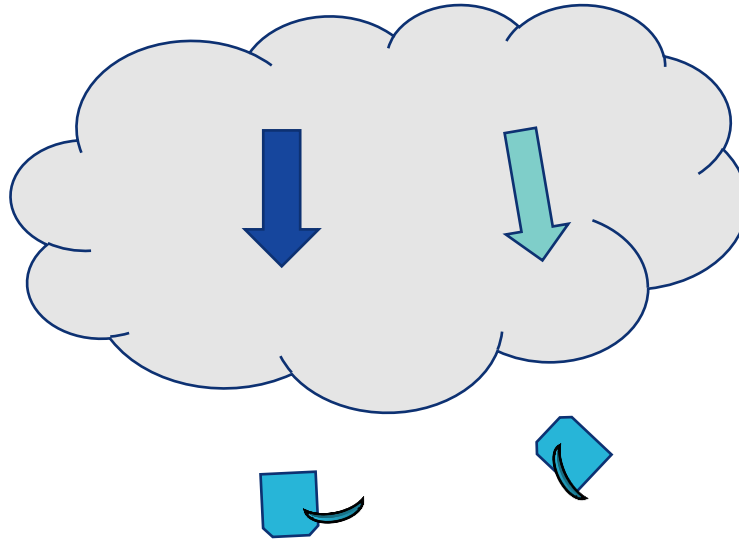
- If the pressure extends in an area of 300 m.
- The boat will pass the area in $300/7,7= 39 \text{ sec}$

Shifts and Pressure

While downwind it crosses with $10-5=5$ kts speed or 2.57m/s

If the pressure extends in an area of 300 m.

The boat will pass the area in $300/2.57 = 117$ sec



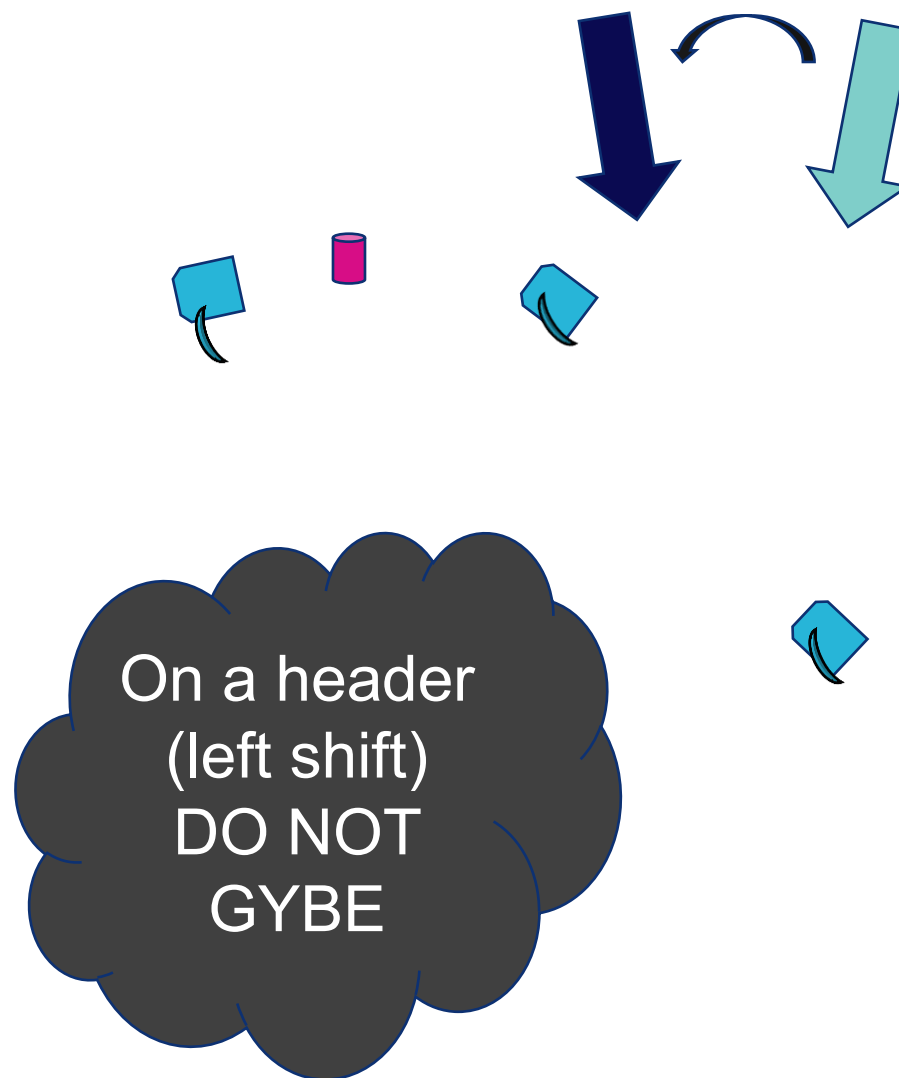
- Therefore the effect of a shift or pressure is longer
- The boat stays in the pressure for longer time
- The boat takes advantage of the shift for longer time

Learning from the upwind

Know the pattern of the shifts or the bend

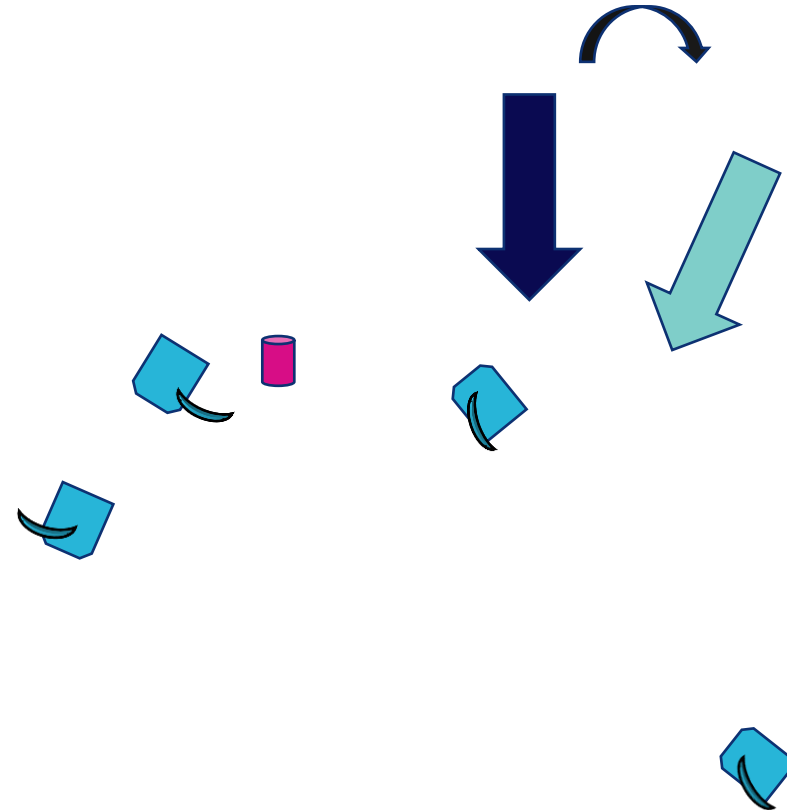
When rounding the upwind mark check the shift

If you're on a header do not gybe



Learning from the upwind

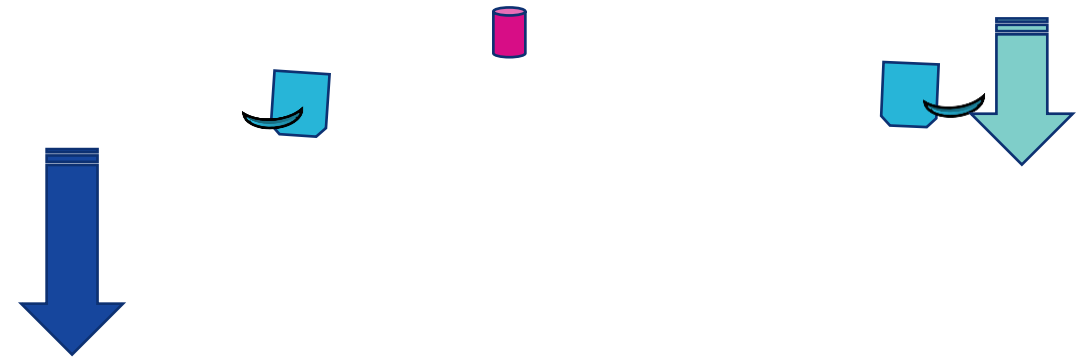
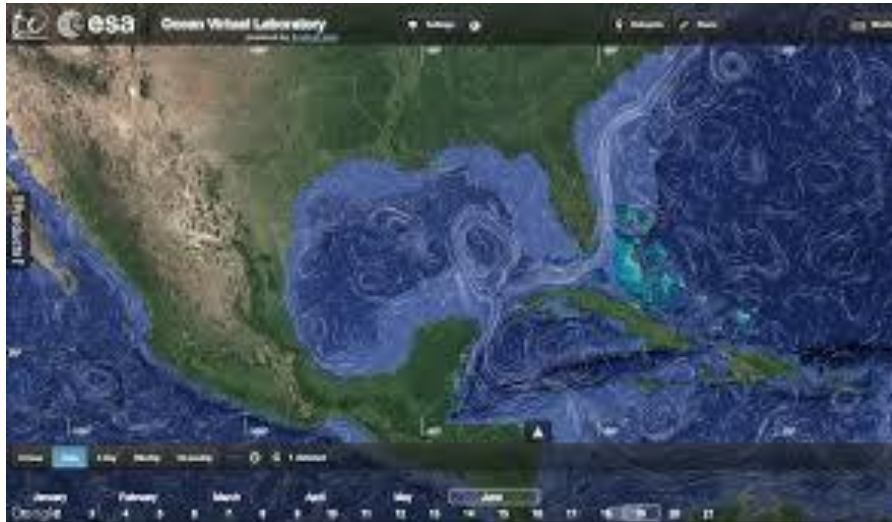
On a lift
(right shift)
GYBE



Learning from the upwind

Choose the area with
more assisting current

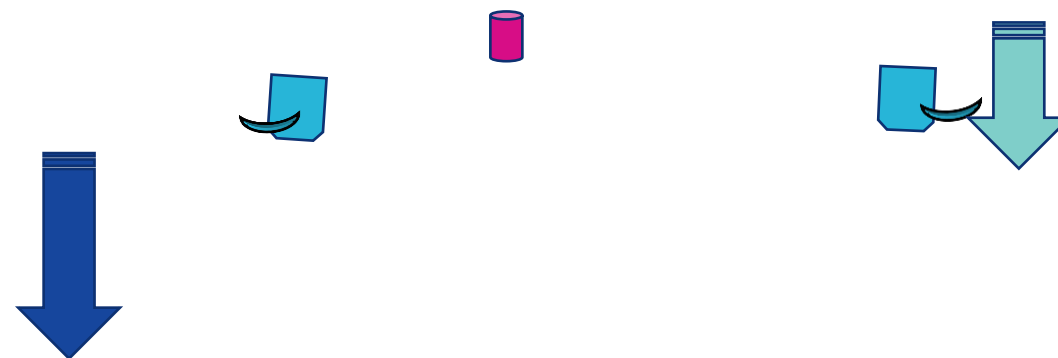
Go to the area you avoid
upwind



Learning from the upwind

Choose the area with more waves as they give you more surfing opportunities

Go to the area you avoid upwind



The Wind Bend

In the case of a wind bend you need to sail first the inside bend (fast track)

You sail the first half on port open reach

You sail the second part on starboard open reach

You sail less distance

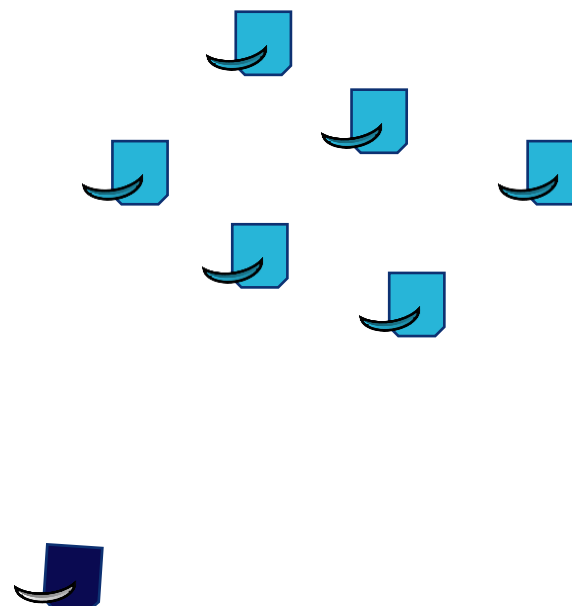
Long Leg first

Like on the beat you need to sail the longer leg first, the leg that takes you nearer to the mark

Take the side that you avoided on the beat

If the race officer compensated the current and put a true beat the run may be skewed

Risk management

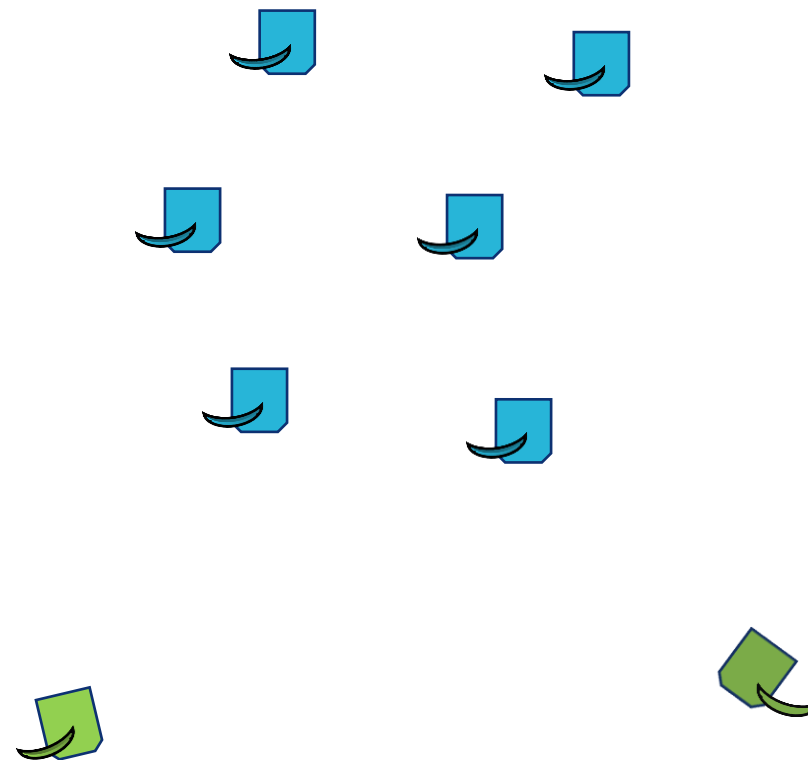


“Big risk means big losses or gains”

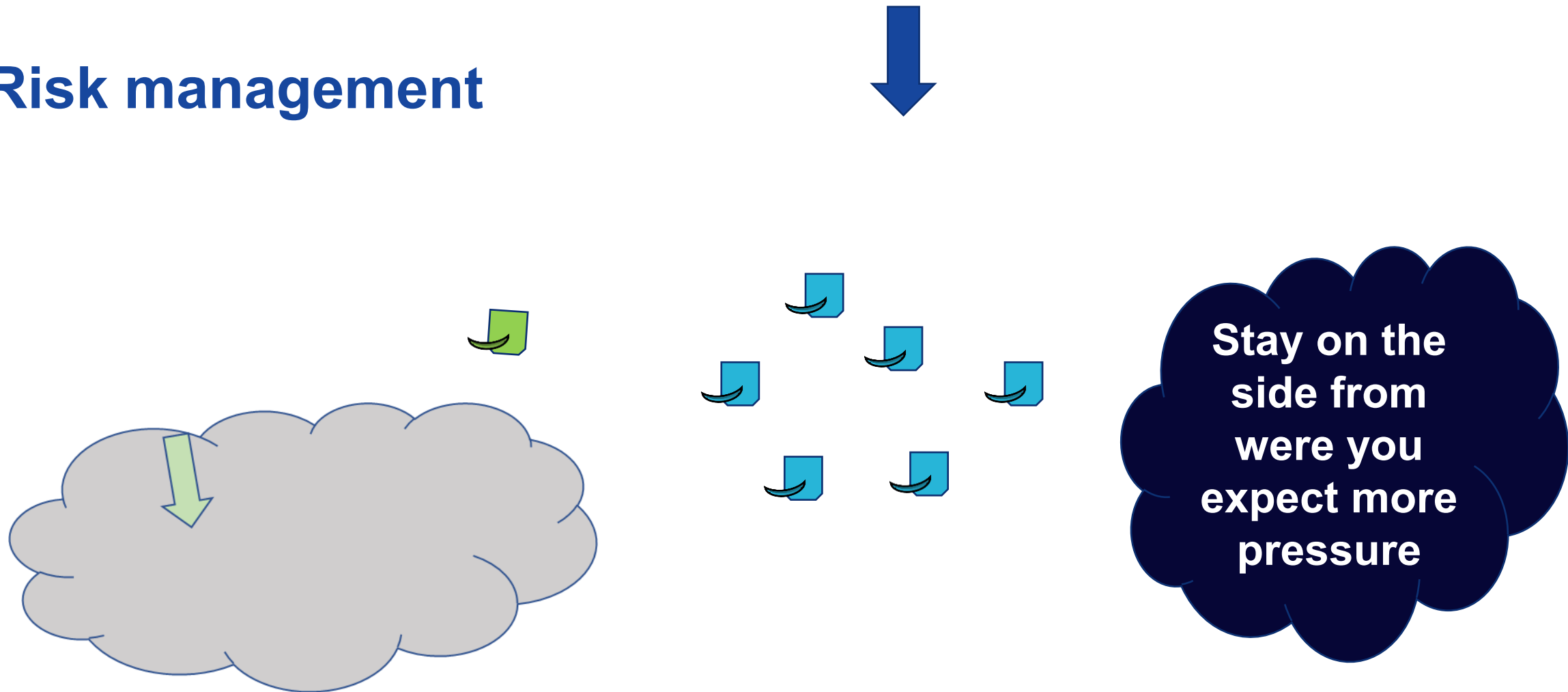
Stay with the group and cover

Risk management

**The green boat
gybes in a
position that
enables her to
control the fleet**

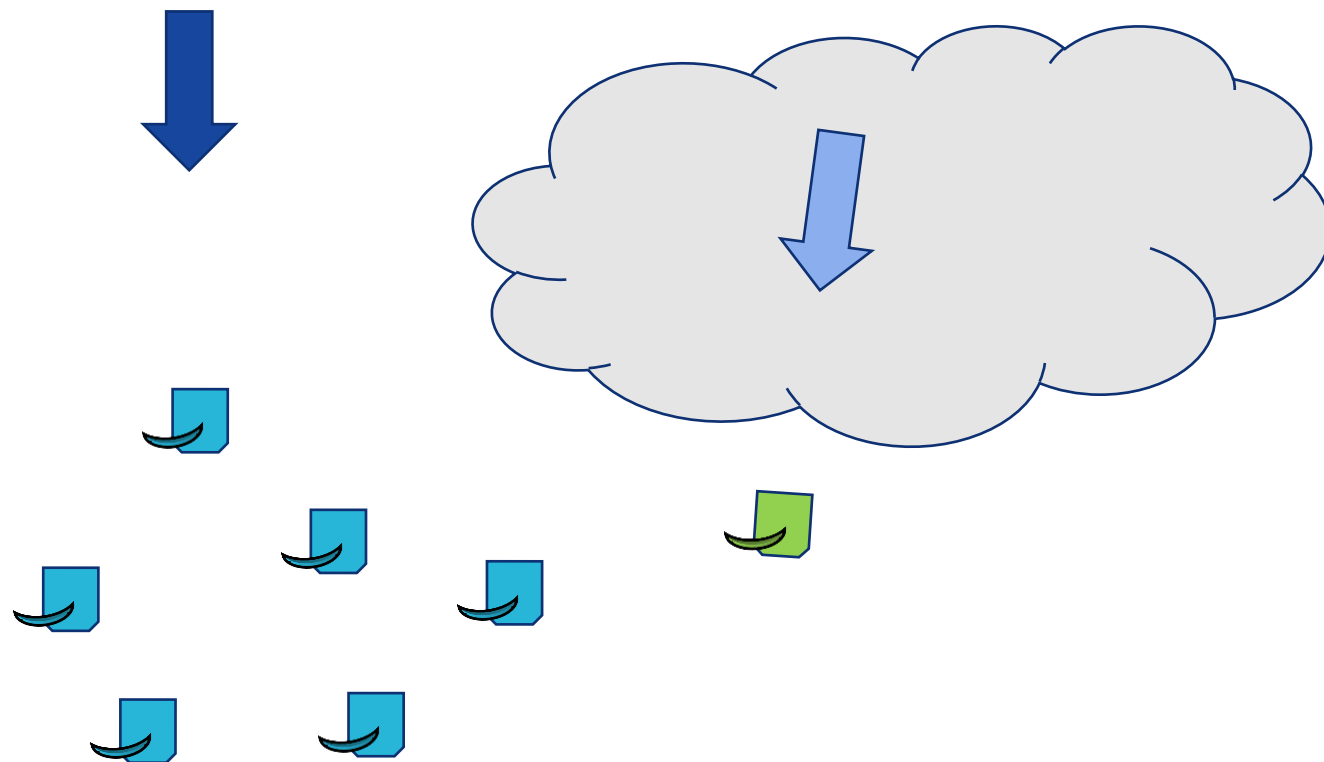


Risk management



Risk management

**Stay on the side from
where you
expect more
pressure**



ITA 088 is on a safe leeward position

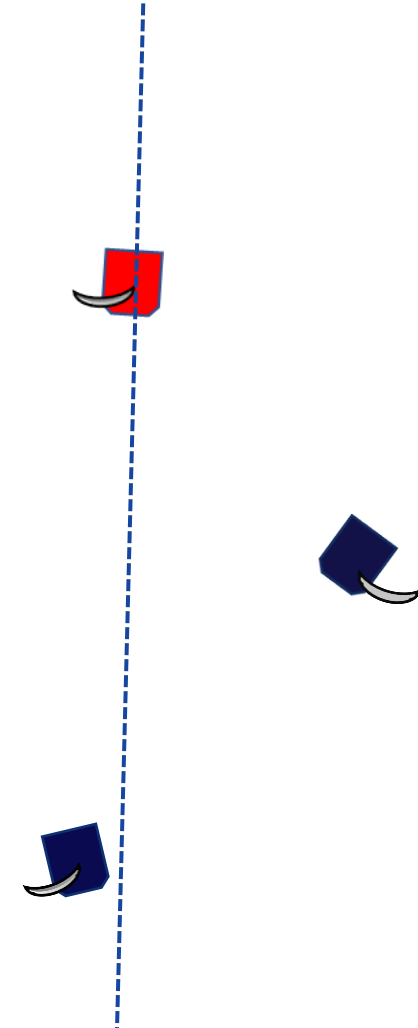


Risk management- safe leeward position

When gybing to defend from boats behind always gybe to leeward of their line

Start the gybe as soon as you cross their line

End up ahead and small distance to leeward, clear of the wind shadow

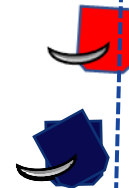


Risk management- safe leeward position

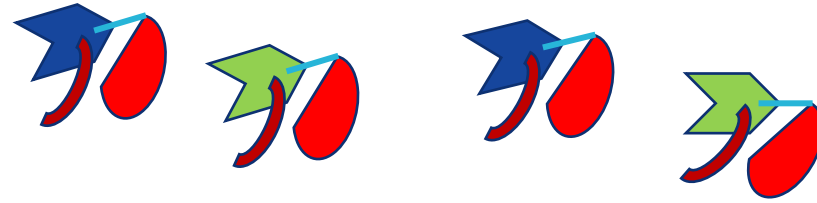
From that position you can be protected either by...

Luffing up

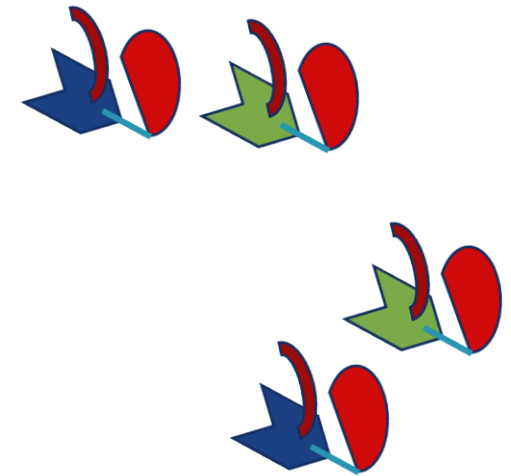
Gybing in case the opponent gybes



The Offensive Gybe

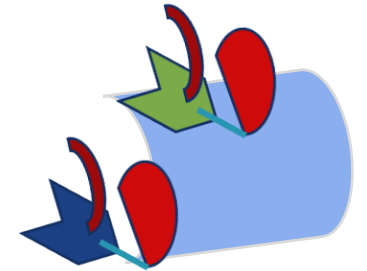
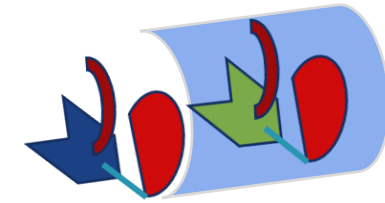
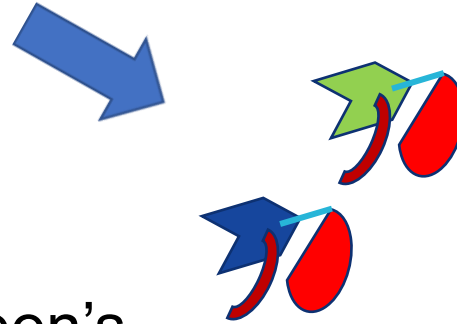


- The green boat is on a safe leeward position
- The blue boat approaches patiently and wait for the right moment...
- When the green boat gets a moment of destruction the blue boat suddenly gybes
- The green boat delays to gybe for some seconds
- Blue puts green in her dirty wind



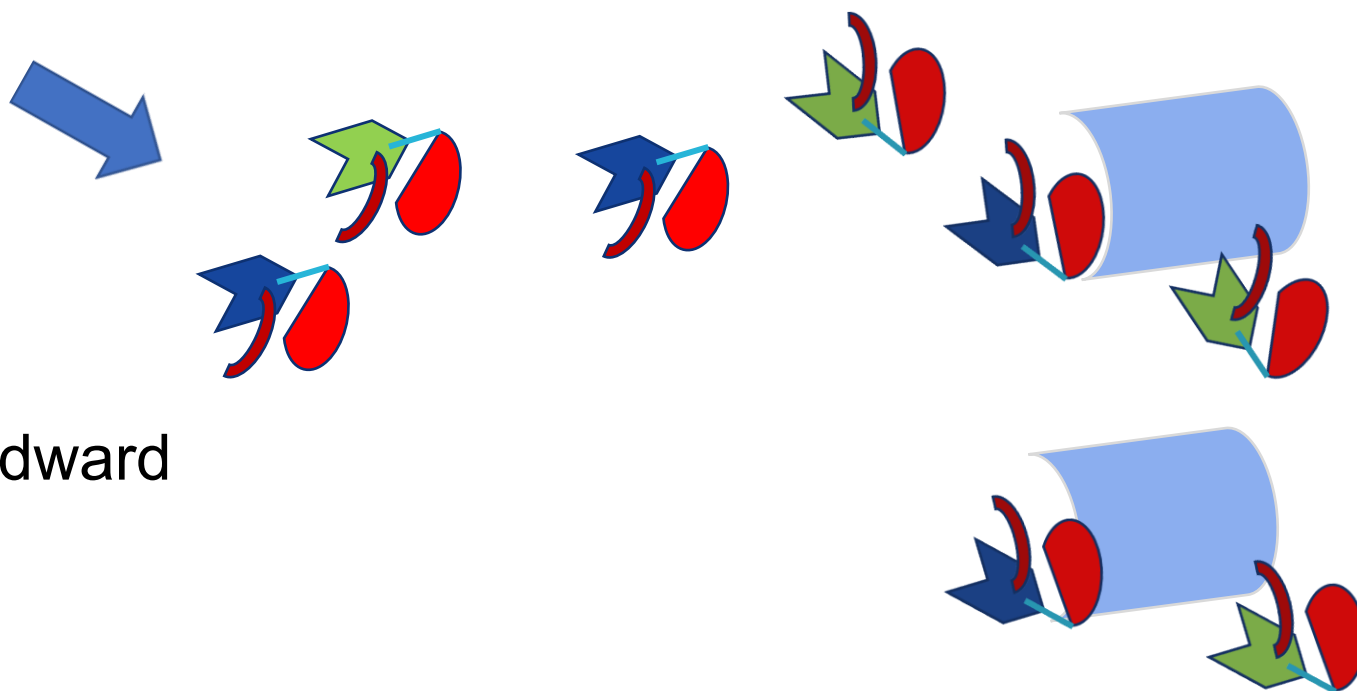
The Offensive Gybe

- The blue boat is aiming on green's leeward quarter
- The blue boat gybes the same time with green
- Automatically green gets on blue's shadow



The Gybe

- Green boat is on a difficult windward ahead position.
- Green should not make her intentions known
- Green needs to find a moment that blue is distracted and gibes
- Green needs to get out of the shaded area ASAP



Sailing the angles

The ability to use more sailing angles will boost your tactical options

You must know the optimum angle and sailing technique in every sailing condition

Be able to switch between the three modes of downwind sailing when tactic dictates

The Three Modes of Downwind

Soaking

Aim to go as close to the mark as possible without the spinnaker collapsing



The Three Modes of Downwind

Surfing

When there is not enough power to plane permanently, to generate significant apparent wind or overtake the waves

Try to maximize the time spent sailing downhill, using the speed generated to head closer to the mark



The Three Modes of Downwind

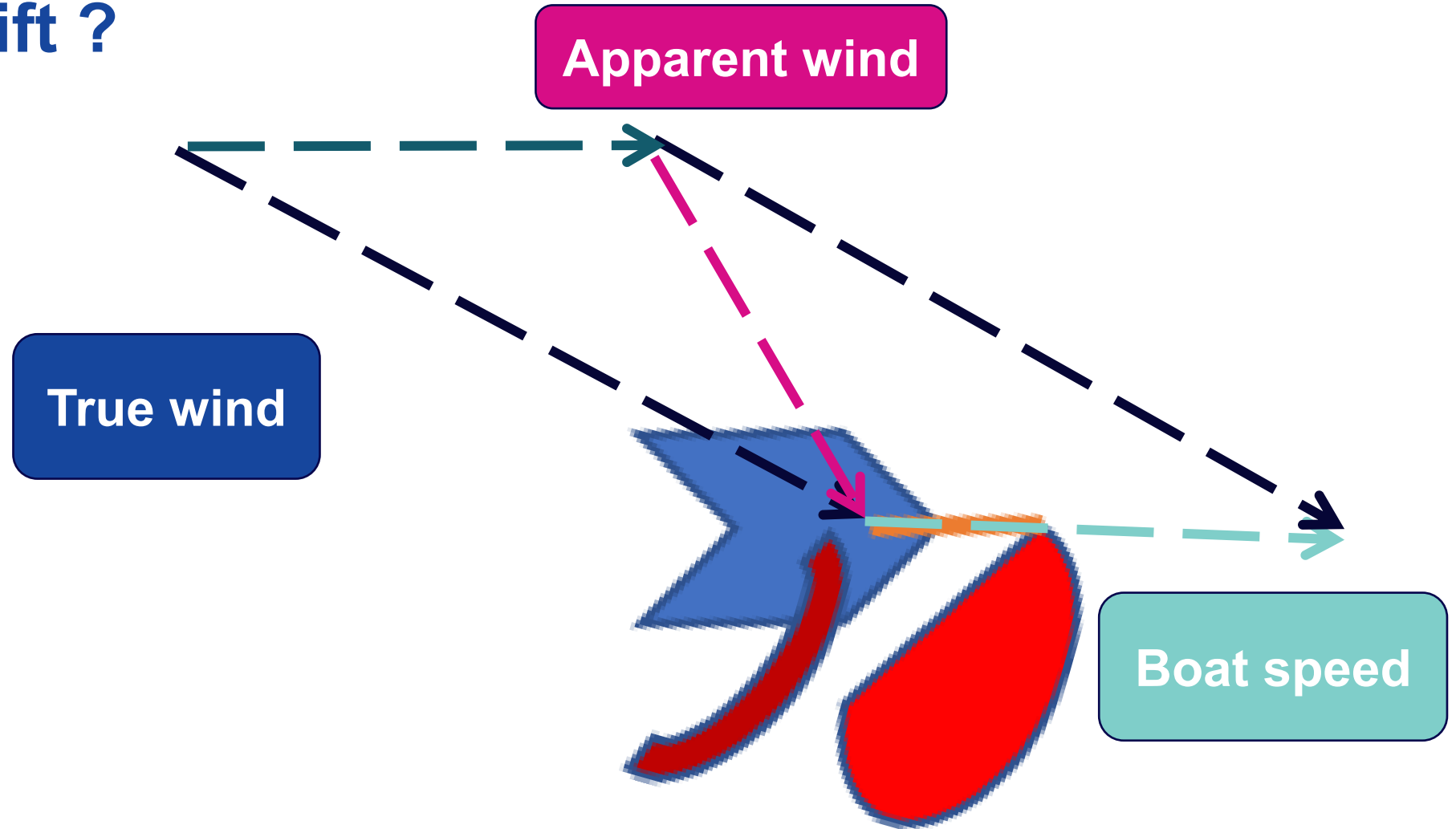
Apparent wind sailing

The more the apparent wind, the faster the boat goes. The boat goes lower and faster

Forget surfing down the waves
.....just try to avoid them



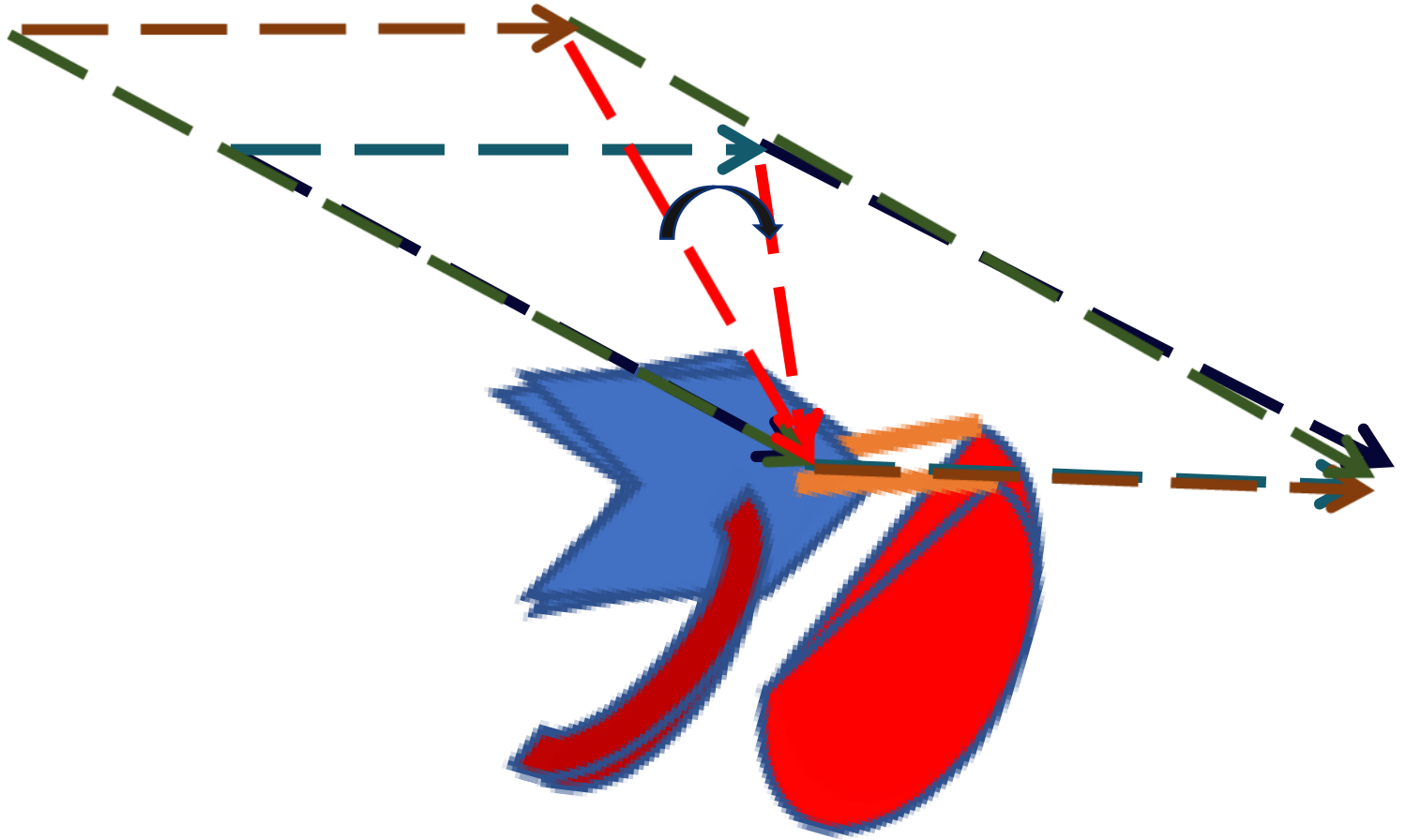
Is it a shift ?



Is it a shift ?

When the wind drops,
the boat maintains her
speed due to the boat's
momentum

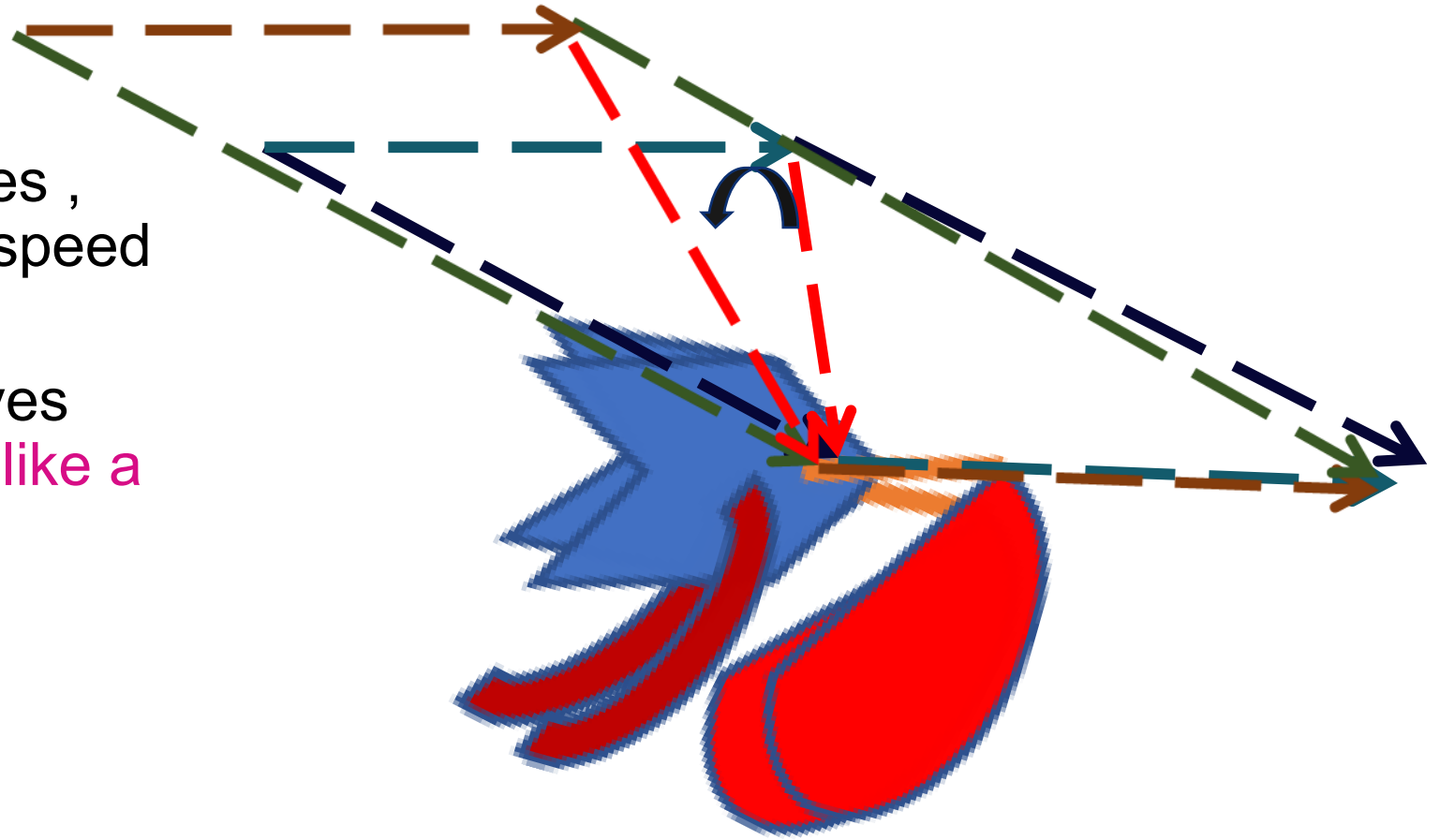
The apparent wind
moves forward and **it**
looks a header



Is it a shift ?

When the wind increases ,
the boat maintains her speed
until it accelerates

The apparent wind moves
backwards and **it looks like a
lift**



Is it a shift ?

- A small pressure change gives a bigger running angle change than a significant shift , therefore the compass on its own doesn't help
- Practice and good communication between the helm and the trimmer is the secret

