

# Everything You Always Wanted to Know About Sail Trim

And Don't Be Afraid to Ask.....



# Huh?

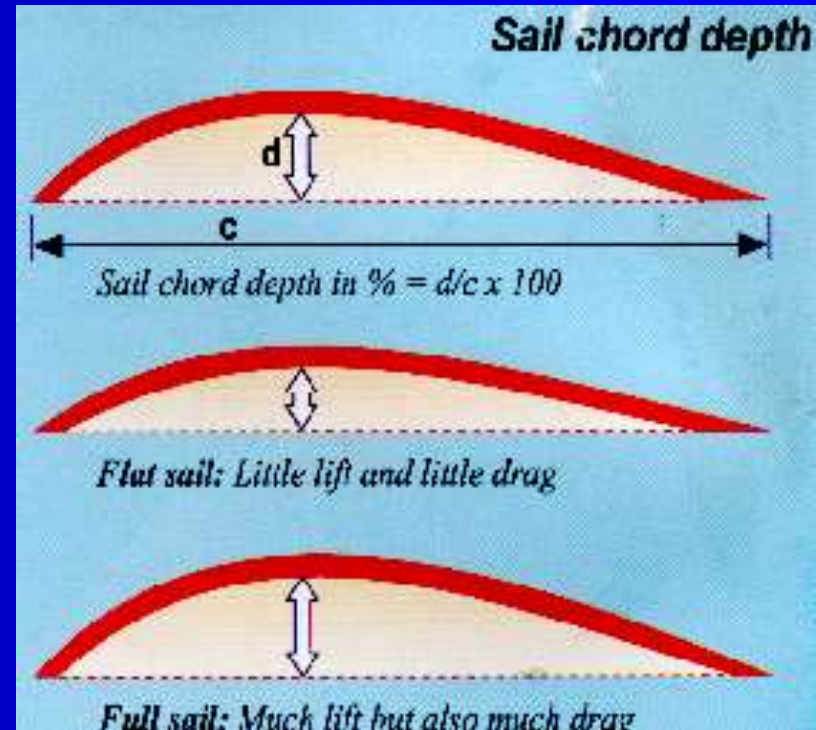
- General principles
- Headsail trimming techniques
- Mainsail trimming techniques
- Common Scenarios

# General Principles of Sail Shape

- Depth
- Draft position
- Entry shape
- Twist

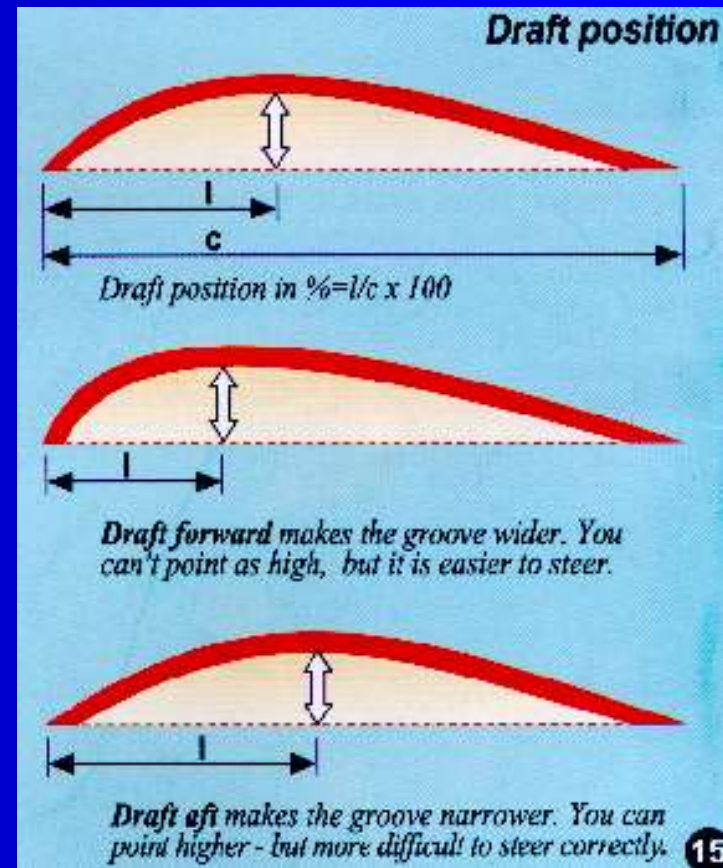
# Depth

- Decreased Depth – less power, less drag (good for high speed) (TIGHTEN Forestay)
- Increased Depth - more power, more drag (good for acceleration) (EASE Forestay)



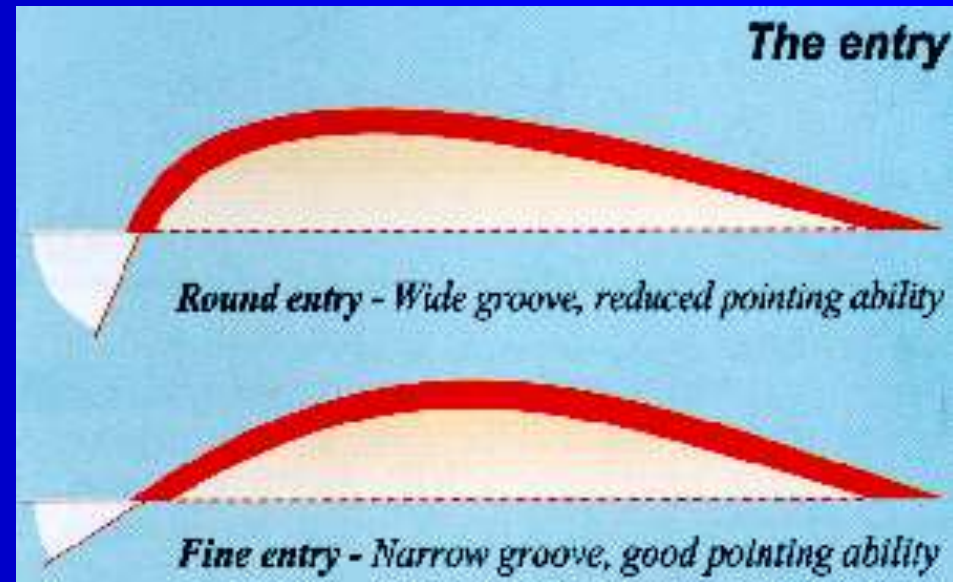
# Draft Position

- Draft Forward – sail is forgiving, easy to steer, but poor pointing (good for lumpy conditions) **TIGHTEN HALYARD**
- Draft Middle – good pointing and speed (good for flat water) **EASE HALYARD**
- Ideal position 40-50% aft



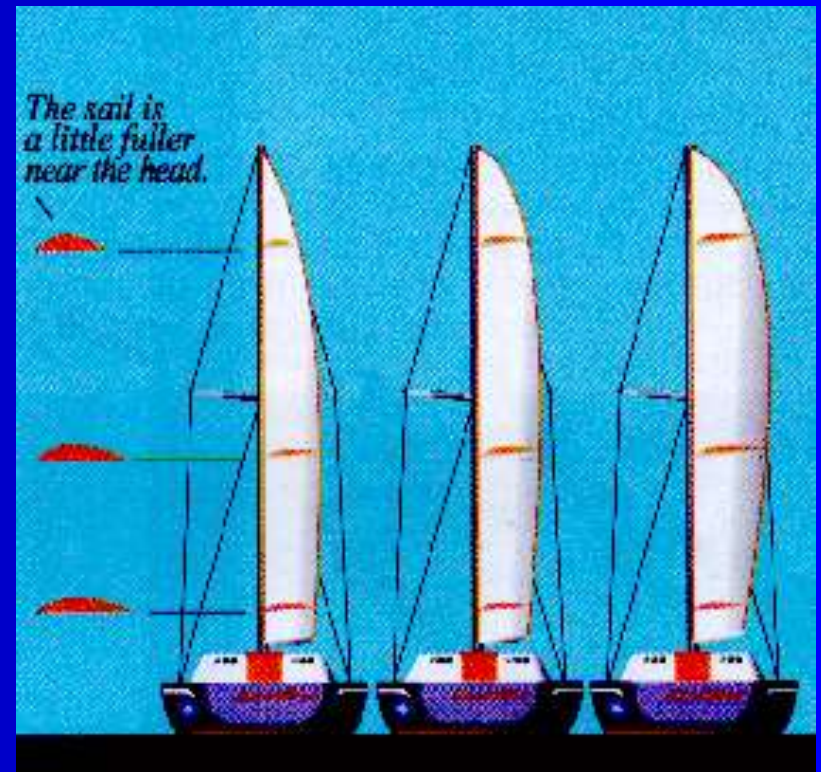
# Entry Angle

- Large Entry Angle means a wide groove, useful when steering in waves, in traffic, when training new people at the helm
- Narrow Entry Angle needed for best pointing



# Twist

- Bottom of sail is trimmed in more than top of sail
- Works in conditions of wind shear, when you need acceleration, lumpy seas, when its blowing the dog off the chain.
- Twist reduces pointing and maximum speed



# When to Use Twist – Example





# The Slot

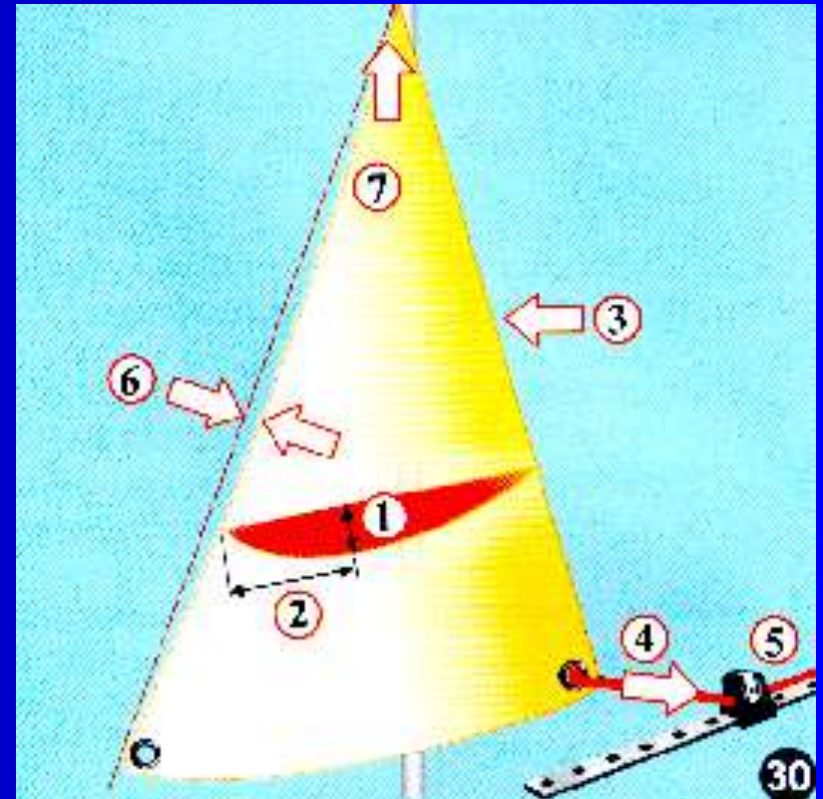
- Vertical gap between headsail and main
- Size of the gap affects of air flow on inside of headsail and the back of the main
- Important to keep slot as big as possible to prevent excessive backwind on main
- Keep the bodies out!

# Goals in Sea/Wind Conditions

- Very Light – Keep Moving!
- Light – Best speed
- Light/Med/Flat Seas – Point high
- Light/Med/Lumpy Seas – Consistent Speed
- Med/Heavy/Flat Seas – Point high
- Med/Heavy/Lumpy Seas – Steerage, Consistent Speed

# Headsail Trim Variables

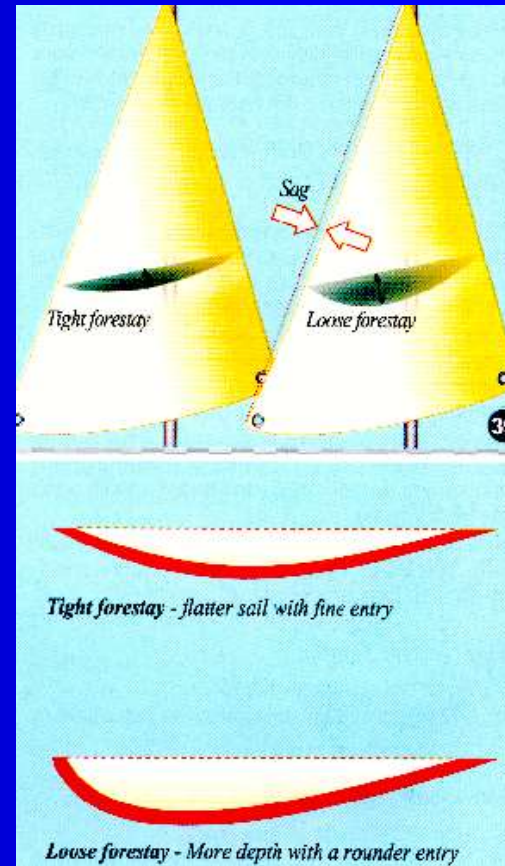
- Sheet Tension (affects twist)
- Genoa Car Position (affects twist)
- Halyard Tension (affects draft position)
- Forestay Tension (affects depth)





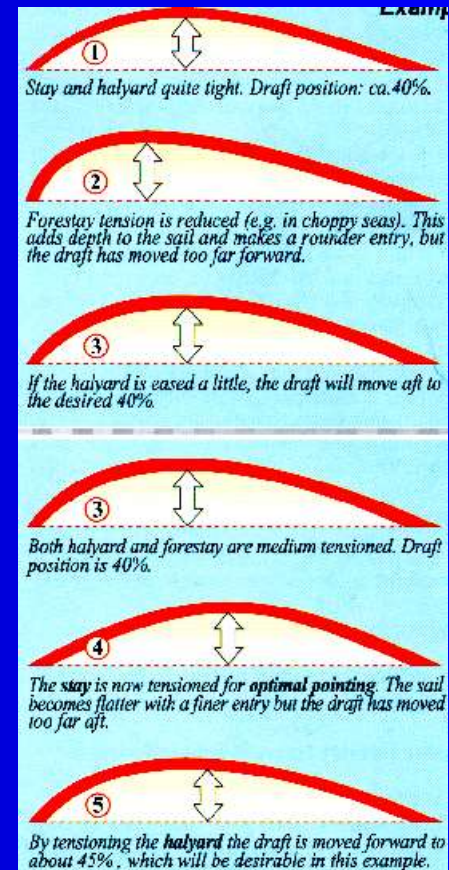
# Effect of Forestay Tension

- Forestay tension affects both depth and entry of the headsail
- A tight forestay is needed for pointing, but this will create a narrower groove
- A looser forestay will make for a wider groove, but limit pointing and speed



# Forestay/Halyard Interaction

- The forestay and headsail halyard are often adjusted in unison



# Mainsail Trim Variables

- Sheet Tension (affects twist)
- Traveller Position (affects entry angle)
- Outhaul Tension (affects depth in lower part)
- Vang Down (Up?) (affects twist)
- Cunningham Tension (affects draft position in lower part)
- Halyard Tension (affects draft position)
- Backstay Tension (affects depth)
- Boom Position (affects slot)

# General Rules of Mainsail Trim

- Adjust halyard to just remove horizontal wrinkles
- Adjust sheet tension so top batten is parallel to the boom
- Adjust traveller to get the telltales flying (top one most of the time)
- Adjust outhaul for correct depth
- Check draft position, adjust halyard (maybe)



# Mainsail Trim Progression

Wind	Seas	Traveller	Outhaul	Vang	Cunn	Halyard	Backsty	Sheet
Drifting	Flat	Full Windwrđ	Medium	Support Boom (Up)	Eased	Min	Min	Boom Well Below Centre
Light (2-6 kts)	Flat	Full Windwrđ	Tight	Support Boom	Eased	Min	Medium	Centre Boom
Light /Med (6 – 9 kts)	Flat	Adjust for Top Batten/Centre Boom	Tight	N/A	Eased	Tight	Medium	Adjust for Top Batten/Centre Boom
Light /Med (6 – 9 kts)	Lumpy	Above Centreline	Ease	Hand Tight	Eased	Min	Min	Boom on Centre

# Mainsail Trim Progression

Wind	Seas	Travelle r	Outhau l	Vang	Cunn	Halyard	Backst y	Sheet
Mediu m (10- 15 kts)	Flat	Centre or Below	Tight	Hand Tight	Eased	Min	Min	Boom Below Centre
Mediu m (10- 15 kts)	Lump y	Centre or Below	Mediu m	Hand Tight	Tight	Tight	Tight	Boom Well Below Centre
Med/H eavy (15 – 20 kts)	Flat	Centre or Below	Max	Hand Tight	Mediu m	Mediu m	Tight	Adjust for Top Batten
Med/H eavy (15 – 20 kts)	Lump y	Centre or Below	Mediu m	More than Hand Tight	Mediu m	Mediu m	Mediu m	Ease for Twist

# Example – What Do You Notice?



# Before the Start

- Twist headsail by moving leads aft
- Twist main by easing sheet
- Increase depth by easing outhaul on main, forestay on headsail
- Move draft forward by keeping halyards tight (remove horizontal wrinkles)

# Shortly after Start

- Increase outhaul to flatten main
- Increase forestay to reduce depth
- Increase headsail tension to reduce twist
- Increase mainsheet tension to reduce twist

# Downwind

- Ease outhaul, halyards, backstay
- When sheets are eased, both the headsail and main instantly develop TWIST!
- Use a barberhauler or move the genoa car to reduce twist in the headsail
- Use vang down to reduce twist in the main so all telltales fly

# Drifting Conditions

- Move headsail sheet leads full aft (create twist)
- Support boom if possible (vang up?)
- Don't try to point high, keep sheets eased until you're moving

# Choppy Seas

- Ease forestay
- Tighten halyards
- Ease outhaul
- Increase twist



# Its BTDOTC and the Skipper Picked the Wrong Headsail

- Lots of Halyard Tension
- Lots of Forestay Tension (Max Backstay)
- Max outhaul, cunningham
- Twist main and keep slot open by keeping traveller in the centre (or even higher!) and easing sheet a little
- Twist headsail by moving cars aft, easing sheet a little
- Move lead position outboard if possible

# What Else Is There?

- Reaching/Broad Reaching – use a barber-hauler or the genoa car to move the headsail lead position forward to reduce twist when the sheet is eased
- Running – use a whisker pole to hold the headsail out to windward and sail wing-on-wing (its legal and lots faster if the wind is over your hull speed + 5 kts or so.)

# What Else Is There?

- Before the start, around corners, in big waves – set the boat up for maximum acceleration (ease outhaul, ease halyards, twist the main, headsail cars aft)
- After the start – set the boat up for best pointing and speed depending on conditions

# White Sails FAQ

- I don't have a backstay adjuster – how do I increase forestay tension for better pointing?
- I don't have a vang, how can I reduce mainsail twist downwind?
- I don't have a toerail, how can I barberhaul?

What do you notice?



What do you notice?



# Scenario 1

- Its blowing 12-15 kts, and you have just come out of the flat water in the harbour into choppy seas outside Protection Island. Your competition seems to be going a little faster. What adjustments will you make?

## Scenario 2

- Its just after the start, and a boat is trying to squeeze up under you from the leeward side. You need to point as high as possible. What adjustments will you make?