

# NATIONAL COACHING SYMPOSIUM 2020



# Coaching Upwind Boatspeed – Defining the Groove

by Luther Carpenter



Amanda Callahan, “Luther, what are you looking at now?”

The overall product tells the story.

Is the groove too big?

Is the groove too small?

How do you tell?

Why do we ease sails?

What does Luther know and do that would be helpful to other coaches?



# Who wins with boatspeed?

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- Everyone!
- Optimist with technique, size/fitness, trim
- High School
- Youth classes: I-420, 29er, Laser, Radial, Nacra, RSX, Kiting, Iqfoil, etc.
- College
- One Design classes: Snipes, Etchells, J70s, VXone, Moth, 505s, A-cats...
- Olympic Classes: 470s, Finns, Lasers, Radials, Nacras, RSX, Offshore, etc.
  
- They are “just faster” ...
- Which makes them “smarter”
- Robert Hopkins: “You put it on a trailer, and take it to the regatta”

What is boatspeed?

- Reading and reacting to the rhythm of the wind. Not shifts, not puffs, it's both. It's the environment, including wave-state as a component.
- Can they find the perfect tuning and versatility in the required range? Any day you are fast you have at least 4 "comfortable" and versatile gears.
- Our coaching world is evaluating 2 knot intervals and thresholds.
- Mainsheet - the last 3 inches of trim are the determining factor of speed. (Range is equally important, but the "payoff" is the last 3")
- Great boat speed coaches understand and have intimate knowledge of feel. We MUST know and relate to what they are experiencing. And we have to demonstrate that we can identify feel, and are relating to it.
- Some athletes view us as dry factual computers. We analyze and spit out numbers and data. Computers can "read" the data wrong sometimes, so that's why it's critical to coach in a style that merges computer and human feedback.



# How do we coach it?

- We are observers
- We always keep learning
- We photograph
- We use consistent language
- We provide rock solid feedback
- We focus on condition specifics
- The “big picture” view
- The zoom in view
- The absolute scrutinizer
- We MUST understand how the boat feels.
- We MUST understand “the cycle”.
- Technique and hiking
- Sail trim – range and frequency
- Sail shape – full, flat, twist
- Telltale accuracy everywhere
- Acceleration! (and what to do with it...)
- Wind (every 2 knot interval)
- Obstacles – Waves and chop
- Attention span!
- Mental toughness
- Thresholds
- Standard relationships (batten positions, jib to main relationships, twist relationships, luffing)

Heeled to windward  
Underpowered?  
Mainsail off centerline  
Vang too tight?  
Helm neutral  
Good hiking  
Lull – puff in 3 secs  
Jib bottom batten pointing  
toward end of boom – good!  
Jib slightly undersheeted –  
"squeeze it in 3 mm"

Water smooth  
Weight further forward?

Next questions to ask yourself:  
"How is the boat tracking?"  
"Is the boat getting to full  
speed?"  
"How is the acceleration in  
puffs?"  
"how is the acceleration in lulls?"



# The Groove Tells All

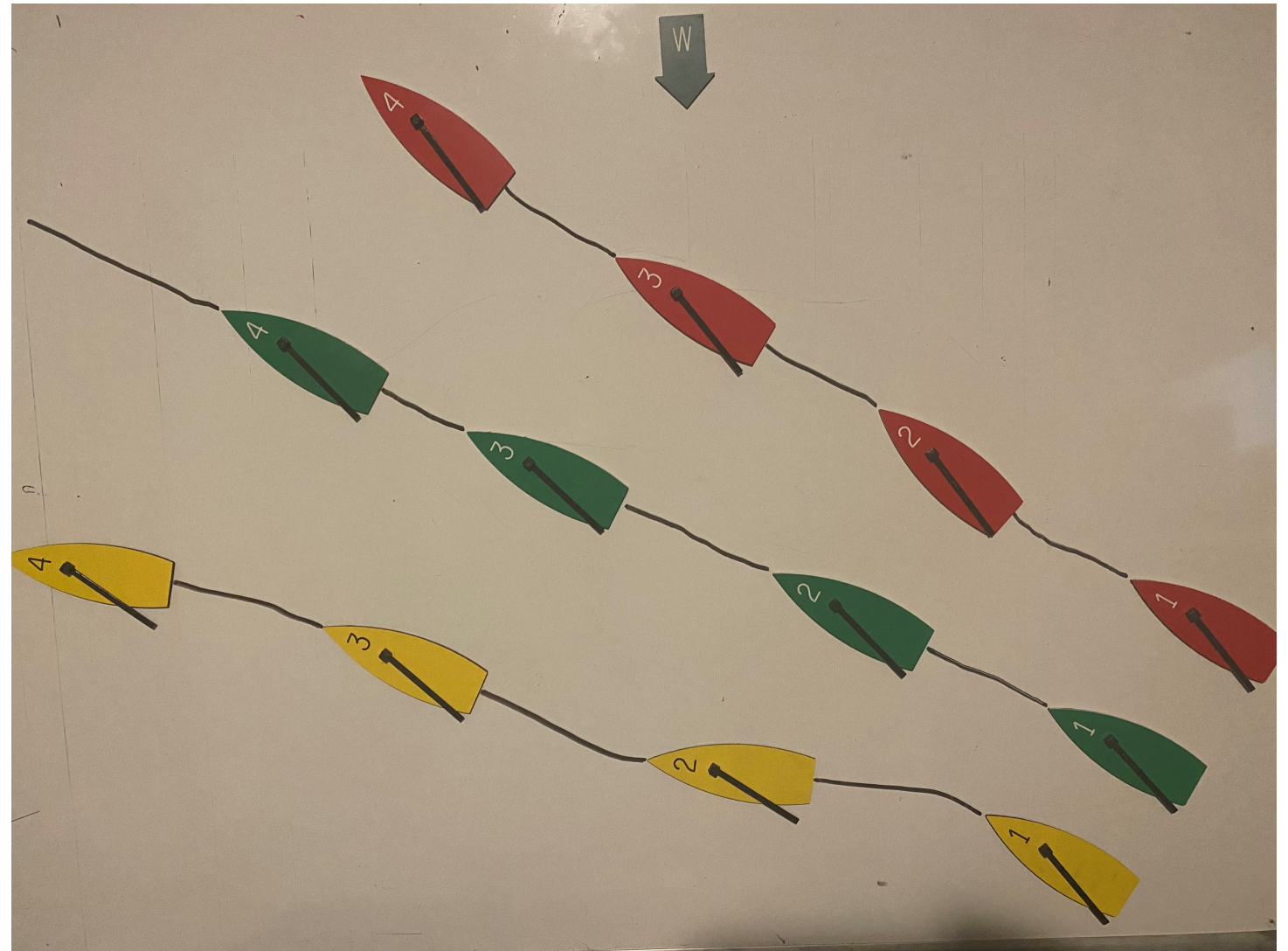
A well-defined groove delivers the fastest boat.

The “best” groove must allow the combination of acceleration, pointing, bursts of speed, and versatility.

RED – Higher and Faster  
(the obvious choice)

GREEN – Linear  
(Can be ok, but RED people will out-perform you. You are just average.)

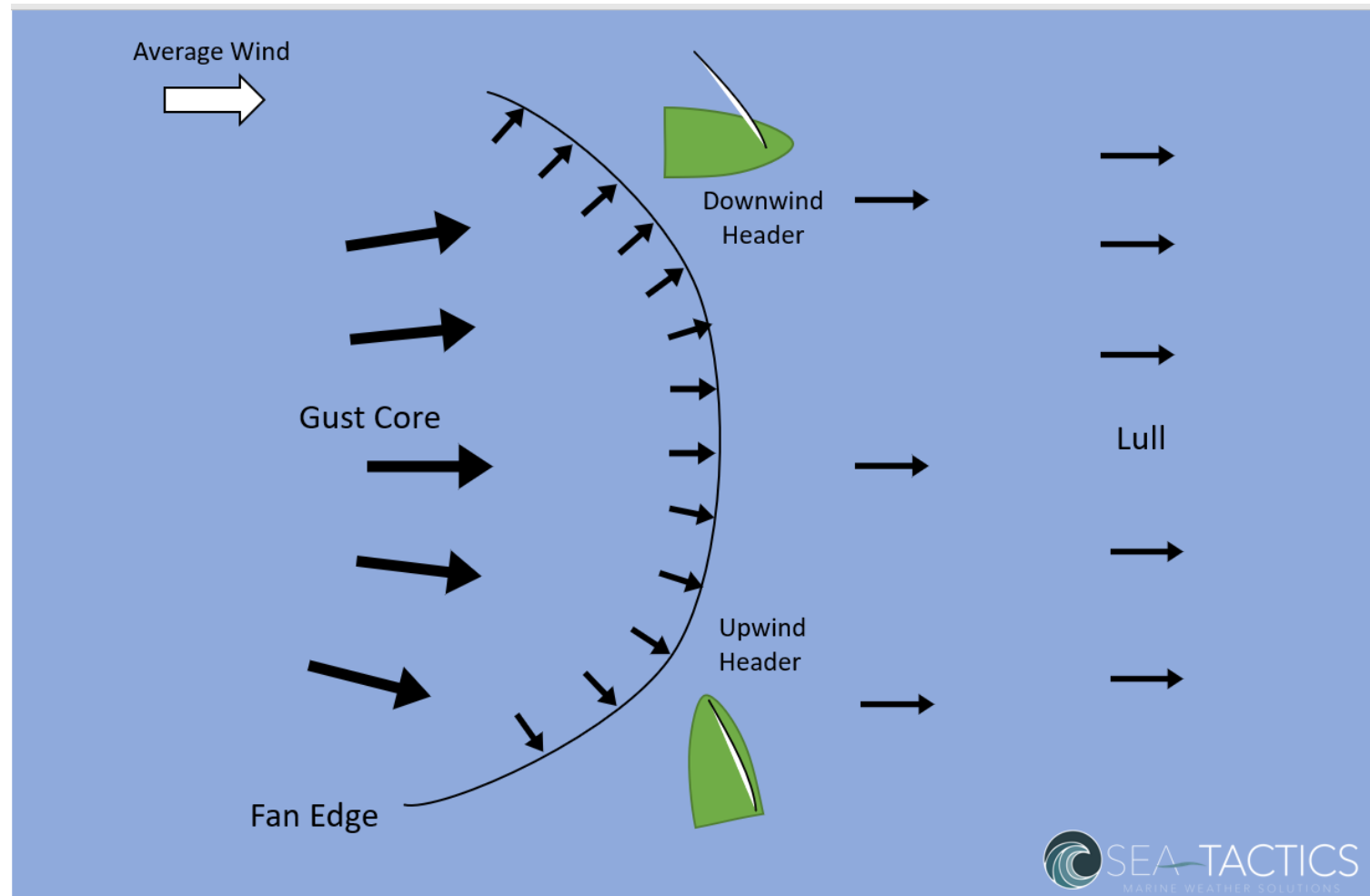
Yellow – low and *maybe* faster.  
(These people can get confused – they think are not fast enough forward, and prioritize working on forward speed, many times at the detriment of giving away VMG).



# Transitioning in Puffs

You must understand and expect the nature of puffs to have top boatspeed!  
(Reading and reacting to the rhythm of the wind!).

- 1) The front edge of a puff is the most unstable wind.
- 2) If approaching a round puff edge it may be an initial header, followed by a lift.
- 3) Once into the "Gust Core" the wind will be steady and consistent.
- 4) You need to "greet" the puff at the correct angle - the biggest gains are made by perfecting this angle.
- 5) If you get "blown over" in the puff, you probably mismanaged the entry angle, and were surprised by the middle "lifting pressure".

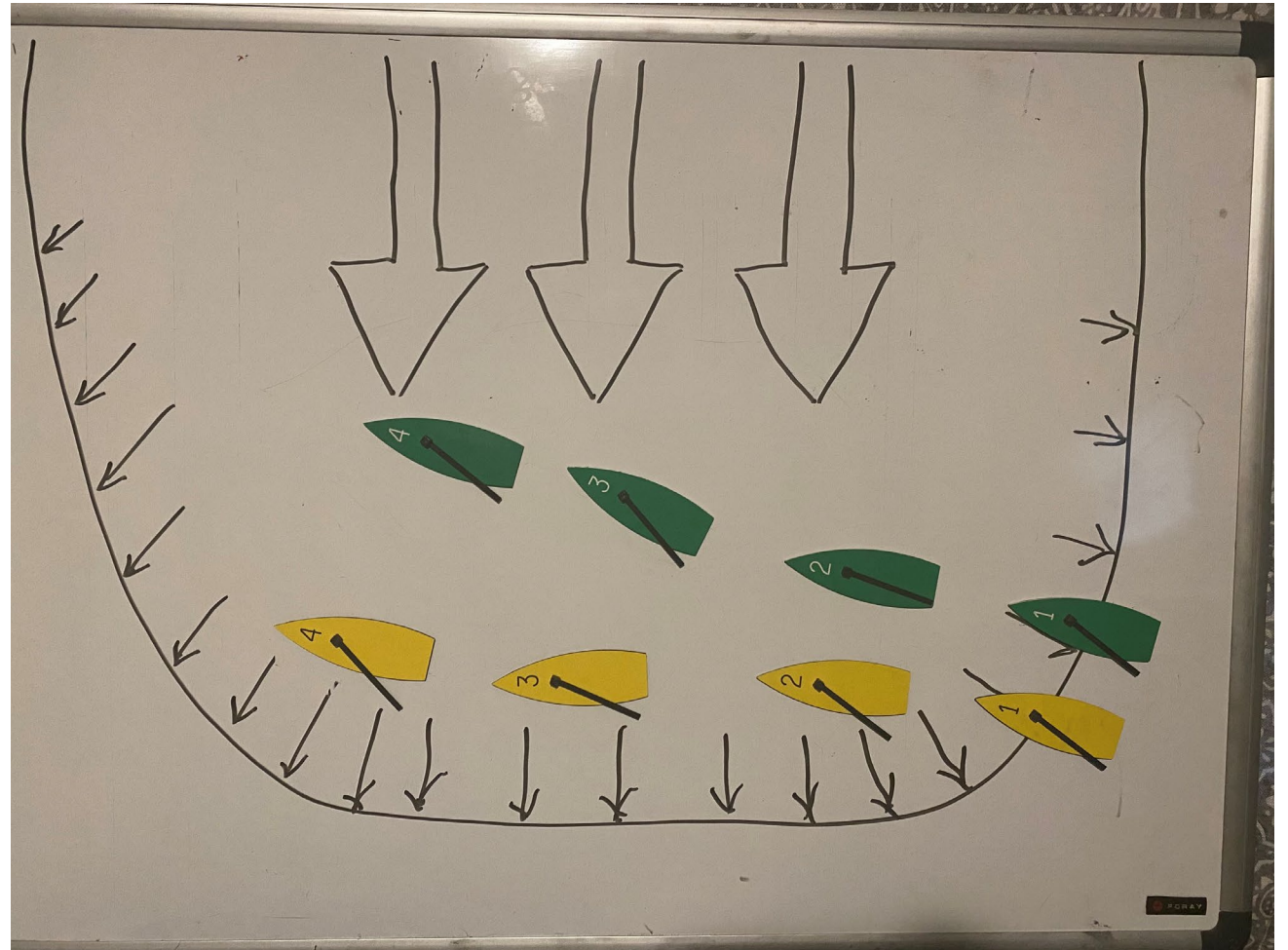




# Groove and Gust Core

Essentials in defining the perfect groove:

- Proper tuning and sail controls
- Physical hiking – without that it's all for naught...
- Sails within a range that provides mainsail “mode changing”, while keeping the perfect jib more static.
- Common mistakes:
  - Easing jib to go faster, but depowering the front of the boat. Forward speed comes from the jib, the main is the “trim-tab” for balance.
  - As sails get eased, the groove widens.
  - Wider grooves give less “definition” of the “balance lane”, and open the boat up to imbalance.
  - Getting caught with the sails too eased, presents a boat that can be easily “blown over” by a lifting puff (which we now know is the centerpiece of a gust)





## The Puff playbook:

- How fast are the puffs moving?
- Are the largest gains made in the puffs or lulls?
- How long will the next puff last?
- Entry will be perfect “I will greet the puff with precision and expectation”
- The “challenge”, “conquering instability with work/precision”
- “Stabilizing” in the gust core, “I’m finding clarity”
- “The playground and payoff” – the core of the puff, “I’m dancing and juicing it!”
- “Exit plan” – how long will the next lull last, slight relax before the next puff.
- “I am stronger, higher and faster”
- “I don’t hike because I have to, I hike because I want to crush them”

# Easing Sails – the Good and the Bad

- There are three types of sail ease: Slight ease, depowering, and change of course.
- Slight
  - Ease to increase flow, most often used when on the verge of stall. This is top telltale technique.
  - When slightly easing/trimming, you must train their eyes for subtle twist change. It all happens up top!
  - Can be utilized in a lifting puff
  - **Used when feeling slow, BUT there is a huge difference between increasing FLOW, and entering a depowering ease!**
  - Jibs are especially sensitive to sheet tension “Fuzz Spanake – 1mm of ease on sheet = 5 mm ease at spreader!”
- Depowering
  - I am easing to depower the boat
  - I must be careful to maintain BALANCE when easing a sail in a main/jib sailplan.
  - Most times, an ease is followed by a return trim, as the depower is only needed in response to a temporary puff.
  - The line between “slight ease” and “depower” is not easily identified by many sailors and coaches!
  - Jonathan Mckee, “you skippers are kind of lame. When a puff hits, you can either ease or hike – I prefer to hike”
  - Luther Carpenter, “It’s ok to ease for split second balance, but don’t ease too much, and look for opportunity (soon!) to trim again.”
- Change of course
  - If a sail is eased and left out, the result is a new course change and mode for the boat.
  - An eased jib, can lure the skipper into sailing lower “into it”, which then requires an eased main.
  - Change of course has a place at mark roundings and downwind sailing, but is rarely a gain in upwind sailing.

# Waves...a lot of confusion in the water!

Yes, waves can slow you down, but don't contribute to the problem!

- Evaluate angle of attack (puffs/lulls, headers/lifts)
- Understand "high/low" water
- The moment of impact – are you leaning in and depowering with your sails??
- Too much rudder in "lead-up" and "impact" slow the boat down!
- Relax, the chop isn't that bad!
- Nasty chop!
- Groups of 2-3 nasty chop in a row! There is an entry plan, an endurance of dedication to "angle with slight heel and minimal rudder" and then an exit plan.
- Steer around sets 6-10 boatlengths out! Yes it works, yes you can see it, it's easier than you think, and less work! BTW, you pass boats too...



Over-eased jibsheet – Classic look at the crew wanting to go faster forward, and easing. However, the jib depowers, requiring the main to be pulled in, creating weather helm and imbalance.



# Tuning and Power settings (listing order – gross to fine)

- Rake, tension, pre-bend, mast control are the primary settings.
- In a two-sail class, jib setup and trim defines overall power!
  - Jib lead, halyard, cunningham, and basic sheeting are critical to consistent boatspeed – be meticulous
  - Without perfect jib trim, you cannot compete in the top 10.
  - Coaches must deliver great feedback on jib trim! Sailors can't see it – this is where you earn your big bucks!
  - Crack, squeeze, millimeters, 1:5 ratio, range.
  - Teach them how to judge: telltale behavior, roundness of luff, headstay sag, flatness of foot, can I sail to a more critical trim?
  - Large changes in jib trim or setup are to be avoided! You can't redefine gross power on the fly!
- Mainsheet – coach range and frequency! What's max ease? Where is max trim?
- Centerboard and outhaul
- Vang – critical to understand vang related to: depth, twist, draft location, lower shroud, puller.
- Does the vang powerup or depower? Both – know the difference, preach and teach. (Lasers, 29ers)
- Main cunningham
- Minor jibsheet adjust – “1-2mm”

Reading the story...

- Sail position and hiking
- Tiller location
- Is the boat tracking well?
- Is the boat going “fast”?
- Shape of sails “fit” the condition?
- Entry of jib?
- Shape of jib?
- Jib telltale behavior?
- Is their struggle?
- Is there the “right” amount of struggle and resolve?
- Mainsheet angle
- Boom position
- Overall product
- Comparative performance
- Check my eyes!



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- Conclusions:

- We can always improve as coaches when it comes to boatspeed
- The amount of detail is extreme. Realize that, be open to it, keep learning.
- Every class is different, yet the bulk of what is presented here is a great blueprint to remember.
- There are more than two ways to skin a cat! Why?
- We must remember that our athletes need to “race well” too!
- I’m emphasizing we will medals through technique.
- Of course tuning and setup matters – that’s a different presentation, but remember the blueprint – you can’t hope for magic gear and perfect setup, and expect the boat to do all the work.
- Overall product tells all – zoom out, evaluate, identify, zoom in, and get to work!

