

Presentation to ONE°15 Brooklyn Sail Club

# Speed Fundamentals

# Racing a J80

James Ebenau



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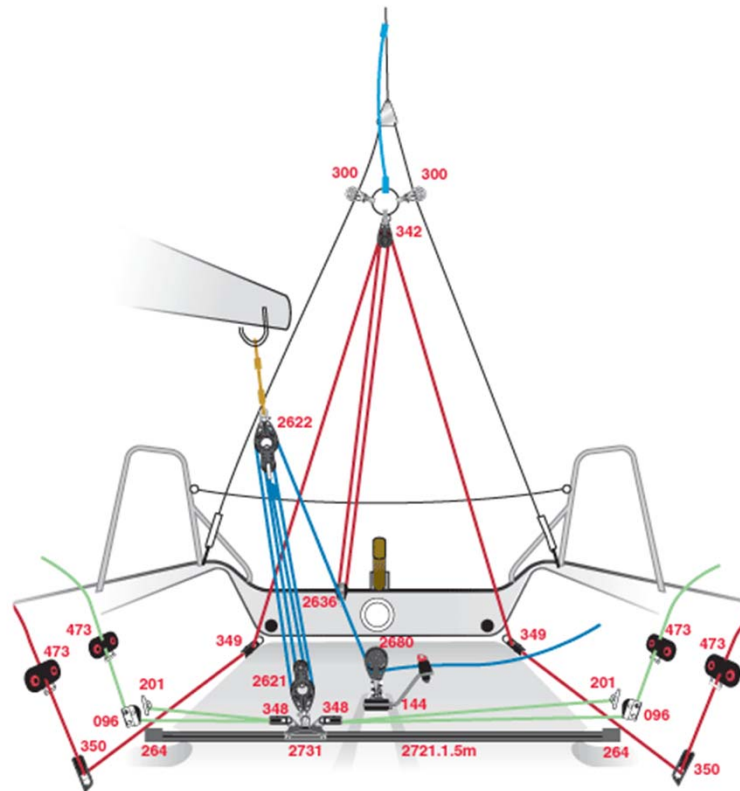
# James Ebenau

James began sailing when he was 14 at the Knickerbocker YC Junior sailing program in Port Washington, NY. He learned to sail in Blue Jays and moved up to Fireballs and Lasers soon after.

He began racing big boats in the Thirsty Thursday evening races in Port Washington while still a junior sailor. He won the overall trophy for that series while still in high school on a Ranger built Fun 23. From there James quickly progressed to sailing as a crew member on some of the most successful big boat programs on Long Island Sound, helping to win multiple YRA of LIS seasonal championships for PHRF, IOR, and IMS.

As both a skipper and crew member James won silver in many regional and National events in the J/80, J105, J109, J35, J44, Soveral 33, and Frer's 33 one designs classes, and PHRF, IOR, IMS, and IRC class boats. In the last several years he has branched out into match racing and larger multihulls. James has won several additional championships as a skipper in both of these disciplines.

# Boat Adjustments and What They Do



# Sails - Jib

## **Sheets**

- Angle of attack
- Depth
- Jib sheets can have marks for reference of how tight it is trimmed

## **Leads**

- Twist
- Can drill extra holes. Holes should match on both sides and be marked.

## **Halyard**

- Position of the draft
- Depth

# Sails - Main

## **Sheet**

- Angle of attack
- Twist

## **Traveler**

- Angle of attack

## **Halyard/Cunningham/Outhaul**

- Draft position fore and aft
- Depth of draft

## **Vang**

- Twist

## **Full Top Batten Tension**

- Depth of the top of the sail (tight is for a full sail, Loose is for a flat sail)

# Sails - Spinnaker

## **Sheet**

- Angle of attack

## **Tackline**

- Depth and float

# Rig

## **Backstay - This is your main gear shifter**

- Mast bend - power and depth of the mainsail
- Headstay sag - Power and depth of the jib

## **Shrouds - Secondary gear shifter. Sets the range the backstay will work within**

- Side to side Hook vs. tip fall off - Power of the mainsail
- Mast prebend - Power of the mainsail
- Headstay sag - Power of the jib

## **Headstay**

- Longer for lighter air, increases weather helm
- Shorter for heavier air to decrease weather helm.

## **Spreaders**

- 3 tape stripes at 2" intervals from the spreader end for trim reference on the bottom of the lower spreaders

# Crew Positions

## **Helm**

- Steers and fine tune main trim (drives, makes final decisions)

## **Main**

- Coarse and fine tune main trim and fine tune jib trim (boat speed, data, eyes inside)

## **Jib**

- Coarse and fine tune jib trim and pit (Tactics/strategy, eyes outside)

## **Bow**

- Spinnaker hoist / douse, vang, pit (Tactics/strategy, eyes outside)



# Sailing the Boat

The J80 sails like a small big boat. Sporty, but not a sport boat. It will not plane as easily downwind, and will carry momentum better compared to a true sport boat like the Melges 24.



# Upwind Light Wind

## Goal

- Produce as much power as possible
- Full sails at the expense of drag



# Upwind Light Wind – 1/2

## Underpowered

### **Rig**

- Backstay is completely off
- Caps light to induce a lot headstay sag
- Lowers are off and very loose to induce windward bowing

### **Helm**

- Foot for speed, Do not point!!!
- Steer as little as possible
- Rest the tiller extension on the deck to act a brake so it stays still

### **Main**

- Traveler up so boom is above center line
- Sheet tight - top telltale 0% flying for “Flaps Down” mode
- Flaps down creates a lot of lift and helps fight lee helm

# Upwind Light Wind – 2/2

## Underpowered

### **Jib**

- Sheet eased 2" outside the spreader end
- Halyard loose, wrinkles up the luff
- Lead forward so telltales break evenly while sheet is eased

### **Halyard / Outhaul / Cunningham**

- Very loose (wrinkles up the luff)

### **Crew**

- Weight forward, leeward, and close together
- Heel the boat to reduce wetted surface and minimize any pitching
- No movement!

### **Tacking**

- Slow even turn.
- Roll Tack. One big roll mid tack

# Up Wind Moderate Wind

## Goal

- Balance power and drag
- Shift gears often
- Keep the heel of the boat flat and constant



# Up Wind Moderate Wind 1/4

## Powered Up

### Rig

- Play the backstay aggressively once the entire crew is hiking
- Caps are moderate to put some tension on the headstay
- Lowers are just on to hand tight to limit over bend and control too much leeward sag

### Helm

- Foot when you need speed
- Pinch a little when you need some height

**It is critical here to watch your boat speed. Don't point until you feel you are up to full speed and don't pinch when the speed gets too low**

# Up Wind Moderate Wind 2/4

## Powered Up

### **Main**

*Play the sheet (twist) for small puffs and lulls, the traveler for larger changes in overall wind*

- **Sheet**
  - Accelerate - top leech telltale flying 90%
  - Normal - top leech telltale flying 50%
  - Point - top leech telltale flying 20%
- **Traveler**
  - Boom above centerline to all the way down to keep the heel flat
- **Halyard / Outhaul / Cunningham**
  - Adjust for wind and waves. Keep wrinkles in luff

# Up Wind Moderate Wind 3/4

Powered Up

## **Jib**

- **Jib sheet**

Cross sheet to the windward side

- Accelerate - outside stripe to 2" outboard of the spreader
- Normal - middle stripe
- Point - inside stripe or tighter watching not to stall top the leech tale

- **Leads**

- Normal hole that allows all telltales to luff at the same time when trimmed to the middle stripe on the spreader

- **Halyard**

- Keep a hint of horizontal wrinkles in the luff



# Up Wind Moderate Wind 4/4

## Powered Up

### **Crew**

- Move from actively from leeward to full hiking as needed
- Close together to reduce pitching
- ✓ The goal is to maintain FLAT heel with as much power as possible.

### **Tacking**

- Moderate speed turn
- No whirlpools behind the rudder
- Aggressive roll tacks
  - Entire crew move as one fast to the new windward side as sail fill on new tack,
  - Have one crew member coordinate it each time
- ✓ Leave the traveler low and main and jib eased until the boat is up to speed

# Up Wind Heavy Wind

## Goal

- Reduce drag at the expense of power
- Depower efficiently
- Keep the heel of the boat moderate and constant



Crédito: Luis Fernández / El Balis J80 Europea

# Up Wind Heavy Wind 1/4

Overpowered

## **Rig**

- Backstay is on very tight
- Caps are very tight to put lots of tension on the headstay
- Lowers are tight. Set to just allow just some overbend wrinkles in the main when the backstay is tight

## **Helm**

- Pinch for normal mode up to a limit
- Do not sail above target apparent wind angle. Depower more or ease the sails slightly if you are constantly sailing too high

# Up Wind Heavy Wind 2/4

Overpowered

## Main

- Traveler
  - All the way down
- Mainsheet
  - On hard to maintain a tight headstay
- Boomvang
  - Very tight, but still allow for some twist.
- Outhaul / Cunningham / Halyard
  - Very tight. No wrinkles in the sail

**You want the top half of the sail to flog first. Ease the mainsail as much as you need to not pinch too high and keep the boat as flat as reasonable**

# Up Wind Heavy Wind 3/4

Overpowered

## **Jib**

- Jib sheet
  - Cross sheet to the windward side
  - Sheet into the outer stripe or the spreader tip
- Leads
  - 1 to 3 holes back from normal to add twist.
  - Allow the top two sets of telltales to break early
  - Ease jib slightly as well in very big puffs
- Halyard
  - Keep very tight with no wrinkles in the luff

# Up Wind Heavy Wind 4/4

Overpowered

## **Crew**

- All crew except the helmsman need to be hiking as hard as possible

***The goal is to maintain as flat a heel as possible***

## **Tacking**

- Fast turn, get the boat through the wind and waves quickly
- No roll tacks. just get the crew hiking as fast as possible
- Main trimmer will keep the mainsheet very loose until the boat is on the new tack,
- Main trimmer will hand off the sheet to the helmsman and hike as well.
- Let the traveler fall all the way to leeward

# Down Wind Light Wind



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# Down Wind Light Wind 1/3

## VMG Sailing

### **Helm**

- Keep the boat moving and build as much apparent wind as possible
- The AWA should be 80 to 95 degrees depending on how much wind there is
- Steer as little as possible

### **Main**

- The boom should be on centerline to keep slot open
- Ease till you see a hint of a bubble
- Twist so top leech tale is just flying steady.
- Backstay, outhaul, cunningham all should be very eased



# Down Wind Light Wind 2/3

## VMG Sailing

### **Jib**

- Rolled up. Do not use the jib as a staysail

### **Spinnaker**

- Sail with a moderate curl
- The tack line will be all the way down

### **Crew**

- Weight forward and leeward to reduce wetted surface and drag

# Down Wind Light Wind 3/3

VMG Sailing

## **Jibe**

- Slow smooth turn to maintain momentum
- Allow time to float the spinnaker around the boat
- Finish jibe on a high reach to build speed
- Roll jibe. Hard roll to new leeward side just before jibing the sails

# Down Wind Moderate Wind



# Down Wind Moderate Wind 1/3

Not Planing

## Helm

- Sail as deep as possible.
  - ✓ Rule of thumb is sail deep till it feel bad and then go a little deeper
- The course will vary significantly with wind speed in puffs and lulls
  - ✓ Get deep in every puff
  - ✓ Sail up just enough to maintain speed in the lulls

# Down Wind Moderate Wind 2/3

Not Planing

## **Main**

- Ease till you see a hint of a bubble at the luff
- Play the sheet aggressively as the course changes
- Twist so top leech tale is just flying steady
- All other controls should be very eased

## **Jib**

- Use as a staysail as the wind builds
- Trim very loose
- Trim aggressively
- Get rid of it if you think its not working

# Down Wind Moderate Wind 3/3

## Not Planing

### **Spinnaker**

- Rotate the sail to windward as much as possible
- Sail with a large curl
- Tack line can be eased as much as 2'

### **Crew**

- Weight will be forward and as windward as possible
  - ✓ Windward heel will project more spinnaker to the wind and help balance the helm

### **Jibe**

- Turn should be smooth and not too fast or too slow
- Clew must completely clear the headstay before letting the main come across to prevent a wrap
- The boat should come out of the jibe at a higher AWA angle to accelerate back to speed
- Forward crew can pull the main across with the boom vang
- Moderate roll in jibe

# Down Wind Strong Wind



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# Down Wind Strong Wind 1/3

Able to Plane

## Helm

- **If you can get on plane, do it!**

It pays to sail higher if it will result in a plane

- Once planing sail as deep as you can to maintain the plane
- Be ready to bear off hard and sail deep if boat hints it wants to round up  
It will happen fast
- Look for waves to surf  
Each surf can gain a few boat lengths



# Down Wind Strong Wind 2/3

## Able to Plane

### **Main**

- Put in a lot of twist The boom vang should be eased
- Blow off the boom vang early and completely if the boat starts roundup
  - Pull it on again once under control
  - Bow person should have it in their hand all the time
- Backstay, outhaul and Cunningham should be eased with discretion
- Pump the sail the start a plane or surf

### **Jib**

- Use the jib as a staysail
- Adds speed and prevents spinnaker wraps
- Trim actively and always a little loose, never too tight

### **Crew**

- Weight as far back and windward as possible

# Down Wind Strong Wind 3/3

## Able to Plane

### **Jibe**

- The boat should be going as fast as possible. While surfing a wave is good if possible
- Do an S jibe.
  - Starts with a hard and definite turn to begin the jibe
  - As the main comes across, start a hard correction turn to counteract the coming round up
- The spinnaker clew must to clear the headstay before the main comes across
  - It should be trimmed as fast then ease very fast as it “pops”
- Have a separate person ease the old sheet and trim the new sheet
- The boom should also be pulled over by the vang
- Vang should be ready to blown off completely as soon as the main comes over. **NOT BEFORE!**

# Down Wind Strong Wind

What we want to avoid!



# Mark Roundings



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# Mark Roundings 1/2

## Sets

### **Helm**

- Eases the mainsail as they round the mark.
- Puts the boat almost dead down wind while the spinnaker is being hoisted
- As soon as the spinnaker is up heads up to fill the sail

### **Main**

- Hands the mainsheet off to the helmsman,
- Pulls out the bow pole
- Pulls the tack line as the spinnaker is being hoisted. Then picks up the spinnaker sheet
- Trims spinnaker sheet to initially

# Mark Roundings 2/2

## Sets

### **Jib**

- Eases the the jib about 2' as the boat is turning down
- Grabs the spinnaker from bag and feeds it up as it is hoisted
- Looks for wraps to untwist as it goes up
- Uncleats the jib and furls it completely if the it is to be furled
- May or may not take the spinnaker sheet from the main trimmer

### **Bow**

- Moves up to the mast ready to hoist the halyard as the boat starts its turn
- Hoists as fast as possible when the order is given
- Yells “made” loudly when the sail is all the way up
- Adjust the vang, cunningham, and outhaul for downwind settings

# Mark Roundings 1/2

## Take Downs

### **General**

- The takedown should be on side of the next set
- It can be to windward or leeward
- Most of the time it will be to port on a standard race W/L race course

### **Helm**

- Position the boat with room to bear off to make the takedown easier
- The race is to the zone, not the mark
- An early takedown is always better than a late one! P
- Point the boat dead down wind
- Begin to pull in the mainsail They will then
- Steer a course around the mark as soon as the spinnaker is under control.

# Mark Roundings 1/2

## Take Downs

### **Main**

- If they are trimming the spinnaker will hand it off to the jib trimmer
- Pre-set the backstay and traveler to upwind settings
- Release the pole and tack line once order is given
- Take the main from the helmsman and trim it in. May include a jibe

### **Jib**

- Unroll the jib (if rolled), trim it half way and cleat it
- Take the spinnaker sheet from the main trimmer if not already trimming the sail
- Will go next to the companionway on the side the sail will come down
- Will grab the spinnaker clew and gather the foot until the sail is under control
- Will ask the bowman to lower the halyard
- will then stuff the sail into the companionway (bag) as fast as possible
- Once the sail is down will move the the jib sheet and trim it as needed



# Mark Roundings 1/2

## Take Downs

### **Bow**

- Tension the vang, cunningham and outhaul for the upwind leg
- Move up to the mast ready to release the halyard
- Release the halyard only when the jib trimmer is ready and asks
- Watch the sail as it comes down and control it
- Sit where needed for the beat.

# Questions



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# Doyle Sails

Doyle Sailmakers is committed to innovation and the evolution of sensible sailmaking technology. Founder Robbie Doyle, with a background in Applied Physics from Harvard University and a strong racing record in the America's Cup, has led the way with breakthrough products and sail design and engineering processes. Utilizing the hydrodynamic design advances behind the famous winged keel of America's Cup winner *Australia II*, Doyle Sailmakers was the first to apply the principle of Elliptical Aerodynamic Loading to sail shapes, leading to fast and efficient sails for Doyle's racing customers.

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