



Instruction Manual

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Rules for safety

- Always **sail with a friend!**
- Always **stay with your board!** It floats, your rig does not!
- Always **let someone know** where you are intending to sail and what time you plan to return.
- **Wear appropriate attire** for the conditions: wetsuit, drysuit, lifejacket, sunscreen, lycras, helmet etc.
- **Inspect** your rig and board for worn lines, loose screws or nuts, stress marks in fins, boards, masts, and booms.
- **Be aware** of potential weather patterns, water conditions, tides, currents, and where you might end up if something goes wrong.
- Use correct equipment for the conditions.
- **Know your limits.** When in doubt, don't go out.
- **Take appropriate action** before rescue is all that is left.
- **Remember:**
 - **Stay calm.**
 - **Use your head.**
 - **Conserve your energy.**

Signaling for help

- **International distress signal**
 - Wave your arms up and down at your sides, shoulder to waist.
 - **Do not** touch your hands above your head unless you are fine. That is a sign for 'Okay'.
- Blowing a whistle means you need help.
- Flare or strobe usually means extreme emergency.

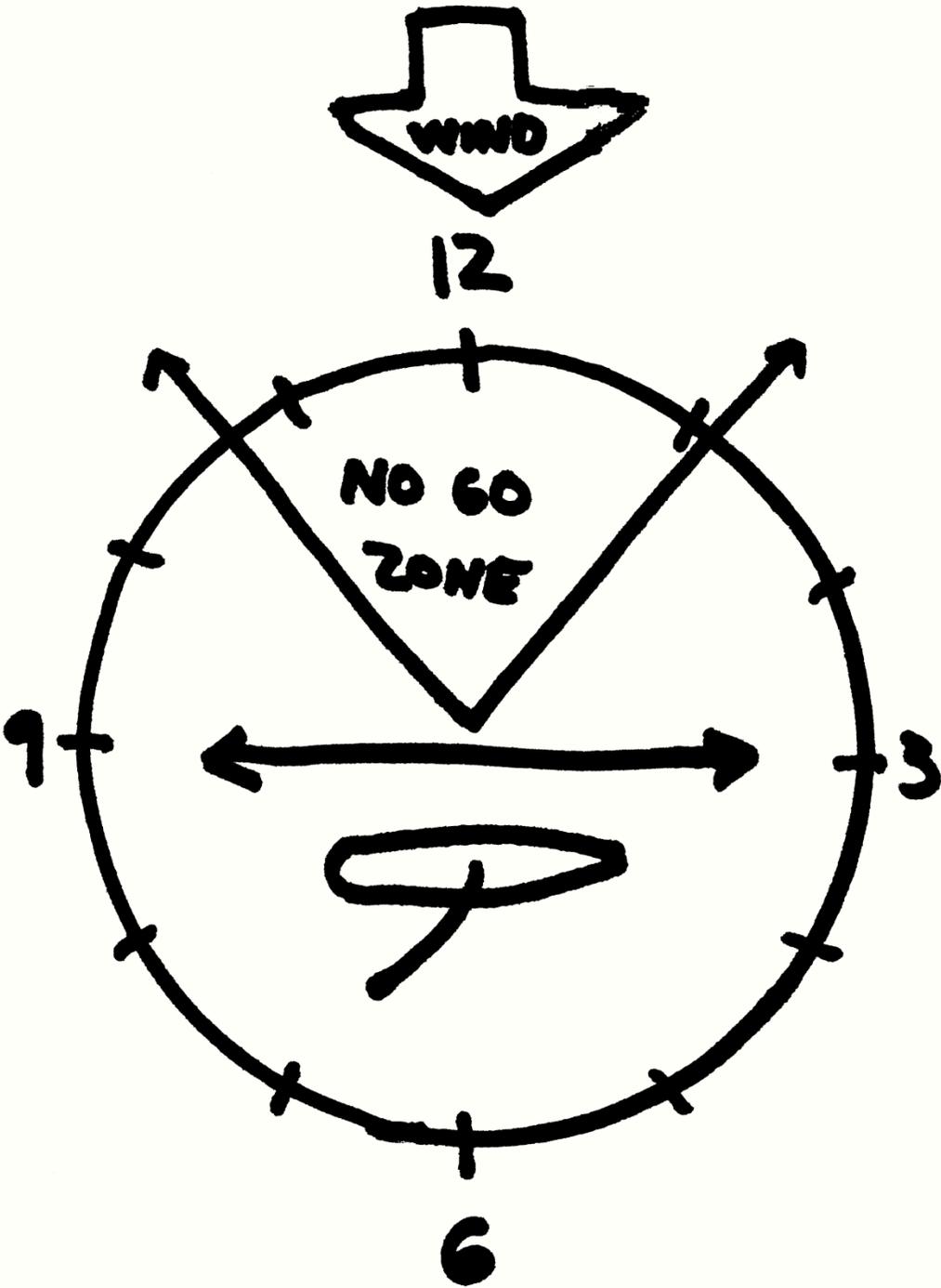
Signaling you are okay

- Calmly touch your hand, or both hands, on top of your head. This is a sign for “Are you okay?” and the response is “I’m okay”.

Self-rescue without assistance

- **Paddle:**
 - Light wind, flat water, any direction: Lay rig on the tail of the board, keep the sail out of the water, mast into the wind; lay on the board with feet on sail for balance. Paddle to safety.
- **Drift:**
 - Light to medium wind (when safety is downwind): Lay the rig on the nose of the board out of the water. Sit on the board with the feet on the sail; let the wind do all the work.
- **Drag:**
 - Light to medium wind with chop: stand on the board, uphaul, point board to safety, let clew of sail stay immersed and wind will push you forward, keep knees bent and back straight.
 - Heavy wind and chop: point board to safety, hold sail in water start position, (flying rig) keep body in water, steer board as if sailing or butt sailing.
- **De-rig:** (abandon rig only if necessary)
 - Sit on the board and release downhaul tension, keep the sail low in the water, and remove battens, place in mast sleeve, release outhaul and downhaul
 - Put boom around your waist or tie it to a footstrap, roll sail around mast and retie boom with outhaul (use harness lines or excess outhaul to tie mast to board – leave connected at universal if possible).
 - If forward progress is not being made – abandon rig to reduce drag and paddle board to safety.
 - **Note:** When you are in extreme offshore winds do not de-reg. Use the sail to create drag – slowing progress out to sea – and signal for help.
- **Don't panic**
- **Stay with your board**
- **Conserve your energy**
- **Relax**

Wind Clock



Normal sailing right-of-way rules

- Downed sailor has right-of-way over sailor underway.
- Starboard (right hand forward) has right-of-way over port (left hand forward) sailor.
- Leeward sailor has right-of-way over windward sailor.
- Note: Windward starboard sailor has right-of-way over leeward port sailor.
- If heading in the same direction, sailor being overtaken has right-of-way over overtaking sailor.
- Courtesy rule: Give plenty of room to novice sailors!

Bad habits of windsurfing

Bad habit #1:

Moving both arms together. Pulling in with both arms on the boom is common when attempting to save your balance – but – It does not change the sails power.

Cure: Always move your arms independently.

Bad habit #2:

Bringing your hips in over the board to balance yourself when falling backwards requires more power from the sail.

Cure: Drop low and push hips away from the board. Keep your head in over the centerline.



Bad habit #3:

Releasing the backhand to depower the sail and grabbing the uphaul or mast for leverage against the weight of the rig (this brings the head down and butt out).

Cure: Try the *tennis save*: Release the back hand and swing it upwind. Drive the hips inward, twisting toward the tail. Unwind to gain leverage.

Beach etiquette

Carrying your equipment:

Carry your board and rig separately, unless you are sure you can control both in the wind. Take the board to the water first when launching: take sail to a safe area out of wind first when finished.

Rig separately:



Keep your body between wind and sail, with sail's mast side (not clew side) into and across the wind – one hand halfway down the boom, the other on the mast toward the head of the sail. Keep the sail at waist height.

Rig separately overhead:



Hold the mast above the boom. Place the sail on your head, with your head above the boom, the mast into the wind, and the other hand holding the boom.

Board separately: Keep your body upwind of the board, with the board's windward rail close to your body.

Board and rig together:



Keep the body between the wind and the sail. Hold the boom near the harness line, keeping the sail behind you by holding the board by the footstrap in front of you.

Protect your fin: It only takes one ding to ruin a fin. Fin covers are strongly recommended.

Storing your equipment:

- Make sure your rig is secured. Place board over base of rig. Clew downwind.
- Don't leave rigged sail out in the sun for prolonged periods of time. Masts have been known to snap in the heat, especially with dark luff sleeves.
- Open your vent plugs when flying, driving through altitude changes, or storing the board for a long period of time (especially if exposed to any heat source, e.g. the sun).

Rigging lecture

Where to rig

- Out of the path of foot traffic.
- Away from sharp objects.
- Ideally, in an area out of the way from direct wind.

Rigging steps

- Insert and tension foot batten and insert mast.
- Downhaul lightly.
- Outhaul so the sail is flat. Run outhaul line through grommet twice only making sure the lines don't cross.
- Downhaul completely.
- Release outhaul for proper draft.

Mast and extension:

- Having the correct length mast is important to the performance of the sail.
- Carbon content is important in considering which mast to purchase. Higher carbon content equals less swing weight in sail and better control through gusts and lulls.
- When sliding down mast sleeve try to slide through inducers with them rotated up. Some sleeves don't allow room for this. If not, cambers are easily placed on the mast after outhauling.
- Adjust extension according to specification on sail; however, it may need to be adjusted later.
- When threading downhaul line through bottom of sail and extension's rollers make sure lines do not cross or bind on each other. This minimizes friction and wear.

Rotating asymmetrical foil (RAF) sails

- These are considered the norm for non-cambered sails.
- Make sure the top batten in the sail is pulled tightly away from the mast so that the top of the sail is flat. This is important when rigging old sails that don't show the following 2 conditions:
- Downhaul until the first batten above the boom is pulled directly underneath the mast. With too little downhaul, the battens poke in front of the mast. With too much downhaul the battens are pulled behind the mast and the battens start to "S".
- Once downhauled the leach becomes loose and floppy. The top full panel in the sail should be loose from the leach to the mid-point in the panel (See Cambered Sail for more description of this).



RAF sail tuned properly

Camber Induced Sails

- As with the RAF, make sure the top batten is pulled tightly away from the mast so that the top of the sail is flat. This is important when rigging older sails.
- Downhaul so the leach becomes loose and floppy.
- Test: Have someone stand on the base of the sail while you flew the top of the mast towards the ground. See how far you can push until wrinkles appear in the sail around the boom area. The more downhaul you have the looser the leach will be and the further the sail can flew (twist off the wind) before the area of the balance point distorts.
- Check that the cambers are not knuckle shaped where they meet the batten. If there is not enough downhaul then you will see a sharp angle in this area.

Problems with cambered sails

- Not enough downhaul, sail is too full.
- Too much downhaul, sail is too flat.
- Too much batten tension, sail will not rotate.



Camber induced sail – tuned perfectly

Draft

- Light air – use less downhaul to give the sail a deeper draft.
- Powered up – use more downhaul to flatten out the sail.
- Over-powered – lots of downhaul. Leech is “ugly”.

Convertible sails

- Convertible sails can be used with or without cambers and tend to be equipment specific: Some rig easily as RAF and then install the camber, while others rig better as a camber induced sail.
- General rule of thumb:
 - If the camber inducers are external (ART) rig as an RAF.
 - If the cambers are internal (e.g. Neil Pryde, North, Sailworks) rig as a cambered sail.

Outhaul

- **Neutral:** Sail is outhauled until the material is tight but the battens and/or cambers have not yet been pulled at all away from the mast.
- **Negative:** A little less outhaul than usual. Sail material at the clew is a little loose.
- **Positive:** A little more outhaul than neutral.
 - Sail material at the clew is pulled tight and the battens and/or cambers are pulled slightly away from the mast.

Adjustable Outhaul

- Tighten outhaul to point higher upwind or if overpowered.
- Loosen outhaul (bag out sail) to point downwind or if underpowered.

Batten tension

- Tension battens so that small, vertical wrinkles in the monofilm next to the batten sleeves disappear.
- Be careful not to over tension as this will stretch the sail material.

Helpful hints

- No gaps. Always rig the foot of the sail as close to the deck as possible and the clew as close to the end of the boom as possible (this means pulleys off).
- Always tie off any remaining line in case of cleat failure.
- If rigged properly, the sail should never come into heavy contact with the boom.
- Marking your extensions is a great way to decrease rigging time and identify your equipment.
- When purchasing sails, have the shop where you buy them do a rigging demo for you.

Hanging Lecture (longboard upwind)

Equipment positioning

- Mast must be vertical.
- Leeward rail must be down.
- Clean water release off tail (no rooster tail).
- Mast track most of the way forward.
- Daggerboard on the down position.

Hand positioning

- Find balance point on boom.
- Keep your hands close together for increased wind sensitivity.
- Balance point moves back as wind increases.
- Never let your hands get further apart than shoulder width.

Foot Positioning

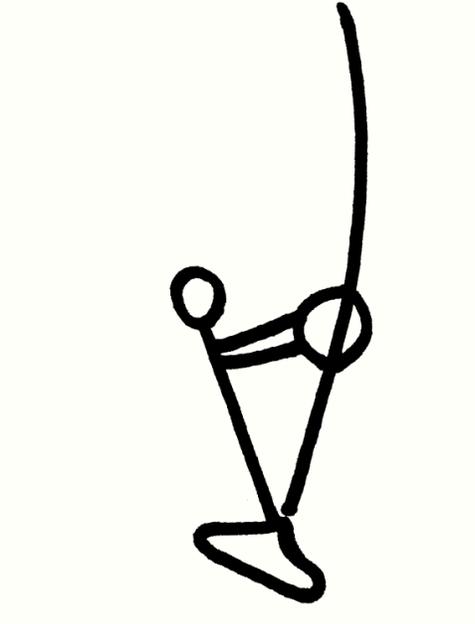
- Feet are close together for less resistance on the board.
- Weight is always on your back foot driving the leeward rail down.

Body position relative to the wind

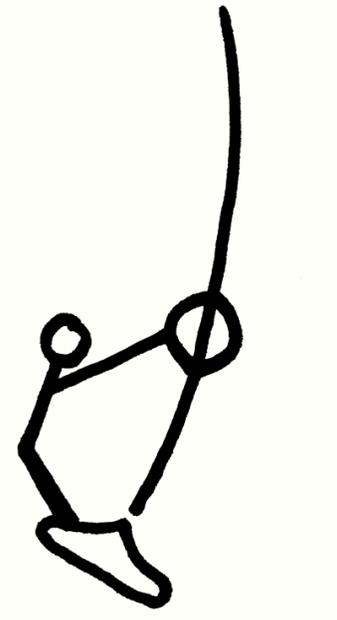
- **Light wind:** Light grip, hands touching; all weight on feet; leeward rail slightly down (5 degrees); shoulders and hips twisted forward.
- **Moderate wind:** Hands close together; weight on our hands; driving back foot down on leeward rail (15 – 30 degrees); hips twisted forward out past shoulders; angle of pull is down; roll your shoulders.
- **Heavy wind:** Hands as close together as possible; arms straight; shoulders out past hips; weight on feet on windward side of board with legs straight. Push with toes to angle board 15 – 30 degrees toward leeward; no body twist.
- **Transition between wind speeds:** Always move your hands together; never move feet unless wind changes drastically. In lulls, swing your weight down and under boom, bend the knees and twist forward. In a gust, swing your weight out, changing the angle of pull, no twist. The key to keeping board speed up is to never move your hands or feet.

Proper body position for upwind stances on a longboard

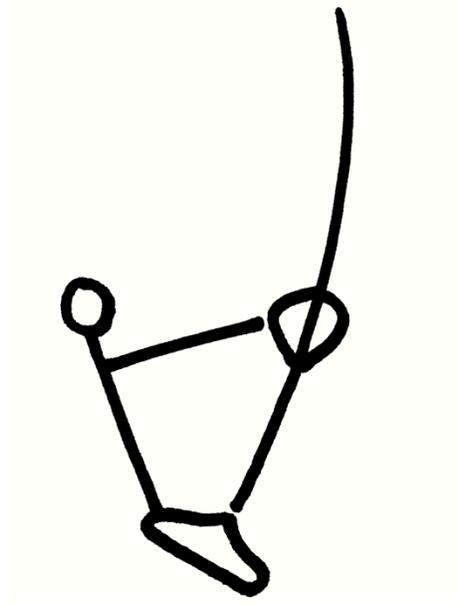
Light wind: Feet on the leeward side of board, legs straight.



Medium wind: Feet on the windward rail, hips are extended out past your shoulders. You're hanging off the boom.



Heavy wind: Straight body position from your shoulders to your ankles. Your feet are on the windward rail.



Daggerboard and mast placement on a longboard

Daggerboard

- **Upwind:** The daggerboard will always be down for upwind sailing. When sailing overpowered, kick the daggerboard back down 5 degrees at a time until controllable.
- **Off the wind:** Keep the daggerboard down until full planing conditions.
- **Run:** When unable to plane, as far forward as possible. When planing, you broad reach instead of run.

Helpful hints

- **Too far back**
 - Large rooster tail of water – you stalled by pointing too far into the wind,
 - And/or you've spun-out.
- **Too far forward**
 - The nose of the board is submerged.
 - The board feels as if it wants to go downwind.

Upwind on a short board (non-planing)

- Rake sail back, turning the board upwind.
- When nose of board reaches 1:00 or 11:00, lean the sail forward balancing the triangle, sheeting out.
- Weight front foot on windward rail, in front of or beside mast track.
- Place unweighted back foot on leeward rail to control board pitch (between 15 – 45 degrees)
- Arms must be straight or loosely bent, allowing body weight to be countered by rig weight.
- Feather back arm for power.

Helpful hints

- If excessive power from sail is used, the board will slide sideways; arms will explode causing medical bills.



Light wind upwind stance – legs straight, weight on front foot.

Uphauling on a short board

- With feet close together, straddling the mast, squat down with knees bent and grab the uphaul rope.
- Drive hips while keeping the back straight pull sail $\frac{3}{4}$ clear of the water.
- With hands on uphaul or mast, rake the sail back towards the back of the board.
- Place back hand on boom first, then front hand.
- Luff sail to unsink nose of the board.
- Bear off - bring sail forward in bow-and-arrow position while keeping weight on back.

Tacking a longboard

- Sail upwind with the leeward rail down.
- Place the front hand on the mast and rake the sail back so the clew is almost touching the water.
- As you approach 11:00, the front foot steps in front of the mast directly on the centerline of the board. The knees are bent with weight on the back foot. The front arm extends to push the mast back and to leeward while oversheeting the mast across the tail of the board.
- **Wait.**
- Once the board is an hour past 12:00, transfer your weight to the front foot bringing the sail with you, let go of the back hand and lift the back foot, step directly in behind your front foot (towards the front of the board) while simultaneously reaching to the new side of the boom.
- Step back on the centerline while continuing to bring the sail forward. Head looks forward. Pop and Drop.

Helpful Hints

- If you stay on the centerline, the board won't tip.
- When tacking a longboard, the daggerboard will be all the way down and the mast track will be forward.
- It is very important that you bring the sail with you when you transfer your weight from the back foot to the front foot or you will steer back to 12:00.

Tacking a short board (non-planing)

- Gently rake the sail back to begin turning the board upwind.
- Slide back hand forward to harness lines.
- Place the front hand on the mast at waist level and move the feet forward to mast base.
- One hour before 12:00, the front foot goes forward of the mast directly on the centerline of the board. Shift weight on to the front foot, then, step directly in back your front foot (towards the front of the board) while simultaneously reaching to the new side of the boom.
- Step back on the centerline and regain balance (luff). If you are backwinded, lean the sail to the back of the board to insure it turns through 12:00.

Helpful hints

- The difference between a long board tack and a short board tack is two hours. The transition on a longboard goes to an hour **past** 12:00 and a short board to an hour **before** 12:00.
- Rake mast past back hip instead of trying to step around mast. This will allow you to stay centered on the board.
- Take your time. The movements should be smooth – board momentum is more important than board speed.
- It is very important that you bring the sail with you when you transfer weight from the back foot to the front or you will steer back to 12:00.

Tacking sequence







Common errors

- **Moving your back hand in front of the harness line:** The clew becomes heavy and will pull you off the back of the board.
- **Grabbing too high on the mast:** It causes hands to collide when coming around to the new side of the boom.
- **Making the entry too quickly:** This will kill board speed and make the entry rushed and choppy.
- **Keeping your head down:** This will cause you to bend over. You will then be pulled over by the weight of the clew.
- **Stepping without reaching and reaching without stepping.**
- **Starting the tack with your back foot too far back on the board:** This causes you to make too big a step forward. Again, your transition will be choppy and rushed.
- **Panic popping after getting to the new side of the board:** There is no power in the sail yet. Instead, rake the sail back with your front hand and allow the board to rotate, then pop and drop.

Tacking a large short board with a large sail

- Oversheet the sail like a long board tack.
- Transition at 12:00, unlike either long or short board tacks.
- Throw the sail forward during transitions, sheeting in and driving the nose off the wind like a longboard exit.

Planing tack on a short board

Entry

- Get ready for the tack by planing in the harness and footstraps parallel to the chop.
- Look upwind and behind you to make sure it is a safe place to turn.
- Reach back on the boom to keep the sail sheeted in and to aid in unhooking.
- Unhook using hips only so the rig remains sheeted in.
- Lower body weight down on the boom.
- Slide the back foot out of the strap and place toes on the centerline between the front and back straps.
- Step the front foot out of the strap and place it behind the mast base.
- Move the back hand between the harness lines and reach the front hand down on the mast, at waist height.
- Step back foot in front of front footstraps keeping toes on centerline and heel on the windward side of the board; move front foot to front of mast base.
- Rock weight onto heels so board begins to carve upwind.
- **Hint:** Maintain constant foot pressure and keep sail sheeted in so board rises smoothly and stays on a plane throughout entry.

Transition

- At one hour before 12:00 shift weight on to front foot.
- Step directly in back of front foot (towards front of board) while simultaneously reaching to the new side of the boom (same as a short board tack).
- Step back on the centerline and regain balance. Keep the sail back so board continues to turn through 12:00.

Exit

- Look forward.
- Pop and drop, bearing off and picking up speed in your new direction.

Beachstarting

Positioning your rig

- Sail should be to leeward of your board with mast into the wind. Place your back hand on the tail of the board and your front hand on the mast. Draw the sail on to the tail of the board.
- With your front hand, draw the mast to windward first, then up.
- While sail is overhead, place the back hand on the boom in normal sailing position. Once comfortable, place front hand on the boom directly beside the front harness line.
- Position the board at 3:00/9:00 (higher if overpowered, lower if underpowered).



Proper sail position for a beach start

Flying your rig

- Place the back hand on the boom first, followed by the front hand.
- Rig forward = downwind.
- Rig back = upwind.
- Rig parallel = no power (both arms straight).
- Sheet in = power, sail lifts up (front arm extended, back arm bent).
- Sheet out = de-powered; sail drives down (front arm bent, back arm straight).
- Steering: sail forward and the board turns downwind, sail back and the board turns upwind.



Back foot on centerline; pull board alongside of your front foot.

Sailing away

- Position board at 3:00/9:00.
- Place your back foot on centerline of the board.
- Use your back leg to pull the board alongside your front foot. The board should be touching the leg that is standing on the bottom and the leg on the bottom should be closer to the nose of the board than the back foot.
- Arms extend up and forward. Sheet in and up with your back arm while pushing up and forward with the front arm. Drive in and forward over the centerline (kiss the sail) and roll up on to the board.
- Once the front foot is out of the water, stay low, place your front foot on the centerline directly behind the universal pointed forward in an open stance, and sheet out.



Helpful Hints

- Lower boom makes beach starting easier.
- Start “fun buster shallow” and slowly progress to deeper water.
- It is important to practice on both tacks.
- On longboards, the daggerboard is down a smidgen and mast track is in the proper position relative to wind speed.
- Push forward on the rig and side step toward the footstraps to bear off and get closer to the board.
- Lighter winds – head board downwind.
- Higher winds – head board upwind.

Waterstarting

Positioning your rig

- Swim board upwind of sail. Rotate board and/or sail so that the mast is beside tail of board on the leeward side.
- Position board at 3:00/9:00 (higher if overpowered, lower if underpowered).
- Place your back hand on the tail of the board, front hand on the mast and draw the sail onto the tail of the board. Pushing the tail under with the back hand can help. Use your front hand to draw the sail both windward and upward.
- Place back hand on the boom; sheet in lightly (feathering the sail) and place the front hand on the boom in normal sailing position.

Flying your rig

- Place back hand on boom followed by front hand.
- Steering: sail forward and the board turns downwind, sail back and the board turns upwind.
 - Rig forward = downwind.
 - Rig back = upwind.
 - Rig parallel = no power (both arms straight).
 - Sheet in = power, sail lifts up (front arm extended, back arm bent).
 - Sheet out = de-powered; sail drives down (back arm straight or pushing).

Sailing away

- Place back foot perpendicular to and on the centerline of the board between front and back straps with arch of foot facing forward and knee pointing back.
- Roll your back leg forward as you tuck your front leg out and behind your back leg. While bending the back knee drive your body in and forward.
- Extend, pushing the front arm up and forward, swinging hips in front of the back foot and sheeting IN and UP with the back hand.
- While keeping your arms extended, drive your head in and forward toward the mast, 'kissing the sail'. Your front foot steps on/beside the centerline behind the mast. Immediately sheet the sail out to prevent yourself from getting launched.
- Once the sail is upright enough to support your weight, step on to the board and sail away.

Helpful Hints

- Hands must be in normal sailing position.
- Lower boom makes it much easier to waterstart.
- Wearing a life jacket conserves energy and helps you to practice waterstarts.

- On longboards, the daggerboard is down a smidgen and the mast track is in its normal sailing position relative to the conditions.
- In stronger winds point the board further upwind. Having both feet on the board is fine.
- In lighter winds point the board further downwind.

Waterstarting sequence







Butt sailing

- A drill to be done in windy conditions to help with sail control for waterstarting.
- Position your rig and fly the sail as you would for a beachstart but keep your body lower in the water (since it is windy you must keep the sail low to control it).
- Once comfortably controlling the sail above you, with the board either slightly upwind or on a beam reach, take your feet off the bottom and bring your knees into your chest allowing your body to roll into a ball. Be sure to keep your arms straight when you bend your knees.
- Place your knees gently against the side of the board (on the rail and NOT up on the deck) with them spaced wider than shoulder width apart.
- Float along with the board for as long as you can. Steer downwind by leaning the sail forward. Steer upwind by leaning the sail back.
- When you are out sailing and the wind picks up, you lose a fin, or you are simply exhausted, use this butt sailing drill as a self-rescue technique to get you back to shore.



Harness lines

- Find the balance point/center of effort of your rig. This is where the sail is fully sheeted in and has maximum power.
- Place lines equal distance for/aft of the balance point. The lighter the wind, the closer together to increase sensitivity. The higher the wind, the further apart (maximum 10 inches).
- Adjust line-length for conditions:
- Non-planing - the lines are longer and possibly further forward, because the rig is not raked back.
- Planing – the lines are shorter because the sail is raked back and the boom becomes lower. For powered conditions, a harness line length measuring from your wrist watch to your elbow is average.



Using the harness

Getting in:

- Keep shoulders out over water while maintaining a still rig.
- Slowly bring hips up and in to meet harness line.
- Drop hips down and out to windward, gradually weighting harness, thus relieving arm strain.
- Remember: You can control the rig while being hooked in. Do not freeze. Feather back hand for power.

Getting out:

- Keep shoulders out over water, lift hips up and out, gently loading the pull of the rig into your arms.
- Try to keep the rig still to maintain balance and speed.



Hook placement:

- Chest harness: high hook makes for easy hooking in/out especially in panic launch mode – most commonly used by wave sailors.
- Waist harness: lower hook and better back support, vertical pull is poor.
- Seat harness: lowest hook height makes it more difficult to hook in/out – puts most sail power in your legs, not in your back and provides good lateral and vertical pull – favored by most racers.
- Body harness: Adjustable hook height, great back support. Poor tanning factor!

Helpful hints

- When putting the harness on, the fit should be snug. Once hooked in, the hook should not pull far enough away from the body that you can put a hand between the inside of the hook and yourself.
- The balance point will move depending on sail size, type, and quality. As the sail gets bigger the balance point moves back. Camber induced sails are typically more stable than RAFs. As the wind increases the balance point may move back.
- When moving lines forward or back, move both ends keeping the same distance apart (no Harleys).
- Rolling shoulders will add 3-4" to your arm extension.
- Using your thumbs to guide the harness lines toward your hook will make it easier to hook in.

Speed on the reach

Equipment positioning

- Harness lines should be set on the balance point and the length should allow you to keep the mast upright (not pulled to windward) and your body as straight as possible. Think of making a straight line from your heels to your ears (no chairs).
- The board should be flat or slightly raked to leeward.

Getting into the footstraps

- In the learning stages hook in before backing up on the board and getting into the front footstrap.
- In choppy water and when pumping onto a plane, get into your front footstrap and then hook in.
- Keeping your arms straight and with your back foot between the footstraps, slide your front foot against the footstrap without stepping on it.
- Push your hips over your back foot, lift your front foot and slide it gently into the footstrap.
- Slide your back foot against the back footstrap, again not stepping on it.
- Keeping the sail raked back, push hips forward lifting the front heel off the board. With your weight off the back foot, kick it into the back strap.
- **Don't look down at your feet!**

Body positioning

- Extend your arms and legs, rolling your shoulders to get your weight as far from the board as possible. This will create a straight line from your heels to your ears, and stay as rigid as possible.
- Weight is on your back foot, pushing with your toes to ensure the board is flat. Do not put weight on your heels or you will round up and stall.
- **Across the wind** (broad reach) – both legs straight, body is basically out, and weight is predominately on the back foot. This will allow you to sheet in your sail more, giving you more power. The more weight you put on your back foot, the more you will load your fin and reduce your waterline on the board.

- **Upwind** – back leg straight, front leg bent with body out and forward, weight is still on the back foot.



- **Downwind** – front leg straight, back leg bent with body out and back, weight is still on the back foot.



- **Lulls** – similar to upwind, swing shoulders forward and in, bending both arms and legs, placing weight on harness and on boom. Do not disturb board or sail.
- Wind speed permitting, you always want your sail raked back enough so you can place the foot of your sail on the deck of your board. Be sure to keep your sail perpendicular to windward and leeward (i.e. don't pull the sail over on yourself).

Spin out recoveries

- Pump fin – rapid in and out.
- Pull fin under you – similar to pumping.
- Stomp on windward rail.
- Jump.
- Tack.
- Buy a new fin.

Tips for overpowered and underpowered conditions

- When overpowered, sail more upwind. Lock body out and drive rig back. Allow body to come forward in order to point higher.
- When underpowered, soften ankles and stand up. Bear off to maintain plane.
- If overpowered when sailing downwind bear off further. Reach back on the boom and oversheet to de-power. **Do not sheet out!**
- If underpowered when sailing downwind soften stance (ankles). If that doesn't work then turn upwind and re-accelerate, stiffening stance.

Downwind drill for a longboard

Part 1

- While sailing, start turning the board downwind by turning the front foot and hips forward, placing the front foot on the windward rail.
- Rake the sail forward and to windward moving *both* hands down the boom.
- Next, “bow and arrow” and step back to tail of the board.

Part 2

- While sailing at 6:00 with your feet on the tail of the board, bend your knees and pull the sail overhead sinking the tail.
- Push mast to vertical, driving your head under the boom and putting your weight on the rig, flattening the board.
- Repeat

Part 3

- With feet in the same position, steer the board by sliding your hands down the boom to move the rig to the right (board goes left).
- Always keep the sail perpendicular to the wind and when moving hands up and down the boom – move them both.

Part 4

- With feet in the same position, keeping the sail centered and steer the board by stepping on the opposite rail (weight right, board goes left, and weight left, board goes right).
- Keep knees bent and weight on the balls of the feet, no straight legs or weight on the heels.
- Repeat.

Part 5

- Combine steps 2, 3, and 4.

Non-planing pivot jibe on a longboard

- Use the downwind drill to step 4.
- When the nose of the board passes 6:00 by one hour, step forward with the front foot (clew foot).
- Relax and catch your balance.
- Slide front hand forward on boom right next to the mast, release the back hand, keeping the mast in front of you, and reach under with an underhand grip to the new side of the boom.
- “Pop and drop”. Pop the sail with head under the boom for balance.

Helpful hints

- A “duck footed” stance with toes and knees pointed forward and out is most stable.
- The higher the nose is out of the water, the tighter the turn will be; the lower the nose, the longer the turn will be.
- The stronger the wind, the further back on the tail you can go.
- The further your hands go back on the boom the faster the board turns.
- The lighter the wind, the more the rig goes forward. The heavier the wind, the more the rig goes to windward.
- Keep hips tucked in during the sail flip.
- Turn the head, or look out of the sail flip.

Non-planing pivot jibe on a short board

- While sailing across the wind, reach back with the back hand on the boom, step back with back foot on centerline. Simultaneously rake the sail forward and to windward in “bow and arrow” position (i.e. front arm extended, back arm bent).
- As the board turns downwind and the power in the sail increases, lean the body toward the tail of the board with the hips in and head up.
- Once the board is a half hour before 6:00, slide the front in front of or behind the back foot (heel across centerline) and shift your weight on to that foot.
- Once the board has pivoted 1 to 2 hours past 6:00, step forward with the new front foot. Follow with the back foot if necessary.
- Relax and catch your balance while sailing clew first.
- Slide front hand forward on the boom right next to the mast, release the backhand, keeping the mast in front of you, and reach under with underhand grip to the new side of boom.
- “Pop and drop”. Pop the sail and get your head under the boom for balance.

Helpful hints

- Keep knees bent.
- The higher the nose is out of the water, the tighter the turn will be; the lower the nose, the longer the turn will be.
- The stronger the wind, the more the mast should rake to windward. Place your feet as far back on the tail as you can go. Arch the body leaning the head and shoulders as far to the back of the board as necessary.
- The lighter the wind the more the rig goes forward and don't step as far back on the board.
- Keep the hips tucked in during the sail flip.
- Turn the head or look out of the sail flip.
- Do not jump when switching the feet. Switch them slowly.





Planing step jibe

Setup

- While sailing fast in both footstraps (or at least the front footstrap) and hooked in:
 - Sail at 3 or 9, or parallel to the chop.
 - Look downwind, behind, and upwind (for other sailors and a puff) to be safe.
 - Reach back on the boom at least 12 inches. This is to aid on unhooking and overshooting.
 - Unhook using hips only, not your elbows. We don't want to sheet out.
 - Wait for the board to settle. Legs straight, arms straight, re-accelerate. Keep the body low for leverage.
 - Pull the back foot out of the footstrap. Slide (not step) to the leeward rail, in front of the back strap, foot facing forward 45 degrees or parallel to the front strap.

Initiation

- Roll weight in over feet (toes to head); knees bent.
- Keep weight forward and your head up.
- Allow sail to pull you to the inside of the turn then overshoot and stall the sail (front arm straight, back arm bent), balanced on board, knees bent, head up, hips in, on balls of the feet.



Carve



Transition

- Just before 6:00:
 - Open the sail.
 - Switch the feet. Pivot the front foot (still in the strap) across the centerline and place the weight on the heel so the board continues to carve. Step forward with the new front foot (in an open stance). Feet should be about shoulder width apart.
 - Keep the boom square to the shoulders, making sure you come past 6:00 clew first.





Exit

- Either sail away clew first and accelerate or if still planing slide the new front hand forward on the boom to the mast.
- Release backhand. Bending front arm to keep mast vertical and in front of you, reach under the new front arm to grab the new side of the boom, place the back hand behind harness line. Keep hips in on flip (to counteract mast weight).
- Pop and drop. Pop your sail and drive your head under the boom for balance.





Helpful hints

- The slower and more smoothly you move your body the faster the board moves.
- The faster you go into a jibe the faster you go out.
- The farther you reach back to oversheet the easier it is (it lightens the sail).
- Keep knees bent, weight forward, and oversheet.
- Make transition with speed.
- Don't rush the sail flip, clew first looks cool! Smile.
- Turn head forward and look out of the sail flip.

Common mistakes

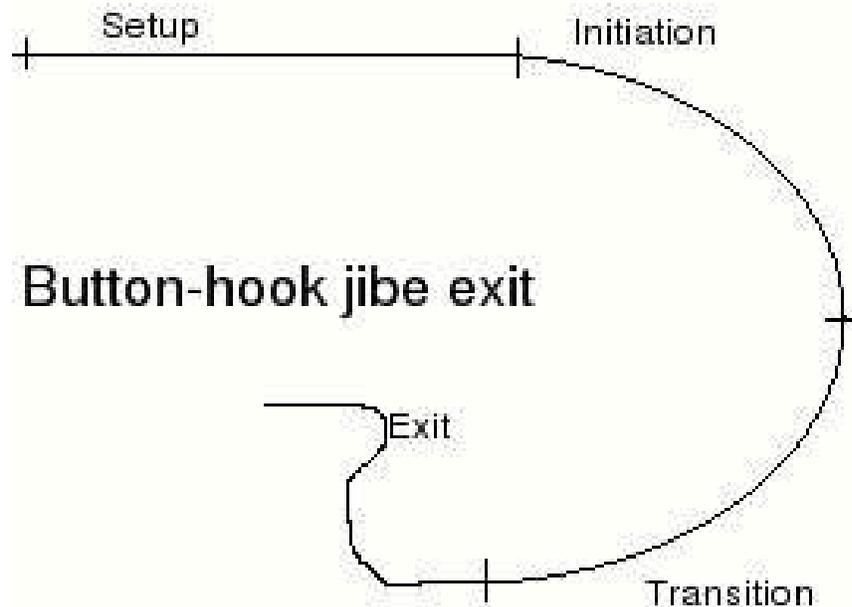
- Not reaching far enough back on the boom. This is to ensure sheeting in and prevent sheeting out.
- Stepping instead of sliding to the leeward rail with your back foot.
- Head down and butt out causing you to be pulled over.
- Sail flipping mistakes: not sliding front hand up close enough to the mast and/or not bending front arm towards body to control clew weight.

Entry drill

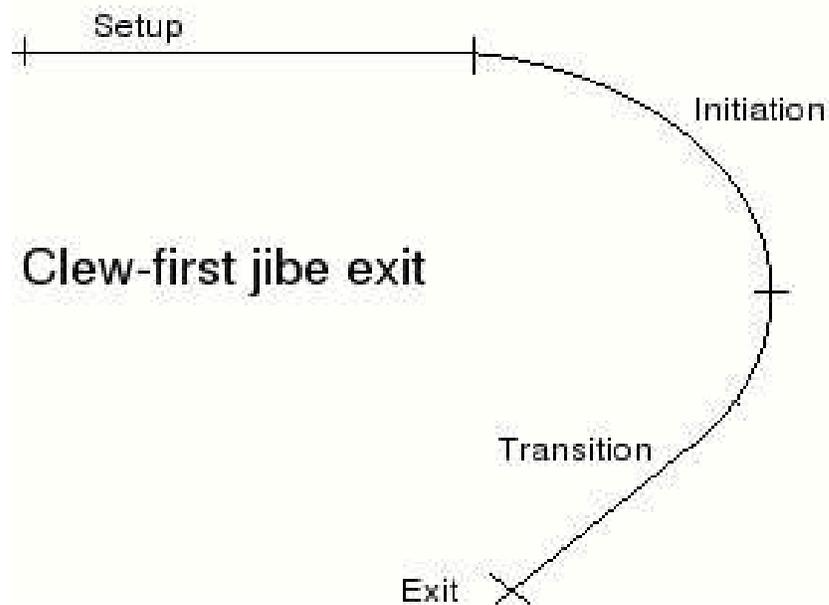
- Oversheeting on a broad reach to feel the sensation of oversheeting.
 - Think; look; reach back on the boom; slide rear foot to the center of the board.
 - Oversheet and stall sail, then coast.
 - Sail will power up then pull you over.

Jibe Outlines

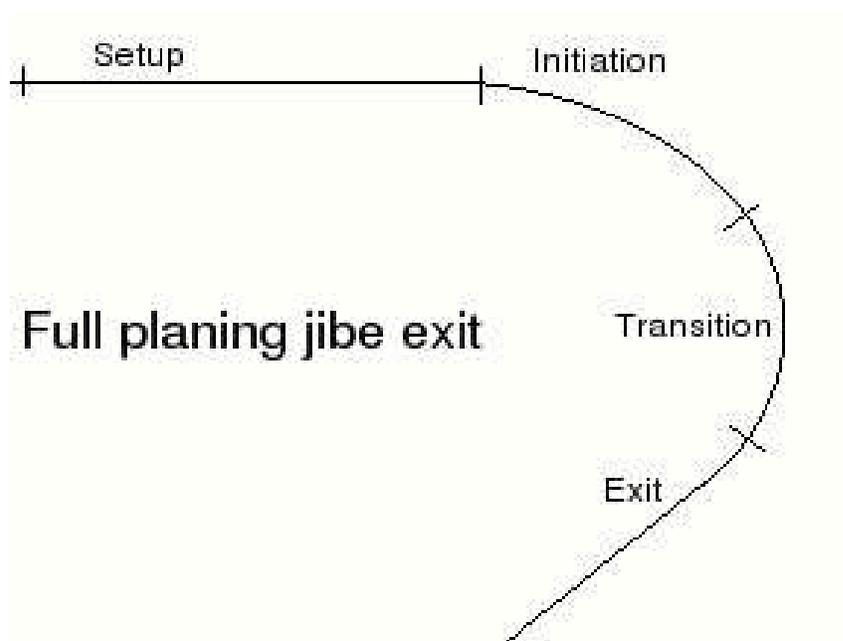
- **Button Hook:** occurs when sail is flipped when board has too little speed.



- **Sail Away Clew First:** Carve through the setup and initiation but because the board has lost most of its speed sail away clew first to re-accelerate and then flip the sail.



- **Full Planing:** Scary fast. Transition much earlier allowing you to exit out of turn very broad with lots of speed.



Carving pivot jibe

Setup

- Same as planing jibe setup (head to toe setup).

Initiation

- Same as planing step jibe (toe to head initiation).

Transition

- As board is running out of speed we must change to pivot jibe mode.
- Open sail back up in the bow and arrow position.
- Keep hips parallel to the boom as you turn front foot out of strap and step back with it.
- Step up with new front foot in open stance.
- Sail away clew first (re-accelerate sailing clew first before sail flip).

Exit

- Same as pivot jibe.

Chop hopping

- Sailing fast on a beam reach, look in front and to windward for a wave that is continually breaking.
- Just before the wave, reach back on the boom, stand up over the board, then unhook, drive the rig down, then the tail down, sheeting out for a second.
- Time it so that when you hit the wave's face, you explode up with your arms/shoulders, front foot, then back foot, sheeting in fully. Raise the windward rail 15 -30 degrees. Pull body up to rig.

Steering

- The front foot is the altitude foot and determines how high or far you will fly.
- The back foot controls the direction of the nose. If you extend your back leg, you will steer upwind; if you pull the back leg in, you will steer downwind.
- Tilting the board to leeward (pushing on the toes) will bring the nose of the board off the wind and will keep you in the air longer.

Landing

- Sheeting out puts all your weight on your back foot, causing you to land tail first and spin out.
- Staying sheeted in causes you to land flat.
- Staying sheeted in and tilting your rig forward creates a nose first landing. Once the nose hits sheet out slightly.
- Absorb all landings by bending your legs. Extending your legs during the landing typically washes out the fin and we end up on our backs.

Helpful hints

- Always keep your mouth shut (especially when landing).
- This can be practiced in absolutely flat water.
- Always make sure that if you abort in the air, that your gear will not kill somebody sailing to leeward.
- As you get more comfortable in the air, try jumping while hooked in. This keeps the sail sheeted in and allows you to wave at the camera.
- Practice on both tacks.
- Board flat landing is easiest, but hardest on you and your equipment. Tail first is the best first landing. Nose first is the best for you and your equipment but is the scariest.







Freestyle

Why learn freestyle?

Freestyle is fun in no or light wind conditions and freestyle improves your short board skills and board handling in general.



Sail tricks

The key to any sail trick is to go from having your rig balanced to having it unstable to having it balanced again. Before trying a sail trick, practice having your hands fore and aft of the balance point of your sail and see what happens.

Leeward side sailing

- There are two ways to get into the position of sailing on the leeward side of the sail:
 1. Begin as you would a short board tack. Transition your hands and feet to the other side of the board well before 12:00 (putting you on the leeward side).
 2. Turn the board upwind as in a long board tack. Oversheet the sail so the board steers through 12:00. Once past 12:00 bring the sail forward to bear off a little and you are now on the leeward side.
- Once on the leeward side of the sail keep relaxed with your weight on the back foot.
- Keep heels on the centerline, toes pushing the windward rail down.
- Support the sail with a straight front arm while the back hand remains off the boom entirely or just feather for power (do not push against the sail continuously with the back hand).

Helicopter tack

- Sail into a standard tack.
- Oversheet until the board is past the eye of the wind, rake the sail forward while placing both feet near the universal.
- Push the boom with the back of the hand aft of the balance point of the sail, and let the mast fall slightly to leeward.
- Once the sail has flipped, and you have followed to clew first, grab the boom with your new back hand, flip the sail and sheet in. Keep looking forward, not at the sail.

Board tricks

Rail ride

- Sail on a close reach.
- Place back foot close to the leeward rail, support your weight on your back foot and your boom, place your front foot on the daggerboard.
- Once the rail comes up, keep sheeted in and place most of your weight on the daggerboard.
- Put your back foot on the rail, then your front foot.
- The more you sink the nose, the more you will head up, sinking the tail will make you head off.
- Tip: Make sure your U-joint will not come out of the board. A wetsuit or shin guards are a good idea to protect your shins while learning.

Trick beach starts and water starts

Clew-first

- Position your board for normal beachstart/waterstart facing the opposite direction of intended clew-first beachstart/waterstart.
- Place hands in a rear staggered position on the boom.
- Turn board downwind; once the nose passes 6:00 move around tail and place back foot (or both feet if windy) on the board.
- Push clew up and feather mast hand; allow sail to roll your body up over the board like a normal waterstart (the stronger the wind the further downwind the board should point).
- Sail clew first until comfortable and then flip the sail.

Butt jibe

- Setup for normal two footed waterstart but with hands in a rear staggered grip.
- Pull tail of board under your butt with the back foot, making board turn downwind.
- Cross over back leg with front leg kicking the tail downwind through 12:00.
- Once the nose has jibed, place new front foot back on the board and waterstart clew first.

Fin first

- Practice in water below mid-thigh depth for best results.
- Setup by either steering the board 180 degrees into the fin first position while flying the sail (practice turning the board 360 degrees while keeping the sail on one position to dial in this skill) or pulling the boom up onto the nose of the board to clear the sail.
- Place back foot on nose in position so once the weight is on the board the fin partially clears the water. If too close to the mast base you will always round upwind. If too close to the nose it will be hard to stay balanced.
- Beachstart and allow the hips to come directly over the back foot with leg bent to keep weight on it. Make sure front foot and hips face forward (toward fin). Bow and arrow rig forward (toward fin) and to windward so board doesn't immediately round upwind.
- **Long board tip:** Make sure centerboard is up. When pulled up place feet in duck-footed stance on nose to keep fin clear.

Board upside down in relation to boom

- With board pointed at 12:00 and your body in a waterstart position, lean sail forward, pull knees into chest and feather back hand.
- Aim feet for both sides of mast base.
- As sail pulls you up, extend legs to flip board.
- Sheet out and get your balance.

Ultimate light wind waterstart

- Start with board upside down pointed at 12:00.
- Place front hand on mast below boom and back hand on foot of sail.
- Feather for power and tilt sail slightly forward.
- Place feet on both sides of mast and keep body rolled into a ball.
- Board, sail, and body will roll over together and place you in a squatted position on the board,
- Sheet out; balance the triangle of the sail; release the hands and stand up; catch boom.

Freestyle trick list

Light wind tricks

Sitting on board	Lying on board	Nose dip (kneeling)	Fin first
Sailing on leeward side	Clew first tack	Pirouettes (E.F.M)	Tail sink
Pirouette jibe	Duck jibe	Inside boom	Sail/body 360
Back to sail	Spin tack	Backwind jibe	Duck tack
Windward sailing jibe to leeward sailing	Hoss tack		

More light wind tricks

Front flip into sail	Back to boom pirouette	Sail 360 inside boom step out
Boom to boom clew first	Clew first/inside boom	Clew first fin first
Back to sail (inside boom)	Duck spin tack	Spin duck tack

Rail tricks

Rail ride – with one foot on dagger		
Rail ride (variations)	Back to skeg rail ride	Pirouette on rail
Pirouette everroll	Tacking on rail	Back flip through boom on rail
Back to sail railride sail 180 to clew first		

Planing tricks

Duck jibe	Monkey jibe	Flip jibe	Carving 360
Reverse monkey jibe	Donkey jibe	Duck tack	Hoss tack
Doss tack	Ducking 360	Backwind jibe	Upwind 360
Switch foot jibe	Body drag	Switch foot duck jibe	
Double versions of above			

Aerials

Jump jibe	Table top	Jump duck jibe	Willy skipper
Forward loop	Back loop	Vulcan	Spock
Spock 540	Diablo	Air tack	Wymaroo
Lollipop	Switch foot air tricks	Grubby	Free willy
Flaka			

Fun and games

King of the board – the official rules

- Use the biggest board possible, and if a longboard, remove the daggerboard.
- Go to deep enough water to avoid danger of hitting bottom when falling off.
- Two people climb on top with one at each end, facing each other.
- The goal is to be the last person standing on the board using the following rules:
 - No contact.
 - No crossing the center line.
 - First person to touch the water loses (no hooking feet on the board).
 - Double elimination.

Sail design and theory

Parts of sail

- Head
- Foot
- Clew
- Leech
- Luff sock
- Luff curve
- Load strip
- Roach (+, -, foot)
- Draft

Bernoulli (Low pressure lift)

- Boundary layer
- Laminar flow
- Turbulent flow

Drag

- Form
- Frictional
- Induced
- Twist

Materials

- Dacron
- Mylar
- Monofilm
- Scrim
- X-ply

What is appropriate for you?

- Where do you primarily sail?
 - Surf
 - Lake
 - Ocean

- River
- What is the average wind speed?
- What kind of boards do you sail on?

Fins

Bernoulli (Low pressure lift)

Lift

- Boundary layer
- Laminar flow
- Turbulent flow

Drag

- Form
- Friction
- Induced

Spin out

- Induced (pressure differences, vortex)
- Washout Redirection
- Fore fins
- Splits/slots

Materials

- Plastic
- Glass
- Carbon
- G-10
- G-11
- Carbon/Glass/Hybrid

Bases

- Chinook
- Production
- Tuttle
- Power
- Trim

Placement

- Footstrap
- Chord length

-
-
- **Fist**

Repairs

Recommendations

- Course
- Course slalom
- Slalom
- Wave
- Freeride
- Freestyle

Size

Glossary

Across the wind	Perpendicular to the direction of the wind.
Batten	A long, slender, flat or round fiberglass or carbon stick used in the sail to help control its shape.
Beam reach	Sailing at 90 degrees to the wind. On the wind clock toward three or nine.
Boom	The two bowed, aluminum or carbon poles that are connected at the ends, that the board sailor grasps while sailing.
Bow	The forward end of the board.
Broad reach	Sailing between 90 and 180 degrees off the wind. On the wind clock, roughly toward four or eight o'clock.
Camber inducer	A device that connects the batten to the mast and holds the sail's shape.
Centerboard	The pivoting, foil shaped, keel-like plank that passes through the sailboard hull and projects directly down and can swing back mostly or entirely into the hull.
Centerline	A line that passes through the skeg, the centerboard, and the mast step; it is the board's longitudinal axis.
Clew	The corner of the sail furthest from the mast.
Daggerboard	The non-pivoting, foil shaped wood, plastic, fiberglass or carbon plank that passes through the sailboard hull and projects directly down. The centerboard is often mistakenly referred to by this name.
Downhaul	The line, or line and pulley(s), used to tension the leading edge of the sail by pulling down on, or hauling down, the sail's lower front corner; it usually attaches to the mast base.
Downwind	The direction in which the wind is blowing.

Inhaul	The line that attaches the boom to the mast; it hauls the mast into the forward angle of the boom. Modern rigs do not use an inhaul but rather a quick release clamp.
Jibe	A downwind turn in which the nose of the board goes through the downwind eye of the wind and the sailor switches from one side of the board to the other.
Leech	The imaginary line from the head of the sail to the clew.
Leeward	The side away from the wind.
Luffing	The flapping of the sail that occurs when the mast is into the wind, and the clew is pointing downwind. At this point the sail has no power in it.
Mast	The long, hollow, slender fiberglass, aluminum, or carbon pole used as the sails primary support.
Mast base	The part that fits into the bottom of the mast and attaches to the top side of the universal joint.
Mast foot	The part that attaches to the to the bottom side of the universal joint and fits into the mast step.
Mast sleeve	The ‘tube’ of the sail into which the mast is inserted.
Offshore	When the wind is blowing away from the shore (toward the water).
Onshore	When the wind is blowing toward the shore (toward the land).
Outhaul	The line, or line and pulley(s), that is used to pull the sail’s clew and spread the sail out (haul out) to the wind; it attaches to the back end of the boom.
Plane	“To plane” means to skim across the surface of the water like a water ski rather than plowing through it like a freighter. “On a plane” or “planing” means to be skimming.

Pointing	Sailing into the wind as high as possible.
Port	The tack in which your left hand is forward on the boom.
Rig	To “rig” is to assemble the mast, boom, sail, battens, mast base etc. A “rig” is the assembled mast, boom, sail, battens, mast base etc.
Running	Refers to sailing directly downwind.
Sheeting in	Pulling the sail in with your back hand in order to prevent the sail from luffing. Generally increasing power.
Sheeting out	To let your back hand further out and allow the sail to move toward luffing. Generally decreasing power.
Sideshore	When the wind is blowing across the beach.
Skeg (fin)	The foil shaped, plastic, fiberglass, carbon or other material fin-like appendage attached to the bottom of the back end of the board. The fin helps keep the board in a straight line and on a steady course.
Starboard	The tack in which your right hand is forward on the boom.
Tacking	A turn in which the nose of the board goes through the eye of the wind and the sailor switches from one side of the board to the other.
Tight reaching	Sailing close to the wind.
Universal joint	The device that attaches to the mast foot to the mast base. It is usually made of flexible plastic or rubber, and bends readily when the rig falls into the water.
Uphaul	The thick line attached to the front of the boom that is used by the sailor to pull (haul up) the sail out of the water. Note: Andy Brandt does not use one!
Upwind	The direction from which the wind is blowing.
Windward	The side toward the wind.