



National 12 Technique Guide

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Getting started

The Twelve is a light responsive dinghy that rewards good crew team work with great sailing. They are also easy to sail with a vast range of crew weights and strengths. The short 12' hull means that fore – aft trim is important to avoid nose diving or dragging the stern and the wide beam (up to 2m) means side to side heel is critical. The amount of nose diving or heel will depend on the design. In light winds the Twelve will slice through the water effortlessly and in strong winds they will plane downwind and fly up wind. Here are some basic hints to enable you to get started in a Twelve. They touches on crew work and also the numerous controls on the Twelve which enable the power of the rig to be controlled.

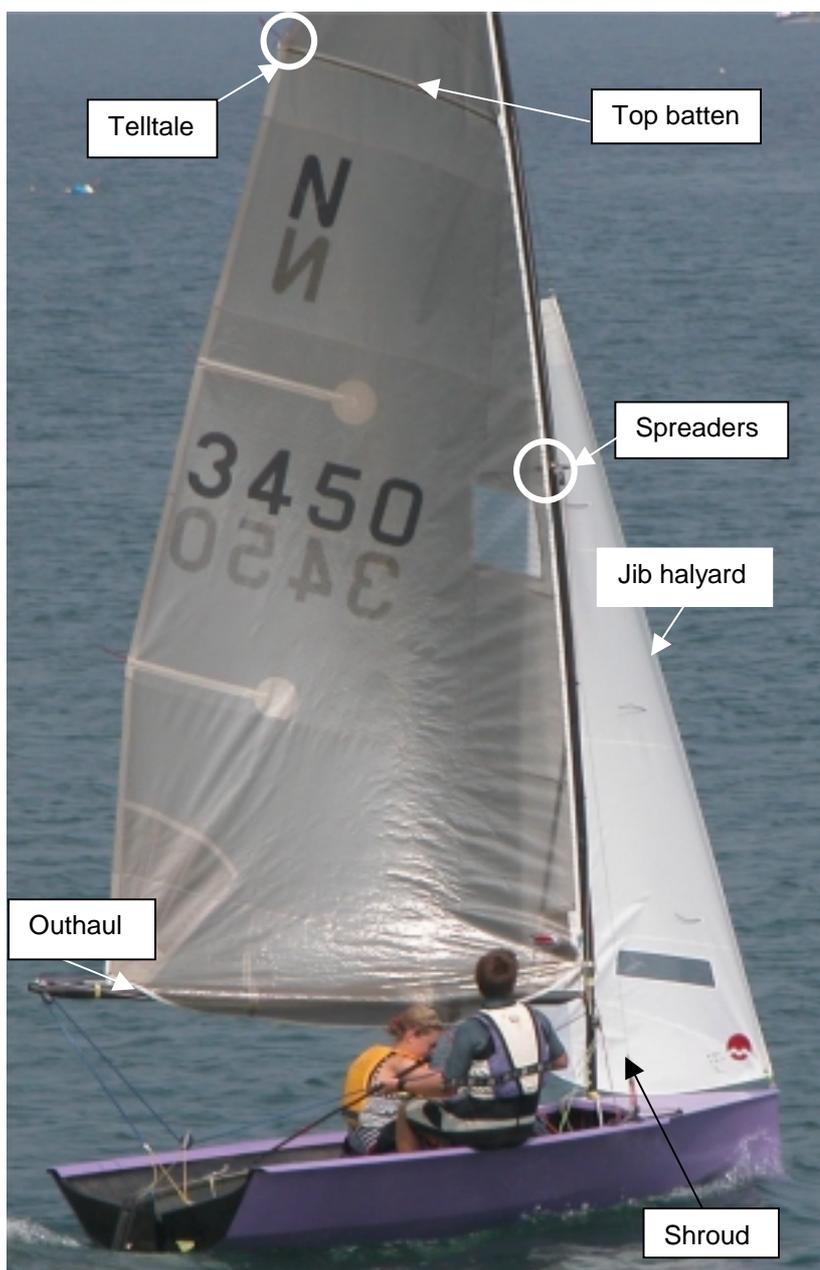
Controls

Outhaul – controls the fullness (power) in the bottom half of the main sail

Top tell tale – indicates how the wind is coming off the top of the sail, this is quite long on the Twelve so kicking strap tension is critical. Sensitivity will vary depending on whether you have an aluminium or carbon mast

Shrouds – provide sideways stiffness for the rig, and also encourage fore-aft bend which is controlled in conjunction with the mast controls.

Jib halyard – adjusts the mast rake, letting it off rakes the mast back (reduces power), pulling it on rakes it forwards



Cunningham – controls the fullness in the top half of the main sail

Dangly Pole – used to provide extra jib power down wind by tightening the jib leech

Kicker – controls the leech tension in the main sail, in particular the top of the sail this is set in conjunction with the top tell tale



Mast control - Ram / Lowers / Strut – controls the bend in the mast, more bend = less power.



Controlling power

	UPWIND	DOWNWIND
To Increase power	<ul style="list-style-type: none"> • Straighten mast by pulling on lowers or mast ram 	<ul style="list-style-type: none"> • Straighten mast using the lowers • Release Cunningham • Release Outhaul • Release leeward shroud • Rake mast forward • Use dangly pole
To Decrease power	<ul style="list-style-type: none"> • Bend mast by releasing lowers / mast ram • Pull on Cunningham and rake mast back by easing the forestay. 	<ul style="list-style-type: none"> • Pull on leeward shroud • Pull on outhaul

Upwind

Controls: SET POWER TO SUIT CONDITIONS

- Set rig power to suit wind strength and crew weight. As soon as helm and crew are fully hiked out you should start to de-power. This keeps the rig efficient as letting the sails flog causes turbulence. It is generally best to de-power using the controls in the following order:
 1. Release mast ram or lowers to allow mast bend
 2. Rake mast back
 3. Use more kicker
 4. Finally apply cunningham
- Always set the kicker to keep the top tell tale streaming.

Crew work

- Helm should sit comfortably on deck and the crew should move around to balance the boat.
- The helm and crew should keep an eye on the stern wave and sit forwards to avoid dragging the transom, a nice clean flow off the back of the boat is desirable. Also helm and crew sit together to eliminate any 'rocking horse' effect.
- Helm should not use much rudder movement
- Sail the Twelve flat – absolutely flat by playing the mainsheet, . . .however good you are you can always sail flatter!

Tacking

Twelves roll tack beautifully in light winds but can be tricky in strong winds. When tacking use as little rudder as possible. Start the tack using a little rudder initially with roll, then apply more rudder movement during the middle of the tack if necessary.

Crew work

Roll tack in light winds:

1. Helm pushes the tiller away to initiate the tack
2. As the boat goes through head to wind the crew should move towards the helm to roll the boat into the wind until the deck touches the water.
3. The helm crosses the boat in one smooth movement as the boom comes over and lets out a couple of feet of mainsheet.
4. The helm pulls the boat up on the new tack bringing the boat upright and pulling in the mainsheet at the same time – this helps to flick the top batten round.
5. The crew simultaneously balances the boat either providing assistance to or counteracting the helm. The jib should be pulled in smoothly at the same time as the main, pulling in the jib early will stall the sails.

Flat tack in strong winds: The steps are the same as for light winds except the crew does not roll the boat into the wind, instead the helm and crew move together across the boat.

Reaching

Reaching is the fastest and most exhilarating point of sailing in a Twelve. To get the most out of it, you will need the rig set at its most powerful.

Controls: MAX POWER

- Lowers or mast ram on
- Leeward shroud off (if adjustable)
- Outhaul off
- Cunningham off
- Kicker – so the top telltale streams nicely
- Centre board $\frac{1}{2}$ up
- Dangle pole out to provide jib leech tension.



Crew work

Keep the boat flat. Helm and crew should be positioned as follows;

- in planing conditions you should be aiming for the boat to plane level sitting back in the boat to prevent nose diving,
- in light winds you will be looking to sit forwards to prevent the transom dragging.
- Crew needs to watch the jib all the time to ensure it is constantly trimmed for the best effect.
- Helm should be playing the main to ensure that maximum effect is made of all gusts.

If the nose of the boat starts to dig in then two things can be done,

1. Pump the jib
2. Point the boat up into the wind.

It is better to avoid the nose dive in the first place, this may require the helm and crew to move a long way back in the boat – (the helm's bum hanging off the transom and crew's back touching the tiller is a common sight in strong winds) – keep alert though as if the wind dies you will need to move forwards quickly to prevent the transom dragging.

Running:

In light winds the Twelve will slice efficiently downwind. In strong winds team work and quick reactions are vital.

Controls: MAX POWER

The controls should be set the same as for reaching with the kicker eased slightly.

Team work



Helm and crew sit as far apart as possible (side to side, directly opposite each other as shown in the photo), this makes the boat more stable. The boat should be sailed flat or slightly heeled to windward to raise the lower part of the sail into better wind. The fore-aft trim is set the same as for reaching and as gusts hit the helm and crew should move back together to prevent nose diving.

PHOTO: Helm and crew sit on opposite decks as far apart as possible to stabilize the boat., dangle pole out to goose wing the jib, outhaul eased and shroud off to allow the boom as far forwards as possible

Gybing

In light winds the Twelve will gybe effortlessly and come out as fast as she starts. However, in strong winds, good team work is required in order to keep both helm and crew dry. Very different techniques are needed for light and strong winds.

Roll gybe in light winds

1. Pull the leeward shroud back on
2. Crew moves towards the helm to heel the boat to windward to initiate the roll – the more heel the better (the deck should be touching the water)
3. Helm uses a small amount of rudder to help the boat turn.
4. Helm crosses the boat as the boom comes over
5. Helm pulls the boat up and pulls in a few feet of mainsheet to help the top batten flick. As with roll tacking the crew moves to either aid or compensate for the helm's movement.

Gybe flat in strong winds

1. Pull on the leeward shroud
2. Leave the centre board half up (this reduces the pressure on the rig as the boat is pulled up on the new tack)
3. Helm pulls in a couple of feet of main sheet to pull the boom off the shroud
4. Crew generally moves to the middle of the boat and stays there during the gybe
5. Helm starts the turn and uses a small amount of windward heel to help turn the boat



6. Helm crosses the boat as the boom swings across
7. Helm ensures the rudder is in the centre as the boom hits the other side - this is best if the tiller extension is held firm against the deck to keep the rudder in the middle
8. Crew now waits to see which way the boat is going to heel and reacts quickly to keep the boat flat and prevent rolling to windward (death roll) or leeward (broach). Watch for the nose dive on exit from gybe particularly if crew has moved forwards for the gybe but does not move back quickly enough. Pulling in the jib quickly on the new side can help avoid this.

These are some guidelines to help you get started. As you practise you will work out new and no doubt better ways of working as a team in your Twelve. To help you practice these skills why not come along to a National 12 coaching day? Once you have mastered the basics, try some of the more advanced techniques as described in the other articles.

When it blows

The Surf's up, the breeze is on, BRILLIANT! National Twelves are probably the most exciting boats to sail in a blow. Difficult upwind and downwind can scare you silly!

Get out to the race course in plenty of time and start the fun. Try the beat, not just to check your compass, but to find out how your rig is, and how it needs to be. Typically we ease the forestay about an inch and probably crank the shrouds down about two in a serious blow. As the wind increases we pull on more and more shroud (the lighter you are the more you will need to de-power). This induces more bend into the middle of the rig flattening the mainsail, as well as maintaining the jib luff tension. (Otherwise the jib luff would sag, effectively making the jib fuller and spoiling your pointing ability). Due to the bendy characteristics of most Twelve masts you should find that as soon as you are both fully hiked the leeward shroud will always be panting (just slack). This is fast! Try to have the rig set correctly when the gun goes, otherwise you will find yourself with your head down when you need to be concentrating 100%.

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Hike hard! The harder you hike the faster you will go! Most people tend to edge towards the front of the boat upwind. This is not fast in a blow. The thwart (if you have one) is generally a good indicator of where to put your feet. Helmsman just behind and crew just in front, be friendly- stay close together, it reduces the energy wasted in pitching. If your boat builder forgot the foredeck you may need to be even further back to keep the sea on the right side. Try not to let waves break over the bow, going round or over is faster than under. This is a matter of practice.

When you arrive at the windward mark make sure you have an easy rounding. Crash tacking in a force five or six is a skill best practised somewhere else. Ease the kicker before you attempt to bear away, it might save an embarrassing broach. If you have the opportunity to get the board up before the mark this will also help. The most important thing in achieving a broach/capsize-free windy bear away is making sure that both of you, (crew and helm) stay on the side until you are properly born away. Well done, you are now on the way to the gybe mark.

The reach is where the fun really starts. Most boats are designed with lots of buoyancy under the mast with wide sections for easy comfortable planing. National Twelves on the other hand have developed to go fast. This means that there is no time to relax on a windy reach because if you do you will either go slowly or worse the boat will chuck you in. The one thing we all know about windy downwind Twelve sailing is that you need to get back! When the breeze is on this is definitely correct. 12'6" behind the bow is the much talked about position. This is actually rarer on reaches than most of us like to believe, most Twelve helms tend to retreat too far too soon, and stay there too long. Dragging the transom from when the first gust hits to the gybe will put you in the slow lane! As the boat accelerates in the gust or down a wave you move back, but remember to move forwards as the boat decelerates, this will increase the length of time you actually plane.

Steering the waves and boat balance are absolutely critical for a fast downwind ride. As the helmsman holds the tiller, he or she will know when the boat has weather helm, lee helm or is about to bear away down a wave. Communication is the key. I talk to my crew all the way down a windy reach about balance both fore and aft as well as side to side. (She is very sensible and filters the rubbish out and keeps the boat

upright.). Setting up the rig on a windy reach is a matter of how windy and how heavy / fit you are. If you are struggling to make the mark do not power up the rig! If you need more power then go for the outhaul off, leeward shroud, the works. In my boat the leeward shroud stays on when we are scared, or if we cannot get off the windward side to release it (same probably). The best sail trimming tip for breezy reaches is do not over sheet the jib. The helmsman is dumping the mainsail in the puffs, the jib needs to be eased the equivalent amount to prevent the slot between the sails being shut. Sometimes this means the jib luffing but this is better than over sheeting, and helps the boat accelerate in the gusts.



Next the gybe mark. **GOOD LUCK!** If it is that windy and the result that important and current position good enough, do you need to risk the gybe? If you choose to wear around do not capsize as you will feel particularly stupid. If however, you decide to gybe then make it good. Pick your wave! Screaming down the face of a wave takes the load out of the rig and flicking the boom over will be easy. On flat water the aim is the same, gybe when the boat is going fast not as a gust hits when the rig is loaded up. Crews need to pull the boom over for the helm. If the boom won't come across, yell early, your helmsman may abort in time to save a swim.

On the run, balance (as on the reach) is critical. If you get the balance from side to side right you will find it much easier to steer the boat where you want to. Playing the waves is how to get down the run fast and safely. Hitting the back of each wave is both scary and slow. As you pile down the old wave, work out where you need to stick the bow next. You will normally want to luff to safely climb the next wave, however if you can work low on the run it might save you another messy gybe!. Again a windy run is often a "sit back" situation and again most of us overdo it. But, if in doubt or fear, back is the safe option. The jib stick on a breezy run is a necessity, without it the balance is wrong and you will not get there. If it is windy enough to be flat out planing rather than surfing on the dead run then keep the shrouds on. You are far more likely to invert the mast on a dead run than on the reach.

Remember before you leave the dinghy park make those extra checks. Things like rudder fittings, worn halyards etc., are just waiting for that extra five knots of breeze before they give up on you. There is nothing more annoying than missing out on a storming sail because your Twelve does not stand up to the breeze. The worst thing that is likely to happen to you out on the water is that you will get wet, and a decent drysuit can prevent that, so when the breeze is on get out there and sail one of the most exciting boats available.

Upwind in a blow

The secret of heavy weather beating is that you must be using the wind not fighting it. The boat must feel comfortable. One of the joys of sailing a Twelve is that you have the leverage when leaning out, and the rig control, to achieve this even with crew weights of 17-18 stones. How? Read on! The key factor is to de-power the rig to reduce heeling, and therefore the best place to lose power is the top of the sail.

Set the boat up with a well bent mast, using a mighty screw, mast ram, and/or shroud tension. The mast bend when combined with a tight cunningham downhaul and a fairly slack kicker, will flatten the top of the sail and allow the leach at the top of the sail, so this control needs to be used very sparingly in anything less than strong winds, but pulled tight in a blow.

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When sailing, keep the boat upright. Ease both mainsail and jib so that they are both flogging to the same degree, sit a foot or two further back in the boat, and lean out. In the puffs ease both sheets further, in the lulls pull them both in. It doesn't seem to matter too much which direction you point - you can point high and go slowly, or sail flat and free, but you seem to end up at the windward mark at the same time.

Keep the boat going over the waves by picking a path through them. Bear away, easing sheets and sitting further aft, when you encounter really steep chop. Try to find a relatively flat patch for tacking or failing this, start tacking just before the top of the wave. The slack kicking strap makes the boat easier to control immediately after the tack. then lean out.

Learning to sail fast is a bit like producing a Wimbledon-like grass court. Plant the seed then keep rolling for one hundred years. In sailing it is understand the theory, and then keep practising, and in time you'll be one of the tough who gets going when the going gets tough.

Heavy weather downwind

We all know the feeling, it's really howling, the waves are white with spray, the wind is screaming across the foredeck, so is the crew, you have survived so far but the windward mark is looming and somehow, you will have to get round and back to the leeward mark in one piece. The National Twelve is not the most forgiving boat downwind in a blow, the combination of a high sail: length ratio and comparatively fine bow sections make for great instability with only a very short time span available for correcting mistakes before the sky turns green. The dead run is the most exhilarating and frightening part of Twelve sailing. This article shows how it can be mastered.

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Firstly **TRIM**. as you round the windward mark both should stay up on the gunwale until you are safely borne off and flying away on a course approximately 10 degrees above the true downwind direction. As the pressure on the rudder induced by the turning manoeuvre eases, the crew should slip across the boat, pulling the board up as he/she goes, and into a crouching position level with the tiller and to leeward. The helm and crew should be making continual, minor but delicate adjustments to their positions to compensate for slight changes in trim due to waves. The overriding aim is to minimise turning pressure on the rudder and this is achieved by keeping the boat upright. Hurried, panicky movements in the boat will induce over use of the rudder by the helm setting up an oscillating effect leading to the spectacular and inevitable capsizes.

Next **SAIL SHEETING**: The kicker must be eased before the windward mark. If this is not done you will blast off downwind with full kicker producing enormous sideways loads on the weaker plane of the mast. Cunningham should be let off but other controls, outhaul, ram, shroud tension are left as for beating. As you bear off round the mark the main should be eased right out until it contacts the shrouds. I have experimented with tying a knot in the mainsheet, preventing the boom from touching the shrouds (a common practise in the Enterprise class) but for some reason I have felt much less stable on these occasions. The mainsheet should then be used for control with the rudder locked tightly in a central position. If the boat starts to oscillate and feels unstable - as happens when the bow enters a wave, the boat slows and the wind pressure on the sail increases - simply sheet in 2-3 feet of mainsail, this will reduce the sail area exposed to the wind and thereby release some of the pressure on the hull. This oversheeting technique should be done continually with the main eased right out when the boat is in balance and planing fast. The jib should be sheeted in behind the main. Using a self-launching jib stick will assist with stability and jib setting.



PHOTO: Phil David and Alan Thompson getting downwind in a blow during the Scottish championships at Kippford

STEERING: The need to avoid over use of the rudder and hence instigating the dreaded death roll cannot be over stated. The tiller should be locked centrally. At sea some coarse adjustments to avoid awkward waves,

capsized boats, debris etc. will be required. Inland the aim will be to bear off before the gusts. These adjustments should be made by slightly heeling the boat, to windward to bear off, to leeward to luff up, by minute amounts. Only minimal amounts of rudder should be used.

GYBING is not recommended in these conditions. Twelves, being relatively short and with a large main, tack round very quickly and safely. Gybing is often not worth the risk.

EMERGENCY PROCEDURES: Inevitably things can go wrong or you lose concentration for a split second and you can get into difficulties. However, there are last ditch techniques which can save a seemingly inevitable capsize.

Scenario	Technique
A massive gust strikes and you can feel the boat start to death roll to windward. You are pinned in the water and cannot get back in, the crew looks down on you with glazed eyes from the leeward gunwhale which is now 4' high in the air.	<ol style="list-style-type: none"> 1. Don't panic; 2. Haul in yards of mainsheet as quickly as you can; 3. Don' t worry about the rudder; it is probably out of the water anyway. <p>The wind force on the now pinned in sail will tend to force the boat back up. Windsurfers employ this technique for wet starts and I have used it several times in moments of crisis.</p>
The broach and leeward capsize. These occur very quickly with the boat spinning round, heeling over, water coming in over the leeward side and the boat sinking sideways into the water and capsizing.	<p>Prevention is better than cure. The most vulnerable point for this capsize is when you are reaching fast with slight heel. The remedy is to ease mainsheet and let the jib flap at the first sign of trouble. If you find yourself at the point where the leeward gunwhale is below the water:</p> <ol style="list-style-type: none"> 1. Flick off the kicker, which should allow the boom to lift and spill wind out of the sail 2. Mainsheet and crew should fling themselves onto the windward side and hope the boat comes up.

CONCLUSIONS The main message for sailing in very windy conditions is to enjoy yourself; after all the worst thing that can happen is a capsize and that is not a terminal condition in a Twelve. But please - never venture out without good rescue cover and make sure that your boat is sea worthy.

Big waves and big seas

The keynote is confidence. That means confidence in not only yourself and your crew, but of course your equipment. Your best weapon is the knowledge that when the going gets rough you can take it. And not just as a matter of survival but to race.

Oh God here comes the gybe and I can't do it.

First examine the boat. Dinghies are not often sailed in bad conditions, so it's easy for little defects to accumulate and never to be revealed, until its too late! The big seas and winds will sort out weaknesses and lose you a race unless you take the trouble to prepare for the worst. The bits of a boat that start to come to pieces first are the bits that get the most violent strains: rudders, kicking straps, jib halyards, etc. The moral is to pick the best fittings available and make sure they stay attached. That means bolts, not screws. It means oiling your jib halyard and its sheave frequently and replacing at the first sign of wear. It means eliminating chafe from your kicker wire. It means not "making do" with worn out or badly designed gear, but having strong, reliable, well maintained equipment which won't let you down.

Now you've got to get afloat, and perhaps off a nasty beach. Rig everything up: put elastic bands round each coiled halyard separately so they can't unwind, when you're upside down. Tie a knot in your mainsheet so the boom can't get nearer the shroud than 6". Enlist some helpers, leave the kicker fairly slack for the launching and with the rudder in, off you go. Don' t stand right behind the boat when you're launching and, having got off the beach, don't point too high till you're well clear of the breakers.

Once in deep water, get 2/3 board down and secure your rudder blade. Get the bailers down, make sure there are no leaves or bits of paper floating about in the boat to choke the bailers. Sail quietly to the start area setting up the boat and looking for flags on the Committee Boat and course marks that you may have to round during the race. Having got to the start area, eat some gums or sweets and settle down. Remember this is a bad bit to

survive through, with the wind howling and a lot of guys screaming up and down tiring themselves out. Keep the kicker fairly slack at this stage, especially while hove to. Don't flog the sails too much and watch out for other boats and the Committee Boat signals. Don't try to talk to people in other boats - just relax, keep your boat as dry as you can and think about your start and the first beat. Check the time and keep looking over your gear in case something is fouling up. Whilst hove to, heel slightly to lee, away from the waves.

As you come up to your start, try to keep clear of other people, and remember to be far enough back from the line so that you can accelerate with a few seconds to go. You're off!

Don't pinch - sail it free and sit aft a little to keep the boat dry. Watch the waves - especially the crew who should move aft for the big ones without being told. Don't pull in more sail than you can hold. If you are badly overpowered let go a bit on your mast pusher control and if you have to, pull up the board a bit. Don't let the boat heel and keep the water going past your rudder: as soon as you stop, you're done for! Put everything into that first beat. Your legs hurt and you want to come in: don't. Just concentrate on standing the pain in your legs. Don't tack any more than you can help and pick a smooth patch to do it in.



PHOTO: Graham Camm and Zoe Ballantyne driving over the waves at Tynemouth, a venue renowned for it's big rollers

Here comes the weather mark. Keep sitting out flat and sail round gradually a bit at a time. Get some board up. Jib stick. Ease kicker. Tighten mast pusher. Drive it hard: spill if you have to. Bear off in violent puffs, sitting well back. Encourage the crew to work that jib all the time and don't let them get the idea that this leg is a rest.

Oh God here comes the gybe and I can't do it. Keep sitting out as you bear off. Don't let it heel to leeward or you'll never bear away. Keep on bearing off till you're sure the boom will come: crew watch for the burgee to come over: when it does the boom's ready. Bang! We've gybed. Slam a bit more plate down if she rolls to weather.

Now we're running (or swimming). Settle down. ease the kicker. Goosewing the jib stick if you can for stability, then sit out aft either side. In the worst squalls the crew should be able to see the outside of the transom. Let the crew hold the jib sheet so you can hold the main. Keep dead downwind what ever happens. Don't think it's better if you luff a bit: it isn't! Beware the weather roll - if it happens yank in a yard of mainsheet and ram down the tiller hard.

Here comes the lee mark. Don't tip in here - it's the worst place to do it. You're tearing down this horrendous wave and the jib stick's in and the plate half up. Oh dear. The hell with it all: when you get to the mark just ease the jib so it blows off the end of the jib stick, then sail the boat slowly round the mark. Leave the plate half up, don't pull the jib in at all, just a little bit of main till you're more or less on the wind and the water's going past the rudder, then get the stick in and sort yourselves out.



PHOTO: Steve & Izzie Adshead negotiating the waves during a particularly windy Burton week at Pevensey Bay, another wavy venue

By this time you've got an idea of how the pattern of the race is coming along. The fleet has thinned out and you can see what you must do to get the best result. Remember it's never over till it's over and you must keep trying. Determination and experience will get you through in the end and you must keep up the pressure. Survive? Yes of course you must, but while you are surviving don't forget that it's a race and in a series a good result in any extreme race (heavy or light) which may cause a lot of retirements is of great value in adding up the final score.

Light winds inland

The wind does tend to be more variable inland than on the open sea, but there are more ways of gauging what the wind is doing inland. We always watch the boats (and their burgees) around us to spot the shifts, but we also look at our burgee and any flags on the bank, and even the wind in the trees to get some idea of what is going on. Even with these indicators we find it hard to predict what the wind might do, so we always try to be prepared for anything which enables us to respond to the changes. For example we have practised our boat handling so that a big header naturally transitions into a good tack, and we tend to sail with a slightly loosened outhaul to get more power from the lifts.

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The wind's variability inland means that there can be huge speed differentials between boats that are physically very close to one another, it is for this reason that we often `sail for the wind'. This can mean deviating from the shortest course to the next mark to get the maximum benefit from a patch of wind. Equally it means avoiding the wind shadow of other boats; one missed gust can make a big difference inland.

Several inland venues have strong tides and currents. These have a greater impact inland than those on the sea because they are not uniform over the race course. As everyone knows, the currents weaken as one gets closer to the shore, but conversely the wind often gets weaker too. Because of this the big gains and losses are made in areas where the current eddies. Water likes to flow in a straight line and eddies are formed when this laminar flow is broken up. Thus one tends to find eddies where a river bends or where a peninsula juts out. However eddies are equally formed by underwater rocks and shoals so go watch those local sailors.

There are often a lot of comments about what makes a fast inland boat, and there is no doubt that some competitive inland boats do not sail so well on the sea. Our experience is that the boat design does not have to make a huge difference to your potential inland. It seems to us that if you put a good inland sailor in a dog of a boat, then they will still sail well. However it is important to sail to a design's strengths: whilst we tack at the drop of a hat in our Tigress, in the Chapter we tend to use the whole width of the river. Regardless of what design you sail, there are a few ideas that may enable it to go faster inland. We never sail without a burgee; it seems to me that the burgee tells you not just what the wind is doing but also what it is about to do. When the wind is light, which only happens very occasionally inland, we sail the boat heeled slightly to leeward and trimmed down by the bow. Heeling to leeward definitely helps sail shape, and can reduce the drag in some designs. Trimming the boat forward stops the transom dragging.



PHOTO: Nigel & Oli Goodhew gliding along on the river Thames at Henley. Boat heeled to leeward to help the sails set.

Despite the lighter winds sail shape is still very important inland. As mentioned previously we sail with fuller sails than most, both to make the most of the gusts but also because it is difficult to be certain where the wind is coming from - even when sailing up the beat. Similarly we often sail with the jib not quite hard in to make good progress and the most of the lifts. With modern sail designs this tends to mean sailing with more kicker than I would expect but it does result in a good looking sail shape.

Finally `never give up'. This may sound a little psychological, but if the crew remains calm and unruffled by the vagaries of inland sailing then opportunities will arrive. It has often been proved that is possible to make up long distances on the last leg of inland courses.

Light wind championship courses

Looking at the contents of the tuning booklet, it struck me that there were heaps of articles about going fast in strong winds, and none about light winds. I have for many years tried to get someone to tell me just how to go fast in light winds, but all light wind gurus seem to guard their secrets and hang on to their advantage, leaving you and me to marvel at their skill and pray for wind. So I thought I'd write their article for them. Only mine is subtitled "How to hang on in championship races without having boat speed" So this article focusses on race day, from waking up to arriving at the first mark up with the leaders.

How to hang on in championship races without having boat speed

On race day, make sure you arrive at the dinghy park and launch at times you feel most comfortable with. You will tend to see the same boats launch early each day and the same late. I like to get to the course around 25 minutes before the start; this gives me enough time to check on tactics and the tune of the boat, but not so much time I start worrying or get fed up with waiting. Now comes the most important time for getting to the first mark first. You have to do two things; decide where to start and approximate tactics and check that the boat is properly set up for wind and sea conditions.

Approximate tactics equates to which route you'll do up the beat, whether you'll tack on all shifts or just big ones, etc.. The worst sort of plan is the one that has no flexibility - "Go left, hit the lay line and tack" is rarely good enough for first place (except in Plymouth Sound), more likely last. These tactics will then help you decide where to start. For instance, if you, decide to go right initially, an early start will make it less likely you can tack and could therefore mean you spend the first five minutes wishing you were going the other way. And while you're wishing that, you certainly will be going slowly. Thinking through your plan for the first beat thoroughly will also help you come to the right decision quickly when you find you are not where you planned to be. How different things turn out from what you expected will help you plan the next beat. What that worked up one beat will rarely work again up the next. So often people base their route up the second beat solely on what happened up the first.

Now comes the other pre-start activity - checking the tune of the boat. I tend first to sail a bit on each tack on my own to get a feel for wind direction, wave angle, size and steepness, and frequency and size of windshifts. This practice is especially helpful to your crew who can get a feel for jib sheet tension, where to sit, how far to move back in waves, etc. Then I try to team up with another boat and again sail on both tacks to make sure that kicker tension, shroud / jib halyard tension, and jib and main sheet tensions are optimal. Pick someone of about your standard with whom you are happy to share information, and then you'll learn why you or he is going faster before the race instead of afterwards.

Other things to do before you pass the start; if you pass the windward mark, do a bit of beating close to it and check the tide. A lot of places can be won and lost there, and if you know what to expect, it will be you that is winning them. Discuss with your crew your tactics for the race. If he knows what to expect, even better. And if you're like me, drink a can of ginger beer. Pulling ring tops on a reach in a force four is bad news.

At last the waiting is over, the path-finder is coming across and you are in your chosen starting position, sitting with your sails flapping a little way behind the line. The pathfinder is now 30 seconds away and you are 15 seconds behind the line. **DO NOT BEAR AWAY.** The important thing is to create a gap to leeward and by bearing away you lose that gap. You put yourself in the backwind of the boat to leeward and give that gap to the boat to windward, who therefore will be able to sail fast and unincumbered until she is ahead, to windward, and blanketing you. Therefore keep moving forward slowly in a close hauled direction until the final few seconds when it is possible you bear away slightly to accelerate, clip the gate launch's stern, and sail away into first place orchestra playing, boats fading into the distant sunset, waves breaking against rocks - Wake up! Wake up! The race has only just begun, the music will come later.

Now whilst you're concentrating on sailing fast, your crew is keeping a look out for where boats seem to be going fast and where slow. Your crew knows what to look for, because you've already discussed tactics, and will be able to say how good your pre-race plan looks in practise. And if you're on a loser don't just hang on and hope that the almighty will come up with one of his great windshifts and propel you into first place - that's orchestra fantasy-land again. Instead give it some thought and a little time - but not too much. Why are they doing better over there? Is it going to stay that way, or is it going to be your turn next? Often this is more luck than judgement, but do give skill and thought a chance! Factors to consider are: is it a wind shift, or a bend caused by the land? Is it because of a cloud overhead or the sea breeze coming in, is the tide more favourable, or the sea flatter, over there? Or are they just quicker than me in which case why have all the "quick" boats gone one route and I'm going another?

OK, you decide it is a shift. Because you decide that, you do not tack and do not go slower for being depressed. Instead you carry on sailing, concentrating on the waves and wind. You are proved right; the wind shifts back the other way after five minutes (you'd spotted pre-start that shifts come about every five minutes), you tack for the mark, and you're right up there with the leaders . . . turn that music off! This is for real. The key thing when getting close to the mark is to forget it is a championship course. At the local club your longest beats are 200 yards, and you would never dream of doing them in two tacks. Same goes for the last 200 yards of a championship beat. Don't hit the lay line early, don't ignore the wind shifts because you're tired and nearly there, and do consider whether you want to risk a port tack approach or play safe and join the queue on starboard.

And you get it right this time. You were lying third when you spotted a small wind-shift. Two quick tacks, and you just catch the other two port-starboard and squeeze around the mark in the lead, let the outhaul off - plate up, put the needle on the record, lean back in your arm-chair, and wait for the next article on how to go fast on reaches!

On the run

In river and estuary sailing the wind often blows along rather than across the water and consequently the run can become a very significant point of sailing. The run is one of the few points of sailing where the trailing boat has a real chance to attack the opposition and conversely the boat in front is usually put on the defensive. Thus the run should command as much concentration from the helm and the crew as they give to the reaches and the windward leg. The natural instinct is to get to the windward mark, bear off, and relax somewhat until the next mark appears. This is obviously a dangerous course of action as the high standard of Twelve sailing requires maximum concentration at all times by both helm and crew. When we reach the windward mark and go onto the run, the drill is as follows:

The run is one of the few points of sailing where the trailing boat has a real chance to attack the opposition

- Boom out and gybe if necessary.
- Kicker tension off, in all but the strongest winds.
- Jib stick in position.
- Cunningham off.
- Straighten mast.
- Both shroud muscle boxes off, in all but the strongest winds.
- Outhaul off by perhaps 12-14 cm.
- Centreboard up as far as possible for the prevailing conditions.
- We do not necessarily do things in the order given!

Each step deserves some explanation: **To gybe or not to gybe?** I have found the greatest success in gybing as infrequently as possible; this perhaps is due to my inability to gybe well, however before you approach the windward mark the decision whether to gybe or not should be considered. Obviously the final decision may depend on what boats in front or behind eventually do.

Kicker Tension In my opinion the kicker tension is the most important adjustment that you can make to the sail on the run. Minimal kicker tension seems to work best. Only when the boat is becoming very unstable in a wind does the kicker remain on.

Jib Stick The right length jib stick is critical (ours is 156cm). The stick should be the maximum length within the rules that enables you to get the jib into good shape. A dangly pole is essential.

Cunningham Anyone who sails with their cunningham on during the run is a wally !

Straighten Mast This trick is well practised and it seems to work. We have found it beneficial to release both shrouds on the run. This lets the mast top move forward with definite benefits. If it is very windy the weather shroud would probably stay on!

Outhaul There is a school of thought that advocates keeping the outhaul out; some people do but most left the outhaul off.

Centreboard Another Important factor. We find that having the board right up in the box beneficial unless it causes a death roll with the obvious final results.



In order to achieve the above operations quickly it is essential to have efficient controls that really work well. Having set the boat up it is then a question of the correct weight distribution. When it starts to blow weight needs to be brought back in the boat. Now to sailing technique. Total concentration is essential and if possible; inching upwind in the quiet patches and bearing away in the puffs. As with all points of sailing the secret is to keep the boat on the move whenever possible. Unless you are a two boat race situation, avoid other boats as much as possible in order to maintain clear air and an uninterrupted course. Whenever possible the mast should be nearly vertical and of course keep a continual check that you are not sailing by the lee. Keeping the crew active on the run can be difficult especially in the lighter airs, however if you want your Twelve to arrive first or stay with the competition, maximum concentration, balance and delicate sail adjustment are continually required.

Using the dangly pole

The dangly pole (self-launching jib stick) is a great invention. It helps performance in many ways

1. Easier to goosewing - quicker for the crew to goosewing the jib and less time spend at the front of the boat (a precarious position in a breeze)
2. Sets the jib perfectly on a reach – flying the pole to leeward enables the twist and fullness of the jib to be set perfectly. It also keeps the crew entertained with two strings to constantly tweak.

The dangly pole is a great invention. It helps performance in many ways

Goosewing

This is simply a case of the helm pulling the windward jib sheet to encourage the jib onto the windward side, then the crew pulling on the pole to push the jib out. Job done.

Flying to leeward

This bit requires some concentration because it quite sensitive. The crew should be playing the dangly pole control as much as the helm plays the kicker. As the reach tightens the pole should be eased and the sheet tightened and as the reach broadens the pole should be pushed out further and the sheet loosened.

A perfect pole set optimises both the twist (this is how much the top of the jib sags off compared to the bottom) in the sail and also the curvature in the sail.

In light winds a little more twist is a good thing and as the wind increases the twist can be reduced by pulling the pole out further and tightening the jib sheet. Practice is the best way to get used to this. The pictures below show what shapes to aim for.

Too much twist



Perfectly set

(a small amount of twist, a nice full jib giving plenty of power)



Too tight

(not enough twist, jib too flat and not powerful enough)



Gybing

Let the pole off a little bit (just enough so that it will pass inside the forestay) going into the gybe. Don't let it all the way off because if you do it is harder to pull it out on the new side. The most slick way to gybe the pole is to gybe it before the main gybes as this gives you more speed and stability coming out of the gybe. To find out how to make a dangly pole check out the tuning guide.

Capsize recovery, or “beating the big flip”

The problem can broadly be broken down into two stages

1. Righting the boat
2. Recovering the boat i.e. getting in and sailing away and achieving a level of control (this is the hardest bit)

When you capsize your primary goal is obviously to get racing again as quickly as possible

Phase 1 - Righting the boat.

This bit applies to all boats, not just the double bottoms. When you capsize your primary goal is obviously to get racing again as quickly as possible, this means that as I realise that I'm definitely going in, I concentrate on stopping the boat inverting. If you watch a good board sailor when they know that they are going to and they always look to fall in a manner that they can recover from easily, something I bear in mind. Back in the 12, under certain circumstances, a member of the crew can scramble over the top and get immediately onto the board. This will always avoid the inversion and save swimming round the boat time. Trying to go over the top too slowly and too late always causes the boat to invert but might keep your feet dry.

Once on the board, you should immediately do what you have to in order to get the boat stable, on its side and not inverting. This is the time to have a quick think about what you're going to do and let the crew know. If the boat is head to wind, or you'll be pulling it up head to wind, then you can just get on with it. If you're pulling the boat up with the wind behind, the chances are it's just going to roll over again. In this instance you have four options:

- Put the crew on the bow to encourage the boat to swing around to head to wind. This takes a long time and does not always work.
- Pull the boat up, let it roll over again, swim around to the other side and start again. This takes a very long time and often doesn't work as the boat rolls all the way over and inverts.
- Put the crew in the water, lying between the boat and boom and scoop them up as you right the boat. The crew can then sit-out hard and stop the boat capsizing again. If the crew is too small or the wind too strong this may not work as they will not be able to prevent the boat from capsizing again. The crew also probably needs to be capable of taking control of the boat as we will discuss in phase two.
- The kamikaze roll. Pull the boat up as normal but hang onto the board. As the boat capsizes again the other way you will be taken all the way under and come up on the new side of the boat on the board. You will be able to prevent the boat inverting and be in a good position to right the boat immediately, into the wind and in a controlled manner. This is not everyone's favorite method (expensive on hats) but it's definitely the fastest and most reliable but be sure to tell the crew what you're intending to do to avoid panic.



PHOTO: Mike Cooke showing how high the double bottom boats float when capsized.

In terms of simply pulling the boat up, there are a couple of things to bear in mind. I can normally pull the boat up on my own but not always - there are two of you in the boat and there's plenty of space on the board for both of you. If the crew is around, I always drag them up on to the board as the boat will come up faster and you will both be able to get in much quicker. If I'm righting the boat on my own I will always reach over into the boat, release the kicker and grab the jib sheet (being careful not to invert the boat). By grabbing the jib sheet on the jib side of the ratchet block you can use the jib sheet to support you while you move right out to the end of the board, leaning right back to exert maximum leverage. Without

the jib sheet and with the kicker on most people would (probably) struggle to pull the boat up on their own. As the boat comes up you must get in straight away as you have to take control immediately to avoid the boat capsizing again - as we will discuss in phase two.

It's very important not to do anything to right the boat until you are confident that the crew is ready and in a good position to hold on. The double bottom boats do tend to sail away and losing the crew will make your life a lot more complicated

Phase two - Recovery, getting in and sailing away.

Here's where some of the double bottom boats' amusing little habits kick in and try to send you back to square one. By being aware of what is likely to happen and knowing what to do about it, none of these little quirks should become a major problem.

The first and least pressing problem is the small amount of water scooped up as the boat is righted. This water tends to rush from side to side of the wide, flat floor making the boat unstable for a very short period of time before it drains out. As long as you are aware that this is going to happen, you can compensate for it (provided you got in) by moving around in the boat. Most problems are caused by the fully drained boat being rather frisky. The result is that it's not inclined to sit in a docile, swamped state while the crew sort themselves out at their leisure. This leads to several irritating behaviours:

1. 'Sail off' - the boat bears away enough for the mainsail to fill, this results in one of four possible scenarios. (NB: If the kicker has been fully released, the mainsail has less power (to start with) and you get a bit more time to react.)
 - a. It luffs up again, stops and nothing happens
 - b. It carries straight on, accelerating rapidly and someone (or both if you didn't get in) gets left behind.
 - c. It bears off and capsizes to windward.
 - d. With no one on board it just falls over.

Obviously (b), (c) and (d) are bad so the crew member in the boat must immediately pick up the tiller, take control and luff the boat up enough that it does not sail away. It's important not to stick the boat head to wind or you will encourage bad habit (2)

2. Going astern. If the boat sits head to wind in a blow it will quickly gather sternway. If you don't have transom flaps it will probably swamp over the stern and capsize. If it does not capsize it will tend to 'flick off' one way, the mainsail will then fill resulting in a 'sail off' as described above. This going astern behaviour can also occur as the result of a bad tack in a very strong breeze.

To avoid this, the person who got into the boat should take control by backing the jib to achieve a safe close hauled position. In both scenarios this close-hauled position is what we're trying to get to. It means that the main can't fill and cause the boat to just blow over and avoids getting stuck head to wind and losing control.

All of the techniques we have discussed so far involve someone being in the boat to take control. This is important as the boat will not wait until you're ready - you must get in and take very positive action. As we've discussed, the boats do tend to swamp over the transom particularly if they start going astern. This tendency is made considerably worse with a fat bloke stood near the back. Grab the tiller as fast as possible and then move well forward until the boat has drained. You don't need to fumble around with the mainsheet at this stage, if required you can grab the boom directly to sheet the main.

Once you're in and you have the boat under control (i.e. drained and pointing in the right direction), you will probably need to get the crew back into the boat. The best way to do this is by rolling the boat to windward and pulling them over the windward gunwale which is very easy as they don't have to climb. Don't try and pull them in over the stern, as the boat will tend to bear off and sail away at the same moment that they are getting in the way of the driving wand.

There's nothing to say that the helm should be the one to get into the boat and take control. If the crew is capable and more able to hop back in, then this may be the best course of action, just make sure that someone does. As an aside, if you think it's difficult to recover a 12 then can I recommend a sail in a modern skiff on a brisk day with a rescue boat standing by?

Keeping calm

Have you ever wondered how it is that some competitors just refuse to lie down and die? You know what I mean, on the start line you squeeze them out, so they have to do a few turns and then start long after everyone else, yet by the time the fleet gets to the first mark they are up with the leaders. You know they don't sail faster than you because at times you have been near them in the same bit of wind, and going at the same speed. So how on earth can they catch up so quickly?

Don't get angry, get even. Stay calmer, accept your Karma!

It's all in the mind!

Suppose you are the boat that got squeezed out at the start, how do you react? Do you blame your crew for not warning you soon enough? Your opponent for squeezing you out? The Race Officer for setting such a stupid start line? The wind god for arranging a heading shift when you didn't want one? Yourself for getting to the start line too early with nowhere to go? Do you start playing the 'if only' game.... if only we could tack consistently, if only they hadn't luffed, if only the wind had stayed the same another ten seconds, if only I could find some clear wind, if only I won the lottery...

Relax - there's a race going on!

Never forget that. If you find yourself trying to apportion blame, worrying about what might have been, you are not paying attention to the important thing. The good helm makes a bad start, and immediately dismisses it, to get on with the important matter of sailing towards the next mark as quickly as possible. He doesn't waste effort on anything that interferes with this - like arguing with the crew, or having a slanging match with another competitor.

So the next time something goes wrong and you find yourself down the pan. Don't get angry, get even! Concentrate on the race. Believe me, it works. Even tacking up a river I have been last to start, yet been in the top quarter of the fleet before the first mark. Another example, on a downwind leg you are 50 yards ahead of a fellow competitor and they are catching up. What do you do? Most middle of the fleet helms behave in a standard way that shows that they don't care about the race, merely about stopping the competitor behind from overtaking. They will go to windward a bit to try to keep clear wind. If the competitor gets too close they will try some sort of luffing manoeuvre, but it will probably fail and they will be overtaken. Meanwhile the switched on helm's ahead and behind sailing fast towards the next mark will gain time, and maybe places.

What do I do? First: ask myself, why are we being caught up? Check position of centreboard, sail controls, lateral and fore-and-aft trim, check for weed. Are we still being caught up? Look at the opponent, what are they doing different from us? Often you can see something, put it right and find they stop catching up. They are still getting closer? Maybe they are in stronger wind. Everything is set properly now so when we get it we should be OK. They are still catching up? Yes, then let them pass! If you do this sensibly you won't be in their wind shadow for very long, and you should be able to get a tow from them. In planing conditions you can hop onto their quarter wave, and in lighter conditions you can grab the accelerated wind off their mainsail - about a width to leeward, half length astern - and let them pull you along at their speed. This way you stay close to the competitor, travelling faster than you were before. You have more chance of passing them later.

Better than deliberately sailing slower isn't it?

Don't get angry, get even. Stay calmer, accept your Karma!



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