

Racing on Big Open Waters.

Many dinghies these days are raced on small inland lakes. Yet Championships and World Selections Series are held either on big open waters or the sea.

At first glance it may seem that the skills needed to succeed at sea are different to the ones we need inland. Sailing on confined water confined waters, for example gives a sense of security in that there is always land around. The land also gives us bearings and provides information on our heading when beating. Small venues also mean that the legs are short and there's lots of mark rounding action. The constantly shifty winds mean that we have to tack and tack again to make the most use of the variations. However, we rarely have enough room to give us time to wind the boat up into the "groove" to maximum speed.

Unfortunately not many of us get a chance to practice on the sea, but luckily the skills we develop inland can be adapted for sailing on the sea.

All we need to do is:

- ❖ Develop a system to make sure that we are making our best headway to windward even though there are no easy reference points around apart from other boats that is!
- ❖ Develop techniques to minimise the effects of waves when beating and maximise their help when off wind.
- ❖ Develop a sense of the overall picture. So that it is almost as if we are looking down from on high at the racetrack. We can then create a strategy for getting to the next mark as quickly as possible taking into account the effects of both tidal currents and the (distant) land on the wind.

At first glance it seems that all three skills revolve around what is happening to the environment outside the boat. We can't of course control that environment so at best our job is to cope! However we also have to monitor what is happening inside the boat and constantly question whether it is going fast enough. After all it is no good going the right way up the beat if the boat is going there SLOWLY. So, with that in mind let's now look at the three areas of responsibility.....

UPWIND SAILING.

Races are increasingly being won by sailing the shortest distance. This means making the most of any wind variations that occur even offshore. For example if we were to sail on a ten-degree header for half a mile we would be 150 metres downwind of where we should have been. Now no one is going to be daft enough to do that all in one go but it is all too easy on a mile long beat to build up that sort of deficit. Sometimes it seems after a flooky offshore wind with places changing all over the place, that "if you get it wrong you heave two for a bit. If you get it really wrong you heave three...."

So, how do we organise our heading so that we are always on the tack that is getting us to that windward mark quickest. In past Coaches corner has talked about the importance of Wind shift Tracking. If you remember we should decide before the start during several practice beats whether the wind is oscillating about a mean or is progressively shifting one way. Both need differing strategies.

In an oscillating wind aim to stay on the lifted tack pretty much in the centre of the course. Avoid either wing like the plague because it is so easy to get dumped!

The best way to decide on what the wind is doing is to use a compass to monitor the boat's close-hauled track. As the helm is busy getting the boat through the water reading it has to be down to the crew. He must be able to see it easily even when sitting out and so it should be mounted somewhere at or above deck level near the mast.

It is pretty straightforward stuff. All the crew has to do is note the heading on each tack and then as a gust or lull comes through see if it changes. It is not long before a picture emerges of what is the middle of those changes. All they have to do from then on is to call out when the heading goes up or down from that mid point or mean by using expressions such as "up 5; up 10; mean; down 10; down 5" and so on. REMEMBER THAT THE AIM IS TO STAY ON THE LIFTED SIDE OF THE MEAN so if the boat's heading takes a knock then tack. This enables the boat to take advantage of the lift on the other tack and so STILL STAY ABOVE THE MEAN thus getting us ever closer to that windward mark.

Slavishly following the compass to the exclusion of our other senses can however be fraught with danger. For example it is all too easy to tack every time there is the slightest header. Sometimes these can be "false" headers caused by changes in wind strength or by the boat wandering through waves. Therefore always wait until it becomes a significant knock of at least ten degrees or so before tacking. Another danger in tacking too often is that the boat doesn't have time between tacks to build up speed again. This is especially a problem in big waves when it definitely pays to tack as little as possible. Sometimes if the boat tacks immediately the header comes it is so easy to sail back out of the shift and be headed instead of lifted on the new tack?

What we mustn't do now with all this concentrating going on is to lose track of where we are on the racecourse. Take every opportunity of getting back to the middle EVEN IF THIS MEANS SAILING A MEAN COURSE FROM TIME TO TIME. This keeps our options open and ready to grab any bigger shifts that come through. If an incentive is needed to do this just imagine the horror of making the final approach to the mark on a header as boat after boat on the (opposite) freed tack pour across our bows.....

Sometimes the wind does not meander each side of a mean and so we have to learn to cope with sailing in a progressive shift. Often referred to as a Wind bend it is even more straightforward than coping with oscillating shifts. If the compass readings are showing that there is a persistent although often gentle change in the boat's track then sail towards the bend EVEN THOUGH THE BOAT IS BEING HEADED. Then tack just short of the lay line just in case the bend continues to develop and brings up all the hoards from below.

Apart from the compass there are other rather less sophisticated ways of telling whether the boat's heading is changing. On sunny days for example, the play of shade across the sails is a good indicator. Also the position and angle of other boats is of utmost importance in judging how we are going. Unfortunately, it is all too easy to become obsessed with this and think that every one else is on a freer.....the danger then is to decide to chase every one else's shifts. By the

time we get there the shift has gone. This is a passport not only to frustration but also to the back of the fleet!

Inland sailors often struggle to come to terms with the fact that it usually pays to stay on the freeing tack despite being covered. It is usually better to be going in the right (ie. shortest) direction on a freer even if slightly down on speed because of the other boat's interference. Tacking on to the header maybe better on speed but the extra distance is usually just too much.

2) Waves are created by the friction of wind moving over the water and are pushed downwind. The stronger the wind the bigger the waves especially if the wind is against the tidal current. Interestingly it is only the wave that moves downwind because the water stays where it is and simply rotates in a circle. The best way to think about the way it works is to "flick" a length of heavy rope, which is being held at both ends. Soon "waves" are working their way along its length even though the rope itself clearly is not moving.....

When sailing upwind waves are speed reducing because they are moving against the boat's progress whilst off wind they are speed enhancing as they give an extra push each time they pass. Our aim therefore is to minimise their damaging effect when sailing to windward and maximise their help when sailing downwind.

Upwind sailing.

It is clearly essential to keep the boat moving with as little energy lost as possible. Energy is lost when the boat is slowed by pitching; by sailing uphill (!); and by the waves hitting the bows.

To reduce the risk of these happening sailors should move back slightly so that the crew is about 250-300mm. aft of the shroud with the helm tucked in behind. This keeps their total weight about the pivot point of the hull and lightens the ends. Next, as the boat climbs a wave the sailors swivel aft pivoting at the hips. There will be extra weight to the wind at the top of the wave so an extra sitting out effort is needed to keep the boat flat. Then as the boat eases down the back of the wave the sailors pivot forward again. Total movement of this fore and aft sway is about 500mm.

I have never been a fan of trying to steer through such waves because it is just too easy to get out of sync and stop totally. Then with the waves piling up against the boat it takes ages to get going again! However, the boat will tend to luff up slightly as it climbs a wave as the force of the wave's movement heels it slightly. Then that extra bit of effort at the top brings the boat back upright or maybe even over upright to make it bear away and slide down the back of the wave.

THIS SLIGHTLY MEANDERING COURSE THROUGH AND OVER WAVES IS ABSOLUTELY NECESSARY and that is why it is so important that the helm does not grip the tiller extension so tightly that the rudder can't move. Aim to have a loose grip with what could be called a "weak" arm so that the rudder can move as it follows the boat's movement. The analogy in horse riding terms would be that the boat is given its head to find its own easy way through the wave obstacles.

Do beware of the sailors sitting out so hard that they hit the waves. It is a very effective way of coming to a halt. So is hitting several waves one after the other. Indeed there may come a time when the speed of the boat and wave are so equally matched that water is no longer flowing past the hull. The foils stop working and then the boat skids sideways. When this happens ease the main. Then sit out and using minimum rudder (because it will hardly be working anyway) bear away and get that speed going again.

Finally when tacking try to choose a flat spot or at the very least the back of a wave to give the boat a chance of getting round and going again before the next wave comes.

OFFWIND SAILING.

On our big open water courses we very rarely sail downwind exactly at right angles to the waves. Usually we are at an angle to them with one or other reach better aligned to give us the bigger push. Sometimes when reading articles on how to get the most help out of them we are urged not only to pump away like mad to fan the sails vigorously but to move our body weight about quickly. Only then apparently will we grab the waves and get surfing. Auntie Alb. has never been that big a fan of such energetic behaviour although realises that it can be effective in marginal conditions provided that it is done correctly. If is done inexpertly however, it is ever so slow! She much prefers to sense when a wave can help and then taking a leaf out of the surfing book snakes up and down the face according to need. There have been some lovely articles in Yachts and Yachting recently showing how Laser sailors are taking this to it extremes, covering long distances in their search for energy from these waves.

Indeed, that is exactly what we are doing so In order to take as much energy from each wave as we can we have to move diagonally along its face. If we were to stay in the same place all the energy would be used up and it would feel as if we were "sinking" lower down into the water. It is not a pleasant sensation. Another albeit less important reason for altering course is to stop the bow burying into the face of the wave in front. Very rarely is the gap between waves over 15 feet and so by angling along their face we fit into the gap.

In order to do this properly then we have to get into the rhythm of the waves as they surge away downwind. The knack is not to look at the wave the boat is either using or is about to use. Instead we are watching the wave that has just gone by. It may seem strange to think about but it is the one just in front of the bows that we are going to copy even though we are on the wave behind. Then as we feel the windward quarter lift as it is picked up by that following wave the bow drops into the trough between the two. Then making absolutely sure that the boat is at least upright we bear away along the wave **JUST KEEPING OUR BOW OUT OF THE FACE OF THE WAVE IN FRONT.** Mind you it is **ONLY** just out of the face. It would be even better of course to heel the boat slightly to windward to make it easier to bear away. The track of the boat at such times will not usually be down its keel line. It will tend to be more crab like and at an angle. Raising the centreboard an extra snippet encourages this. Watch out though if it is too high.....there won't be much to grab hold of after the capsize! Also it creates "helm" to make it hard to wander at will around the waves. So, only have enough centreboard down to stop the helm feeling loaded up.

Sometimes it will make more sense to luff up along the wave. Then the boat should again be absolutely upright but there is no point in heeling to windward. However, still use the rule about keeping the bow out of the face of the wave in front. Remember also that no sailor in the world gets every wave spot on so it is a matter of keep working at it.

One thing that is of major importance is knowing when to abandon the wave and let it go so that we can get organised for the next one. This point is usually reached as the wave passing under the hull gets to about mast position. After that it is not going to be of much help. Let it go by luffing up slightly to let it pass ahead of the bow then get ready for that tell tale lift of the windward quarter as it all starts again.

As the Laser sailors have proved it doesn't how much further the boat travels in the search for all that energy provided that the extra speed compensates for the extra distance sailed. It is one of those trade off things that every racing sailor is so familiar with. However, do bear in mind that eventually there is a mark to go round so know where it is. This saves that rather slow and embarrassing flog back to the mark because we got carried away with the waves....in every sense!

3) This is where we need to change the emphasis. In the "battle" out on the race course so far we have been Corporals dealing with individual skirmishes as they occurred. Now we need promotion to General for it is the overall picture we are after.

We should be constantly asking whether what we are doing now as a Corporal will give us an advantage either in a few moments or at the next mark (i.e. As a General).

This means that we should be checking where the next mark is and what is the fastest (but not necessarily the shortest) way of getting there. At the same time our position relative to other boats has to be analysed. For example, "Why is he over there? What does he know that I don't?" and so on.

We have already looked at wind and waves but we also need to know how to cope with tidal currents. Remember it is the horizontal movement that concerns us not the rise and fall of the water. After all we are hardly likely to run aground in the middle of the sea

Away from land there are not many guides to help us. So, on the way out to the start look out for lobster pots buoys or racing marks etc. and get a compass heading. Do the same at the starting line marks to see if there is a difference.

Our race strategy is based upon minimising adverse currents and making the most of currents going our way. One of the best ways of doing this is to use a weather going current on our lee bow so that it not only pushes us to windward but it increases the wind strength. On the other hand a weather bow current reduces wind strength and wrecks our pointing by pushing us away from the wind.

This is where those tidal bearings taken pre start become important as they show whether we are on the best tack to take advantage of the current. Those bearings also help us decide which way to go up the beat to take advantage of any changes in the direction.

We should also have checked the strength of the current before the start. Usually but not always there will be less current inshore. So, aim to go that way if the current is an adverse one. Remember the weaker that current the stronger the wind. Also in an adverse current over stand the mark by an amount sorted out in those pre race checks. The reverse of course, will probably hold true in a weather going current.

As Generals remember we are constantly checking our position against the next mark. By taking transit on the mark against fixed objects such as moored mark boats we can see if we are being set up or down from the mark. We don't need the answer to lots of decimal places but the earlier we make any corrections the better not only in terms of distance but also in keeping other boats at bay.

It is probably towards the end of the race that we most need our generalship. As tiredness sets in it is so easy to make mistakes. So, helm and crew should encourage each other. After all there's not long to go. If finishing in lots of traffic they should also work out which end of the finishing line is closer. If possible aim to finish on the side of a bunch closest to the committee boat.

So, as we have seen sailing away from land is every bit an intellectual exercise as sailing inland. Of course, it can be more demanding physically but the rewards of all that lovely speed to windward and all that acceleration down the waves off wind are not only wet (!) but exhilarating.

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