

Walbrook
Safety
and
Welcome
Notes

September

2016

These safety notes are designed to provide essential information to all club members.

To be read by
all club
members

Contents

Walbrook Rowing Club Safety Notes.....	3
Making an assessment of the river conditions.....	4
Getting boats in and out of the water	5
Getting into and out of the boat	6
General notes on hazards and how to deal with them	6
Actions in the case of emergency.....	9
What to take with you	9
Navigating the River – You should pass other river users “Port to Port” at all times;	9
General Rules	9
Upstream to Hampton court (Via Teddington Lock)	10
Navigating the River Downstream from Hampton Court to Teddington Lock).....	11
Cold Water - How to increase your chance of survival	13
But I can swim, won't that help?.....	13
<i>How should I prepare myself physically and mentally to survive?</i>	15
The Hazards of Cold Water Immersion – and how to cope with them	18
1) Dry drowning (risk from immediate, to any time after immersion)	18
2) Cold Shock (max risk at 1- 5 minutes).....	18
3) Swimming Failure (risk increasing with time in the water).....	19
4) Hypothermia (max cause of death at 30 minutes plus).....	19
5) Post- rescue collapse (risk on or shortly after rescue).....	21
Summary.....	23
Cold water survival check-list.....	23
Key messages	24

Welcome

Welcome to Walbrook Rowing Club. We hope you enjoy being a member of the club.

You may choose to row socially i.e. for fun or to join one of our competitive squads who enter competitions.

We offer various training programmes which you can opt into as much or as little as you like. Please ask the coaches for details. Boat allocation – (to be fair to all) is operated by the coaches for competitive and social rowing as boats are reserved for juniors at certain times of the day. Please see the notice in the clubhouse for details as these change according to the season.

We hope that you will join in our social events and we will email details of these in advance.

Please read these safety notes carefully to protect yourself and others. Also note the requirement for training before you take out a club single, double or quad and that you may only take out a boat unaided if your steersman has passed the club proficiency test. We hope that you enjoy rowing with us. If you need any more information then please contact:-

Mike Lanzer - Safety Officer

Diane Graham – Chairman and Women’s coach - 07920401092

Cris Jessop – Captain and masters men - 079731615514

Mat Evans – Men’s coach

John O’Driscoll – Treasurer

Nick Thomas - Secretary

Stephanie Singham - Women- 07932934662

Will Beedham – Juniors – will.beedham@me.com

Walbrook Rowing Club Safety Notes

Safety Notes for Crews, Coaches and Steersmen

Boats are allocated to each section to enable coaches to be able to plan outings effectively. If you would like to use a boat “allocated” to another section then please contact the section coordinator – (see appendix at the end).

No Juniors are allowed out by themselves unless they have specific permission from the Junior Coordinator who will assess their ability and the weather conditions. No Juniors under 16 will be allowed out unless supervised by a coach at any time

Making an assessment of the river conditions

1. Wind – if you have difficulty getting out of the Creek and there are “white horses visible” assess whether it is sensible for you to boat/whether you can cope with the conditions. Remember that due to the ‘shape’ of our reach, effectively a ‘U’ that conditions can vary along the entire reach. A good indicator of wind conditions is the surrounding trees. Look at these as you approach the club. In addition to considering the wind whilst on the water, bear in mind that strong wind may also affect your ability to lift the boat on and off of the water. Under adverse conditions boats can be blown clean off of the trestles, so do not leave them alone in windy weather.
2. Stream conditions – There are currently four levels of stream warnings/notifications. ‘All Clear’. ‘Stream decreasing’ (Yellow), ‘Stream increasing’ (Yellow) and ‘Caution Strong Stream’ (Red). The current status of any reach on the river can be obtained from either the Lock Gates (note it is Teddington Lock which controls the stream/flow on our reach). Or on the Environment Agency web site, <http://riverconditions.visitthames.co.uk/>. During spells of inclement weather it is imperative to ALWAYS CHECK. Make sure you understand the difference. When “Red Boards” are showing. Always obey the notifications on the club notice board. No crews are allowed to boat at night i.e. darkness during conditions of strong stream. The club adopts these policies whether boats belong to the club or are owned privately. Treat the Yellow, ‘Stream Increasing’ boards as you would Red, it can take one change of the lock gates during the outing to rapidly change stream conditions. Be particularly conscious of the way boats behave when turning under conditions of strong stream. Leave plenty of room for your turn, and anticipate the effect of current.
3. Do not proceed any further downstream towards the lock than the end of Trowlock Island.
4. Pay especial attention to bridges, islands and moored boats and do not turn immediately upstream of a bridge, island or moored vessel, particularly when there is any kind of stream running. Do not turn between the Railway Bridge or Kingston Bridge
5. Beware Ditton’s Bend and Ravens Ait as crews tend to be drawn towards the moored boats here.
6. During daylight hours, Red Board conditions:-
 - a. Senior crews are only allowed to boat if at least 1 nominated club member agrees that the crew is of such an ability as to be able to cope with the amount of stream .

- b. Novice crews are NOT allowed to boat unless 1 nominated club member agrees that the crew is of such an ability as to be able to cope with the amount of stream and they are supervised by a coach in a launch.
 - c. No juniors or single scullers are allowed to boat
 - d. The person in charge of the crew should make all crew members aware that they are boating on “Red Boards” and no one should be pressurised into going afloat
 - e. Any crew disobeying these instructions will not be covered by insurance and if an accident occurs will be liable to pay the full cost of any insurance claim. The assessment should be recorded in the Risk assessment Book plus the name of the person making the judgement.
7. Rain – make sure that visibility is good – assess whether hyperthermia may be a problem especially for coxes
 8. Light/Darkness – check official lighting up times and display a SOLID white light on the bow or the stern after this time. Head lights are only recommended IN ADDITION to solid white lights on the boat as these are easily missed due to the movement of the person wearing them. Flashing/flickering white lights do NOT meet EA requirements. Red bike lights MUST NOT be used as these can be confused with navigation lights. A reflective jacket or white clothing is recommended
 9. Crews may only boat at night with the specific permission of the section leader. Crews containing juniors must have the written permission of parents if they are boating with a senior crew. J16 and above may only boat in junior crews with a coach alongside who has a mobile phone. Only 1 crew per coach and not after 6.30pm. Specific risk assessment and conditions apply.
 10. No single scullers may boat alone at night
 11. Other activity on the river – check the reach calendar and if there is an event being held on the river DO NOT use that part of the river
 12. Floating objects in the river – keep a good look out at all times, in the winter and under conditions of strong stream large objects such as tree trunks are often carried down stream.

Getting boats in and out of the water

- a) One person holding each end of the boat is recommended to make sure that the bows and stern do not hit hard objects and are damaged. For doubles and pairs hold half way down the stern/bows. Pay particular attention on windy days.
- b) For singles – if in doubt of your ability to carry the single please ask for help so that the bows/stern are not “bounced” on the ground as this causes a significant amount of damage each year.
- c) Make sure that trestles are available before taking the boat off the water.
- d) At the end of your outing please wash down the hull with soapy water and rinse off (Do not wash if freezing conditions are suspected. Boats should then be wiped with a sponge. It is preferable to wipe the inside of the boat especially slides to remove dirt particles which then cause the slides to deteriorate (and cost unnecessary funds to replace!) Your outing will also be more effective if using clean slides!

Getting into and out of the boat

- a) Please **remove shoes** before getting in the boat as shoes damage the connections to rate meters and transfer dirt onto slides etc.
- b) Only stand on the coloured areas of the deck
- c) Remember that the hatched areas are NOT kit/drink stores - they are buoyancy compartments and so should be firmly closed
- d) Check that heel restraints are firm and fixed. The heels should never be able to rise above the level of the deck. This will save your life in the event of a capsize!
- e) Check that the bowball is firmly attached – this will save serious injury to a third party in the event of an accident and also help to protect your boat.
- f) Under no circumstances stand on the riggers. Holding the riggers to support the boat is acceptable practise, but do not use the rigger to support the entire weight of the boat.

General notes on hazards and how to deal with them

- Anglers – fishing lines stretch a long way out and they are very hard to see. Be aware that mid June (beginning of fishing season) and mid March (End of fishing season) are particularly busy periods when large stretches of the reach may contain anglers and greater care to remain safe and avoid confrontation may be required. Do not antagonise anglers, and if a line should become entangled it is preferable to stop and untangle it.
- Canoes – are often travelling downstream against the bank and often do not show lights at night.
- Rowing boats from other clubs – do not assume that everyone will be on the correct side of the river – BR recommends that steersmen should look round every 6 strokes!
- Skiffs. We have very good relationships with all of the skiff clubs, however like all rowing clubs they too have novices and the same rules apply as for other rowing boats. Please be aware that during the Autumn, Winter and Spring months the skiff clubs hold a number of long distance races on the reach, please check the regatta calendar. Dittons Skiff Club also during these months hold informal races on a Saturday afternoon (to Kingston Bridge) and Sunday morning (from their club around Ravens Ait and back), please be aware these crews are racing and may not be looking as often as they should.
- Sea Cadets – often move across the river unexpectedly so in areas where they boat make sure you are looking to the right and left.
- Sailing boats – It is advisable for rowing boats to give way to sail (MUST is wrong, navigation rules state each vessel should give way to the less manoeuvrable craft, the sailing clubs advise their crews that although going forward and back rowing boats are good, sideways is not an option) . This is often difficult to judge due to the speed and turning ability of these boats, if in doubt proceed slowly and with caution. Make sure you are not carrying out a training piece at firm pressure in areas where these boats are so that you can stop quickly
- Motorboats in private ownership and hire boats– are often exceeding the speed limit, and do not always obey the rules of navigation. Very often they do not realise there is a speed limit and will cause a large amount of wash which could sink a rowing boat Take care when passing these boats.

- Large launches (Turks etc) – cause a lot of turbulence in the water – take much care when passing these boats especially if they have just completed a turning manoeuvre as this can cause a whirlpool effect and may cause a single to capsize!
They should sound horns to indicate their intentions as follows:-
 - One short blast – I am turning starboard side and will leave you to port side.
 - Two short blasts – I am turning port side and will leave you to starboard side.
 - Three short blasts – I am reversing my engines.
 - One long blast – I am now getting underway.
 - Five short blasts – danger, please move out of the way.
 - IF YOU DO NOT UNDERSTAND the navigation signals, do not attempt to pass one of these launches one a horn has been sounded unless 100% sure of its intentions.
- Debris in the river – there is often much debris in the river after rainfall. Keep a look out but often it may not be possible to see it. Be aware that debris may cause you to capsize.

Sailing Boats – Walbrook and Tamesis Working Together

Both Clubs wish to work together to make sailing and rowing on the reach a pleasant and safe experience for all. Walbrook is grateful to Tamesis for allowing the use of their frontage for Teddington Head for which we are pleased to make a donation to Tamesis club funds. In addition we also thank Tamesis for use of their frontage for Kingston Head and Kingston Small Boats Heads for visiting crews to boat from. Whilst Walbrook is not involved in the running of the Kingston Head events we are pleased that we can offer hospitality at Kinston Small Boats Head to other clubs who allow us to boat from their premises during times of fast water at Teddington or for events on their reaches. In addition it is good neighbourly that we can aid Kingston RC to accept a large entry for their Spring main Head by the use of the frontage. These events are popular events with local clubs due to the length of the course.

We understand that this is a privilege and will make sure that the area is clean and tidy and that dinghies are not mistreated by the visitors. We have a team of marshals on duty to look after the dinghy park.

If due to rain the grassed area where the dinghies are stored is damaged then we will re seed this area in the spring. We hope that if Tamesis need our help then we will be able to assist

Notes to Rowers' to help you understand the sailing practices:-

1. Tamesis race/train regularly on a Sunday morning from 10am, and on Thursday evenings from 6pm through the summer, and as such would appreciate it if they could be able to compete with as little disturbance as possible - in the same way that a rowing boat does not like to have a work piece or race interrupted. All firm pieces should therefore end at the upstream end of Stevens Ait (ie opposite Kingston Rowing Club) at these times.
2. Tamesis do not race upstream of Steven's Ait unless the wind/stream conditions there are significantly better than downstream.

3. Do not stop near any of the racing marks. (orange buoys with a flag on top)
4. If a mark is located near the bank then ideally do not go between the buoy and the bank if there are sailing boats in the vicinity as this will not leave enough space for the sailing boats to get round.
5. If sailing boats are seen when leaving the club try and get past carefully and as quickly as possible but remember that many sailing boats may be preparing to turn round the buoys and so may change direction very quickly and at a moments notice. Keep a good look out.
If sailing boats are seen when returning then keep as close as possible to the Surrey bank and go 50m past their downstream marker. Only then turn onto the Middx bank and keep close to the Middx bank taking great care as sailing boats may be going downstream on the Middx bank.
6. At the start of a sailing race, (especially around 10.30 – 11.15 on a Sunday morning) a number of boats will be jockeying for position near the start line (outside the Tamesis club) ready to go. Rowers should ideally avoid being in this vicinity when they see the sailors getting ready to start. If you have to boat/return at this time then please take all care not to get in the way.
7. A sailing boat will turn very quickly (especially when handled by an experienced sailor) and in the course of their races may intend to turn very close to a bank or a rowing boat in order to get the maximum advantage for their race. If the wind is being fickle there may be many such turns in a short space of time so a sailing boat's course can be very hard to predict.
8. Sailing boats want to be where the wind is best, so may be 'on the wrong side' (from a rower's point of view) of the river.
9. Sailing boats have numbers on their sails so if you have an issue with one then mark down the number if any contact is required between the clubs.
10. Try and be reasonable and accommodating in all dealings between river users. The use of foul and abusive language is not acceptable whatever the circumstance.

Notes to Sailors' to help you understand Walbrook crews

1. Rowing boats do not stop quickly at all - it takes two or more boat lengths to come to a complete stop if going at speed.
2. Rowing boats have terrible manoeuvrability, particularly the longer ones (eights and fours).
3. With beginners on board, a rowing boat's course may be unpredictable as if a rower on one side makes a mistake and gets his oar stuck the boat can slew round.
Juniors and beginners tend to react very slowly and are not being awkward if they appear not to cooperate – their inexperience often means they simply do not know how to manoeuvre quickly. Rowers are also told to give way to sail. However by giving way to one boat we often find that we have got in the way of another sailing boat and this is very frustrating for both the rowers who think they have done the right thing and the sailors who are trying to race and have been impeded.
4. Rowers face backwards and whilst they are instructed to keep a good look out, they may well not respond quickly to an approaching sailing boat, particularly if the sailing boat has changed course since they last looked round. Only the eight man boats and about half of the four man boats have a cox (steersman) on board who is facing forwards. Shout 'Look ahead' very loudly at a rower and he should look round.
5. If the stream is fast, a rowing boat will struggle to hold station upstream of a sailing boat or buoy

(if trying to wait for a sailing boat to pass in front of them), they will tend to be swept downstream.

6. It would be appreciated if the entrance to the Creek could be kept clear buoys as its quite difficult once there is a significant amount of stream to get in due to the RCC jetty. It would also be helpful if there was enough room to get between the bank and a buoy on the Middlesex bank.

7. Rowing boats have a registration number on both sides of their hulls so if you have an issue with one then mark down the number if any contact is required between the clubs. It will be a 3 letter and 3 number code - any Walbrook RC boat will be 'WBK' and then a 3 digit number e.g. WBK410.

9. Try and be reasonable and accommodating in all dealings between river users. The use of foul and abusive language is not acceptable whatever the circumstance.

Actions in the case of emergency

All single scullers should have completed a capsized drill before they are allowed out on the water. In the case of capsized "STAY WITH THE BOAT", swim to the side and try and get out. For crews the steersman or cox is in charge. Upon surfacing the steersman/cox should call for a head count ie "number off from bow" . This ascertains that everyone has surfaced and is conscious. Swim to the side. Try and fix the boat to the side and if you cannot get back in run back to the club to keep warm. Call for help and if you meet a passerby with a phone contact the club. If someone is injured one person should go for help and the rest of the crew should carry out First Aid and try to keep warm.

(read later sections on cold water survival)

What to take with you

- A warm top
- A phone – recommended in a floatable waterproof case
- Club contact details committed to memory
- Water to rehydrate especially in very hot weather

Navigating the River – You should pass other river users "Port to Port" at all times;

General Rules

- Navigating upstream keep to the Middlesex bank (Walbrook) Try to maintain a distance of approximately 10-feet between yourself and the bank. Do not leave enough room for another boat to pass between you and the bank unless you are deliberately giving way to let them pass.
- Navigating downstream keep to the Surrey bank (Kingston)
- Avoid any action which is likely to interfere with another crew
- Do not overtake immediately prior to, or whilst passing an obstacle (Bridge, bend, protruding moored boat etc)
- Navigate with consideration for other users including anglers
- Show understanding for others when they are involved in competition
- Be prepared to give way to sail
- Craft have joint responsibility to avoid collision
- Craft in the navigation channel have priority over those crossing it
- Always use lights in poor visibility

- Stroke is responsible for a boat taken out but the Cox has control. All members of a crew (but particularly the most experienced) are responsible to ensure that Cox's experience or instructions/supervision is adequate.

Upstream to Hampton court (Via Teddington Lock)

1. Cross the river to go towards Teddington lock, beware other boats on the Middlesex Bank when coming out of the club, take a good look in each direction before crossing the river. You proceed on the Surrey side of centre
2. Proceed to the lock, beware over hanging trees and moored boats.
3. Do not proceed any further than the Lensbury Boathouse.
4. Approaching the lock, beware Skiffs, Canoeist, Sailors and other river traffic arriving from the lock and turning in this area
5. Turning watch out for Lensbury craft
6. Coming back upstream, do not hit Trowlock Island
7. Beware approaching Walbrook for other club craft (Skiffs, Canoes, Rowing boats) and Tamesis Sailing boats.
8. Beware Craft from Steadfast and other sea cadet groups
9. Passing the club watch out for the piers protruding from Tamesis
10. Going passed Stevens AIT the river narrows and bends, keep tucked in
11. Along the stretch past Kingston Rowing Club, watch out for other craft crossing the river
12. Watch out for protruding pole (mooring point)
13. Approaching Kingston Railway Bridge look out for protruding moored boats. Shoot the bridge using the Middlesex Arch. Be careful of strong currents around the bridges during winter.
14. Watch out for moored boats between the railway and the road bridge.
15. After the road bridge be aware of crews which may be stationary
16. Proceed upstream to Raven AIT, look out for trees!! The bank curves round in a deceptive way.
17. Approaching Ravens Ait, the river narrows and bends, sometimes craft (especially motor craft) proceed downstream on the wrong side of the river. Be aware of this and make sure you have a good look! Be aware of strong currents in this section as the river narrows
18. Following Ravens Ait a lot of sailing activity takes place, the water can also be badly affected by wind.
19. Navigate through Ravens Ait on the Middlesex Bank
20. Keep carefully into the bank avoiding overhanging trees.
21. As the river bends going passed the Marina, beware of skiffs and other traffic coming downstream.
22. A local group of sea cadets are based locally and can be found out in large slow moving craft or canoes
23. Approaching the Dittons bend watch out for the sand bank which extends out into the river. It is essential to keep tight into the bend when heading upstream. This is one of the most dangerous sections of the river. It is a blind corner and many crews cut this bend on their way back downstream especially if they are carrying out training pieces. They may be more

than 2 abreast! Be particularly aware of the Summer evenings when Thames Dittons Sea Scouts are on the water, canoes can suddenly appear from behind the permanent moorings on this bend.

24. Along the Thames Ditton Island, be particular watchful for skiffs from Dittons club. They tend to be out in groups.
25. Passing Dittons, watch out for sailing activity and motorboats coming downstream from the lock. This section of water can be the nicest part of the river! Enjoy!
26. Approaching Hampton Court Bridge the river makes a series of bends pay close attention to these, also be aware that motor boat activity in this area is considerable. At certain times of year (Hampton Court flower show, Dittons Regatta, Thames Ditton Regatta) considerable traffic is operating.
27. Turn before Hampton Court Bridge to avoid being “washed back down” onto the bridge.

Navigating the River Downstream from Hampton Court to Teddington Lock)

The points above should be noted but on navigating down stream the following additional points should be considered.

- 1) Kingston Grammar School and Dittons Skiff Club – watch out for crews crossing the river coming in to these stages
- 2) Ditton Bend – don’t navigate too wide in strong stream conditions as you may be pulled on to the moored boats
- 3) Ravens Ait – navigate to the Surrey side, be aware of the moored boats and the effect they have on narrowing the bend.
- 4) Kingston Bridge – you are recommended to use the Surrey Arch NOT the middle arch. Many motor craft use the middle arch travelling upstream
- 5) Kingston Rowing Club – watch out for crws crossing from KRC to the Middlesex bank
- 6) Downstream of Stevens Ait – watch out for crews crossing from Middlesex to the channel leading to KRC
- 7) Turning in to Walbrook – watch out for crews navigating upstream

Launch Driving

- 1) No one should use the launch unless they have received instruction.
- 2) Ideally club members using the launch should hold either the RYA level 2 or have followed the TRRC proficiency test.
- 3) No juniors should be in charge of a launch unless they have passed RYA level 2 or have followed the TRRC proficiency test.
- 4) No one under the age of 16 shall be in charge of the launch.
- 5) Drivers should make sure they have sufficient petrol, have checked the contents of the launch bag and carry it, make sure they have a paddle
- 6) Drivers should use the “kill cord” at all times.
- 7) The launch is only licenced to exceed the speed limit when it is in attendance with a crew and with a maximum of 2 people aboard. It is not licenced to exceed the speed limit in order to “catch a crew up”. Please make sue that if your crew goes on ahead that it waits for you!

- 8) Launch drivers should take due care and attention and cut their wash in plenty of time for other crews.
- 9) When approaching another crew move as far away to pass as possible to minimise the effect of your wash.
- 10) The maximum capacity of the launches when not exceeding the speed limit is:-
Blue launches - 3
Cat - 4

Steersmen of coxless boats and coxes.

- 1) No one shall steer a boat in any capacity unless they have passed the “Walbrook Proficiency Test” or have a coach in attendance
- 2) The Proficiency test has 4 different levels:- cox, single, double/pair and quad/coxless four. Club members must have passed the relevant part to be allowed out unsupervised in a particular boat. Club members may request a “test” from the Safety Officer or any person nominated by him/her if he/she is unavailable. The test requires a club member to show a knowledge of the rules of the river (short verbal test) and be able to demonstrate that they follow navigation rules to a high standard and in the case of single scullers can demonstrate that they can embark/disembark rack and re-rack safely and carefully without causing damage to a boat.

Cold Water - How to increase your chance of survival

It's obvious, but it has to be said - the most important advice is whenever possible **stay in your boat!** This does require planning:

- Make sure your boat is fully buoyant, and in good order.
- Know and understand local collision avoidance and navigation rules.
- After dark make sure you have appropriate lighting, wear white/reflective clothing.
- Know and understand local hazards in the water.
- Check up to date local weather forecasts and water state before boating – and don't go out if conditions are not favourable, or may become unfavourable before you plan to return.

Having done all this you can happily hope for the best...but make sure you still prepare for the worst. Remember, once you are in cold water your life is at risk.

There is much you can do to increase your chances of survival. But first you have to accept that it may actually happen to you – it won't always be someone else.

But I can swim, won't that help?

Obviously it helps to be able to swim – if only for the psychological boost it gives when you find yourself in the water. But for those who drown in situations where swimming is possible, about as many swimmers drown as non-swimmers. (e.g. UK Home Office 1981 <http://www.homeoffice.gov.uk/rds/pdfs2/hosb1880.pdf>).

Many drownings occur within apparent “easy” reach of safety. In the UK in 1977 55% of open water drownings were within 3 metres of safety, and 42% within 2 metres (UK Home Office). In Canada 1991 – 2001 of those boating and drowned 41% were within 10 metres of the shore, and a further 22% were within 10-15 metres of the shore (Canadian Safe Boating Council / Smart risk survey).

Your ability to swim and stay afloat in warm water actually bears no relationship to your ability to swim in cold water.

Why is this? Apart from the effect of waves and current, your ability to swim, or just to stay afloat, is affected by several things e.g. the state you're in before immersion, [dry drowning](#), [cold shock](#), [“swimming failure”](#) and [hypothermia](#) . All of these can be controlled or mitigated to some degree – so get the knowledge and be prepared.

- **How cold is cold?**

Water temperatures below 26.5°C (80°F) will have an adverse effect on survival.

Inland water is generally colder than the sea.

Most inland water in the UK probably remains at temperatures below 10°C throughout most of the year.

The life threatening initial [cold shock](#) response begins at water temperatures below 25°C and peaks at temperatures between 10-15°C.

“Predicted survival curves”, which give an expected survival time when immersed in water at various temperatures are of limited use. They are based on rates of body core cooling. However, the early localised effects of [hypothermia](#) may be fatal long before body core temperature reaches life-threatening levels. For example, manual dexterity is rapidly and severely degraded in water below 15°C, badly hampering the ability to carry out essential survival tasks.

FISA advises special safety precautions e.g. the use of a Personal Flotation Device (PFD) when the water temperature is 10°C or less.

See FISA Guidelines for Minimum Safety Standards Cold Water Guidelines p5
http://dps.twiihosting.net/fisa/doc/content/doc_7_1087.pdf

How should I prepare myself physically and mentally to survive?

1) Don't boat when you are not 100%

You are probably already aware that rowing when you are ill, fatigued, or affected by alcohol or “recreational” drugs means you will not perform well. It also means that you are more likely to get into trouble, and will be less able to cope with it when it happens.

For example alcohol adversely affects judgement, ability to make decisions, speed of reaction, physical capabilities, concentration and awareness of surroundings. It also predisposes you to [hypothermia](#).

Hunger and dehydration are also enemies to clear thought and physical efficiency.

So give yourself the best chance - don't go rowing when you are affected by any of these conditions. Remember, if you're not functioning well then you may also be putting your fellow crew at risk. Water is a hazardous environment, and you need your wits about you when things go wrong.

2) Have a realistic idea of what you can do

“How hard can it be? If I capsize, I will right my boat and get back in – or swim it to the shore. If my boat sinks I'll hold onto it until I'm rescued. If I'm close to the shore I'll just swim for it – I can manage a few metres. It is only other people who get into trouble.”

You'd only be human to have had these thoughts. But in cold water these manoeuvres are much harder than you imagine.

For example, you may have practised the “capsize drill” in a warm swimming pool, but performing this in a cold river or lake is completely different. In cold conditions the effort involved in righting the boat will hasten [hypothermia](#) and significantly reduce your survival time – and by the time you've done this your chances of being able to climb into the boat will be hampered by reduced grip strength and limb stiffness. It may be better instead to just pull yourself onto the upturned hull to get as much of your body core out of the water and await rescue.

Get to know the basic principles in the five “[Hazards](#)” sections, so in any given situation you can work out what is the best course of action.

3) Practice techniques

If you have never tried to swim with your rowing kit on, then you won't realise how much difference it makes. If you don't know what to expect then you may make wrong decisions about what to do when you're unexpectedly in the water.

Practice the capsize drill; use the opportunity to practice holding onto the boat to use it as a float, so you know what that feels like. Remember that a buoyant single offers much more support than a non-buoyant eight, which when swamped will “float” just submerged in the water.

Also practice trying to pull yourself onto the boat to get as much of your body core out of the water as possible.

Practice getting out of the water onto the poolside.

4) *Wear the right kit*

The problem with rowing is that the activity makes you warm, and requires unrestricted movement. Thus rowing kit has to be a compromise between what will keep you comfortable when rowing in the boat, and what will help prevent heat loss when in the water.

The ideal garment probably does not yet exist, but here are some pointers:

- Several layers of light clothing will help trap a layer of water (and possibly some air), thus reducing heat loss.
- A layer of breathable but waterproof fabric will be much more efficient at trapping a layer of air and water.
- 50% of heat loss is from the head. A waterproof hood stowed in a garment collar, which can be quickly pulled out with one hand, would be of benefit. If this is bright and reflective it would also help potential rescuers to see you in the water.
- Clothing should be close fitting, to reduce the risk of it being caught on equipment etc., and to reduce drag if you need to move about in the water.
- Several sources quote that wool clothing offers good protection.

Wearing a Personal Flotation Device (PFD) definitely increases the chances of survival, but is not a guarantee. Ideally, any such device should be in position at all times. Some suggest having the PFD in the boat, or in the coach boat, or to wear it stowed on the back of the waist – but all of these options are flawed. It would be a big struggle to put on a PFD, or even to pull one into its functional position with cold numb hands, especially if you are affected by [cold shock](#).

Wearing a PFD aids survival in two ways:

- It helps to keep your face out of the water to avoid water inhalation – though in choppy water you must still remember to keep your back to the waves.
- It allows you to keep still and adopt the Heat Exchange Lessening Posture ([HELP](#)) to conserve body heat – without a PFD you are compelled to tread water or swim to stay afloat, thus reducing survival time by 50%.

5) *Plan your own rescue*

Before each outing take a moment to think through how you would be rescued or self rescue if you ended up in the water at this time, from this boat, with these people and in this location? If you already have a mental picture of what would be the best thing to do if it does happen, then after the normal initial panic you will quickly feel more in control – and this is crucial to increasing your chance of survival.

This is akin to personal “risk assessment”: For example, ask yourself is this boat fully buoyant and in good order? Is there a safety launch in attendance? If so, will it be of any use? Is the rest of the crew safety aware? Will there be someone around to summon help if necessary. What are the

banks like – could you climb out? Is it just too cold to risk it in this particular location? If going out alone (not recommended) does someone know you're on the water and know when to expect you back?

The Hazards of Cold Water Immersion – and how to cope with them

1) Dry drowning (risk from immediate, to any time after immersion)

a) What is it?

Unfortunately sometimes (up to a fifth of all drownings) instead of the sequence described as [cold shock](#) the body may respond differently. There may be a sudden reflex closing of the airway due to muscle spasm. No water can enter the lungs, but neither can air.

It is thought to be an automatic shock reflex due to cold water hitting the back of the nose or throat. It may happen the instant you hit the water.

b) How can I avoid it?

Dry drowning is more likely to occur if you enter the water feet first – which allows water to get up the nose. It is also more likely if you are tense and mentally unprepared – i.e. you weren't expecting to be immersed.

Of course any accident is unexpected (though most are avoidable!) but unless you are actually thrown into the water (e.g. by catching a crab) you will usually have a few seconds warning that immersion is going to happen. Use that moment to mentally take control – you know what to do to maximise survival, so now is the time to put it in to action.

If possible take a deep breath in, pinch your nose with your fingers to close the nostrils, keep your mouth closed and enter the water gently by rolling in, rather than feet first. Avoid jumping into cold water.

As described in the [Cold Shock](#) section, once immersed concentrate on keeping your face out of the water and keep your back to the waves to avoid getting spray into your nose and throat.

2) Cold Shock (max risk at 1- 5 minutes)

a) What is it?:

Cold shock is an increased respiratory response to cold water immersion. At first there is an involuntary gasp (indrawing of breath) which is followed by hyperventilation (rapid and disordered breathing). There is usually an associated degree of disorientation, so for a few moments you may not be sure which way is up, or where you are in relation to the boat, the bank etc.

The severity of the effects of cold shock are proportional to reduction in water temperature, with the maximum effect being at 10 – 15°C. Ability to breath hold is proportionally reduced the colder the water.

Cold shock only lasts for approx 1 – 3 minutes.

b) How do I cope with it?

For those first crucial few minutes just completely concentrate on not drowning! It may sound too simplistic, but if you are expecting the cold shock response, and you understand it will soon pass, then you have a better chance of surviving it.

If the first involuntary gasp takes place when your face is in the water, then you will get a lungful of water instead of air. If you are in choppy water and your breathing is uncontrolled and you are feeling disorientated then you may have difficulty co-ordinating breathing with gaps between the waves.

In order to NOT drown you must concentrate on keeping your face out of the water: turn your back to the waves to avoid inhaling spray and water and try your hardest to control your breathing. Remind yourself it will soon pass.

After your breathing begins to settle, and you get your bearings you will then have time to assess the situation and decide what is best to do for rescue.

3) Swimming Failure (risk increasing with time in the water)

a) What is it?

Your ability to swim is reduced in cold water. The colder the water the more your swimming deteriorates. This effect takes hold long before there is significant cooling of the body core, so is not due to core hypothermia.

Swimming stroke length is decreased and stroke rate is increased – so the stroke becomes less and less efficient, and more exhausting. The swim angle is increased, i.e. your body lies more upright in the water, so forward progress with each stroke is reduced. It becomes more and more difficult to straighten the limbs and to co-ordinate swimming movements. The fingers splay and start to flex.

These effects are thought to be due to local cooling of the limb muscles.

Wearing a personal flotation device does not prevent the onset of swimming failure.

b) How can I avoid it?

Unfortunately the only answer is to avoid swimming in cold water as much as you can.

Different people are affected by swimming failure to varying degrees. Some are affected very rapidly, and others are able to swim for reasonable distances before the effects take hold. In one experiment the significant factor seemed to be upper arm skinfold thickness. The more insulation around the muscles, the warmer and more efficient they remain.

Rescue by swimming should be a last resort measure only.

4) Hypothermia (max cause of death at 30 minutes plus)

a) What is it?

Hypothermia is defined as body core temperature below 35°C (normal body temperature is 37°C).

The body loses heat in water 25 – 30 times faster than in air.

The rate of heat loss is dependent on several factors:

- Temperature differential – how much hotter your body is compared to the water.
- Clothing insulation.
- Body fat thickness – inbuilt insulation.
- Ratio of body mass to surface area – the bulkier you are, the better you retain heat.
- Rate of agitation of the water – each bit of water next to the skin, and warmed by it, is constantly replaced by a new colder bit.
- Physical activity – movement draws warm blood out of the body core and into the muscles of the limbs, where heat loss is more rapid. Treading water or swimming increases the rate of heat loss by approx 40%.
- Body posture in the water – some parts of the body lose heat faster than others i.e. the head (50% of heat loss), neck, armpits, chest and groin.
- Physical fitness.
- Diet prior to immersion.

Predicted survival time for a fully clothed adult male wearing a lifejacket in water at 5°C is approx 1 hour, and 2 hours at 10°C. A thin youth, inadequately clothed, and without a life jacket would succumb much sooner.

However many people who die from cold water immersion do not die of core hypothermia. Many die before this has had a chance to fully take effect.

As the core body temperature cools usually the first obvious effect is on the brain. The victim becomes confused, unable to remember things and will become drowsy and ultimately unconscious. At first the heart rate slows, but then the heart muscle becomes irritable, and dangerous disturbances of rhythm may occur. Less oxygen gets to the body tissues. Urine production increases, leading to loss of blood volume and thickening of the blood. The airway protective cough reflex becomes impaired – so there is an increased risk of water getting into the lungs.

Hypothermia can kill even after the victim has been rescued from the water. Mortality rates at this stage vary from 20 – 80% according to age, fitness, degree of hypothermia and the quality and timing of medical treatment.

Before core hypothermia sets in there are the more immediate effects of local cooling of the limbs to contend with. This reduces grip strength and manual dexterity, and reduces the ability to feel with the fingers. This effect can occur very soon after immersion, and may severely hamper survival actions, such as clinging to the boat.

b) How can I reduce the risk?

Once you have recovered from the cold shock effect and have got your bearings, the most important priority is to get as much of your body as you can out of the water as quickly as possible, and then to cover your head, which accounts for 50% of body heat loss.

You could pull yourself onto your (possibly upturned) boat, or onto any other likely nearby object in the water. If this is not possible, then hold onto anything which floats and will give you some support – this will usually be the boat, unless it has sunk completely, or been swept away by the current.

If you are unable to get out of the water then the next priority is to stay as still as possible in the water, with your back to the waves to avoid water inhalation.

If you are wearing a Personal Flotation Device (PFD) then you will probably be able to adopt the Heat Escape Lessening Posture (HELP) – basically the “foetal position” – cross your arms across your chest, keeping the elbows close to your sides, and then draw the knees up to the chest. This gives added protection to the body areas of high heat loss i.e. armpits, groin and chest.

If there are several people in the water, all wearing PFDs then you can further conserve body heat by huddling close to each other, side by side in a circle. The most vulnerable, i.e. the smallest and thinnest, can be placed in the middle of the circle, to benefit from the body heat from those around.

If you are not wearing a PFD then you have no choice but to tread water while clinging to the boat or whatever is available. This markedly decreases survival time by up to 50%.

Now you will need to take stock and decide how best to proceed. Your decision will be based on several factors e.g. availability and timing of possible rescue by others, the proximity of dry land and how easy it would be to get out of the water onto the bank, whether you have been able to haul yourself onto your boat or other object, and whether there are any hazards nearby e.g. a weir or an unprotected sluice.

You must avoid all unnecessary movement. For example don't waste energy trying to right the boat if you are able to just climb onto the upturned hull – that is unless you are certain of very quick success. Remember in cold conditions the effort involved will be huge and will use precious energy and promote body heat loss. Having succeeded you will then need enough energy left to climb back into the boat, and by this time your hands and arms and legs will be numb, stiff and painful.

The decision to swim for self rescue must be the last resort, as this is the least likely to end successfully.

Remember:

- Get out of the water as much as you can, or hold onto something.
- Keep your back to the waves.
- Cover your head.
- Keep as still as you can.
- Take time to think through the best course of action for rescue.

5) Post- rescue collapse (risk on or shortly after rescue)

a) What is it?

Hypothermia produces profound disruption of normal body function, and this doesn't revert to normal the minute a victim is rescued from the cold water.

The haemodynamics of the body are impaired and there may be dehydration. If a victim has been in the water for any length of time there may be circulatory collapse as they are removed from the water.

The heart becomes very prone to disruption of the normal rhythm (arrhythmia). Even passive movement may precipitate a fatal arrhythmia.

Inappropriate warming may result in opening up the blood vessels to the extremities, drawing the warmer blood away from the core, and taking the colder stagnant blood from the extremities back into the core. This will cause a further drop in core temperature, which may prove fatal.

b) How can we reduce the risk?

A victim who has been in cold water for any length of time should be lifted out in the horizontal position to prevent circulatory collapse.

They should be treated with the utmost gentleness to avoid precipitating a cardiac arrhythmia. They should be kept as still as possible.

Prevent further heat loss by applying insulating blankets (or improvise with whatever is available) and carefully move to a warm environment.

Urgent removal to hospital is vital, as the treatment of hypothermia is complex.

Victims who are shivering, but who are rational and showing no other signs of hypothermia may just need removal of wet clothes, wrapping up and a warm environment. They should avoid activity until full recovery.

All other victims should be made to lie down, keep still and be wrapped up while awaiting transfer to hospital for full examination.

Useful websites and references:

Transport Canada : Document TP 13822E. Survival in Cold Waters

<http://www.tc.gc.ca/marinesafety/TP/Tp13822/menu.htm>

United States Search and Rescue Task Force. Cold Water Survival

http://www.ussartf.org/cold_water_survival.htm

Washington State Parks and Recreational Commission Boating Programs. Hypothermia and Cold Water Survival

<http://www.boatwashington.org/hypothermia.htm>

Summary

Cold water survival check-list

- Take all [precautions](#) to prevent immersion in the first place.
- [Practice](#) relevant techniques.
- Understand how [cold water immersion affects physical and mental abilities](#).
- [Don't boat](#) if ill, tired, affected by drugs or alcohol, hungry or thirsty.
- [Dress appropriately](#), consider PFD.
- Consider the circumstances of each outing to "[plan your own rescue](#)," and be prepared to adapt arrangements accordingly, or to cancel the outing if risk is too great.
- Avoid boating alone, or with no back-up.
- If forced into the water try to [control position of entry](#) to avoid water getting into the nose or throat.
- During "[cold shock](#)" concentrate on control of breathing and keeping mouth and nose out of the water.
- Hold onto something and try to get [your body core](#) out of the water as far as possible.
- Cover your [head](#).
- Take time to think through best course of action in the circumstances.
- Keep your [back to the waves](#).
- Keep as [still](#) as possible, avoid unnecessary manoeuvres.
- If wearing a PFD use [HELP and Huddle](#) to conserve body heat.
- Only [swim as a last resort](#) – and try to use something as a float.
- [When out of the water](#), victims affected by the cold should lie down, be wrapped up and kept still while awaiting transfer to hospital.

Key messages

Stay alive...

Stay out of cold water

Cold water kills...

Before you go out, think how you'll get out

Hold on... to something

Pull out... onto something

Stay still... don't swim

Keep your face... out of the water

Turn your back... to the waves

Cold water cramps your style.

You can't swim when you're cold and stiff.

You can't grip with numb hands.