CONTENTS

APPENDIX

ROWING ON THE TIDEWAY

A CODE OF PRACTICE FOR ROWING ON THE TIDAL THAMES ABOVE PUTNEY 2006

FOREWORD

Rowing safely on a tideway requires more than the usual rowing skill. It also demands a sound knowledge of the effects of the tide, including the resultant currents and variable depths. On the Thames, and especially at low water above Putney, rowing is made even more challenging as a consequence of the exceptionally large number of rowers and other river users all of whom wish to pursue their activity in what is a very confined area and with limited water.

"Rowing on the Tideway" a joint publication produced by the Port of London Authority and Thames Regional Rowing Council brings together practical guidance from experienced rowers, the recommendations of recent risk assessment, and the requirements of local and international regulation. Its objective is to provide the rowing community with a single comprehensive source of information and advice about rowing on the tidal Thames, in which all may have confidence, and which will enhance safety.

To this end, it is vital that all who use the tideway recognise that others have equal rights to the water, and that safety will best be ensured by the application of three fundamental principles, namely:

- Keep a good look out
- Know and follow the rules
- Show consideration for others

Enjoy your river.

Martin Humphrys
Chairman TRRC

Bruce Richardson
Chief Harbourmaster PLA
Date: September 2006

SECTION ONE - INTRODUCTION

As a result of the increasing numbers of reported accidents on the tideway involving rowing boats, the Port of London Authority (PLA) employed the Salvage Association to undertake an independent risk assessment into rowing practices on the Thames between Putney and the PLA landward limit at Teddington.

The Salvage Association observed the way in which rowers used the tideway with particular emphasis on the practice known as "working the slacks". The conclusions of the Salvage Association Report (the Report) were, in short, that the current system does not work, because the rules were not clear and because there is imperfect knowledge and application of said rules.

An implementation group, consisting of a cross-section of experienced river users, was formed to review the many recommendations of the Report. Its conclusion was that it was not the rules but imperfect application of them that was the main problem. As a result, this code of practice does not make many changes from the current system. Its aim is to make all the rules clear, as well as easier to teach and understand. What changes or additions have been made, are simply laying down as regulations what should have been applied as common sense in the past.

It is appreciated that the majority of rowers wish the current system to be improved and will welcome the simplification and regularisation of the current rules. Those who do not, should appreciate that if this code of practice fails to achieve the improvement in navigation, rowing practice and ancillary matters, for example, the reporting of incidents by rowers that the PLA is hoping for, it will be not be a case of simply rescinding it. Should this attempt at compromise fail, the next step will be a blanket implementation of the International Collision Regulations, which is likely to have a negative effect on the experience of rowing for all.

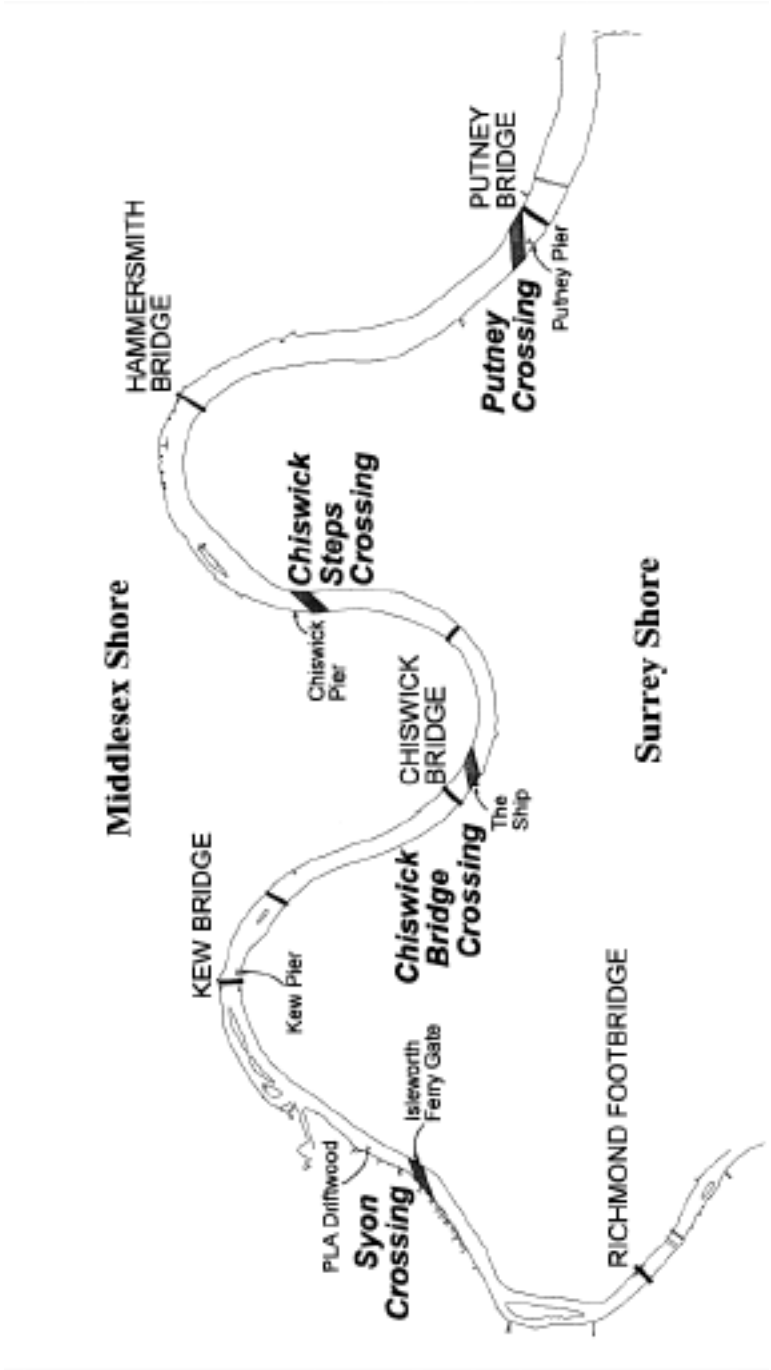
It is up to the rowing community to take individual and corporate responsibility for following the new rowing code and ensuring the traditional privileges historically enjoyed by the rowing community in this area are not taken away for good.

River Byelaws and General Directions

Note: The PLA regulates navigation on the tidal Thames in a number of ways, including through River Byelaws and General Directions. By its very nature, the code must, in part, refer to and recognise those various regulations. Where navigational regulations are quoted in the code they are enclosed in a box for ease of recognition.

The Rowing Area - Putney to Richmond

The area in which the specific navigational rules of this Code of Practice apply.



SECTION TWO - GENERAL ROWING RULES

When rowing between Syon Reach and the crossing point at Putney rowers are allowed to avoid the greater part of the tidal stream by 'working' the inside of the bends in the following fashion.

1. When proceeding with the tide, all vessels are to keep to the star board side of the Navigational Channel (please see the chart to accompany the Rowing on the Tideway Code for the location of the navigational channel).

2. When proceeding against the tide, all rowing boats and accompanying (approved) coaching launches are to navigate as shown on the diagrams in section 2.1.

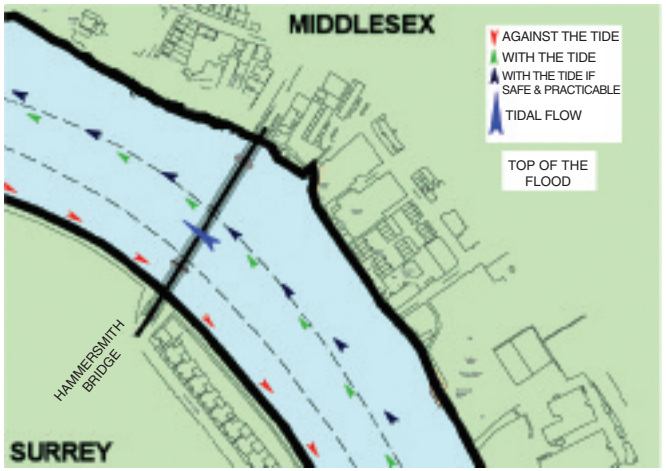
3. All masters of boats include those of rowing and coaching launches navigating on the tidal Thames must be aware of their circumstances and keep a proper lookout at all times. If the course shown on the chart is deemed unsafe, then the closest, safe course should be taken. However, this must not be taken as a licence to break navigational rules or ignore selected parts of this code for the purpose of improving the quality of an outing.

The River View Buoy

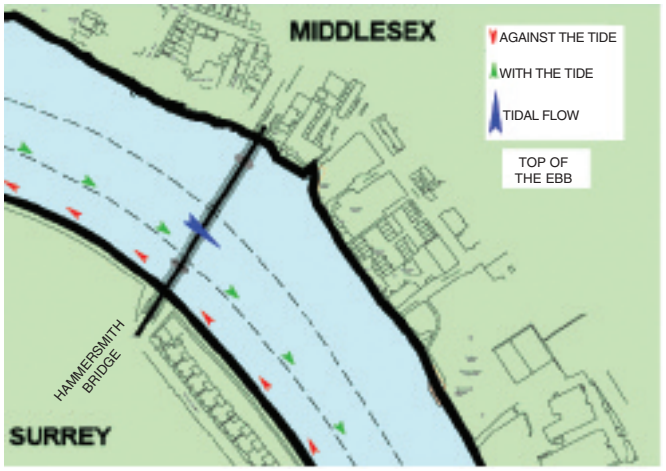
2.1 Navigation Diagrams

Between the Putney Bridge Crossing Point and the Chiswick Steps Crossing point, keep as close as is practicable to the Surrey shore.

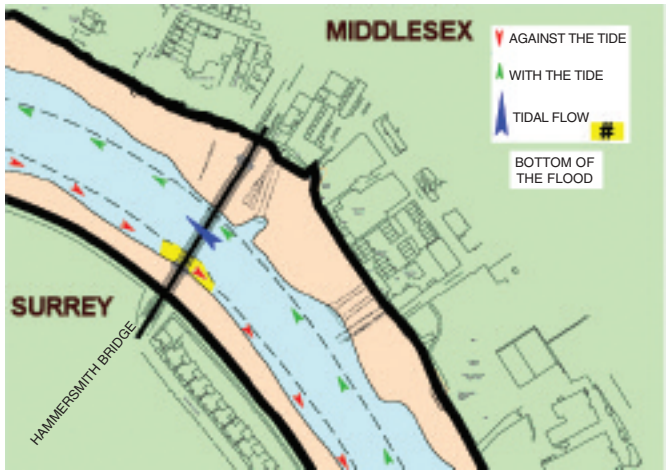
Hammersmith Bridge at high water with the tide flooding



Hammersmith Bridge at high water with the tide ebbing

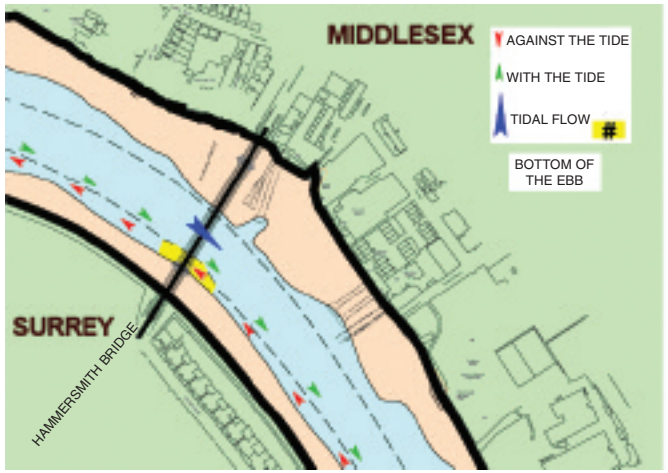


Hammersmith Bridge at low water with the tide flooding



Please refer to Appendix: Physical Hazards of the Tideway

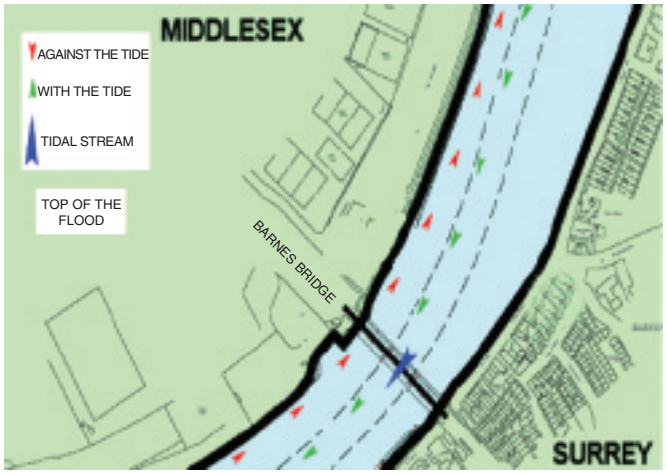
Hammersmith Bridge at low water with the tide ebbing



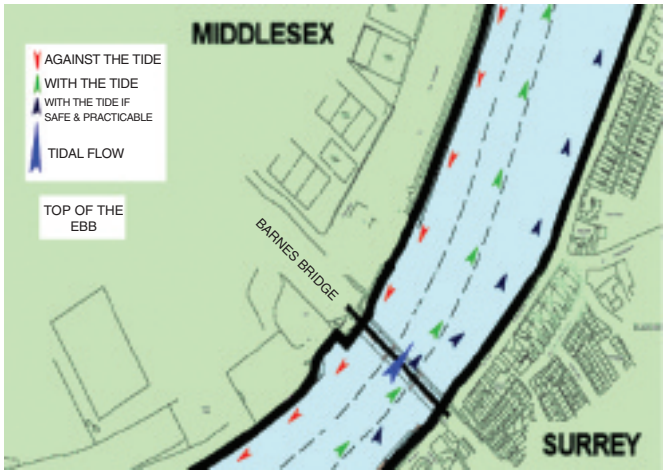
Please refer to Appendix: Physical Hazards of the Tideway

Between the Chiswick Steps Crossing and the Chiswick Bridge Crossing, keep as close as is practicable to the Middlesex shore.

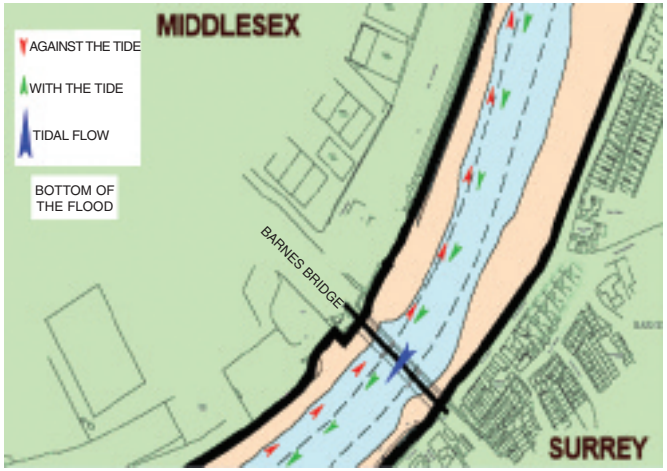
Barnes Bridge at high water with the tide flooding



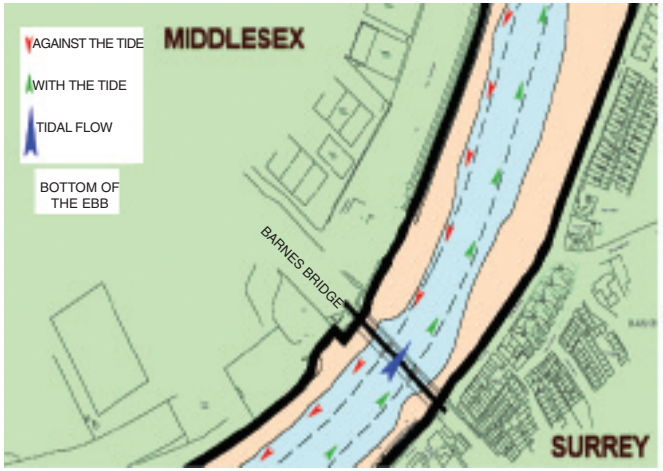
Barnes Bridge at high water with the tide ebbing



Barnes Bridge at low water with the tide flooding

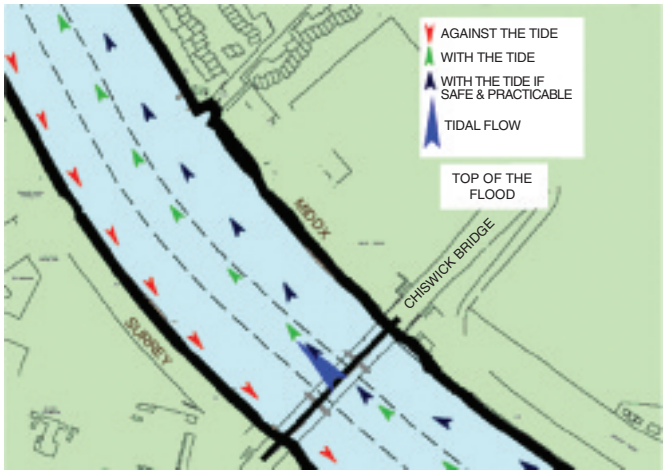


Barnes Bridge at low water with the tide ebbing

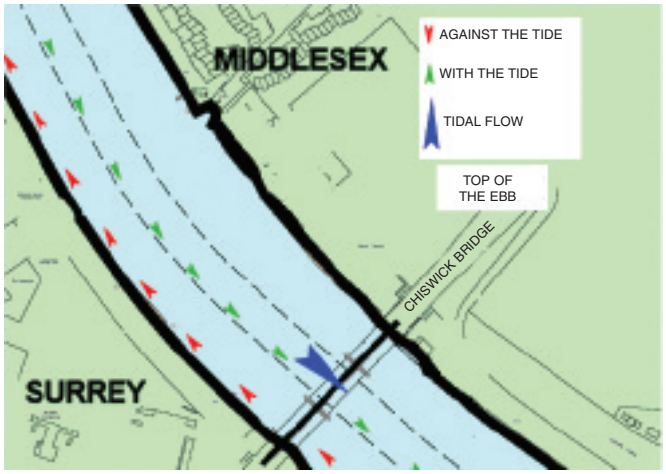


Between the Chiswick Bridge Crossing and the Syon Crossing, keep "as close as is practicable" to the Surrey shore.

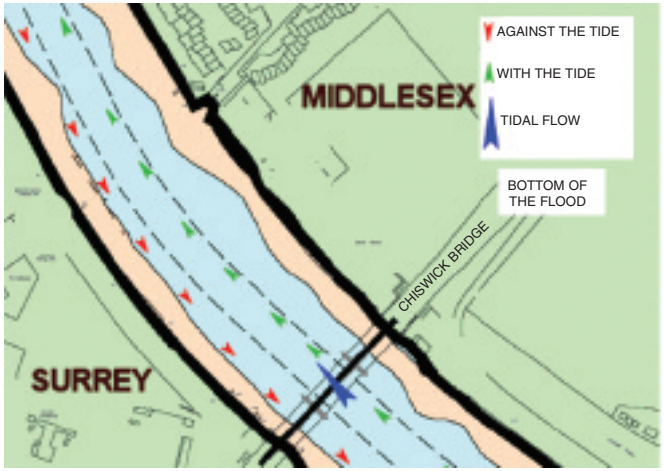
Chiswick Bridge at high water with the tide flooding



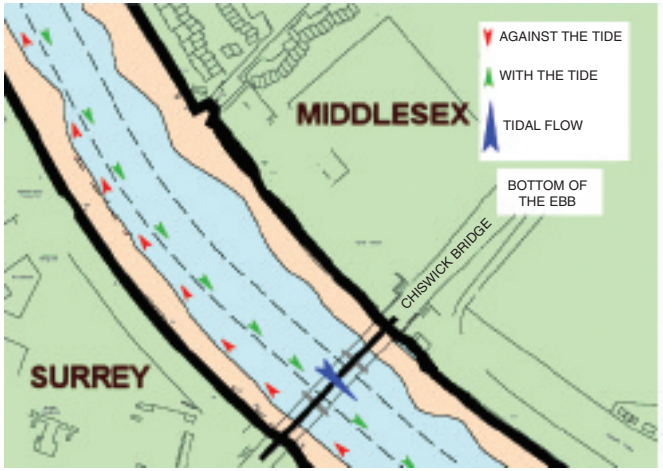
Chiswick Bridge at high water with the tide ebbing



Chiswick Bridge at low water with the tide flooding



Chiswick bridge at low water with the tide ebbing



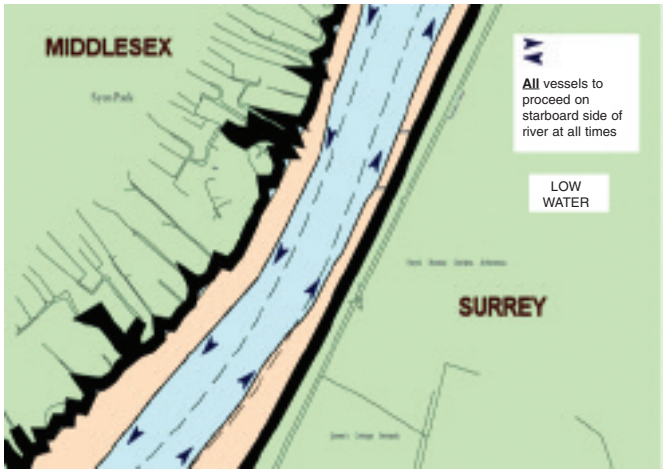
Rowing Navigation Outside of Syon Reach to Putney Bridge
Above the Syon Crossing and below the Putney Crossing, normal Starboard navigation rules apply:

(a) Rowing boats must stay as close to the starboard side of the Navigation Channel and in the case of this code where practicable (i.e. if there is sufficient water depth) outside the Navigation Channel as shown. This is safe and practicable, irrespective of tide DIRECTION.

(b) Action taken to avoid collision should be to pass port to port.

Upstream of Syon Crossing at low water on either tide

Upstream of Syon Crossing at high water on either tide



2.2 The Tide

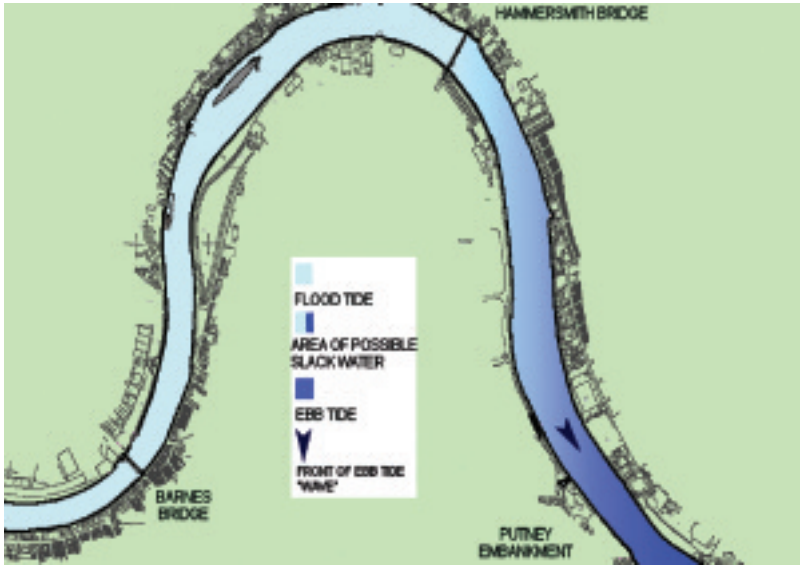
As the rowing rules are based around the tide, when planning an outing, it is vital to be aware of the direction of the tidal flow and the predicted times of high and low water. In this part of the tideway the tide floods in from the estuary in about three hours and then ebbs back out in about nine, resulting in two full tidal cycles in a given twenty four hour period. Predicted tide times are therefore a useful guide to what both the height and direction of tide are likely to be during any outing.

However, tide times and heights can be affected by many external factors, so it is important to ascertain visually the actual state of the tide before boating. If the tidal direction is impossible to ascertain then boating should be delayed. These periods of "slack water" rarely last longer than a few minutes but are hazardous as the rowing rules cannot be determined if one can not tell which way the tide is flowing. It is rather like coming up to a T-junction with broken traffic lights - accidents are not certain but are certainly more likely.

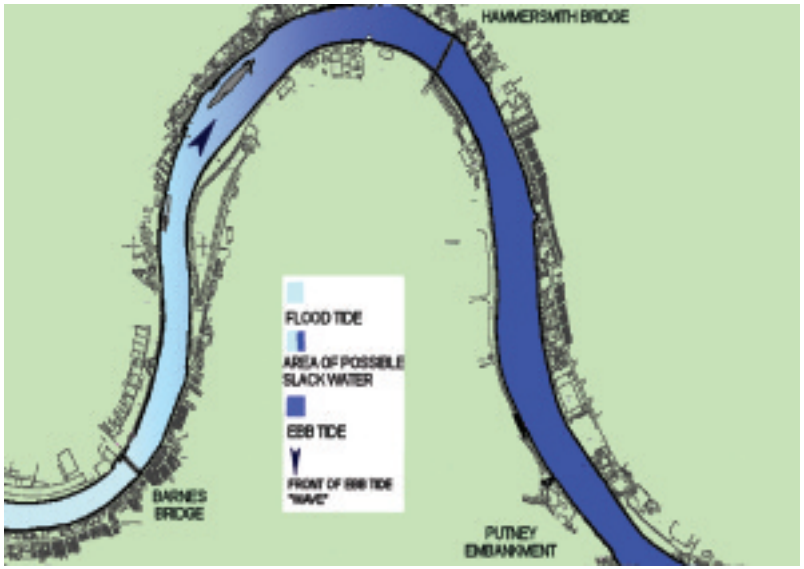
As a result of these tidal cycles, a great deal more rowing is done on the ebb than the flood, but it is very important to be aware of the rowing rules as they apply at both states of tide.

The change of tidal cycle can be thought of as a "wave" moving up the river, with the flood "wave" moving faster than the ebb "wave". At the "wave" face, there is a short period/area of slack water. On either side of the change the river is running in the opposite direction.

The diagram below illustrates what can occur at high water.



The following diagram shows the same stretch of river roughly twenty five minutes later.



As can be seen, it is possible for a rowing boat coming from Putney to outpace the change in tide and arrive at Barnes to find that they are following an incorrect course. This can result in four lines of traffic, two each on directly opposed courses with the potential of head on collision and with all crews correctly following the rowing rules, but based on different perceptions of which way the tide is running. At high water, this is less of a problem because of the space available, but at low water, as the tide changes from ebb to flood, the river is much smaller and this can make it very hazardous and it is this particular period that should be avoided if at all possible.

The predicted time of the tide change at different points along the river is shown below. The tide times can be found in the PLA Tide Tables and Port Information booklet with the difference given from London Bridge to Putney. Again, this is a guide, which can be affected by many factors, but is a good starting point to be used when organising outing:

LOW WATER TIME DIFFERENCE

Kew Bridge		Hammersmith Bridge
+67 mins		+20 mins
+97 mins	+41 mins	0 mins
Richmond Lock	Barnes Bridge	Putney Bridge

HIGH WATER TIME DIFFERENCE

Kew Bridge		Hammersmith Bridge
+21 mins		+7 mins
+31mins	+13 mins	0 mins
Richmond Lock	Barnes Bridge	Putney Bridge

If you are unsure as to which direction the tide is running, and if it is safe, stop and square blades in the water and see which way the boat drifts to determine tidal direction but allow for wind.

It can also be possible to tell the tide direction visually without stopping, but you must take the following into account:

- The tidal stream changes in the Inshore Zone before it does in the Navigation Channel.
- Wave movement is not a good indicator of tide direction, but can be of limited use to experienced persons.
- The effect of the tidal stream on largely submerged (i.e. not wind affected) debris is the best indicator of tidal direction.
- Stream disturbance and direction can easily be seen from the effect of posts, bridge piers and abutments.

2.3 Bridge Arches closed to Navigation

The PLA uses the following marks to identify when a bridge arch is closed to navigation.

Port of London River Byelaws (1978) Rule 29 - Bridges

(1) When the arch or span of a bridge is closed to nagivation the person in control of the bridge shall suspend from the centre of that arch or span –

(a) by day, three red discs 0.6 metres in diameter at the points of an equilateral triangle with the apex downwards and the base horizontal;

(b) by night, three red lights in similar positions to the discs displayed by day.

2.4 Restricted Zones

Every bridge within the rowing area covered by this code has a Restricted Zone around it. Within these Zones certain actions are proscribed as detailed below.

Side by side rowing is allowed through the Restricted Zones, but only for a maximum of two crews.

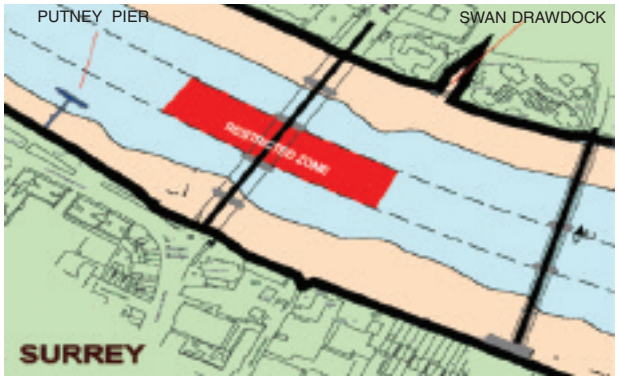
Throughout the area there shall be no overtaking through Restricted Zones of any kind.

When rowing in the Inshore Zone one may not stop in the vicinity of or underneath bridges.

Putney Bridge

Proscribed Actions: No turning, No stopping.

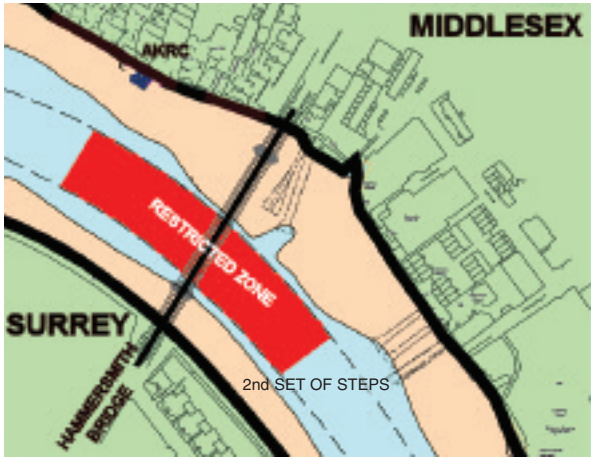
Zone Area: The Putney Crossing point to the downstream end of Swan Drawdock.



Hammersmith Bridge

Proscribed Actions: No turning, No stopping[1]. No Crossing.

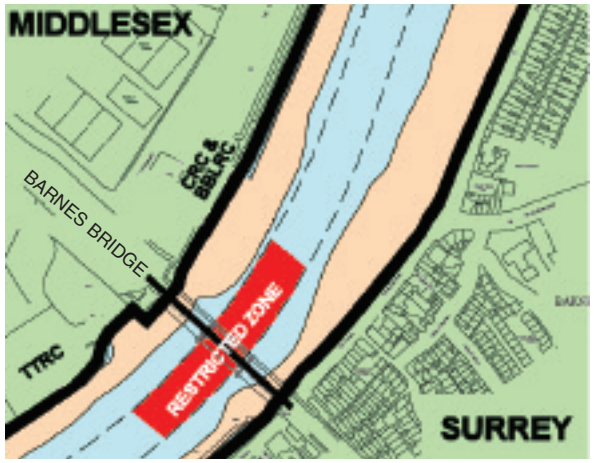
Zone Area: The Downstream end of the AK pontoon to the 2nd set of steps downstream of the Bridge.



Barnes Bridge

Proscribed Actions: No turning, No stopping.

Zone Area: The Upstream end of TTRC to the downstream end of Cygnet.

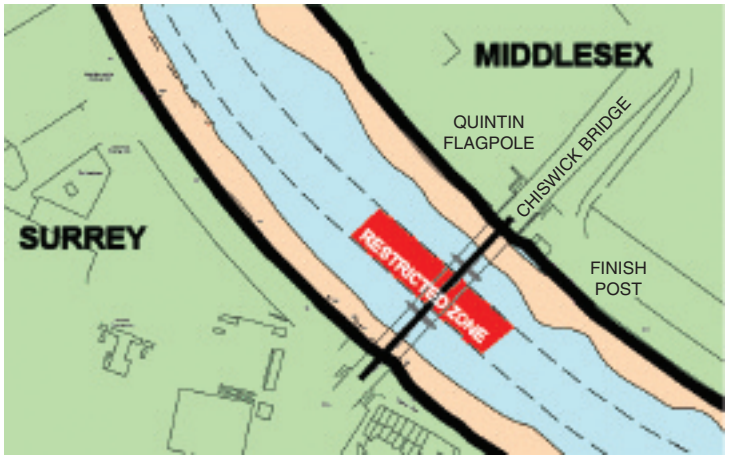


[1]Unless for embarking and disembarking in which case the boat should be pulled in as close as possible to the bank in order to avoid obstructing other river users. Blades should be in contact with the bank, if possible, to aid in the ability to remain stationary.

Chiswick Bridge

Proscribed Actions: No turning, No stopping. No Crossing.

Zone Area: Finish post to the Quintin flagpole.



Kew Rail to Kew Road

Proscribed Actions: No turning, No stopping. No Crossing. The gap between the two Zones to be used mainly for turning rather than resting.

Zone Area:100m downstream of Kew Rail to the end of Oliver's Ait then from the Harbourmaster's Buoy to the beginning of Brentford Ait. Exceptionally these Restricted Zones are the full width of the river for both Restricted Zones, owing to the inherently difficult nature of safe navigation in these areas.

2.5 Crossing the River

Port of London River Byelaws 1978
Byelaw 15 - Modifications of the International Regulations for Preventing Collisions at Sea (ColRegs).

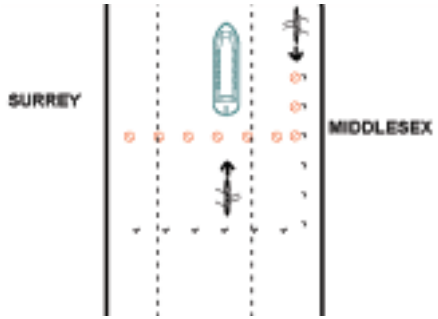
Crossing

(a) A vessel shall not cross or enter a fairway as to obstruct another vessel proceeding along the fairway;

(b) When a power driven vessel operating as a ferry is crossing the river, she shall keep out of the way of a vessel proceeding along the river.

In summary:

- Crossing must be expedited as quickly as is safely possible.
- Crossing should be carried out as near to 90° as is possible.
- Remember to observe the special rules pertaining to crossing in the Restricted Zones.
- Do not cross in front of oncoming traffic.



Crossing Zones

- Where possible the recommended Crossing Zones should be used. They are:

  100m upstream of Putney Bridge;
  The Chiswick Steps;
  The Ship Inn near Chiswick Bridge; and
  Isleworth Ferry Gate on Syon Reach.

- If waiting to cross, wait parallel to the bank and close to or in contact with the bank, so as not to block traffic. Shout out to any crews behind to wait in line. Any such crews must not to try to overtake or double park alongside. (Refusal to do so shall be notifiable for disciplinary action.)
- Crossing boats **must** always give way to boats proceeding along the Navigational Channel.
- Rowing boats and Escorting Vessels are allowed to cross the river at other places, apart from where it is specifically not allowed (i.e. the Restricted Zones), when boating from or returning to boat houses, provided that they shall do so as quickly as possible and avoid obstructing any other vessel proceeding along the Navigation Channel.

2.6 Stopping and Turning

Stopping

- No stopping in the recommended Crossing Zones.
- It is also good practice not to stop too close to them.
- When rowing against the tide, always pull in as close as possible to the bank preferably with blades in contact with the bank so as to aid the ability to be stationary by occasional paddling with the outside blade in the stream.
- When rowing with the tide, wherever possible stop as close as possible to the starboard side of the Navigational Channel and wherever possible and it will not obstruct oncoming traffic or increase risk of collision, pull out of the Navigational Channel entirely.
- Do not stop in front of power driven vessels. Large power driven vessels proceeding with the tide are severely limited in their ability to stop.
- Do not stop abreast of other vessels of any sort including coaching launches and rowing boats. If in a group always stop line astern.
- If a coach in a launch wishes to stop to talk to the crew then the coach and the crew need to be close together. This can be, if necessary, by coach holding onto stroke's blade to reduce the area of the river "used" by the combined unit so as not to block the channel. This should only be done if there is room outside the Navigation Channel.

Turning

- Avoid spinning in the Inshore Zone. Pull out of the line of traffic and cross (as instructed) into the Navigational Channel before turning.
- For turning in the vicinity of bridges please see rules for Restricted Zones above.
- When spinning into the Inshore Zone, ensure, firstly there is room to move into it and that by so doing one will not be impeding other vessels, especially vessels restricted in their ability to manoeuvre.
- No turning in the recommended Crossing Zones, either turn earlier or later.

2.7 Keeping a Good Lookout

ColReg Rule 5 - Look-out
"Every vessel shall at all times maintain a proper look-out by sight as well as by hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision."

The importance of maintaining a proper and effective lookout, cannot be over emphasized. Failure to keep a proper lookout is probably the single biggest factor in many collisions between vessels.

For a coxless boat the maximum recommended time between checking over the shoulder should be five strokes. (Alternate shoulders are recommended). A coxless four travelling with the tide could cover as much as 100m in five strokes. However, when in heavy traffic or navigating in or around the Restricted Zones, this must be reduced accordingly.

A cox's first priority is the safe navigation of the boat, more so than good balance or quickest racing line. Whatever is being said to the cox by the crew or coach it is the cox, as master of the boat who will be liable in case of an accident. The same applies to the steersperson of a coxless boat.

Shouted Warnings
If you feel that a risk of collision is developing do not assume that the other boat is aware of it and call out in good time to warn them. The conventional calls are:

- "Take a look" – a risk of collision is developing, have a proper look around.
- "Ahead" – You should be taking action now, collision seems imminent.
- "Hold it up – lightly" – Collision risk – precautionary stop.
- **"Hold it hard"** – Collision imminent unless you stop.

Whilst it is common practice to complete the above phrases with the type of boat involved i.e. "Take a look four" it can be difficult to positively identify a class of boat from the front. It is often better to call out the club name if possible, as if the wrong class of boat is called the boat in question might ignore the call. However all rowers when hearing such a call in their vicinity should take a good look to ascertain whether it pertains to them or not.

Coaching launches are in a much better position to see oncoming traffic and the formation of potentially dangerous situations. Coaches should warn rowers of such situations as they develop whilst avoiding giving them specific navigational instructions.

Nothing herein removes or alters the obligation of all vessels to comply with ColReg Rule 5 at all times.

2.8 Day Glo Vests

The use of Day Glo vests is strongly recommended for rowers in coxless boats, especially single scullers. In crew boats only the rower in the bow seat needs to wear one. They are also strongly recommended for any other rowing boats in which safe navigation might be affected. Novice crews or crews with novice coxes, non-local crews or inexperienced school children are all examples of such rowing boats. It is also recommended that novice coxes themselves wear day-glo vests.

The purpose of wearing these vests is two fold: firstly to increase safety on the river and reduce the incidence of collisions by making crews more visible, secondly to act as rowing "L plates", especially with novices, inexperienced rowers or those unfamiliar with the Thames. It is expected that other river users will be more cautious around such crews and understanding in case of any errors.

The Thames Regional Rowing Council (TRRC) has established a colour code for these vests which can be viewed on their website (www.thames-rrc.org). Other river users will also be alerted to the meaning of a day glo vest, through their own guides to the tideway.

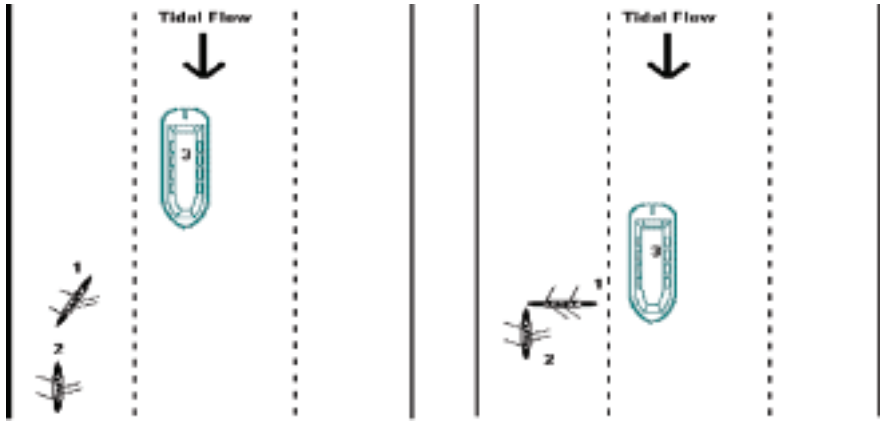
2.9 The Tideway

The tideway between Putney and Richmond has a tidal range of over 6m and can flow at up to 4 knots. When you factor in the effects of a headwind it means that a boat can drift over 150m in the time it takes to have a drink of water and put a top on.

The stream can also affect the lateral direction of a vessel, because currents swirl around bridges and islands. Coxes and steerspersons must be aware of these hazards, as indeed must the crew particularly bow and 2 in an eight or coxed four.

When stopped against the tide it is important to keep the bows of the boat pointed into the stream. If the boat is at rest with the bows at an angle to the stream the boat can be spun about – see next page.

Being set across the tide



- Boat 1 is waiting to cross the river, but must wait for Vessel (3) to get clear.
- As Boat 1 has pulled further out into the stream, the strength of the tide on her bow becomes much greater than that on her stern. The usual end result of this is that the stern remains relatively stationary as the bow swings around it in the direction of the tide.
- The quickest way out of this danger would be to row forwards but Vessel 3 is in the way. Straightening the boat back out against the stream is difficult even for an experienced cox with a good crew.
- As a result Boat 2 ends in collision with Boat 1.

How not to do it…

SECTION THREE - GENERAL NAVIGATION RULES

Navigation on the tidal Thames is covered by the International Regulations for the Preventions of Collisions at Sea (ColRegs), PLA River Byelaws, PLA General Directions and Notice's to Mariners (Permanent and Temporary). All the PLA regulations are subject to regular review and whilst the current content and references are correct at the time of publication, they are subject to change. The latest versions of the various regulations are always available on the PLA website and the ColRegs.

3.1 Narrow Channels

The following rules apply in the tidal Thames. Relevant interpretation, guidance and advice follows each rule.

ColReg Rule 9 - Narrow Channels

9 (a) A vessel proceeding along the course of a narrow channel or fair way shall keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable."

On the tidal Thames the fairway is defined by the PLA and is represented by the dotted lines on the charts shown below and as published elsewhere from time to time. In this part of the Thames the fairway (Navigation Channel) limits are approximately the 1m sounding line (i.e. 1m depth when the tide is at chart datum). Please refer to the chart "Rowing on the Tideway" for the exact position of the navigable channel. Rowing boats should, preferably, and particularly at times of high motor vessel traffic, whenever it is safe to do so, navigate outside of the main channel or Navigation Channel.

ColReg Rule 9 - Narrow Channels

9 (b) A vessel of less than 20 meters in length or a sailing vessel shall not impede the passage of a vessel which can safely navigate only within a narrow channel or fairway."

When navigating in the Navigation Channel for whatever reason, all rowing boats and their accompanying coach boats must never impede the passage of a vessel which as a result of its draught or length can safely navigate only with the Navigation Channel. Rowing boats and accompanying coach boats shall take early and clear action to avoid and be seen to avoid such a vessel. The most usual vessel to which this would apply are the Class V passenger vessels which operate on the tideway.

ColReg Rule 9 - Narrow Channels

9 (d) A vessel shall not cross a narrow channel or fairway if such crossing impedes the passage of a vessel which can safely navigate only within such channel or fairway."

When crossing the River or turning, all rowing boats must ensure that they have a clear view of the Navigation Channel. They are not to cross if they can not clear the Navigation Channel with a safe distance between them and any oncoming vessels. If the crossing area is not clear, the crew must stop and wait for an appropriate moment to cross rather than continuing up the incorrect side of the River.

ColReg Rule 9 - Narrow Channels

9 (f) A vessel nearing a bend or an area of a narrow channel or fairway where other vessels may be obscured by an intervening obstruction shall navigate with particular alertness and caution and shall sound the appropriate signal prescribed in Rule 34(e). (One prolonged blast)

Rowing boats are not required to make sound signals but should be aware of their meanings as they should be made by relevant vessels approaching the same point. This particular sound signal will often be made by vessels approaching Kew Road Bridge.

3.2 Overtaking

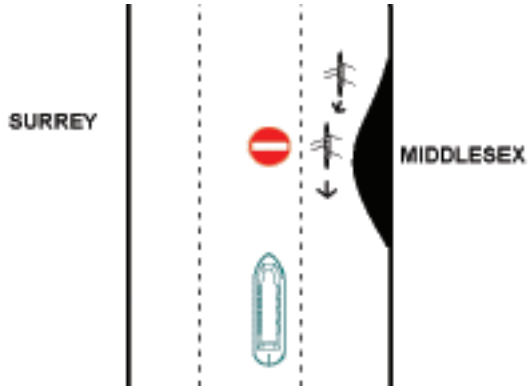
ColReg Rule 13 - Overtaking

13 (a) ...any vessel overtaking any other shall keep out of the way of the vessel being overtaken.

In summary:

- Overtaking should in general be on the outside, i.e. in the faster tidal stream.
- The overtaking crew has no right of way. (Contrary to popular myth!)
- The crew being overtaken should maintain course and speed (the reverse of what generally happens in a head race.) Variations of speed for training purposes during the overtaking manoeuvre does not constitute maintaining "course and speed". Baulking the passage of an overtaking vessel is not permitted.
- Overtaking shall not take place in any of the Restricted Zones.
- Overtaking shall not take place if it will put the overtaking boat into the path of oncoming traffic.

An example of when not to overtake



General Directions for Navigation in the Port of London (2006)
Direction 22 - Overtaking Manoeuvres

(1) Vessels shall only overtake if the manoeuvre can be completed so that the vessels involved do not prejudice their ability to navigate safely, particularly in areas of additional constraint such as river bends and bridges.

3.3 Proceeding Abreast

Port of London River Byelaws (1978)
Byelaw 15 - Modifications of the International Rules

(c) a power-driven vessel shall not proceed abreast of another power-driven vessel except for the purposes of overtaking that other vessel;

(d) a vessel in a fairway above Tilburyness shall not overtake a vessel which is herself overtaking another vessel.

A balance has to be struck between the strict adherence to the above regulations and the sport of rowing. This is a privilege and abuse of it will be treated most seriously by the TRRC and the PLA.

DONTs

- Boats must not row abreast if by doing so they will obstruct other traffic on the River.
- Boats rowing in the Inshore Zone must not row abreast other than when overtaking, and must ensure that they will not obstruct vessels proceeding in the opposite direction.
- The maximum number of boats allowed to proceed abreast in the channel at any one time is three, but only where a single boat is overtaking a pair of boats (such as an eight overtaking two scullers). Two boats abreast can never overtake two other boats rowing abreast, other than by switching to line astern and proceeding past in single file.

DOs

- Boats rowing abreast must maintain their correct station on the river and should avoid straying across the channel.
- Boats rowing abreast may only overtake another vessel if the river is completely clear and by doing so they will not obstruct any oncoming vessels or impede the passage of the vessel being overtaken. If this is not the case the boat must row behind the boat until it is safe to overtake, or overtake one at a time – as long as it is safe to do so.
- A single boat may only overtake two boats rowing abreast if the river is completely clear and by doing so it will not obstruct any oncoming vessels or impede the passage of the vessels being overtaken. If this is not the case the boat must row behind the two boats rowing abreast until it is safe to overtake.

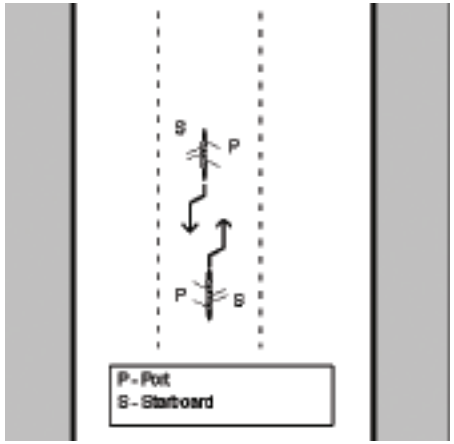
Notwithstanding the "DOs" and "DONTs" the onus for collision avoidance will always lie with the overtaking vessel(s).

In the event of an incident where rowing side by side is a contributory factor part or all of the enforcement action may be based on these regulations.

3.4 Emergency avoiding action to be taken in a head-on situation

ColReg Rule 14 - Head-on situation

14 (a) When two power driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other.



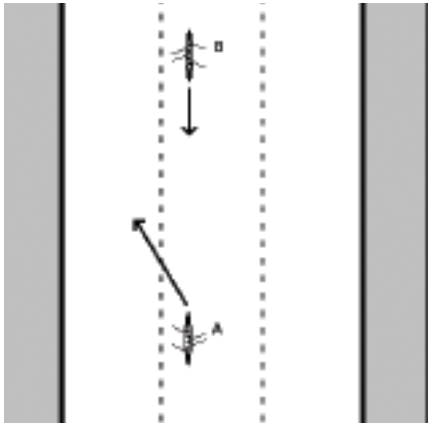
ColReg Rule 14 - Head-on situation

14 (c) When a vessel is in any doubt as to whether such a situation exists she shall assume that it does exist and act accordingly.

Alterations of course should be taken in ample time to avoid collision. However, when two rowing boats are on a head on course and a collision is unavoidable without immediate action, both boats should take the emergency avoiding action shown above. This rule also applies to all vessels navigating in the Navigation Channel at all times.

For the purposes of this regulation, when in the Navigation Channel rowing boats are to act as power-driven vessels.

Note: Steersperson should note that this rule applies if a collision is imminent and there is not time to get back to the Inshore Zone.



However in the situation illustrated above, Boat A (which has strayed out of the Inshore Zone) has time to steer back into the Inshore Zone before Boat B comes so close as to make collision imminent. In this case emergency avoiding action should not be taken, but rather a sufficiently quick return to the correct course inshore so that Boat B does not have to change its own course.

3.5 Vessels coming together on a collision course (crossing situations)

ColReg Rule 15 - Crossing Situation

When two power driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

ColReg Rule 16 - Action by Give-way Vessel

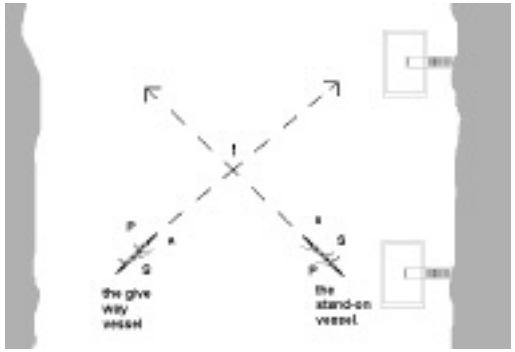
Every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to keep well clear

ColReg Rule 17 - Action by Stand-on Vessel

17 (a) (i) Where one of two vessels is to keep out of the way of the other shall keep her course and speed.

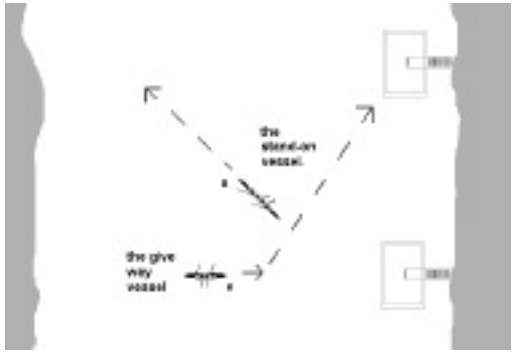
(ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in accordance with these Rules.

For the purposes of these rules rowing boats are to act as power driven vessels.



The above diagram shows an example of a crossing situation with the potential for a collision. Boat A on the port hand side of the River is returning to shore whilst Boat B on the starboard hand side is boating. If both boats continue on their courses they will collide.

In such a situation the following action must be taken.



The "stand on vessel" (Boat B) has followed Rule 17(a(i)) and maintained her course and speed, whilst the "give way vessel" (Boat A) has followed Rule 15 and has taken action to pass behind the "stand on vessel" (Boat B). In many circumstances the "give way vessel" can simply decrease her speed without needing to make a course correction, however the decrease in speed must be significant enough that the "stand on vessel" does not feel the need to make her own course correction.

ColReg Rule 17 - Action by Stand-on Vessel

17 (d) This Rule does not relieve the give-way vessel of her obligation to keep out of the way.

If the "stand on" vessel considers a close quarters situation has developed to such an extent that a collision cannot be avoided by the actions of the "give way" vessel alone, the "stand on" vessel MUST take such action as will best aid the avoidance of a collision. Whilst a collision is often the fault of both parties involved, if the "give way" vessel has failed to take appropriate action then the majority of the liability is likely to fall on that vessel.

For the purposes of these rules rowing boats must act as power driven vessels.

3.6 General Right of Way

ColReg Rule 18 - Responsibilities Between Vessels

Except where rule 9, 10, and 13 otherwise require:

18 (a) A power driven vessel underway shall keep out of the way of:
- (i) a vessel not under command;
- (ii) a vessel restricted in her ability to manoeuvre;
- (iii) a vessel engaged in fishing;
- (iv) a sailing vessel.

Rule 18 means that oar or paddle powered boats must keep out of the way of all the types of vessel listed above.

For the purposes of these rules rowing boats are to act as power driven vessels.

Port of London River Byelaws (1978)

Byelaw 19 - Vessels above Cherry Garden Pier (Cherry Garden Pier is downstream of Tower Bridge)

19 (1) Above Cherry Garden Pier –
- (a) a vessel of less than 40 metres in length, and
- (b) a sailing vessel

shall not impede the passage of –
- (i) a vessel of 40 metres or more in length, or;
- (ii) a vessel engaged in towing.

(2) Above Westminster Bridge, and in addition to their obligations under paragraph (1) above –
- (a) a vessel of less than 20 metres in length, and
- (b) a sailing vessel

shall not impede the passage of a vessel of 20 metres or more in length

This rule gives priority to vessels such as (but not limited to) Class V Passenger vessels, and large Dutch barges.

3.7 Navigation Buoys

These buoys are in place to mark the southern (Surrey) side of the Navigation Channel.

When proceeding against the tidal stream, rowing boats should navigate between the buoys and the Surrey bank.

When proceeding with the tidal stream, the buoys are an indication of the starboard (Surrey) limit of the Navigation Channel and crews should steer in accordance with the normal navigation rules e.g.:

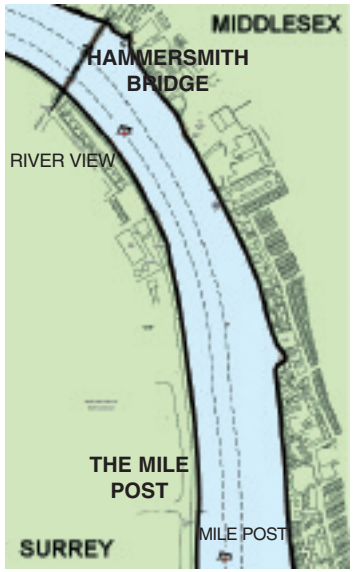
1. When rowing on the **ebb** tide – leave the buoys as close to starboard as is safe and practicable; and

2. When rowing on the **flood** tide – rowing boats should be on the starboard side of the channel therefore leaving the buoys well to port.

In addition to this, the buoy opposite the University of London Boathouse (UL) is used to mark the furthest upstream point at which boats from the University Boat Club can enter the Inshore Zone when crossing from the Middlesex to the Surrey side of the river.

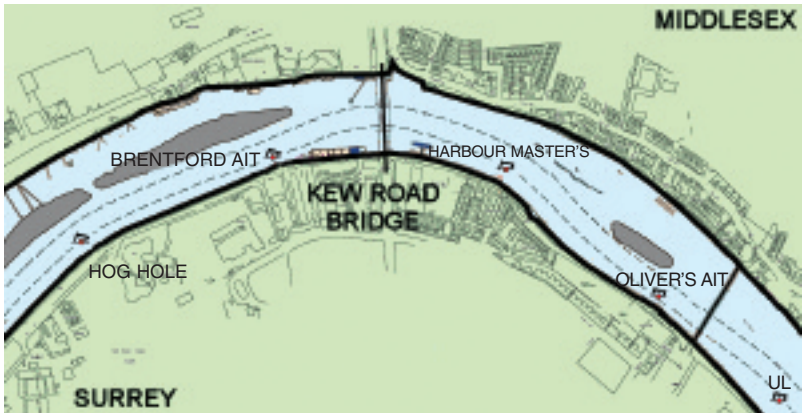
If there is not enough water to navigate inside the group of buoys upstream of UL, navigation outside of the Inshore Zone is not permitted.

Positions of Port Hand Buoys from Putney Upstream



Port hand buoys are located:

- Off Queen Elizabeth Walk, 100 yds downstream of Mile Stone.
- Off Riverview Gardens, 100yds upstream of Headway Board.



- Opposite Basin & Arnold's pier.
- 10m upstream from the upstream end of Oliver's Ait.
- By the Harbourmaster's Steps.
- Approx 30m upstream of downstream end of Lower Brentford Ait.
- Approx 20m upstream of Hog Hole.

- Opposite the upstream end of Lot's Ait.
- Near the driftwood moorings on Syon Reach. (This buoy does not mark the crossing point).

SECTION FOUR – ADDITIONAL REGULATIONS

The tidal Thames as far as Teddington Lock comes under the jurisdiction of the PLA. The majority of the regulations and instructions concerning navigation are laid down in:

- ColRegs;
- Port of London Act;
- Port of London River Byelaws;
- General Directions for Navigation in the Port of London;
- Permanent Notices to Mariners;
- Notices to Mariners.

The PLA keeps all its regulations under regular review and the latest additions can be found in their entirety on the PLA website (www.portoflondon.co.uk).

Ignorance of the regulations is not a defence in the event of an incident.

Detailed below, are further regulations that have a direct relevance to rowing on the tideway.

4.1 The Vessel Master

In the context of the PLA regulations the cox or in the case of a coxless vessel the steersperson is deemed to be the master of the vessel.

Port of London Act 1968 (as amended)
Section 108 - General rules for navigation
A master who navigates his vessel on the Thames-
(a) without due care and attention; or
(b) in a manner liable to injure or endanger persons, other vessels, the banks of the Thames (whether above or below mean high water level) or any structure or installation in or beside the Thames;
shall be guilty of an offence and liable to a fine not exceeding [the statutory maximum and on conviction on indictment to a fine].

Bearing this in mind coaches and those in loco parentis of Junior coxswains and steerspersons should use this fact in risk assessment when determining the suitability of those underage to act as masters of vessels with respect to their knowledge of and ability to adhere to the navigation regulations and this Code.

(The statutory maximum fine is currently £5,000.)

4.2 Incidents

Port of London River Byelaws (1978)
Byelaw 7

Where a vessel –

(a) has sunk;
(b) has been damaged
(c) has caused damage to anything (including a vessel) or is on fire;
(d) has lost, slipped or parted from an anchor;
(e) has taken the ground (not being a vessel which is berthed or moored);
(f) is carrying liquid in bulk and any spillage has occurred, or where the anchor of the vessel has fouled another or cable or other obstruction underwater,

the master shall –

(i) forthwith give notice and particulars of the occurrence to a harbourmaster;
(ii) unless he has given the notice and particulars in writing, confirm them in writing as soon as practicable after giving them; and
(iii) shall give to the harbourmaster such further particulars as the harbourmaster may reasonably request;

Provided that this byelaw shall not apply where both the vessel is less than 12 metres in length and the occurrence is one of those described in sub-paragraph (b), (d) and (e) above.

Reporting Incidents

The majority of incidents and "near misses" will be reported to the TRRC using the ARA Incident Report Forms. This will be the case for all crews whether or not the crew is based in the Thames Region. (Crews from other regions may provide duplicate reports to their own Region.)

Note: Only in respect of Byelaw 7 (a), (b) and (c) above should incidents **also** be reported to the PLA and in the case of (b) and (c) only when the damage is valued at a cost more than £500 at cost to repair.

However, all incidents involving personal injury must also be reported directly to the PLA.

4.3 Drink and Drugs

Port of London River Byelaws (1978)
Byelaw 9 - Drink or Drugs

(1) The master of a vessel shall not navigate the vessel when unfit by reason of drink or drugs to do so.
(2) The master of a vessel shall not navigate, attempt to navigate or be in charge of a vessel after consuming so much alcohol that the proportion of it in his breath when tested in accordance with paragraph (5) below records a reading of 35 micro grammes of alcohol or more in 100 millilitres of breath.
(3) If the harbourmaster has reasonable cause to suspect that the master of a vessel has drugs or alcohol in his body which may impair his fitness to navigate, he may direct the vessel to proceed to a designated berth or mooring or, if already on a berth or mooring, to remain in that position.
(4) The harbourmaster may permit a vessel to proceed notwithstanding that the master is suspected of being unfit to navigate through drink or drugs, if the harbourmaster considers that satisfactory arrangements have been made to replace the saidmaster and to ensure safe navigation.
(5) A vessel directed under paragraph (3) above shall remain in the position designated until such time as either a substitute master is on board and takes command of the vessel or the master suspected of having alcohol in his body submits to a breath test on equipment provided by the harbourmaster and approved by the Secretary of State for the purpose of the Road Traffic Act 1988 and the said breath test indicates a reading of less than 35 microgrammes of alcohol in 100 millilitres of breath.
(6) It is an offence for the master of a vessel to fail to comply with a direction made under paragraph (3) above.

The PLA has the power to breathalyse the master of any launch or boat and if they are over the legal limit they can be instructed to cease navigating.

4.4 Events

Port of London River Byelaws (1978)
Byelaw 10 - Boat races, regattas and processions
A person who promotes a boat race, regatta or procession shall give to a harbourmaster as much previous notice thereof as practicable (not being less than seven days' notice), and every person navigating a vessel in or in connection with such an event shall comply with the directions of a harbourmaster relating thereto.

Anyone wishing to hold an 'event' (use of the river for anything other than a regular outing, thus, including private matches) of any kind must advise the Harbourmaster at least seven days in advance.

The organiser will be required to provide:

1. proof of public liability insurance;
2. give an undertaking that a risk assessment has been performed;
3. that highlighted risk reduction measures will be in place;
4. and also indemnify the Port of London Authority against any costs or claims arising as a result of the event.

If the organiser would like an associated Notice to Mariners to be published, or if the Harbourmaster requires it, then at least three weeks notice is required. Any event that will involve more than 99 craft mandates a full river closure, which requires at least a month's notice.

4.5 Lights

ColReg Rule 20 - Application (Lights and Shapes)
20 (c) The lights prescribed by these rules shall, if carried, also be exhibited from sunrise to sunset in restricted visibility and may be exhibited in all other circumstances when it is deemed necessary.

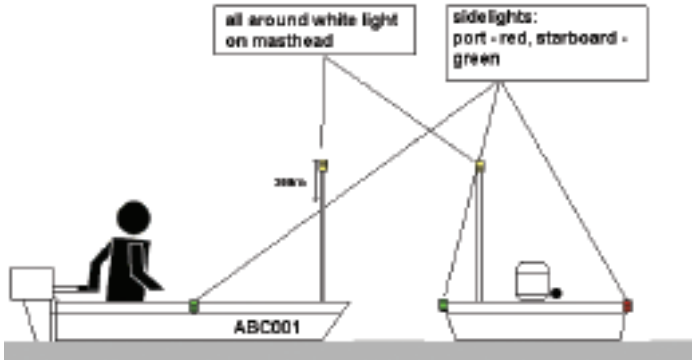
Lights are not only to displayed just for the hours between sunset and sunrise, they should also be used in restricted visibility such as fog, rain or snow.

ColReg Rule 23 - Power driven Vessels Underway (Lights and Shapes)
23 (a) A power driven vessel underway shall exhibit:
(i) a masthead light forward;
(iii) sidelights: and
(iv) a sternlight.
23 (c) (i) A power driven vessel of less than 12 meters in length may in lieu of the lights prescribed in paragraph (a) of this Rule exhibit an all-round white light and sidelights.
(c) (ii) a power driven vessel of less than 7 meters in length whose maximum speed does not exceed 7 knots may in lieu of the lights prescribed in paragraph (a) of this Rule exhibit an all-round white light and shall, if practicable, also exhibit sidelights.

In practice this means that all coaching launches should follow the requirements of Rule 23(c) (i), as any vessel being used for coaching will have a maximum speed well in excess of seven knots.

Permanent Notices to Mariners (2005)
P13 - Lights to be Displayed by Vessels Under Oars and Coaching Boats
Power driven vessels used for coaching should, as a minimum, display an all-round white light and, if proceeding at more than 7 knots, port and starboard navigation lights.

It is recommended that the all-round white light is displayed from a masthead rather than the deck, as this not only guarantees 360° visibility but also distinguishes a power-driven vessel from a rowing boat. The masthead light must be at least 300mm higher than the top of the head of the master of the vessel.



Rowing Boat Lights

Permanent Notices to Mariners (2005)
P13 - Lights to be Displayed by Vessels Under Oars and Coaching Boats

Rowing and canoeing after sunset are inherently hazardous and it is vital that other vessels see those who take part in such activities.

Vessels under Oars

Persons in charge of vessels navigating under oars are reminded that compliance with Rule 25 of the ColRegs is mandatory on the Tidal Thames.

Therefore rowing vessels and canoes should, as a minimum, have at hand a torch or lantern capable of exhibiting a white light in sufficient time to prevent collision.

In practice, in areas where such vessels may be numerous, vessels under oars can only comply with the above requirement by displaying a continuous white light visible over an arc of 360º (an all-round white light). In certain vessels two lights, one forwad and one aft, may be required to ensure visibility throughout 360º.

ColReg Rule 25 - Sailing vessels underway and vessel under oars

(a) A sailing vessel underway shall exhibit:
  (i) Sidelights;
  (ii) A sternlight
(b) In a sailing vessel of less than 20 metres in length the lights prescribed in paragraph (a) of this Rule may be combined in one lantern carried at or near the top of the mast where it may best be seen.
(c) A sailing vessel underway may, in addition to the lights prescribed in paragraph (a) of this Rule, exhibit at or near the top of the mast, where they can be best seen, two all-round lights in a vertical line, the upper being red and the lower green, but these lights shall not be exhibited in conjunction with the combined lantern permitted by paragraph (b) of this Rule.
(d) (i) A sailing vessel of less than 7 metres in length shall, if practicable, exhibit the lights prescribed in paragraph (a) or (b) of this Rule, but if she does not, she shall have ready at hand an electric torch or lighted lantern showing a white light which shall be exhibited in sufficient time to prevent collision.
  (ii) A vessel under oars may exhibit the lights prescribed in this Rule for sailing vessels, but if she does not, she shall have ready at hand an electric torch or lighted lantern showing a white light which shall be exhibited in sufficienttime to prevent collision.

This means that all rowing boats should have a white light affixed to the boat by a secure permanent bracket or similar fixing in front of bow and behind the cox, visible from a minimum distance of 800m. It is recommended that lights designed specifically for rowing boats are used. An additional flashing white light can be used on the bow of the boat to indicate direction of travel, but only in conjunction with a fixed white light.

Note: A torch with a directed beam is not suitable. It is required to be a light that is visible throughout the whole of at least 180º for the requisite distance.

The application and enforcement of these regulations has the support of the Amateur Rowing Association.

4.6 Coaching Launch Regulations

Port of London River Byelaws (1978)
Byelaw 48 - Speed limits

(1) The master of a power-driven vessel navigating in a part of the Thames to which this byelaw applies shall not cause or permit the vessel to exceed a speed of eight knots through on or over the water:
  Provided that this byelaw shall not apply –
  (b) where –
    (i) the vessel (having for the purpose of this byelaw been approved by a harbourmaster as one which may exceed a speed of eight knots through the water) is engaged in escorting a rowing boat in training; or
    (ii) the vessel is engaged in escorting a boat race or regatta; or
(2) The parts of the Thames to which this byelaw applies are –
  (a) the Thames above Wandsworth Bridge;
  (b) Deptford Creek;
  (c) the River Lee or Bow Creek;
  (d) Barking Creek
  (e) Dartford Creek;
  (f) the creeks to the north and west of Canvey Island and of the island known as Leigh Marsh or Two Tree Island, that is to say –
    (i) Holehaven, Vange and Pitsea creeks north of line drawn from Holehaven Point on a bearing 270° reckoned clock wise from the true north point of the compass; and
    (ii) Leigh Creek, Hadleigh Ray, Benfleet and East Haven Creeks west of a line drawn from Canvey Point on a bearing 000° reckoned as aforesaid to the Leigh-on-Sea shore; and
  (g) Yantlet Creek.

All club registered coaching launches carrying one or two people are automatically eligible for this speed exemption, provided that the launch is engaged in coaching a rowing boat in training or a boat race or regatta or similar associated activity. Any vessel carrying more than two people must pass the PLA's coaching launch wash test and be licensed so to do by the PLA.

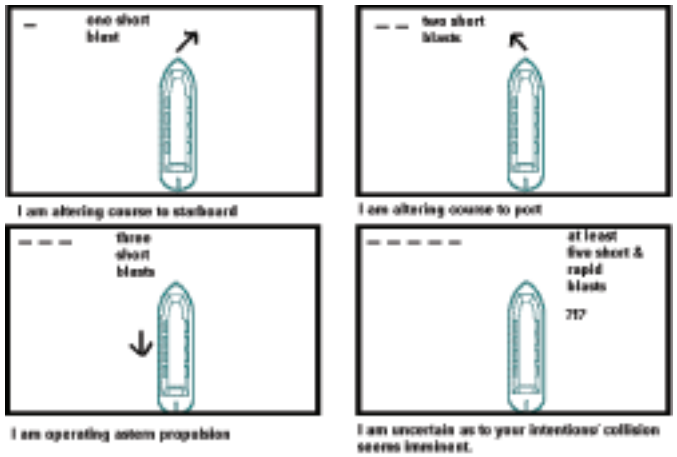
This does not relieve all vessels on the Thames from their duty to ensure they do not cause wash that will create a hazard to navigation or to other users of the River. This is especially important past boat moorings where people are working or living on their vessels.

Manoeuvring and Warning Signals

ColReg Rule 34 - Manoeuvring and Warning Signals

34 (a) When vessels are in sight of one another, a power driven vessel under way, when manoeuvring as authorized or required by these Rules, shall indicate that manoeuvre by the following signals on her whistle:
one short blast to mean "I am altering my course to starboard";
two short blasts to mean "I am altering my course to port";
three short blasts to mean "I am operating astern propulsion".

(d) When vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other, or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle.

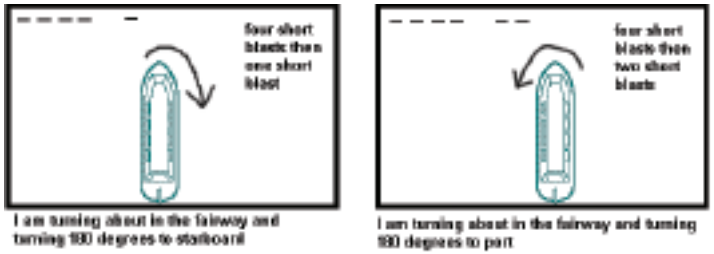


ColReg Rule 34 - Manoeuvring and Warning Signals

34 (e) A vessel nearing a bend or an area of a channel or fairway where other vessels may be obscured by an intervening obstruction shall sound one prolonged blast. Such signal shall be answered with a prolonged blast by any approaching vessel that may be within hearing around the bend or behind the intervening obstruction.

Port of London River Byelaws (1978)
Byelaw 35 - Vessels turning about

A power-driven vessel intending to turn about in a fairway shall sound four short and rapid blasts and after a short interval shall, if turning to starboard, sound one further short blast or, if turning to port, sound two further short blasts. During the turn the signal shall be repeated from time to time to warn any approaching vessel.



Rowers must be aware of the meaning of the above sound signals. Power-driven vessels, especially the larger commercial (passenger) vessels are much more likely to use sound signals than they are to shout. Equally, emergency vessels such as the lifeboat and police will use their siren rather than shout.

SECTION FIVE – THE INSHORE ZONE AT LOW WATER

Permanent Notices to Mariners (2005)
P28 Reduced Upriver Depths

Mariners are reminded that depths in the upper reaches of the tidal Thames are greatly affected over the low water period by the amount of land water flowing over Teddington Weir.

The area particularly affected lies between Kew Railway Bridge and Richmond half-tide lock.

Under low flow conditions water levels in the above area will remain at or less than chart datum between three hours before and one hour after the time of predicted low water at Richmond Lock. Low water levels of 0.5 metres below Chart Datum are to be expected.

During such periods of reduced depths, Masters of vessels navigating upriver of Putney should only do so with caution and should also make every effort to avoid impeding the passage of commercial vessels, which are highly constrained in their ability to manoeuvre in such conditions.

In order to assist passage planning upriver of Putney, London VTS broadcasts the height of tide at Richmond as part of the half-hourly broadcast on VHF Channel 14.

When there has been a period of low rainfall or an increase in the amount of water being extracted upstream of Teddington, the depth of water in the Inshore Zone can be considerably reduced, particularly upstream of Kew Road Bridge.

This warning is reiterated in the PLA tide tables.

Local Notices to Mariners

Notice to Mariners are issued to provide river users with navigational information and advice, including highlighting of new regulations (such as changes to "rowing rules", special events (such as Head races), temporary restrictions to navigation (bridge closures, low water levels) etc.

All Club Captains, Water Safety Advisers, coaches and members with steering responsibilities should sign up on the PLA website to receive automatically Notices to Mariners pertaining to their stretch of the river by email. The address is:
http://www.portoflondon.co.uk/notice2mariners/index.cfm/site/maritime

APPENDIX A – GENERAL DEFINITIONS

The definitions of specific words that are used in the ColRegs, Byelaws etc. can be found in those publications. The following definitions are words that are either specific to rowing or to the geography involved in this code.

Class V Passenger Vessel: vessels carrying more than 12 passengers that are engaged only on voyages in Category A, B or C waters.

Coaching Boats/Launches: Any approved vessel containing a coach accompanying a rowing boat in practice.

Crossing: The passage from one Inshore Zone to the other involving the crossing of a Navigation Channel, inclusive of the changing from one side of the Navigation Channel to another when changing direction to return from where the outing originally started.

Crossing Zone: Areas on the river in which Crossing is recommended.

Escorting Vessel(s): Any vessel, usually a coach, but sometimes an Umpire accompanying one or more rowing crews.

Inshore Zone: The Inshore Zone is the area between the river bank and the edge of the Navigation Channel.

"As close as is practicable": Is being sufficiently close to the shore that no other boat can "undertake" on the inside between the bank and the boat. Such a distance will vary with the state of the tide and may be as little as 1m at high tide close to a wall and as much as 20m at low tide where there are rocks, debris and bays between sand banks and other shoals jutting out into the river.

Navigation Channel: is the area marked on PLA charts.

Restricted Zone(s): Those areas as defined in the code of practice associated with bridges in which special rules apply.

Spinning: The process of alternately backing down and paddling on such as to effect a turn greater than 90 degrees, usually on the spot.

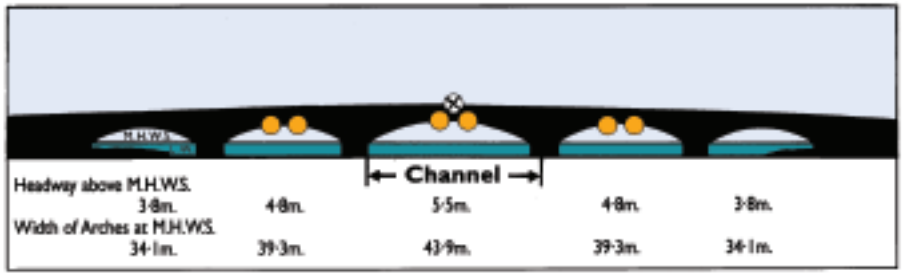
Stopping: Ceasing to row, often with the active process of holding the boat up by placing the blades in the water.

Vessel(s): means every description of vessel however propelled or moved and includes any thing constructed or used to carry persons or goods by water.

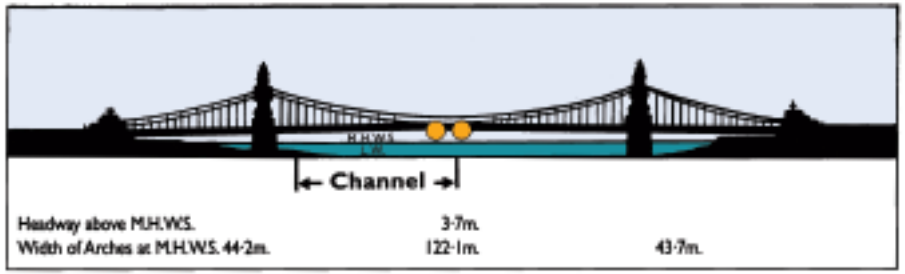
Note this PLA definition is slightly different from the ColReg definition.

PROCEEDING UPSTREAM

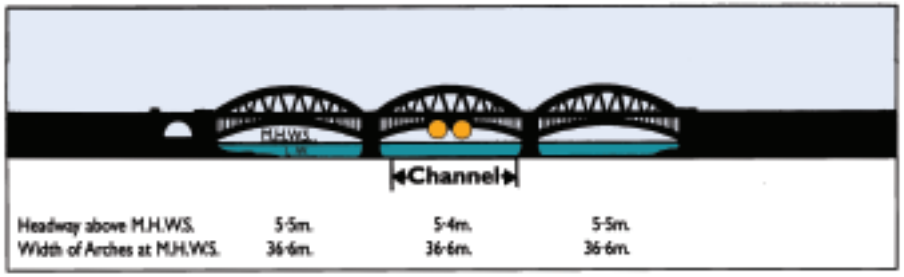
PUTNEY BRIDGE



HAMMERSMITH BRIDGE

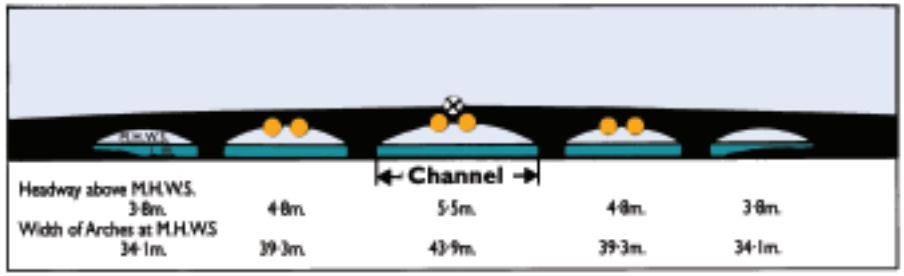


BARNES RAILWAY BRIDGE



PROCEEDING DOWNSTREAM

PUTNEY BRIDGE



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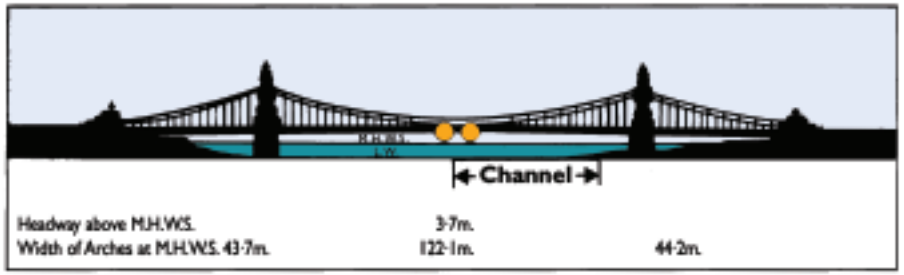
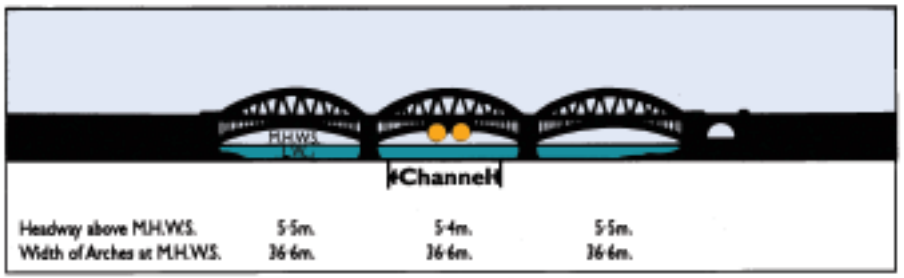
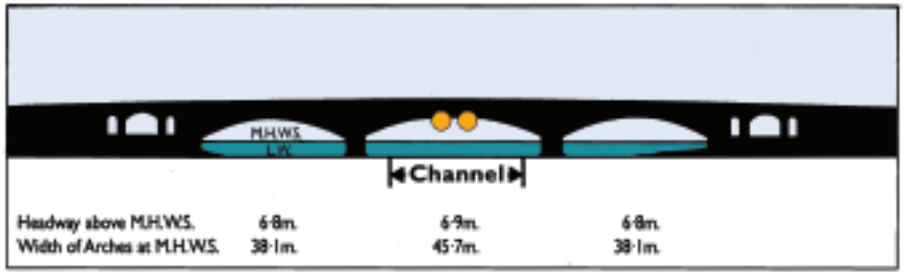


BARNES RAILWAY BRIDGE

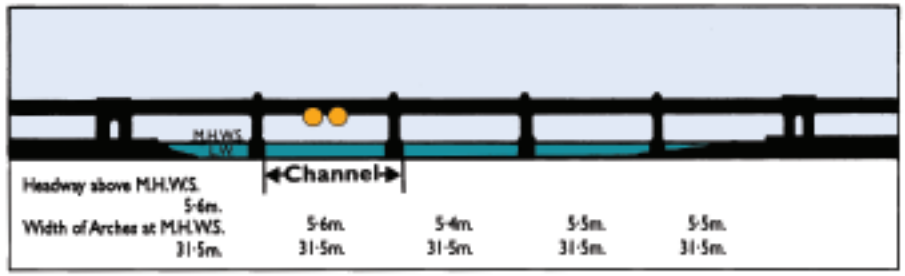


PROCEEDING UPSTREAM

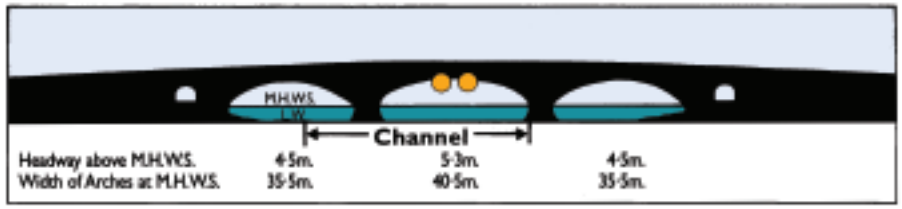
CHISWICK BRIDGE



KEW RAILWAY BRIDGE

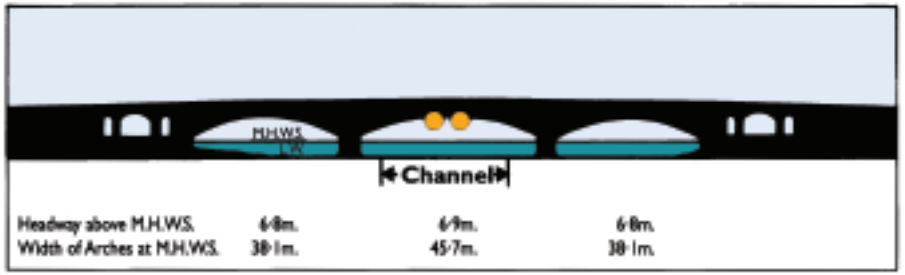


KEW BRIDGE



PROCEEDING DOWNSTREAM

CHISWICK BRIDGE



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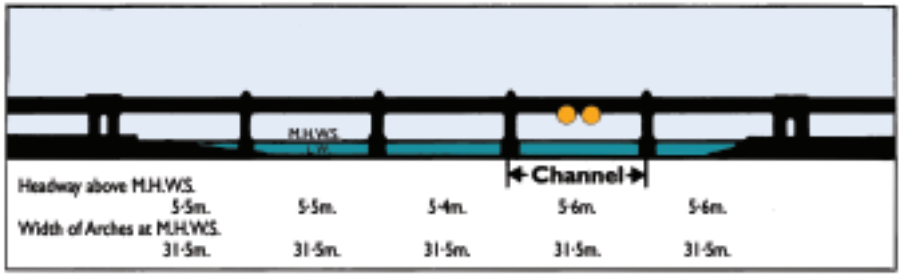
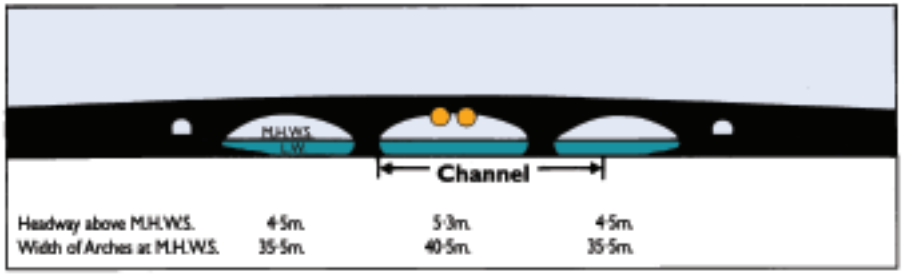


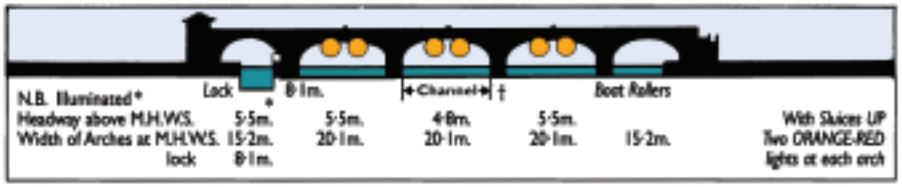
KEW BRIDGE



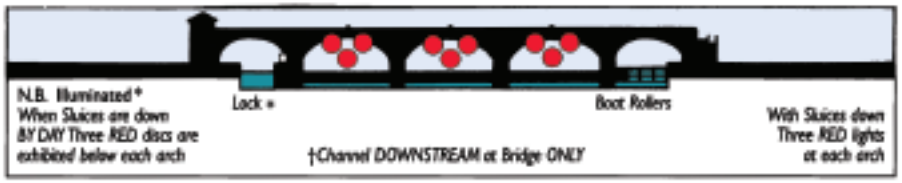
PROCEEDING UPSTREAM

RICHMOND FOOTBRIDGE, LOCK & WEIR

Sluice Gates Open



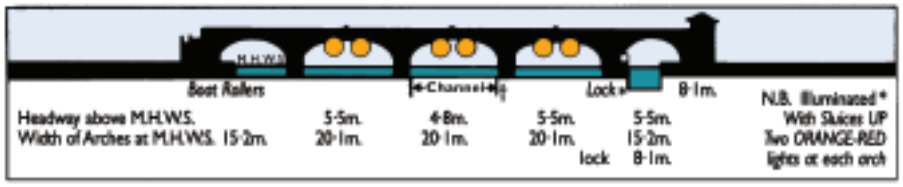
Sluice Gates Closed



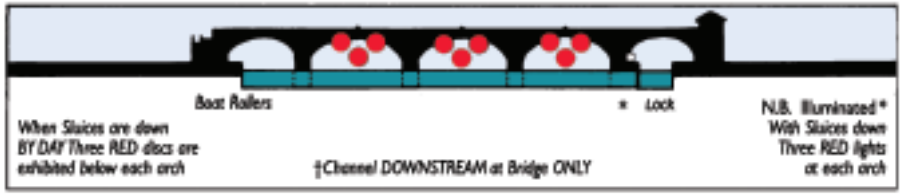
PROCEEDING DOWNSTREAM

RICHMOND FOOTBRIDGE, LOCK & WEIR

Sluice Gates Open



Sluice Gates Closed



APPENDIX C - PHYSICAL HAZARDS OF THE TIDEWAY

As well as other vessels the tideway also contains numerous physical hazards of which rowers must be aware, such as:

- bridges & piers;
- mooring buoys;
- floating debris (tree trunks, packing crates, wheelie bins etc.);
- shoals;
- sunken debris.

The following areas pose particular hazards and dangers to rowers.

Putney Bridge to Hammersmith Bridge

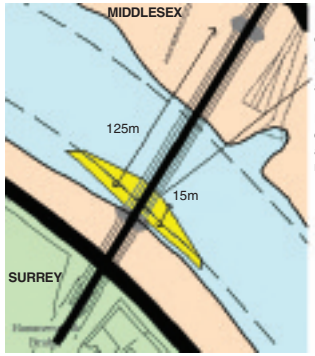
Crossing Point
100m upstream of Putney Bridge.
Hazards

- Steep walls on Middlesex side increase wash and make rescue very difficult.
- Putney Pier.
- Moored boats on Surrey side along the embankment ending with the Black Buoy.
- From Fulham Football Ground to just above Hammersmith Bridge at low water there are extensive flats.

Hammersmith Bridge to Chiswick Pier

Hazards

- Hammersmith Bridge.
  The Middlesex arch is impassable at most states of tide. Surrey arch impassable around low water. As a result a special channel has been designated for rowers proceeding against the tide on the Surrey side of the centre arch.



From the Surrey side of the centre arch a 15m wide Inshore Lane for the use of rowing boats navigating against the stream.

Rowers may only use this channel when the Surrey arch is impassable and must do so with caution.

- Surrey bank shelves gradually so at low water boats have to steer wide.
- Dove Pier and boats moored below it.
- Chiswick Pier and boats moored below it.

Chiswick Pier to The Stag Brewery

Crossing Point - Chiswick Steps Crossing – 100m upstream of Chiswick Pier.
Hazards

- Spurs of land and shoals at Small Profits at low water.
- Surrey arch of Barnes Bridge is difficult at low water.
- Storm water outfalls on Surrey above the "White Hart" and just above Barnes Bridge that can cause severe turbulence.

The Stag Brewery to Kew Rail Bridge

Crossing Point - Chiswick Bridge Crossing – opposite the "Ship" pub.
Hazards

- Chiswick Bridge.
- Entrance to Chiswick Quay Marina.
- Disused piles on Middlesex side just downstream of Kew Rail Bridge.

Kew Rail Bridge to Isleworth Ferry Gate

Hazards

- Kew Rail Bridge. Surrey arch impassable at low water.

- Current coming off downstream end of Oliver's Eyot pushing craft from Middlesex over towards Surrey.
- Narrow channel past Oliver's Eyot.
- Current pushing craft onto Kew Midstream Mooring.
- Approach to Kew Road Bridge is a blind corner.
- Kew Road Bridge. Surrey arch very difficult at low water.
- Pontoons with moored barges either side of Kew Road Bridge, on the Surrey bank.
- Class Vs using pontoons either side of Kew Road Bridge.
- River narrowing past Kew Road Bridge.
- Vessels coming out of Brentford Dock and Grand Union Canal.
- Shoal at entrance to Brentford Dock can cause grounding at Low water.
- PLA Driftwood moorings.

Isleworth Ferry Gate to Richmond Lock

Crossing Point - Syon Crossing – Syon Reach, opposite the Isleworth Ferry Gate.

Hazards

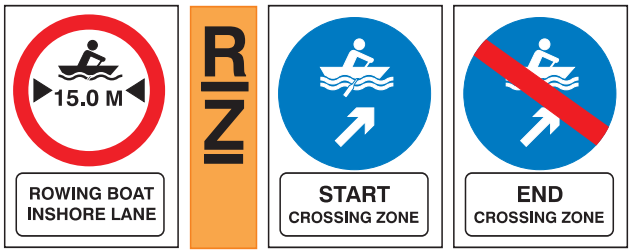
- Lack of Inshore Zone at low water.
- Turbulence from sewage outfalls on Isleworth Eyot.
- Current off the upstream end of Isleworth Eyot.
- Vertical banks on Middlesex side.

APPENDIX D - NEW SIGNS FOR THE TIDEWAY

Hazard Warnings

Prohibition Signs

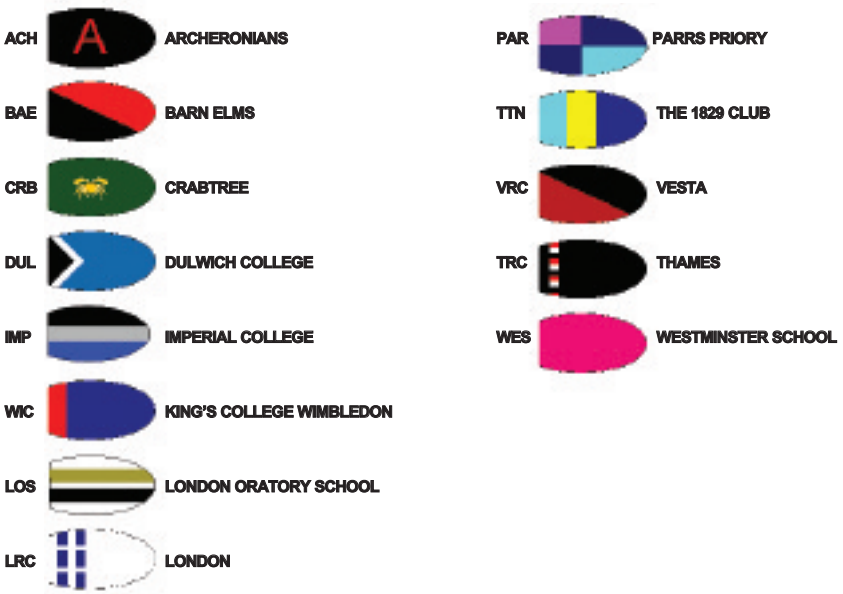
Signs giving Direction



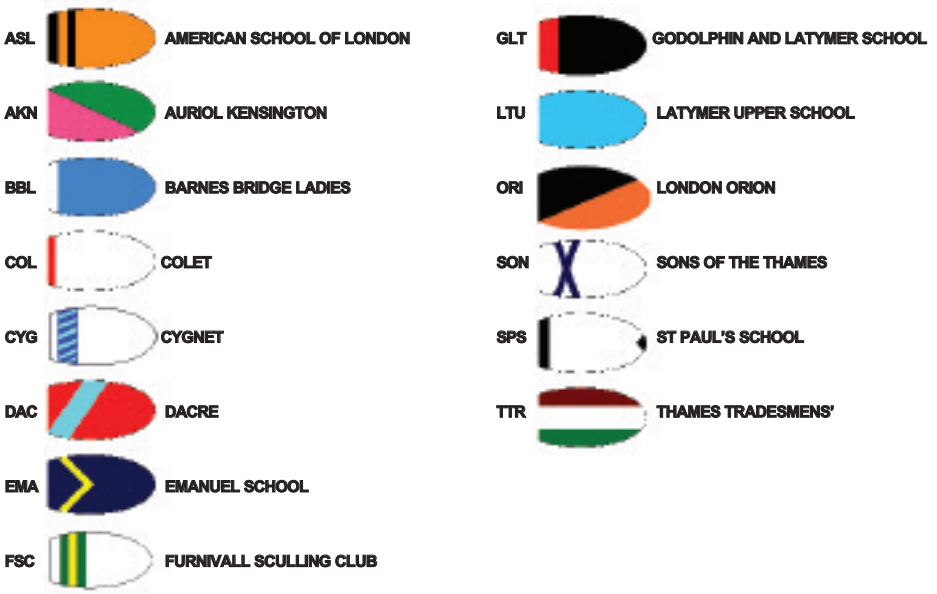
Signwise Limited - 01634 297200 www.signwise.co.uk

APPENDIX E – BLADES OF THE TIDEWAY

Putney



Hammersmith



Chiswick

MAA  MORTLAKE ANGLIAN & ALPHA

IMM  IMPERIAL COLLEGE SCHOOL OF MEDICINE

KCB  KINGS COLLEGE LONDON

PTR  PUTNEY TOWN

QMC  QUEEN MARY

QBC  QUINTIN

RHO  ROYAL HOLLOWAY

RUM  ROYAL UNIVERSITY MEDICAL STUDENTS

SBA  ST BARTS AND ROYAL HOSPITALS

SGH  ST GEORGES HOSPITAL MEDICAL SCHOOL

TSS  TIDEWAY SCULLERS

UNH  UNITED HOSPITALS

UCL  UNIVERSITY COLLEGE LONDON

ULO  UNIVERSITY OF LONDON