



## 10 STERN RUDDERS

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Stern rudders are used to keep the kayak going in a straight line and make small directional changes when on the move. The stern rudder only works if the kayak is travelling at a reasonable speed, but it has many applications. The most common is when there is a following wind or sea pushing the kayak along at speed. In this situation, forward sweep strokes are not quick enough to have as much effect as the stern rudder. A similar application is when controlling the kayak while surfing.

A more 'gentle' application is when moving in and out of rocks, caves and arches at slower speeds. Here, the stern rudder provides control and keeps the kayak on course in these tight spaces.

### Low angle stern rudder

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This is the classic stern rudder and works well to keep the kayak running in a straight line. It is best combined with the push/pull method of turning with a stern rudder (see below).

- The kayak must be moving at a reasonable speed.
- Fully rotate the body so that both hands are out over the side.
- Keep looking forwards.
- Place the blade nearest the stern of the kayak in the water as far back as your rotation allows.
- The blade face should be parallel to the side of the kayak so that it cuts through the water and you feel no resistance.



- The blade should be fully submerged and will act like a rudder, controlling the direction of the kayak.
- The front hand should be across the kayak and at a height between your stomach and chest.
- Balance the kayak, keeping constant pressure on knees and feet.

## High angle stern rudder

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The high angle stern rudder has emerged from whitewater paddling, but it also works very well in the sea kayak. With the front hand higher than for the low angle stern rudder, it allows the back blade to be more vertical and deeper in the water. This allows a different range of control and steering methods to work to greater effect, in particular the feathered blade rudder (see below). Another consideration is that some people will find it easier to fully rotate the body when the top hand is higher.



- The kayak must be moving at a reasonable speed.
- Fully rotate the body and place the blade nearest the stern of the kayak in the water as your rotation allows.
- The front hand should be between shoulder and eye height.

- The blade face should still be parallel to the side of the kayak, but it will be more vertical in the water.
- The blade should be fully in the water for maximum control, allowing it to act as a rudder and control the direction of the kayak.
- The upper body can lean back to allow the blade to be placed as near to the rear of the kayak as possible.
- Maintain constant pressure of knees and feet for balance.

## Push/pull rudder

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Both of the above stern rudders will keep the kayak moving in a straight line. There are occasions when you will need to use the stern rudder to change direction. This could be to avoid a rock when going through an arch or because following wind and waves are pushing the kayak offline. The push/pull rudder can help with this and can be used with the high or low angle stern rudder.

*Body rotation and paddle shaft position.*



*(Below) push/pull rudder, initiation and push.*

### 1 Push/pull rudder initiation:

- The kayak must be moving at a reasonable speed.
- Place the blade in a low or high angle stern rudder as described above.

### 2 Push/pull rudder action:

- To change direction towards the paddle side (the kayaker's right in picture), push the back blade away from the rear of the kayak.
- Keep the front hand in the same position as this acts as the pivot point.
- To change direction away from the paddle side (the kayaker's left in picture), pull the back blade towards the rear of the kayak.



## TOP TIPS

With the push/pull rudder it is far easier to move the kayak towards the paddle side by pushing. This is because you can only pull the blade in the water so much before either the side of the kayak gets in the way or the paddler cannot rotate any more. Ensure that you can perform a push/pull rudder on both sides so that if you constantly need to correct in a certain direction in a following wind/sea, you can always place the paddle on the pushing rudder side for easiest steering correction.

## Feathered blade rudder

The feathered blade rudder allows the kayaker to adjust course with great accuracy in both directions. It allows the kayak direction to be changed equally both towards and away from the paddle side. This gives it an advantage over the push/pull technique. The feathered blade rudder requires good blade awareness in the water and ideally needs to be combined with good use of edge.



*The feathered away blade angle.*

- 1 Feathered away stern rudder initiation – perform a high angle stern rudder as described above.
  - 2 Rotate the lower wrist (knuckles down) as if decelerating the throttle on a motorbike, to feel water pressure on the back of the blade, which is now feathered away from the kayak (see picture).
- The kayak will start to turn towards the paddle side (the kayaker's right in picture).
  - The back of the blade can be feathered more or less to increase or decrease the kayak turning.

## feathered away stern rudder





## feathered towards stern rudder

*The feathered towards blade angle.*



- 1 Feathered towards stern rudder initiation – perform a high angle stern rudder as previously described.
  - Rotate the lower wrist (knuckles up), as if accelerating the throttle on a motorbike, to feel water pressure on the front of the blade, which is now feathered towards the kayak (see picture).
- 2 The kayak will start to turn away from the paddle side (the kayaker's left in the picture).
  - The front of the blade can be feathered more or less to increase or decrease the kayak turning.

## Use of edge

Using the edge of the kayak while it is moving can have a great effect when turning the kayak. By blending edging with the stern rudders we gain far more control over our kayak, particularly when using stern rudders to change direction.

*Edge away stern rudder.*



- Edge away stern rudder – put the kayak on a comfortable edge away from the paddle side (lifting right knee in picture).
- This on its own will start turning the kayak (right knee up turns kayak right in picture).
- Combine this with the appropriate turning rudder for greater effect. This is either feathering blade away (as in picture), or pushing blade away.

*Edge towards stern rudder.*



- Edge towards stern rudder – put the kayak on a comfortable edge towards the paddle side (lifting left knee in picture).
- This will start turning the kayak (left knee up turns kayak left in picture).
- Combine this with the appropriate turning rudder for greater effect. This is either feathering blade towards (as in picture) or pulling blade towards.

### TOP TIPS:

#### **PUSH/PULL STERN RUDDER**

Edge kayak away –  
push paddle away

Edge kayak towards –  
pull paddle towards.

#### **FEATHERED STERN RUDDER**

Edge kayak away –  
feather paddle away

Edge kayak towards –  
feather paddle towards

#### **EDGE TURNING (CHAPTER 8)**

Right knee up –  
turn right

Left knee up –  
turn left

## Bracing stern rudder

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In following seas and winds, many paddlers find the stern rudder an unstable stroke. We can modify the stern rudder to give us more stability, yet still have its directional control in a following sea/wind situation. The bracing rudder does slow the kayak down slightly, but this is outweighed by the stability it can give in these conditions.

It is best to develop the skill to perform the stern rudders described above in all conditions. However, although something of a compromise, this is a great 'survival' stroke to use while we develop that skill.



*Bracing stern rudder. (Left)  
the bracing blade angle.*

- With the kayak moving, half rotate the upper body.
- Place the blade in a low brace position just behind the hips (see Chapter 12 for more on the low brace blade position).
- Ensure the back of the braced blade is offering support by gently pushing down on it and holding it out from the kayak.
- Angle the blade slightly up at its front edge, so it does not dive in the water.
- At the same time, edge the kayak slightly towards the low braced blade.
- Keep constant pressure on the up-edge knee and feet.

## TOP TIP

As you gain control, balance and confidence, try starting with the bracing stern rudder and (when you feel in control) gradually reducing the amount of feather and bringing the blade closer to the boat. Eventually you will find yourself mainly using the more effective stern rudders and applying only as much bracing as is necessary.

*Bracing stern rudder in windy conditions.*



- This position can be used to stop the kayak turning. In the picture, the paddler is using the braced stern rudder to stop the kayak turning left.
- Depending on the wind/following sea, place the braced stern rudder on the side that prevents the boat being turned by the conditions.
- A right side braced stern rudder (see picture) will stop the kayak turning left; a left side braced stern rudder will stop the kayak turning right.

## EQUIPMENT CONSIDERATIONS

Sea kayaks with more rounded hulls will tend to turn easier. The stern rudder is great for keeping them in a straight line. Use the stern rudder with no edge for this.

Sea kayaks with pronounced 'V'-keeled hulls will tend to stay in a straight line. When using the stern rudder to change direction with these designs, ensure a good edge is combined with the rudder.

## ENVIRONMENT CONSIDERATIONS

When using any of the stern rudders to control the direction of the sea kayak in a following sea, consider where best to apply the rudder. Try and time the turn to coincide with the sea kayak on the top half of the following wave; this will make the kayak very responsive and easier to turn. In this situation, less of the stern is in the water and turning is easier. If the sea kayak is on the bottom half of the wave, the stern of the sea kayak will be locked in the wave, preventing easy turning. If the sea kayak is in the trough of the waves, then both the stern and bow may well be locked by the wave behind and in front, preventing any turning.

## TOP TIPS

As a practice for stern rudders to ensure that your body rotation is correct, try the following. Lay the paddle floating in the water parallel to the kayak. Reach around and pick up the paddle using both hands in the paddling grip. This is the rotated body position for the stern rudder. Having picked up the paddle, hold it just above the water alongside the kayak. The blade nearest the stern should have its front face towards the kayak. Drop this blade into the water and slice it to the front of the boat. It should feel like you are trying to paddle backwards but with the blade slicing through the water. This is good for rotation and also to get a feel for the paddle blade i.e. whether it is slicing or being feathered and the amount of pressure on it. Try this on your left and right sides, eyes closed, slow and fast.