

## FIN GUIDE

### Choosing your next set of fins

Your surfboard fins are an essential ingredient to wave riding. Fins make the board go straight and enable you to turn. It seems like such a simple concept, but fin science can get rather complicated! There is an ever increasing amount of money spent on fin research, design and marketing and the leading brands such as FCS have developed a huge range in modern fin systems. Meaning not just the pros can develop their setup. However don't let the large range of different setups overwhelm you. This fin guide should help you work out how they work and help you to choose your next set of fins.

Most surfboards today come with the removable, as opposed to glassed-in, type of fin. Most brands do not have cross compatible boxes. Boxes are the devices that hold the fin on the surfboard. This makes it important to choose the system you want, as it affects all your future fin choices for that surfboard. The most used fin system world wide would probably be FCS. Choosing one of the most successful brands like FCS allows more choice in choosing fins because of their large range of products. They cover all elements of design including longboard fins, quad setups, twin, bonzers and the classic tri-fin thrusters. Many smaller brands of fins like the CJB's on our site and boards like the Take Offs use plugs and fittings as used by FCS; ultimately opening up the market but still allowing the full range of FCS.

### What do fins do?

The most important thing you want from your fin is direction, to keep the nose of the board pointing towards the shore or down the line of the wave, rather than spinning round under you. To achieve this shortboard fins works exactly like feather flights on a dart, providing drag to keep the back of the board running slower and particularly to massively increase that drag if the board starts slipping sideways.

The second purpose of the fin is to give you 'drive'. This is the simple business of changing your slip slide down the face straight towards the shore into down the line energy that can put you wherever you want to be on the wave and keeps your board travelling forward. Generated during and out of a turn and in even the most basic situation, as you sit in trim heading straight down the line, water isn't just rushing under your board straight along it's length, it's also flowing up the face of the wave. Allowing this energy and translate it to forward motion is a vital part of the fins role, and obviously a major part of surfing.

As well as keeping the board running straight your fins give something to pivot against on your back foot during a turn. The subtleties of 'rake' and 'cant' can change this experience, alter the ease with which the board can be moved from rail to rail and alter the speed and projection that can be generated out of a turn. The size of the fins and their setup also alters the moment of release that allows a powerful turn to break the back of the board out and slide it sideways when that's what you want, or keep them locked in when you don't. Look at your shortboard now and check out the fins. The centre fin in the back should be curved slightly on both sides. This fin is 'symmetrical', now check out one of the outer fins and you'll see one curved side and one almost flat. The third purpose of your shortboard fins is to use these 'asymmetrical' outer fins to create 'lift'. Lift kind of implies something floating the tail of the board up out of the water, it'll make more sense when you realise that these rear fins, curved on one side, are working exactly like an aeroplanes wing. The 'lift' here isn't up in the air, it's pulling the board towards the rail, locking the rail in and ensuring that the faster the board is travelling the stronger the bond. In practise this means your tri-fin thruster should be able to take a higher, more critical line in steeper sections of the wave.

### Fin characteristics:

- **Depth** - The maximum height of a fin as measured from the bottom surface of the board. This shows how far the fin goes in the water. The hold of the surfboard increases with more depth but generally makes it harder to turn as well. The shorter the depth, the more slide the board will have. 3-4 inch depth is standard on tri-fins and longboard single fins typically have a depth of nine inches.
- **Template** - The fin outline.
- **Base** - The length of the fin where it joins the surfboard. Increasing length adds forward drive, but makes it harder to turn. The less base, the shorter the turning arc. Shortboard tri-fins usually have a 3.5-4.5 inch base, longboard single fins are about 6 inches.
- **Foil** - The horizontal curve of the fin, measured from the front edge to trailing edge.
- **Rake** - The distance between the trailing edge of the fin base and the fin tip. This is the swept back characteristic of the fin. Increasing rake increases traction.
- **Tip** - The top third of the fin. More tip means more hold.
- **Flex** - The amount a fin flexes from the straight position. Fins with little flex are more responsive and will have more speed and direct drive. Fins with flex are more forgiving and easier to use. Ideally a fin would have a stiffer base for drive and more flexible tip for release

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## SWEEP

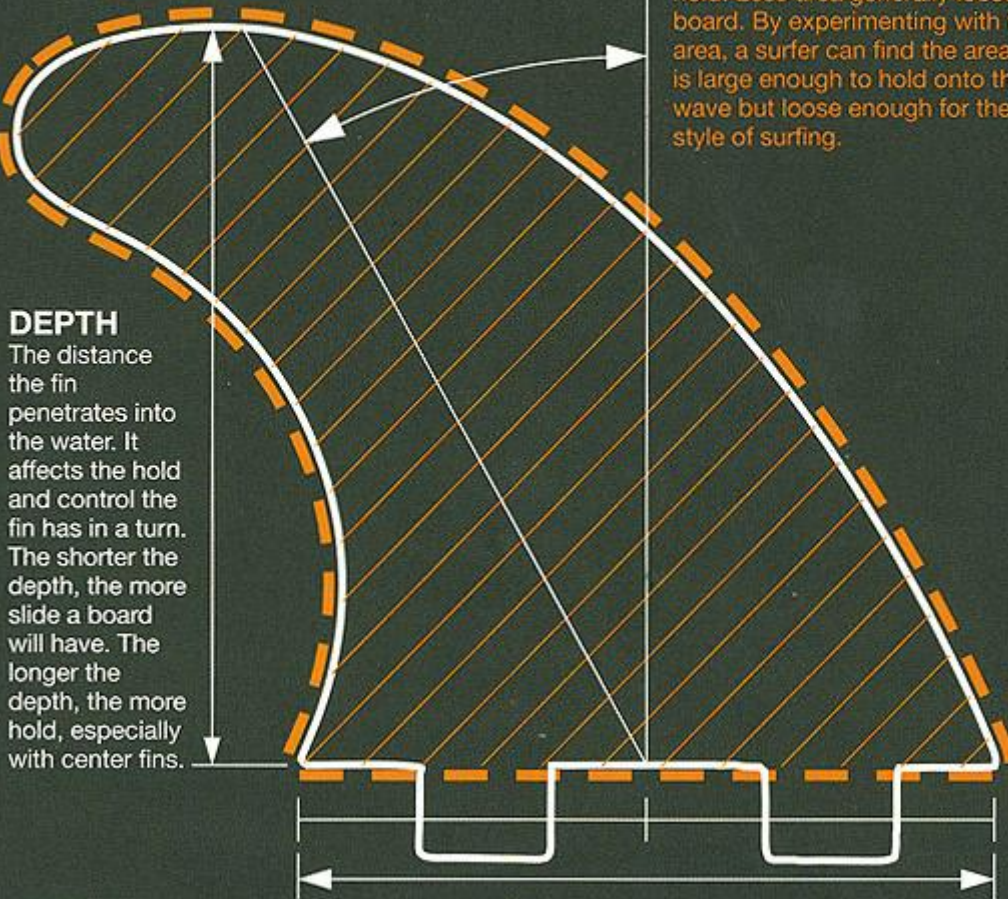
The angle measured between the vertical line from the mid-point on the base and the line which connects the mid-point of the base to highest point on the fin. (Put simply, how much the fin's outline shape is curved backwards.) The more sweep, the longer the turning arc. The less sweep, the more pivotal the board will be.

## TEMPLATE

The outline shape of the fin.

## AREA

The projected 2D area of a template measured in square inches or millimeters. A larger surfer needs a larger fin area to provide enough hold. Less area generally loosens a board. By experimenting with fin area, a surfer can find the area that is large enough to hold onto the wave but loose enough for their style of surfing.



## DEPTH

The distance the fin penetrates into the water. It affects the hold and control the fin has in a turn. The shorter the depth, the more slide a board will have. The longer the depth, the more hold, especially with center fins.

## BASE

The length of the fin where it meets the board. Base primarily affects the amount of drive the board will have. Generally the more base, the more area the fin has to push against the water and therefore the more drive. The less base, the shorter the turning arc.



Flex



Cant



Foil



Toe

## The Fundamental Guidelines from FCS

So what should you look for in a new set of fins. The following basic rules are direct from the guys at FCS:

- Generally a heavier person requires more fin area to provide enough hold in a wave, a basic guide is; smaller surfer = [M3](#), medium sized surfer = [M5](#), larger surfer = [M7](#).
- A particularly strong or powerful surfer should use a bigger fin than others in his/her weight range
- A smaller fin, or one with less sweep (more upright) or more flex, will loosen a stiff board.
- Conversely, to give a loose board more drive, a bigger, more swept or stiffer fin selection will work.
- To make a board more forgiving, select a fin with a high amount of flex (K-Flex), for a more responsive choose a stiffer fin (PC or PG)
- A board with a lot of rocker may require greater area, more depth or sweep than a surfer would usually ride in flatter rockers.
- Boards with a lot of rail (eg guns or long short-boards) require less fin area.
- Boards with deep channels in the tail also require less fin area.
- Boards with wider tails require more fin area than those with narrower tails.
- If you are feeling a little under-gunned, and want a small board to work in waves that are too big or powerful for it use a larger more raked set of fins.
- Changing fins can change the way your board feels, and can freshen or improve your surfing.