



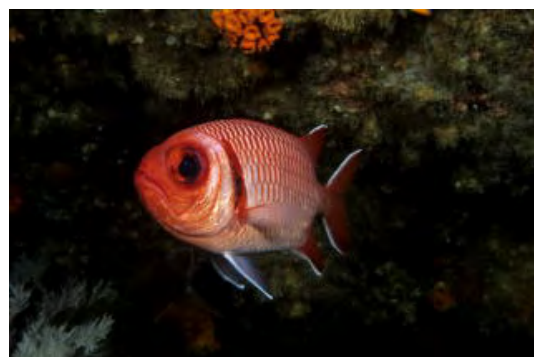
SHAPE UP OR SHIP OUT

By Jeanne Liebetrau and Peter Pinnock



Does size matter? Well that depends on who is asking and of course - who is answering. But the burning question is - does shape matter? Shape must have some implications otherwise the 'weight loss remedy' wouldn't be worth the billion dollar industry that it is, not to mention the recent upsurge of sports nutrition products. Both industries challenge one to change body shape to achieve a certain effect. Being a certain shape or size can certainly have its advantages. Just think of it - diminutive Pigmies can follow deer tracks in dense jungles; the tall Masai warriors can see for miles as they tower above the grasses on the plains, heavy Sumo wrestlers use

the extra weight to bolster the battle while the slightest jockey has the winning edge. One could speculate long and hard on the merits of shape and size - ask any woman or look at the numerous glossy magazines on the market. In the underwater realm shape and size can determine habitat, lifestyle, diet and is a critical factor in the race for survival.



If Joe Soap represents the average human - medium build, neither tall nor short, neither fat nor thin, then John Dory represents the average fish. The basic fish shape is vertically compressed or flattened from side to side. Red Romans, blacktails, stumpnose, slinger and soldiers all fit this common fish shape, albeit with some modifications such as colour variations, fin design and eye size. The adults are all



average shape - neither fat nor thin and average size - neither large nor small. They are average swimmers and have average strength. Strangely they also all look good on a dinner plate. Looking good underwater are the radically compressed - the skinny fish. Radically compressed fish like the Butterflyfish and Angelfish may be likened to the Twiggy's and Naomi's of the world but they don't need designer clothing to show off their figures. Instead their bodies are immortal



works of art - emblazoned with brilliant patterns. Like most supermodels swimming isn't their forte. Instead they use their slimness to fit into crevices in the reef to hide from predators - proof that shape does indeed matter.

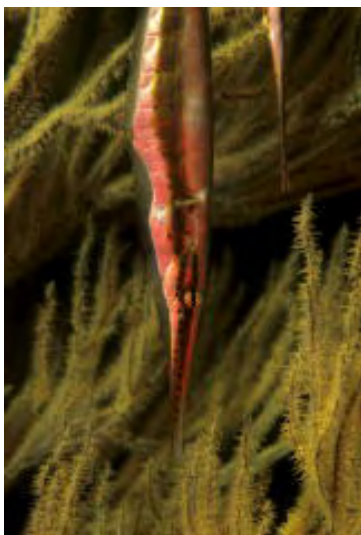


Some radically compressed fish are not swimmers at all and

not beautiful models either. Paperfish and waspfish rest on the reef rocking with the undulation of the water. Their extreme thinness is a disguise to resemble debris drifting on the reef. Shrimpfish are both radically



compressed and elongated. These unusual fish swim vertically in order to slip between the fronds of coral bushes. They are so extremely thin that if threatened a mere half turn of their body renders them magically invisible.



Those John Dorys that are not so slim may have more body power and hence more speed to escape predators but often it's not sustainable power. Triggerfish and Coral Rockcods expend their energy reserves mock charging trespassers in the defense of their territory. Following these short sprints they recuperate in the sanctity of a rocky outcrop revitalizing themselves for the next intrepid trespasser. No matter how small the intruders are, they will challenge any newcomer - even scuba divers.

The more athletic types, the real sportsfish of the underwater world are not only slightly compressed but also elongated. The extra length adds muscle power to the body. The official term for this shape is fusiform but the more apt description is torpedo-like. Tuna, barracuda, kingfish and mackerel are fusiform in shape and built for speed. These guys rip through the water as they patrol the open oceans. Also fusiform in shape but on a much larger scale are the apex predators viz. sharks. Theirs is the ultimate body shape that has stood the test of time. Lizardfish, being elongated but more cylindrical

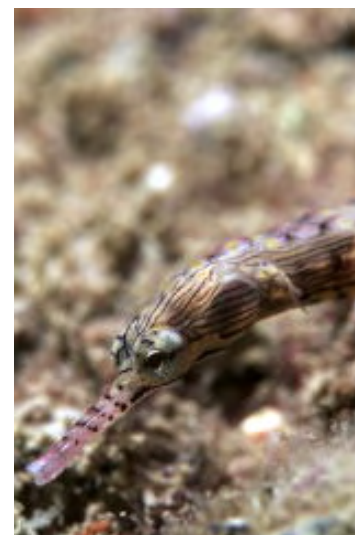




and not compressed aren't long distance swimmers, yet they are powerful short distance swimmers as they rocket from a resting position on the reef to attack passing prey in midwater.

Taeniform shaped fish are usually small. These ribbon-like shaped fish may not have athletic speed but have grace and style like rhythmic gymnasts. Dartfish, fire gobies and mimic cleaner wrasse bear the taeniform shape. Dartfish often mate for life. The romantic couple hovers a few inches above the sand rippling their bodies in perfect unison

while keeping their heads perfectly still. Every now and then they break formation to nibble on passing zooplankton. Their taeniform shape is perfect to execute a nose dive into the sand to escape predators. Pipefish are extended taeniform versions. Their bodies are too long for their small fins to propel them effectively. As a result pipefish tend to slide over reef or hide



away from any currents inside caves.



Fish may even be considered depressed - in shape that is. This is also known as horizontally flattened. Often these fish are bottom dwellers living on sandy substrates where they lazily scoop sand to cover up their bodies to hide from both predators and prey. Typically flattened are rays, soles and flounders. These fish prefer to lie just beneath the sand while

the cryptically camouflaged crocodilefish and wobbegong sharks lie openly on top. Few will make the swimming Olympics, most not bothering to swim far at all, yet capable of short bursts if need be. Their shape is perfectly suited to their living habitat.



Then there are the seriously disadvantaged – the big fat globular shapes. Water is not an easy medium to move through (any clairvoyant will agree with that). Add to that an awkward shape and the result is a fish that has just not got the physical abilities to move. Frogfish and Stonefish are sedentary fish that squat on reef spending most of the day watching their surroundings like couch

potatoes. They only move if pushed or shoved and also of course, if food is around. Other clumsy shapes are those that are box shaped such as boxfish and trunkfish and even completely triangular such as the cowfish. It's impossible to fit a square or triangle into a slit shaped crevice. Added to that these shapes cause serious locomotion problems. It affects their lifestyle as they must swim close to the reef or currents will take them for a ride.

Pufferfish have an unstreamlined bulbous elongated body shape. While they can get around they are neither fast nor slow. When frightened pufferfish inflate themselves and become no goers as their newly acquired balloon shape is incapable of any movement other than rolling around. The underwater oddballs or circus freaks are those that defy the norms of shape. Seahorses, for example, don't fit into any shape category yet their shape is perfectly designed for clutching onto their living quarters.



Despite these different shapes the majority of fish are vertically compressed just like John Dory. Yet it takes all shapes and sizes to make the world go round. If you don't maintain the correct shape it may well be time to ship out.

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