

SUPERSONIC STABILITY

There seems to be a lot of misunderstanding and misinformation regarding this subject when applied to long range shooting. For the record, I've been shooting "long ranges" for the best part of 40 years. By "long ranges", I mean from 1000 yards to 1200. I have also marked targets at these distances, and also at 1500 yards, so I have "hands-on" experience rather than theories. I've also shot or coached just about every projectile that's been sent "down the paddock".

The term "supersonic" literally means "above the speed of sound". The speed of sound at sea level in dry air at 20 degrees celcius is 1100 feet per second. The speed of sound increases as the density of the medium increases, so as the elevation above sea level increases the speed of sound decreases. That is basically why early attempts to "break the sound barrier" were done at high altitude.

To stabilise a particular bullet, a certain twist rate is required. Generally speaking, the heavier the bullet, the faster the twist rate. The 303 rifles we used way-back were 1 in 11. With the advent of 7.62mm ammo, twist rates varied from 1/12 to 1/14 all of which worked. As we've moved on to 155 grain pills for Target Rifle and "F" standard, the twist rates have not really changed much. For the record, I shot a 10 inch 10 shot group at 1030 yards with 144 grain FMJ's in a 12twist barrel. These projectiles were subsonic! I have also won matches at 1,000 and 1,100 yards with a 6.5x55 using 140gr Berger VLD's. The muzzle velocity was 2,950 FPS.

The theory of "the transonic zone" has emerged in the last few years. Where it came from or who invented it, I have no idea. Given that Concord aircraft pass through "the transonic zone" when coming in to land without falling to pieces, I fail to see that a projectile doing the same thing will suffer any adverse effects. Moreover, aircraft generate noise, whereas projectiles do not.

Marking targets at 1,500 yards tells me that all 308cal. Match rifle projectiles are subsonic, and some are stable, while others are not. On the other hand 7mm SAUM's shooting 180 grain Bergers are both supersonic and stable. My conclusion is that supersonic and stable are, in fact, two different things and are not dependant on each other. Basically, if you want long range stability and accuracy, you need to get the twist rate right for the particular bullet you intend to use.

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