

### ***Train Engineering Is for the Birds***

The world's first high-speed rail line was also one of its most annoying—at least for anyone living near the route's tunnels. As bullet trains hurtled through the tunnels of Japan's Tokaido Shinkansen, they would build up incredible atmospheric pressure, erupting out of the exit with a deafening sonic boom.

In the late 1990s, engineers were able to solve the problem by taking notes from the kingfisher—a bird designed by God to dive into the water at speeds up to 25 miles an hour, without their beaks causing so much as a ripple. (Their bodies make a splash—but by then it's already too late for their prey!)

By building the next generation of Shinkansen trains with a front that mimicked the kingfisher's beak, engineers were able to build a much quieter train—and in the process, one that required less energy and traveled faster than its predecessor!

Pictured: common kingfisher (*Alcedo atthis*)



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