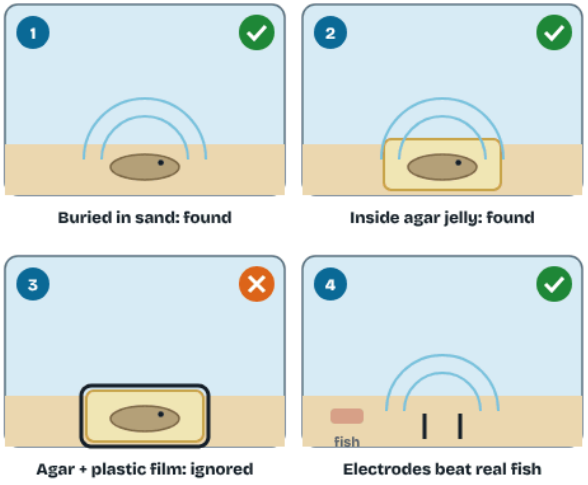
That is why

How do sharks sense electricity?

Jelly-filled pores on the snout pick up the faint electric field every living fish gives off, but only at close range.

A Kalmijn's tank tests (1971)

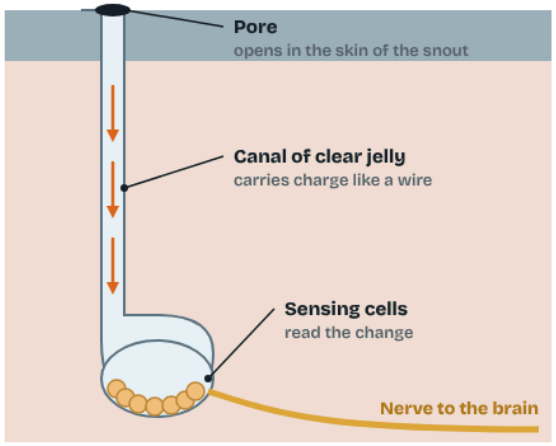
Hungry catsharks and rays, a hidden plaice



Jelly lets electricity through; plastic film blocks it. With sight and smell ruled out, only the electric field was left. Smell drew them in first; electricity aimed the strike.

Electric field shown as pale-blue rings.

B Inside one pore



How faint, how good

Best natural proton carrier ever measured: only 40 times behind the best man-made one.

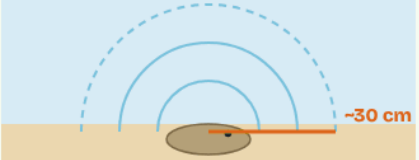
1.5 V battery

5 billionths of a volt per cm

Many pores together sense 5 nV per cm.

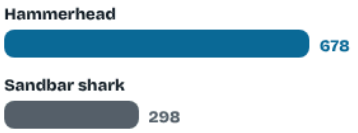
C Close range, wide sweep

How close? (Hawaii tests)



Seabed searched per second

cm² per second



Equally sensitive; the hammerhead turns sharper.

1 An ancient sense

The first vertebrates all had it. Sharks, sturgeons and lampreys kept it; we lost it.

Hidden from sight, but not from the snout.

Free for learning thatiswhy.com

Free for learning, teaching and research. Please credit: That Is Why, thatiswhy.com

Diagram: https://thatiswhy.com/diagrams/why-sharks-can-sense-electricity/ · Full guide: https://thatiswhy.com/why-sharks-can-sense-electricity/