

An ingenious method for counting juvenile herring/alewife fry

offered by John Kielb,
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I was watching the juvenile herring swim by our beach and decided to attempt to make an effort at estimating how many were swimming past. I have a pretty good 1-yard long stride and paced off seven yards along the beach and marked it. Then using my stopwatch I did my best to time how long an individual herring would swim seven yards, or 21 feet. It's not easy to keep an eye on an individual fish so I did it a three times, and each time I was within one second of 25 seconds. So, a reasonable estimate is they are swimming at 0.84 feet per second.

Then, using my 8-inch wide spread hand I marked off a foot of beach and used that to take a photo of a foot length of the herring swimming past which is attached. It's not so easy to count them, but I get about 150 fish in a foot length of herring. Feel free to check me!

So, every minute I was standing there ...

$150 \text{ herring/foot} \times 0.84 \text{ feet/second} \times 60 \text{ seconds/minute} = 7,560 \text{ herring were swimming past me every minute.}$

When I got to the beach at 3:20, the herring were already swimming past ... that is, I didn't see the beginning of the school. I left at 4:00, and didn't see the end of the school. So my estimate doesn't even include the whole school!

$7,560 \text{ herring/minute} \times 40 \text{ minutes} \sim 300,000 \text{ herring.}$