



# The World's Largest Artificial Wave Generator Will Help Us Build Storm-Proof Cities

By **Maddie Stone** 10/02/15 3:20PM | [Comments \(22\)](#)



Next week, an unassuming canal in Delft will start shooting waves 15 feet into the air. And I'm sorry to say the surfers will have to sit this one out, because the Delta Flume wave machine was built for a higher purpose. Namely, destroying dikes and seawalls to figure out how the heck our coastal cities are going to survive the next century.

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At 984 feet long and 30 feet deep, the Delta Flume, which comes online October 5th, is poised to become the largest human-made wave generator in the world. At one end, a system of four pistons moves a giant metal plate back

and forth to create the sort of ferocious waves a hurricane or typhoon unleashes. The waves gain energy and height as they travel along the flume, eventually crashing into whatever dike, artificial sand dune, gravel beach or house happens to be sitting at the other end.

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Destroying structures to understand their physical limits is a time-honored tradition in civil engineering. For years, we've been using [shake tables](#) to see how buildings hold up when the ground moves. But these days, we're more concerned about the rising swell of the ocean. Climate change has probably [locked the planet into at least three feet of sea level rise](#), rare and powerful storm events are starting to come eerily often, and coastal cities like [New York](#)

[should expect a lot more inundation](#) in the future. The time is ripe to fortify our infrastructure against the tides—and no better way to learn how than by building some giant waves and breaking things.


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Although the Dutch facility boasts the largest human-made waves, artificial wave generators are cropping up all over the place. In the UK, landlocked surfers can get their thrills at the [Wavegarden](#) facility, whose six-and-a-half foot high waves roll almost 500 feet. And then there's [FloWave](#), a terrifying ocean-in-a-pool experiment that whips water around, building powerful currents to understand how offshore infrastructure is battered by the seas.

The waves are getting worse, but with a little luck, we'll learn how to weather them.

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*Top image: The Delta Flume wave generator, via [YouTube](#)*

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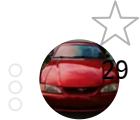
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