

# Waves

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## What is a wave?

A wave is a body of water (swell) moving along the surface of the ocean.

## Formation of Ocean Swells and Surf

Wind and storms at sea form pressure differences on the ocean surface and contribute to the creation of swells.

These undulations travel thousands of miles and gather together to form swells. **01** (Piha)

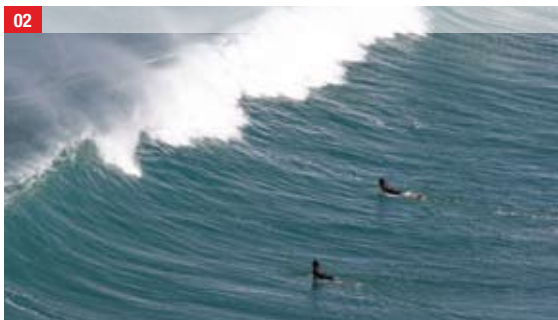
## Size of Swells

The size of swells is determined by three factors:

- How hard the wind blows (Velocity).
- The length of time it blows (Duration).
- The distance it blows (Fetch).

Generally speaking, if any of these factors increases, larger waves will be produced.

As swells begin to move out and away from where they were created, their crests become more rounded and take on a similar period and height, and more regularised the further they travel. As the swell approaches land and the sea bottom gets shallower, the waves become higher and narrower, and the distance between each wave becomes shorter. The wave continues to increase in height until it collapses and topples over. This is called surf.



## Wave Types

### **02** Spilling Wave

This wave occurs when the top of the wave tumbles down the face of the wave. These waves are good for swimmers and board riders. (Piha)



### **03** Dumper

This wave breaks with tremendous force and can easily throw a swimmer to the bottom. It usually occurs where there is a steep incline of the sea floor causing the wave height to increase quickly and dump.

### **04** Shorebreak

This is a dumper that breaks on a steep beach face. Serious injuries can result when such waves throw swimmers violently onto the sand. (Mt Maunganui)



### **05** Surging Wave

This wave may never actually break. This is because the water is very deep beneath the wave. These waves are common around rocks and can knock people off their feet and carry them back into deep water. (Taylors Mistake)