

Wave Force

This page provides information on the Wave Force component.

Overview

The **Wave Force** produces real simulated waves inside the [Simulator](#), and is primarily used for ocean simulations.

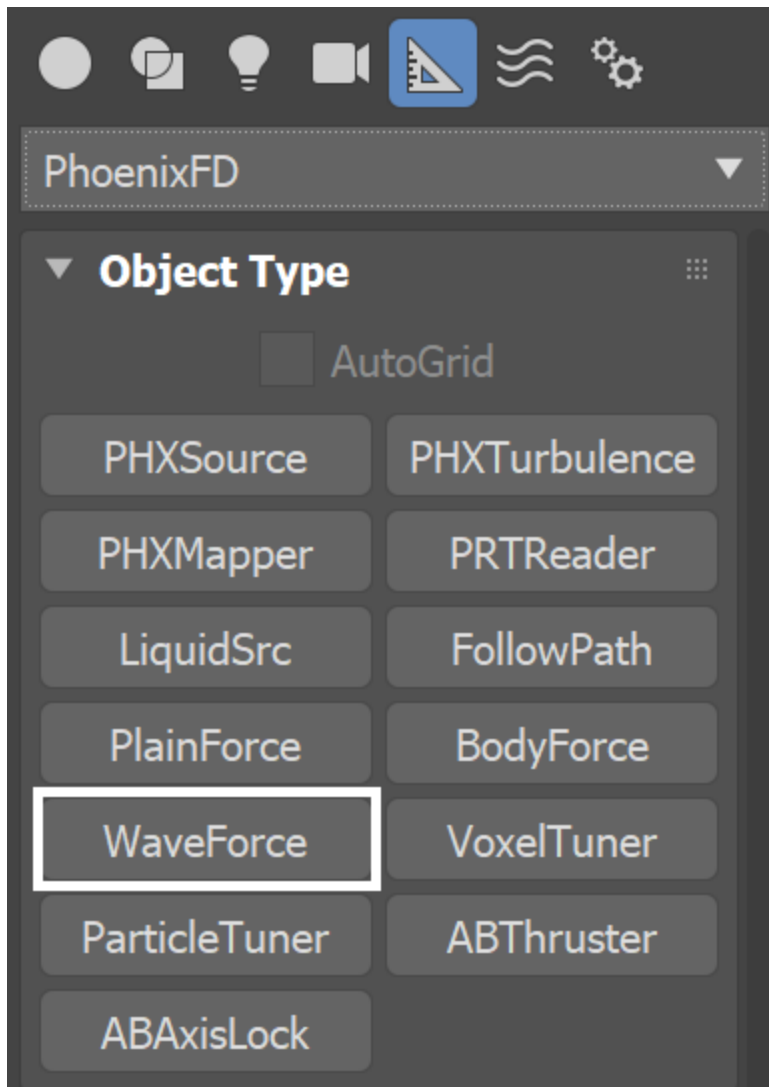
It is an alternative to the [Phoenix Ocean Texture](#), which cannot interact with submerged objects, but produces render-time displacement when plugged into a Simulator's displacement map slot in the [Rendering Rollout](#).

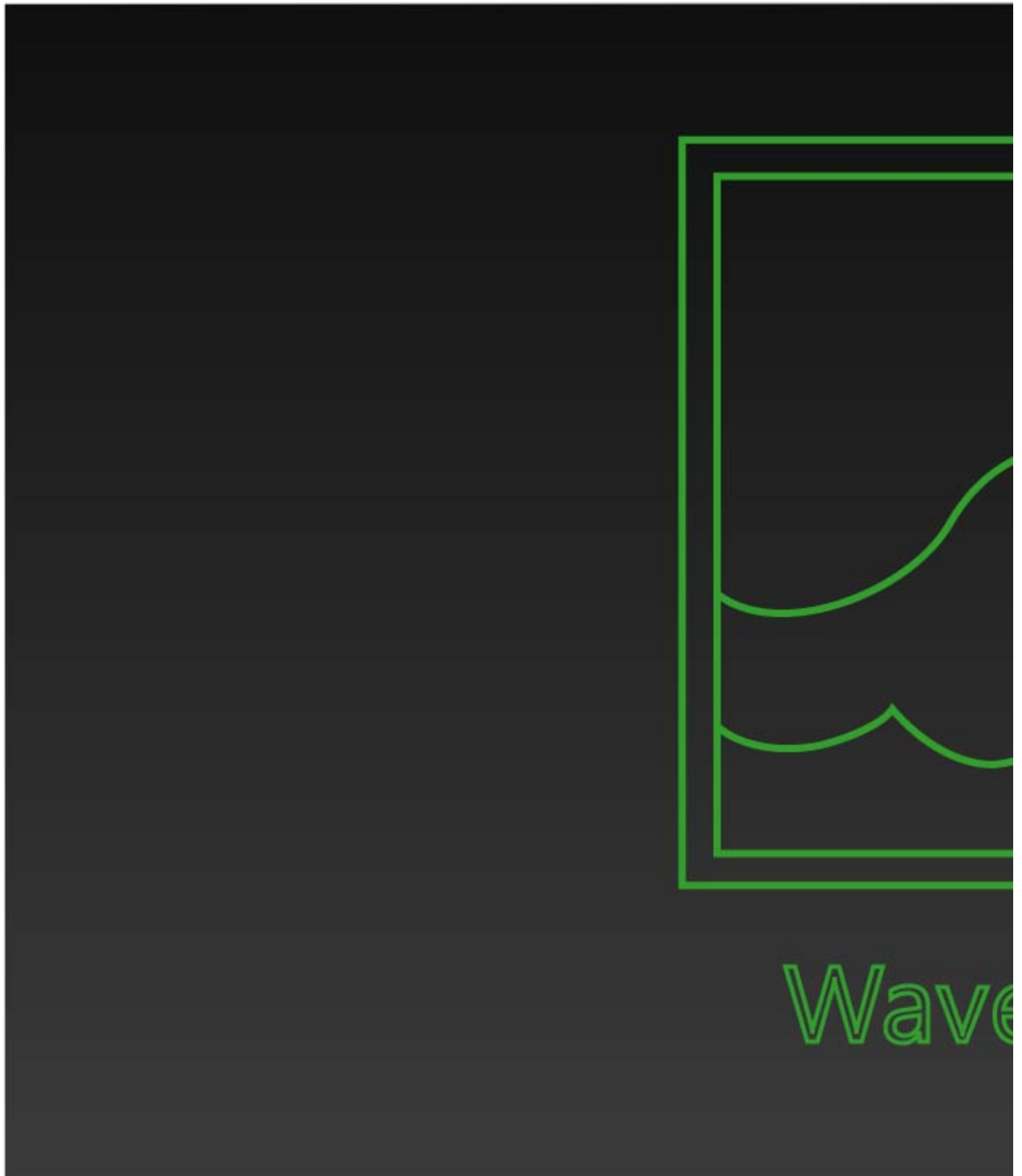
The Wave Force is also driven by the Ocean Texture, but since it produces real simulated waves, it can be used to interact with geometry.

There is also the **Fluid Freedom** parameter, which lets you control how strictly the fluid will follow the pure Ocean Texture, or how much freedom the fluid will have to splash and swirl around.

In addition, there is the **Massive Wave Force** toggle, which allows for even more control over the waves produced by the Wave Force, and is especially helpful for creating large waves.

UI Path: ||Create panel|| > Helpers > Phoenix FD category > WaveForce button





Parameters

Ocean map | *ocean* – Specifies the [Ocean Texture](#) map used to generate the waves. The settings of the Ocean Texture influence the look and behavior of the waves as well.

Strength | *strength* – A multiplier for the force. When **Massive Wave Force** is off, this might need to be increased to 4-6 in order to mimic the shape and height of the pure ocean waves from the Ocean Texture.

Affect | *affect* – Specifies the affected components of the simulation separated by commas. The supported elements are:

Liquid, Foam, Splashes, Mist, Air, Temperature, Smoke, Fuel, Velocity (using 'Velocity' you can affect Drag particles).

Affect Names are *not* case sensitive and any unknown element found in the list is ignored.

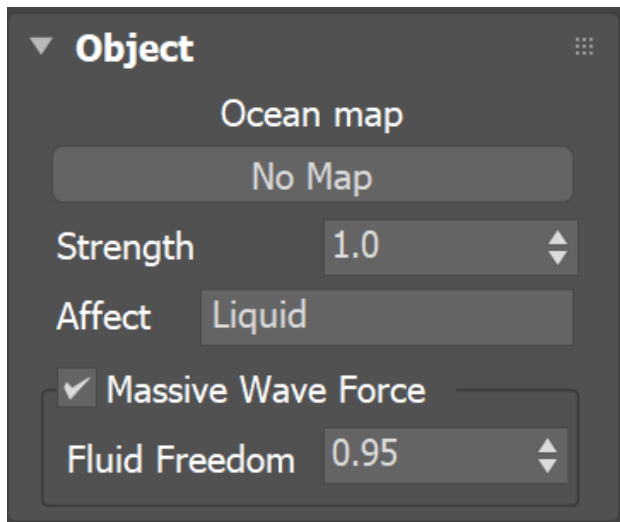
When the **Massive Wave Force** is off, only **Liquid** particles will be affected by the Wave Force.

Massive Wave Force | *massivewave* – Allows for more control over the waves produced by the Wave Force.

When Massive Wave Force is on:

- Changing the grid resolution will produce consistent results. This way you can setup the scene using low grid resolution and then increase it if needed and still get the same result with more details.
- The Wave Force can affect not only liquid, but **foam and splash** particles and even **smoke**.
- The force works over the entire volume of the simulator in order to be able to produce tall waves. When Massive Wave Force is **Off**, the Wave Force will only influence liquid simulations where the **Initial Fill Up** option is enabled in the Dynamics rollout and will work only under the fillup level.
- The Ocean Texture **Level Of Detail** will NOT be capped to 6 anymore. Increasing the level of detail will produce more waves and more noise, so if you want single, larger waves you will need to decrease the Level of Detail.

Fluid Freedom | *fluidfree* – Balances between the strictness of the Wave Force and the free movement of the liquid. When set to 0 the Wave Force will try to strictly follow the used ocean texture as close as possible. Setting it to 1 will allow the liquid to roughly follow the ocean texture while maintaining free liquid behavior. The **Scene Scale** will have a big impact on the Fluid Freedom. When the Fluid Freedom is above 0, larger scene scale will allow the fluid to better follow the ideal wave, while when having a smaller scene scale the Gravity won't let the waves rise as much.



The following video shows the workflow for setting up a simulation of a tunnel wave using the Wave Force.