

Whirlpools and Tides

The whirlpools of the Naruto Strait are famed for being some of the largest and strongest in the world, as well as for the diversity of their forms. Some of Earth's most powerful currents combine with the area's geological features to produce a natural tidal phenomenon. This in turn creates some of the largest whirlpools in the world, which frequently appear in stunning patterns that are unique to Naruto. Though their spectacle can be enjoyed all year round, the whirlpools reach peak intensity in spring and fall. They are particularly powerful at the time of the new moon and the full moon, when the tides are at their strongest.

Pacific Ocean currents entering the Kii Channel that separates the islands of Shikoku and Honshu split in two. One current flows to the south side of the Naruto Strait, causing a high tide, while the other heads northeast up into Osaka Bay before looping in a counterclockwise direction through the Akashi Strait (where it again rises to a high tide), around Awaji Island, south through the Seto Inland Sea and down to the Naruto Strait. This takes around six hours, by which time the waters in the southern part of the Naruto Strait have fallen to a level lower than that of the returning tide in the northern part. The difference in tidal level, which can be as great as 1.5 meters, triggers extremely strong currents of up to 20 kilometers per hour. When these forces converge at the Naruto strait (which is 1.3 kilometers across at its narrowest point), they form the dramatic whirlpools that have held viewers spellbound for centuries.

The whirlpool formation called *uzutsui* consists of a pair of whirlpools spinning in opposite directions on either side of the deep current that speeds southward through the center of the Naruto Strait. The *yusho-uzu*—sometimes called a “whirl-flower” from its shape—is a sizable mass of water formed by an upward flow caused by the complex shape of the sea bed near the narrowest part of the strait. Perhaps most spectacular is the *uzuren* (repeating whirlpools) formation. As many as seven whirlpools in a row can be seen at once, with each new one surfacing before all the others disappear (the whirlpools typically last for 20 or 30 seconds each).

For centuries, people have been captivated from afar by depictions of the Naruto whirlpools in the ukiyo-e woodblock prints of artists such as Utagawa Hiroshige (1797–1858). Europeans learned of this natural wonder via ukiyo-e prints and the accounts of nineteenth-century German physician, botanist, and traveler Philipp Franz von Siebold (1796–1866).