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| **Travel times from the NOAA Hawaiian buoys to O`ahu**  In deep water, wave energy travels at a speed that only depends on the average period of the swell train. It doesn't depend on the size of the swell, just on the period, this is what oceanographers call the dispersive nature of deep water waves.  Once in shallow water (between say 300 feet deep and the beach), this is not the case anymore. The wave period will stay the same, but it will slow down and steepen before it breaks. At that point the speed doesn't depend on the wave period but only on the water depth (non dispersive nature of shallow water waves). Near the break point, because the wave height and the water depth are related, the speed of a wave also depend its size.  As the water between the buoys and O'ahu is very deep, the travel distances below are computed for wave energy traveling in deep water.  **Buoy 51001 (NW Hawaii)**  Distance from Waimea Bay : 255 Nautical miles (170 nm from Hanalei Bay Kauai)  Bearing from Waimea Bay : ~300 degrees (North-West)  The times are given for waves coming from 300 degrees.   |  |  | | --- | --- | | Wave period | Travel time | | 14 seconds | 12 hours | | 17 seconds | 10 hours | | 20 seconds | 8 & 1/2 hours |     **Buoy 51002 (S Hawaii)**  Distance from  Ala Moana Beach Park : 255 Nautical miles  Bearing from   : Ala Moana Beach Park : ~180 degrees (South)  The times are given for waves coming from 180 degrees.      |  |  | | --- | --- | | Wave period | Travel time | | 14 seconds | 11 & 1/2 hours | | 17 seconds | 9 & 3/4 hours | | 20 seconds | 8 hours |     **Buoy 51028 (S Hawaii, on the Equator)**  Distance from  Ala Moana Beach Park : ~1300 Nautical miles  Bearing from   : Ala Moana Beach Park : ~170 degrees (South-Southeast)  The times are given for waves coming from 170 degrees.      |  |  | | --- | --- | | Wave period | Travel time | | 14 seconds | 61 hours (2 1/2 days) | | 17 seconds | 51 hours (~ 2 days) | | 20 seconds | 43 hours(< 2 days) | |