ABSTRACT: This study explored whether *Crassostrea gigas* oysters can be used as a bioindicator of white spot syndrome virus (WSSV) in shrimp farm water canals. Bioassays showed that *C. gigas* can accumulate WSSV in their gills and digestive glands but do not become infected, either by exposure to seawater containing WSSV or by cohabitation with infected shrimp. The use of a WSSV nested PCR to screen oysters placed in water canals at the entry of a shrimp farm allowed WSSV to be detected 16 d prior to the disease occurring. The finding that *C. gigas* can concentrate small amounts of WSSV present in seawater without being harmed makes it an ideal sentinel species at shrimp farms.