Tsunami wave kinematics simulation is still very effective for tsunami phenomenon investigation. Numerical methods for wave rays and fronts determination can help sometimes to understand some unobvious actual tsunami measurements or results of computational modeling. Usually such methods determine position of the leading tsunami wave. But the experience of last catastrophic tsunamis shows the danger of the second wave which can be formed by the first tsunami wave reflection from the coastline and islands. The new algorithm for tsunami travel-time computation which can watch the reflected wave propagation is proposed. The method was tested in some model cases (straight coastline and flat or sloping bottom). Reflected tsunami waves behavior during Indian Ocean tsunami 26.12.2004 was studied.