Causes of the war centered on disputed land claims, but the conflict was not limited to land. Shipping on the high seas also suffered frequent interruption from acts of piracy by both sides. One particular incident gave the confrontation its name: a Spanish privateer severed British captain Robert Jenkins's ear in 1731 as punishment for raiding Spanish ships. Jenkins presented the ear to Parliament, and the outraged English public demanded retribution.

General James Oglethorpe made several passes into Florida in January 1740 and seized two Spanish forts, Fort Picolata and Fort San Francisco de Pupo, west of St. Augustine, Florida, along the St. Johns River. He began a strike against the fort at St. Augustine in May 1740, but the campaign was a failure. Oglethorpe wanted to seize the fort before Spanish supplies or reinforcements could arrive, but problems with multiple commanders and diverse forces resulted in disorganization, spoiling his advantage of surprise. Oglethorpe settled for a traditional siege of the fort but failed to coordinate his land and naval forces. By early July he discontinued the attack, retreated to Fort Frederica and waited for a Spanish invasion.

That assault came in the summer of 1742. After landing on the southern tip of St. Simons Island, the Spanish assembled for an attack on Frederica. English rangers encountered a scouting party, and Oglethorpe led the charge against the Spanish soldiers, who hastily fled the scene. While Oglethorpe returned to Frederica, his men fortified the road to the fort to prevent further incursions. A second skirmish ensued, an event later known as the Battle of Bloody Marsh, when the Spanish advanced another regiment. English forces sent the Spanish fleeing to the coastline and from there retreating to St. Augustine. Oglethorpe prepared another offensive upon the fort at St. Augustine in March 1743, but his efforts had little result and represented the last episode of the war on the Georgia-Florida border. The Treaty of Aix-la-Chappelle in 1748 returned all colonial claims to previous owners, and the two nations unofficially agreed upon the St. Johns River as the boundary between Georgia and Florida.