Born in 1918 in Pittsburgh, PA, Shelton Bishop Waters was named after the priest at the Church of the Holy Cross in Homewood, where his family attended service. Recommended for ministry at a young age, Waters attended Lincoln University and Johnson C. Smith University—his transfer from the Pittsburgh and Lake Erie Railroad to trains headed south from Washington was his first experience of sitting in a segregated train car.

In Charlotte, NC, Waters met students from Presbyterian-run elementary and secondary schools training young people for ministry, industrial, and professional careers. It was his first taste of an all-Black presbytery, and an all-Black synod, and his first time studying under Black faculty. From 1947 to 1969, Waters was pastor of First African Presbyterian Church in Philadelphia, leading it into a new church building and hosting Martin Luther King Jr. during his visit to the Presbytery, of which Waters was moderator. In his telling, his role in the presbytery was simply to make clear that it was not a white fraternity: "Now and then in presbytery, somebody would go up and make some kind of a joke that didn’t sound just right. And the time came when I was able to get up and tell them, ‘That’s not the kind of thing you say here...’ the time came when they realized they couldn’t get away with that anymore—within the presbytery."

From 1969 to 1975, Waters was an associate executive of the Synod of the Trinity, in charge of its grant-making for African American students and for students from Appalachia. He then spent 10 years at Northeastern Presbyterian Church in Washington, D.C. In retirement, he served two other historically-Black Presbyterian churches in Pennsylvania: Washington Street in Reading, and Thomas M. Thomas Memorial in Chester.

Church work allowed Waters to travel extensively in Latin America and Africa—he led a delegation to Equatorial Guinea shortly after its independence in 1968, and he served on the the UPCUSA Task Force on Southern Africa in 1970 and 1971, where he toured the South Western Townships of Johannesburg.

Waters was a Synod representative at the funeral of Martin Luther King Jr., riding the train through a heavily militarized Washington D.C. down to Atlanta, when finally the reality of King’s absence set in. Reflecting later, Waters said, "We’ve all been changed. I was changed. I was changed suddenly and I realized how great he was until he died," reminding himself of 2 Samuel 3:38, "Do you not know this day a king has fallen?"

Shelton Bishop Waters died in Rydal Park, PA, March 26, 2013.