We studied the vocal ontogeny of black-capped chickadees *Poecile atricapilla* from hatching through approximately age 40 days, at which time the juveniles dispersed from their hatching area. Development of three vocalizations (chick-a-dee call, fee-bee song, gargle call) was monitored by tape recording daily. Spectrographic quantification and comparison were carried out with Sound Analysis software. Developmental changes in offspring vocalizations were compared to the parent birds, allowing a measure of acoustic similarity between adults and young throughout early life. The chick-a-dee call developed all four of its component syllables (ABCD) from a single sound of day-old nestlings, but the four syllables emerged in adult form at different times in ontogeny. The fee-bee song was produced in impressively adult form starting at about age 20 days, with no precursor sounds to indicate gradual emergence. The principal difference between adult and juvenile fee-bee songs was the persistent production of three of four notes by juveniles rather than the adults’ species-typical two notes. Gargle calls appear to develop from “subsong” strings of precursor gargle syllables. Juvenile gargles began to be identifiable at about 33-35 days but did not match any of the gargle calls of the local adult population. Post-dispersal juveniles may develop gargles that match the gargle types of local birds where they settle.