Professor Jordan also has recorded the presence of grilse in British Columbia rivers, and noted that they attain a mature reproductive condition at a very early stage. In Fraser River, in the fall, quinnat male grilse of every size, from eight inches upwards, pass up, the milt fully developed, but usually not showing the hooked jaws and dark colours of the older males. Females, less than 18 inches in length, are rare. All of either sex, large and small, then in the river, have the ovaries or milt developed. Little blue-backs or sockeyes of every size, down to six inches, are also found in the upper Columbia in the fall, with their organs of generation fully developed. Nineteen-twentieths of these young fish are males, and some of them have the hooked jaws and red colour of the old males.

The grilse which ascend in the late summer and in the fall, descend as grilse-kelts in the following spring. Some marked grilse-kelts were liberated by the Stormonthfield authorities and were recaptured on the ascent as mature salmon. When a weight of over eight pounds is attained, the fish is usually recognized as a salmon, a stage generally reached in the second ascent to the original spawning grounds. The cycloid scales in the adult salmon are found to be worn smooth over half of their surface, thus differing from the scales in the younger stages, when the whole scale is marked with a series of perfect concentric rings.

When the schools of salmon reach the estuary of a river they may remain only a few days, or it may be several weeks, playing about, before entering the channel of the river. This is commonly held to be for the purpose of acclimatizing the fish to their new fresh-water conditions. To quote from a well-known authority: "It first proceeds at its leisure to the head of tide-water. Here it stops awhile and seems to play about between the fresh and salt water. Whether it shrinks from encountering the sudden change from salt water to fresh, which is probably the cause of its dallying, or for other causes, it usually spends two weeks or more hovering about the border line between sea water and river water. When it has overcome its apparent repugnance to making the change to fresh water, it makes a rapid charge up the river for the clear gravelly streams which its instinct or sixth sense tells it to seek." It is also probable that the fish delay until a suitable temperature is reached. Curiously enough, when the schools have migrated some distance up the rivers, they will linger for long periods in pools, especially below falls and obstructions, during the time of the early runs of fish. Having attained the shallow areas suited for the "redds," in the upper waters, where proper conditions for depositing the spawn are provided, the pairing begins rarely earlier than the third or fourth week in October, and rarely later than the last week in November. The male salmon in all the various species undergoes remarkable bodily changes, while the female retains her normal appearance, except a deepening of the body, or enlargement, due to the growth of the ovaries and increased size of the eggs. The male Atlantic salmon, as Frank Buckland characteristically said, "wears a Joseph's coat of many colours, and the purple ground, variegated with sealing-wax red coloured spots on the side and cheek are very beautiful. * * * The hen salmon, on the contrary, wears a plain russet suit," though red spots are occasionally noticeable, and in both a golden orange tint appears on the sides. The lower jaw in the male becomes grotesquely lengthened. In the Pacific salmon, especialy the sockeye and the hump-back species, the back of the male enlarges and rises into a sharp, blade-like ridge, while the jaws are enormously lengthened, and the teeth are greatly increased in size and prominence. The male sockeye assumes a brilliant red colour on the sides and towards the dorsum, while patches of black and olive green also occur, and the elongated jaws are of a chalk-white colour. The Atlantic salmon energetically scoop out, in the gravel, deep hollows, in which the female places the eggs, afterwards covering them over, a process occupying a week or two and the parent fish then leave the buried eggs to take care of themselves and they hatch out in due course. The males fight a good deal, and the spawning grounds are the scene of much excitement and turmoil. This is as nothing compared with the commotion on the spawning grounds of the Pacific rivers, where the numbers of parent fish are incredibly vast. Thousands of male fish, with open jaws, rush about, carrying on the wildest warfare. In the chosen spawning grounds, as a rule a shallow tributary of some distant lake, the high-ridged backs of the males protrude above the surface of the