

In Russia, pink salmon were introduced to the White Sea basin in the 1950s with annual egg transfers from the Far East of Russia into hatcheries of Murmansk and Archangelsk regions (Gordeeva and Salmenkova, 2011). Despite over 20 years of introductions no consistent natural reproduction occurred and they disappeared when the introduction stopped in 1979. This failure was attributed to use of populations from the southern part of the native range. As time of spawning migration and spawning time are strictly fixed in salmonids, the introduced “southern” pink salmon began to spawn too late and eggs were lost as water temperatures in Autumn were colder than in their native habitat especially in even-year generations (Dyagilev and Markevich, 1979). Therefore successful natural reproduction took place only during some years of the North Atlantic warming (Karpevich *et al.* 1991).

The introduction of odd-year pink salmon to the White Sea basin was undertaken in 1985, when a new broodstock population was selected from the northern part of the species range (Okhotsk Sea basin, Loenko *et al.* 2000). This single pink salmon egg transfer from an odd-year population resulted in the establishment of local self-reproducing populations in the White sea rivers of Murmansk and Archangelsk regions of Russia with the adult returns fluctuating between 60 000 to 700 000 fish during the period 1989 through 2009 (Zubchenko *et al.* 2004; Gordeeva *et al.* 2005). Pink salmon introduced to Russia since 1930s have resulted in catches in Norwegian waters (up to 20 t in some years). The species has also now established in eleven rivers in N. Norway (Finnmark); Hesthagen and Sandlund (2007). The commercial fishery for Pink Salmon takes place in the coastal areas of the White Sea and with the same gears and in the same season as Atlantic salmon fisheries. The total declared pink salmon catch in 2009 was 139 t, twice as much as a declared Atlantic salmon catch (ICES, 2010).

At the same time, transfers of even-year-broodlines from the same river of the Okhotsk Sea basin were unsuccessful despite the large number of eggs that were transferred and the favourable rearing conditions at hatcheries. The last egg transfer of 1998 resulted in comparatively large return in the first generation, but the abundance of pink salmon declined subsequent generations and after that they appeared only in small numbers in even years. No commercial fishery for pink salmon is conducted in the White Sea in even years

Pink salmon have the shortest life cycle among species of the genus *Oncorhynchus*, as they mature and reproduce after only two years. Therefore, there are two reproductively isolated populations spawning in alternate even and odd years (Heard, 1991).

Pink salmon migrate a shorter distance up rivers to spawn than most other salmonids (Heard 1991); in addition, spawning in pink salmon seems to be terminated before the spawning of Atlantic salmon starts. As such, there does not appear to be any evidence of interactions with Atlantic salmon at the spawning grounds, such as competition for spawning sites or destruction of redds.

Pink salmon fry migrate to sea in early summer, shortly after emerging from the gravel. Due to their rapid exodus from streams at emergence, pink salmon fry feed less in fresh-water than other Pacific salmon. Hence, any competition for food between pink salmon and Atlantic salmon may take place during a short period in early summer, only.