

Reduced rearing density increases postrelease migration success of Atlantic salmon (*Salmo salar*) smolts - DTU Orbit (08/11/2017)

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The overall aim of this study was to investigate the effect of rearing density on the post-release survival of Atlantic salmon (*Salmo salar*) smolts during seaward migration. Fish were either reared at conventional hatchery density or at one-third of conventional density. Three hundred one-year old smolts from each density treatment were individually tagged with passive integrated transponder (PIT) tags and released 3.2 km upstream of a stationary antenna array in a natural stream. There were no significant differences in length, body mass, or condition between fish from the two density treatments during rearing in the hatchery. However, individuals reared at reduced density had less eroded dorsal fins and opercula relative to those from the high-density treatment. In the stream, the downstream migration success was 16% higher for fish reared at reduced density than for conspecifics kept at high-density, but the timing of migration was similar for both groups. These novel results suggest that conventionally high rearing densities may reduce welfare and the post-release migration success of hatchery-reared Atlantic salmon

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