May stocking programs affect the predator stocks and decrease the survival of the wild Atlantic salmon juveniles?

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Abstract
Stocking of Atlantic salmon juveniles is carried out in many rivers to increase the production of smolts. In many cases, the number of stocked juveniles exceeds the assumed carrying capacity of the river, and represents a considerable and rapid increase of the fish biomass. Normally, the stocked juveniles suffer from high predation mortality, presumably higher than for native fish. Therefore, the introduction of naïve prey may influence the number and size of predators. When the stocked juveniles have been depleted, the predation upon their wild conspecifics might increase. In this paper we will discuss possible relationship between the survival of the wild juveniles and the introduced biomass, the time of stocking and its influence on the stock of predators.

Speculations based on 8 assumptions. Examplified by rivers in Western Norway

1) The carrying capacity of the river is reached during late winter
2) The production of wild fish is at, or close to, carrying capacity
3) The mortality of the stocked juveniles is higher than that of the wild
4) The biomass of juvenile salmon change seasonally with a maximum during late autumn
5) The introduced biomass of stocked fish is high in relation to the wild biomass
6) Because of their sizes, the stocked juveniles are available as prey for the trout
7) The biomass of the stocked juveniles is sufficient to increase the number and/or size of predatory trout
8) While the majority of the stocked juveniles are depleted, the enlarged stock of piscivore trout may represent a long-term increase in the predation pressure upon survivors and the wild juveniles