PROJECT: PHOTO
SYSTEM: RAS
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CtrlAQUA

Effects of photoperiod and feeding intensity on prevalence of early puberty

RESEARCH QUESTION:

Manipulations in light exposure and diet regime can influence early sexual maturation in Atlantic salmon post-smolts.

DURATION: 2016-2018

FISH SIZE TESTED: 10 g to 500 g

SALINITY TESTED: Fresh water (mean temp. 13 °C)

HIGHLIGHTS:

- We tested whether full 24-hour lighting vs. natural photoperiod, and/or whether 100% feeding ration or reduced (60%) feeding ration, affected post-smolt growth performance up to 500 g, and/or affected early sexual maturation up to 1000 g.
- We determined that growth performance was greatest under full lighting and ration treatment, whereas post-smolts under natural photoperiod and reduced ration had poor growth performance and poor condition factor.
- At 1000 g, only post-smolts with natural photoperiod and reduced ration displayed no early sexual maturation; male sexual maturation was present at >40% in all other treatments.
- The highest male maturation observed (70%) was in post-smolts receiving natural photoperiod and full ration.

ADDITIONAL INFO:

- It appears that reducing feed ration during the post-smolt phase can reduce early maturation, at the expense of reduced growth performance.
- Given the poor condition factor of fish with reduced feeding ration in this study, it is clear that further research is necessary to refine protocols for reducing feeding during the post-smolt phase to avoid maturation while simultaneously maintaining adequate fish welfare.

READ MORE:

https://ctrlaqua.no/?publication=assessing-photoperiod-manipulation-to-reduce-atlantic-salmon-maturation-2

The factsheet is not yet ready for implementation. More testing under commercial conditions is needed.