

Infection dynamics between smolt groups 4 months post SW transfer

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Smolt quality affects the performance after seawater transfer



RESEARCH **Open Access**

Atlantic salmon (*Salmo salar* L.) post-smolts challenged two or nine weeks after seawater-transfer show differences in their susceptibility to salmonid alphavirus subtype 3 (SAV3)

J. Jarungsriapisit^{1,3}, L. J. Moore¹, G. L. Taranger¹, T. O. Nilsen², H. C. Morton¹, I. U. Fiksdal¹, S. Stefansson³, P. G. Fjelldal⁴, Ø. Evensen⁵ and S. Patel^{1*}





How to insure good smolt quality?

Optimal smoltification - SmoltTimer



Control on infection status - TransferCtrl

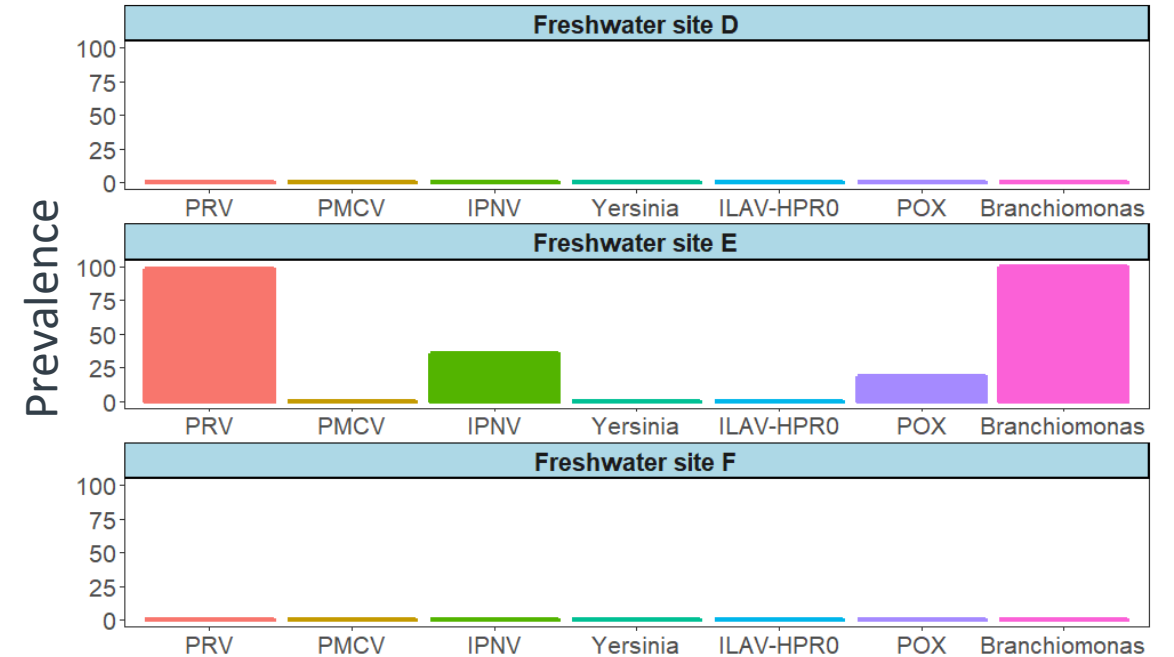
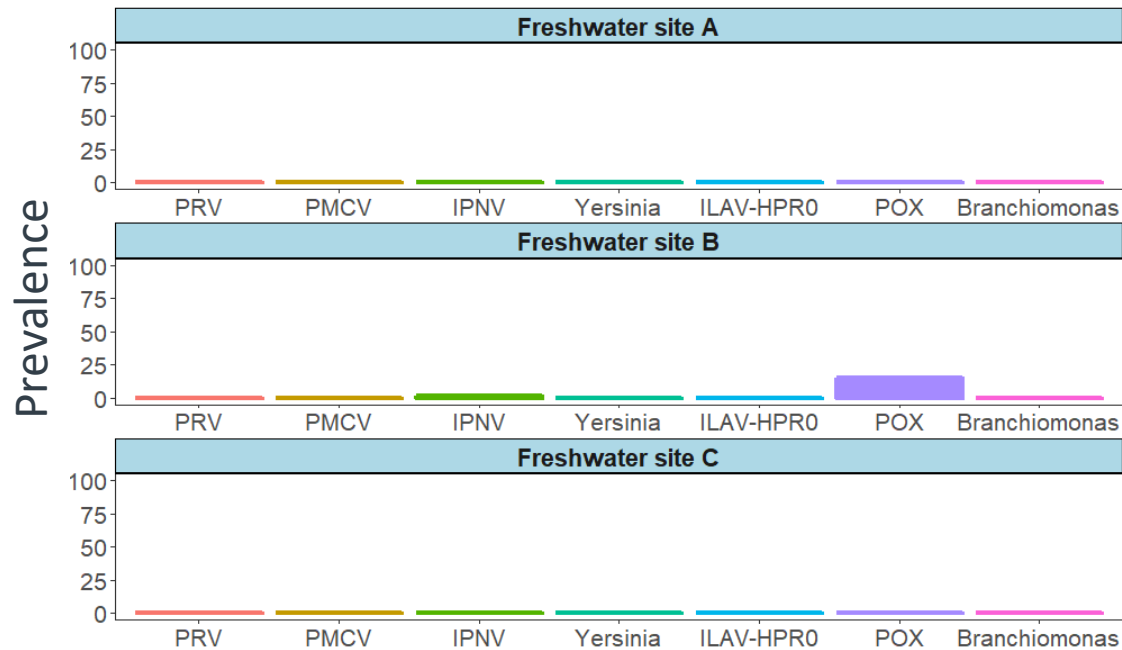




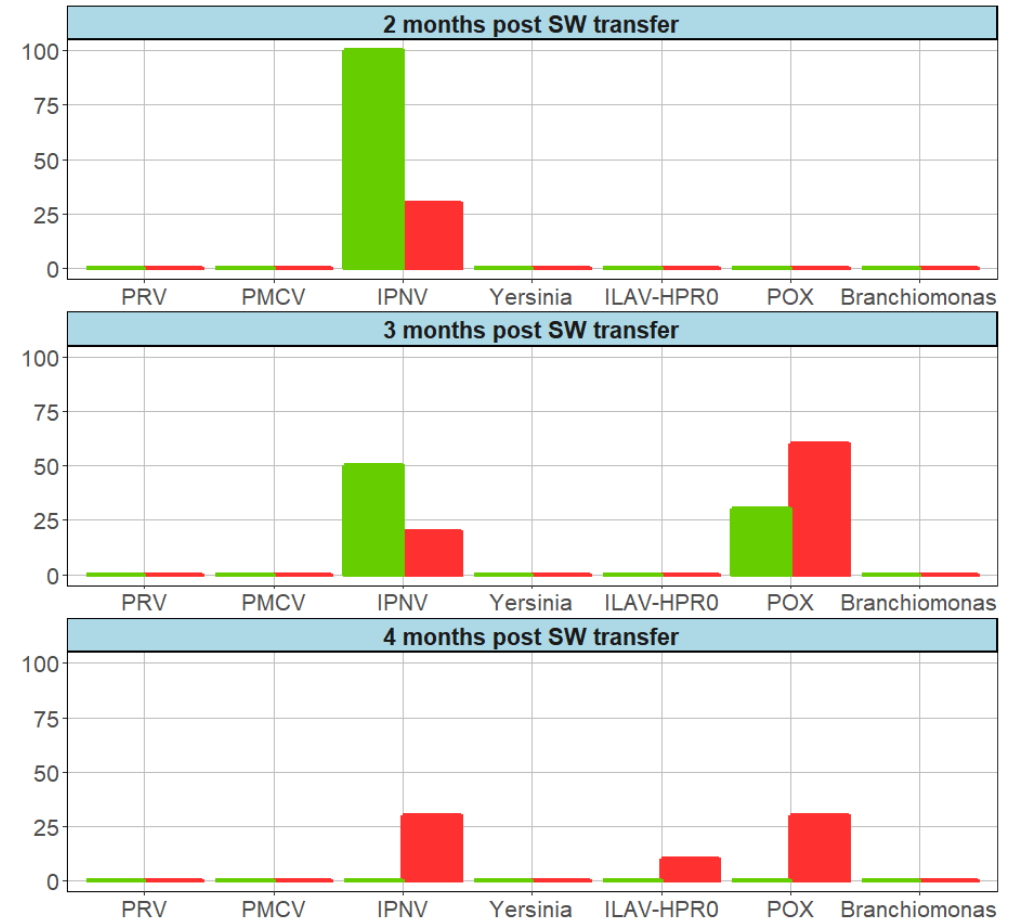
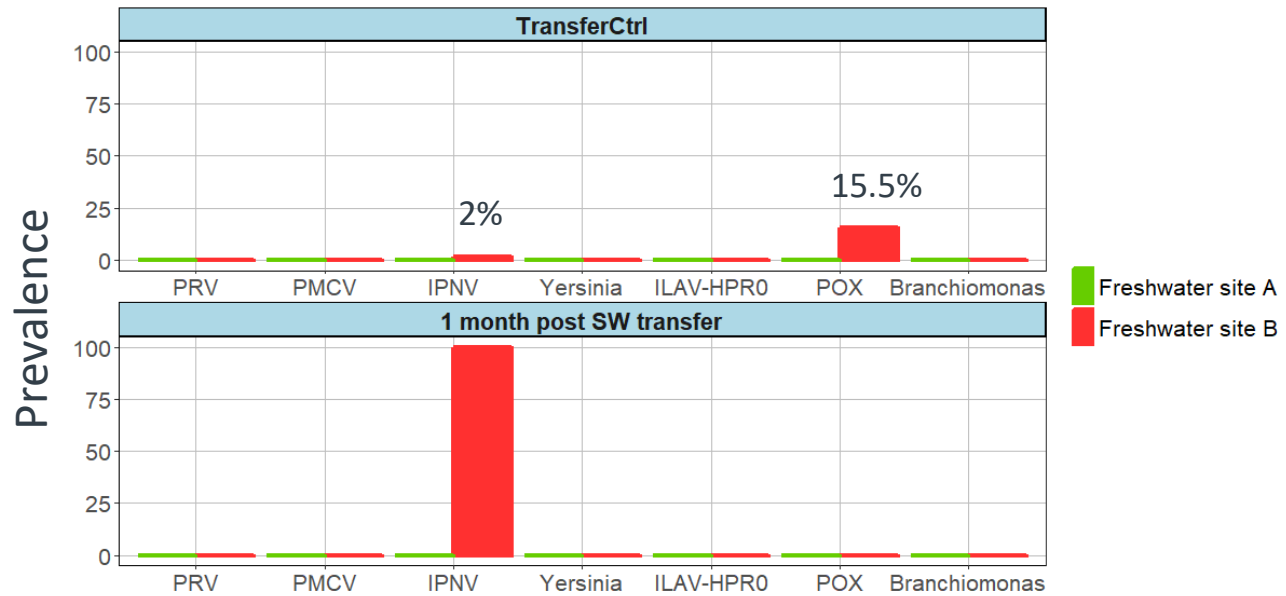
TransferCtrl – study design

- 0 - 2 months before SW transfer: Screening of 60 moribounds per smolt group
 - 6 smolt facilities
- After SW transfer: 10 moribounds each month per smolt group
 - Spring transfer (S1): 3 sea sites (2018)
 - Autum transfer (S0): 1 sea site (2018)
- 4 months post SW transfer

Different prevalence of pathogens between freshwater sites (S1)



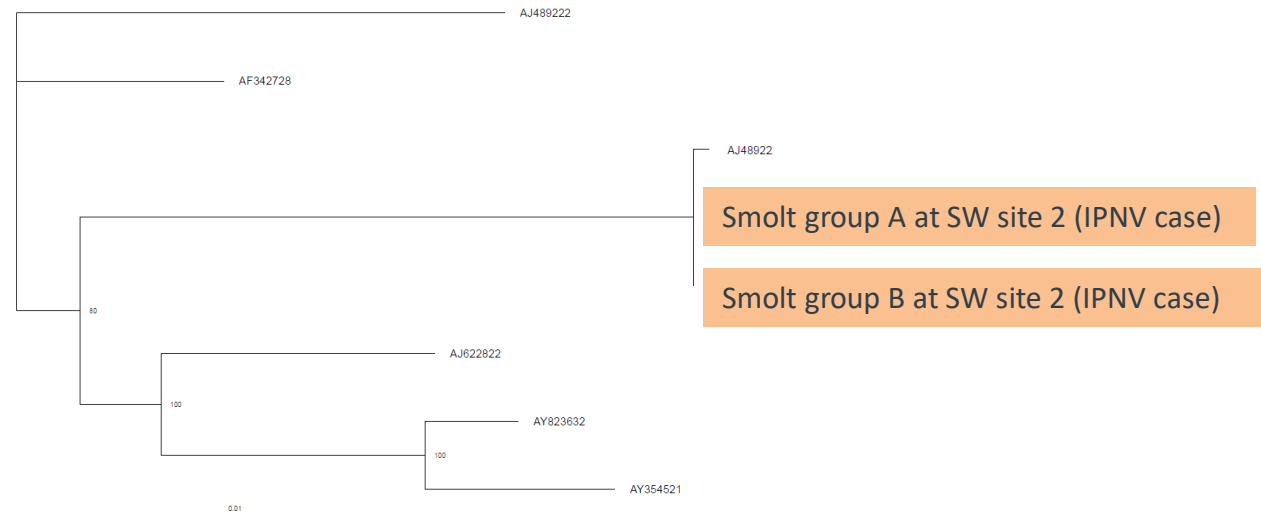
IPNV is transferred from FW to SW





Fylogenetic analysis of IPNV isolates

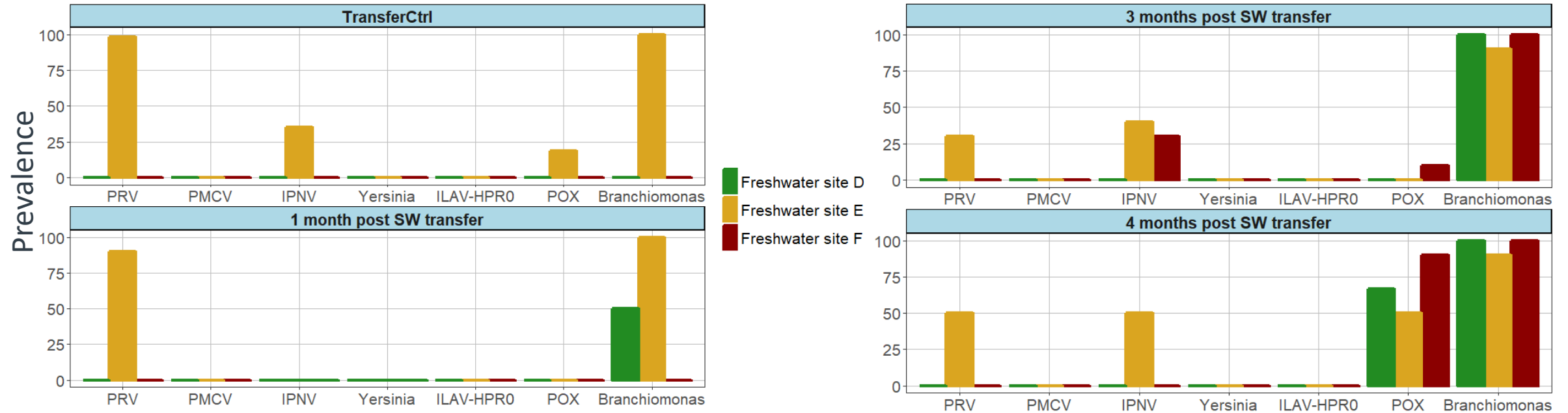
Horizontal spread of IPNV from smolt group B to smolt group A



Accumulated mortality

- There was no differences in the accumulated mortality between the smolt groups

Consequences of several pathogens in one smolt group – S1 smolt



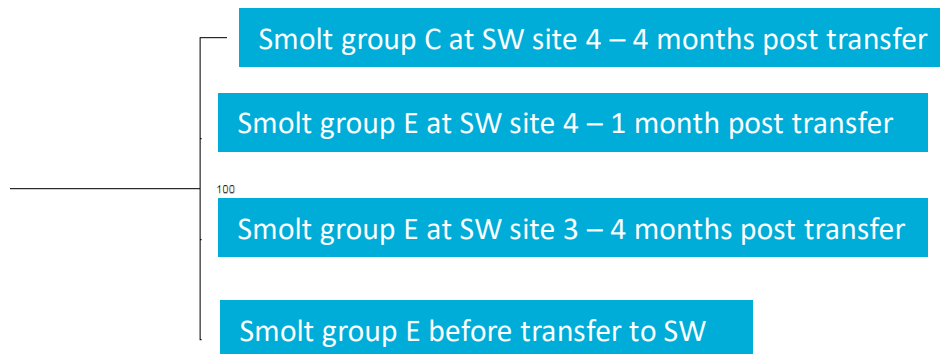
Accumulated mortality

- The accumulated mortality was higher in smoltgroup E compared to the other groups

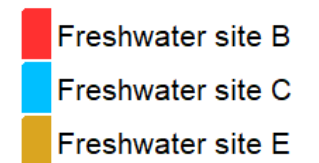
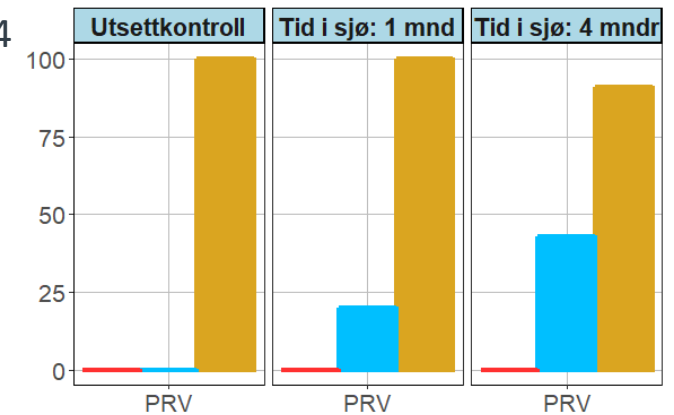


Phylogenetic analysis of PRV isolates

- Common origin
 - Identical PRV isolates in smolt group E before and after SW transfer to SW site 4
 - Identical PRV isolates in the same smolt group at different SW sites
- Horizontal transfer of PRV from smolt group E to smolt group C at SW site 4



SW site 4: S0 smolt, fall 2018





Summary

- Infection is transferred from FW to SW with the smolt
- Horizontal transfer of infection between smolt groups
- Optimal combination of smolt groups gives fewer infected groups at sea
- Better fish health and performance at sea
- Data analysis: RGI at slaughter and available production data



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