



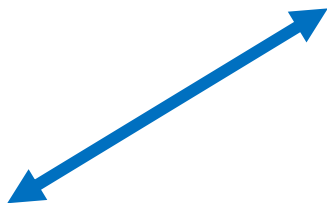
Digital twins to reduce risk and accelerate green transition.

*v/ Per Meyer Jepsen og
Andreas Sigurd Bennike, RUC*

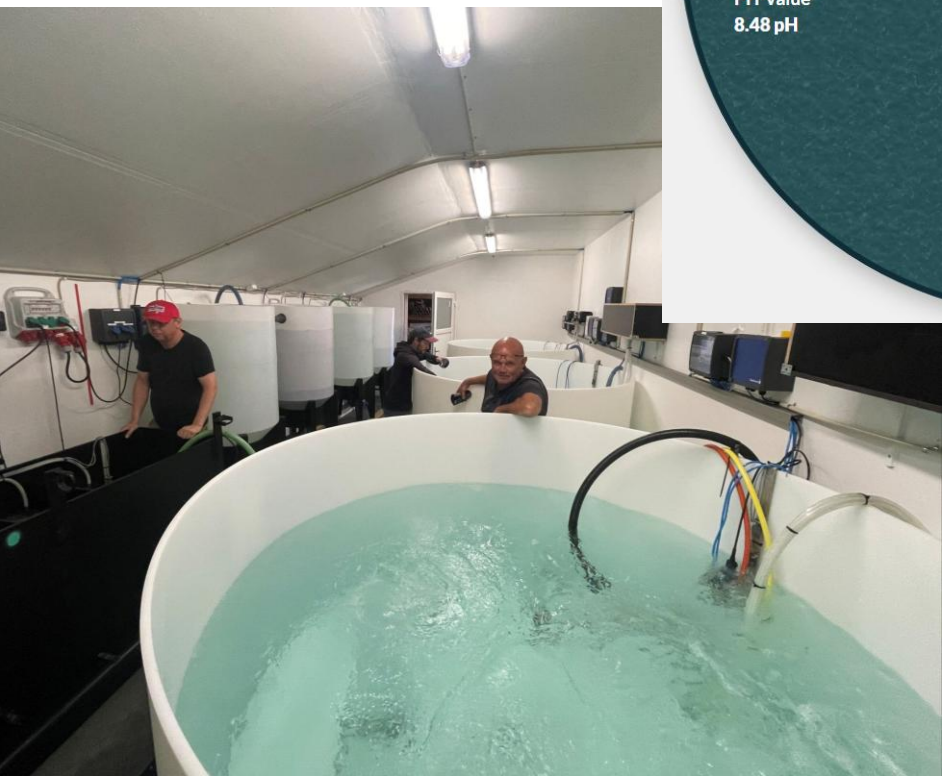
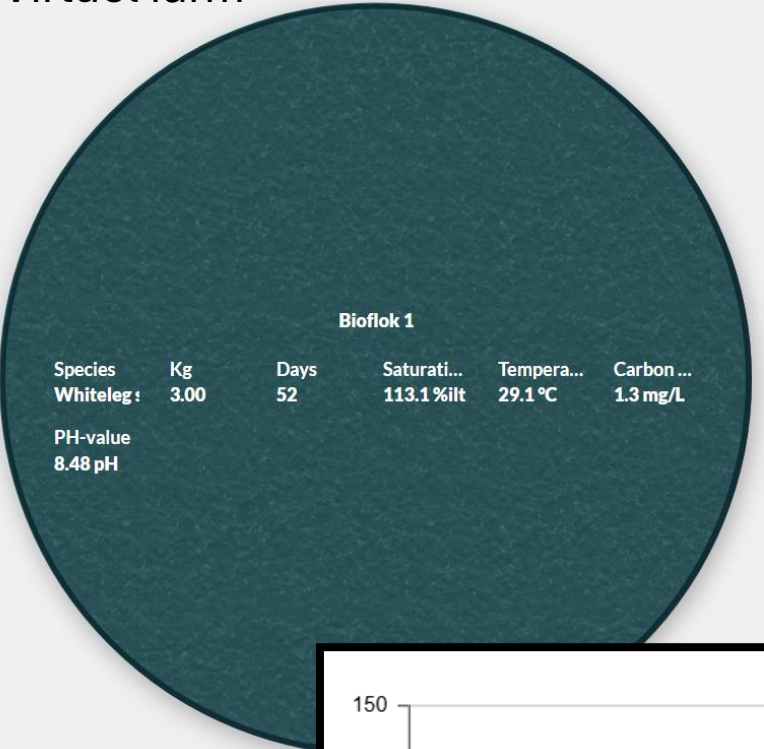




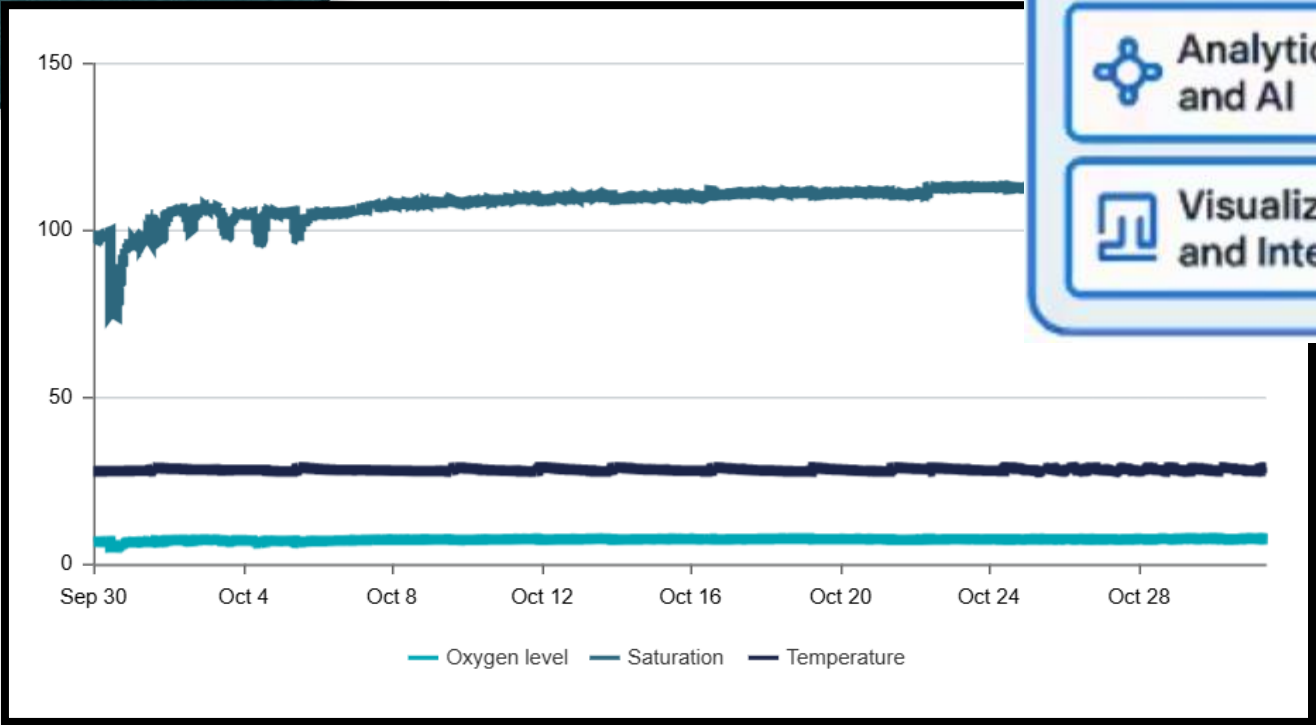
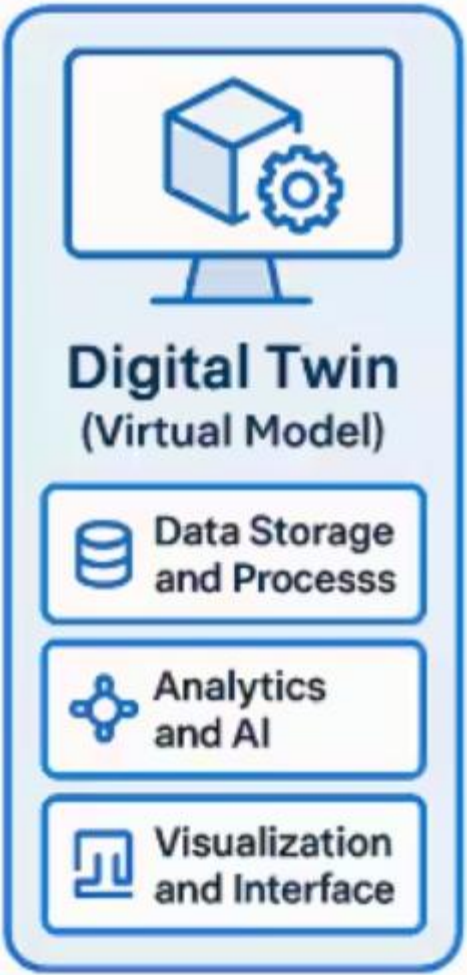
Online
Sensor

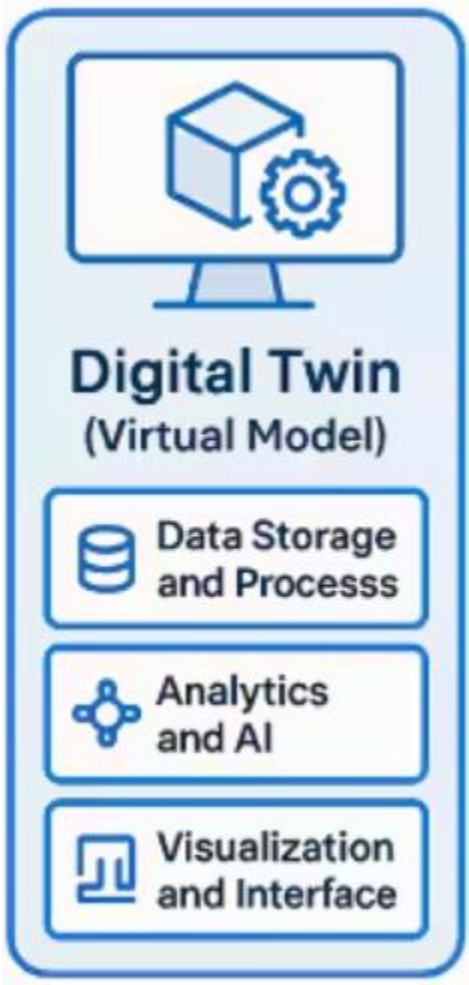


Virtual farm

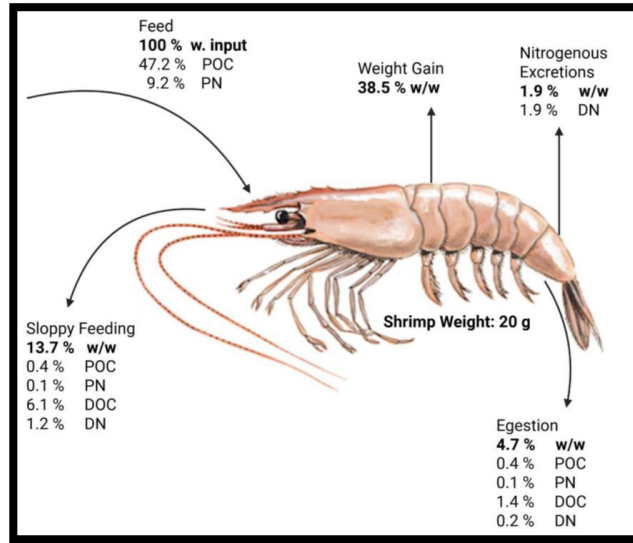


Fysisk farm

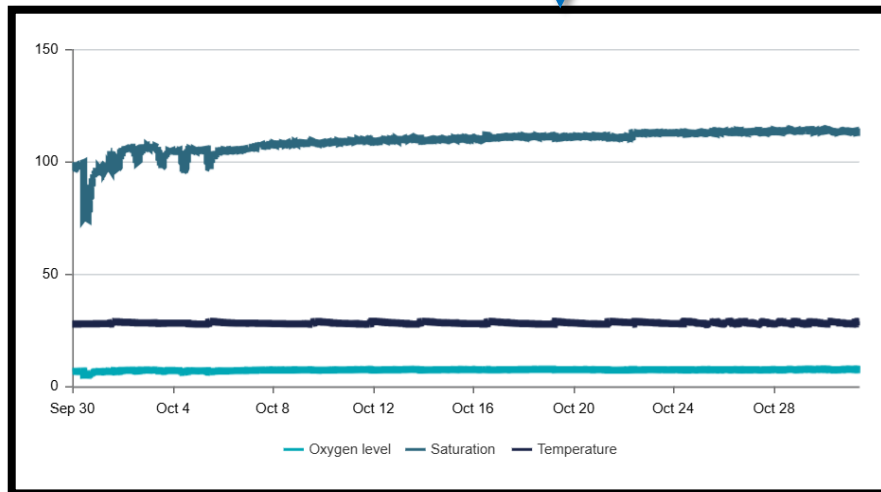




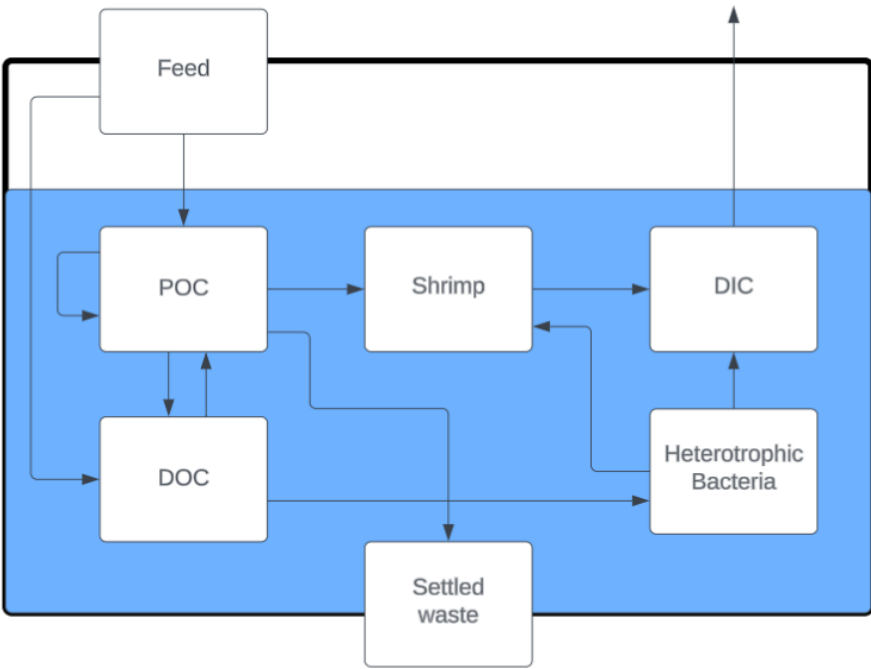
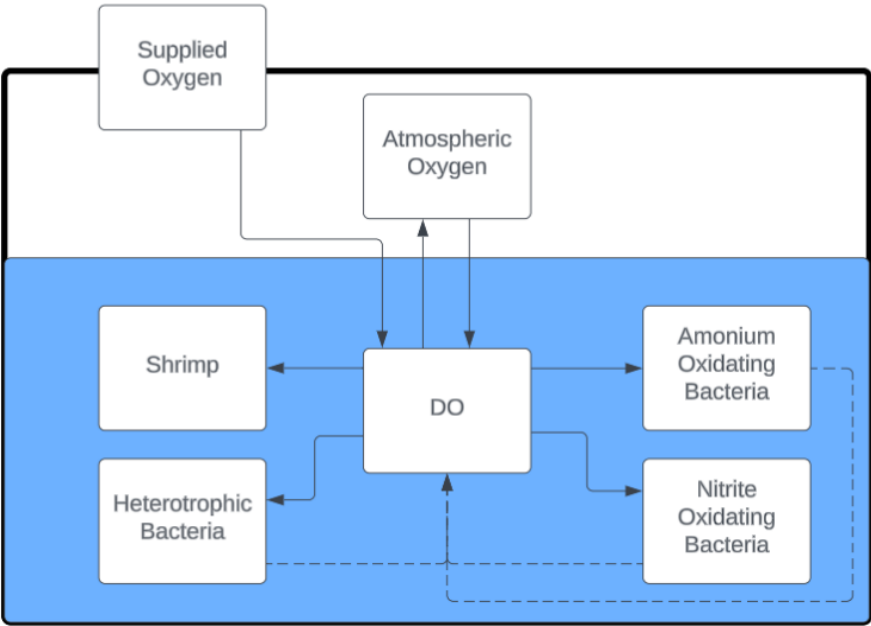
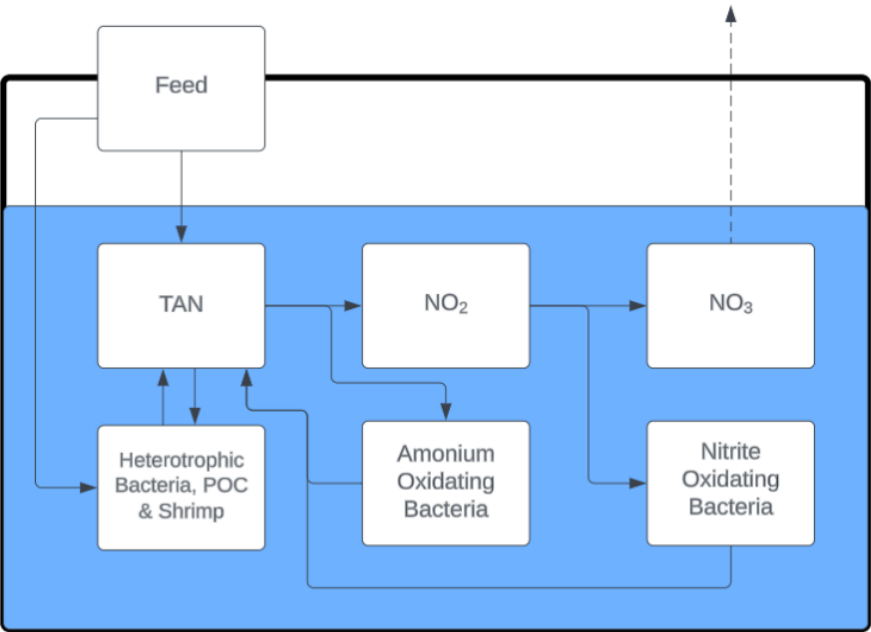
Biologist input/output

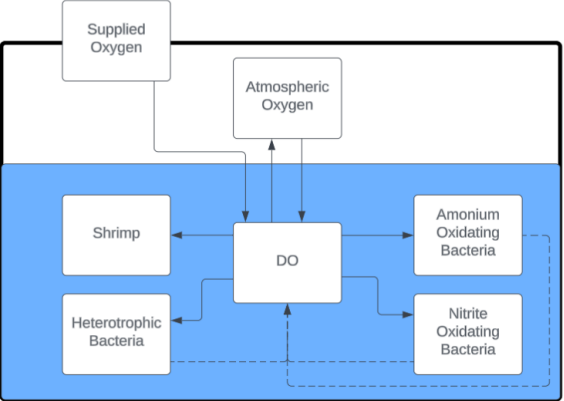


Vand kemisk sensor

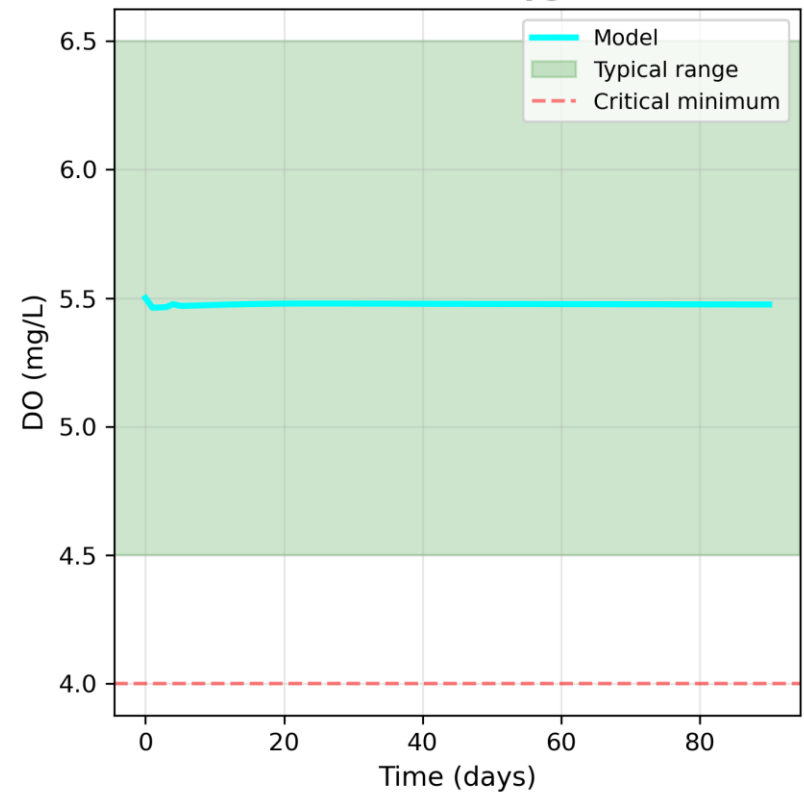


The digital twin models

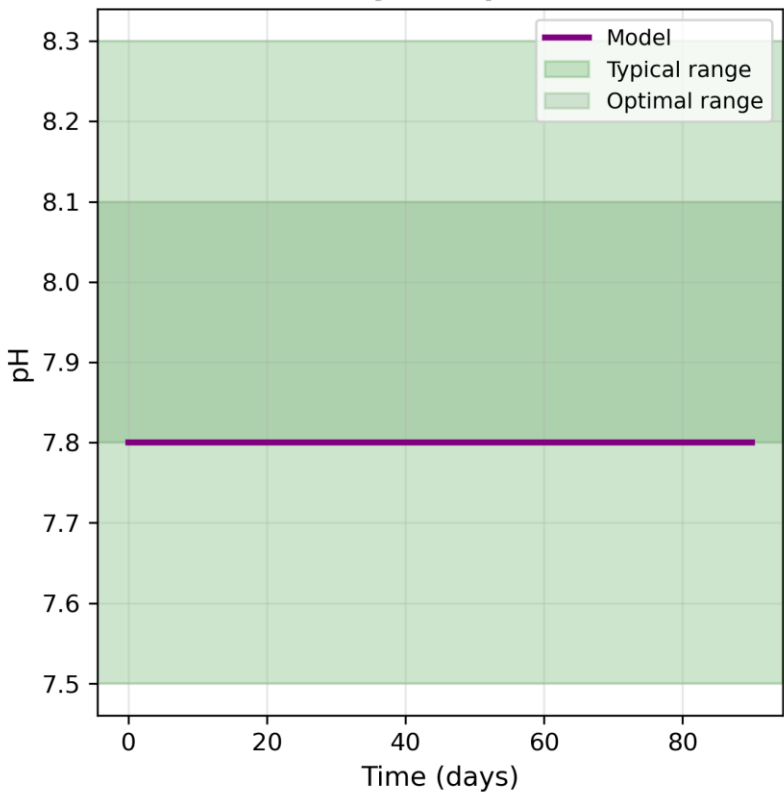




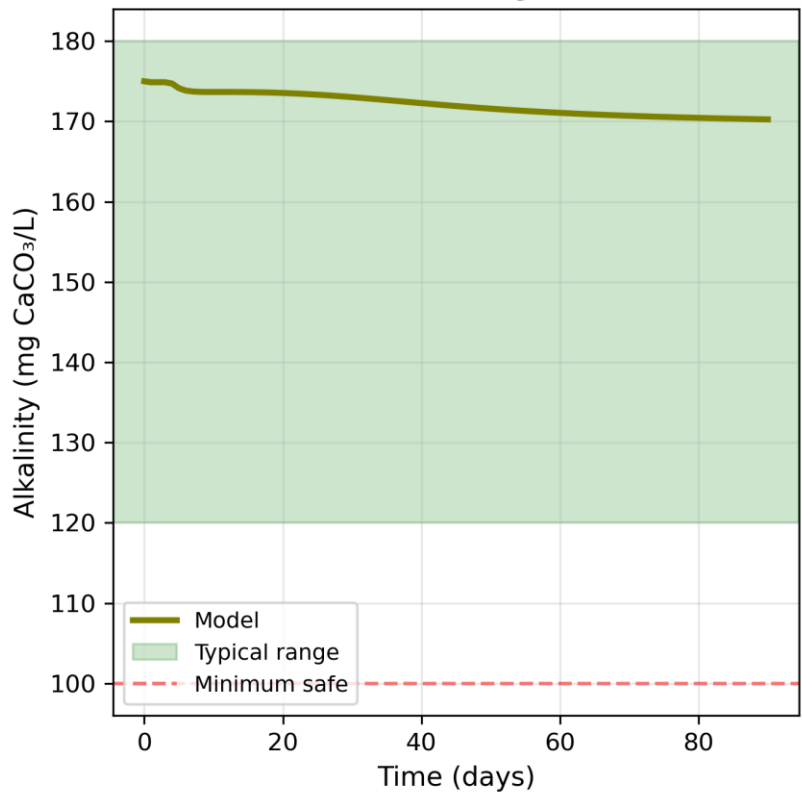
Dissolved Oxygen

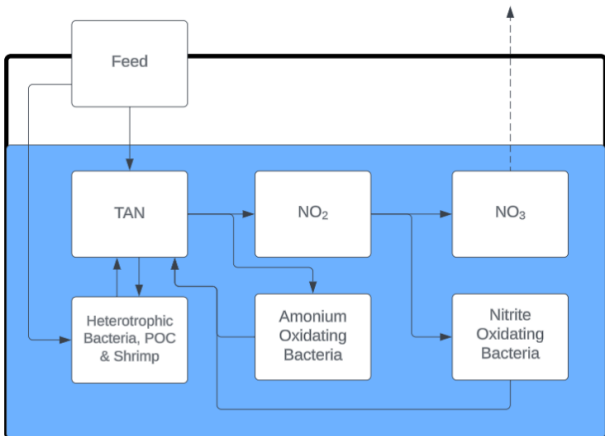


System pH

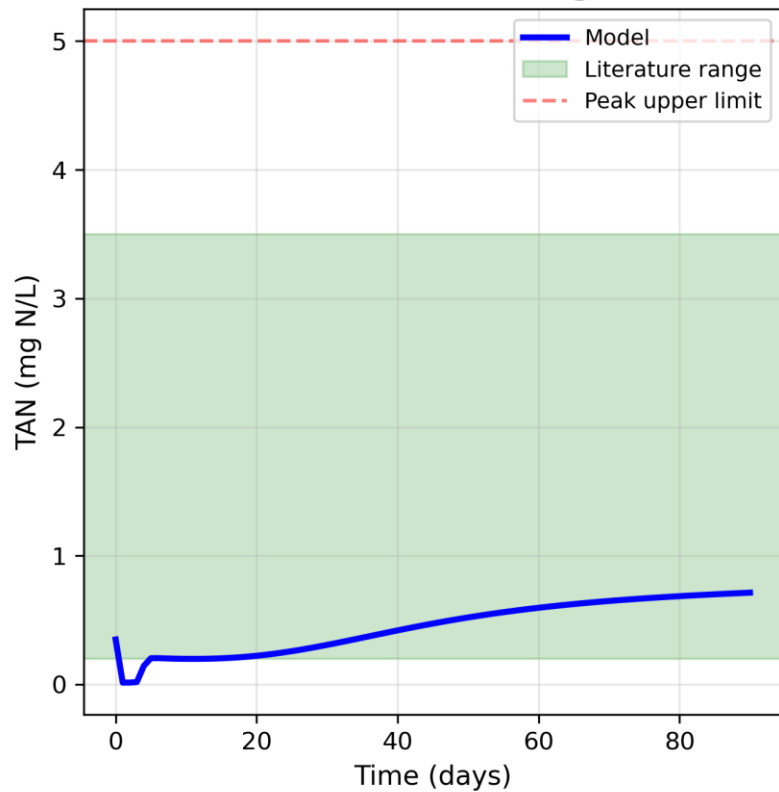


Alkalinity

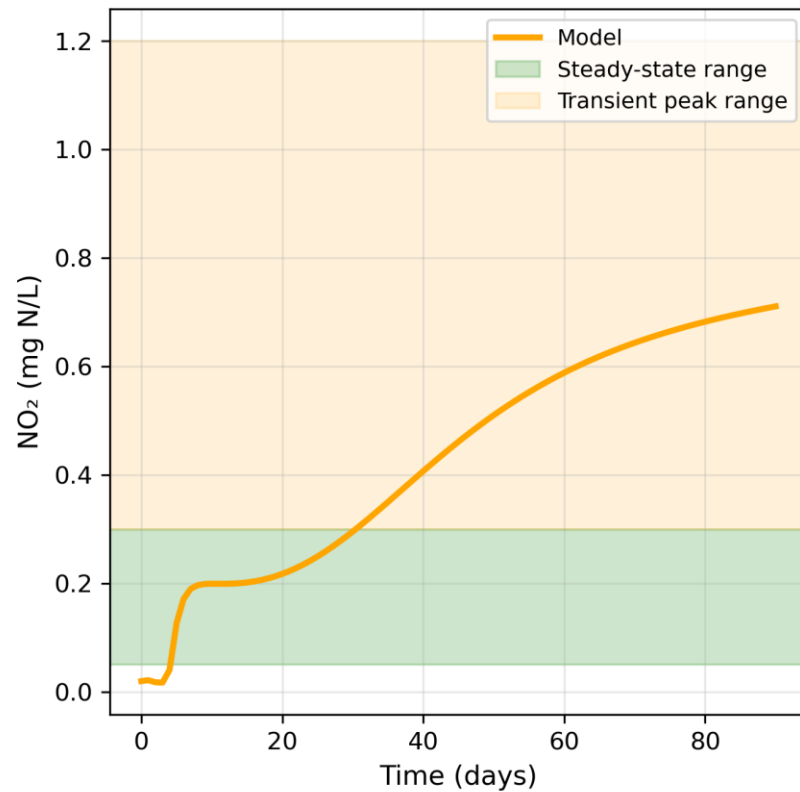




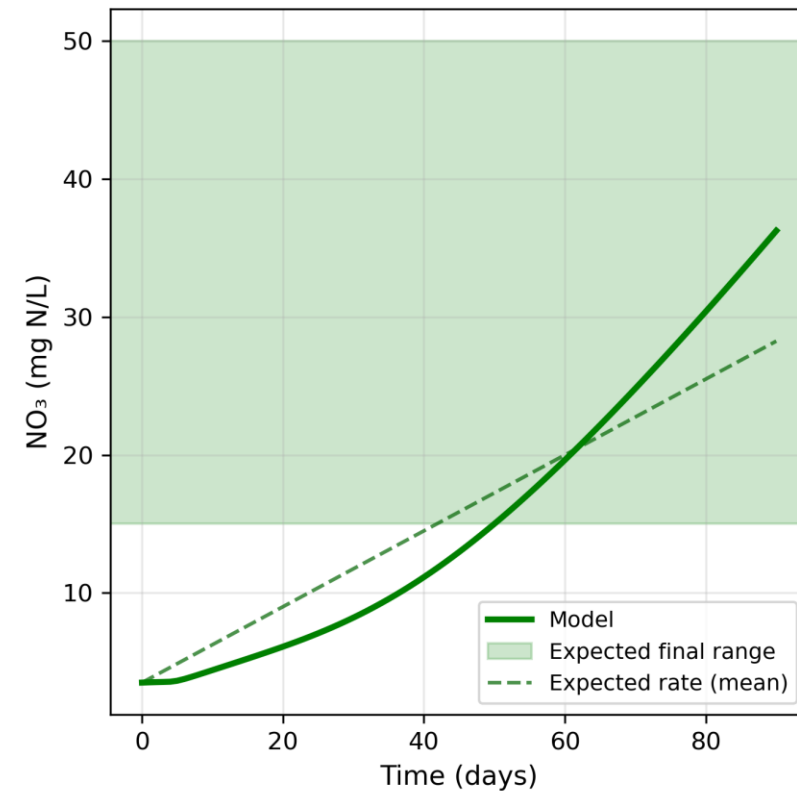
Total Ammonia Nitrogen

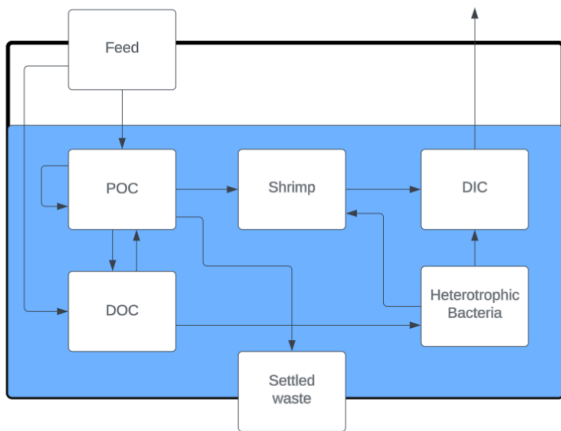


Nitrite

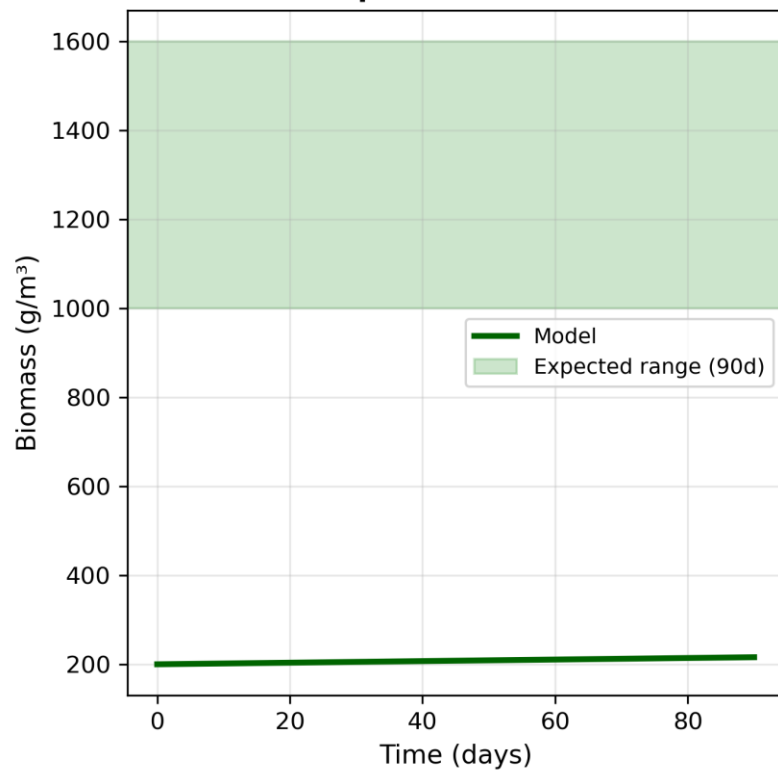


Nitrate

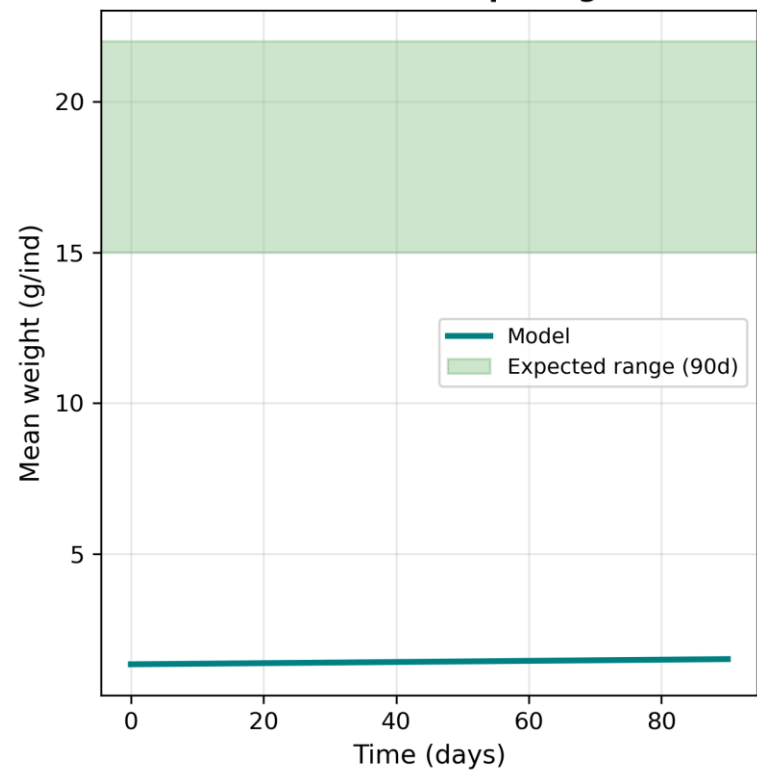




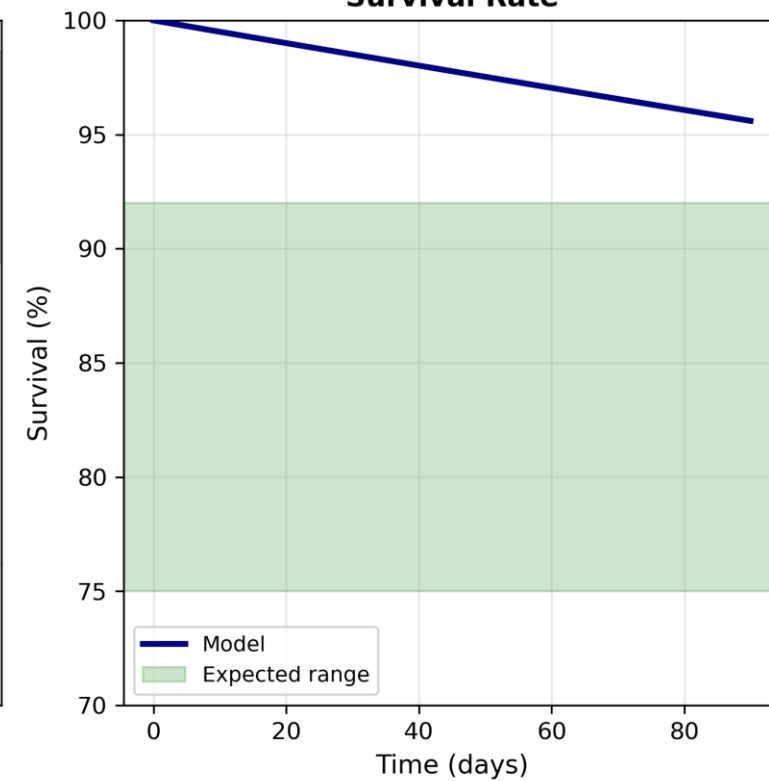
Shrimp Biomass Growth



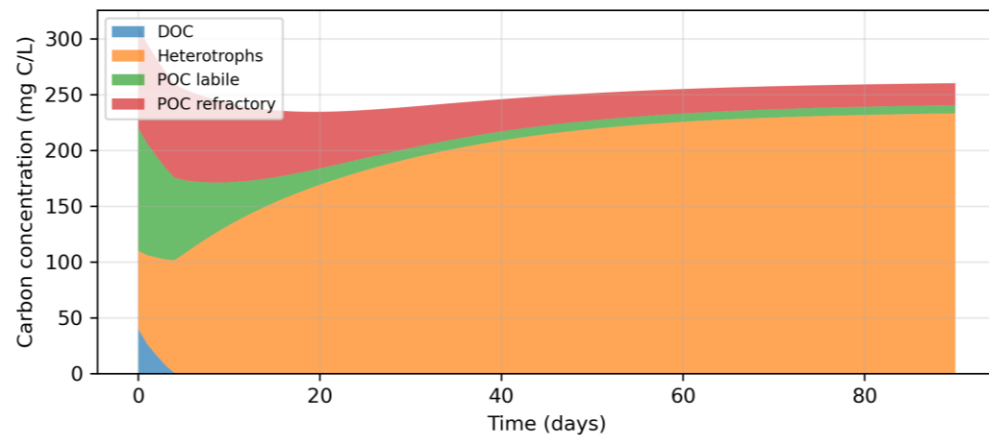
Individual Shrimp Weight



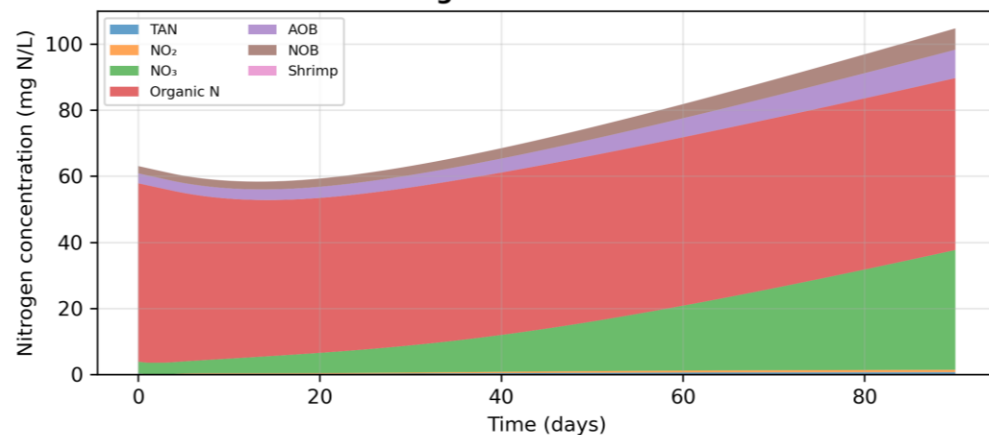
Survival Rate



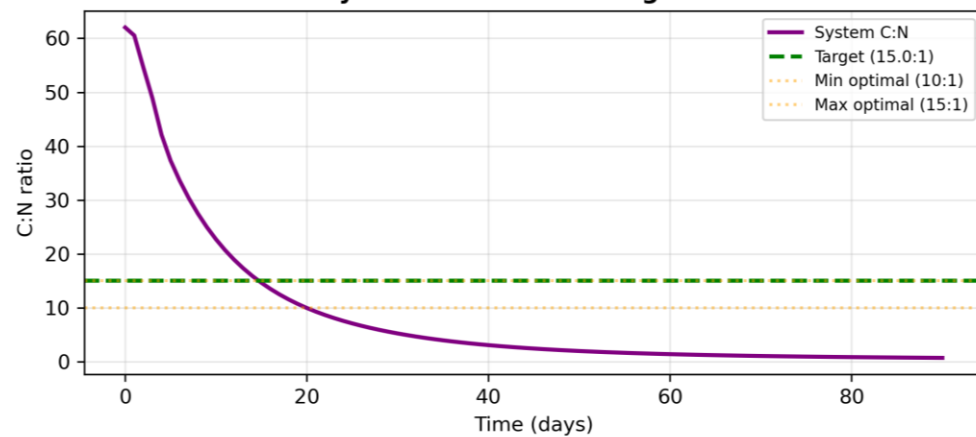
Carbon Pool Distribution



Nitrogen Pool Distribution



System C:N Ratio Management



Future works

- Få modellen tunet ind
- Integer in situ målinger fra rejefarmen
- Kørsel af nye scenarier vs. “ægte data”
- Integration af AI

Take home message

-Why a digital twin?

- Bedre indsigt i og forudsigelser af vores produktioner
- Kørsel af scenarier
- Forudsige vores in og output
 - e.g. miljøpåvirkning
- Byg compartments modeller og genbrug og integrer i andre digitale tvillinger
- Cost benefit

Tak til



 <https://bit.ly/biorejer>

Biorejer

Projektets formål er at bidrage til den grønne omstilling i akvakultursektoren. Projektet vil udvikle produktion af varmtvandsrejer vha. en ny vandrensningsteknologi kaldet biofloc. Derved vil der opnås en produktion uden udledning af næringsstoffer til miljøet og med en høj udnyttelse af foderet, man fodrer rejerne med. Projektet vil således blive et fyrtårn for en meget bæredygtig produktionsform.



Co-funded by
the European Union

Nexø Vodbinderi ApS

Blue research

