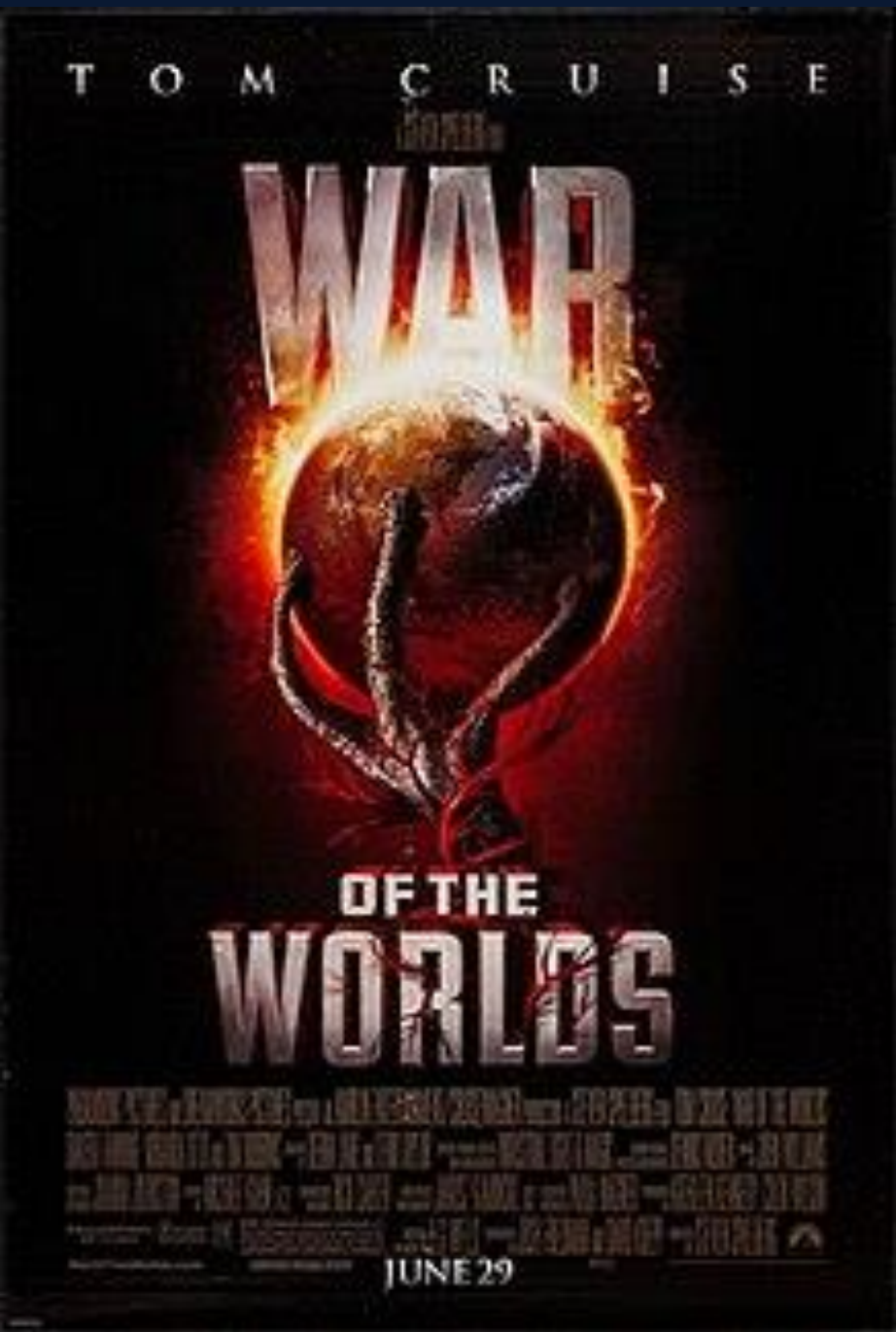




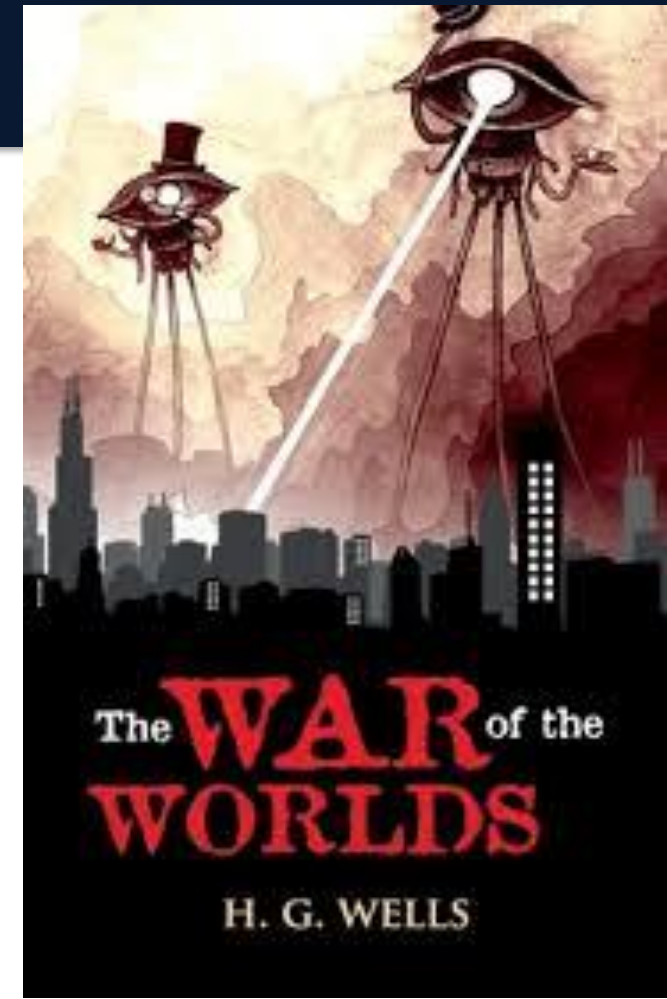
War of the Worlds: A novel strategy for sea lice control

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Interdisciplinary Center for Aquaculture Research (INCAR2)
Chile





War of the Worlds is a 2005 American science fiction action-thriller film directed by Steven Spielberg. It is based on H. G. Wells's 1898 novel.



The aliens are described as resembling octopi and are extremely technologically advanced. Despite their war machines and heat rays, the aliens die at the end of the book because of a **common form of bacteria**.



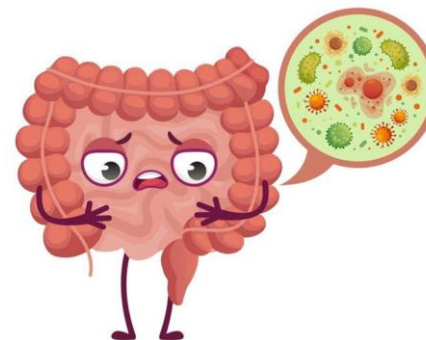
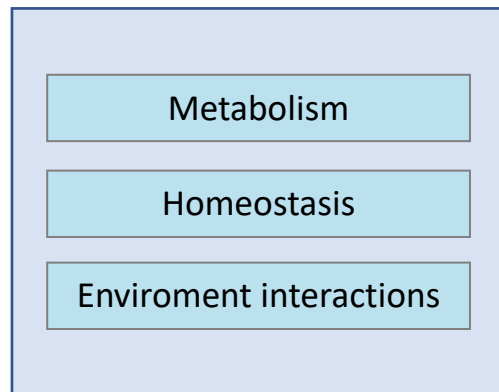
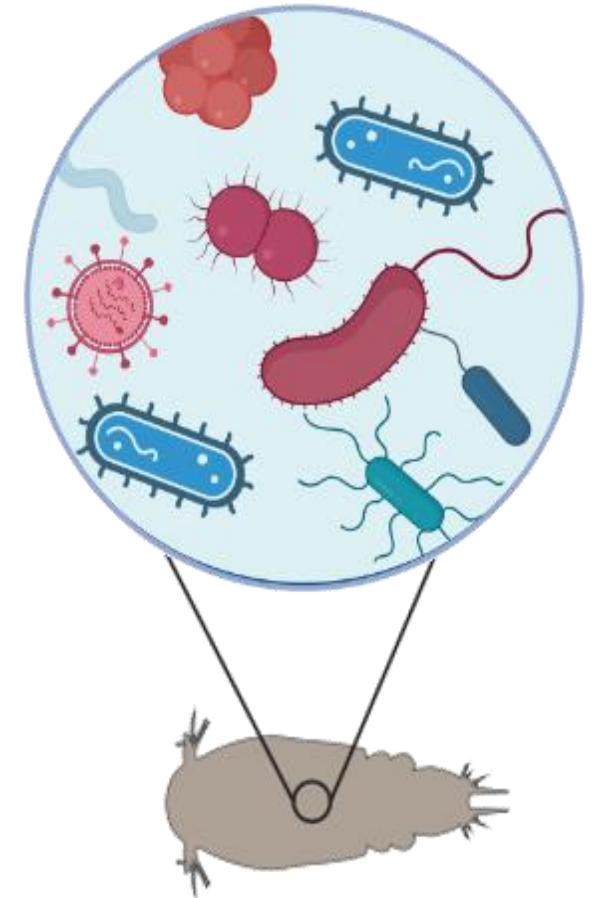
The genome of sea louse *Caligus rogercresseyi*

What is the microbiota?



The **microbiota** refers to the entire community of microorganisms that live in association with a particular environment, host, or habitat.

Sea Louse microbiota

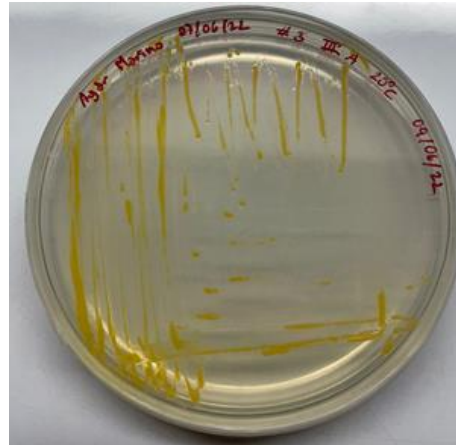
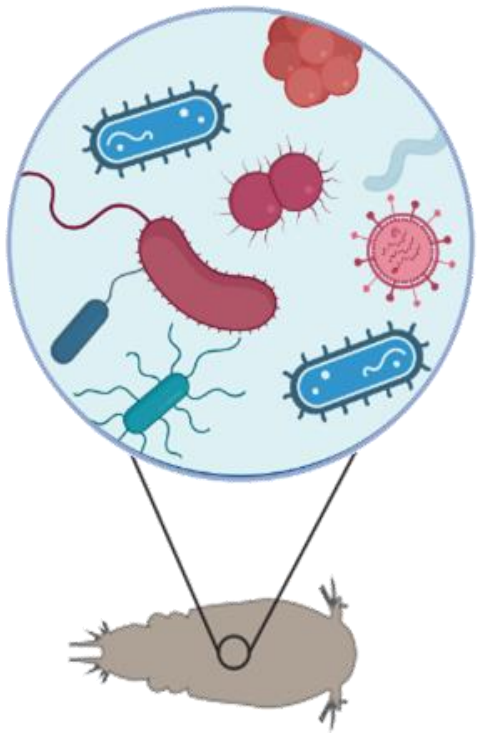




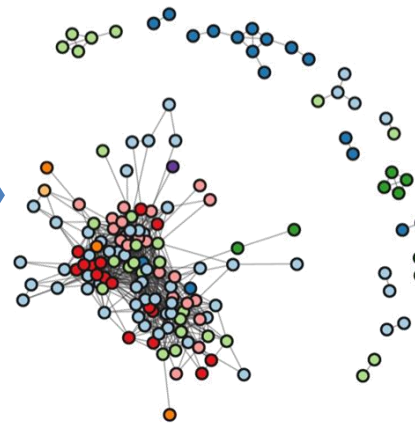
Blue
Symbiotics

Innovating Aquaculture through precision probiotics

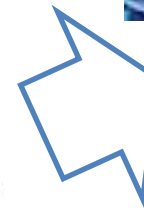
Strategy to disrupt sea lice microbiome



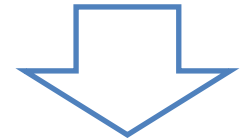
96 bacterial isolates from sea lice



Keystone bacterial Analysis



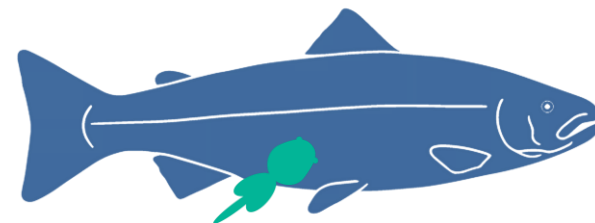
Microbial selection



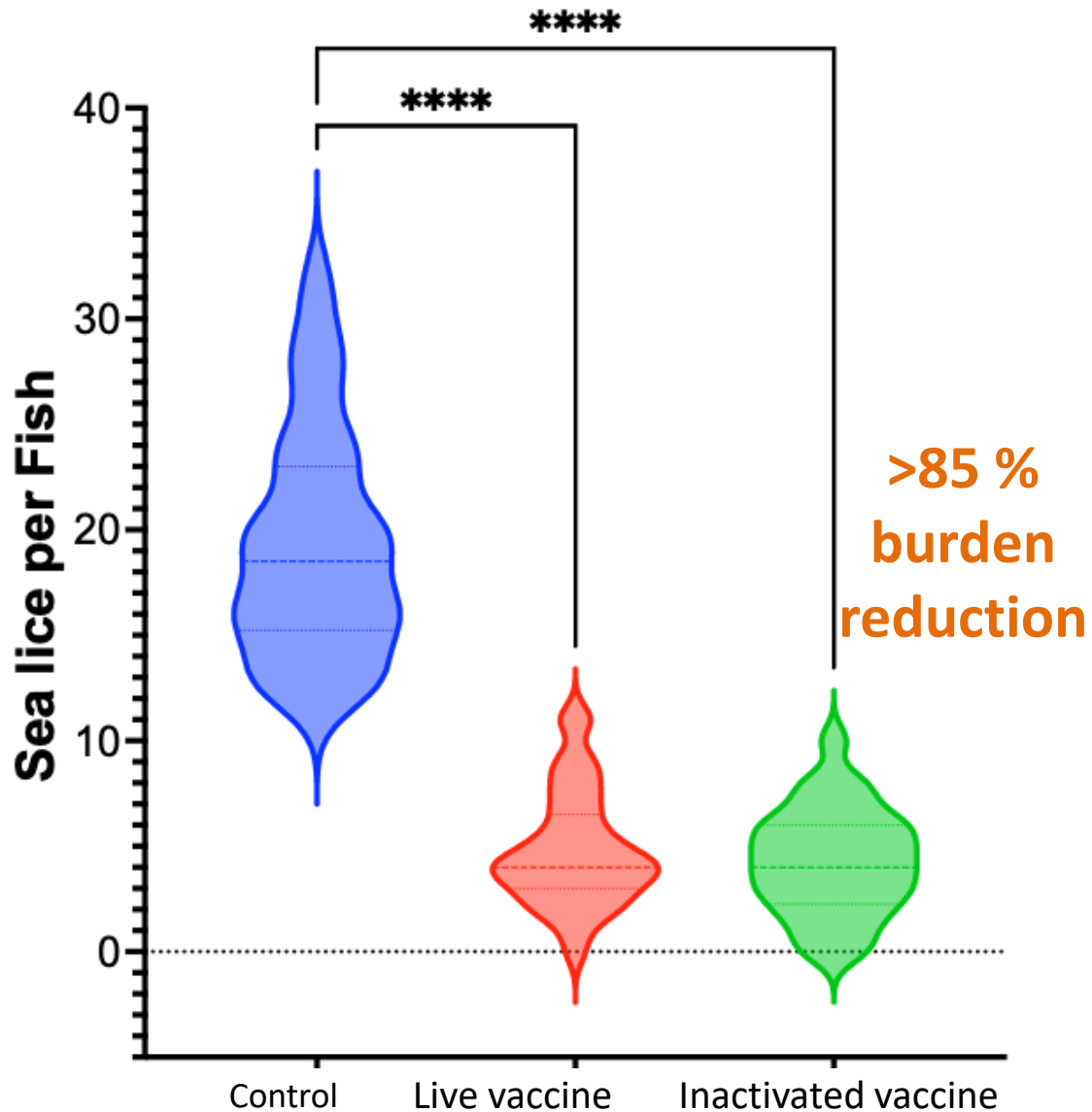
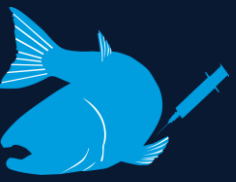
Fish immune response against the lice microbiome

Sea louse dysbiosis

Infestation reduction

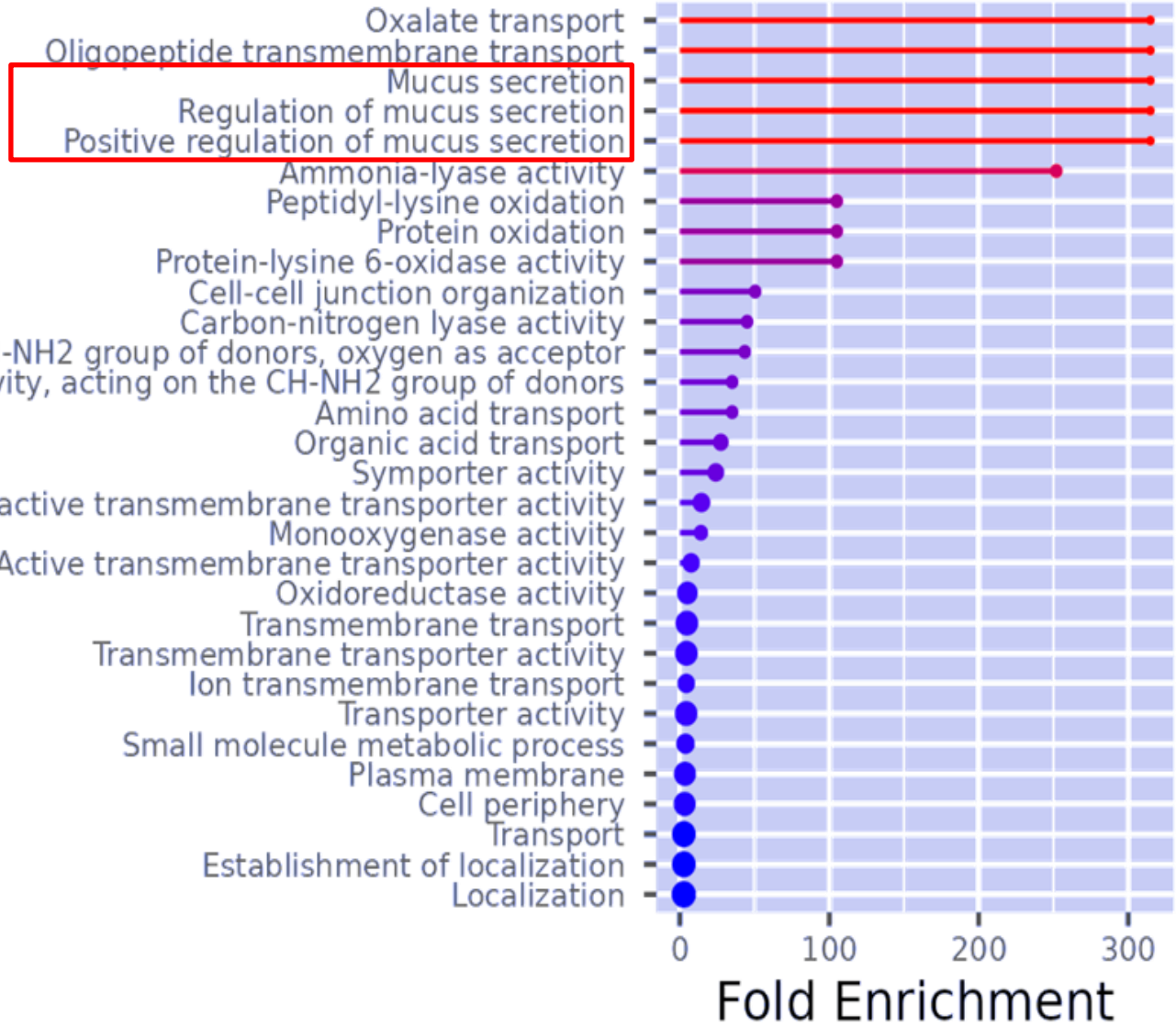


Proof of concept (live and inactivated IP)

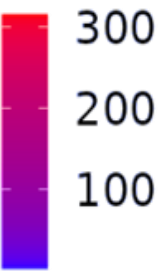


Lice collected after 72 DPI

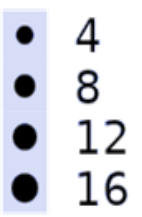
Mucus secretion



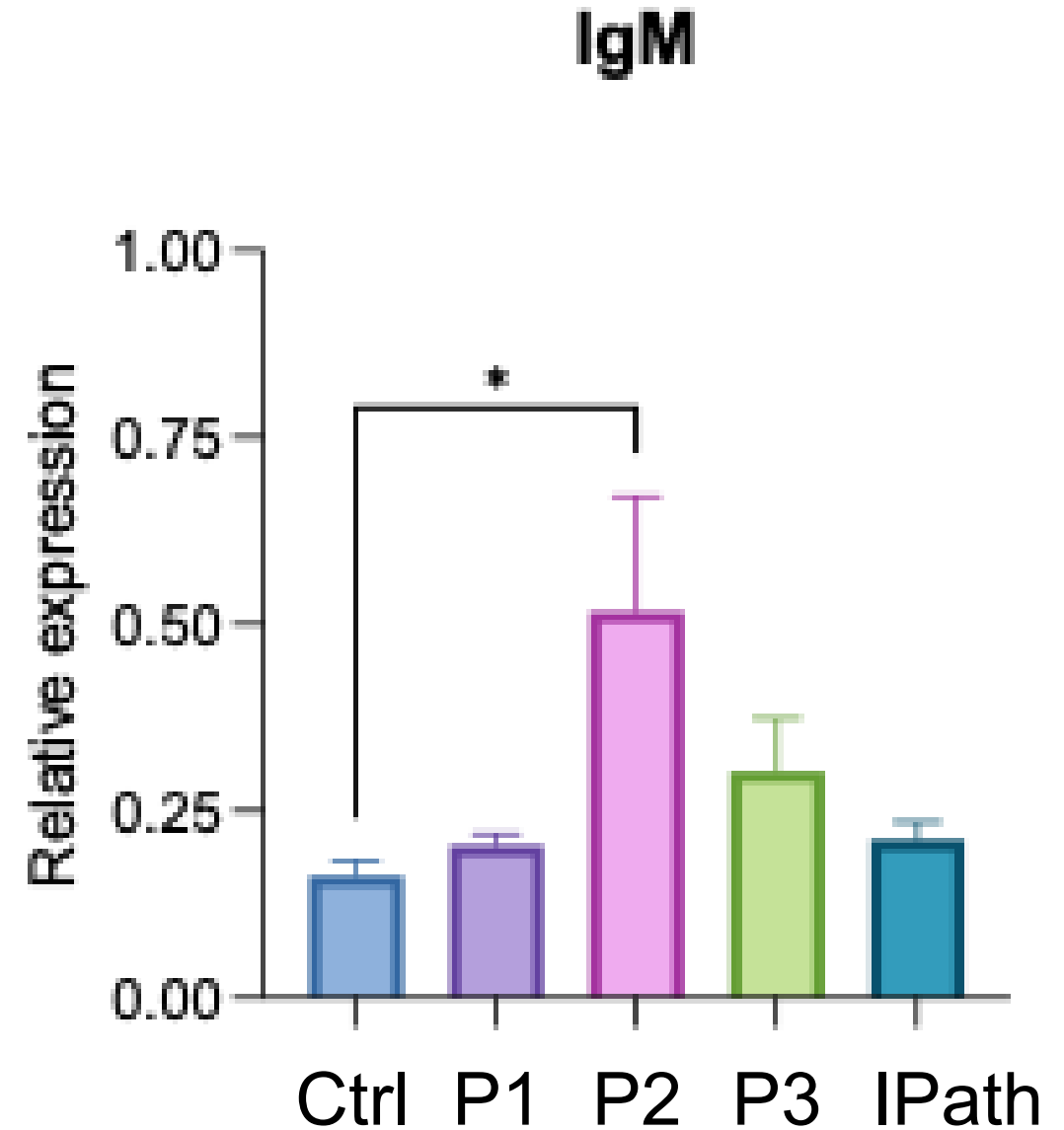
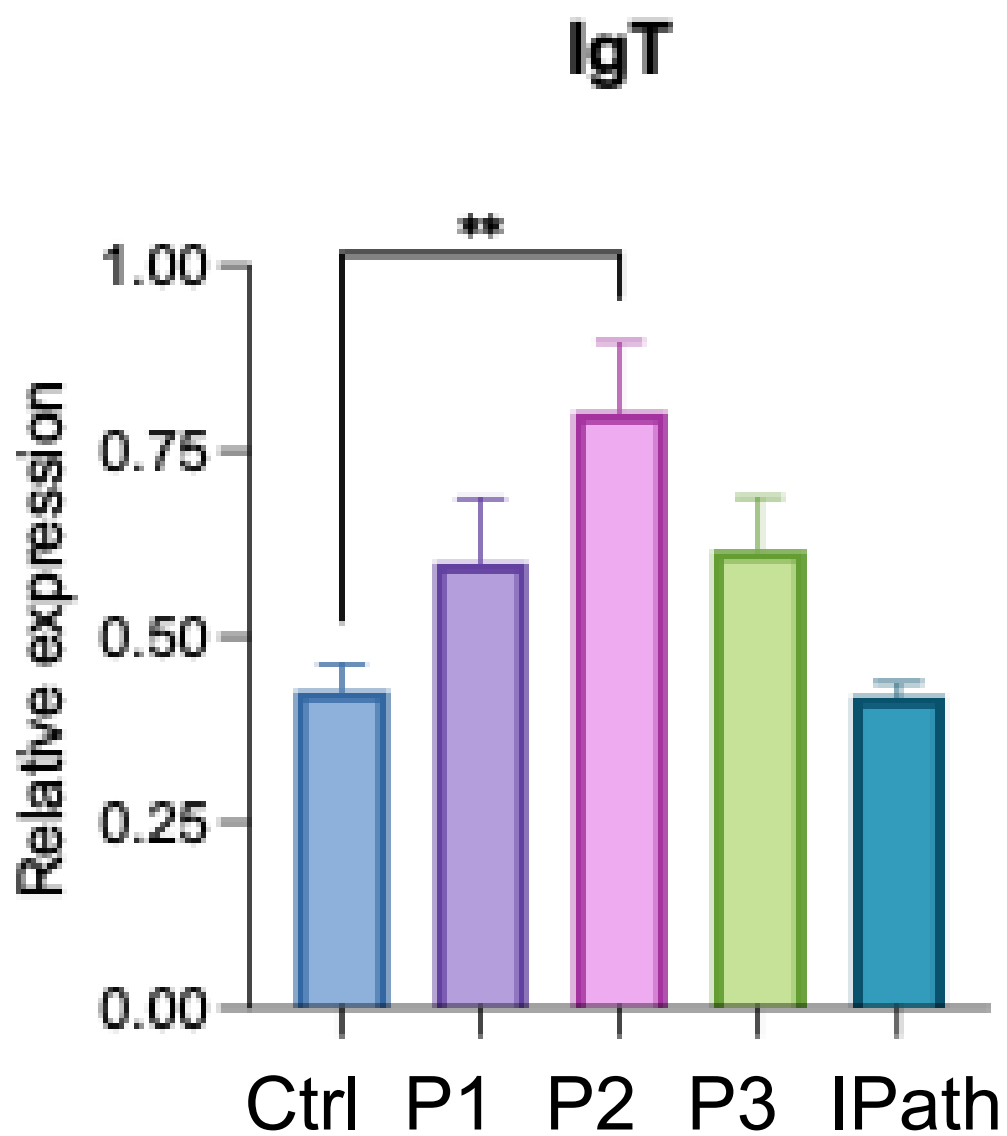
Fold Enrichment



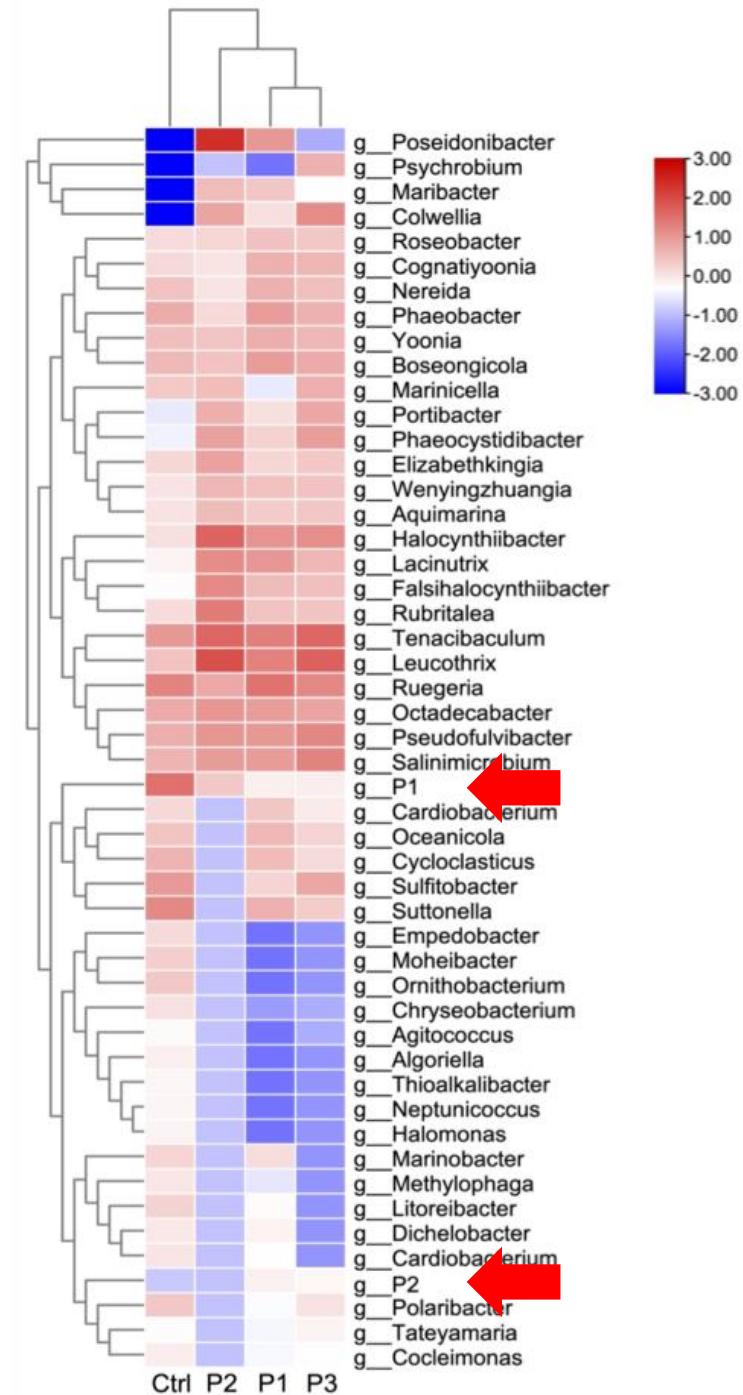
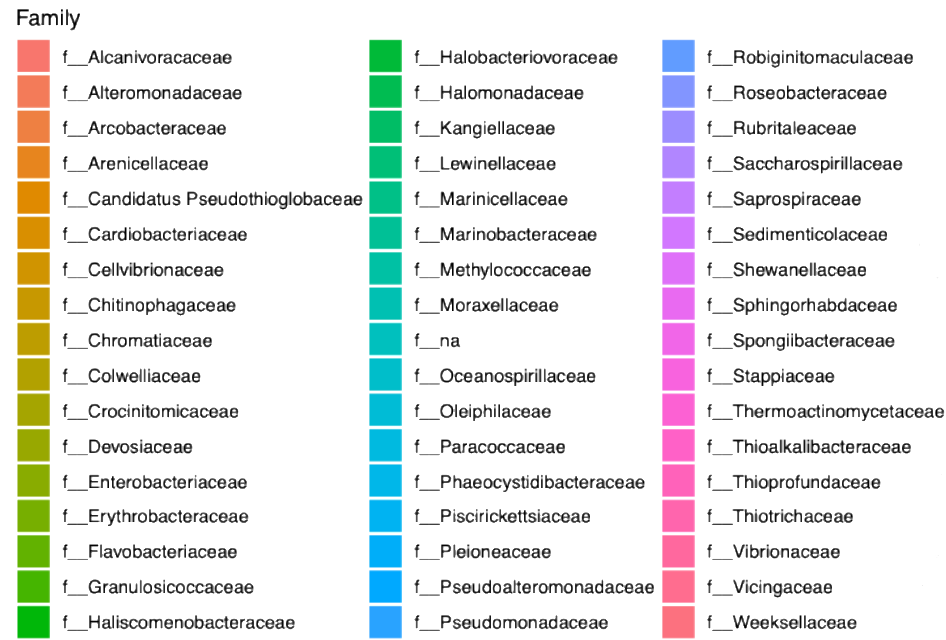
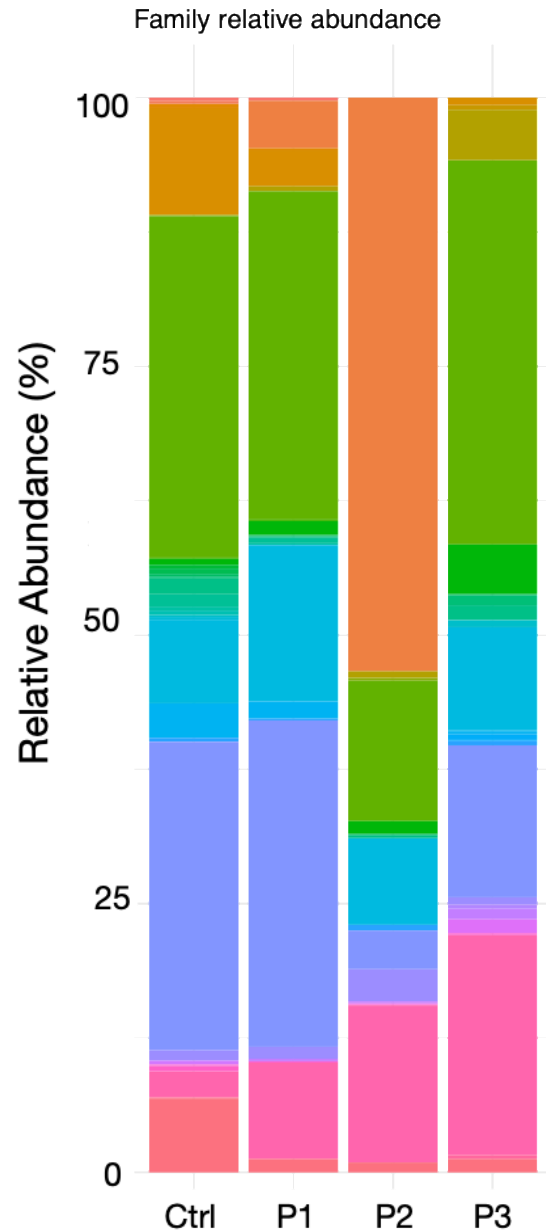
N. of Genes



Fold Enrichment

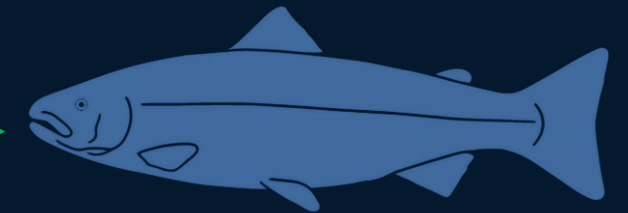
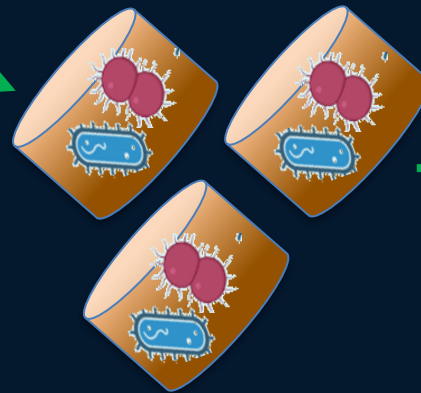
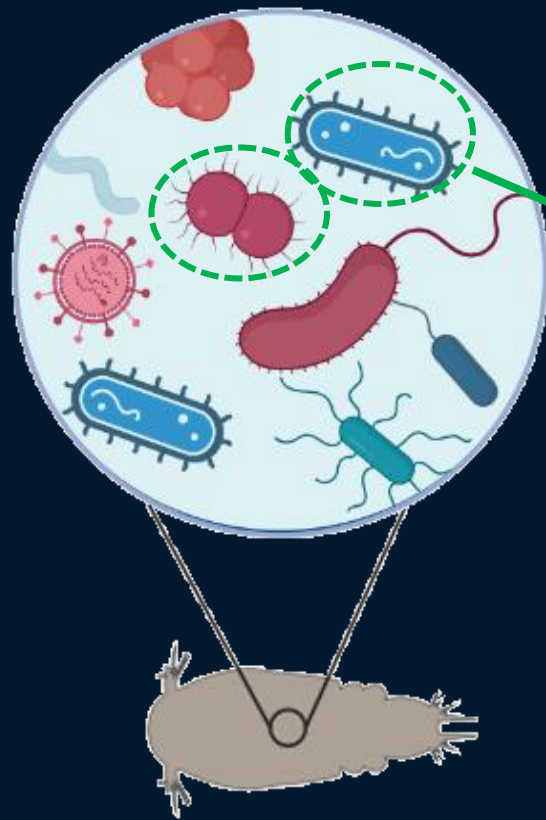


Precision Probiotic triggers a disruption of the sea lice microbiota

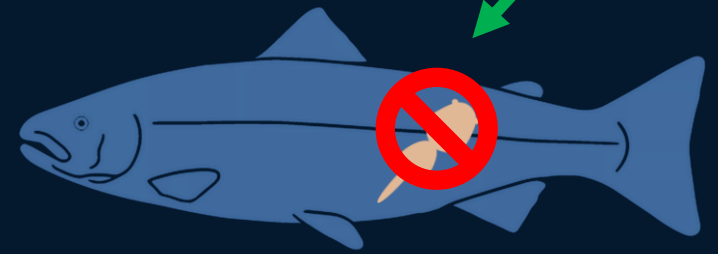
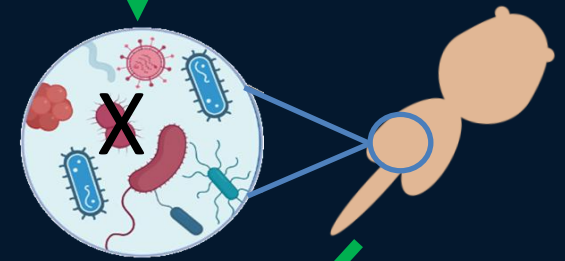




Blue-Lemuy®



Immune response



Farm-scale application





Doses
1 kg/ton

Feed daily for
21 days

Food Companies:

- *Cargill*
- *Salmonfood*
- *Biomar*



Farming scale results with Lemuy®



Before



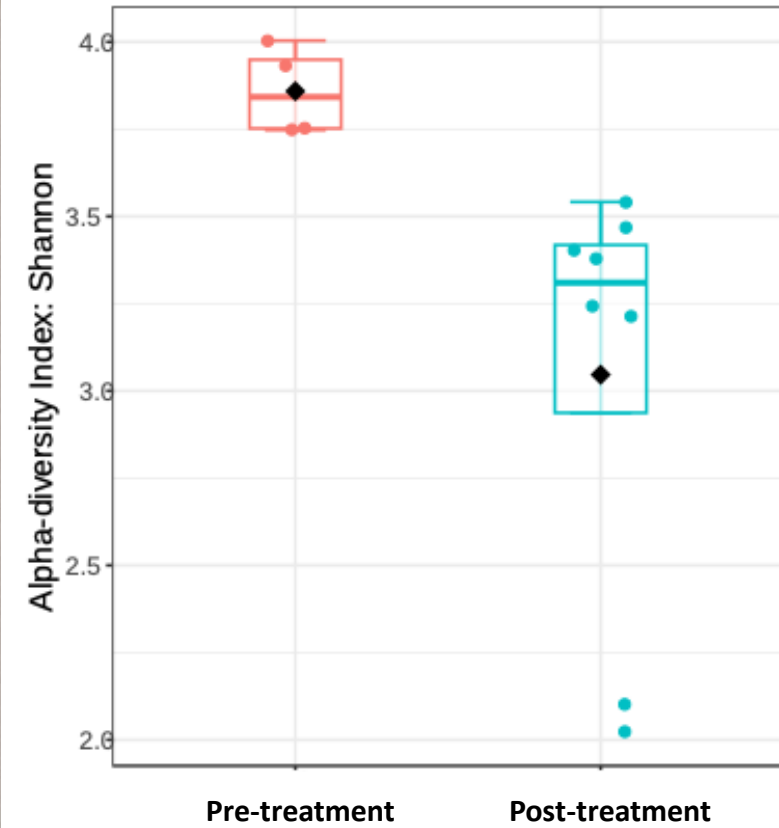
After



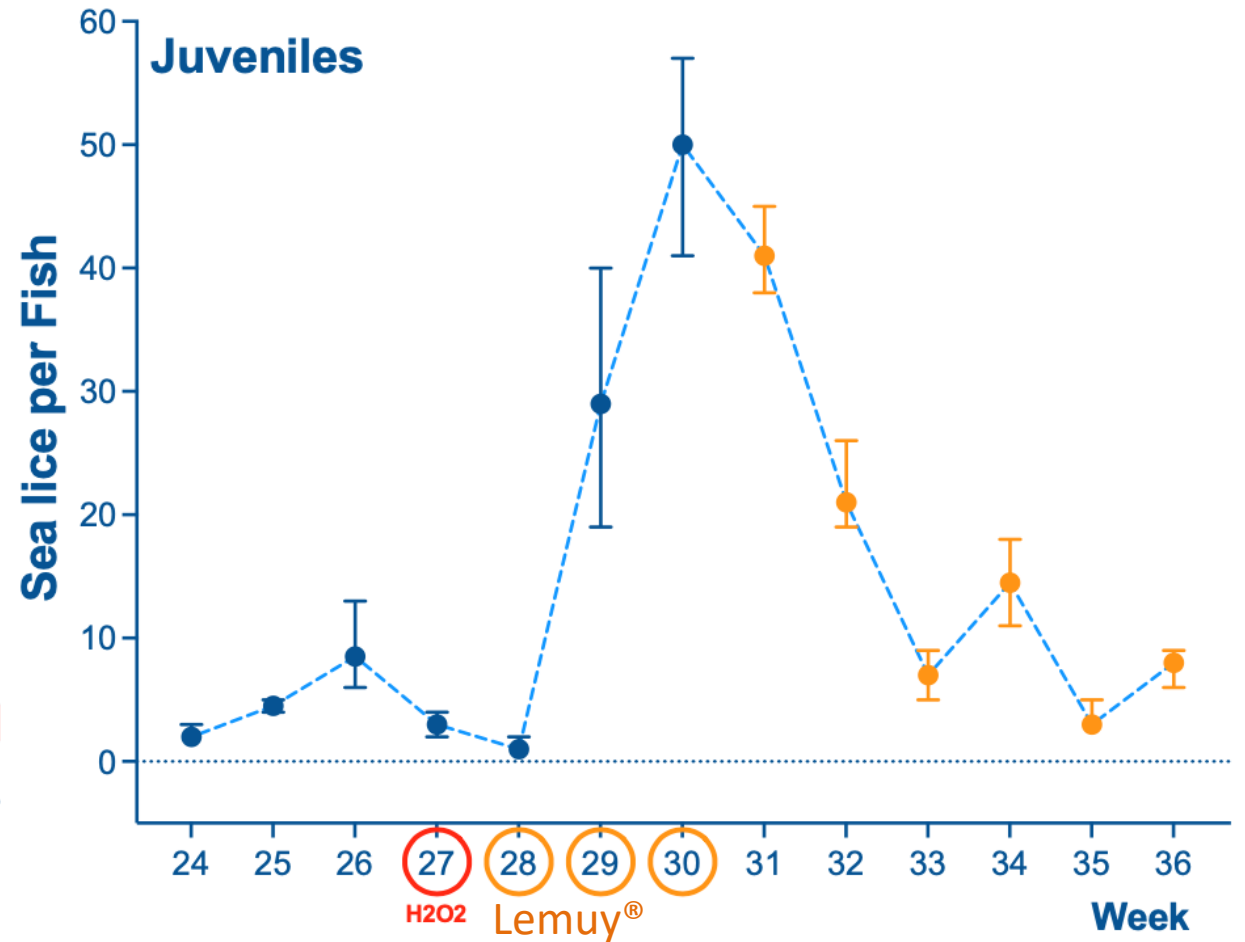
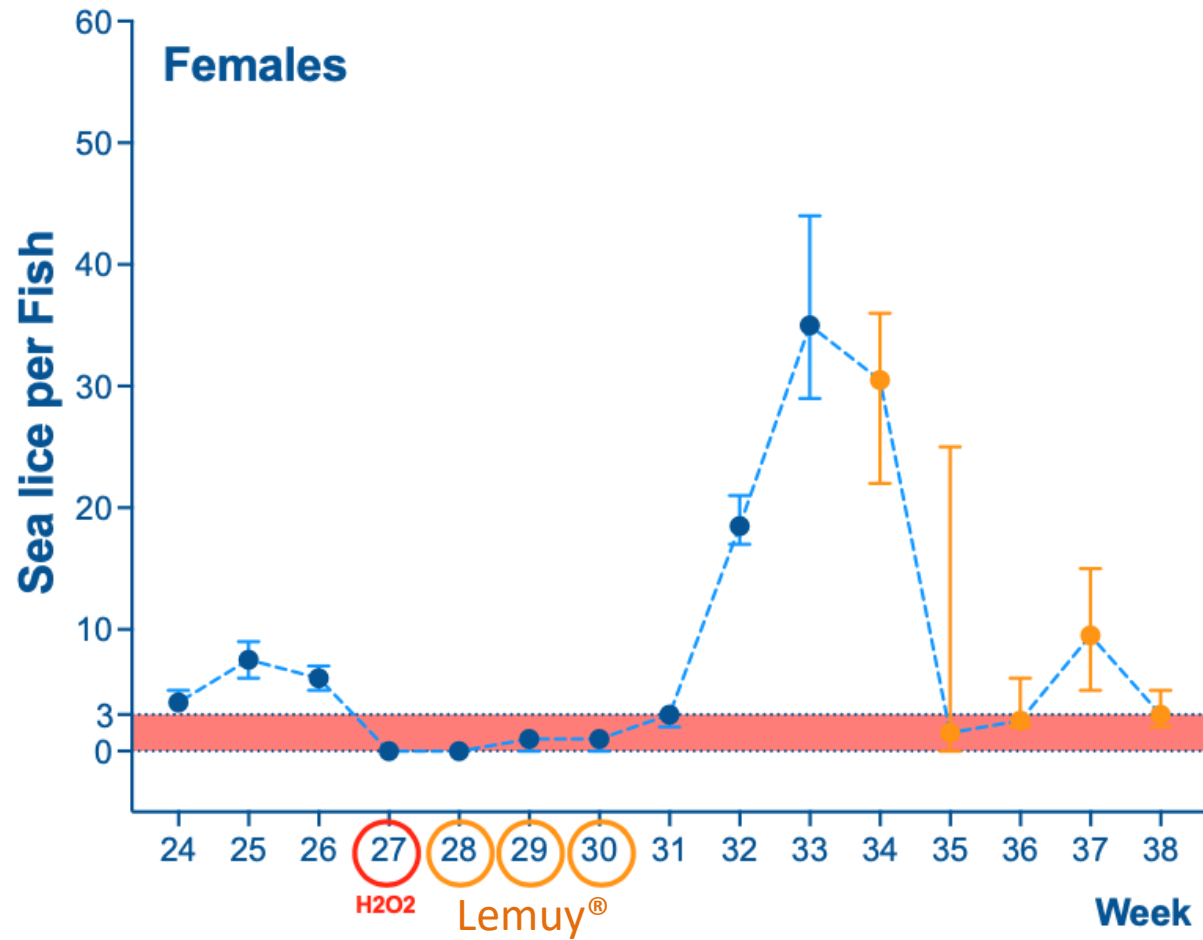


Females affected or inviable over 60%

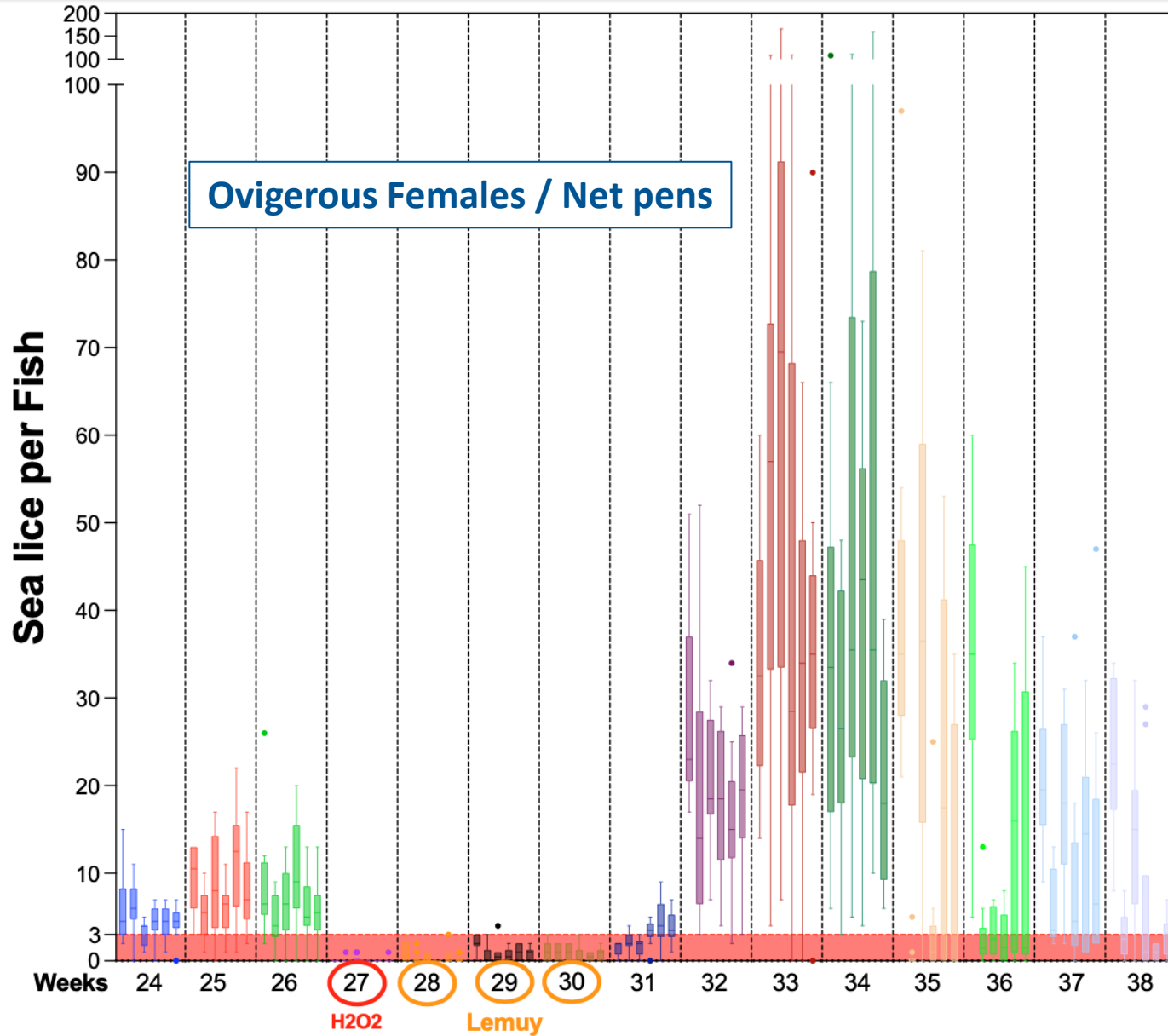
Microbiome Analysis



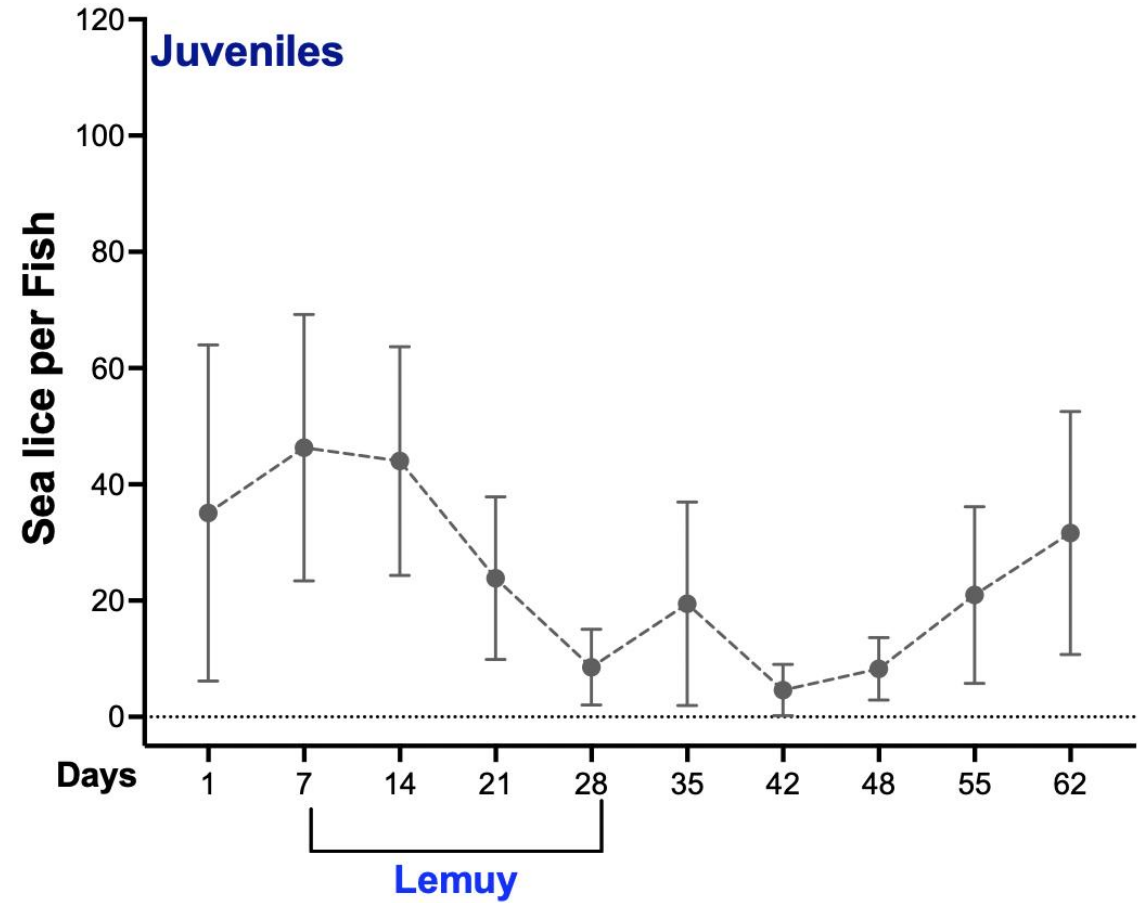
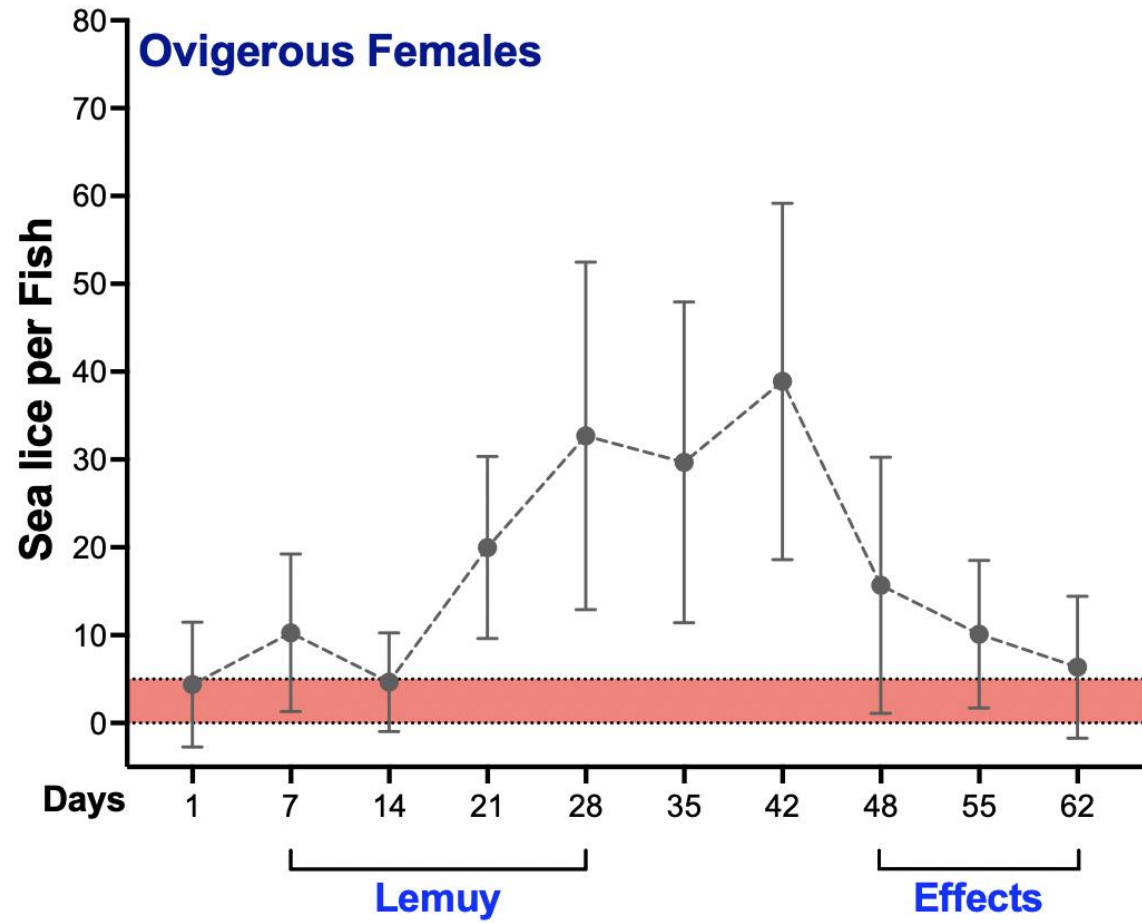
Field trial 1



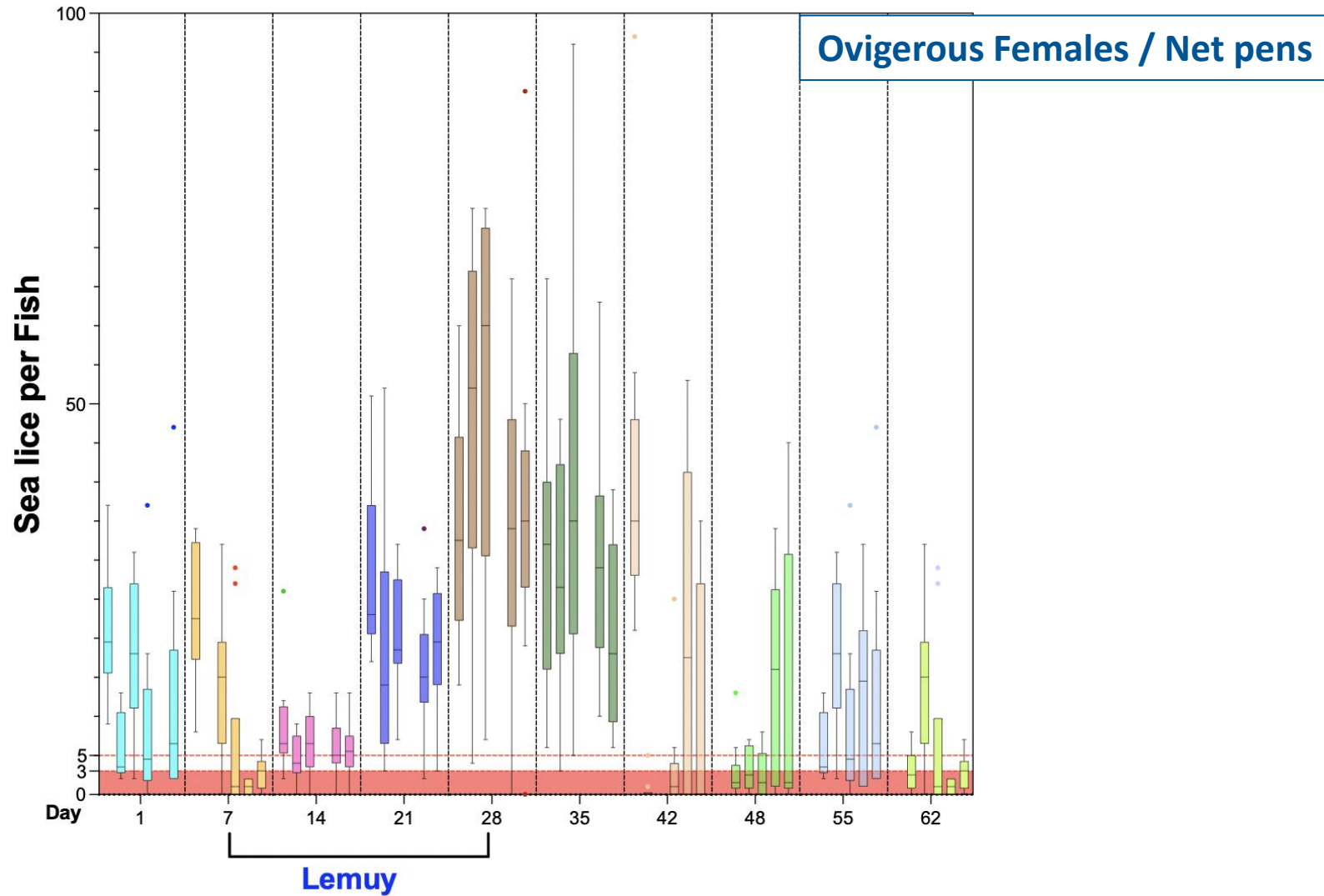
Field trail 1



Field trial 2

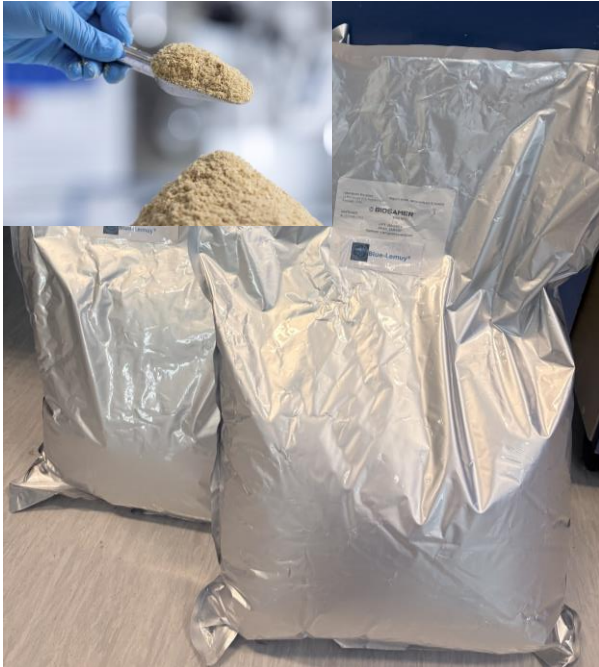


Females Cages Tukey-Nested





Logistics for Lemuy®



Lemuy[®]

Delivery to the
feed
manufacturer.
(Cargill,
Salmonfood,
Biomar)

Lemuy[®] with oil
inclusion

Probiotic
evaluation
(CFU/grs)
(BlueSymbiotics)

Technical support (laboratory analysis)



- Strengthen the fish's immune response and skin/mucus barrier.
- Significant reduction of sea lice burden (Lice-affected juveniles).
- Increase the rate of growth.
- Customizable usage.
- Preventive strategy.
- Solution for farms exposed to high energy.



Blue
Symbiotics



“Through prevention, your fish are in control.”

Thank You

www.bluesymbiotics.com

info@bluesymbiotics.com