KUNNSKAPSBASERT HAVHELSE

The yersiniosis epidemic in mid-Norway, do RAS play a role?

Thomas Amlie Nordic RAS workshop 19.11.2018

KUNNSKAPSBASERT HAVHELSE

ÅKERBLÅ

The core area for recent outbreaks at sea

KUNNSKAPSBASERT HAVHELSE

ÅKERBLÅ

Our experience with yersiniosis

Traditionally associated with certain hatcheries with persistent infection.

Both RAS and flow-through systems.

Hatcheries typically have their «own» *Yersinia*-variant (but similar/"clone").

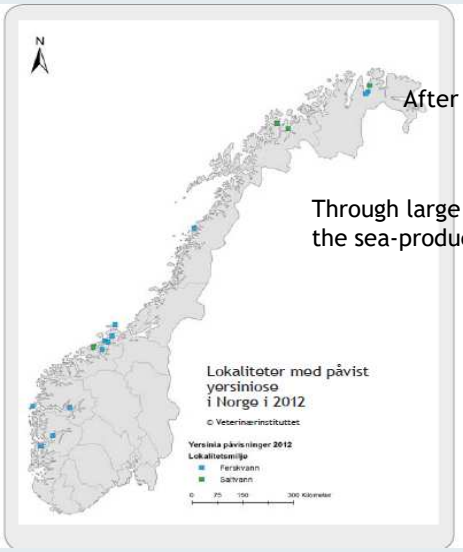
Minor clinical outbreaks in seawater short time after sea transfer.

Now also affecting large salmon during the sea-production in mid-Norway.

Outbreaks are closely associated with stress/handling of the fish.

Disease occurs also in farms without any known link to infected hatcheries.

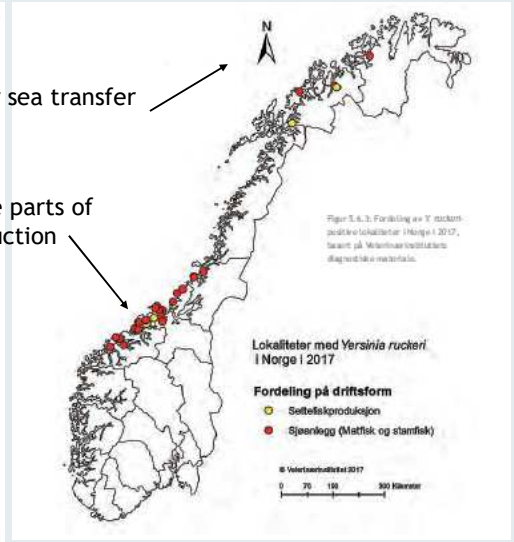
KUNNSKAPSBASERT HAVHELSE



Fiskehelserapporten 2012 (VI)

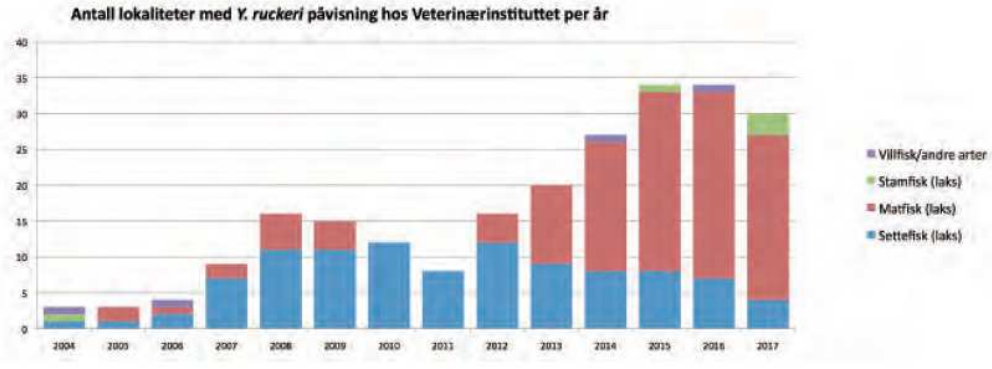
After sea transfer

Through large parts of the sea-production



Fiskehelserapporten 2017 (VI)

KUNNSKAPSBASERT HAVHELSE



Figur 5.6.2: Fordeling av *Y. ruckeri* påvist ved Veterinærinstituttet i senere år. Gjentatte påvisninger fra samme lokalitet innenfor samme år er kun telt med en gang.

Fiskehelserapporten 2017 (VI)

KUNNSKAPSBASERT HAVHELSE

In sea

- In recent years it has been an increase of handling of the fish (IMM, non-medicamental treatment against salmon lice)

-> More stress leads to vulnerable fish, subclinical infection becomes clinical.

- Typical scenario: Delousing -> some mortality associated with the handling -> outbreak of yersiniosis (approx. 2 weeks after) -> normalization (approx. 2 weeks after).

- Routes of transmission not completely understood: Subclinical infection, spread by vessels, water.

- The affected fish are often from hatcheries where *Yersinia ruckeri* have been detected in the past but that is not always the case and indicates other routes of transmission.

KUNNSKAPSBASERT HAVHELSE

On land

- In recent years it has been asserted that most of the incidences of yersiniosis has been in RAS.

- *Yersinia ruckeri* thrives in water rich in organic materials. In such way RAS are naturally vulnerable (if the bacteria gets inside).

- In mid-Norway incidences occur in both flow-through and RAS. In our experience the latter does not dominate and the yersiniosis epidemic in sea seems to be due to the hatcheries in general.

In hatcheries “House strains” of *Yersinia ruckeri* is thought to be the most important reservoir. Water itself can also represent a source.

KUNNSKAPSBASERT HAVHELSE

Prevention-strategies in mid-Norway

- Removing the bacteria
  - Several examples show that it is hard to eliminate the infection from both RAS and flow-through hatcheries.
  - Also huge RAS-hatcheries has succeeded in eliminating the bacteria.
- Vaccination
  - All smolts in mid-Norway are now vaccinated against yersiniosis before they are transferred to sea (off-label injection).
  - Appears to give a huge reduction of the disease challenges in the sea.

ÅKERBLÅ

KUNNSKAPSBASERT HAVHELSE