



**TRINATION**

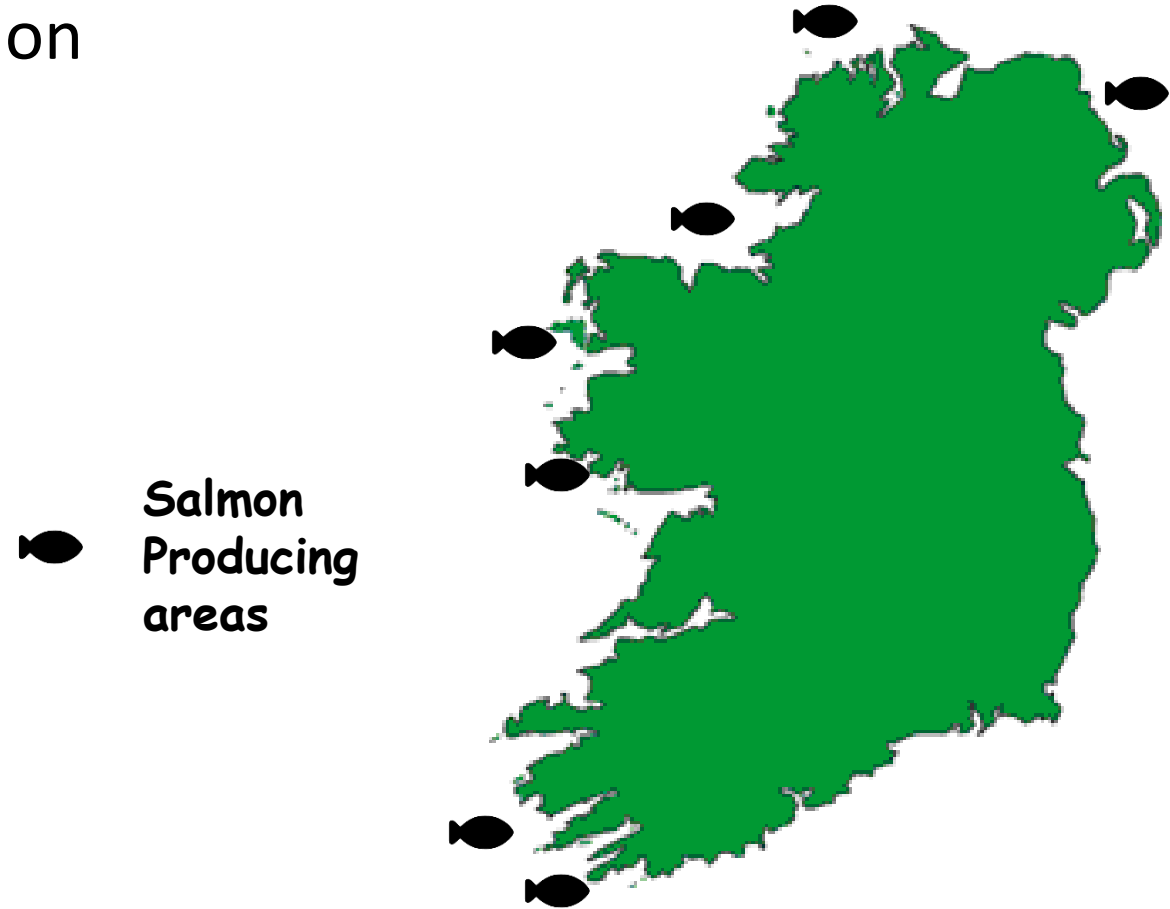
# Irish Update Belfast 2026

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**STIM** 

# Atlantic salmon in Ireland – 2024 / 2025 generation

- Small organic industry
- Number of fish to sea usually 5 – 6 million
- 12 inputs of smolts, S0s, S1s
- 19 sites in use in 2024 /2025
- Main health challenges:
  - **Piscirickettsiosis**
  - Gills (AGD, jellyfish, algal blooms)
  - **Tenacibaculosis**
  - **Salmonid alpha virus infection**
  - **Cardiomyopathy syndrome**



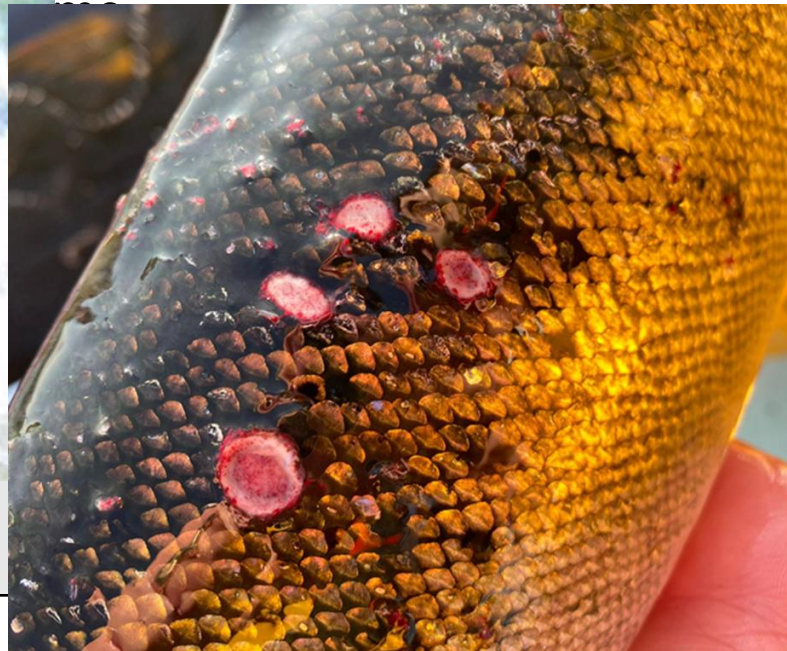


# SAV in 2024 / 2025 generation

- 9 / 12 were confirmed SAV positive
- 7 of these sites were vaccinated, 5 with ClyNav, 2 with other vaccines
- SAV mortality – one site moderate two had high impact from SAV

poor growth in some sites – always difficult to

ent diseases – in



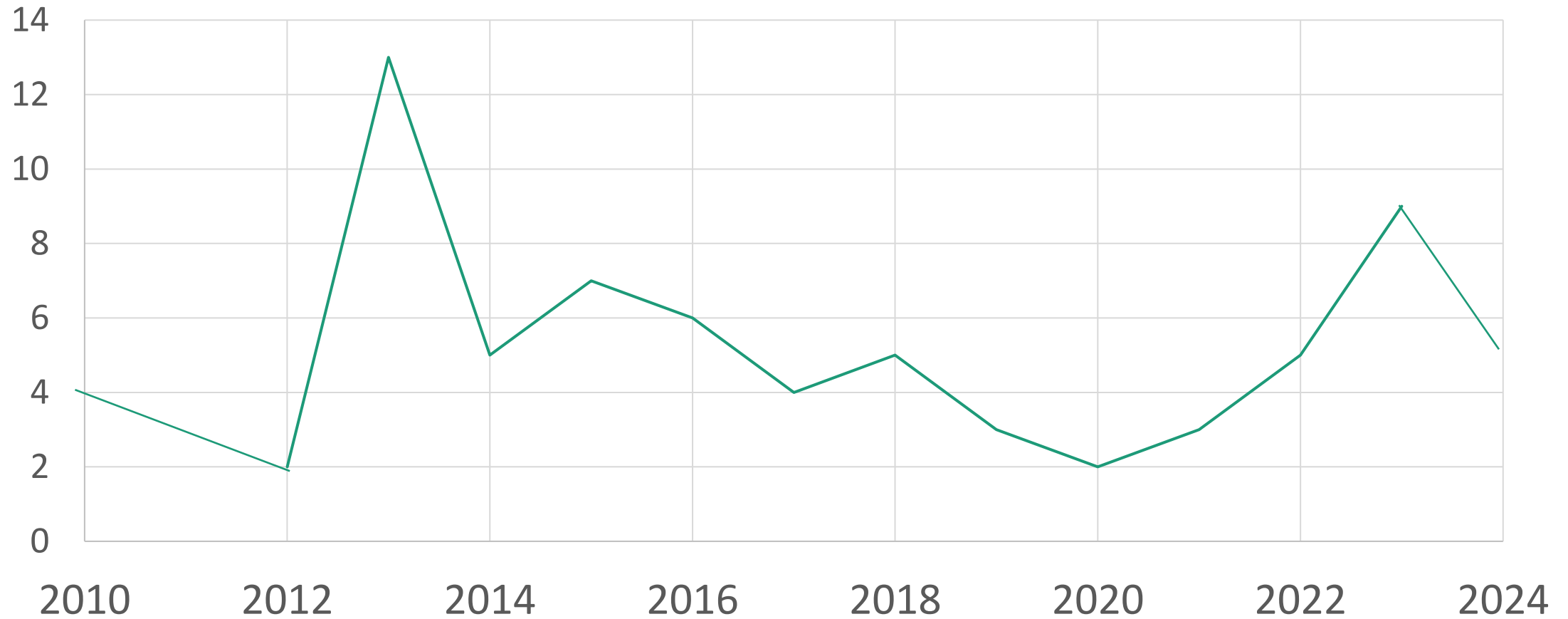


# SAV Vaccination

- 9 / 12 smolt inputs vaccinated against SAV
- Three different SAV vaccines used
- Recombinant DNA vaccine appeared to perform the best
- Confounding factors..

| PD impact vaccinated fish           | PD impact unvaccinated fish |
|-------------------------------------|-----------------------------|
| Low – 5<br>Moderate - 0<br>High – 2 | Low - 1<br>Moderate – 1     |
| No SAV – 2 sites                    | No SAV – 1 site             |

# Recent average % mortality to SAV in Ireland





# Sampling strategies used to assess SAV in Ireland

## Widespread use of blood sampling for virus neutralisation and serology

- Many sites use blood sampling for both for initial detection and also to track progress of infection through the site
- Can also use CPK levels to assess muscle pathology in sub clinical infections

## Histology

- Initial confirmation and assessment of severity of impact over infective period

## RT –PCR

- Used occasionally, lethal sampling – what does it even tell you?



# SAV serological testing in Ireland

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- SAV VN + VI serology test (Graham et al 2003) - used by the Irish Aquaculture Industry for over 20 years
- Non-lethal testing and get a lot of information from one sample
- Relatively cheap and rapid test (3 days)
- Uses small volumes of serum (only 9µl of serum required)
- Easily read (immunostaining)
- Microtitre plate assay – allows for high throughput testing
- Ability to detect virus neutralizing antibodies or actively replicating virus in serum samples
- Viraemia detectable for 10 – 14 days post infection
- High titres of virus often present in serum
- VN antibodies produced 2 – 3 weeks post exposure (can be detectable for >12 months in some cases)
- Ideal test for routine surveillance of sites and epidemiological investigations
- 10 sera. 95% certain to detect  $\geq 1$  positive if 25% seropositive

# Serology / VN snapshot

- 17 sites sampled in total 2024 and 2025, including one research site
- 65 sampling points
- 19 points (9 sites) were Antibody positive, ranging from 7% (1/20) fish testing positive to 78% (21/27)
- 3 sampling points / sites tested positive for virus range 4% to 36% fish testing positive

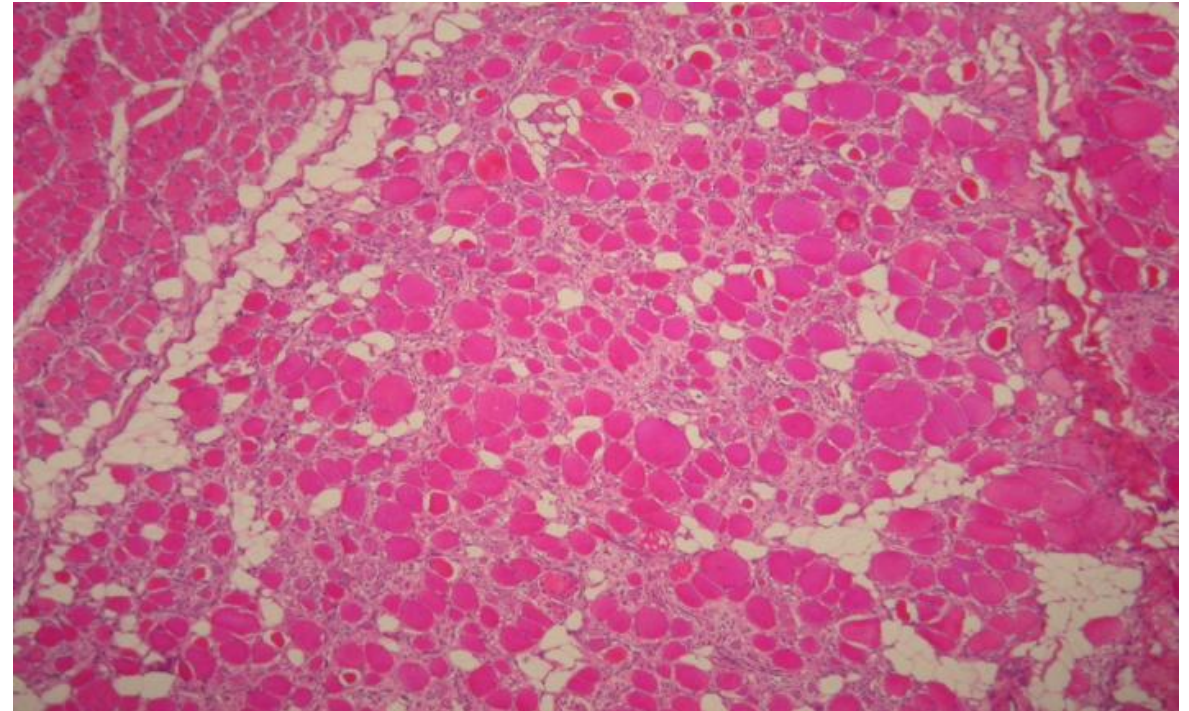
# How does vaccination or vaccine type impact serology VN results?

- Some indications that a lower percentage of fish with ClyNav test positive for antibodies compared to fish with conventional SAV vaccines
- Antibody response may not persist as long in recombinant DNA vaccine sites
- Still detect virus positive fish if sample at the right time regardless of vaccine status or type of vaccine



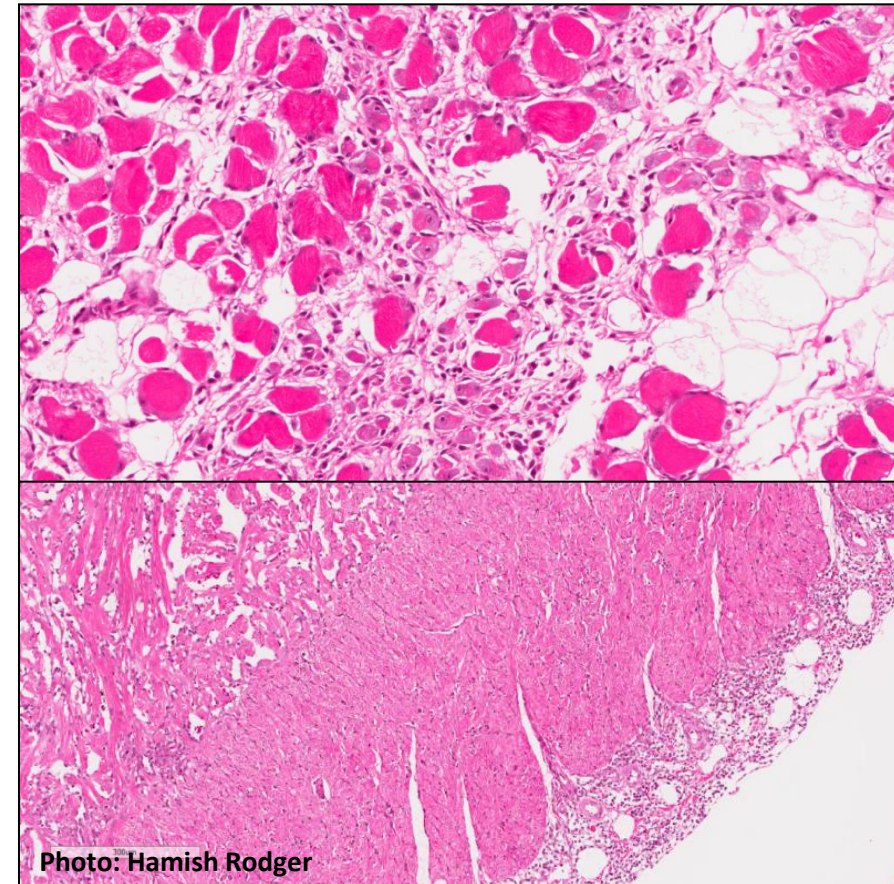
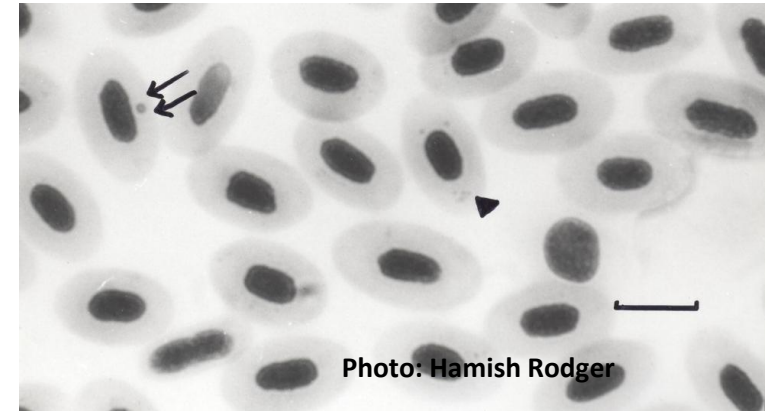
# Clinical presentation of SAV in 2024/2025

- Less muscle pathology
- Less dramatic cardiac pathology observed
- Pancreatic pathology similar – mostly loss of active acinar and some peri-pancreatic infiltration
- Vaccination likely reducing impacts



# PRV in Ireland & HSMI

- Piscine reovirus very widespread in Ireland – up to 80% prevalence on marine sites
- Generally PRV viral load is low
- Non-specific mild heart pathology in fish with PRV is a frequent finding – coincidental or cause?
- Still only one convincing outbreak of clinical HSMI identified in Ireland (2015)
- Mortality was low on affected site (<2%)



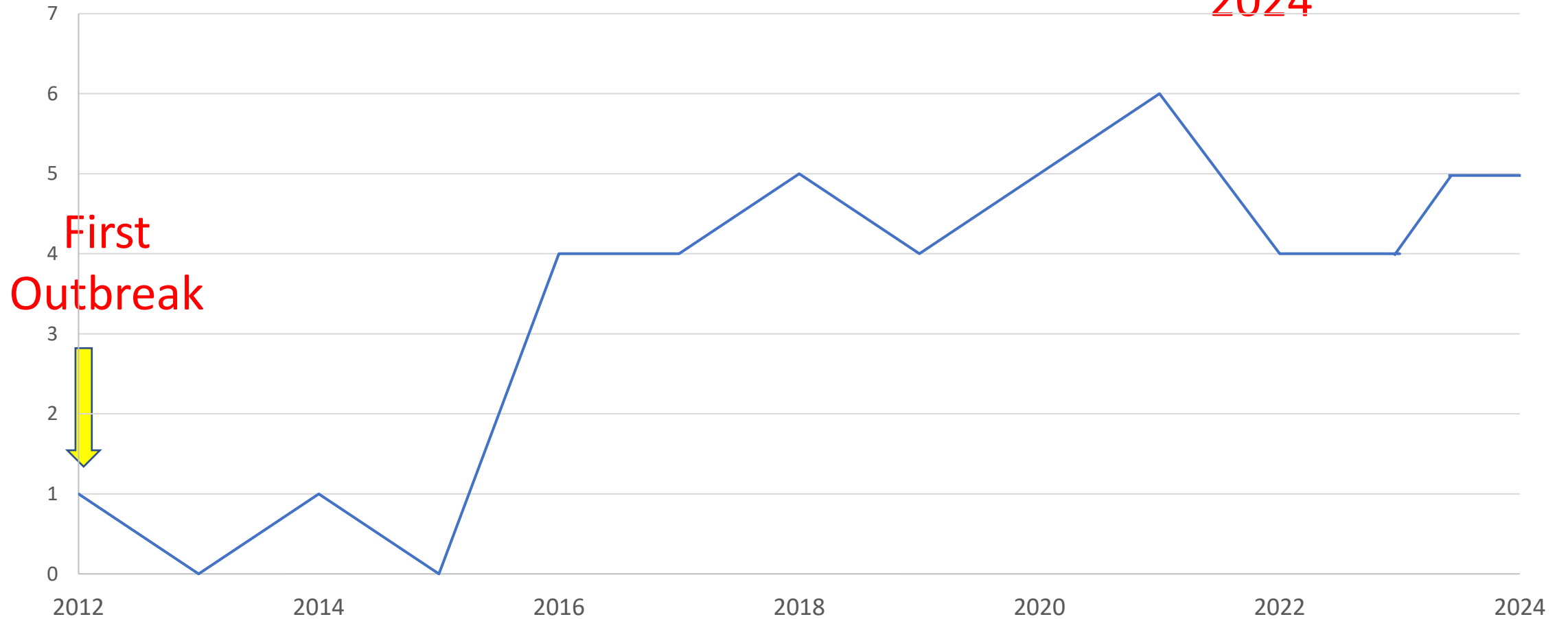
# PMCV in 2024/2025 generation

- 6/12 inputs were confirmed PMCV positive
- Positive sites – usually only a proportion of pens affected clinically
- Why do only some pens develop severe clinical CMS and others not?
- Clinical signs and histopathology seem to be correlated with viral load – high load → clinical CMS
- Mortalities may taper off but then recur with any stress



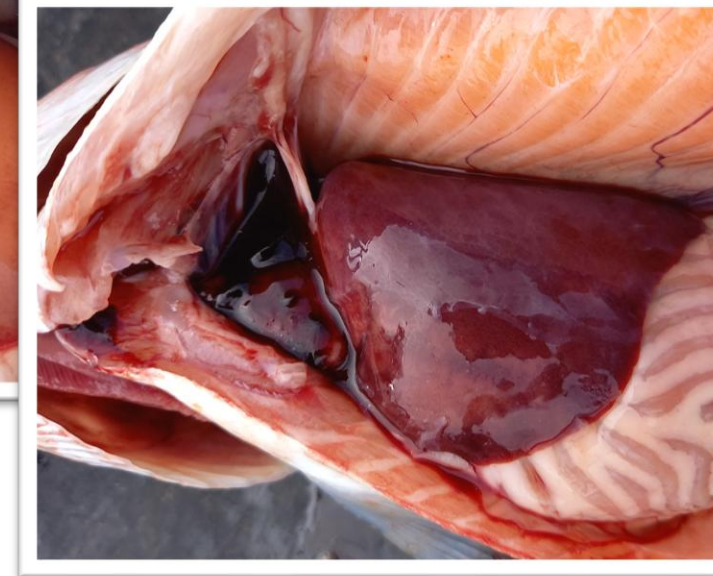
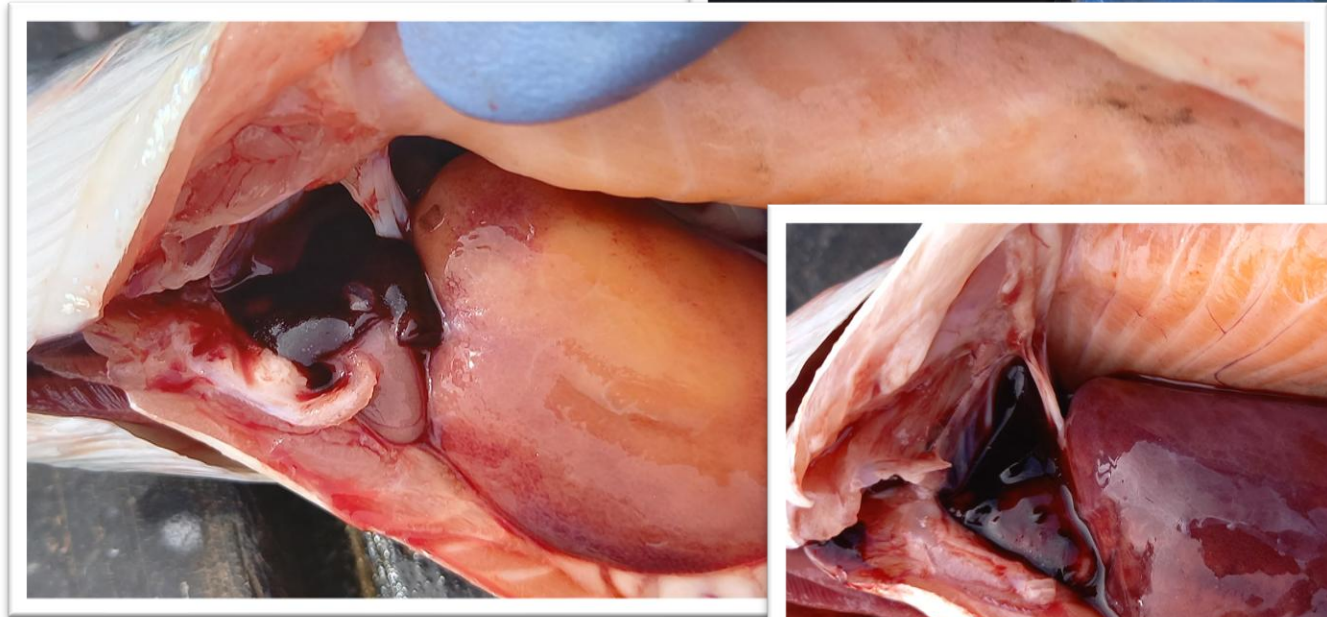
# CMS Outbreaks in Ireland since 2012

50% of sites  
affected in  
2024



# Clinical presentation - Ireland

- Initially CMS affected harvest size fish only
- 2016 onwards – fish from 4 months post transfer
- More mature fish affected again in 2024 / 2025



# Management of CMS

## CMS on site:

- 1. Regular monitoring of viral loads
- 2. Quantifying severity of clinically affected fish
- 3. Mortality attributable to CMS - expedited early harvest:
  - Passive grade to remove larger and likely more severely clinically affected fish
  - Harvest out severely affected pens

## Selective breeding of resistance to CMS

- Seeing a significant decrease in clinical effects and mortality in infected fish



# CMS – wish list

- Better understanding of the epidemiology of disease
  - How can we minimise the clinical impact during an outbreak?
  - What is the true risk posed by vertical transmission?
- A vaccine
- More robust fish in general - will selective breeding for CMS affect resistance to other diseases?
- Many emerging disease challenges despite “improvements” in husbandry / production / welfare etc.



**Questions?**



Thanks to the following companies:

Mowi Ireland

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