

TRINATION

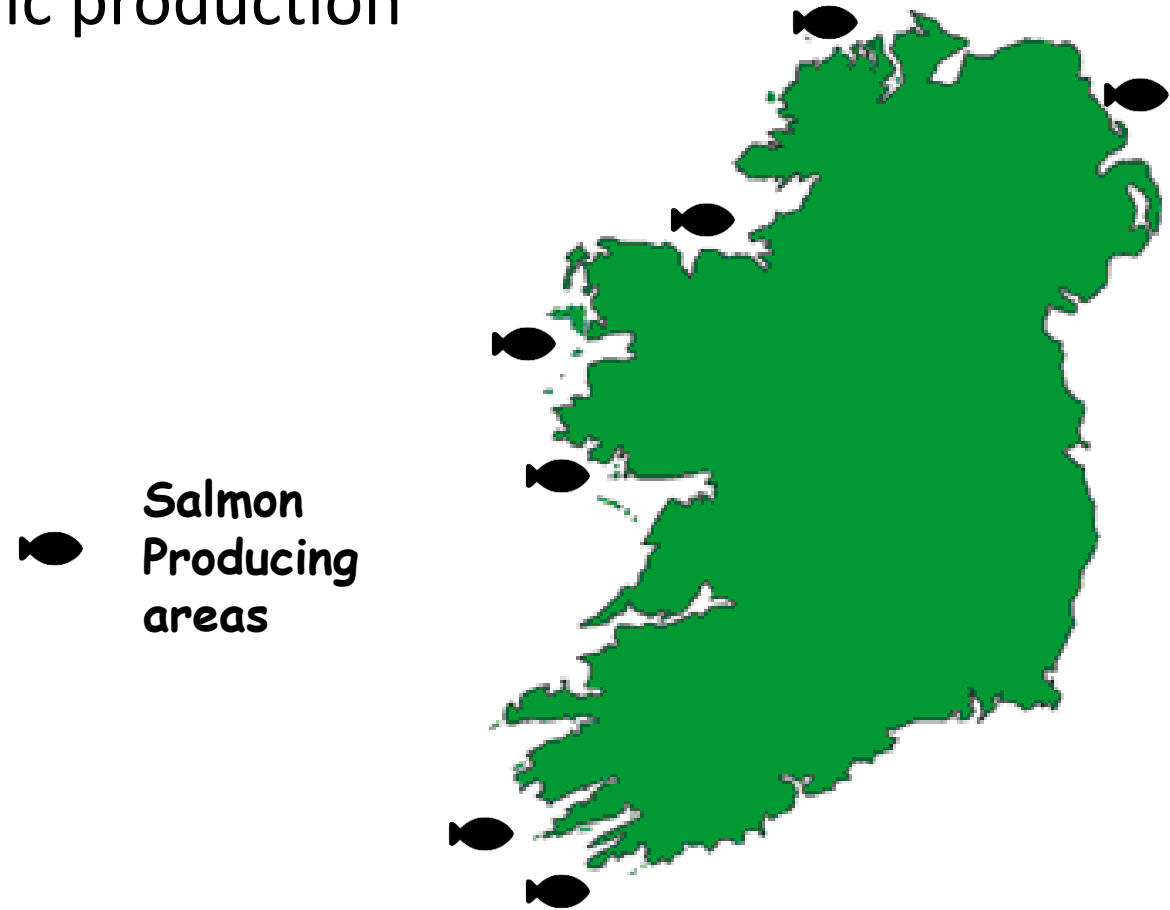
Viral myopathies in Ireland Update 2022

Dr. Susie Mitchell



Atlantic salmon – 2021 generation

- Small industry in Ireland – entirely organic production
- 13 sites in operation in 2021
- 7 S0 and 6 S1 inputs of smolts
- Number of fish to sea: 5.6 million
- Main health challenges:
- Gills (AGD, jellyfish, algal blooms)
- Piscirickettsiosis
- **Cardiomyopathy syndrome**
- **Salmonid alpha virus infection**





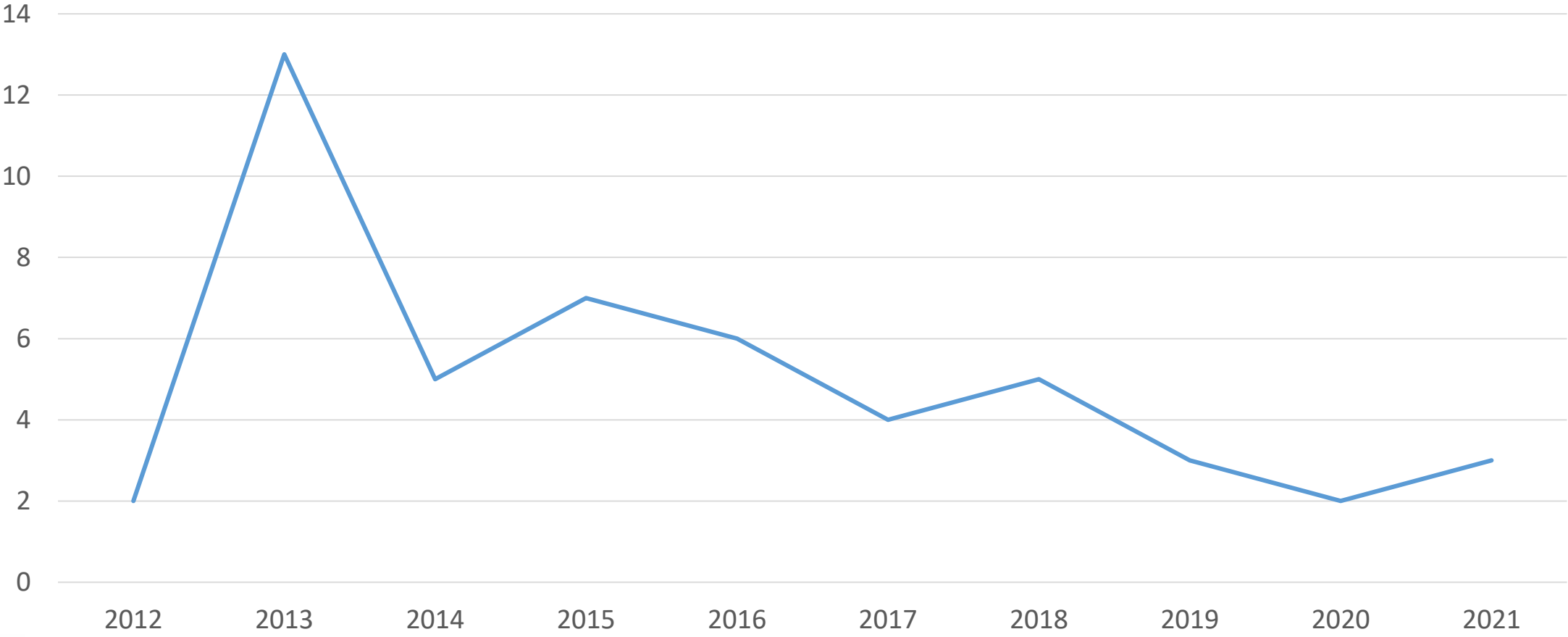
SAV in 2021 generation

- 8/13 sites in 2021 Generation were confirmed SAV positive
- Ireland main subtype is still SAV 1 (SAV 4 on northeast coast)
- Many concurrent significant diseases – gills, piscirickettsiosis

Year Class	SAV detected	Clinical Impact
2020 S0	6/7 sites	Low – 3 sites Moderate – 3 High – 0
2021 S1	2/6 sites	Low – 1 Moderate – 1 High – 0

Mortality class:
Low: <2%
Moderate: 2 – 6 %
High 7-10%

Average % mortality to SAV in Ireland – 10 years





Vaccination against PD

- 9 / 13 sites vaccinated
- Four different vaccines used

Vaccine reduced mortality and poor performance

Year Class	Vaccinated sites	SAV positive sites	PD impact vaccinated fish	PD impact unvaccinated fish
2020 S0	4/7	6/7	Low – 2 Moderate – 2	No SAV - 1 Moderate – 2
2021 S1	5/6	2/6	Low – 1 Moderate -1	No SAV - 1



Sampling strategies used to assess SAV in Ireland

Virus neutralisation and serology

- All sites use both for initial detection and also to track progress of infection through different pens on site

Histology

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

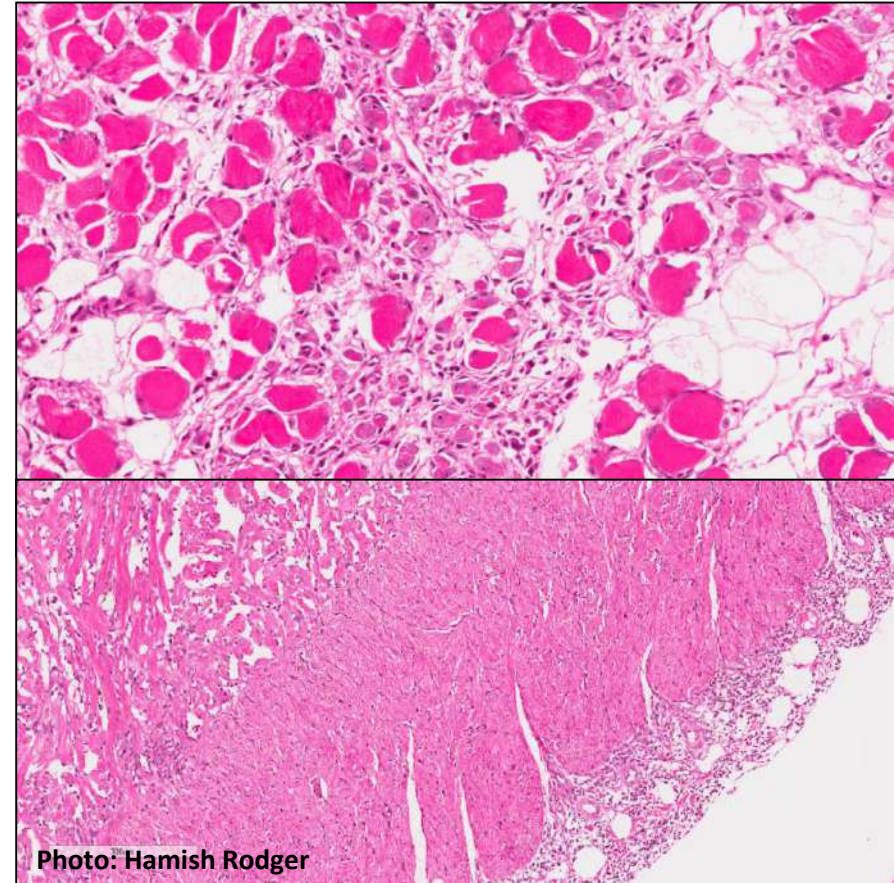
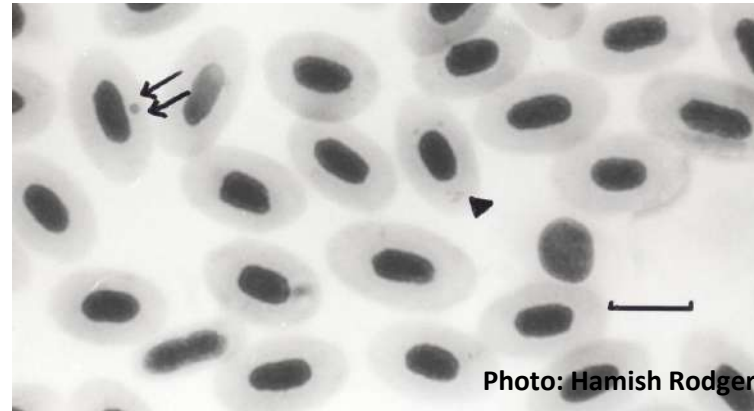
CPK Levels

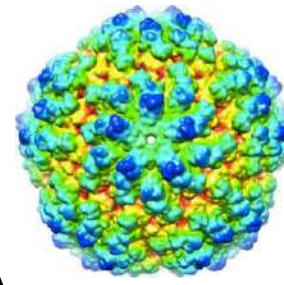
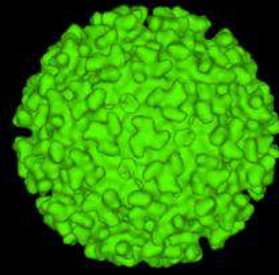
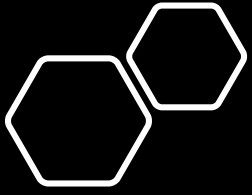
- Track sub-clinical impacts and assessment of muscle damage prior to handling events



PRV in Ireland & HSMI

- PRV widespread in Ireland
- Generally PRV viral load low
- Still only one outbreak of HSMI to date in 2015
- Mortality was low on affected site (<2%)
- Have seen heart pathology in same site since but no muscle pathology





zoetis

TRINATION

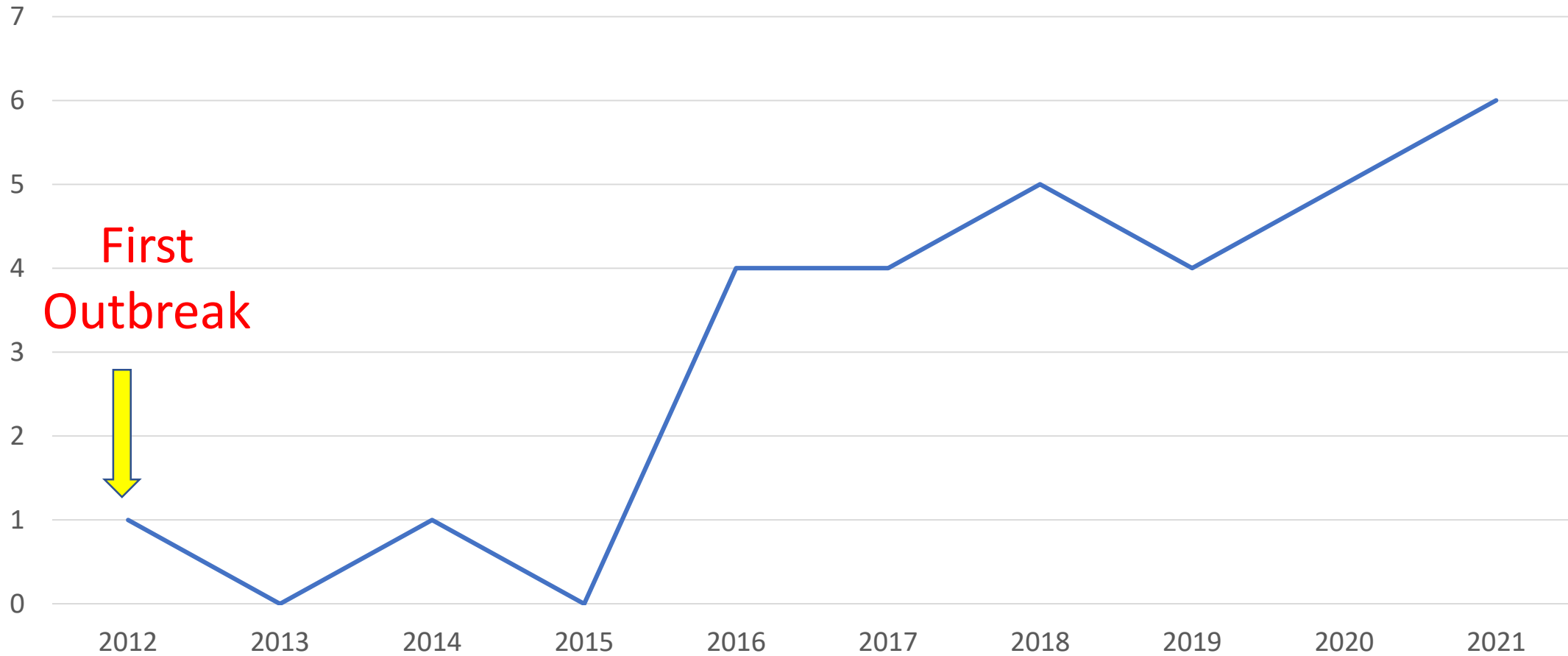
CMS in Ireland Update 2022

Dr. Susie Mitchell



CMS outbreaks since 2012

45% of sites affected!





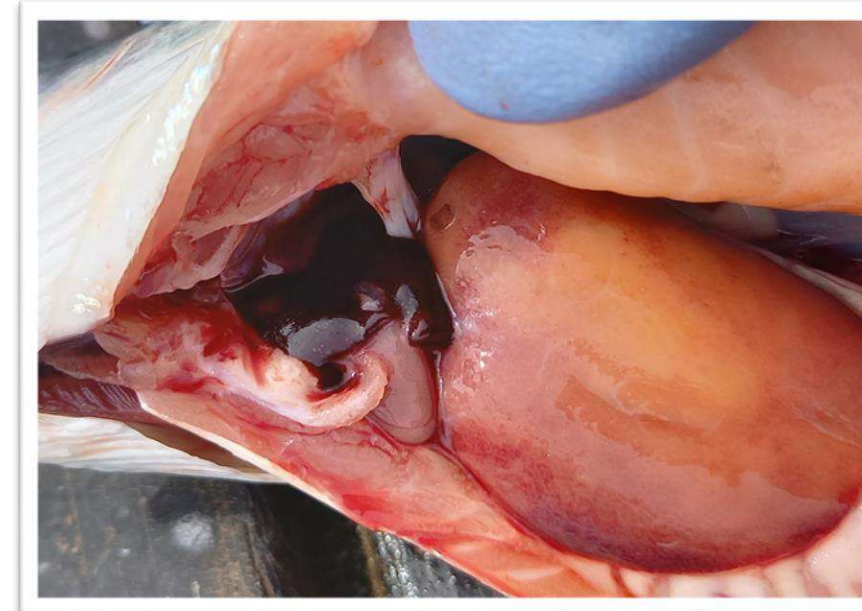
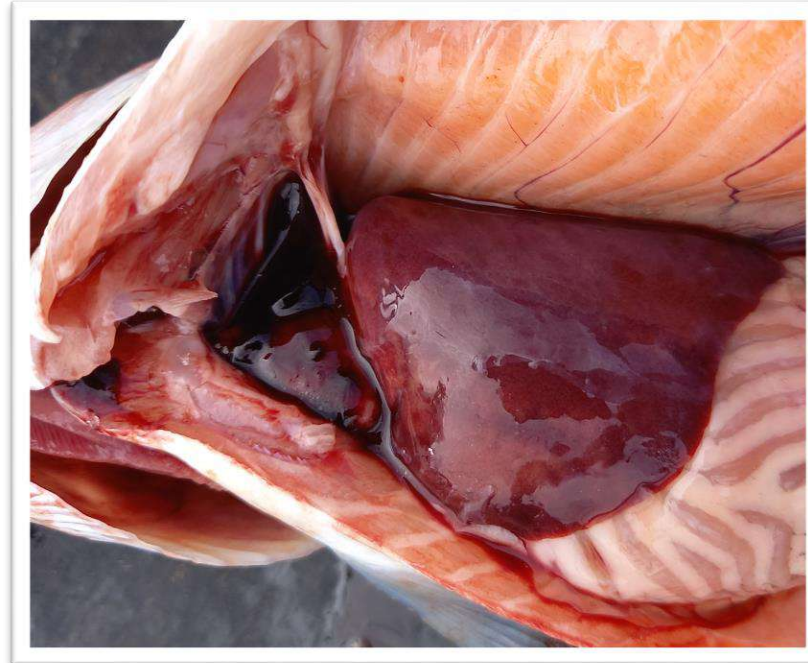
CMS in 2021 generation

- 6/13 sites in 2021 generation were confirmed with clinical CMS
- Concurrent significant diseases – gills, piscirickettsiosis
- Age cohorts affected from 4 months -> harvest

Year Class	SAV detected	Percentage mortality
2020 S0	3/7 sites	7% (4- 9%)
2021 S1	3/6 sites	15% (10-22%)

Clinical presentation

- CMS affects all age cohorts 4 months post transfer -> harvest sized fish
- Younger fish often have more acute presentation
- Only sign may be ruptured atrium and fibrin on liver



CMS in Ireland - Epidemiology

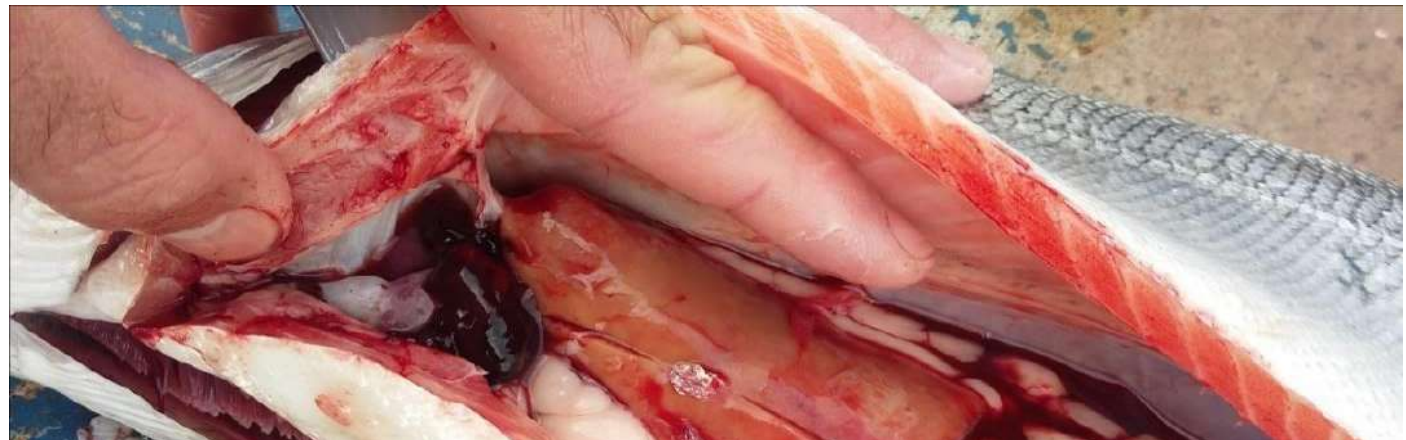
- PMCV detected in most pens on affected sites BUT
- Only certain pens develop clinical CMS – WHY?
- Clinical signs and histopathology seem to be correlated with viral load
- Mortalities may taper off but then recur with any stress
- Mortalities tend to be ongoing until harvest with no real evidence of any recovery
- Virus usually remains on site for duration and levels can fluctuate



What we need in the future:



- When PMCV is detected on a site, could we find a way to prevent or slow development of clinical disease and minimise the impact?
- More information on the epidemiology of disease and risk posed by vertical transmission
- Breeding programmes to focus on selection for general robustness and disease resistance
- A vaccine



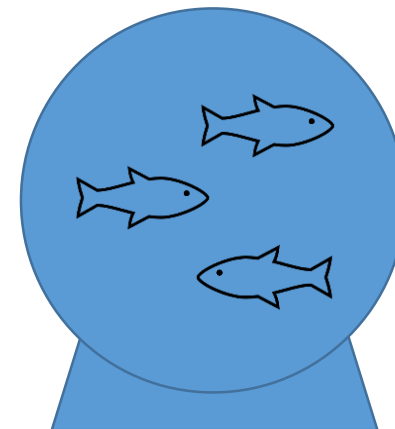
2022 Generation – what lies ahead?

SAV

- Increased severity of SAV on some vaccinated sites
- Higher than previous numbers of fish showing moderate muscle pathology
- Increased numbers of poor condition fish with chronic PD

CMS

- Very few sites currently positive and low impact so far..



Questions?



Thanks to the following companies:

Mowi Ireland

Bradan Beo

Mannin Bay Salmon Company

Curraun Blue

Ocean Farm Ltd.

Glenarm Organic Salmon Ltd.

