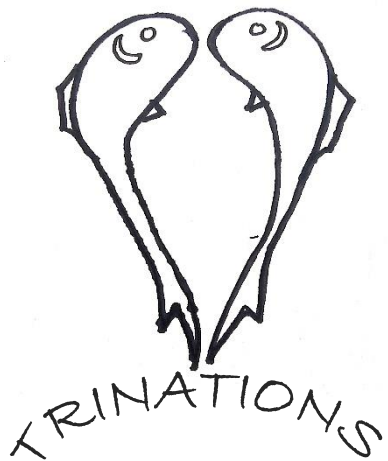




# Viral myopathies in Ireland Update 2019



Dr. Susie Mitchell  
Fish Vet Group Ireland



# Atlantic salmon - 2017 generation

- Small industry in Ireland – mostly organic
- 9 marine sites in operation with 2016 S0 and 2017 S1
- 5 million fish to sea
- Main health challenges:
  - Gills (AGD, Jellyfish, algal blooms)
  - CMS
  - Winter ulcer disease
  - PD





# SAV in 2017

- 9/9 sites positive for SAV
- Subtype SAV 1 most sites
- Subtype SAV 4 on east coast
- Concurrent significant diseases – gill disease and CMS
- Mortality range 2% - 10%, average 4%

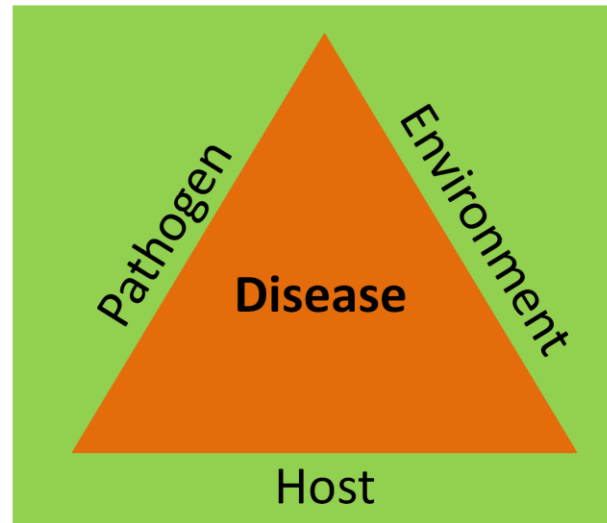
Year	Average mortality
2012	2%
2013	13%
2014	5%
2015	7%
2016	6%
2017	4%

# What causes the year on year variation in mortality?



- Most likely multifactorial

Virus subtype  
Strain variation  
Unknown virulence  
factors



Temperature  
No. of fish on site  
Water quality

Strain of fish  
Immune status of fish  
Con-current infections



# Use of PD vaccine in 2017 generation

- 5/9 sites vaccinated fish (53% total fish to sea)

	Vaccinated sites	Unvaccinated sites
Mortality attributed to PD	2%	6%



# Use of PD vaccine in Ireland – last 6 years

Year	% of fish vaccinated	Total mortality
2012	55%	2%
2013	78%	13%
2014	38%	5%
2015	15%	7%
2016	10%	6%
2017	53%	4%

- **Would be better to quantify loss in FCR growth etc.**

# Industry management strategies currently employed for PD



- Good quality smolts
- Stock to final density
- Optimal biosecurity
- Clean nets
- Low stress management
- Vaccination
- Regular screening for early detection





# Routine diagnostics used for SAV in Ireland

## Monthly screening

- Blood sampling - virology / serology
- Analysis of feeding behaviour / clinical signs
- Histology sampling where suspect cases

## PD diagnosis

- Clinical history & signs / gross pathology plus
- Two positive laboratory tests  
(histopathology, virus isolation/serology, PCR)

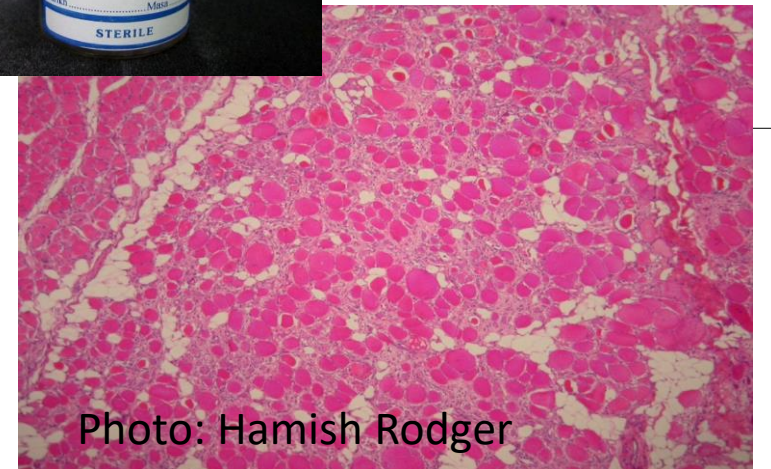


Photo: Hamish Rodger



# Use of RT PCR – is it an adequate screening tool?

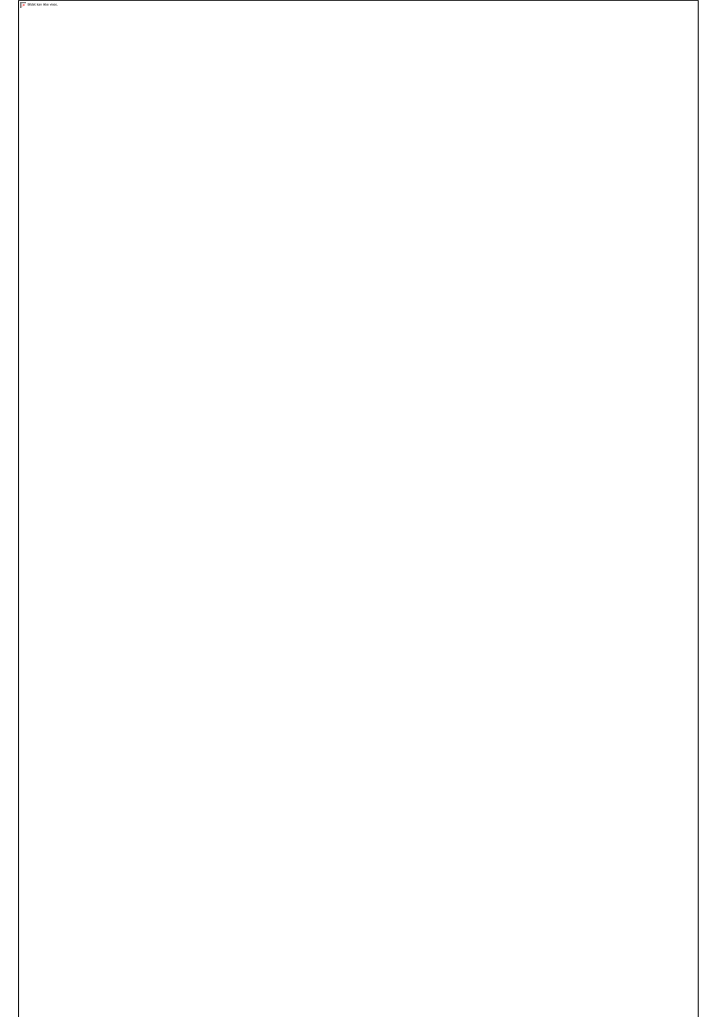


Recent case in Ireland - fish with chronic PD of 3 months duration:

All fish tested negative by RT PCR

BUT

1. All seropositive by blood sampling
2. Some had PD muscle damage on histology
3. Some had high significant CPK values





# Current industry challenges in Ireland

- Vaccination - some operators not convinced
- Is there negative / protective interactions between SAV and other infectious agents?
- Management strategies for AGD bath treatments to optimise PD outcomes (most sites require 3+ FW baths per cycle)
- Categorisation of mortalities when concurrent infections present

**"Unmarked"**



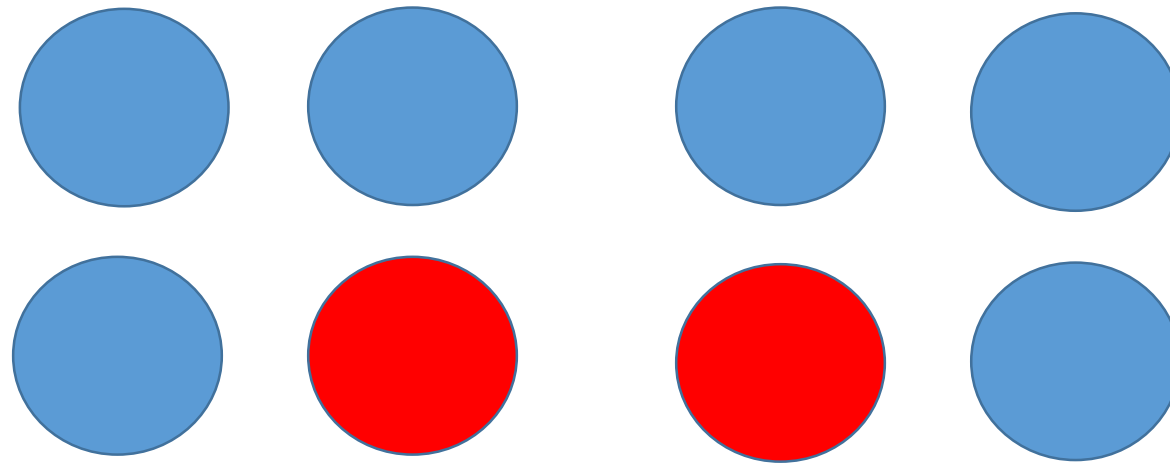
# Summary – PMCV in 2017 generation

- PMCV detected in 4/9 sites
- Clinical CMS in 3 of these sites
- Mortality range was 11 – 30% and average was 23%
- Concurrent significant diseases – gills and PD



# Why does the virus only affect certain pens?

- Example - Site with 11% mortality to CMS
- All pens were positive for PMCV
- 2 pens in middle of site developed clinical CMS but it never spread to other pens
- Clinical signs and mortality for 8 months



*CMS pens -  
weight at  
outbreak 1.4kg*

*Average on site  
1.9kg*

High CMS mortalities

# PRV in Ireland & HSMI



- PRV widespread in Ireland
- Generally PRV viral load low
- Only one outbreak to date in 2015
- Mortality was low on affected site (<2%)
- HSMI not seen since even though we regularly detect PRV

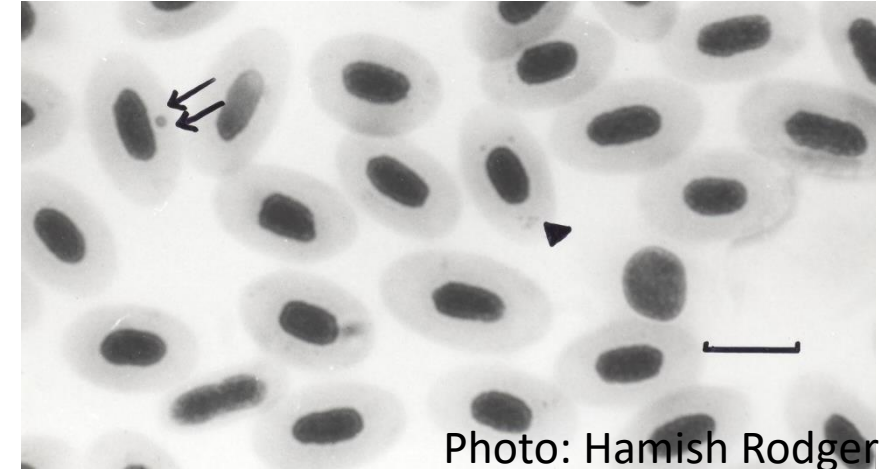
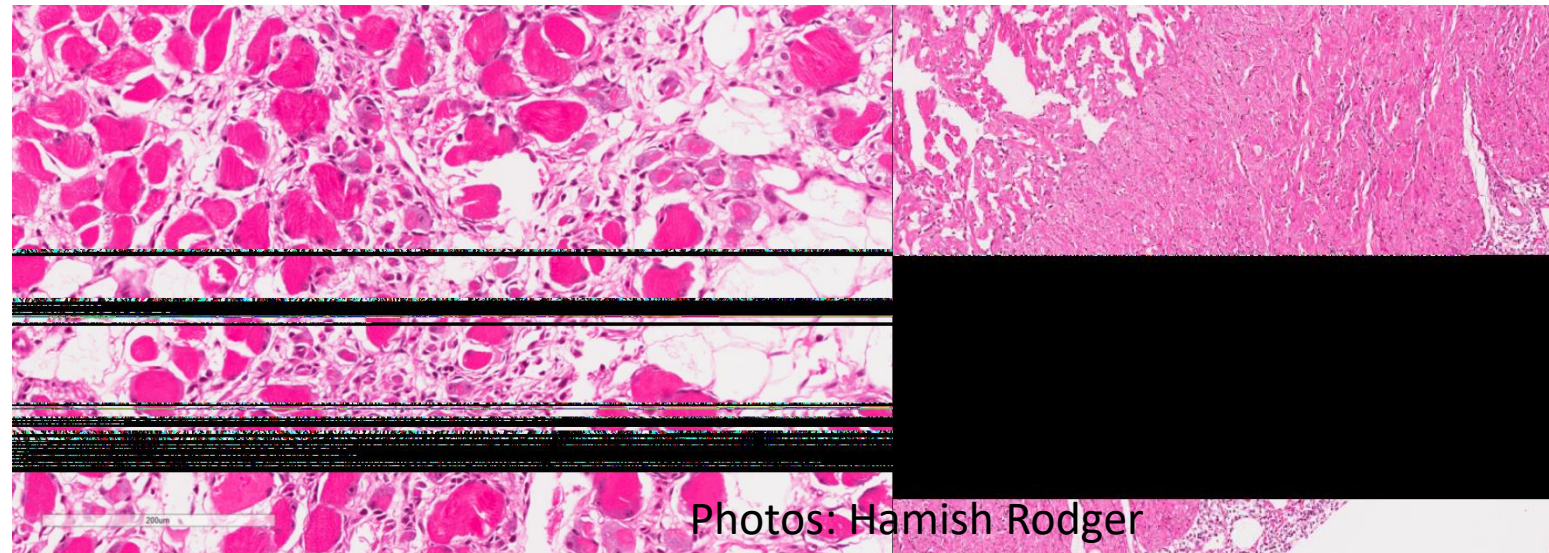


Photo: Hamish Rodger



Photos: Hamish Rodger



# Summary

- PD is endemic and still having an impact on many sites in Ireland
- Impact variable from year to year but in difficult to quantify due to concurrent and emerging diseases
- CMS had a significant impact on Industry in 2017



Photo: Hamish Rodger

# PD - The next generation

- PD has been having an early impact
- Two sites stocked in October got clinical PD 8 weeks post transfer
- These sites historically have never got PD until August nearly one year after input
- One vaccinated site has had very marked significant PD in large fish
- Interesting picture emerging
- Trinations 2020 😊

# Acknowledgements

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