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# CMS situation in Ireland and Results of PMCV Tracking/Transmission

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PD Trinations, Bergen | 14.3.2018 | Sandra Schlittenhardt – Fish Health Manager Marine Harvest Ireland

## CMS situation before 2016

› Only sporadic CMS on a few sites:

• Lough Swilly 

• Clew Bay 

› No great economic impact

› Not every year



# CMS situation in 2016

## › CMS outbreaks in:

- Lough Swilly (15S1) 

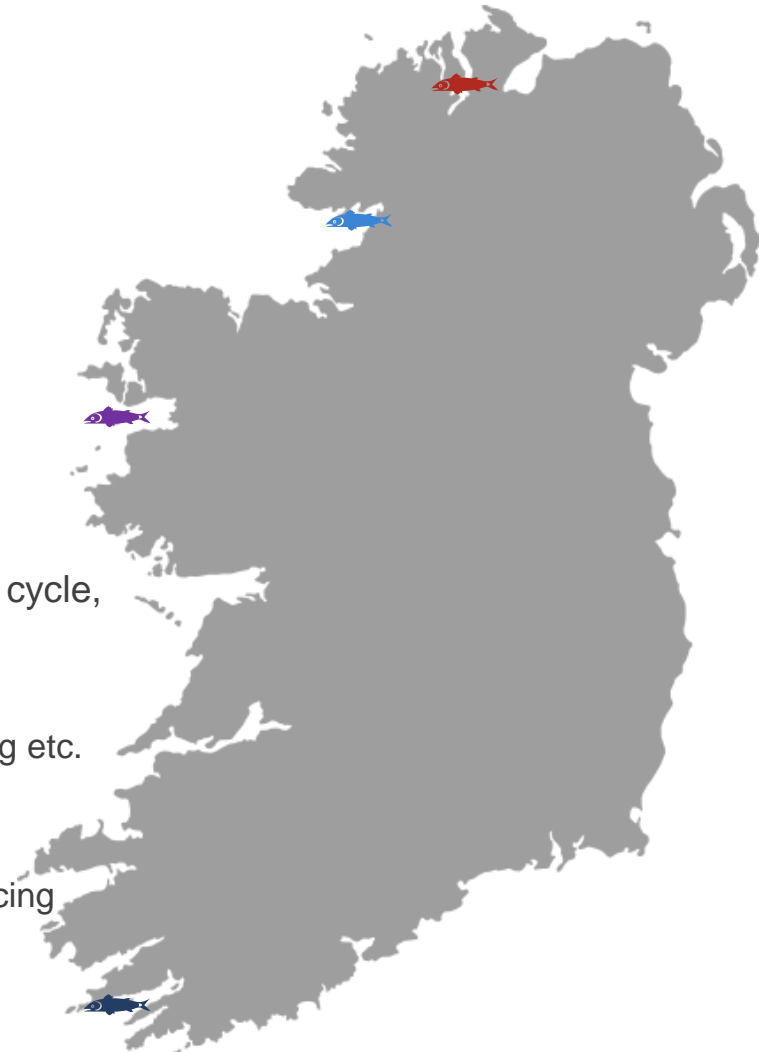
- Inver Bay (15S0) 

- Clew Bay (15S1) 

- Bantry Bay (15S0) 

› All grower fish towards the end of the production cycle, but very different outbreak profile on each site:

- Chronic, low mortalities in 2 pens in Inver Bay
- Spikes in mortalities after strong tides, fish handling etc. in Lough Swilly
- Background mortalities in Clew Bay
- High mortalities in Bantry Bay, first only in north facing pens, later in all pens



# 2017



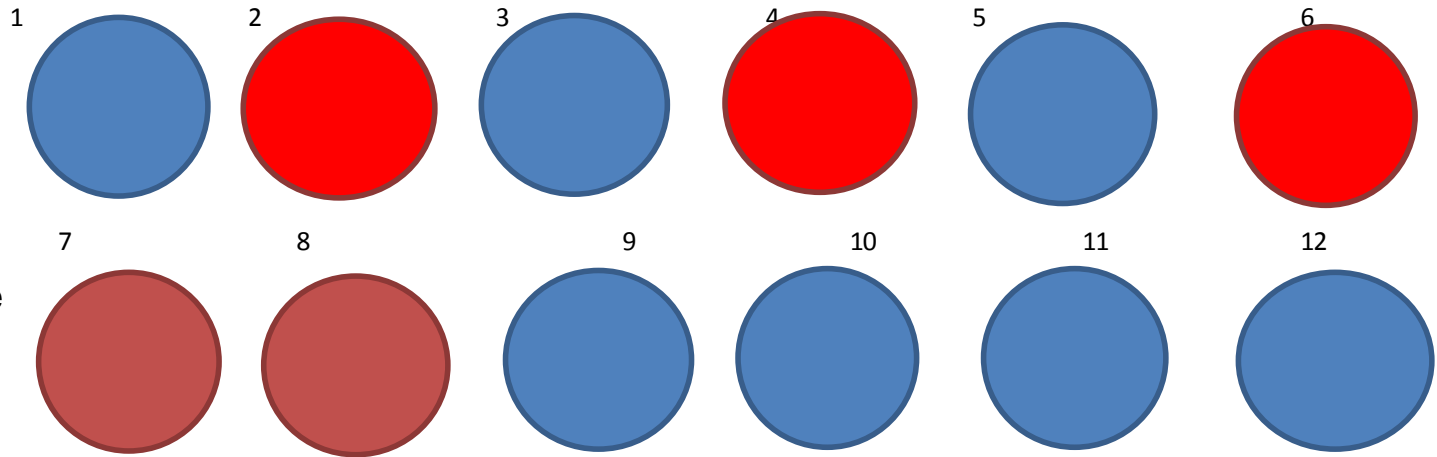
- › 2016 S0 fish in Bantry Bay 
  - Diagnosed with clinical CMS early February this year – 3 months after sea transfer!
  - Very close to 2015 S0 fish in same bay  that had clinical CMS outbreak at the same time
  - One batch of fish was screened in the hatchery before sea transfer – all fish negative.



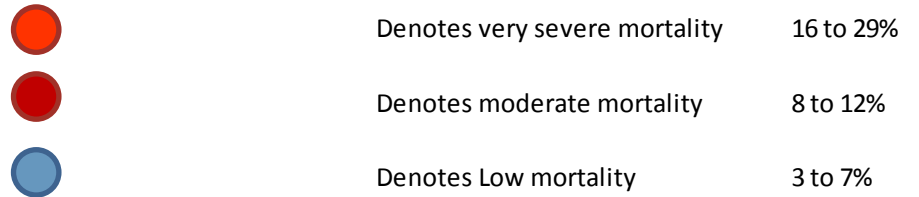
Photo: Abdon Ryan



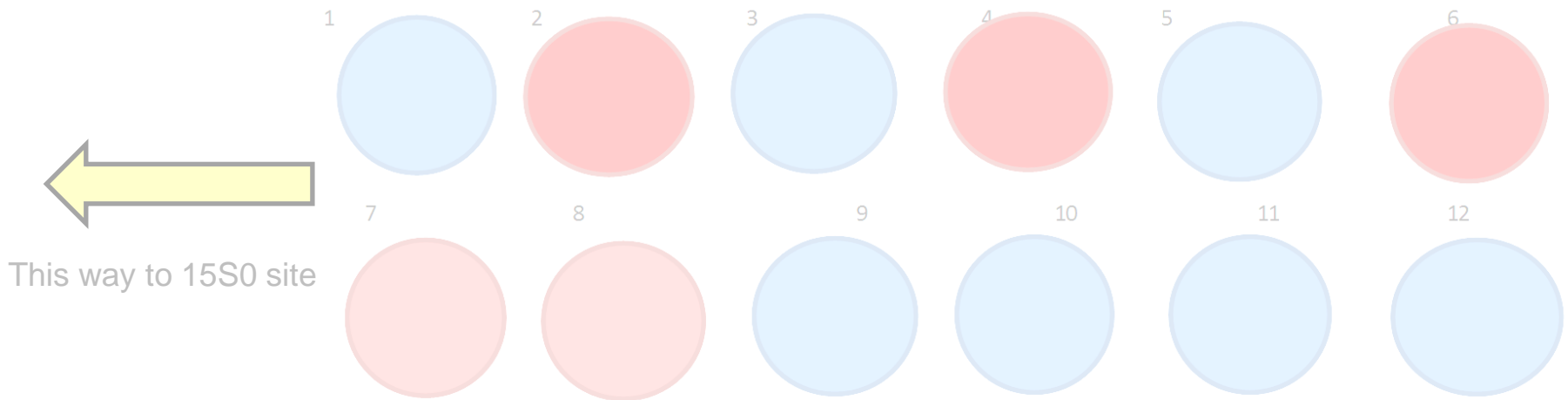
# 16S0's continued



This way to 15S0 site



## 16S0's continued

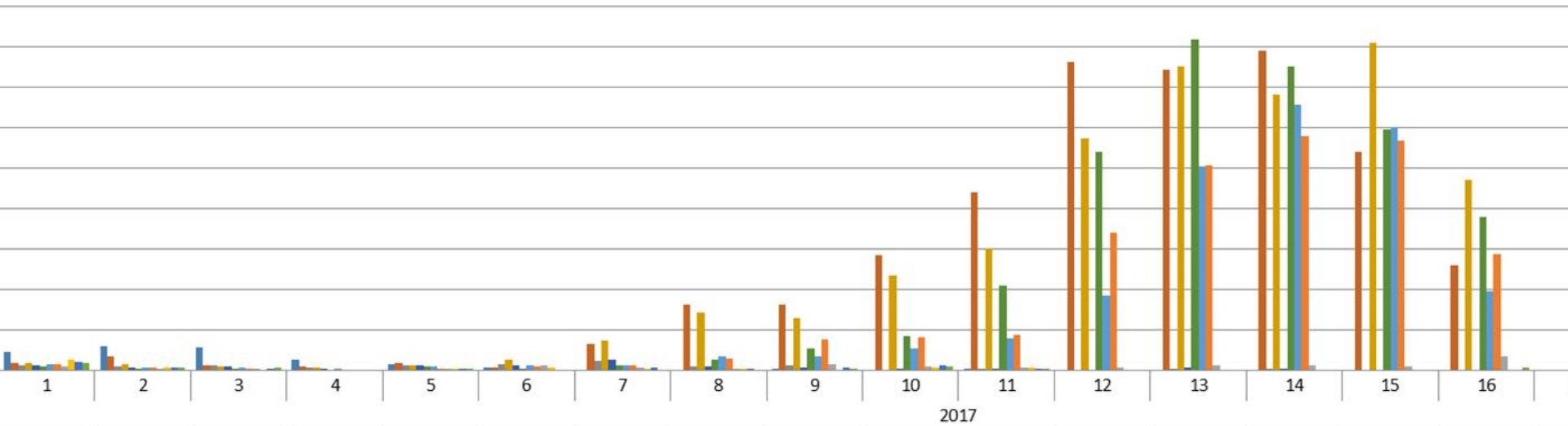


- Pens 1 – 9 originate from one hatchery, pens 10 – 12 from another
- Pens 2,4,6 were delivered on three separate dates by 2 different wellboats and in different wells. Pens 1 and 5 were delivered on the same dates.
- All smolts were similar average weights and from same blocks of tanks at the hatchery, produced from same batch of ova (1st batch).



# End of April 2017:

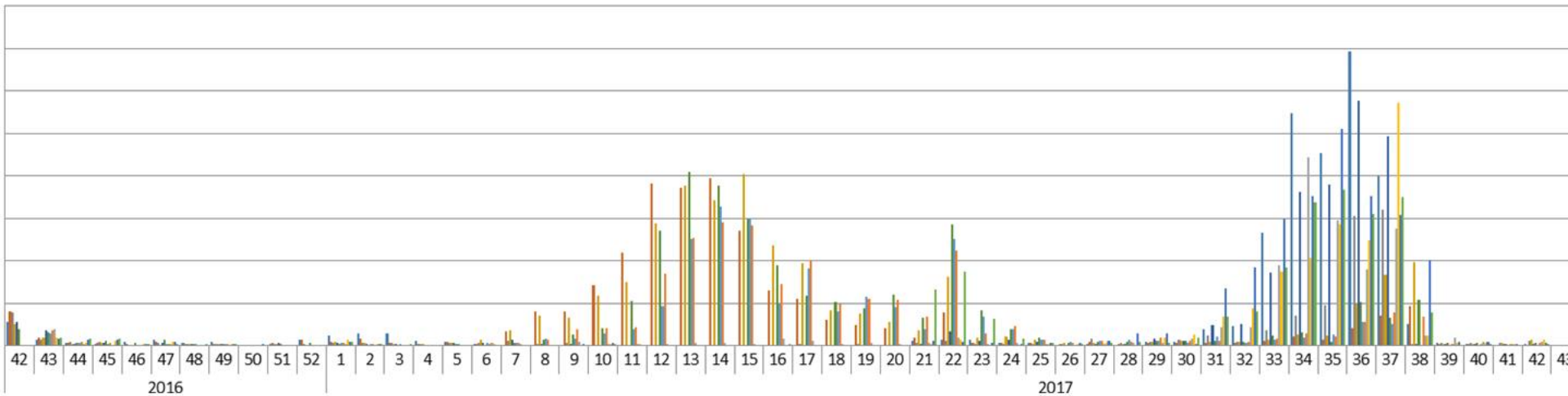
Total Morts per pen



After that, morts are finally decreasing. **BUT:**

# 16S0's in summer/autumn:

Total Morts per pen



Even the pens with no significant clinical disease at the beginning of the year have high mortalities during any handling/ other disease challenge. Hearts obviously have not recovered.



## Follow-up on 16S0's at harvest

- › **100 fish checked at processing plant:**
  - 90 fish were 5kg or more with healthy looking hearts (firm ventricles and no signs of congestion)
  - 10 fish below the 5kg mark – all had signs of congestion and enlarged atriums
  
- › CMS appears to have had an effect on fish all the way through to harvest.



# What we have done since 2017:

- › Marine Institute has screened all samples from routine health checks this year
- › Marine Institute went into tissue archive from broodstock in previous years to scan for CMS
- › Regular screening of eggs, fry and smolts in hatcheries
- › Followed a batch of eggs with CMS positive parents
- › Monthly screening of 15 - 20 fish from a site with fish from 3 different hatcheries - fish are screened for PMCV, PRV and SAV to see if there is any correlation between these diseases.



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**SHORT COMMUNICATION**

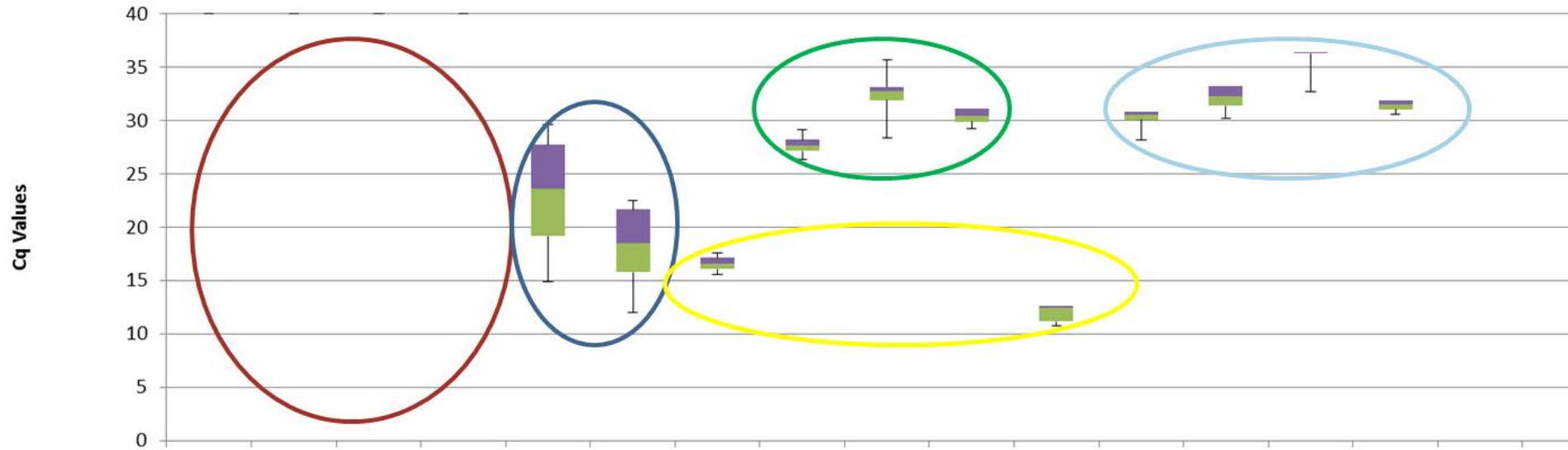
WILEY The logo for the Journal of Fish Diseases, featuring the text "Journal of Fish Diseases" and a small fish icon.

**Piscine myocarditis virus detected in corkwing wrasse (*Symphodus melops*) and ballan wrasse (*Labrus bergylta*)**

F Scholz<sup>1,2</sup>  | N M Ruane<sup>3</sup> | T Morrissey<sup>3</sup> | M Marcos-López<sup>1,2</sup>  | S Mitchell<sup>1</sup> | I O'Connor<sup>2</sup> | L Mirimin<sup>2</sup> | E MacCarthy<sup>2</sup> | H D Rodger<sup>1</sup>

<sup>1</sup>FishNet Group, Ireland, Oanmore, Co. Galway, Ireland

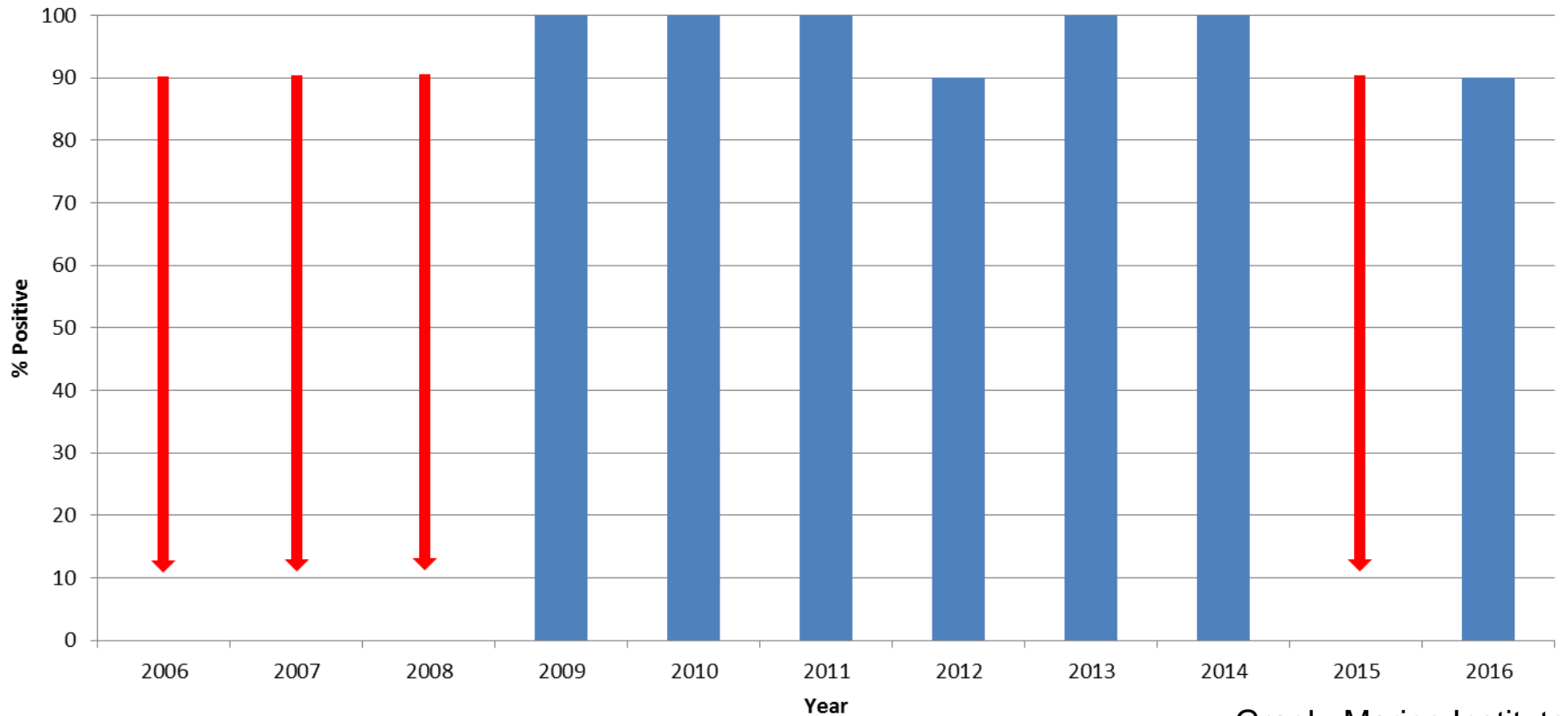
### MHI sites 2016 - 2017



Graph: Marine Institutu

- Fish tested in 2016
- Broodfish
- Routine health screening at hatcheries
- Sites with clinical CMS
- Additional screening in hatchery – eggs test negative, first feeding fry positive.

## MHI Archive Broodstock testing



Graph: Marine Institute

- › 601 pools of supernatant of archive MHI Broodstock samples tested from 2006-2016
- › Supernatant – pooled organs (heart/kidney/spleen) of 5 fish per pool, 30 pools represent 150 fish
- › 60 archive pools tested for each year from 2006-2016; 30 archive pools for 2016
- › As shown above, archive samples of MHI Broodstock tested PMCV positive from 2009 onwards, with the exception of 2015 which was PMCV negative.

# SAV/PRV/PMCV screening results so far:

1.6.2017						
Fish #	PMCV		SAV		PRV	
	Heart	Serum	Heart	Serum	Heart	Serum
1	neg	neg	neg	neg	24.4	32.9
2	neg	neg	neg	neg	29.9	neg
3	36.8*	neg	neg	neg	24.2	neg
4	neg	neg	neg	neg	30.2	neg
5	neg	neg	neg	neg	35.7	neg
6	neg	neg	neg	neg	24.8	neg
7	neg	neg	neg	neg	34.4	neg
8	36.6*	neg	neg	neg	34.9	neg
9	neg	neg	neg	neg	neg	neg
10	neg	neg	neg	neg	35.0	neg
11	neg	neg	neg	neg	26.6	neg
12	36.0*	neg	neg	neg	26.3	neg
13	neg	neg	neg	neg	28.1	neg
14	neg	neg	neg	neg	24.8	neg
15	neg	neg	neg	neg	25.6	neg

1.8.2017						
Fish #	PMCV		SAV		PRV	
	Heart	Serum	Heart	Serum	Heart	Serum
1	neg	neg	neg	neg	30.8	neg
2	neg	neg	neg	neg	28.2	neg
3	35.4*	neg	neg	neg	34.0	neg
4	34.3	neg	neg	neg	neg	neg
5	36.3*	neg	neg	neg	30.9	neg
6	neg	neg	neg	neg	29.9	neg
7	35.1*	neg	neg	neg	28.8	neg
8	35.2*	neg	neg	neg	30.6	neg
9	35.3*	neg	neg	neg	29.3	neg
10	neg	neg	neg	neg	28.7	neg
11	neg	neg	neg	neg	22.1	neg
12	neg	neg	neg	neg	20.4	neg
13	neg	neg	neg	neg	27.1	neg
14	neg	neg	neg	neg	28.8	neg
15	neg	neg	neg	neg	23.4	neg
16	neg	neg	neg	neg	28.3	neg
17	neg	neg	neg	neg	30.0	neg
18	neg	neg	neg	neg	28.4	neg
19	neg	neg	neg	neg	31.3	neg
20	neg	neg	neg	neg	28.8	neg

12.9.2017						
Fish #	PMCV		SAV		PRV	
	Heart	Serum	Heart	Serum	Heart	Serum
1	36.1*	neg	neg	neg	33.9	neg
2	34.4	neg	neg	neg	32.6	neg
3	33.2	neg	neg	neg	30.4	neg
4	29.2	neg	neg	neg	31.8	neg
5	29.3	neg	neg	neg	31.9	neg
6	30.4	neg	neg	neg	31.5	neg
7	35.2*	neg	neg	neg	31.1	neg
8	32.6	neg	neg	neg	29.5	neg
9	32.3	neg	neg	neg	29.0	neg
10	28.9	neg	neg	neg	neg	neg
11	30.4	neg	neg	neg	31.1	neg
12	30.8	neg	neg	neg	31.3	neg
13	30.5	neg	neg	neg	30.0	neg
14	36.3*	neg	neg	neg	31.3	neg
15	31.1.	neg	neg	neg	31.0	neg
16	30.6	neg	neg	neg	34.5	neg
17	30.8	neg	neg	neg	33.5	neg
18	29.7	neg	neg	neg	32.6	neg
19	Neg	neg	neg	neg	31.5	neg
20	36.4*	neg	neg	neg	neg	neg

\* Denotes above cut-off point

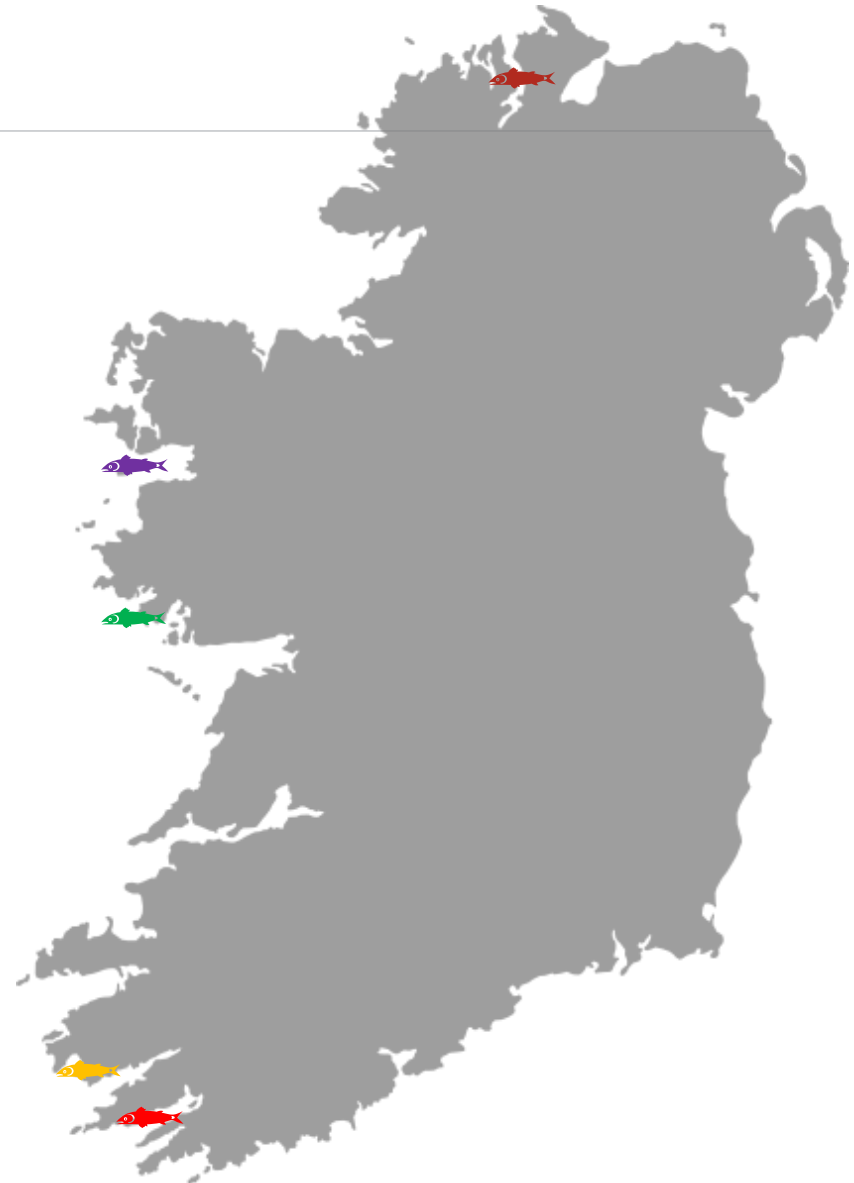
Latest screening results (mid January 2018): all fish PMCV positive with CT values between **27.2 - 32.4**. No clinical signs yet.

# Current CMS status in Ireland:

› PMCV virus present in:

- Lough Swilly 
- Clew Bay 
- Bertraghboy Bay 
- Kenmare Bay 
- (Bantry Bay) 

› Clinical CMS in Clew Bay and Kenmare Bay







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**Thank you for your attention!**