# Advanced understanding of POMS to guide farm management decisions in Tasmania


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Business Cooperative Research Centres Programme

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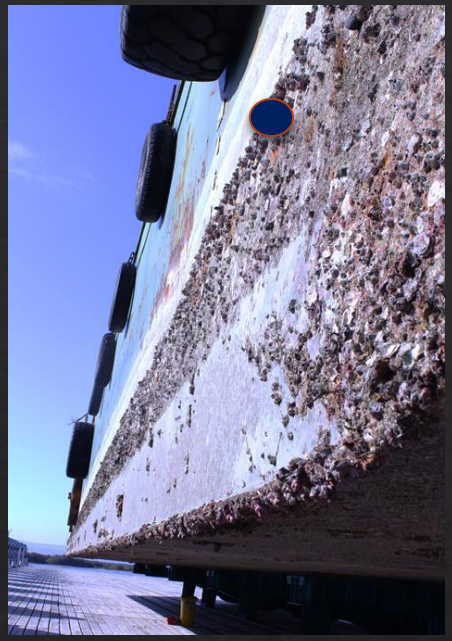
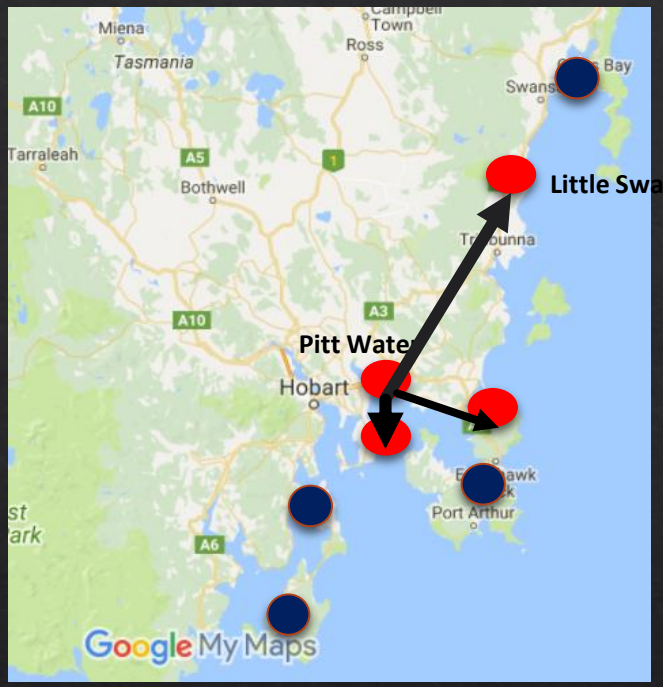
# Objectives

1. Periodicity of infection → predictive framework for POMS danger periods, drivers of POMS disease.
2. Farm management practices to maximise oyster production in POMS areas: mortalities wrt to handling, size/age and timing of spat onto farms, and stocking density.
3. Source of the OsHV-1virus, effects of chilling.
4. Survey oyster farmers for changes in farm management practices and socio-economic factors.

# How is the virus transmitted?

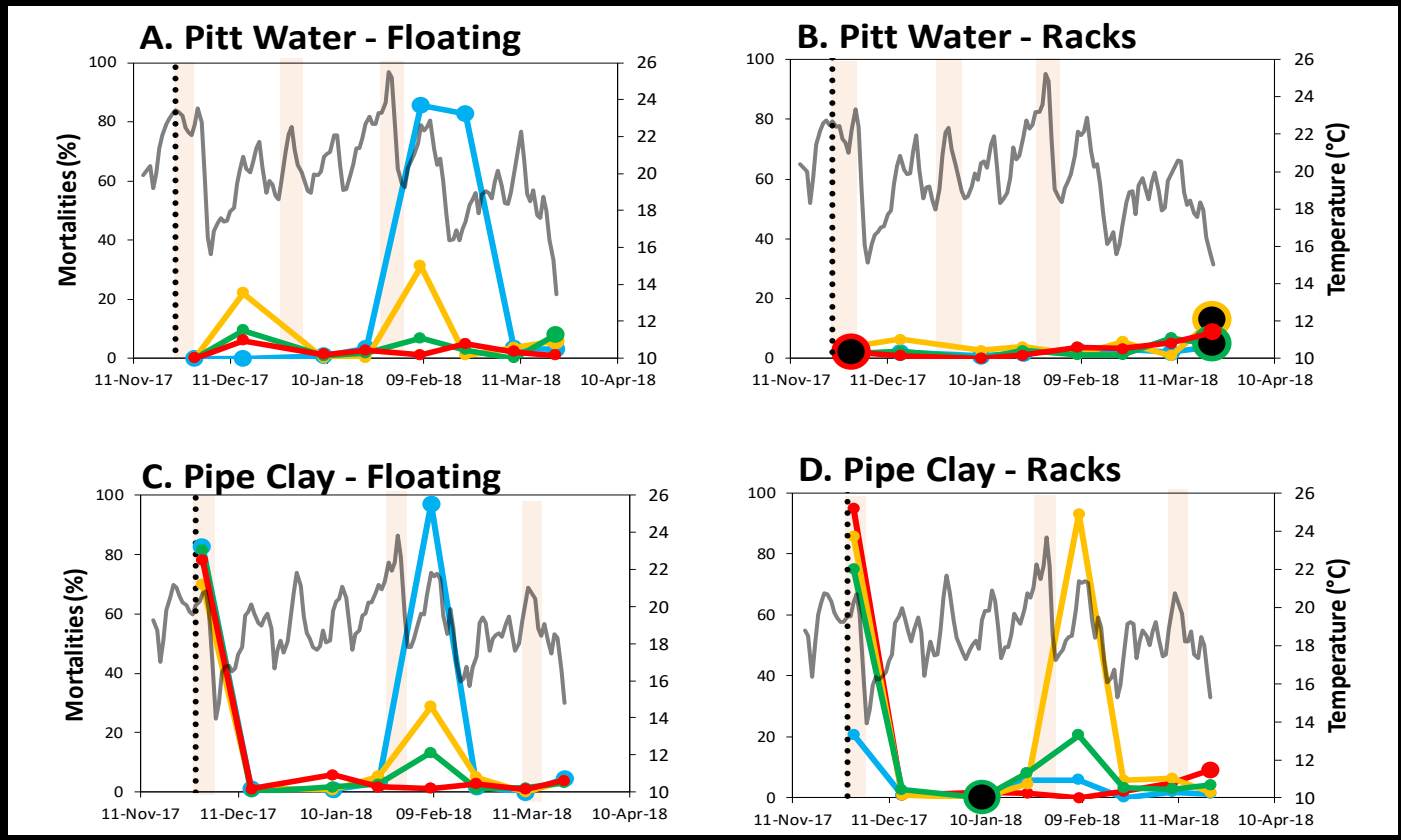



Most likely biofouling over long distances

translocation between leases

# Periodicity of infection

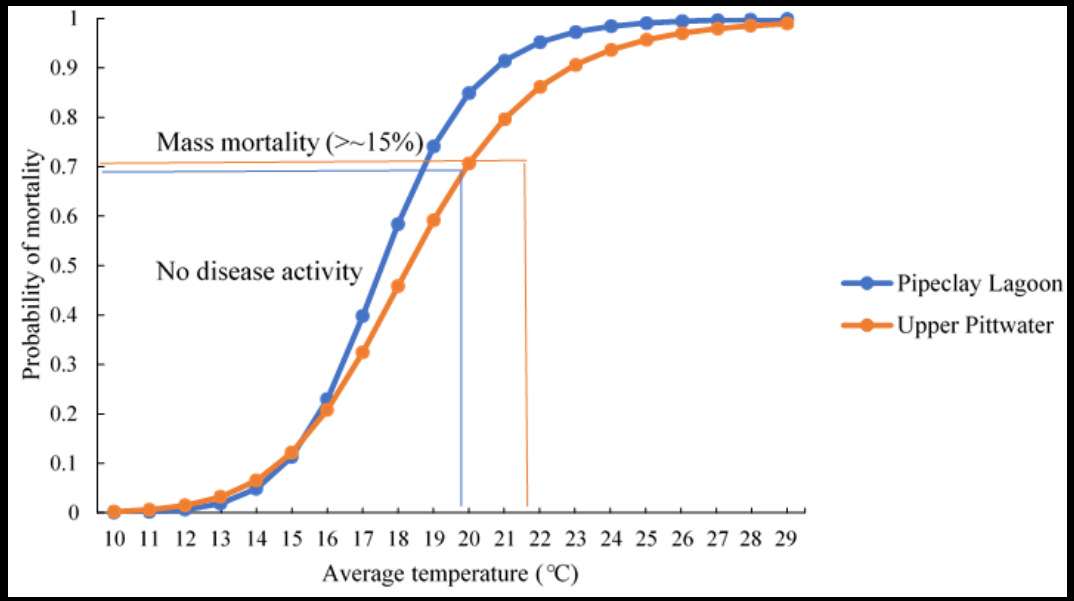
Monitored mortality of sentinel oyster spat on farms every two weeks, also mortality from Biosecurity Tasmania and farmer observations.



# Periodicity of infection

## Temperature

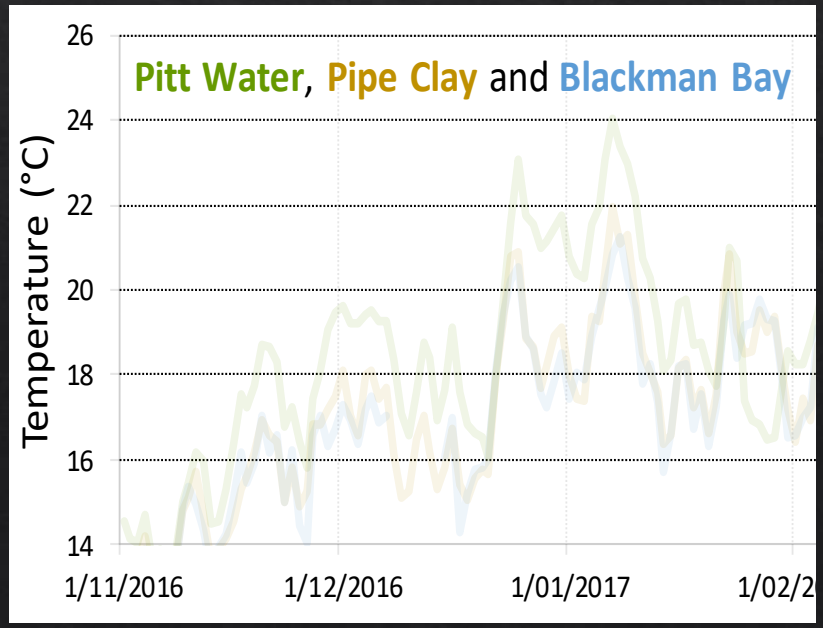
- Average 19-20 °C for ~7-14 days, lower temps later in season
- Several outbreaks/season
- Risk period: mid Nov. – late March




# Environmental factors for disease outbreaks

- Pitt Water and Pipe Clay Lagoon have highest mortality from POMS
- Pitt Water – first POMS outbreaks each season, shallow, large intertidal area, poor flushing.

Poor currents and tides likely important for POMS

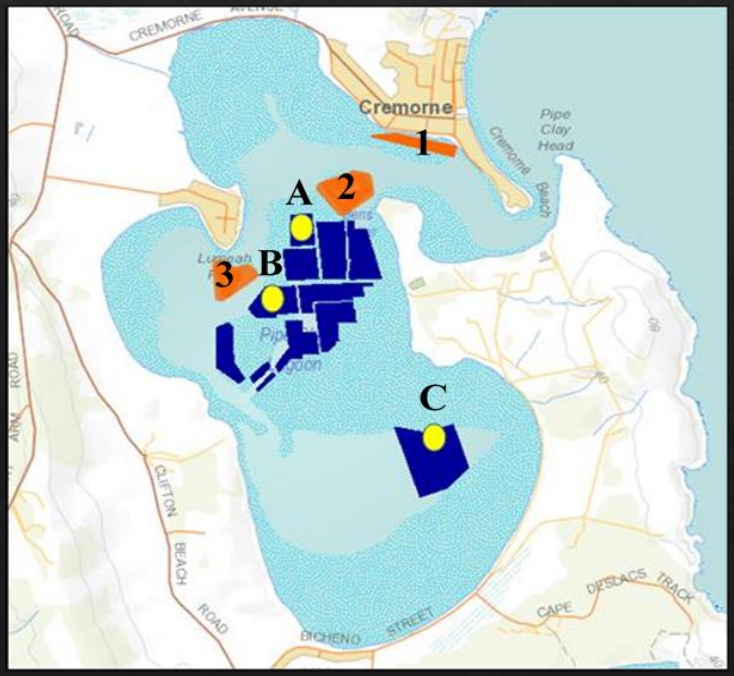



# Environmental factors for disease outbreaks

Pipe Clay Lagoon – large number of farms and feral oysters in small lagoon.

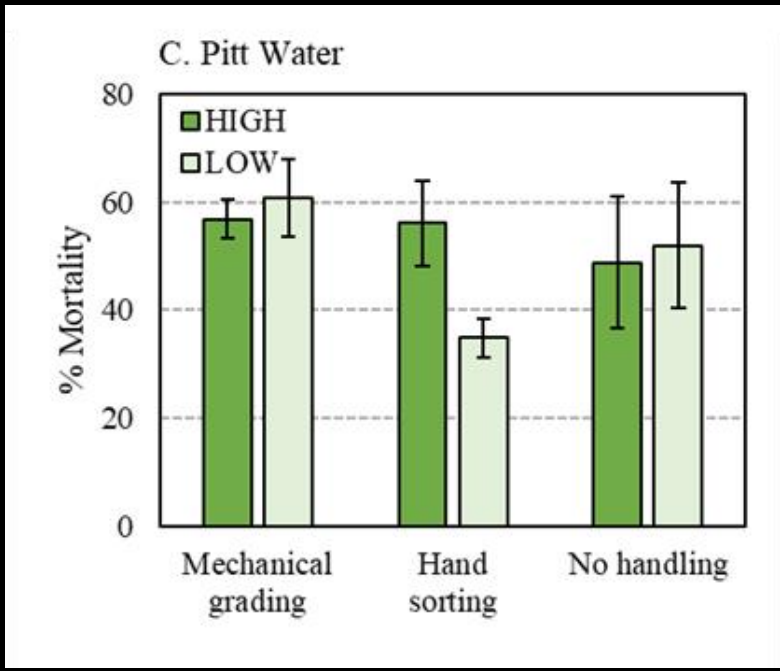
Survey of feral oysters found high density of live large oysters, with higher prevalence of virus than on farm

High density of oysters in water body likely important, reservoir/host for the virus



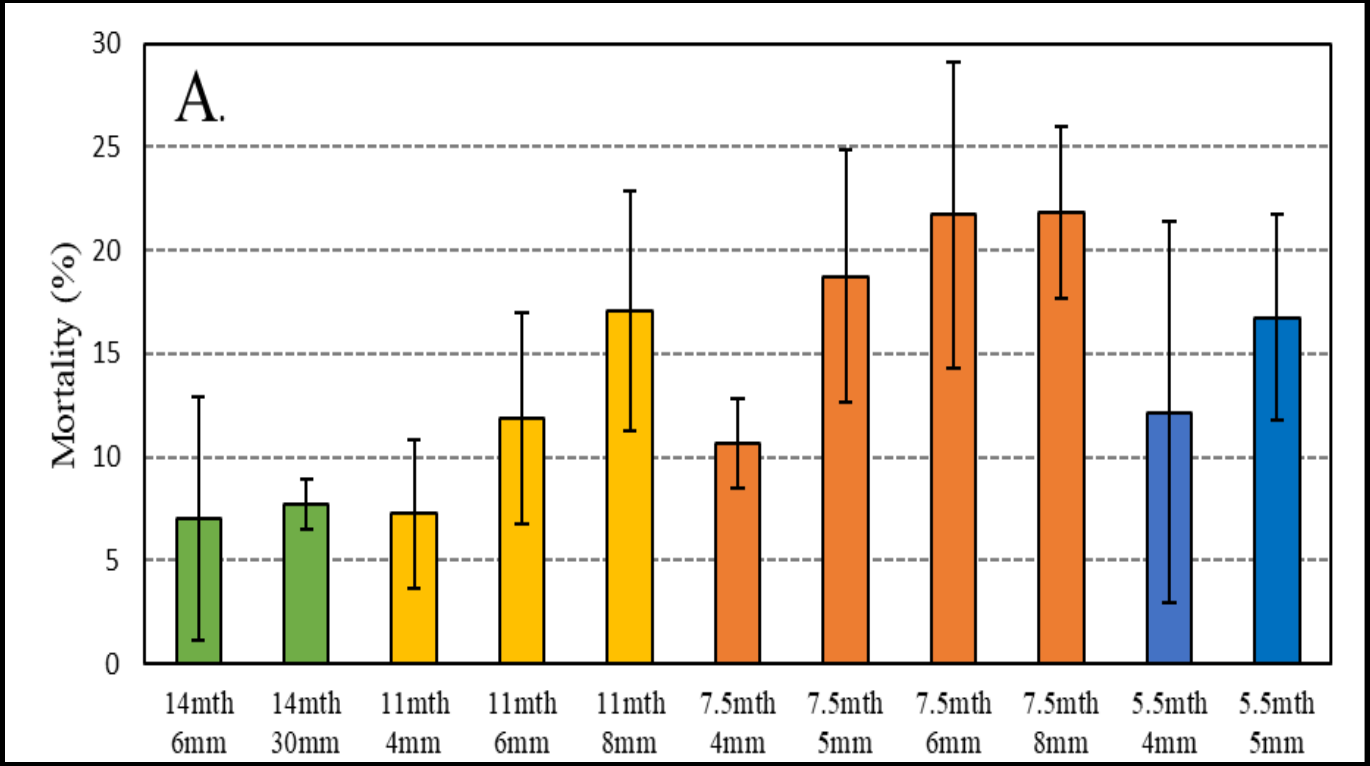

# Farm Management practices
## Handling and Density

- Compared harsh mechanical grading with hand sorting and no handling over 18 weeks at PW and PC - no difference.
- Densities – at PC mortalities sig. higher at high densities, no difference at PW




# Farm Management practices
## Age vs size

- Compared mortality in 4 age groups: 5.5 -14 months
  Generally oldest had lowest mortality
- Within each age group, fastest growers had highest mortalities



Survey of farmers on changes in the industry since first POMS outbreak in Tas in 2016.

| 2016 | 2016/17 | 2017/18 | 2018/19 |
|---|---|---|---|
| 67% | | | |
| | | | |

Survey of farmers on changes in the industry since first POMS outbreak in Tas in 2016.

| 2016 | 2016/17 | 2017/18 | 2018/19 |
|---|---|---|---|
| 67% | 37% | 23% | 9% |
| | | | |

# Farmer survey - Changed farmed management

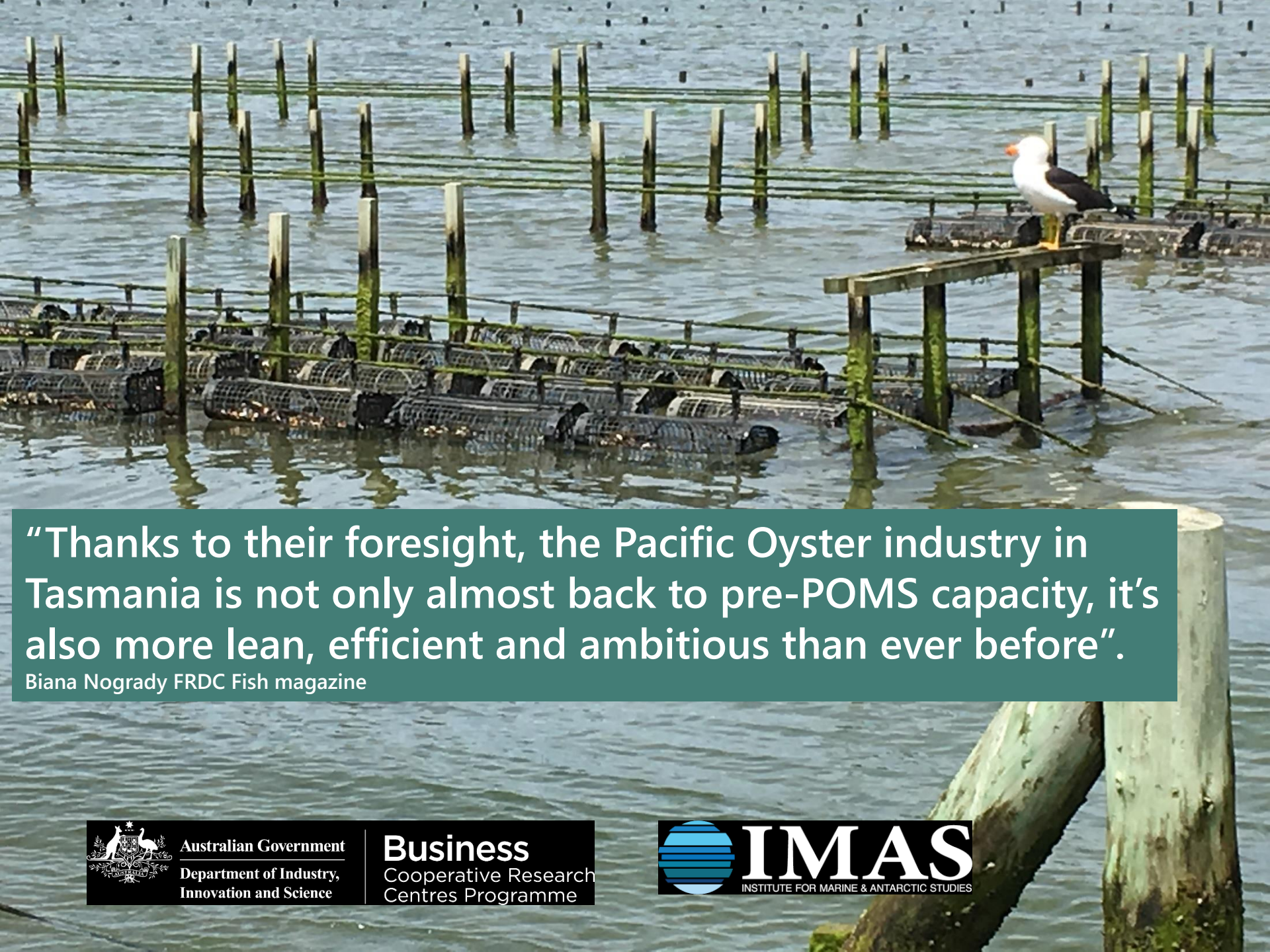
- Most have stock selectively bred for disease resistance
- Sell oysters before summer warm temps.
- Less grading over summer, especially during hot weather
- No spat onto farm over summer
- Juveniles grown in non-infected areas.


# Farmer survey - Changed farmed management

- Production still lower by av. 32%, than pre-POMS
- But … most farmers are expecting to be back to full production by 2020.

- Majority of farmers say their operation is now more efficient than pre-POMS
- Effect of POMS initially major negative, but several farmers now say overall effect is positive.

- All rated the viability of their operation as strong
- Now changes underway with business structure across industry.



"Thanks to their foresight, the Pacific Oyster industry in Tasmania is not only almost back to pre-POMS capacity, it's also more lean, efficient and ambitious than ever before".

Biana Nogrady FRDC Fish magazine

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# Many thanks to all the farmers who helped us with our research

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## In Tasmania $25 million industry

- Affected 4 major growing areas, approx. 60% of Tas. production.
- Included 2 major hatcheries – limited spat for farms across Tas., now back to pre-POMS production.
- Approximately 50 employees laid off.

## In South Australia $28 million industry

- Immediate ban on oysters from Tas.
- 2 major Tas. hatcheries provided ~90% spat ongrown in SA & NSW.
- Major impact in SA, built new hatcheries but problems, hatcheries now getting close to full production.