THE UNIVERSITY OF SYDNEY

31st August 2016

Pacific Oyster Mortality Syndrome (POMS): Fact Sheet 6

Factors affecting oyster survival in outbreaks in Tasmania in 2016

Pacific Oyster Mortality Syndrome (POMS) is a serious disease of Pacific oysters that is caused by infection with *Ostreid herpesvirus 1* (OsHV-1). POMS occurred in Tasmania in January 2016. A physical survey was undertaken on affected farms in Upper and Lower Pitt Water and Blackman Bay to measure the severity of the disease; survival of oysters was highly variable[1]. The overall survival within each bay ranged from 13% to 45% and there was up to 75% variation in survival between groups of oysters from the same batch. The data were evaluated using sophisticated statistical models to identify factors that influenced survival, or that made no difference.

Size

The average size of the oysters within a basket (shell length) was closely related to their time on farm (age) and was a key determinant of survival (Figure 1). For the smallest stock (< 20 mm) survival was just 4%. Approximately half of the 41–50mm stock survived as did two thirds of the oysters that were >61mm. After accounting for location and the other factors that impacted survival, oysters ≥61mm were four times more likely to survive compared to oysters less than 40mm.

Handling

An 85% improvement in survival was observed for oysters that had not been handled for grading or movement in the week preceding the outbreak.

Stocking density

Oysters were stocked at a range of densities (number of oysters per basket) (Figure 2). Survival was best for oysters stocked at a normal density for each size class (Table 1). There was a substantial detrimental impact on survival for the smallest/youngest oysters if the density was unusually low or high. Conversely, for the largest size class, slightly better survival was observed in baskets with unusually high or low density.

Factors that did not affect survival

A number of factors had no discernible impact on survival after allowing for the important factors described above. Survival was the same for diploid and triploid oysters. Hatchery of origin or using on-grower stock had no impact on survival. Although the size category was important, there was no difference in survival between the larger and smaller oysters present within the same basket. There was no difference in survival across the range of long-line immersion times or clip heights.
Note: comparison with the proven beneficial growing heights in NSW is not yet possible.

Summary

The severity of POMS and the likelihood of recurrent seasonal outbreaks mandate changes to stock management calendars and growing methods. To maximize survival, growers should aim to have oysters as large as possible by summer; minimize handling oysters during risk periods for POMS, and use standard stocking density for each age class. There should be no concern about ploidy, or choice of hatchery, other things being equal.

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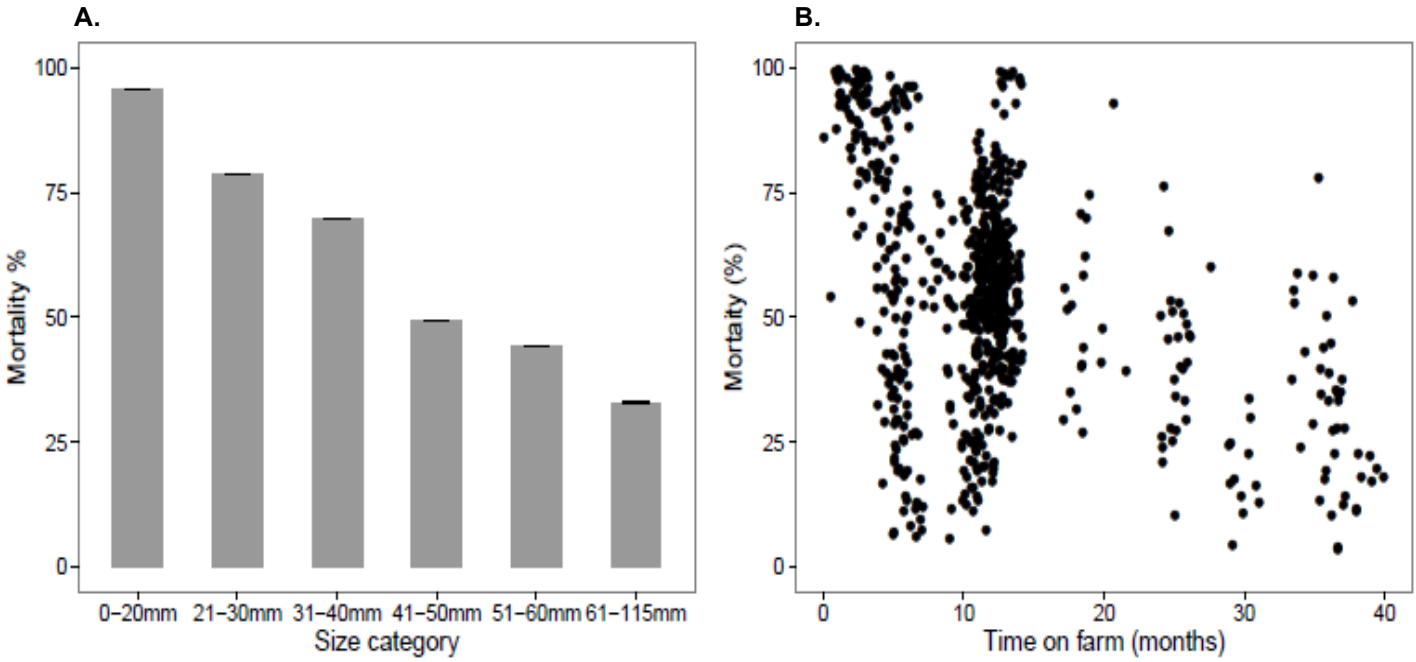

Figure 1: POMS mortality in oysters in A, different size categories; B, different ages.

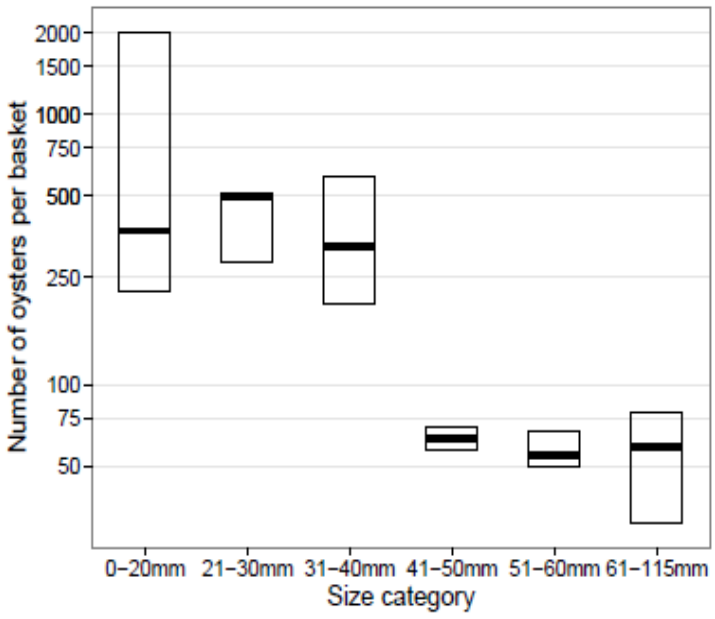

Table 1: Mortality at different stocking densities (%)

Time on farm (months)	Density		
	Standard	Low	High
3	35	65	80
12	35	45	65
24	35	20	35

Figure 2: Boxes show the range in number of oysters per basket for standard stocking density in each size category. This excludes 25% of baskets with higher density and 25% with lower density.

1. de Kantzow, M.C., Hick, P.M., Dhand, N., Whittington, R.J. Risk factors for mortality during the first occurrence of Pacific Oyster Mortality Syndrome due to *Ostreid herpesvirus – 1* in Tasmania 2016. Draft milestone report FRDC project 2014-040.

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