

# Mortality in *Crassostrea gigas* oysters in Ireland during 2012

T. Morrissey<sup>1\*</sup>, E. Houtsma<sup>2</sup>, D. Cheslett<sup>1</sup>,  
T. Yatabe<sup>3</sup>, F. Geoghegan<sup>1</sup> and S. J. More<sup>2</sup>

<sup>1</sup>Fish Health Unit, Marine Institute, Rinville, Oranmore, Co. Galway, Ireland; <sup>2</sup>UCD Centre for Veterinary Epidemiology and Risk Analysis, University College Dublin, 8 Belfield, Dublin 4, Ireland; <sup>3</sup>Centre for Animal Disease Modelling and Surveillance (CADMS), Dept. Medicine & Epidemiology, School Veterinary Medicine, University of California, Davis, USA

## Abstract

OsHV-1  $\mu$ Var-related mortality is well described in several countries, including France. In Ireland, however, clear patterns in relation to the incidence and impact of this virus have been difficult to identify, at least in part because seawater temperatures rarely exceed 16°C, a recognised threshold for OsHV-1  $\mu$ Var-related mortality, for prolonged periods. In this study, based on data collected during 2012, we aimed to evaluate mortality levels and the prevalence of OsHV-1  $\mu$ Var in *C. gigas* oysters in Ireland. This was done by comparing oyster stocks from different sources grown under similar management and environmental conditions within the same bay and oyster stocks grown under different management and environmental conditions between bays. Wilcoxon Rank Sum Test was used to evaluate differences in the mean mortality of oysters and a negative binomial regression model was used to evaluate differences in OsHV-1  $\mu$ Var prevalence between and within bays. A visual assessment of temperature changes was conducted during the period when mortality events were first recorded. Factors that showed evidence of some association with *C. gigas* mortality during 2012 include temperature increase and hatchery source. However, no consistent association between *C. gigas* oyster mortality and OsHV-1  $\mu$ Var prevalence during 2012 was observed, either within or between bays. The results presented in this study, though conflicting in part, reflect the presentation of OsHV-1  $\mu$ Var related oyster mortalities observed in Ireland over the past number of years.

## Introduction

In 2008, a variant of OsHV-1, now termed Ostreid Herpesvirus-1 microvariant (OsHV-1  $\mu$ Var) was detected for the first time in France in association with massive mortality events in *C. gigas* oysters (Segarra et al., 2010). Since 2008, OsHV-1 microvariant has been associated with mass mortalities of *C. gigas* in Europe (France, Ireland, Italy, the Netherlands, Spain, UK), Aus-

tralia, New Zealand, and Korea, but is known to be detected elsewhere in the absence of oyster mortalities (Clegg et al., 2014; Domeneghetti et al., 2014; Dundon et al., 2011; EFSA, 2010; Jee et al., 2013; Keeling et al., 2014; Paul-Pont et al., 2014; Peeler et al., 2012; Roque et al., 2012; Segarra et al., 2010). OsHV-1  $\mu$ Var is therefore considered a necessary but not sufficient cause of mortality in *C. gigas* (Clegg et al., 2014). Since

\* Corresponding author's email: teresa.morrissey@marine.ie