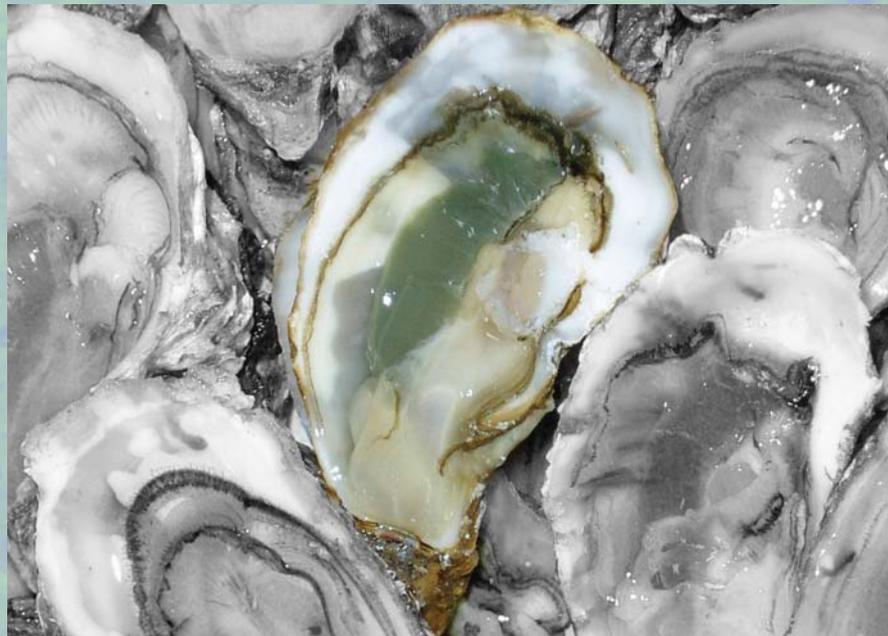


The surveillance and control programme  
for bonamiosis and marteiliosis in  
European flat oysters (*Ostrea edulis* L.)  
in Norway

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## Annual Reports 2009

### Surveillance and control programmes for terrestrial and aquatic animals in Norway

**Title**

The surveillance and control programme for bonamiosis and marteiliosis in European flat oysters (*Ostrea edulis* L.) in Norway

**Publisher**

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Design: Hanne Mari Jordsmyr,  
National Veterinary Institute

Front page photo: Hege Hellberg

ISSN 1503-1454

**Example of citation:**

Hellberg H, Medhus A, Hansen H, Lyngstad TM. The surveillance and control programme for bonamiosis and marteiliosis in European flat oysters (*Ostrea edulis* L.) in Norway. Annual report 2009. In: Karlsson AC, Jordsmyr HM, Hellberg H, Sviland S (editors). Surveillance and control programmes for terrestrial and aquatic animals in Norway. Oslo: National Veterinary Institute; 2010.

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*Marteilia refringens* and *Bonamia ostreae* were not observed in samples tested in the 2009 surveillance.

## Introduction

The protozoan parasites *Bonamia ostreae* and *Marteilia refringens* have been identified as the main threats to commercial flat oyster production in Europe and bonamiosis and marteiliosis are classified as List II diseases by the European Union (1). In 2004, Norway was recognized as an approved zone with regard to *B. ostreae* and *M. refringens* (2). *Bonamia ostreae* was detected in samples from a wild flat oyster population in Arendal in 2008 (3). The Norwegian Food Safety Authority (NFSA) established a control zone to prevent further spread of the pathogen (4). Results indicated that the prevalence and intensity of infection was very low level and increased mortality has not been reported. For more information on bonamiosis and marteiliosis:

<http://www.vetinst.no/nor/Faktabank/Alle-faktaark/Bonamia-og-bonamiose>

<http://www.vetinst.no/nor/Faktabank/Alle-faktaark/Marteiliose>

<http://www.vetinst.no/eng/Research/Publications/Surveillance-and-Control-Programs-annual-reports>

## Aim

The aim of the programme is to document the health status of Norwegian flat oysters regarding *Bonamia ostreae* and *Marteilia refringens*.

## Materials and methods

### Sampling

Sampling and inspection is carried out by the Norwegian Food Safety Authority District Offices according to Directive 2006/88/EC and Decision 2002/878/EC (1, 5). Each spring and autumn 30 oysters (surveillance) or 150 oysters (extended sampling) are sampled from each site and shipped live to the National Veterinary Institute in Bergen for analysis.

## Analysis

Oysters are prepared for histological examination and analysed according to the current edition of OIE "Manual of Diagnostic Tests for Aquatic Animals" (6). In addition, gills samples are analysed by real-time PCR for the presence of *B. ostreae* (7). Putative positive samples are referred to the EU Community Reference Laboratory for mollusc disease in La Tremblade, France for confirmative analysis.

## Results

In 2009, a total of 395 oysters from four sites (Table 1) were examined, real time PCR was performed on samples from Arendal (258) in addition to histology. *Marteilia refringens* and *B. ostreae* were not observed. There have been no reports on increased mortality in the sampled populations in 2009.

## Discussion

*Bonamia ostreae* and *Marteilia refringens* were not detected in samples analysed in the surveillance and control programme for bonamiosis and marteiliosis in 2009.

Infections with *B. ostreae* can persist in wild oyster populations at very low prevalence without causing disease outbreaks or increased mortality (8). A sample size of 30 gives a 95% probability for detecting a prevalence of at least 10% in an infected population under the assumption of a 100% sensitive test, while a sample size of 150 gives a 95% probability for detecting a prevalence of at least 2% in an infected population.

Based on the results of the 2009 analyses the possibility of an infection with *B. ostreae* in the Arendal wild flat oyster population cannot be excluded, but the prevalence could be very low (probably < 2%).

Table 1. Number of oysters per sample site tested for bonamiosis and marteiliosis in 2009.

Sample site	Spring 2009	Autumn 2009	Total 2009
Vestfold	7	30	37
Aust-Agder	146	112	258
Hordaland	30	30	60
Hordaland	40	-	40
Total: 4	223	172	395

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The National Veterinary Institute has its main laboratory in Oslo, with regional laboratories in Sandnes, Bergen, Trondheim, Harstad og Tromsø, with about 360 employees in total.

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The Norwegian Food Safety Authority (NFSA) is a governmental body whose aim is to ensure through regulations and controls that food and drinking water are as safe and healthy as possible for consumers and to promote plant, fish and animal health and ethical farming of fish and animals. We encourage environmentally friendly production and we also regulate and control cosmetics, veterinary medicines and animal health personnel. The NFSA drafts and provides information on legislation, performs risk-based inspections, monitors food safety, plant, fish and animal health, draws up contingency plans and provides updates on developments in our field of competence.

The NFSA comprises three administrative levels, and has some 1300 employees.

The NFSA advises and reports to the Ministry of Agriculture and Food, the Ministry of Fisheries and Coastal Affairs and the Ministry of Health and Care Services.

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