



First detection of *Haplosporidium costale* in France

SCoPAFF September 24th-25th 2019



Detection of *Haplosporidium costale* in France

• 8 June 2019



• Atlantic experimental station of IFREMER (The French Marine Science Research Institute) in Bouin

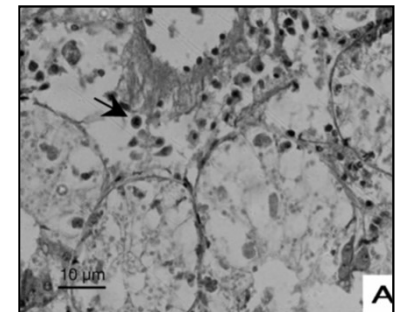
• Oyster mortality (*Crassostrea gigas*) in an experimental sample

• Detection of *Haplosporidium costale*

• IFREMER measures: containment of the station and destruction of the contaminated sample and of all samples, which could have been in contact with it



First detection of this parasite in France



[Wang *et al.* 2010]

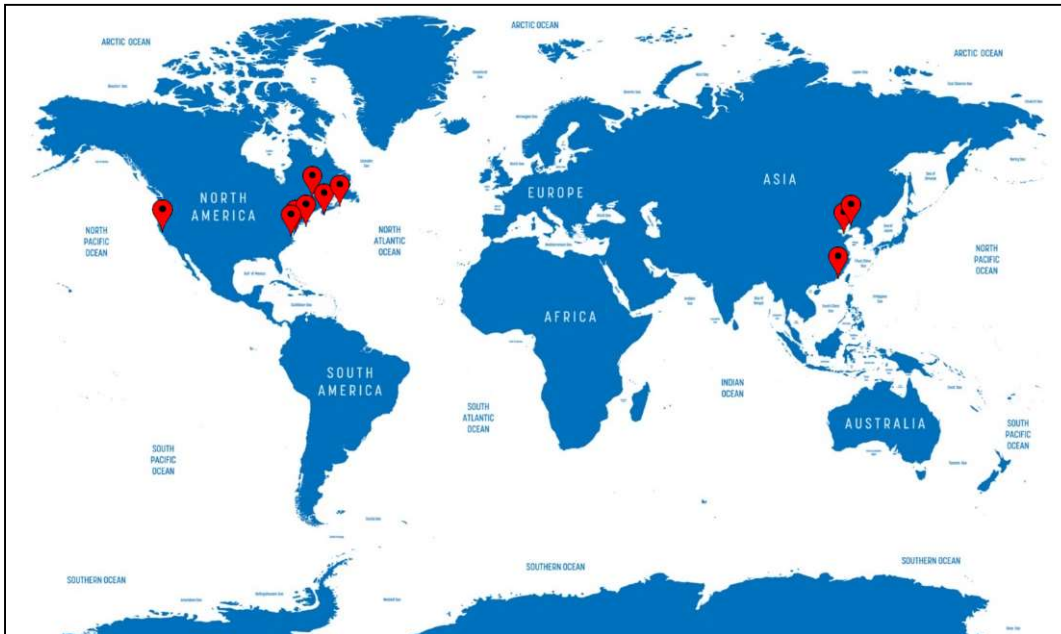
What do we know about *Haplosporidium costale*?

Haplosporidium costale

- single cell protozoan parasite
- restricted to high salinity coastal bays
- no impact on Human

Host species

1. *Crassostrea virginica*
2. *Crassostrea gigas*



[Burreson et Stokes 2006; Wang *et al.* 2010]

Reported distribution

- USA: New-York, Virginia, California and Connecticut
- Canada: in the Southern Gulf of St. Lawrence, Atlantic coast of Nova Scotia and Bras d'Or Lakes in Cape Breton, Nova Scotia
- China: Bohai Sea and Yellow Sea

Impact

- Can cause seasonal mortality in May and June in *C. virginica* in USA = period of sporulation of *H. costale*
- Mortality around 20%

Parasite known to cause mortality in *C. virginica*
Effects of *H. costale* on *C. gigas* have not been reported before

Investigations implemented by the NRL

Origin of the contamination

- 1/ intern manipulation in the laboratory
- 2/ from pumped seawater



- French NRL = IFREMER Tremblade
- PCR, sequencing and histology to search for *H. costale*
- Analyses around the station

- ➡ Slightly positive detection by PCR in the station supply canal
- ➡ Histology still in progress

- Analyses of oysters (*C. gigas*) collected since June 2019

- ➡ Detection by PCR and histology
- ➡ Additional analyses still in progress



- No detection
- Slightly positive detection by PCR, additional analyses in progress
- Positive detection



Detection of the parasite by PCR
parasite in the environment or / and in oyster

Investigations implemented by the NRL

- Analyses of oysters collected **in the past** thanks to the REPAMO (the French surveillance system monitoring mollusc mortality)
- PCR, sequencing and histology to search for *H. costale* in *C. gigas*

- ⇒ Detection by PCR of *H. costale* in samples collected in 2009-2010 from three different costal bays 📍
- ⇒ Histology negative
- ⇒ Signal too low to perform sequencing



Investigations implemented by the NRL

. The LRUE (IFREMER Tremblade) requested that NRLs **abroad** provide information regarding the detection of *H. costale*



The UK reported to have detected the parasite by PCR in 2015 in samples, some, not all, seeming to be of French origin (without proper confirmation)

Confirmation of the presence of *H. costale* in the natural environment for about ten years

The hypothesis of previous contamination seems to be confirmed

Control measures

- Not a listed disease in France
- Not a listed disease in EU
- Not a listed disease in OIE



COUNCIL DIRECTIVE 2006/88/EC
of 24 October 2006
on animal health requirements for aquaculture animals and products thereof, and on the prevention
and control of certain diseases in aquatic animals



**OIE-Listed diseases, infections and infestations
in force in 2019**

Oie World
Organisation
for Animal
Health

Nevertheless, information for the European Commission in July 2019

- Prevention and control measures rely on the professionals
- Creation of a monitoring group: IFREMER, professionals, authorities

