

# Gene study may help solve Sydney rock oyster mystery

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A study of oyster genetics is helping scientists better understand the mysterious QX-disease, which has been responsible in the past for killing Sydney rock oysters in the Georges and Hawkesbury Rivers.

Scientists already believe that QX-disease affects oysters that are under some form of acute environmental stress, caused by things like temperature change, starvation, changing salinity levels or physical agitation (i.e. movement during transportation).

With this new study, Macquarie University PhD student Margaret Simonian and marine biologist Associate Professor David Raftos are working with the NSW Department of Primary Industries (DPI) to identify which genes in the oysters are affected by stress, as well as those that provide resistance to QX disease.

"Like humans, oysters suffering from acute stress have difficulty maintaining a hormonal balance and this affects their immune systems," Raftos explained.

The NSW DPI responded to the threat posed by QX-disease with a selective breeding program that has massively decreased oyster mortality linked to the disease.

"The [genetic research](#) is helping us to explain why the DPI's breeding program has been such a success and may lead to new, more effective ways of testing for particular genes in the oysters," Simonian said.

"It's also giving us a good understanding of the stress factors which lead to disease susceptibility in oysters, which in turn may help producers in the future."

QX-disease was responsible for wiping out oyster farming in the Georges River in the 1990s, and was then found in the Hawkesbury River in Sydney's north-west in 2004.

The Georges River outbreak has since been linked to the [stress](#) caused by low salinity following heavy rain, but nobody has yet discovered what caused the Hawkesbury to be affected.

Source: Macquarie University

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