

# Toxoplasmosis and Hector's and Māui dolphins

## Toxoplasmosis: a significant threat to Hector's and Māui dolphins

Toxoplasmosis is an infection caused by the *Toxoplasma gondii* parasite. The parasite is common and capable of infecting many animals, including humans. Up to one-third of people worldwide carry *T. gondii*, although most never develop symptoms.

Toxoplasmosis is, however, a confirmed cause of death in Hector's and Māui dolphins and is likely to be a significant human-caused threat to the dolphins' populations. This is especially the case for the critically endangered Māui dolphin. Toxoplasmosis is a cause of death in marine mammals elsewhere, including southern sea otters and Hawaiian monk seals, and is also known to cause behavioural changes, stillbirths and reduced reproductive rates.

With only 63 Māui dolphins (over the age of one) left, the most immediate risk is to this subspecies.

## How are dolphins exposed to the parasite?

Cats are the only animal in which the toxoplasma parasite can sexually reproduce. The parasite creates oocysts (eggs) in the guts of cats that are spread into the environment via cat faeces where they can survive for many months. Rainwater and run-off transport the oocysts into streams, rivers and stormwater drains, as well as waste water when cat faeces or kitty litter have been flushed down the toilet. Hector's and Māui dolphins can then become infected when they ingest contaminated water or prey (fish).

There is no vaccine available for cats or dolphins.

Unfortunately, toxoplasma oocysts cannot be treated by standard wastewater treatment methods, such as UV radiation.

Addressing this threat requires multiple approaches to reduce the amount of the parasite entering rivers, estuaries and flowing out to sea.

## Actions that can help prevent the spread of *Toxoplasma gondii* to the marine environment



Keep cats indoors



Do not abandon unwanted cats, or feed feral cats



Dispose of cat faeces in the rubbish bin, not the toilet



Support wetland conservation and restoration (wetlands can trap toxoplasma oocysts and prevent them from entering waterways)



Spay or neuter your cat



Include green spaces in your garden or backyard that can help filter rainwater and reduce run-off to stormwater drains

## Toxoplasmosis Action Plan

Potential actions and options will be trialled, tested and refined. More research is needed to understand the extent and scale of the threat to the dolphins. Because of the particular threat to the critically endangered Māui dolphins, actions will be directed to areas that have most impact on them.

An Action Plan has been developed under urgency. It includes plans to:

- Reduce the loading of the parasite in the environment by trialling riparian and estuarine planting schemes.
- Investigate new technology to remove oocysts from wastewater and stormwater.
- Test all recovered carcasses of dead dolphins for toxoplasmosis to determine mortality rates from the parasite.
- Trial an approach to reduce feral cats in a river catchment area where water flows into the sea where Māui dolphins live.

- Trial approaches for raising the issue with cat owners and seeking their support to make changes that reduce the risk of the parasite being washed into the sea.
- Identify which cat populations carry the virulent toxoplasma strain in key catchment areas.
- Run a series of workshops with overseas experts to share information and learn from approaches being taken to address the issue overseas.
- Support the National Cat Management Strategy.

## What could you do to assist?

Some simple actions that everyone can take will make a significant difference in reducing the dolphins' exposure to the parasite.

- Keep cats indoors so they have less chance to contract the parasite and shed it in their faeces.
- Dispose of kitty litter in a sealed bag and place it in your rubbish, rather than flushing it down the toilet.

For more information on the Toxoplasmosis Action Plan see [www.doc.govt.nz/toxoplasmosis-action-plan](http://www.doc.govt.nz/toxoplasmosis-action-plan).



Department of  
Conservation  
Te Papa Atawhai



# Is your cat making dolphins sick?

## *Toxoplasma gondii* can travel from land to sea

### A microscopic parasite

*Toxoplasma gondii* is a parasite that causes the disease toxoplasmosis.



### Develops in the guts of cats

*T. gondii* is common and can infect many animals (including humans and dolphins), but it's only in cats that the parasite produces oocysts which are released into the environment in their faeces.

### Spreads via cat faeces

*T. gondii* oocysts spread into the environment via the faeces of cats. Current wastewater treatments do not kill the parasite, and the oocysts can persist for months.



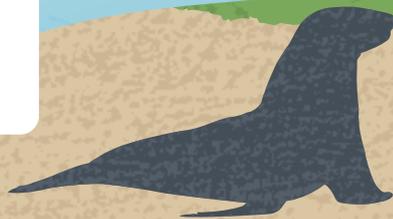
### Travels through waterways

Rain and stormwater run-off transport the oocysts to the ocean through streams and estuaries.



### The human factor

People can contribute to the spread of *T. gondii* when they allow pet cats to roam, abandon unwanted cats, or fail to control feral cat populations. Flushing cat faeces/kitty litter is also an issue.



### Dolphins at risk

Hector's and Māui dolphins become infected with *T. gondii* by ingesting contaminated water or prey. Toxoplasmosis is known to cause dolphin deaths.



Diagram adapted from US National Oceanic and Atmospheric Administration Fisheries 'Cat-borne threat to monk seals' poster.