

FAQs related to Didymo

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What other areas of the world has didymo been found?

Didymo's native distribution is limited to cool temperate regions of the Northern Hemisphere, including the rivers of northern forests and alpine regions of Europe, Asia and parts of North America. It has never been found previously in the Southern Hemisphere. Over the past twenty years, the distribution of didymo appears to be gradually expanding outside its native range. Furthermore, even within its native range, there have been reports of excessive growths in areas where it previously existed only in low concentrations.

Is didymo an invasive species?

Yes. In New Zealand, didymo exhibits several characteristics of an invasive species. In a relatively short period of time, it has grown prolifically as evidenced by the significant increase in biomass throughout the Mararoa and lower Waiau Rivers since October 2004 when it was first reported.

Is didymo an exotic species?

Didymo is an exotic organism to New Zealand, which means it is non-native and was introduced from another geographic region. Exotic species are not necessarily harmful. In fact New Zealand has many exotic valued species such as apples, maize, and sheep. However, when a non-native species occupies lands or waters, particularly in natural communities, it can often cause negative ecological or economic effects because the insects, diseases, or other grazers/predators that help control it in its native range may not be present in the new location.

How long does it take after contamination for didymo to be visible in a river?

A number of environmental factors influence how long it will take for didymo to bloom after introduction to a waterway, or whether it will bloom at all, but the process is not well understood. It seems to vary according to river conditions, in some rivers it is visible fairly quickly and in others it is only visible under a microscope.

What is the lifecycle of didymo and could it affect the spread?

Didymo populations grow mainly by asexual cell division. Sexual reproduction is likely, but not yet observed in didymo. The presence of a dormant or resting stage has never been reported. Little is known about which factors trigger asexual versus sexual cell division. Nor is it known what role the mucilaginous stalks have on the lifecycle of didymo especially compared to the more common diatoms which do not produce such extreme amounts of mucilage. It is likely the mucilage protects individual didymo cells from short term dehydration and therefore could aid in dispersal. Free-floating cells of other species of freshwater diatoms have been found to survive only a few hours when completely out of water, but if kept moist, they can survive longer.

Could didymo spread to lakes throughout New Zealand?

Yes. Although didymo prefers a river environment with clear water flowing over stable substrate at depths sufficient for light penetration to drive photosynthesis, blooms have been found in South Island Lakes. Lake Wakatipu, for example, contains visible didymo on some parts of the lake shore.

Will didymo continue to spread to rivers throughout New Zealand?

Yes. Didymo will likely continue to spread to unaffected areas within New Zealand. Research on the environmental variables which control didymo's growth (water depth and flow rate, nutrients, light,

invertebrate grazing, etc.) has helped identify which habitats and locations it is most likely to establish. Ongoing passive and active surveillance will help determine rate and range of spread. Human activities are considered the most likely source of spread of didymo between rivers and catchments.

How did didymo get into the New Zealand river system?

We will most likely never be able to determine exactly how didymo first entered the river system. The most plausible method of introduction was the unintentional transport of microscopic didymo on recreational or industrial equipment from affected areas overseas.

How long has didymo been present in New Zealand?

Scientists are not certain when didymo first arrived in New Zealand. The first visible blooms were identified in the lower Waiau and Mararoa catchments in October 2004. However, credible retrospective reports indicate didymo was visible in the Mararoa River as early as 2001.

Will didymo remain in the South Island or will it move to the North Island?

A didymo likely environments model by NIWA shows that most of the highly suitable New Zealand rivers for the establishment of didymo are in the South Island. However, parts of the North Island are also suitable for didymo establishment and growth, particular in the mountain regions and the central plateau. There is no evidence yet of any spread to the North Island, but rivers could be affected. For more information about likely environments for didymo, view the maps on our website. Environments suitable for the establishment of didymo include cool water, stable riverbed and waterflows, high light availability, moderate flow velocity, and pH neutral or slightly alkaline.

Didymo - Where is it?

Where has didymo been found in New Zealand?

For information on where didymo has been found, [click here](#).

What does the name *Didymosphenia geminata* mean?

Didymosphenia, derived from the Latin 'didymos', means double. Likewise, *geminata*, derived from the Latin word 'geminus', means twin born, paired or double. Both of these words refer to the bilateral microscopic shape of the organism which looks like a curved bottle with paired bulbous ends. This is due to the pairing of two halves of the silicified cell wall which fit together like a Petri dish, with one half slightly smaller than the other.

What is didymo?

Didymo is a member of the group of single-celled aquatic plants (freshwater algae) known as diatoms. Although it is microscopic, didymo can form dense colonies called algal blooms which can be seen with the naked eye. Diatoms are unique in that their cell walls contain silica (a major element in sand), which is why didymo feels gritty when touched. Didymo also contains chlorophyll, a pigment which enables it to make its own food by using energy from the sun. Under optimum growing conditions, didymo cells ooze large amounts of a mucus-like substance (mucilage) which attaches didymo firmly to underwater surfaces. Young colonies look like raised pimples on the surfaces of river rocks, but as the mucilage elongates to form stalks, the colonies form impenetrable mats which form thick strands and can cover all surfaces, including other plants, logs and debris.

Are there plans for a didymo eradication programme?

No, there are no plans to eradicate. Past experience with invasive species indicates that eradication of didymo is unlikely. No country has ever attempted to control or eradicate didymo. In New Zealand, a range of management options are being investigated including control, reducing the spread, minimising impacts and protecting high value sites. We are mindful that any control action must not create more environmental problems than it might solve.

Can didymo be eradicated in New Zealand?

No. Eradicating any microscopic organism from a natural environment is virtually impossible, especially in an aquatic environment. We know of no systematic attempts to eradicate invasive blooms of didymo. This is likely because of its widespread distribution and because in a number of countries it is considered a native species.

While we work to understand more about the physical, chemical and biological factors which control didymo, our efforts will continue to be focused on reducing the spread from known affected river systems.

What has been the overseas experience with didymo?

Internationally there is very little information on didymo - its biology, ecology, impacts, surveillance or control techniques. When didymo was first found in New Zealand, the available information upon which to base incursion response decisions was primarily anecdotal due to the absence of validated scientific studies. The recent work in New Zealand led by MAF Biosecurity New Zealand has made us the world authority on this organism.

What are the human health impacts associated with didymo?

Didymo is not considered a significant human health risk.

What fish stocks could be affected by didymo?

Freshwater fish such as trout, salmon, native galaxiids (whitebait) and bullies are most likely to be affected. Recent science results have suggested the impacts to native fish will be smaller than first thought. Science has shown that didymo isn't as negative as first predicted on invertebrates, and this should be good news for fish stocks.

What effects will didymo have on waterways?

There have been limited scientific studies on the effects of didymo overseas in areas where algal blooms have been reported. However, anecdotal reports from overseas indicate negative effects on fish and invertebrate habitat, and that didymo behaves as an invasive species. Similar effects are probable here, although recent science results have shown that the numbers of invertebrates increases but the size of the invertebrates decrease. There seems to be minimal effects on fish in didymo infected rivers. Short term impacts have not been as severe as expected. Research on this has been conducted by Biosecurity New Zealand and partner organisations

- Didymo Research Reports

Who is sampling and monitoring rivers for didymo and how and when will this be carried out?

Surveillance for didymo is ongoing and has been an important part of the response since day one. Formal surveys were first conducted in Southland and Otago regions in December 2004. This was supported by a nationwide call for all organisations regularly working or conducting research in other New Zealand rivers to keep an active look-out for signs of didymo.

More recently the responsibility for ongoing sampling and monitoring work has moved to organisations with regional responsibilities. They select the most important places for sampling in their area and decide how often to sample. Regional groups can store their sample results in the natural didymo samples database.

How is the response to didymo being coordinated by Government and local agencies?

Biosecurity New Zealand has been the lead agency and is coordinating resources from stakeholder agencies on the ground. This has included communications, enforcement of controlled areas, and water sampling. We now have a Long Term Management Programme in place that involves a number of our key partners working together with Biosecurity New Zealand. The objectives of the Long Term

Management Programme are:

- to slow the spread of didymo and other freshwater pests throughout New Zealand;
- protect valued sites and at risk species;
- mitigate impacts of didymo on affected sectors; and
- maintain the North Island free of didymo for as long as possible

Long-term management programme  (135 KB)

If we have an event coming up, how do we develop didymo decontamination protocol and will Biosecurity New Zealand help?

It is the responsibility of organisations holding events to ensure good river hygiene and to bear the costs associated with any decontamination actions.

However, Biosecurity New Zealand can provide advice, information and material on the practical steps for groups wishing to hold waterway based event to minimise the spread of didymo.

Approved decontamination methods are available on the website - including advice on how to apply these methods to specific items that are likely to come into contact with water from rivers and lakes (e.g. fishing gear, jet boats, kayakers, people, animals, vehicles etc). Fact sheets also contain the approved cleaning methods which are available from numerous locations.

I have heard that certain areas are low risk. If didymo is unlikely to form, why bother cleaning?

Low risk doesn't mean no risk. Low risk areas may not have big blooms but if people don't clean they risk spreading didymo to other waterways. Rivers that are suitable for recreational activities such as fishing and kayaking, also tend to be those that are suitable for establishment of didymo. In its microscopic form it is hard to detect so we need everyone to treat all waterways as if they are affected.

Isn't didymo just about the South Island Rivers?

No it's about protecting all of our waterways. To date didymo has not been detected in the North Island; however people still need to Check, Clean, Dry to ensure rivers do not become affected.

If birds and other creatures can spread didymo, will it really make a difference if I clean?

Scientists believe that humans are the biggest risk of spreading didymo. There is no correlation between bird nesting areas or colonies with didymo finds. There is however a strong correlation between recreational river use and didymo infestations.

What other pests are likely to impact white-water environments?

Aquatic weeds like Hydrilla and Lagarosiphon.

Why do I have to clean items that have been in contact with water between EVERY river?

Didymo is hard to detect in its microscopic form, so it is invisible in some waterways. People need to treat all waterways as if they might have didymo. People need to Check, Clean, Dry everytime they use a waterway.

Can I receive a fine if I spread didymo?

Didymo has been declared to be an Unwanted Organism under the Biosecurity Act 1993. It is an offence to knowingly spread an Unwanted Organism with penalties of up to 5 years imprisonment, and/ or a fine of up to \$100,000.

Are fish, eels and other foods taken from lakes and rivers affected by didymo safe to eat?

Yes.

If I see something I think is didymo, what should I do?

If you see something you suspect is didymo in an unaffected river, please report the location of the find to Biosecurity New Zealand on 0800 809 966.

1 2 next › last »

If I see something I think is different, what should I do?

If you see something you suspect is different in an unlicensed area, please report the location of the find to the nearest law enforcement agency.

Thank you for your help.