

Reef Trust Partnership

Water Quality Progress Dashboard

Almost half of the \$443 million partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation is allocated to improving water quality entering the Great Barrier Reef, in line with the [Reef 2050 Long-Term Sustainability Plan](#) (Reef 2050 Plan).

A long-term goal of the Reef 2050 Plan is that the quality of water entering the Reef has no detrimental impact on the health and resilience of the Great Barrier Reef. The [Reef Trust Partnership's Water Quality Component](#) will contribute to this goal by achieving a reduction in the total load that reaches the Reef of three priority pollutants identified in the Reef 2050 Plan: sediment, dissolved inorganic nitrogen (DIN) and pesticides.

Progress Dashboard Frequently Asked Questions

What are the Reef Trust Partnership's pollutant load reduction targets, and how were they set?

The Water Quality component aims to achieve an enduring reduction in long-term end-of-catchment pollutant loads. As outlined in the Partnership's Monitoring and Evaluation Plan, the Foundation is measuring this outcome through the reduction in the long-term average modelled pollutant load at the end of specific catchments.

The Partnership's load reduction targets are a subset of the [Reef 2050 Water Quality Improvement Plan](#) targets. They were established through a quantitative assessment of the most cost-effective actions available Reef-wide that could deliver the greatest impact. For more information on these targets, click [here](#).

Why do some Reef catchments not have a pollutant load reduction target?

Not all catchments have the same impact on the Reef. Given the available funding is not enough to meet all the Reef 2050 Plan's water quality targets across the Reef, a prioritisation process was necessary, and 15 catchments were prioritised¹. Targets were set for those priority catchments, and these are the focus of the majority of the work under the Reef Trust Partnership.

How do we measure progress towards achieving Water Quality targets?

Progress is measured through modelling data obtained by our partners and reported to both the Foundation and the [Paddock to Reef Integrated Modelling, Monitoring and Reporting Program](#) (Paddock to Reef). Modelling rather than monitoring data (measurements taken at different points in time) is used for reporting progress due to the variable nature of monitoring data and its dependency on climatic conditions at the precise moment in which samples are taken (in particular, rainfall). For monitoring to provide reliable trends, more than a decade's worth of data would be needed. In addition, improvements from land management practice changes take

¹ [Alluvium-2019-Effective-and-Efficient-Pathways-for-Investment-in-Improved-Water-Quality-in-the-GBR-Web-1.pdf \(barrierreef.org\)](#)



time to be reflected in monitoring samples. Depending on the practices implemented and climate conditions, these time lags can be many years.

As an alternative, models can represent the observations we see in monitoring and anticipate what changes will be over time. The Paddock to Reef program has incorporated a vast body of knowledge relevant to the Reef catchments (like their topography, rainfall patterns and soil types) and agricultural systems into paddock-scale and catchment-scale models that represent how management practices on the ground result in long-term average pollutant loads reaching the Reef. The models' methods and assumptions are well-documented and accepted amongst the international scientific community. Long-term water quality monitoring data is used to regularly validate and improve the models. The Reef Trust Partnership is using these models to estimate the reduction in pollutant loads as a result of practice and behaviour change driven through on-ground projects.

What is Pesticide Risk, how is it measured and how was the target set?

In the case of DIN and sediment, the ecological impact of the pollutant is proportional to their loads. However, for pesticides, the ecological impacts depend on the concentration and the toxicities of the mix of products released. The impact of pesticides on water quality is better measured as pesticide risk, which is the estimated per cent of aquatic species that are protected from the direct impacts of the mixtures of pesticides in a waterway and, therefore, should not experience adverse effects from pesticides. The reduction in risk to marine species related to pesticides is expressed in Risk Units (RU). RU represent the relative risk to species from the pesticide runoff of an area (in this case the farmland under the projects). The targets are based on an assessment of the reduction in risk that is considered achievable provided the available funds are invested in the most cost-effective way. Note that pesticide risk is not being measured in all RTP sugarcane projects, just two projects that are capturing information about pesticides products (Bluewater, delivered by Farmacist, in the Pioneer, Plane Creek and Haughton catchments). Therefore, the pesticide risk target is only relevant to the potential water quality improvement from these two projects.

Why is the pesticide risk is expressed in different units in Reef Report Cards than in the RTP dashboard?

While the Reef Report Cards measure the chance to pesticides risk through annual water quality monitoring, the RTP is measuring it through a different method, called Pesticide Decision Support Tool (PDST), endorsed by the Queensland Government Department of Environment². This method relies not on a direct measurement but on an estimation based on the actual pesticide active ingredient application data from grower records before and after the grower changed practices over a certain area. When the pesticide application records are run through the PDST model, it calculates a reduction of Risk Units for pesticides, which equates to a potential water quality improvement measured as percentage of change.

² Warne MStJ, Neelamraju C, Strauss J, Smith RA, Turner RDR, Mann RM. 2020. Development of a method for estimating the toxicity of pesticide mixtures and a Pesticide Risk Baseline for the Reef 2050 Water Quality Improvement Plan. Brisbane: Department of Environment and Science, Queensland Government.



About the Reef Trust Partnership

During the International Year of the Reef in 2018, the Australian Government announced the largest ever single investment in reef protection.

This includes a \$443.3 million partnership with the Great Barrier Reef Foundation to help fund new and existing projects that protect and restore the Reef – delivering and building on the Reef 2050 Plan.

At its core, the Partnership represents an elevation and escalation of effort – from governments, communities, Reef management, Traditional Owners and more – building on the phenomenal work by many and accelerating and amplifying their efforts for the benefit of the Reef. It brings us all together in one of the most exciting and important collective efforts of our time.



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