

WORLD HERITAGE BRIEFING GREAT BARRIER REEF FISHERIES: THREATS AND SOLUTIONS



INTRODUCTION

In 2021, UNESCO presented a draft decision to the 44th session of the World Heritage Committee recommending that the Great Barrier Reef be inscribed on the List of World Heritage in Danger. The Australian Government's Great Barrier Reef Marine Park Authority had earlier downgraded the outlook for 'the Reef' from 'poor' to 'very poor' after two severe coral bleaching events and the slow pace of improvement in reducing local threats¹.

While the Committee did not immediately inscribe the Reef on the Danger List, it requested a Reactive Monitoring Mission and a report by the State Party by 1 February 2022. The Committee also decided to review Australia's management of the Great Barrier Reef at its 45th session.

Importantly, the Committee noted that actions to build the resilience of the property remain of utmost importance and urged the Australian Government to "urgently create opportunities for recovery of the property".

This paper provides an overview of one of the significant conservation issues facing the Reef – the impact of commercial fishing – and recommends actions for how the property's Outstanding Universal Value could be better protected from this commercial use.

ACKNOWLEDGEMENT: The Australian Marine Conservation Society and WWF–Australia acknowledges the sea country management and custodianship of the Great Barrier Reef by Aboriginal and Torres Strait Islander Traditional Owners, whose rich cultures, heritage values, enduring connections and shared efforts protect the Reef for future generations. We pay our respects to their Elders, both past, present and emerging leaders. We acknowledge that the Great Barrier Reef was and always will be Aboriginal land and sea.

AUTHOR: **Simon Miller** | Great Barrier Reef Fisheries Campaign Manager, Australian Marine Conservation Society
E: simonmiller@amcs.org.au | P: +61 7 3846 6777

CONTACT: **Imogen Zethoven** | World Heritage Advisor to the Australian Marine Conservation Society
E: imogen@izethoven.com | P: +61 431 565 495

Richard Leck | Head of Oceans, WWF–Australia | E: rleck@wwf.org.au | P: +61 439 814 847

EXECUTIVE SUMMARY

The Great Barrier Reef is an incredible ecosystem, home to over 1,600 species of fish and a global biodiversity hotspot for iconic threatened marine life. The property is a stronghold for the threatened dugong and home to six of the world's seven species of marine turtle. These populations are so significant they make up part of the Great Barrier Reef's Outstanding Universal Value.

However, the Great Barrier Reef faces a number of threats from fishing which occurs in approximately two thirds of the property. Commercial fishing in particular is responsible for the incidental catch of threatened species such as dugongs, turtles, dolphins and sawfish, overfishing, illegal fishing and damage to vulnerable habitats. The Australian Government's 2019 Great Barrier Reef Outlook Report identified fishing as having a high impact on the values of the property and significant additional interventions are required for the use to be sustainable¹.

The Australian and Queensland Governments are attempting to mitigate these impacts via the Great Barrier Reef 2050 Long Term Sustainability Plan and the Queensland Sustainable Fisheries Strategy. However, the implementation of these management plans is significantly behind schedule, with a number of objectives yet to be achieved and considerable uncertainty as to whether they can be achieved under current policies and funding commitments.

Fishing within the Great Barrier Reef should be held to the very highest standards and current management is falling woefully short, especially in relation to the protection of threatened species such as dugongs and turtles. Fishing is having a detrimental impact on the Outstanding Universal Value of the property. Significant interventions are required to increase the resilience of the property in the face of other threats such as climate change and poor water quality.

RECOMMENDATIONS

Consistent with Decision 44 COM 7B.90 to urgently create opportunities for recovery of the Great Barrier Reef, the following recommendations are proposed for implementation by the Australian and Queensland Governments:

- 1** Accelerate the implementation of the Queensland Sustainable Fisheries Strategy to reach all 2027 objectives on time.
- 2** Report discards in all fisheries.
- 3** Purchase and retire the last three industrial gillnet licenses (N4 licenses) that operate within the property. These licenses are responsible for approximately half of the annual shark catch and a significant proportion of threatened species deaths.
- 4** Establish a “protected species research and innovation fund”. The fund should support: the development of robust population estimates including the ability of populations to recover under different scenarios of fisheries mortality; innovative bycatch reduction devices and alternative gear trials; and management measures to increase protected species resilience to climatic and environmental changes.
- 5** Implement independent data validation (via electronic monitoring) of 100% of Queensland commercial gillnet and trawl vessels by July 2023.
- 6** Implement regional trigger limits and spatial closures based upon the best available science in Protected Species Management Strategies.
- 7** Develop and implement a Protected Species Management Strategy for the Queensland East Coast Otter Trawl Fishery.
- 8** Undertake further research into the impacts of trawling in deepwater habitats and species of the Great Barrier Reef and the potential for spatial trawl closures and other measures to strengthen protection of these habitats and species.
- 9** Deliver a network of spatial closures to gillnet fishing in areas of high conservation value, including the northern Great Barrier Reef (from Cape Flattery north to the Torres Strait).
- 10** Appropriately fund and staff the Queensland Department of Agriculture and Fisheries and the Australian Government’s Great Barrier Reef Marine Park Authority to deliver the above policies.



IMPACTS OF FISHING ON THE VALUES OF THE PROPERTY

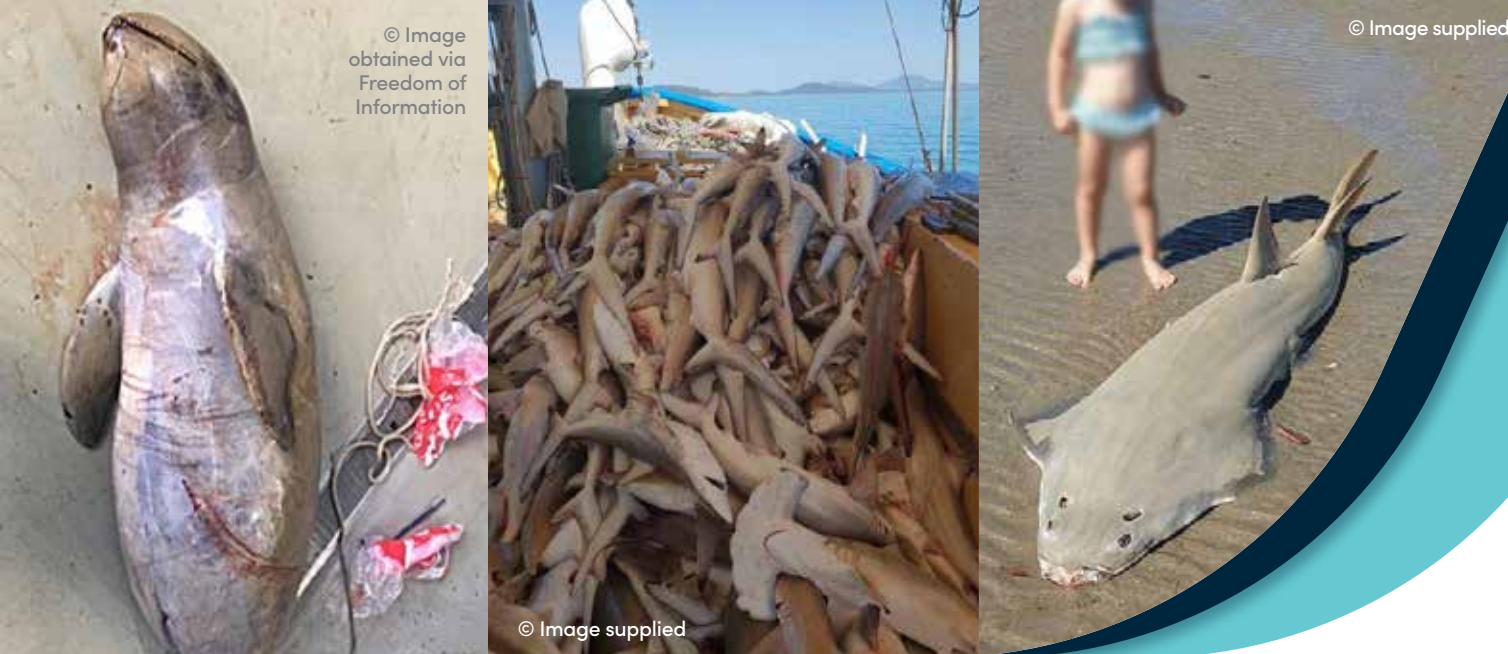
The Great Barrier Reef is home to an incredible diversity of plants and animals, including over 1,600 species of fish, and iconic threatened species such as dugongs, marine turtles, inshore dolphins, sharks and rays. The property is a global stronghold for the threatened dugong and home to six of the world’s seven species of marine turtle, including the largest green turtle nesting site at Raine Island. These populations are so significant they make up part of the Great Barrier Reef’s Outstanding Universal Value.

The Great Barrier Reef is also an integral part of the culture of more than 70 Traditional Owner groups that have a long and continuing connection to the Sea Country of the Great Barrier Reef. Species such as dugongs, turtles, sawfish and barramundi are of high cultural importance and are considered a totem for some families or clans. For Traditional Owners the value of the Great Barrier Reef and its biodiversity is immeasurable and is intertwined with identity and culture.

In addition to the Outstanding Universal Value and cultural values, the Reef is of high economic and social importance to coastal communities, supporting over 200,000 recreational fishers, 60,000 tourism jobs and 1,096 commercial fishing jobs².

FISHERIES THREATS

Approximately two thirds of the property is open to commercial and recreational fishing. Net, trawl, line, pot and hand harvest are the most common fishing methods that impact the Reef and its biodiversity. While fishing on the Great Barrier Reef can be sustainable and low impact, the Australian Government’s 2019 Great Barrier Reef Outlook Report identified fishing as having a high impact on the values of the property and significant additional interventions are required for the use to be sustainable¹.



INCIDENTAL CATCH OF THREATENED SPECIES

The incidental catch of threatened species in commercial fishing gear, particularly gillnets and trawl nets, has been identified as the most significant fisheries sustainability issue in the Great Barrier Reef³.

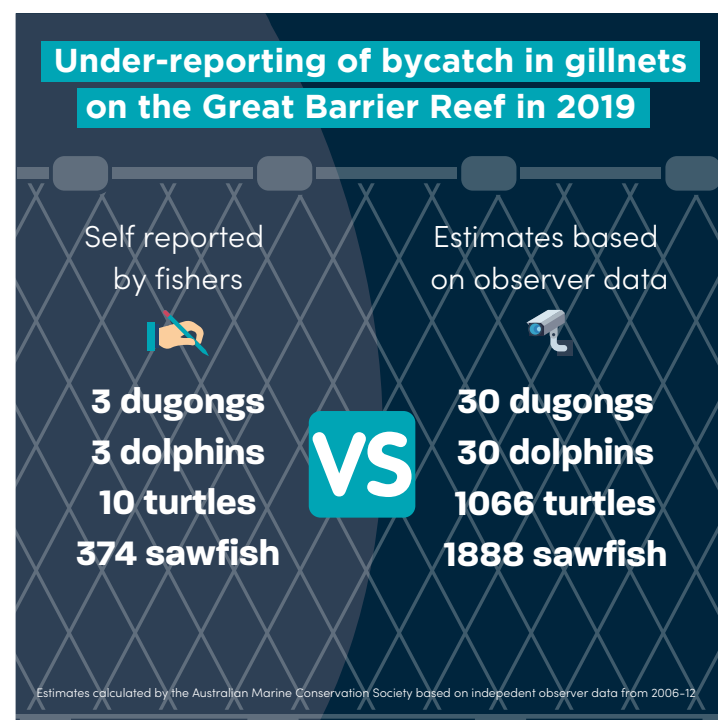
Within the property, gillnets are commonly 600 metres long, but in some cases are up to 1.2 kilometres long. Gillnets are extremely effective at catching fish, but are indiscriminate, catching and accidentally injuring and killing a wide variety of marine species. These nets are largely invisible to threatened species such as dugongs, turtles, dolphins and sawfish that are easily entangled and quickly drown or are, on occasion, intentionally and illegally killed when being removed from the net. Commercial gillnets have been listed as one of the primary threats to sawfish⁴, marine turtles⁵, dugongs^{6,7} and inshore dolphins⁸. These species are late to mature and produce few offspring, so even the loss of a few individuals can have devastating impacts on populations¹.

Within the property, a number of threatened shark species, including the critically endangered scalloped hammerhead shark, are targeted and retained in gillnet fisheries. The Australian Government's

biodiversity legislation fails to adequately protect endangered fish species, such as sharks, by allowing their continued harvest under a management plan. Despite the harvest of critically endangered scalloped hammerhead sharks within the property, aspects of the required management measures have not been fully implemented by the Queensland Government.

Despite improvements in the last two decades to reduce the incidental catch of turtles and other threatened and non-target species, the trawl fishery continues to catch thousands of sea snakes within the property every year⁹, in addition to incidental catch of endangered sawfish and turtles.

Left: A comparison of the numbers of protected species reported by commercial fishers as caught in gillnets in 2019, with a conservative estimate of protected species bycatch in 2019 based upon observed interaction rates when a fisheries observer program was in place (2006–2012).



One of the most significant issues with the incidental catch of threatened species is the unknown scale of the problem. Despite mandatory reporting requirements, interactions with protected species are widely believed to be significantly under-reported¹. The scale of the problem is likely significantly worse than the available data suggests. Interaction rates from when a fisheries observer program was in place suggest that, in 2019, the incidental catch of sawfish was 5 times higher than reported, 10 times higher for dugongs and dolphins, and more than 100 times higher for turtles.

Additional anecdotal records from members of the public who captured footage of the incidental catch of threatened species suggests considerably higher numbers than what has been reported in recent years. The absence of independent validation of the incidental catch of threatened species undermines the Queensland Government's goals of reducing the impact on protected species within the property.

OVERFISHING

Six species within the property¹⁰ are depleted, while many others are fished to below desirable and resilient levels. Despite Queensland Government rules that require fishing of overfished species to stop, targeted fishing of these six species continues in the Great Barrier Reef. Overfishing disrupts the delicate food web and impacts the Great Barrier Reef's resilience in the face of other pressures such as climate change and poor water quality.

The 2019 Great Barrier Reef Outlook Report identifies the extraction of predators and discarded catch (catch that is thrown back to sea) as risks to the Reef ecosystem. Predators such as coral trout, emperors, mackerels and sharks make up approximately 40% of the commercial catch and the majority of recreational catch¹.

Some Great Barrier Reef fisheries are responsible for large volumes of discarded catch. The trawl fishery which operates in the Great Barrier Reef and further south to the Queensland-New South Wales border, is responsible for more than 27% of all fishery discards in Australia, averaging almost 25,000 tonnes per year¹¹. Gillnet fisheries are also responsible for significant amounts of discards, including threatened sharks.



PHYSICAL DAMAGE TO HABITATS

The Queensland Coral Fishery harvests hard and soft corals to supply the global aquarium trade. Coral harvest has increased by 600% between 2006/07 and 2019/20. The large increases in coral harvest are particularly alarming given the corals being targeted for harvest have been heavily impacted by three mass bleaching events in 2016, 2017 and 2020 with an extremely widespread footprint throughout the property, significantly reducing live coral cover and reducing species diversity^{12,13}.

Commercial trawling largely takes place on soft sediments within the Great Barrier Reef property. This fishery continues to have physical impacts on the seabed, disturbing and removing plants and animals attached to the seafloor. Deepwater areas in the southern part of the property are poorly studied and subject to high levels of trawling. Long lived and vulnerable sharks and rays are known to occur in the area and are likely to be caught and killed. The 2019 Great Barrier Reef Outlook Report identifies trawling as a high risk to habitats and species of deepwater areas of the southern Great Barrier Reef¹⁴.

The loss of fishing gear and the anchoring of boats can cause direct physical damage to coral reefs and contribute to increased coral disease¹. Lost and abandoned crab pots continue to attract and trap crabs, fish and, in some cases, threatened turtles.

ILLEGAL FISHING

Illegal commercial fishing has declined in recent years due to the introduction of vessel monitoring systems in all major Queensland commercial fisheries. However, illegal fishing in fully protected areas continues to take place, albeit at lower levels¹⁵. The most common instance of illegal fishing is the non-reporting and misreporting of commercial catch, in particular interactions with threatened species.

Illegal recreational fishing and poaching has increased in recent years, particularly in fully protected areas closed to fishing¹. The increase in offences correlates with population increases in coastal communities and long-term increases in recreational fishing participation.

Even low levels of illegal fishing can have substantial impacts on fish populations and ecosystem health¹. Illegal fishing undermines the protection offered by marine park zoning within the Great Barrier Reef and adds to the cumulative impacts on ecosystems and threatened species.



CURRENT MANAGEMENT

The Great Barrier Reef 2050 Long Term Sustainability Plan (the Reef 2050 Plan) is the primary management plan to protect the property and increase its resilience. The Plan is implemented by both the Australian and Queensland Governments. At present the Reef 2050 Plan is in the process of being revised and the final plan is yet to be publicly released. The 2018 version of the Plan has a number of fisheries actions and targets, including fully implementing the Queensland Government's Sustainable Fisheries Strategy 2017-2027 (SFS).

The Queensland Government, which directly manages commercial and recreational fishing in the Great Barrier Reef, is currently midway through implementing the SFS. The Strategy's goal is to lift fisheries management to world's best practice standards by:

- Increasing and maintaining all fish stocks at 60% of unfished levels by 2027, and having no overfished species by 2027
- Reducing the risk to threatened species and habitats
- Validating commercial catch and effort data, including threatened species interactions
- Improving fisheries compliance

Implementation of these reforms has commenced, however many are significantly behind schedule and recent management decisions, such as the failure to close the overfished scallop fishery, raise doubt as to whether the 2027 objectives will be achieved.

A number of other fisheries related targets in the Reef 2050 Plan have not been met, resulting in populations of the southern Great Barrier Reef dugong and hawksbill turtle continuing to decline.

The Queensland Government has recently commenced implementation of a Protected Species Management Strategy for the gillnet fishery, which has a stated objective of reducing interactions with threatened species to as close to zero as possible.

Additional protection is provided by marine park zoning, which includes an extensive network of fully protected areas covering approximately 33% of the property. Special Management Areas such as Dugong Protection Areas or Net-Free Zones also provide partial or full protection to some species in some parts of the property under both Queensland and Australian law.





As a result of the 2015 World Heritage Committee Great Barrier Reef Decision 39 COM 7B.7, significant milestones in the delivery of sustainable fisheries were achieved. These included the development of the Queensland Sustainable Fisheries Strategy 2017-2027, establishment of three Net-Free Zones within the property, and the implementation of mandatory Vessel Monitoring Systems on all commercial fishing vessels. The recommendations contained within this brief are a logical extension and will resolve outstanding fisheries sustainability issues that are impacting the Outstanding Universal Value and resilience of the Great Barrier Reef.

ANALYSIS

Recent reforms to commercial fishery management have significantly improved the management of target species in the Great Barrier Reef. However, implementation of the SFS is significantly behind schedule – in some cases by a number of years. This delay raises serious concerns that crucial objectives relating to ensuring resilient fish populations and reducing threats to protected species will not be achieved.

RECOMMENDATIONS

1. Accelerate the implementation of the Queensland Sustainable Fisheries Strategy to reach all 2027 objectives on time.
2. Report discards in all fisheries.

The major failure of fishery reforms within the property is the lack of progress to reduce impacts on threatened species, particularly in gillnet and trawl fisheries, and to recover key populations of dugongs, turtles and dolphins.

These species contribute to the Outstanding Universal Value of the Great Barrier Reef. The property should be a refuge for these threatened species, but current management is failing them. Urgent management action is required to reverse this trend to stabilise and recover populations of threatened species.

RECOMMENDATIONS

3. Purchase and retire the last three industrial gillnet licenses (N4 licenses) that operate within the property. These licenses are responsible for approximately half of the annual shark catch and a significant proportion of threatened species deaths.
4. Establish a “threatened species research and innovation fund”. The fund should support: the development of robust population estimates including the ability of populations to recover under different scenarios of fisheries mortality; innovative bycatch reduction devices and alternative gear trials; and management measures to increase threatened species resilience to climatic and environmental changes.

While the Queensland Government’s development of a Protected Species Management Strategy for the gillnet fishery is welcome, the Strategy has a number of critical flaws that ensures that it is destined to fail. At present the Strategy holds fishers accountable for their catch of protected species. While at first glance this sounds positive, it will have the perverse effect of encouraging fishers not to report or to under-report interactions, particularly given the existing issues regarding serious under-reporting and absence of independent verification. Without accurate data, it is impossible to stabilise and recover populations of threatened species.

Independent data validation is the solution to this problem and a key aspect of the SFS that is yet to be progressed, running more than two years behind schedule. Electronic monitoring via cameras on boats is more cost-effective than human scientific observers, reduces safety risks and can provide a much higher level of coverage¹⁶. Full coverage of gillnet and trawl vessels within the Great Barrier Reef is achievable.

RECOMMENDATION

5. Implement independent data validation (via electronic monitoring) of 100% of Queensland commercial gillnet and trawl vessels by July 2023.

Under the Protected Species Management Strategy for the gillnet fishery, fishers do not face serious repercussions until multiple threatened species deaths have occurred. With over 240 licensed gillnet vessels able to fish in the World Heritage property, there is a high risk that the cumulative impact could lead to localised extinctions and the rapid and permanent decline of iconic threatened species such as dugong, hawksbill turtles and all species of sawfish. Precautionary trigger limits and dynamic spatial closures based upon the best available scientific evidence are urgently required to stop the decline.

RECOMMENDATION

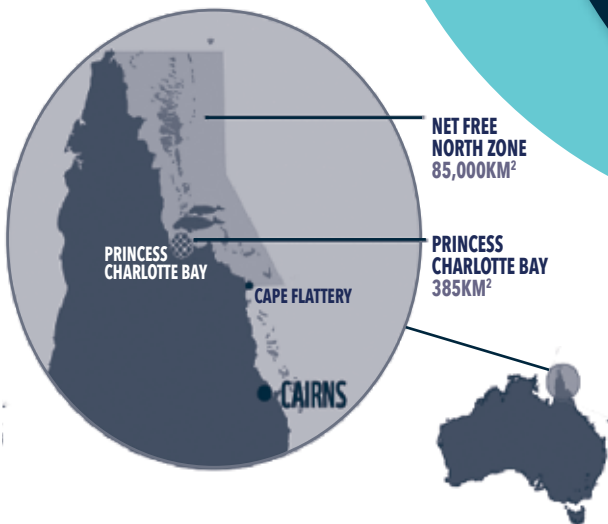
6. Implement regional trigger limits and spatial closures based upon the best available science in Protected Species Management Strategies.

It should also be noted that a Protected Species Management Strategy does not exist for the trawl fishery in Queensland and the fishery remains a high risk to deepwater habitats in the Great Barrier Reef as well as to sea snakes and some sharks and rays. Further research into deepwater habitats, along with improvements to bycatch reduction devices and spatial closures to trawling should all be undertaken to reduce the risk to the property.

RECOMMENDATIONS

- 7. Develop and implement a Protected Species Management Strategy for the Queensland East Coast Otter Trawl Fishery.
- 8. Undertake further research into the impacts of trawling in deepwater habitats and species of the Great Barrier Reef and the potential for spatial trawl closures and other measures to strengthen protection of these habitats and species.

While the marine park zoning system within the property and the three Net-Free Zones along the Reef coastline provide a degree of protection to threatened species, further protection is required in areas of high conservation value and in biologically important areas for threatened species. The northern Great Barrier Reef from Cape Flattery to the Torres Strait (see map) is home to globally significant populations of threatened species including dugongs, turtles, inshore dolphins and sawfish. The area is currently subject to low levels of gillnet fishing effort, but with improving road access to the adjacent Cape York Peninsula, the northern Great Barrier Reef is at risk of increased fishing effort in the future. Removing gillnet fishing from this region would come at low cost and provide vital protection in critical habitats for these species. The concept has the support of a number of Traditional Owner communities who see potential economic opportunities through world-class charter fishing opportunities and culture and nature based tourism.



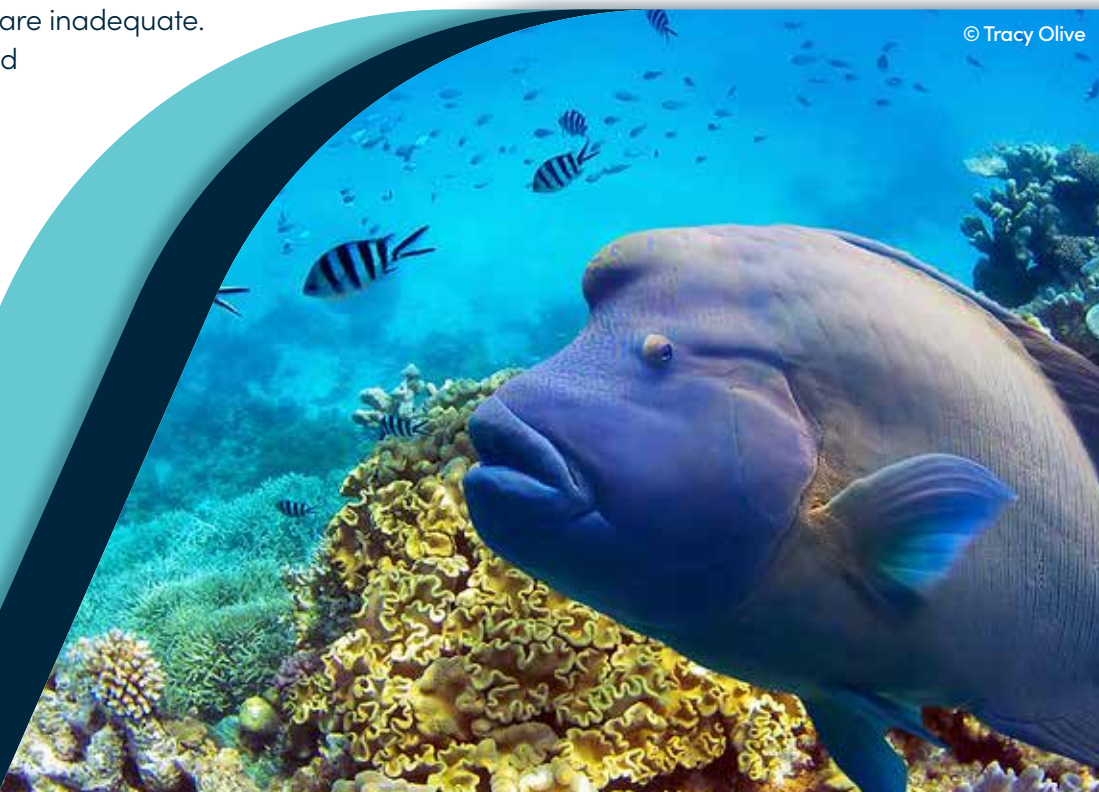
RECOMMENDATION

- 9. Deliver a network of spatial closures to gillnet fishing in areas of high conservation value, including the northern Great Barrier Reef (from Cape Flattery north to the Torres Strait).

Current funding and staffing commitments to deliver the Queensland Sustainable Fisheries Strategy, a critical component of the Reef 2050 Plan, are inadequate. Additional resourcing and funding from both the Australian and Queensland Governments is required to reduce the impacts of fishing on the Outstanding Universal Value of the Great Barrier Reef and to increase the resilience of the property in the face of other threats such as climate change and poor water quality.

RECOMMENDATION

- 10. Appropriately fund and staff the Queensland Department of Agriculture and Fisheries and the Australian Government's Great Barrier Reef Marine Park Authority to deliver the above policies.



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AUSTRALIAN MARINE CONSERVATION SOCIETY

marineconservation.org.au | amcs@amcs.org.au
+61 7 3846 6777 | PO Box 5815, West End QLD 4101

WWF-AUSTRALIA

wwf.org.au | enquiries@wwf.org.au
+61 2 8228 6800 | PO Box 528, Sydney NSW 2001

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