

# MPAs 2.0

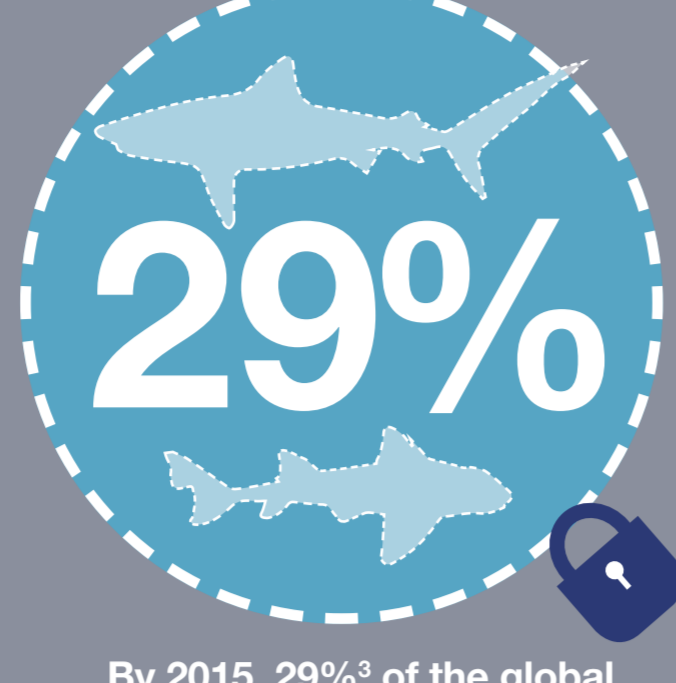
## How MPAs can prevent the extinction of threatened species

Despite the rapid growth in marine protected areas (MPAs), biodiversity is being lost faster than ever. Why? It turns out that the global MPA network is failing to prevent the extinction of known threatened species<sup>1</sup>, and sharks and rays (Chondrichthyans) in particular.

Based on Davidson, L. N. K. & Dulvy, N. K. (2017). Global marine protected areas to prevent extinctions. *Nature Ecology and Evolution*: [www.dulvy.com/mpa2point0.html](http://www.dulvy.com/mpa2point0.html)



We focus on sharks and rays because they are the most threatened class of marine organisms<sup>2</sup>.



By 2015, 29%<sup>3</sup> of the global MPA was designated exclusively for shark and ray conservation.



We most urgently need to save 99 shark and ray species – those species that are globally restricted (endemic) and considered 'imperilled'<sup>\*</sup>.



Of these 99 imperilled species, only 12 have 10% or more of their geographic range inside a no-take MPA.

1. Butchart, S. H. M. et al. Shortfalls and solutions for meeting national and global conservation area targets. *Conserv. Lett.* 3: 329–337 (2010).  
2. Dulvy et al. (2014) Extinction risk and conservation of the world's sharks and rays. *Elife* 3. e00590.  
3. [www.mpatlas.org](http://www.mpatlas.org)



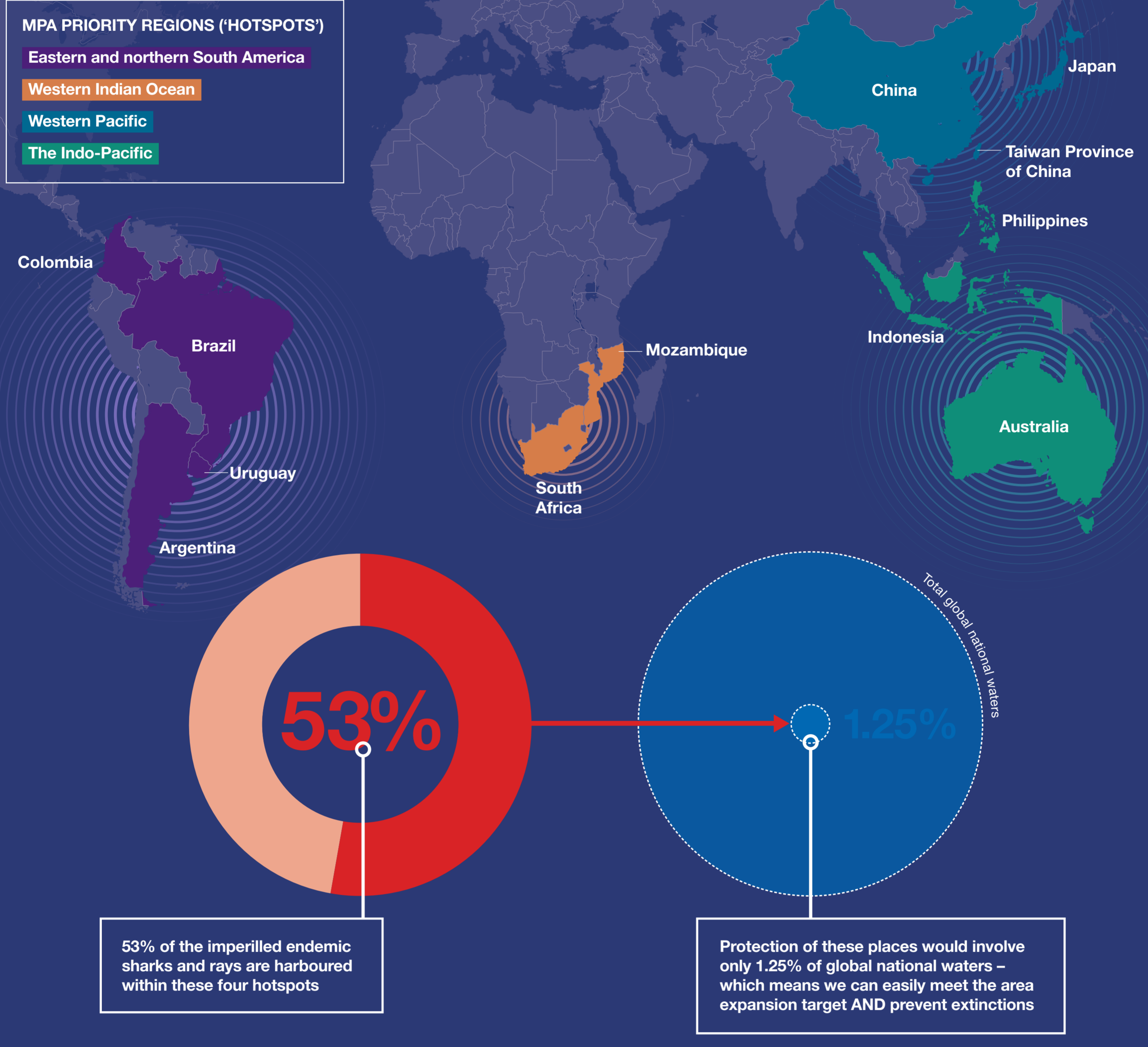
\*Imperilled = chondrichthyan species categorised by IUCN Red List as Critically Endangered, Endangered, Vulnerable or Data Deficient but predicted to be threatened with extinction.

**FINDING**  
The current configuration of MPAs is not saving the shark and ray species most in need of protection.

## Where should MPAs be placed to prevent shark and ray extinctions?

How can we meet the area target (CBD Aichi Target 11<sup>i</sup>) and save species (CBD Aichi Target 12<sup>ii</sup>)? By narrowing in on 12 priority countries and territories in four 'hotspot' areas.

i. [www.cbd.int/sp/targets/rationale/target-11](http://www.cbd.int/sp/targets/rationale/target-11)  
ii. [www.cbd.int/sp/targets/rationale/target-12](http://www.cbd.int/sp/targets/rationale/target-12)



53% of the imperilled endemic sharks and rays are harboured within these four hotspots

Protection of these places would involve only 1.25% of global national waters – which means we can easily meet the area expansion target AND prevent extinctions

**FINDING**  
Strategic placing of MPAs centred on hotspots for threatened endemic species is necessary to prevent extinctions.

The average size of an MPA is<sup>†</sup> 3.3km<sup>2</sup>

The average geographic range of sharks and rays is 500,000 km<sup>2</sup>

This means that most sharks and rays will range outside of MPAs and be susceptible to capture by fisheries.

MPAs alone – even when strategically reconfigured – are not enough to conserve sharks and rays. We also need fisheries management that makes shark and ray fishing sustainable.

## Shark and ray fisheries management

Sharks and rays are fished by 128 nations for their fins, meat, oil, jaws, and skin. These species can be protected by implementing management that prevents overfishing.

We looked at four fisheries management measures in each of the hotspot countries.

1



**FINNING REGULATION**  
Regulate finning (cutting off a shark's fins and dumping the carcass overboard) through adopting either:  
• A fins-attached policy (shark and ray brought back to land whole), or  
• A fin-to-carcass ratio (fins brought back separately, though must weigh a percentage of the weight of the bodies).

2



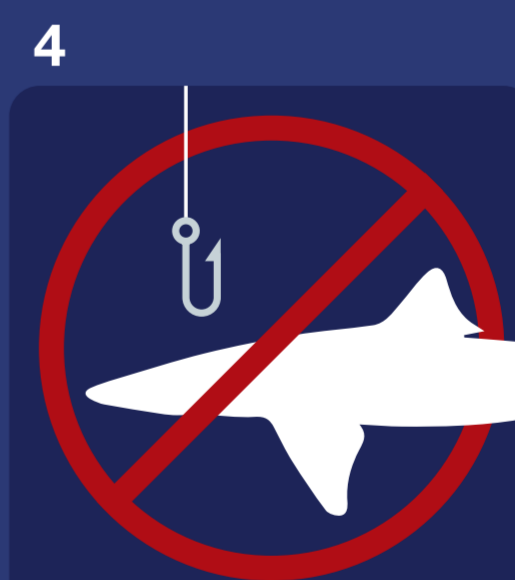
**SHARK-PLAN**  
Implement a Shark-plan to sustainably manage shark and ray fisheries.

3



**CMS MoU**  
Become a signatory to the Convention on Migratory Species Memorandum of Understanding – a plan where countries work together to develop a conservation plan for highly migratory shark and ray species.

4



**PSMA**  
Become a signatory to the UN FAO's Port State Measures Agreement to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated fishing

**FINDING**  
All 12 countries can improve their fisheries management.

## How to improve shark and ray fisheries management in the 12 hotspot countries

COUNTRY	FISHERIES MANAGEMENT			
	FINNING REGULATION	SHARK-PLAN	CMS MoU	PSMA
Colombia				ADOPT
Brazil		ADOPT	ADOPT	STRENGTHEN
Uruguay	ADOPT		ADOPT	
Argentina		STRENGTHEN	ADOPT	ADOPT
South Africa	STRENGTHEN	ADOPT		ADOPT
Mozambique	ADOPT	ADOPT	ADOPT	
Taiwan Province of China		STRENGTHEN	ADOPT	ADOPT
Japan	ADOPT	STRENGTHEN	ADOPT	ADOPT
China	ADOPT	ADOPT	ADOPT	ADOPT
Australia	STRENGTHEN			
Indonesia	ADOPT	STRENGTHEN	ADOPT	STRENGTHEN
Philippines	ADOPT	ADOPT		ADOPT

KEY  
ADOPT: Adopt management measure, as none in existence  
STRENGTHEN: Strengthen existing management measure

**FINDING**  
To protect threatened species, widespread improvements in fisheries management are needed to complement a strategic network of MPAs.

## OVERVIEW

A strategic reconfiguration of MPAs could improve their ability to protect not only the 99 imperilled, endemic species of sharks, but also many more wide-ranging species. Hotspot analysis reveals four priority areas covering 12 countries.

An extinction-proofing MPA network will likely need to be complemented by widespread improvements in fisheries management in the 12 hotspot countries.

These actions will minimize the mortality of threatened species and ensure the sustainability of others.