The science of 30x30 ocean protection

Callum Roberts
Professor of Marine Conservation
University of Exeter, UK
Why 30% ocean protection is necessary

Why a high level of protection is critically important
Biodiversity representation and protection of threatened and declining species

Photo: Alex Mustard

Photo: David Liitschwager
The species-area relationship

Percentage of species represented vs. Percentage of habitat included
90% of global priority sites for biodiversity can be protected with 21% of ocean in MPAs.

More of the sea must be protected with less coordination and if countries follow national priorities.

Sala et al. (2021) Protecting the global ocean for biodiversity, food and climate. Nature
Fisheries values of MPAs

- Promote spawning-stock build-up, especially of big, old animals
- Increase reproductive output and export eggs and larvae
- Produce spillover to surrounding fishing grounds
- Protect nursery habitats
- Provide safe-havens for reproduction
- Increase feeding opportunities for mobile target and non-target species
- Provide refuges for vulnerable species and habitats
Fisheries benefits from MPAs

O’Leary, Hawkins, Roberts et al. (2016) **Effective coverage targets for ocean protection** *Conservation Letters* DOI: 10.1111/conl.12247
Two faces of the same coin

MPA coverage

MPA protection level
Fully/highly protected MPAs are the gold standard for effective ocean conservation.

Fully/highly protected MPAs had 7x more fish than unprotected areas, while lightly protected areas only doubled biomass.

No marine protected areas
30% lightly/minimally protected

No marine protected areas

Amount of marine life

Percent of ocean

10 20 30 40 50 60 70 80 90 100
30% fully/highly protected

No marine protected areas
2.2 times more marine life than light/minimal protection

- 30% Highly/Fully protected MPAs
- 30% Lightly/Minimally protected MPAs
- No MPAs

Total amount of marine life
Giving all of the sea light/minimal protection would not provide as much benefit as 30% highly/fully protected.
Fully and highly protected MPAs encourage many uses
All MPAs need good management and community support to succeed.