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# SCIENTIFIC RATIONALE FOR THE DESIGNATION OF VERY LARGE MARINE RESERVES

## INTRODUCTION

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The world's marine ecosystems continue to be seriously degraded by overfishing, pollution, climate change and other human activities that ultimately threaten the livelihoods, food security and economic development of many millions of people. It is now evident that the world's oceans need to be better managed if we are to safeguard the full range of their marine life and critically important ecosystem services.

While 5.8 percent of terrestrial habitats have been designated as no-take parks to conserve their biodiversity and the ecosystem services they provide to human societies, as of May 2010 less than 0.4 percent of the world's oceans are fully protected. Most of these marine no-take areas are small and inshore, providing important local conservation benefits in regions that are already heavily fished. However, these small areas provide relatively limited protection for many wide-ranging species that move through the broader seascape. Large reserves, where ecological processes and functions can operate much as they have for millennia, are virtually missing from the marine conservation and management portfolio. The world's great terrestrial parks provide an important service in preserving ecosystems and wide-ranging species and in supporting non-extractive industries such as tourism. The world needs to establish similar ocean-scale reserves.

Global Ocean Legacy, a project of the Pew Environment Group and its partners, seeks to identify and protect a small number of very large marine ecosystems over five years in areas which historically have not been fished intensively, are still relatively intact and are within political jurisdictions of nations with the capability to monitor and enforce protection. Growing market demands for ever-more inaccessible fish stocks means that even isolated and remote locations are likely to lose their *de facto* conservation status in the near future unless there is a transformative improvement in management and governance of marine ecosystems. Creating a worldwide system of very large marine no-take areas is an essential and long-overdue contribution to improving stewardship of the global marine environment.

## SUPPORTING STATEMENTS

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Recently, there have been a number of promising developments in marine conservation. In 2004, the Great Barrier Reef Marine Park was re-zoned to make one-third of the 344,400 square kilometer park no-take—now the world's largest marine reserve network; in 2006, two oceanic coral archipelago systems were protected: the 362,000-square-kilometer Papahānaumokuākea Marine National Monument in the northwestern Hawaiian Islands which became fully no-take in January 2010, and the 408,000 square kilometer Phoenix Islands Protected Area in the Republic of Kiribati which is now partially no-take. In 2009, former U.S. President George W. Bush established three new Marine National Monuments in the Pacific, covering 505,000 square kilometers, with 60

percent being no-take. And finally, in 2010, the United Kingdom established the 544,000 square kilometer Chagos Protected Area as the largest no-take reserve in the world.

The goal of Global Ocean Legacy is to identify and secure protection for additional large marine ecosystems—until recently protected only by their geographic isolation—before significant environmental degradation can occur. The expected benefits of these reserves include:

1. **Ensuring that top predators such as sharks, swordfish and marine mammals remain abundant** and preserving exemplars of relatively intact food webs that are free from severe depletion.
2. **Providing reference sites for future scientific research and public education.**
3. **Matching the scale of management to the scale of important ecosystem processes, such as dispersal and migration of many species.** Offshore islands and reefs are typically small and relatively isolated from each other compared to continental coastlines. Consequently, marine species at isolated locations have fewer and more distant sources of replenishment. Effective management should protect the entire life-cycle of species.
4. **Improving resilience to the accelerating impacts of climate change.** A growing body of evidence indicates that protecting the structure of foodwebs and maintaining the ecological function of targeted species is critical for building resilience and preventing regime-shifts to degraded ecosystems.
5. **Ensuring the long-term recovery, conservation and maintenance of populations of highly mobile and migratory species.** Large reserves protect a sufficient expanse of ocean to provide important habitat and refugia for species such as tuna, sharks, seabirds, turtles and marine mammals.
6. **Ensuring protection whilst minimizing social and economic costs.** Very large no-take marine reserves are highly appropriate for remote, relatively intact areas because they protect biodiversity, species and habitat in areas where there are few existing uses and therefore minimal potential conflicts and costs to society.
7. **Enhancing the global reputations of managing nations.** Countries that create very large no-take areas will be recognized as world leaders in developing new solutions for the stewardship of marine biodiversity.

## CONCLUSION

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Globally, there are only a small number of intact regions where it is possible to establish, monitor and protect very large marine reserves. These regions should be an urgent priority for protection, based on strong public and political support. We support the efforts of Global Ocean Legacy in seeking to establish a new benchmark for the protection of ocean ecosystems—one to which all nations can aspire.