



First Meeting of the Signatories
Memorandum of Understanding on the Conservation of Migratory Sharks

Shark Conservation and Management in Australia

Australia is committed to the international protection and conservation of migratory species and to the national protection of such species whilst they are located in, or pass through, areas within Australia's jurisdiction. This includes six of the seven shark species that are currently listed on the Sharks MoU – white shark, basking shark, whale shark, porbeagle, shortfin mako and longfin mako.

Domestically, species listed on CMS Appendices I and II are protected under national environmental law, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Through listing the species as migratory under the EPBC Act, it becomes an offence to kill, injure, take, trade, keep or move the species in Commonwealth waters.

Management Actions

The Australian Government affords sharks protection through a suite of complementary measures.

Marine bioregional plans have been developed for four of Australia's marine regions - South-west, North-west, North and Temperate East. Marine Bioregional Plans will help improve the way decisions are made under the EPBC Act, particularly in relation to the protection of marine biodiversity and the sustainable use of our oceans and their resources by our marine-based industries. Marine Bioregional Plans aim to ensure that the marine environment remains healthy and resilient. The plans will be used by government and industry to improve the way the marine environment is managed and protected.

Very little is known about Australia's oceans compared to our terrestrial environment. Marine Bioregional Plans improve our understanding of Australia's oceans by presenting a consolidated picture of the biophysical characteristics and diversity of marine life, including sharks. They describe the marine environment and conservation values of each marine region, set out broad biodiversity objectives, identify regional priorities and outline strategies and actions to address these priorities. Copies of the Marine Bioregional Plans can be accessed here: <http://www.environment.gov.au/coasts/marineplans/index.html>

The National Plan of Action for Sharks is Australia's overarching policy for guiding and coordinating engagement in shark conservation and management. The second iteration of this plan was released in July 2012, reaffirming Australia's commitment to shark conservation. The plan identifies how Australia will manage and conserve sharks, and ensure that Australia meets international conservation and management obligations. The plan identifies research and management actions across Australia for the long-term sustainability of sharks, including actions to help minimise the impacts of fishing on sharks.

A copy can be accessed here:

<http://www.daff.gov.au/fisheries/environment/sharks/sharkplan2>

The government also works closely with fisheries management agencies to ensure that fishing activities do not have an unsustainable impact on sharks. All Commonwealth-managed fisheries and state fisheries that export product or operate in Commonwealth waters are required to be assessed under the EPBC Act.

Shark finning is not permitted in Commonwealth-managed fisheries. Similar measures are in place to encourage full retention in state and territory managed fisheries.

The whale shark and the white shark are listed as threatened under the EPBC Act. Species that are listed as threatened under the Act have recovery plans in order to facilitate their recovery. The recovery plans for both the whale and white shark are currently under review, however, copies of the current plans can be accessed here:

Whale shark: <http://www.environment.gov.au/biodiversity/threatened/publications/recovery/r-typus/>

White shark: <http://www.environment.gov.au/coasts/publications/gwshark-plan/index.html>

Research

White Shark

The draft revised white shark recovery plan includes a range of research actions, including actions which will assist in understanding the population status and trends of this species to determine whether it is recovering.

The Western Australian government has allocated \$1.7 million from 2011-12 to 2015-16 to four major shark research projects. These projects will contribute to implementing actions under the recovery plan. One of Western Australia's key research projects currently underway involves monitoring acoustically-tagged white sharks around the south west of Western Australia, which will ultimately improve understanding of the white shark population status and contribute to improved conservation actions.

The three other key research projects underway in Western Australia include a study into correlations between shark interactions/sightings and factors such as water temperature, fish and seal abundance, whale movements, weather conditions, seasonal fluctuations and the time of day, a study into the impact on shark numbers following changes in fisheries management and a desktop study on the effectiveness of beach netting as a shark hazard mitigation strategy.

There have been a number of research papers released recently regarding white sharks, which also contribute to our understanding of white shark population status:

Blower, D. C., Gomez-Cabrera, M. C., Bruce, B. D., Pandolfi, J. M. and Ovenden, J. R. (2012), Population genetics of Australian white sharks reveals fine-scale spatial structure,

transoceanic dispersal events and low effective population sizes. *Marine Ecology Progress Series*, Vol. 455: 229–244, 2012.

Bruce, B.D., Stevens, J.D. and Malcolm, H. (2006), Movements and swimming behaviour of white sharks (*Carcharodon carcharias*) in Australian waters. *Mar Biol* (2006) 150:161–172.

Bruce, B.D. and Bradford, R.W. (2012), Habitat Use and Spatial Dynamics of Juvenile White Sharks, *Carcharodon carcharias*, in Eastern Australia. Chapter 17 in *Global Perspectives On The Biology and Life History of the White Shark*. CRC Press, Boca Raton, FL.

Curtis, T., Bruce, B.D. Cliff, G., Dudley, S. J., Klimley, A. P., Kock, A. A., Lea, R. Lowe, C. G., McCosker, J., Skomal, G. B., Werry, J. M. and West, J. G. (2012), Responding to the Risk of White Shark Attack Updated Statistics, Prevention, Control Methods, and Recommendations. Chapter 31 in *Global Perspectives On The Biology and Life History of the White Shark*. CRC Press, Boca Raton, FL.

Sims, D. W., Humphries, N. E., Bradford, R. W. and Bruce, B. D. (2012), Levy flight and Brownian search patterns of a free-ranging predator reflect different prey field characteristics. *Journal of Animal Ecology* 2012, 81, 432–442.

Whale Shark

The Australian Government has funded a range of projects aimed at the conservation of whale sharks.

The Western Australian Department of Environment and Conservation is developing a Whale Shark Management Plan for the Ningaloo Coast World Heritage Area. This project will develop a management plan to combat increasing pressures on the species, and provide a blueprint for future research and monitoring requirements.

ECOCEAN has a project aimed at encouraging community participation in the management of natural resources by encouraging school students to become involved in the conservation of their surrounding marine environment. The concept of 'citizen science' will be introduced to students through ECOCEAN's Whale Shark Photo-identification Library. The Library is the largest global monitoring database for the species, and uses the animal's individual spot patterns to identify and monitor whale sharks.

ECOCEAN also ran a project to undertake public education to inform eco-tourists of the conservation concerns facing the threatened whale shark and especially how to minimise impacts to the species caused through human-shark interactions. An associated scientific program was also undertaken to assess whether impacts are being attenuated over time when tour operators implement variations to accepted management guidelines; and encourage tourists to become 'citizen scientists' to collect whale shark identification photos for population studies to determine whether whale sharks at Ningaloo are still in decline or recovery (to help indicate whether current management of the species is succeeding in achieving conservation objectives).

Mako Sharks

An Australasian Mako Shark Workshop was held in Hobart, Tasmania in February 2012. The workshop was well attended by State and Commonwealth fisheries managers and researchers, Commonwealth Environment Department representatives, international fisheries researchers and managers from the Secretariat of the Pacific Community (SPC), National Institute of Water and Atmospheric Research (NIWA), Ministry of Agriculture and Fisheries MAF-New Zealand and the NOAA Southwest Fisheries Science Centre (USA), recreational fishing representatives and non-government conservation organisations. The workshop examined the national policy framework, regional context, data holdings, research and management in the Australasian region. The workshop identified gaps in knowledge along with research and data collection needs and priorities. The outcomes of the workshop are expected to be available later this year.