



Australian Government

Department of the Environment

Dr Gordon de Brouwer
Secretary

Ref: EC15-000665

Ms Christine McDonald
Secretary
Senate Standing Committee on Environment and Communications
PO Box 6100
Parliament House
Canberra ACT 2600

Dear Ms McDonald

Please find attached the Department of the Environment's submission to the Senate Standing Committee on Environment and Communications inquiry into the threat of marine plastic pollution in Australia and Australian waters. The Department of the Environment engages with marine plastic pollution as a result of the impact that this material has on native species, including species listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

The *Threat abatement plan for the impacts of marine debris on vertebrate marine life 2009-2014*, a legislative instrument under the EPBC Act, is currently being revised. A recent workshop was held to support the revision and included industry, government agencies, researchers and non government organisations. Priorities for addressing the significant threat to Australia's marine wildlife posed by plastic and other debris in the ocean were identified for potential inclusion in the new threat abatement plan.

Yours sincerely

Gordon de Brouwer

Senate Standing Committees on Environment and Communications

Inquiry into the threat of marine plastic pollution in Australia and Australian waters

The Department of the Environment works with experts, state and territory governments and other stakeholders to manage threats to matters of national environmental significance.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a framework for the management of these threats by providing for the listing of key threatening processes and the development of threat abatement and recovery plans.

Key threatening processes threaten the survival, abundance or evolutionary development of a native species or ecological community. The assessment of a threatening process as a key threatening process is the first step to addressing the impact of a particular threat under Commonwealth law. The key threatening process *Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris* was listed under the EPBC Act in 2003.

Once a threatening process is listed under the EPBC Act, a threat abatement plan can be put into place if the Minister for the Environment decides that it is 'a feasible, effective and efficient way' (section 270A(2)) to abate the threatening process. Threat abatement plans are developed by the Department of the Environment in consultation with the Threatened Species Scientific Committee, state and territory governments, experts and other stakeholders. The draft plans are made available for public comment for a three month period. In making a threat abatement plan regard is given to the role and interests of Indigenous people in the conservation of Australia's biodiversity.

Threat abatement plans outline the research, management and other actions necessary to reduce the impacts of a listed key threatening process on affected listed threatened species and ecological communities. The *Threat abatement plan for the impacts of marine debris on vertebrate marine life* was made as a legislative instrument under the EPBC Act in 2009 and reviewed in 2014. Minister Hunt has decided to revise the plan and this will be completed in 2016.

Recovery plans set out the research and management actions necessary to stop the decline, and support the recovery, of listed threatened species or threatened ecological communities. The aim of a recovery plan is to maximise the long term survival in the wild of a threatened species or ecological community. Several recovery plans are relevant to the threat posed by marine plastic pollution.

In addition to its activities under the EPBC Act, the Department of the Environment leads Australian engagement with the International Whaling Commission, including on issues related to the impact of marine plastic debris on cetaceans. The Department funds both regional and national involvement in community effort to understand sources and remove marine debris and is a participant in the [Australian Packaging Covenant](#), on behalf of the Australian Government. The Department works cooperatively with states, the Northern Territory and local governments which have jurisdiction over marine debris issues in coastal waters and along coastlines.

Department of the Environment responses against the Inquiry Terms of Reference are as follows:

(a) the review of current research and scientific understanding of plastic pollution in the marine environment

- The [Review of the Threat abatement plan for the impacts of marine debris on vertebrate marine life 2009-2014](http://www.environment.gov.au/system/files/resources/d945695b-a3b9-4010-91b4-914efcdbae2f/files/tap-review-marine-debris.pdf) was completed in 2014. This document provides a recent assessment of issues related to the impacts of marine debris, including plastic pollution, on wildlife. This document is available at <http://www.environment.gov.au/system/files/resources/d945695b-a3b9-4010-91b4-914efcdbae2f/files/tap-review-marine-debris.pdf>

(b) sources of marine plastic pollution

The [Threat abatement plan for the impacts of marine debris on vertebrate marine life](http://www.environment.gov.au/system/files/resources/d945695b-a3b9-4010-91b4-914efcdbae2f/files/tap-review-marine-debris.pdf) states that

- Marine debris originates from sources both on land and at sea, and may travel long distances from where it first entered the marine environment. Harmful marine debris refers to all plastics and other types of debris from domestic or international sources that may cause harm to vertebrate marine wildlife. This includes land sourced plastic garbage (e.g. bags, bottles, ropes, fibreglass, piping, insulation, paints and adhesives), derelict fishing gear from recreational and commercial fishing activities and ship-sourced, solid non-biodegradable floating materials lost or disposed of at sea.

Recent relevant publications include:

- Hardesty, B. D., & Wilcox, C. 2011. Understanding the types, sources and at-sea distribution of marine debris in Australian waters. *Hobart: CSIRO*.
<http://secure.environment.gov.au/coasts/pollution/marine-debris/publications/pubs/marine-debris-sources.pdf>
- Reisser J, J Shaw, C Wilcox, BD Hardesty, M Proietti, M Thums, C Pattiaratchi. 2013. Marine plastic pollution in waters around Australia: characteristics, concentrations and pathways. *PLoS One* 8(11):
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0080466>
- Wilcox, C., Heathcote, G., Goldberg, J., Gunn, R., Peel, D. and Hardesty, B. D. (2015), Understanding the sources and effects of abandoned, lost, and discarded fishing gear on marine turtles in northern Australia. *Conservation Biology*, 29: 198–206.
<http://onlinelibrary.wiley.com/doi/10.1111/cobi.12355/abstract>

(c) the impacts of marine plastic pollution, including impacts on species and ecosystems, fisheries, small business, and human health

Marine turtles

- The *Recovery Plan for Marine Turtles in Australia* (2003) identified marine debris, including the impacts of entanglement and ingestion of plastics, as a threat to marine turtles. The Department is currently revising the plan. Marine debris is one of the highest risks threatening Australian marine turtles stocks. Marine debris, specifically ghost nets, are likely to be having a major impact on marine turtle populations. Plastic pollution is likely to be contributing to the decline in the health of turtle species in Australian waters.

Pinnipeds

- *The Sub-Antarctic fur seal and southern elephant seal recovery plan (2004-2009)* lists interaction with non-biodegradable debris as a potential threat to these species. The recovery plan is currently under review. Marine debris (including through micro-plastic ingestion) is now identified as a known potential threat. Entanglements in macro-debris (mainly involving sub-Antarctic fur seals) are recorded on a regular basis.

Albatross and giant petrel

- An objective of the *National Recovery Plan for threatened albatrosses and giant petrels* is to quantify and reduce marine-based threats to the survival and breeding parameters of albatrosses and giant petrels foraging in waters under Australian jurisdiction. The Department of the Environment's Australian Antarctic Division provides funding for the Department of Primary Industries, Parks, Water and Environment, Tasmania to undertake assessments of population and conservation status of albatrosses and giant petrels breeding on Macquarie Island, as well as population and conservation assessments of endemic shy albatross in Australia. Plastic loads in the stomachs of shy albatross at Albatross Island, Tasmania are regularly monitored. These loads remain low, and the Australian Antarctic Division suggests that plastic ingestion does not currently appear to represent a significant conservation issue for this population.

International Whaling Commission

- Through engagement with the International Whaling Commission (IWC), Australia works internationally on identifying the impact of marine debris, including plastic debris, on cetaceans.
- At its meeting in 2012 (IWC64), the IWC accorded high priority to the issue of marine debris and noted the potential and actual threats to cetaceans. The Commission endorsed a joint recommendation from the IWC's Scientific and Conservation committees to hold two workshops (over 2013-14) to address this issue. Australia participated in these workshops. Information on the IWC's work to address the impacts of marine debris on cetaceans, including workshop reports, is at: <https://iwc.int/marine-debris>.
- The first IWC scientific preparatory workshop on marine debris was held in the United States in May 2013. The IWC's Scientific Committee endorsed the recommendations of the Workshop report and agreed that marine debris and its contribution to entanglement, exposures including ingestion or inhalation, and associated impacts, including toxicity, are welfare and conservation issues for cetaceans on a global scale and a growing concern.
- The second marine debris workshop in Honolulu, in August 2014, focused on the IWC's role in international management and mitigation measures, and recognised that marine debris is a real threat to cetaceans.
- Outcomes of the two IWC workshops on marine debris were agreed at the 65th IWC meeting in September 2014, including:
 - IWC Secretariat to work with other major international governmental organisations and regional fisheries management organisations on marine debris.
 - IWC Scientific Committee meetings include marine debris as a standing agenda item.
 - IWC Workshop on the prevention of the incidental capture of cetaceans to be held in March-April 2016.

- IWC Conservation Management Plans to include measures to address marine debris as part of strategies to recover threatened whale populations.
- IWC Scientific Committee to explore ways of combining estimates of oceanic debris and information on cetaceans to identify priorities for mitigating and managing the impacts of marine debris on cetaceans.
- Australia is Chair of the International Whaling Commission's Standing Working Group on Conservation Management Plans, which identifies threats to specific populations of cetaceans, including marine debris, and identifies regional mitigation strategies.

Impact on coastal communities

- Regardless of whether funding is made available, many communities engage in beach-based debris cleanup activities.
- While many communities have developed ways to then recycle the waste they collect, the volume of waste collected is an ongoing management issue. In some remote areas, the waste collected, including large fishing nets, is difficult to transport to waste facilities and is instead burnt on-site to prevent it re-entering the marine ecosystem. This results in significant clumps of cement-like burnt plastic on beaches, which then become obstacles for marine turtles nesting on the beaches. Many remote communities lack recycling centres and the transported waste may be added to other buried waste. Small scale waste to energy systems (such as those used in remote locations in the Yukon and Hawaii) could provide improved waste management at remote communities and ports and also an alternative source of energy at these locations (advice from Riki Gunn, former coordinator of Ghostnets Australia).
- Marine debris has socio-economic impacts on many Aboriginal and Torres Strait Islander communities. For example, impacted marine turtle populations may be of cultural significance, as well as a source of food for these people.

(d) measures and resourcing for mitigation

Government initiatives

- Within Australia's Commonwealth waters, a number of agencies are involved in the various stages of ghost net reporting and recovery. These include the Australian Fisheries Management Authority, the Australian Maritime Safety Authority, Border Force, the Department of Agriculture, the Great Barrier Reef Marine Park Authority and the Department of the Environment.
- A Memorandum of Understanding between Parks Australia (Department of the Environment) and the Australian Fisheries Management Authority guides ghost net retrieval in Commonwealth Marine Reserves and adjacent Commonwealth waters. The MOU is reviewed annually.
- Green Army funds are currently being directed to marine debris clean-ups covering an area of 30-40 kilometres on Queensland beaches.
- The Department of the Environment has supported work involving GhostNets Australia, CSIRO, the National Oceanic and Atmospheric Administration (United States) and the Indonesian Ministry for Marine Affairs and Fisheries to reduce the incidence of derelict fishing gear in the Arafura Sea. Work to date has engaged fishers, port authorities, local

communities and stakeholders within key fishing communities in eastern Indonesia to identify the reasons for fishing gear loss and to identify potential solutions.

- The Department of the Environment is managing overseas development aid to support the [Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security](#). This includes \$70,000 for the development of a fisheries management strategy to be piloted in the Arafura Sea. This activity will assist small scale commercial fishers manage gear loss, including nets, which should assist in reducing ghost nets entering Australian territorial waters and provide a direct benefit to Australia in not having to manage these debris.
- This is a foundation activity for a proposal to the Global Environment Facility for a project expected to further assist the reduction of gear loss and contribute to the lessening of marine debris from this source entering Australian territorial waters.
- Through the Reef Trust, the Australian Government is providing \$700,000 to clean up marine debris across the Great Barrier Reef to protect turtles and dugongs, as well as other species. The Great Barrier Reef Marine Park Authority is delivering the *Great Barrier Reef Marine Debris Clean-up Project* funded over two years until 30 June 2017. The project aims to minimise the source and occurrence of marine debris in the Great Barrier Reef World Heritage Area through coordinated on-ground cleanup activities and delivery of a comprehensive public education campaign.
- The Department of the Environment is a participant on behalf of the Australian Government, in the [Australian Packaging Covenant](#). The Covenant is an industry-government partnership that seeks to change the culture of businesses to design more sustainable packaging, increase recycling rates and reduce packaging litter. Government provides free-rider protection to the Covenant through the [National Environment Protection \(Used Packaging Materials\) Measure 2011](#), which is implemented through state and territory legislation or policies.
- The Commonwealth, state and territory governments and the packaging industry are negotiating new Covenant arrangements to be implemented from 1 July 2016.
- Under the existing Covenant arrangements the Commonwealth, the states and Australian Capital Territory provide funding to support the services of the Covenant. Industry contributes to the funding of projects. Under the new arrangements, no government funding will be mandated.

Community and non-government initiatives

- The Australian Government has funded community based clean-up and monitoring programs to address the marine debris problem on the western coast of Cape York, Gulf of Carpentaria and Arnhem Land. Currently, funding is provided through the Queensland Government for community based action on the east and west coasts of Cape York Peninsula and Torres Strait. General funding is provided by the Australian Government through Indigenous ranger programs, which may include marine debris actions.
- The GhostNets Australia programme (now ceased) brought together Indigenous Sea Rangers from communities across the north of Australia to clean up abandoned fishing nets (ghost nets) from the coastline to stop them re-entering the ocean. This group conducted education programs and contributed to significant CSIRO research on the issue of ghost nets in Australia's north.

(e) any other relevant matters.

- The [Review of the Threat abatement plan for the impacts of marine debris on vertebrate marine life 2009-2014](#) was considered by the Threatened Species Scientific Committee in November 2014. The Minister for the Environment subsequently accepted the committee's advice that the [Threat abatement plan for the impacts of marine debris on vertebrate marine life](#) should be revised. The Department of the Environment is undertaking the revision, which will be completed in 2016.
- CSIRO has collaborated with GhostNets Australia to evaluate the sources of derelict fishing gear along Australia's northern coast. Of the nearly 15,000 nets recovered to date, it appears that the majority come from neighbouring countries in the Arafura and Timor Seas, with a particular concentration along the international boundary and in the prawn trawling waters to the north of the Gulf of Carpentaria (Wilcox et al. 2013, Wilcox et al. 2015). CSIRO and GhostNets Australia cooperated to put satellite tracking devices on several drifting nets in the Gulf, validating that nets circulate clockwise in the Gulf, completing a circuit of the Gulf in less than a year.
- CSIRO and GhostNets Australia published a study that included modelled net pathways, validated against independent data for the Gulf of Carpentaria and surrounding regions (Wilcox et al. 2013). This study illustrated that the vast majority of nets that are found in the Gulf and surrounding regions pass relatively close to the port of Weipa. This work points to a potential significant cost saving in recovery efforts, if nets can be identified at sea to the northwest of Weipa and then retrieved as they pass close to the port. CSIRO suggest that, as existing Customs and Border Protection surveillance flights pass through this region, targeted surveillance and reporting would be possible. This would reduce both the impacts and the cost of retrieval for nets, as they could be retrieved at sea prior to entering the Gulf and passing through areas with high densities of turtles and dugong.
- The University of New South Wales is investigating the threats posed by the presence of microplastics (smaller pieces of plastics ranging from 1mm to 360µm) in Sydney Harbour. This is the first study of its kind in the region. The research aims to lay the foundations for future studies on this aspect of the marine debris problem.

REFERENCES

Australian Packaging Covenant: <http://www.packagingcovenant.org.au/>

Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security:
<http://www.coraltriangleinitiative.org/>

National Environment Protection (Used Packaging Materials) Measure 2011:
<https://www.comlaw.gov.au/Details/F2011L02093/EnabledBy>

Threat abatement plan for the impacts of marine debris on vertebrate marine life:
<http://www.environment.gov.au/marine/publications/threat-abatement-plan-impacts-marine-debris-vertebrate-marine-life>

Wilcox, C., Heathcote, G., Goldberg, J., Gunn, R., Peel, D. and Hardesty, B. D. (2015), Understanding the sources and effects of abandoned, lost, and discarded fishing gear on marine turtles in northern Australia. *Conservation Biology*, 29: 198–206.

Wilcox, C., Hardesty, B.D., Sharples, R., Griffin, D.A., Lawson, T.J. and Gunn, R. (2013), Ghostnet impacts on globally threatened turtles, a spatial risk analysis for northern Australia. *Conservation Letters*, 6: 247–254.