Chapter 4

Role of the Australian Government in addressing marine plastic pollution

4.1 The responsibility for addressing marine debris is shared between the Commonwealth, the states and territories. The Australian Government manages the threat of marine plastic pollution in a variety of ways, including:

- the protection of threatened species and ecosystems;
- the implementation of the international convention on at-sea disposal of rubbish; and
- the development and implementation of national waste management policies.

4.2 This chapter examines each of the mechanisms available to the Australian Government, the need to ensure that policy is supported by rigorous scientific research and the Australian Government's role in providing leadership in addressing the threat of marine plastic across federal, and state and territory jurisdictions as well as internationally.

Protection of threatened species and ecosystems

4.3 The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a framework for the management of threats to species and ecosystems by providing for the listing of key threatening processes and the development of threat abatement and recovery plans.[1]

4.4 Key threatening processes are those that threaten the survival, abundance or evolutionary development of a native species or ecological community. 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.[2] 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' to abate the threatening process.[3]

4.5 The *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life* (TAP) was developed in response to the key threatening process listing, and released in May 2009. The plan aims to provide a national, coordinated approach to the implementation of measures for prevention and mitigation of the harmful impacts of marine debris.

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1 Department of the Environment, *Submission 18*, p. 2.

2 Department of the Environment, *Submission 18*, p. 2.

3 Section 270A(2). See also Department of the Environment, *Submission 18*, p. 2.

4.6 To achieve this aim, the TAP provides a framework for implementing measures with four key objectives:

- contribute to the long-term prevention of the incidence of harmful marine debris;
- remove existing harmful marine debris from the marine environment;
- monitor the quantities, origins and impacts of marine debris and assess the effectiveness of management arrangements over time for the strategic reduction in marine debris; and
- mitigate the impacts of harmful marine debris on marine species and ecological communities.[4]

4.7 In order to achieve these four objectives, the TAP identifies six key 'approaches' for both the Commonwealth, and state and territory governments. These include:

- improving waste management practices on land and at sea;
- raising public awareness and improving education campaigns about the prevention of littering on land and at sea;
- building and strengthening international collaboration;
- developing a national approach to information collection and management;
- improving the understanding of the origins of harmful marine debris; and
- facilitating the implementation of wildlife research and recovery plans.[5]

4.8 For each approach a set of actions are listed which 'seek to build on existing initiatives and strengthen coordination and partnerships to prevent, remove, mitigate and monitor marine debris'.[6]

4.9 The TAP lists species which are negatively affected by ingestion of, or entanglement in, harmful marine debris. This list includes over 25 vulnerable and endangered species of turtles, cetaceans, sharks, birds, dugongs and pinnipeds.[7]

4.10 The Minister for the Environment may make or adopt and implement recovery plans for listed threatened and endangered species and ecological

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4 Department of the Environment, Waters, Heritage and the Arts, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life*, May 2009, p. 2.

5 Department of the Environment, Waters, Heritage and the Arts, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life*, May 2009, pp. 3–8.

6 Department of the Environment, Waters, Heritage and the Arts, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life*, May 2009, p. 2.

7 Department of the Environment, Waters, Heritage and the Arts, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life*, May 2009, Appendix A.

communities. Recovery plans set out the research and management practices required to prevent the decline of, and support the recovery of species.

4.11 A number of recovery plans related to the threat of marine plastic pollution have been developed. These include the *Recovery Plan for Marine Turtles in Australia* (2003), *The Sub-Antarctic fur seal and southern elephant seal recovery plan* (2004–2009) and the *National Recovery Plan for threatened albatrosses and giant petrels*.[8]

Review of the Threat Abatement Plan

4.12 The EPBC Act requires a threat abatement plan to be reviewed by the Minister at intervals of not longer than five years. The TAP was made in May 2009, and reviewed in 2014.

4.13 The purpose of the five-year review is to assess the progress and effectiveness of the TAP in preventing and mitigating the impacts of harmful marine debris on vertebrate marine life. The review also compares the problem of marine debris across Australia to when the TAP was initiated, and identifies successes and failures of the plan in guiding and facilitating action. It identifies threat abatement actions funded by the Australian Government as well as work undertaken by state and territory governments, community and other organisations.[9]

4.14 The 2014 TAP Review concluded that 'despite progress particularly in cleanup efforts, it is not possible to state that these criteria have been met during the life of the plan'.[10] In particular:

> …there had not been a general decline in the presence and extent of harmful marine debris in Australia's marine environment, and there had not been a general decline in the number of marine vertebrates dying and being injured as a result of ingestion and/or entanglement in harmful marine debris…[11]

4.15 The TAP Review concluded that 'the key threatening process…has not been abated and that the objectives of the threat abatement plan have not been met'.[12] As a

8 Department of the Environment, *Submission 18*, pp. 2–3.

9 Department of the Environment, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life Review 2009–2014*, p. 4.

10 Department of the Environment, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life Review 2009–2014*, p. 32; see also Mr Stephen Oxley, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 11; Mr Paul Murphy, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 13.

11 Mr Stephen Oxley, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 11.

12 Department of the Environment, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life Review 2009–2014*, p. 32.

result of the TAP Review, the Minister for the Environment, the Hon Greg Hunt MP, decided to revise the plan.[13]

Development of revised Threat Abatement Plan

4.16 The revised TAP is currently in preparation and is expected to be considered by the Threatened Species Scientific Committee in June 2016.[14] Following approval from the Threatened Species Scientific Committee, the draft will be released for a three-month public consultation period.

4.17 As part of the development of the revised TAP, the Department of the Environment (the department) held a workshop seeking expert advice in developing a revised TAP. This workshop included government agencies, researchers, and community and industry groups. Key pieces of advice for government generated through the workshop included:

- preventing deliberately produced microplastics such as nurdles and microbeads from entering the marine environment;
- developing a better understanding of the threat posed by microplastics;
- directing resources to the identification and reduction of the sources of marine debris in Australian waters such as ghost nets;
- improving methods for the disposal of the large amounts of plastic pollution found on remote Northern Australian beaches;
- developing new technologies, such as waste-to-energy systems, for the reduction of the volume of marine pollution; and
- developing strategies in partnership with industry to identify and reduce waste at the source.[15]

4.18 The department acknowledged the level of concern around microplastic pollution and its impact. It noted that when the original TAP was created, microplastics were not included. However, as a result of the workshop, Mr Stephen Oxley, First Assistant Secretary, Wildlife Trade and Biosecurity Branch, Department of the Environment, commented that the new TAP will 'address the emerging issues of microplastics and associated chemical contamination' as it has been acknowledged

13 Department of the Environment, *Submission 18*, p. 2.

14 Mr Stephen Oxley, Department of the Environment, *Committee Hansard,* 26 February 2016, p. 11.

15 Mr Stephen Oxley, Department of the Environment, *Committee Hansard,* 26 February 2016, p. 12.

that these 'are very important'.[16] Mr Oxley went on to comment that 'plastics will be a key theme in the threat abatement plan'.[17]

Criticism of the EPBC Act and the Threat Abatement Plan

4.19 During the inquiry, the committee received evidence which pointed to concerns with both the EPBC Act and the TAP to address the growing problem of marine plastic pollution. These concerns grew out of the recognition of the complexity and cross-jurisdictional issues of marine plastic pollution; the wide-spread nature of the pollution; the physical attributes of plastics, particularly microplastics; and the lack of action on the implementation of the approaches listed in the TAP.

4.20 EDOs of Australia, for example, commented that 'overall, the EPBC Act alone is not sufficient to regulate marine plastics, as the main sources of pollution originate with plastic production and disposal, which are chiefly within the jurisdictions of state laws'.[18] Mr Nari Sahukar from EDOs of Australia, explained further that 'the EPBC Act currently does not address those land-based sources of plastics pollution where there appears to be this regulatory gap'. He went on to question whether this was an issue that required amendment of the EPBC Act or the implementation of improved coordination of state government efforts 'to amend their pollution laws and look at how existing pollution law tools could be adapted to the new threat of plastic'.[19]

4.21 The National Environmental Law Association (NELA) also criticised the limited scope and ability of the EPBC Act and the TAP to mitigate the threat from marine plastic pollution. Dr Sarah Waddell, NELA, described the EPBC Act as 'a limited framework for viewing marine plastic pollution' which does not address the impact on non-vertebrate species, or species which are not listed as threatened or endangered.[20] Dr Waddell particularly highlighted that the effect of:

> …marine plastic pollution goes way beyond just the impact on listed species, because it is impacting on all species within the marine environment, and the actual listing of the species itself is also a fairly limited process. For example, as a trigger for the TAP we had 29 vertebrate species that were listed, but we know from the submissions that have been

16 Mr Stephen Oxley, Department of the Environment, *Committee Hansard,* 26 February 2016, p. 11.

17 Mr Stephen Oxley, Department of the Environment, *Committee Hansard,* 26 February 2016, p. 15.

18 EDOs of Australia, *Submission 74*, p. 7.

19 Mr Nari Sahukar, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 67.

20 Dr Sarah Waddell, National Environmental Law Association, *Committee Hansard*, 18 February 2016, pp. 25–26.

> made by the scientists that marine plastic pollution is having an impact on far more than 29 specifically listed species.[21]

4.22 This view was also supported by Dr Jennifer Lavers who expressed frustration that unless a species is listed as threatened or endangered, the TAP does not apply. Dr Lavers told the committee that:

> One of the things that I find incredibly frustrating and telling, I guess, about the threat abatement plan is that flesh-footed shearwaters in Australia are like the iconic poster child of the impacts of plastic pollution, yet they do not even get or render a single mention in the threat abatement plan.[22]

4.23 A further example of the limitation of the scope of the TAP was cited by the Adelaide and Mount Lofty Ranges Natural Resource Management Board. In 2013, a report on impacts and threat abatement of marine debris within the Gulf St Vincent recommended that the TAP be updated as there was scientific evidence suggesting that the compounding effects of marine debris impacts across all trophic levels and ecological communities.[23]

4.24 As well as being limited in scope, the lack of action taken under the TAP was also criticised by some witnesses. Dr Waddell commented that the TAP 'provides some good bones for addressing this problem, but in itself it is not sufficient'. Further, 'the inadequacy of the implementation of that plan means that the problem is not being sufficiently addressed'.[24]

4.25 Mr Sahukar suggested that the lack of action to progress the TAP was partly due to the TAP not being properly resourced or properly followed through. However, he added that the limitations on what the EPBC Act requires have contributed to the lack of progress under the TAP. Dr Sahukar noted that:

> There is the listing process for key threatening processes and there is the ability to make those threat abatement plans and to ensure that they are in force and to report on their progress, but we do not really have hard and fast commitments or requirements in the act to implement the actions in those plans. Even if you did, you would need to address that interface between state and federal assessments given that, as we have said, it is at the state development assessment and pollution control level that a lot of these smaller impacts are being created.[25]

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21 Dr Sarah Waddell, National Environmental Law Association, *Committee Hansard*, 18 February 2016, pp. 28.

22 Dr Jennifer Lavers, *Committee Hansard*, 18 February 2016, p. 18.

23 Adelaide and Mount Lofty Ranges Natural Resource Management Board, *Submission 20*, p. 7.

24 Dr Sarah Waddell, National Environmental Law Association, *Committee Hansard*, 18 February 2016, p. 27.

25 Mr Nari Sahukar, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 67.

4.26 The lack of action with progress of the TAP produced a degree of frustration with submitters. For example, Mr Jeff Angel from the Total Environment Centre commented that there was no expectation that the TAP will lead to substantial action, and he was particularly critical of the actions of the department:

> Clearly, they seem to be satisfied with having produced the threat abatement plan as evidence of doing something, but the actions under that plan were either not implemented or meaningless.[26]

4.27 Ms Heidi Taylor, Tangaroa Blue Foundation, also expressed her frustration that there is 'too much talking while marine debris and more garbage keeps washing into the ocean' and that this includes 'discussions revolving around the threat abatement plan'.[27]

4.28 However, the Department of the Environment reminded the committee that the TAP is a 'guide' rather than an 'implementation plan'. Mr Oxley explained that:

> The plan identifies priorities for research and management, and helps guide, at the national level, all the researchers and management actions.[28]

Lack of consultation

4.29 The committee sought evidence from witnesses as to whether the department had consulted key academics and community organisations currently engaged in research, clean-up activities, and marine fauna rescue and rehabilitation, during the development of the revised TAP. The committee was concerned by the apparent lack of engagement with some interested stakeholders. For example, the Boomerang Alliance told the committee that 34 of 40 of its member organisations were not consulted regarding the development of the TAP.[29] In addition, neither the Boomerang Alliance nor the Total Environment Centre were consulted during the development of the revised TAP.[30]

4.30 Similarly, Ms Kathrina Southwell from the Australian Seabird Rescue which conducts marine fauna rescue and rehabilitation services, stated that she was consulted during the development of the original TAP, but has not been consulted since.[31]

4.31 The lack of engagement with academics engaged in research on marine plastic pollution was also of concern. Dr Frederieke Kroon, Principal Research Scientist from AIMS, informed the committee that she was recently invited to present her research

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26 Mr Jeff Angel, Total Environment Centre, *Committee Hansard*, 18 February 2016, p. 56.

27 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 28.

28 Mr Stephen Oxley, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 17.

29 Mr Dave West, Boomerang Alliance, *Committee Hansard*, 18 February 2016, p. 56.

30 Mr Jeff Angel, Total Environment Centre, *Committee Hansard*, 18 February 2016, p. 56.

31 Ms Kathrina Southwell, Australian Seabird Rescue, *Committee Hansard*, 10 March 2016, p. 25.

findings to the department, but that she had not been previously aware that the TAP was being revised. Dr Kroon told the committee that she had initiated contact with the department 'to make sure that the research that we are conducting will inform policies put in place'.[32]

4.32 Similarly, Dr Mark Browne told the committee that although he is 'involved with the threat abatement plan, but we have not really progressed beyond the meeting stage'.[33]

4.33 During the conduct of the inquiry, the committee received evidence from local government representatives on their commitment to preventing the movement of plastic pollution into the marine environment. This commitment includes significant expenditure on infrastructure such as gross pollutant traps in stormwater systems, and clean-up programs. The department indicated that the Australian Local Government Association had been invited to participate in the workshop, but did not do so. The Australian Local Government Association has been involved in subsequent discussions with the department.[34]

Need for research-based policy

4.34 As previously discussed, the committee heard from a range of witnesses that there is a need to undertake research to better understand the sources and effects of marine plastic pollution, particularly microplastics, on marine fauna and ecosystems. In addition, it was stated that further research is required to identify effective mitigation and prevention strategies to stop plastic debris from entering the marine environment. However, it was argued that there is a lack of a coordinated approach to research, or sufficient funding of research. The committee considers that, without the necessary research, it is difficult to ensure that policy development is based on the best available evidence.

4.35 The following discussion canvasses the research elements of the TAP and concerns raised about the adequacy of the research of marine plastic pollution and its impacts.

4.36 The TAP states that the information and framework provided is intended to promote collaboration between groups such as researchers, industry, coastal managers, governments and polluters, and 'provide direction for research and management to address the key threatening process'.[35] The department added that 'the plan identifies

32 Dr Frederieke Kroon, Australian Institute of Marine Science, *Committee Hansard*, 10 March 2016, p. 20.

33 Dr Mark Browne, *Committee Hansard*, 18 February 2016, p. 5.

34 Department of the Environment, Answer to question on notice No. 1, 26 February 2016 (received 4 April 2016).

35 Department of the Environment, Waters, Heritage and the Arts, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life*, May 2009, p. 1.

the priorities for research and management, and helps guide, at the national level, all the researchers and management actions'.[36]

4.37 For example, Action 3.3 required:

> DEWHA [Department of the Environment, Water, Heritage and the Arts] to support research on the nature of degradation pathways of synthetic debris in the marine environment (including biodegradable and oxodegradable plastics), the extent that degradation products are contaminated by other potentially toxic compounds, and the potential toxicity of debris types on marine species. For example: DEWHA to support monitoring of the incidence of hatching failure due to eggshell thinning (linked with the Recovery plan for albatrosses and giant petrels).[37]

4.38 However, the TAP review found that the department has not supported specific research on the nature of degradation pathways of synthetic debris in the marine environment. The review added that, over the life of the TAP, a better understanding of this issue has developed internationally.[38] Similarly, Action 2.3 which required the development of marine debris monitoring sites, was found not to have been implemented.[39]

4.39 In addition, no specific funding mechanism for research was contained in the TAP. However, the department noted that researchers can use the priorities set out in the TAP to apply for funding for research project under other government programs and institutional schemes.[40]

4.40 The committee was also provided with the list of five research projects into marine debris funded by the department since the key threatening process was listed under the EPBC Act in 2003. These are listed in Table 4.1 below.

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36 Mr Paul Murphy, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 17.

37 Department of the Environment, Waters, Heritage and the Arts, *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life*, May 2009, p. 7.

38 Department of the Environment, *Threat abatement plan for the impacts of marine debris on vertebrate marine life Review 2009–2014*, p. 27.

39 Department of the Environment, *Threat abatement plan for the impacts of marine debris on vertebrate marine life Review 2009–2014*, p. 22.

40 Mr Paul Murphy, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 17.

Table 4.1: Research projects into marine debris funded by the Department of the Environment since 2003

Project	Cost
Marine Debris in the Northern Australian Waters (WWF) – April 2005	$11,000
Pilot investigation of the origins and pathways of marine debris found in the northern Australian marine environment (CSIRO)	$55,000
Research on the impact of marine debris on marine turtle survival and behaviour: North east Arnhem Land, Northern Territory (Dhimurru Aboriginal Corporation) – April 2009	$116,300
Impacts of plastic debris on Australian marine wildlife (C&R Consulting) – June 2009	$25,000
Understanding the types, sources and at-sea distribution of marine debris in Australian waters (CSIRO) – 2011	$77,000

Source: Department of the Environment, Answer to question on notice No. 2, 26 February 2016

4.41 In evidence, the committee received a range of views on the gaps in research regarding marine plastic pollution with much evidence pointing to specific research needs. However, a number of academics cautioned against funding scientific research without rigorous assessment of its usefulness, and integrity of its scientific method. Academics stated that government should balance the need for further research to be undertaken with the need for urgent action to reduce sources of marine plastic pollution.

4.42 The committee also heard evidence that the research that currently exists may not assist policymakers in making informed decisions in relation to the TAP. Dr Britta Denise Hardesty from the CSIRO told the committee that:

> There are numerous issues and specifics where we could provide real value to the government in terms of helping to inform some of these things. The government really wants to know what the best bang for the buck is. That is a really important and valid question. My role or job as a scientist is to collect and provide that information, but I cannot just pull something out of the sky.[41]

4.43 Professor Tony Underwood told the committee that though there has been considerable research conducted in the past ten years on the topic of marine plastic pollution, there is little 'good research' available and that 'there is not nearly enough that is helpful for coming to any decisions'.[42] Professor Underwood explained that one

41 Dr Britta Denise Hardesty, CSIRO, *Committee Hansard*, 26 February 2016, p. 7.

42 Professor Tony Underwood, *Committee Hansard*, 18 February 2016, p. 3; see also p. 23.

of the difficulties in utilising scientific research in driving policy decisions is that studies are often impossible to compare as they utilise different methodologies and have differing aims.[43] Professor Underwood particularly encouraged policymakers to allocate funding specifically to conducting research on policy proposals. Professor Underwood stated that government 'should require some information about the effectiveness of policy rather than just making it'.[44]

4.44 However, Dr Hardesty challenged the assumption that there is a need for more information before developing policy. Dr Hardesty stated:

> With the ocean plastic pollution issue, as with many environmental issues, I think that operating under the precautionary principle is a reasonable principle to take. I do not think we want to wait until we know unequivocally and, even as a scientist, I do not think we want to see say, 'We need to wait and do more research,' and do more and more research.' We know a lot. We know enough to be able to make good, informed recommendations and management decisions. We know that we find fewer plastic bags on coastlines during clean-ups when you move away from urban centres. We know that we find fewer beverage containers when you are picking up litter—not just on the coastline but around the states and territories—when you are in South Australia. We know some of these things. We have good information.[45]

4.45 The lack of funding for research into marine plastic pollution, and the subsequent lack of understanding of its impacts was highlighted by a number of witnesses. For example, Dr Lavers told the committee that:

> Research and, particularly, conservation based research is chronically underfunded…Our understanding of the complex issues, including things like chemical pollution, is so incredibly poor. We really are just starting at the basic level, and yet there is no funding for this research. How do we begin to even grasp the complexities of the problem, never mind come up with mitigation strategies for the problem, if there is no funding to even get us off the ground? We need funding on par with things like climate change and sea level rise, because that is the challenge that we are facing. It needs to be put in that same tier.[46]

4.46 Similarly, Dr Browne told the committee that:

> If you are going to be making decisions based on proof of harm and you are not developing research programs to adequately define harm, then it is a pretty difficult situation.[47]

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43 Professor Tony Underwood, *Committee Hansard*, 18 February 2016, p. 8.

44 Professor Tony Underwood, *Committee Hansard*, 18 February 2016, p. 8.

45 Dr Britta Denise Hardesty, CSIRO, *Committee Hansard*, 26 February 2016, p. 10.

46 Dr Jennifer Lavers, *Committee Hansard*, 18 February 2016, p. 19.

47 Dr Mark Browne, *Committee Hansard*, 18 February 2016, p. 19.

4.47 A number of witnesses informed the committee that very little of the research they conduct on marine plastic pollution is funded by the Australian Government. For example, Dr Lavers told the committee that her research is largely funded through philanthropy with some grants from not-for-profit organisations[48], while Mr Ian Hutton explained that he funds his own research through his private business and occasional small grants from the Lord Howe Island Board.[49] Professor Stephen Smith commented that the majority of his funding was provided through New South Wales government agencies, and in-kind funding from the Earthwatch Institute.[50]

4.48 Dr Browne explained that he recently received funding from the Australian Research Council to examine the biomagnification of microplastics in the food web. Funding of approximately $500,000 was received and Dr Browne noted that this had only been granted after three previous applications were made. Dr Browne told the committee that:

> The previous times we were told it was not an important issue and that therefore it would not be funded.[51]

4.49 In addition, the committee notes that the Minister for the Environment, the Hon Greg Hunt MP, announced on 29 February 2016 that $60,000 will be committed to 'kick-start urgent research into the best way to reduce plastic pollution'.[52] This funding will be provided under the National Environmental Science Programme's (NESP) emerging priorities stream, and will investigate the key sources of marine plastic, and the most cost-effective options for reduction. The NESP Marine Biodiversty Hub will conduct this research in collaboration with the Tropical Water Quality Hub, and other research partners.

4.50 Dr Lavers noted that the United States has had, for many years, a targeted marine debris funding scheme so that researchers US-wide can apply specifically for that funding round. As a consequence a significant amount of research in marine debris is being undertaken by US researchers.[53]

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48 Dr Jennifer Lavers, *Committee Hansard*, 18 February 2016, p. 4.

49 Mr Ian Hutton, *Committee Hansard*, 18 February 2016, p. 4.

50 Professor Stephen Smith, *Committee Hansard*, 18 February 2016, p. 4.

51 Dr Mark Browne, *Committee Hansard*, 18 February 2016, p. 4.

52 Department of the Environment, *Australia's Marine Environment To Benefit from Plastic Waste Research*, 29 February 2016, http://www.greghunt.com.au/Home/LatestNews/tabid/133/ID/3670/Australias-marine-environment-to-benefit-from-plastic-waste-research.aspx, (accessed 11 March 2016).

53 Dr Jennifer Lavers, *Committee Hansard*, 18 February 2016, p. 16.

National marine debris database

4.51 In developing informed policy to mitigate the threat of marine plastic pollution, it is crucial to understand the rates, and types of plastic pollution. It is also important to identify the factors which influence rates of pollution, and pollution pathways. Data collection has been carried out by a variety of organisations, supported by government, industry and the non-government sector. These include the Australian Marine Debris Initiative and a coastal survey conducted by the CSIRO which were discussed during the course of the inquiry. However, the committee received evidence that significant differences exist in the methodologies utilised by these projects, and the subsequent ability to compare data may be limited.

4.52 The Tangaroa Blue Foundation, a registered charity established in 2004 coordinates the Australian Marine Debris Initiative (AMDI). The AMDI is a 'national network of volunteers, communities, schools, Indigenous rangers, industry groups and government agencies working on both removal and mitigation of marine debris from marine, coastal and estuarine environments'. Ms Taylor explained that, to date, more than 5.4 million marine debris items have been entered into the AMDI database with the assistance of 902 partner organisations.[54]

4.53 Ms Taylor stated that national consistency in recording data on marine plastic pollution, and the ability to provide a more comprehensive overview of the issue were the primary goals driving the development of the AMDI. Ms Taylor told the committee that:

> … there were a lot of community groups collecting very small datasets, and we wanted them not only to be able to utilise a system where they could get everything that they needed but also to be able to add that to the bigger-picture stuff, which is things like CDL [container deposit legislation] discussions and plastic bag bans, where you need stuff at a regional, state and national level to be able to have those discussions.[55]

4.54 Tangaroa Blue consults with government agencies and James Cook University to develop and maintain the AMDI.[56] Since its inception, the AMDI has evolved to include items such as plastic fragments and foam, which were not initially included. The AMDI currently contains 140 categories. The datasheet utilised by volunteers to record plastic debris only includes the 10 most common categories, however additional information can still be recorded and entered into the database.[57]

4.55 One of the features of the AMDI is the timeframe of some of its datasets: in Western Australia, the AMDI has maintained datasets since 2005, and in the Port

54 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 28.

55 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 31.

56 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 30.

57 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, pp. 29–30.

Douglas area in Far North Queensland, data has been collected since 2007–08. Ms Taylor explained that in these areas, stretches of coastline are monitored monthly, however in more remote locations, monitoring occurs at three monthly intervals, or annually. It was explained to the committee that in addition to regular monitoring sites maintained by the Tangaroa Blue Foundation, individuals may 'adopt' sections of coastline and enter data on an ad hoc basis as they undertake clean-up activities.[58]

4.56 The AMDI, as a nationally consistent database, allows for the interrogation and comparison of data across sites. It also allows for the identification of sources of marine plastic pollution.[59] This was noted by the Australian Maritime Safety Authority (AMSA) which commented that it cooperates with the Tangaroa Blue Foundation to identify the origins of materials found. AMSA described the Foundation as 'adept at identifying the countries, at least where the [plastic] product was produced'.[60] AMSA added that:

> Information collected by Tangaroa Blue in the Australian Marine Debris Initiative database can also assist in the longer term identification of trends and the overall efficacy of the MARPOL Annex V regulations. This information can assist Australia in discussions in the international context and assist in ensuring the effective implementation of MARPOL Annex V both in Australian waters and in the region.[61]

4.57 The committee noted that in addition to the AMDI, other data collection programs have also been developed and implemented. The CSIRO submitted that it 'carried out a national coastal marine debris survey at sites approximately every 100km along the Australian coastline'.[62] The CSIRO told the committee that it also:

> …developed a public, online, national marine debris database. Here, members of the public can contribute data they collect about local beach litter, following our simple methodology that is freely available online.[63]

4.58 The CSIRO not only examined pollution in coastal areas but:

> …implemented a marine debris sampling program throughout Australia's exclusive economic zone, with samples approximately every 80 nautical miles surrounding the continent. This sampling program was implemented based on a statistically robust design to control variation in sampling conditions, along with local and regional heterogeneity. These data have

58 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 32.

59 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 31.

60 Mr Matt Johnston, Australian Maritime Safety Authority, *Committee Hansard*, 26 February 2016, p. 25.

61 Australian Maritime Safety Authority, *Submission 68*, p. 4.

62 CSIRO, *Submission 7*, Appendix 2, 'Executive Summary "Understanding the effects of marine debris on wildlife: Final report to Earthwatch Australia"', p. 9.

63 CSIRO, *Submission 7*, Appendix 2, 'Executive Summary "Understanding the effects of marine debris on wildlife: Final report to Earthwatch Australia"', p. 10.

> been integrated with other data from around the globe to form a coherent dataset covering all the major oceans, comprised of more than 13,000 samples from multiple researchers. Additional samples are being added to the database as they become available. CSIRO developed a set of statistical tools to standardize the data and create maps of debris densities at the regional, national, and international scale.[64]

4.59 Dr Hardesty described the national marine debris survey as being different from other clean-up activities in that it was:

> …aiming at doing a rigorous, reputable survey method around the entire continent. We were looking at material types. We did not look at things the way they do on the clean-ups, such as how many bottle caps or lids. We were looking at plastics and thin film-like plastics. We had some particular categories such as cigarette butts and things like that. But typically it was hard plastic and soft plastic and film-like plastic, and ropes and twines, which also are plastic—and those sorts of categories.[65]

4.60 While the AMDI and the CSIRO have provided significant insight into marine debris, it was argued that a national database for marine pollution monitoring reporting was required.[66] For example, the Australian Seabird Rescue told the committee that:

> …it is really important to be able to keep gathering all of that information and to continue doing that for years and years so that we have that research in place to see where all of the rubbish is coming from and what beaches it is washing up onto.[67]

4.61 Similarly, Ms Leah Page, a post-graduate researcher at the University of Tasmania, submitted:

> A national database for marine debris monitoring and reporting would facilitate the involvement of the community; coordinate and standardise data collection and processing; and thereby enable more powerful interrogation of datasets. Consistent data collection and reporting would also help Australia meet international reporting requirements and facilitate participation in regional initiatives.[68]

4.62 Ms Taylor acknowledged that, despite the need for a nationally consistent marine debris database, the differing work aims of research organisations should still be supported. In particular, databases need to be suited to the work being undertaken. Ms Taylor told the committee that though the CSIRO's debris survey differed from the

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64 CSIRO, *Submission 7*, Appendix 3, 'Input to Department of Environment Threat Abatement Plan', p. 18.

65 Dr Britta Denise Hardesty, CSIRO, *Committee Hansard*, 26 February 2016, p. 5.

66 Adelaide and Mount Lofty Ranges Natural Resource Management Board, *Submission 20*, p. 5.

67 Ms Kathrina Southwell, Australian Seabird Rescue, *Committee Hansard*, 10 March 2016, p. 23.

68 Ms Leah Page, *Submission 51*, p. 3.

AMDI, it was designed to examine ingestion impacts rather than sources.[69] Similarly, Ms Page told the committee that while 'coordination has benefits' it 'should not come at the cost of disempowering existing networks'.[70]

4.63 The need for coordination and cooperation was also acknowledged by the CSIRO which submitted that during the course of the national marine debris survey, it:

> …also engaged with existing initiatives such as Clean Up Australia, Tangaroa Blue and Surf Rider Foundation, as well as other remarkable NGOs and state based organizations that are cleaning up Australia's beaches. Together, all of these organisations and citizen scientists contribute to the improved understanding of the types, amounts and sources of debris that arrives on Australia's coastline.[71]

4.64 The value of a national database has been recognised and the Tangaroa Blue Foundation has received funding from the Australian Government to support upgrades to the AMDI.[72]

National waste policy

4.65 The department noted that waste management in Australia is primarily the responsibility of states and territories, and the role of the Australian Government has been, and is, to ensure that Australia meets its obligations to a number of international agreements through measures implemented by the Commonwealth or the states and territories.[73]

4.66 Both the Commonwealth and state and territory governments have addressed the issue of waste policy. For example, in 2009, Australia's environment ministers released the *National Waste Policy: Less waste, more resources* which set an agenda for a nationally coordinated approach to waste management and resource recovery. Regular reporting occurs in order to measure resource recovery, recycling and waste management in each jurisdiction.

4.67 Further, arising out of the Intergovernmental Agreement on the Environment endorsed by the Council of Australian Governments (COAG) in May 1992, the National Environment Protection Council (NEPC) was established under the *National Environment Protection Council Act 1994* (Cth), and mirror legislation was passed in state and territory jurisdictions. It has two primary functions under these Acts—to

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69 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 31.

70 Ms Leah Page, *Submission 51*, pp. 3–4.

71 CSIRO, *Submission 7*, Appendix 2, 'Executive Summary "Understanding the effects of marine debris on wildlife: Final report to Earthwatch Australia"', p. 10.

72 Ms Heidi Taylor, Tangaroa Blue Foundation, *Committee Hansard*, 10 March 2016, p. 31.

73 Mr Stephen Oxley, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 12.

make National Environment Protection Measures (NEPMs), and to assess and report on the implementation and effectives of NEPMs.[74]

4.68 NEPMs are a set of national objectives designed to assist in protecting or managing particular aspects of the environment. In 1998, the NEPM was made in relation to used packaging. In 2011, Ministers endorsed the National Environment Protection (Used Packaging Materials) Measure 2011 which incorporated previous iterations, and included the Australian Packaging Covenant (APC). The APC is the third iteration of the previously named National Packaging Covenant which had been a key instrument in managing the environmental impacts of packaging since 1999.[75]

4.69 The Used Packaging Materials NEPM is intended to reduce environmental degradation resulting from the disposal of used packaging. It is also intended to encourage the conservation of virgin materials through an increase in the re-use and recycling of used packaging material. These outcomes are intended to support and complement the voluntary strategies in the APC.

4.70 The APC is a sustainable packaging initiative which aims to change the culture of business to encourage the use of more sustainable packaging, increase recycling rates and reduce packaging litter.[76] It is an agreement between companies in the supply chain and government to reduce the environmental impacts of consumer packaging.[77] The APC is considered to be the key national mechanism for the implementation of Strategy 3 of the National Waste Policy—better management of packaging to improve the use of resources, reduce the environmental impact of packaging design, enhance away from home recycling and reduce litter.[78]

4.71 The Commonwealth, state and territory governments, and the packaging industry are currently negotiating new Covenant arrangements to be implemented from 1 July 2016, including future funding arrangements. Under the current APC, Commonwealth, state and territory funding is provided to support the Covenant. However, under the new arrangements, no government funding will be mandated.[79]

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74 National Environment Protection Council, http://www.nepc.gov.au/, (accessed 7 March 2016).

75 Department of the Environment, http://www.environment.gov.au/protection/national-waste-policy/packaging-covenant, (accessed 7 March 2016)

76 Department of the Environment, *Submission 18*, p. 5.

77 *Australian Packaging Covenant* (2011), http://www.packagingcovenant.org.au/data/Resources/Aust_Packaging_Covenant_amended_10_October_2011.pdf, (accessed 30 November 2015).

78 Department of the Environment http://www.environment.gov.au/protection/national-waste-policy/packaging-covenant

79 Department of the Environment, *Submission 18*, p. 6.

4.72 In relation to the TAP and the APC, the department informed the committee that 'there is no reason why we would not in some way seek to underline the significance or importance of the Packaging Covenant in the threat abatement plan'.[80]

4.73 The APC is discussed further in Chapter 7.

The need for national leadership

4.74 Submitters noted that in Australia, the states and territories have primary responsibility for environmental laws—particularly in relation to waste management and pollution. However, it was observed that marine plastic pollution is not restricted by state boundaries so that it 'will clearly pass from state waters to Commonwealth waters and, clearly, pass on currents to different jurisdictions'.[81] As a consequence, it was argued that there is a need for a coordinated approach across all jurisdictions to addressing marine plastic pollution. Nevertheless, it was observed that this is not the case with Dr Waddell, NELA, commenting that:

> …there seems to be a lot of acknowledgement that the coordination between the Commonwealth level and the state levels is not working very well across the marine jurisdiction.[82]

4.75 Dr Waddell went on to comment that there were options for the Commonwealth to take a greater role in addressing pollution issues and stated that:

> But in the past the Commonwealth has stepped away from assuming that leadership role and has always sought to work within the Intergovernmental Agreement on the Environment and that NEPM system, which was established back in 1994. Perhaps it is time we revisited that.[83]

4.76 The call for the Commonwealth to take on a greater role and assume leadership was repeated by other submitters. For example, the Sydney Coastal Councils Group commented:

> As the impacts of plastic are many and varied, solutions must be equally diverse. A whole-of-government approach is required, that includes industry and communities. Due to the scale of the problem, national leadership is essential.[84]

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80 Mr Stephen Oxley, Department of the Environment, *Committee Hansard,* 26 February 2016, p. 19.

81 Ms Rachel Walmsley, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 69.

82 Dr Sarah Waddell, National Environmental Law Association, *Committee Hansard*, 18 February 2016, p. 26. See also Chapter 5.

83 Dr Sarah Waddell, National Environmental Law Association, *Committee Hansard*, 18 February 2016, p. 28.

84 Sydney Coastal Councils Group, *Submission 8*, p. 7.

4.77 Similarly, the Port Phillip EcoCentre stated:

> The long-standing efforts of noble not-for-profit organisations have not been able to keep pace with the consumption and poor disposal of consumer plastics generated by the growing human population. As marine plastics are not constrained by state or local government borders Federal government leadership is required on this issue.[85]

4.78 EDOs of Australia argued that 'there is a lack of national leadership on the environment at the moment'.[86] Ms Walmsley, EDOs of Australia, commented further that the Commonwealth has provided national leadership in other areas and should do so in relation to implementing mechanisms to address marine plastic pollution:

> That comes back to my point on national leadership. It has worked effectively in other areas—for example, in gene technology, where the Commonwealth played a role in getting uniform legislation in the states on a new and emerging issue when the science was not necessarily clear or it was a new area for legislation to address. I think there is a role for Commonwealth coordination to get state standards or mechanisms in line.[87]

4.79 Similarly, NELA urged the 'Australian government to exercise leadership and to play a central role in developing a national strategy that should cover prevention, removal, mitigation and monitoring the spread of marine plastic pollution'.[88]

4.80 One way of increasing national coordination and leadership was put forward by Dr Waddell who commented that NELA promoted the establishment of a national oceans commission and possibly an Oceans Act as:

> …there seems to be a lot of acknowledgement that the coordination between the Commonwealth level and the state levels is not working very well across the marine jurisdiction. When you have the state jurisdiction going out to, in most cases, three nautical miles and then the Australian Commonwealth waters starting after that, there is not a great deal of coordination going on.[89]

4.81 Mr Sahukar, EDOs Australia, also called for the establishment of a National Environment Commission based on the recommendations of the 2009 Hawke Review of the EPBC Act.[90] He stated that a National Environmental Commission could:

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85 Port Phillip EcoCentre, *Submission 81*, p. 4.

86 Mr Nari Sahukar, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 69.

87 Ms Rachel Walmsley, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 69.

88 Dr Sarah Waddell, National Environmental Law Association, *Committee Hansard*, 18 February 2016, p. 26.

89 Dr Sarah Waddell, National Environmental Law Association, *Committee Hansard*, 18 February 2016, p. 26.

90 See http://www.environment.gov.au/legislation/environment-protection-and-biodiversity-conservation-act/epbc-review-2008

> …provide arm's length and strategic oversight of environmental issues and advise the minister, and to play a sort of foresight role to foresee some of these emerging issues and to provide national leadership and coordination in addressing some of those issues.[91]

4.82 Mr Sahukar went on to explain that a National Environment Commission could ensure that best-practice environmental measures could be implemented across jurisdictions.[92]

4.83 However, as an alternative to a specific body to further marine environmental matters, NELA supported COAG as an appropriate body for the development of an intergovernmental framework for the coordination of marine and coastal management. NELA stated that:

> This issue goes to arrangements under our federal system of government and as Council of Australian Governments (COAG) is the peak intergovernmental forum in Australia it is the most appropriate body.[93]

4.84 It highlighted that the inclusion of the President of Australian Local Government Association (ALGA) in COAG is important as a number of measures which are critical for the prevention of marine plastic pollution are the responsibility of local governments.[94]

4.85 While NELA supported coordination of marine matters under COAG, it went on to comment that currently marine issues are not on the COAG agenda. It pointed to COAG's most recent Communiqué which included water, climate change and the environment under the heading of 'A new economic and Federation reform agenda'. However, coastal or marine issues are not mentioned.

4.86 In addition, NELA observed that in December 2013, COAG replaced the 22 Standing Councils, Select Councils and governance fora with eight Councils, and that this revoked the Standing Council on Environment and Water (SCEW). SCEW provided a forum for intergovernmental agreement on environmental protection and water management issues and challenges. It also enabled governments to coordinate environment and water related programs and funding. NELA concluded that:

> It is notable that SCEW appears to have been focused more on fresh water than the coastal and marine environment. However, the revocation of SCEW indicates the low priority being given to the environment and water within COAG and this extends to the coastal and marine environment.[95]

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91 Mr Nari Sahukar, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 69.

92 Mr Nari Sahukar, EDOs of Australia, *Committee Hansard*, 18 February 2016, p. 69.

93 National Environment Law Association, Answer to question on notice, 10 March 2016, p. 1.

94 National Environment Law Association, Answer to question on notice, 10 March 2016, p. 1.

95 National Environment Law Association, Answer to question on notice, 10 March 2016, p. 2.

4.87 Though SCEW has been disbanded, the department informed the committee that the Minister for the Environment, and state and territory environment ministers, continue to meet as a body that has come to be known as 'the meeting of environment ministers'. These meetings occur on a 'reasonably regular basis, at least a couple of times a year' and there is a 'senior officials' network and committee system' that provides advice to the ministers.[96]

4.88 The department commented that in relation to marine plastic pollution, the focus of the meeting of environment ministers has been on packaging and waste. In particular, it has considered banning microbeads, and the phase-down of lightweight single use plastic bags.[97]

International leadership

4.89 Submitters also commented on the role of the Australian Government in international areas. Ms Ellen Geraghty, NELA, saw an opportunity for Australia to be more involved in regional environment programs 'as they seemed to offer some useful mechanisms' for addressing marine plastic pollution. For example, Australia is a member of the Pacific Regional Environment Programme. The Programme focuses more on pollution generally in the marine environment rather than plastics but it was seen as way of improving action at a regional level.[98] In addition, NELA commented that 'the problem of [marine plastic pollution] is suitable to be raised in regional forums and to become the focus for international aid provided to Indonesia and neighbouring countries'.[99]

4.90 The Sydney Coastal Councils Group went further and suggested that Australia initiate a regional approach in the Asia-Pacific:

> …the Federal Government should lead the development of an international agreement with neighbouring countries throughout the Asia-Pacific to facilitate a regional approach to reducing marine plastic pollution. Given that plastics can travel extensive distances through ocean currents and wave action, a regional approach is essential.[100]

4.91 The committee notes that the TAP recognised the Asia-Pacific region as a source of marine debris, and that the Australian Government should contribute to raising awareness of marine debris in the region. Action 1.15 of the TAP required the department and relevant agencies 'to examine introducing awareness-raising and

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96 Mr Stephen Oxley, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 16.

97 Mr Andrew McNee, Department of the Environment, *Committee Hansard*, 26 February 2016, p. 17.

98 Ms Ellen Geraghty, National Environmental Law Association, *Committee Hansard*, 18 February 2016, p. 29.

99 National Environmental Law Association, *Submission 132*, p. 17.

100 Sydney Coastal Councils Group, *Submission 8*, pp. 7–8.

outreach programs aimed at relevant groups contributing to marine debris in the Asia-Pacific region'. It appears from the TAP Review that no progress was made in relation to this action.

4.92 Action item 1.17 required the department, in collaboration with the Department of Foreign Affairs and Trade, to strengthen relations with regional neighbours on marine debris through relevant fora, and develop collaborative project proposals to address the sources and impacts of harmful marine debris. The TAP Review noted the work undertaken in relation to derelict fishing gear from Indonesia. In addition, there have been exchange visits and study tours on community-based marine planning and management in East Timor, Rote Island in eastern Indonesia and Indigenous communities in Australia's north.[101]

4.93 AMSA also commented that Australia is a participant in the Pacific Ocean Pollution Prevention Programme which was updated in 2014 and recognises marine plastics and marine debris more generally as a significant source of pollution. There are a number of proposed actions (subject to funding) including investigating sources of abandoned lost or discarded fishing gear (ALDFG); regional workshop on ALDFG training; improved ghost net management; opportunistic sampling of ocean plastic debris; and develop Secretariat for the Pacific Regional Environment Programme (SPREP) region marine debris network. AMSA has also assisted SPREP to undertake gap analyses of ports in the region that could act as waste hubs. This will help Pacific small island developing states to meet their MARPOL requirements.[102]

Committee view

4.94 The EPBC Act and the TAP are the primary mechanisms for the management of the threat of marine plastic pollution to listed species, however the 2014 review of the TAP found that the threat had not been abated. The committee is disappointed with the apparent lack of action on this issue. However, the committee is encouraged to learn that the revised TAP will recognise that plastic, and microplastics in particular, pose a threat to the marine environment. The committee looks forward to the release of the revised TAP, and is of the view that urgent implementation is required.

4.95 The committee is of the view that there is a need for increased national leadership on marine plastic pollution abatement. Further, there is a need for greater sound, peer-reviewed research on the effects of marine plastic pollution and for this research to inform future government policy. Funding for this research should be provided a range of stakeholders. The committee believes that consistency in reporting and data collection is critical to such research and policy development. As such, the

101 Department of the Environment, *Threat abatement plan for the impacts of marine debris on vertebrate marine life Review 2009–2014*, p. 19.

102 Australian Maritime Safety Authority, *Submission 68*, pp. 5–6.

implementation and support for a nationally consistent marine debris database should be priority for the Australian Government.

4.96 Given that COAG brings together representatives from Commonwealth, state and territory, and local government, the committee believes the Australian Government should support the inclusion of marine plastic pollution on the agenda as a matter of urgency. The committee is of the view that COAG will provide an appropriate mechanism for an increased level of national leadership, and national consistency in policy development.

4.97 In the absence of a COAG council to address marine plastic pollution, the committee is of the view that the environment ministers group provides an important opportunity for national coordination and leadership.