



# The Development of Measures to Protect the Marine Environment from Land-based Pollution:

The Effectiveness of the Great Barrier  
Reef Marine Park Authority in  
Managing the Effects of Tourism on  
the Marine Environment

Rachel Zajacek\*

## INTRODUCTION

The marine environment and the life it supports forms a delicately balanced web of interrelated food chains, all of which depend on the chemical composition of the water.<sup>1</sup> While even 'natural' sea water contains some substances we would regard as pollutants, such as mercury, lead, hydrocarbons and radioactive nuclides, over the years humans have introduced these and other substances in amounts which are having a

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\* BA (Qld), LLB (Qld), Grad Dip Legal Practice; Solicitor of the Supreme Court of Queensland. Currently enrolled as a full-time student in an Environmental Masters of Law program at the Queensland University of Technology.

<sup>1</sup> O. Schachter and D. Serwer, 'Marine Pollution Problems and Remedies', (1971) 71 *American Journal of International Law* 87.

dramatic effect on the ecology of the marine environment.<sup>2</sup> Our society has inherited a culture of using the earth's oceans as a waste repository<sup>3</sup> as evidenced by the still high number of sewage outfalls, industrial discharges and stormwater drains feeding directly into coastal waters.<sup>4</sup>

With nearly 71 per cent of the earth's surface being covered by oceans, the long held belief has been that the pollution of past centuries can be readily absorbed and dispersed in the ocean.<sup>5</sup> The belief was based on a 'dilute and dispersal' concept. This absorption takes time, however, and with world population increases, corresponding waste increases and slow dispersal times factored in, the oceans are becoming more and more polluted.<sup>6</sup> The 'assimilative capacity' approach to marine pollution, meaning the ability of the environment to accommodate a particular activity or rate of activity without unacceptable impact, has come under increasing criticism from scientists.<sup>7</sup> However, whilst the cost of implementing alternative waste disposal methods outweighs the often intangible benefits, there is unlikely to be any sudden departure from this approach.<sup>8</sup>

The aim of this article is to trace the development of measures, at the international and domestic level, to combat the increasing threat land-based marine pollution poses to the marine environment. While the issue has been widely discussed at an international level, the Australian Government has failed to respond in the form of uniform legislation. It will be argued that the Great Barrier Reef Marine Park Authority (GBRMPA) established under *The Great Barrier Reef Marine Park Act 1975* (Cth) has been successful in protecting the marine environment of the Great Barrier Reef and has adapted to the new source of land-based marine pollution — tourism. However, it would seem that the remainder of Australia's 36,700-kilometre coastline<sup>9</sup> has been left at the mercy of piecemeal legislation.

## THE IMPORTANCE OF THE MARINE ENVIRONMENT

The health of the earth is inexorably tied to the health of the oceans.<sup>10</sup> The marine environment does not exist in isolation from the atmosphere and the terrestrial environment, and pollutants move readily across the

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<sup>2</sup> *Ibid.*

<sup>3</sup> J.W. Davis, 'Global Aspects of Marine Pollution Policy', (1990) *Marine Policy* 193.

<sup>4</sup> N. Brunton, 'Holidays by the Sewer: Coastal Water Pollution and Ecological Sustainability', National Environmental Law Association 1996 Conference, Coolum, 8–12 May 1996, 2.1.3.

<sup>5</sup> Davis, *supra* n. 3 at 191.

<sup>6</sup> M.W.D. White, *Marine Pollution Laws in the Australasian Region* (Sydney: Federation Press, 1994), 21.

<sup>7</sup> Davis, *supra* n. 3 at 193 and Brunton, *supra* n. 4 at 2.1.5.

<sup>8</sup> Davis, *supra* n. 3 at 191.

<sup>9</sup> R. Raymond, *Australia — The Greatest Island* (Sydney: Ure Smith, 1979), 17.

<sup>10</sup> Davis, *supra* n. 3.

mediums of land, air and water.<sup>11</sup> Oceans are especially important as a source of food, oxygen, minerals and energy, and as a vehicle for transport.<sup>12</sup> It has been estimated, for example, that marine fisheries yield between 80 and 90 million tonnes of fish and shellfish annually.<sup>13</sup>

The importance of the marine environment to mankind was first recognised on an inter-governmental level in 1974 during a regional conference in Paris on Marine Pollution from Land-based Sources.<sup>14</sup> In adopting a Convention, the contracting parties recognised that 'the marine environment and the living resources which it supports are of vital importance to all nations'.<sup>15</sup> Two years earlier, in 1972, at a United Nations (UN) sponsored conference in Stockholm, participating States agreed 'that states were to take all possible steps to prevent pollution of the seas'.<sup>16</sup> However, the importance of the marine environment to humans was not expressly recognised by the parties.<sup>17</sup>

In Agenda 21, the paper arising from the UN Conference on Environment and Development in Rio de Janeiro in 1992, participating States reiterated the sentiment expressed by the contracting parties in the Paris Convention. Chapter 17 of Agenda 21 specifically addresses the protection of oceans and affirms: 'The marine environment, including the oceans and all seas and adjacent coastal areas, forms an integrated whole that is an essential component of the global life-support system and a positive asset that presents opportunities for sustainable development.'<sup>18</sup>

The conceptual link between the importance of the marine environment and the increasing threat of land-based marine pollution was finally made on an international level in the Washington Declaration on the Protection of the Marine Environment from Land-based Activities in 1995.<sup>19</sup> The interdependence of human populations and the coastal and marine environment was recognised, along with the growing and serious threat from land-based activities, to both human health and well-

<sup>11</sup> See, for example, Schachter and Serwer, *supra* n. 1 at 87: The phytoplankton in the oceans produces about 70 per cent of atmospheric oxygen.

<sup>12</sup> Davis, *supra* n. 3.

<sup>13</sup> United Nations Conference on the Environment and Development in Rio de Janeiro, June 1992, Papers arising out of Conference: Agenda 21 — Chapter 17 at 17.70 (subsequently: Agenda 21).

<sup>14</sup> Conference on Prevention of Marine Pollution from Land-based Sources at Paris which adopted a Convention on the subject on 21 February 1974 (subsequently: The Paris Convention).

<sup>15</sup> Paris Convention at (1974) 13 *ILM* 352. See the Preamble.

<sup>16</sup> UN Conference on the Human Environment, Declaration of Principles done at Stockholm on 16 June 1972. (1972) 11 *ILM* 1416, Principle 7 (subsequently: The Stockholm Declaration).

<sup>17</sup> *Ibid.* See, generally, Principle 7 and Action Plan.

<sup>18</sup> Agenda 21, *supra* n. 13 at 17.1.

<sup>19</sup> UNED Inter-governmental Conference to Adopt a Global Program of Action for the Protection of the Marine Environment from Land-based Activities, at Washington, 23 October – 3 November 1995, further to Agenda 21, Program B.

being, and the integrity of coastal and marine ecosystems and biodiversity.<sup>20</sup>

## SOURCES OF MARINE POLLUTION

The sources of marine pollution are varied. Oil spills are certainly well-publicised sources. However, there are other less well known sources, which have a far greater impact, including dumping at sea, point-sourced pollution from pipes and drains, and atmospheric pollution via discharges from industrial activities.<sup>21</sup> It is interesting to note how little marine pollution originates from sea-based activities such as sea transport.<sup>22</sup>

### Land-based Pollution

Land-based sources are recognised as the main cause of marine pollution and the resulting loss of marine habitat which adversely impacts on the health and economic well-being of the majority of the world's population.<sup>23</sup> Approximately 70 per cent of marine pollution is attributed to land-based sources, with maritime transport and dumping-at-sea accounting for 10 per cent respectively.<sup>24</sup> One author has put the figure as high as 90 per cent;<sup>25</sup> however, it is generally accepted to be between 70 and 80 per cent.<sup>26</sup>

Discharges from the land affect coastal waters where more than 90 per cent of marine fishery resources are located and where man's closest contact with seawater, through bathing or the intake of food, takes place.<sup>27</sup> There is an increasing realisation internationally that the sea washes all shores, including those of the polluter.<sup>28</sup> In Australia's case, this includes the edges of the Pacific, Southern and Indian oceans, and the Tasman, Coral, Arafura and Timor seas.

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<sup>20</sup> Washington Declaration, 3 November 1995, *Environmental Policy and Law* 26 (1996) 37. See Preamble (subsequently: Washington Declaration).

<sup>21</sup> White, *supra* n. 6 at 3.

<sup>22</sup> *Ibid.*

<sup>23</sup> Washington Conference, Opening Session statement by Ms E. Claussen, Special Assistant to the US President. UNEP Report, 'Rio Follow-up Marine Environment', (1996) 26 *Environmental Policy and Law* 12.

<sup>24</sup> Agenda 21, *supra* n. 13 at 17.18.

<sup>25</sup> Davis, *supra* n. 3.

<sup>26</sup> See, generally, Agenda 21, *supra* n. 13, and UNEP Report, 'Rio Follow-up', *supra* n. 23 at 11.

<sup>27</sup> UNEP Report, 'Pollution from Land-based Sources', (1983) 11 *Environmental Policy and Law* 88.

<sup>28</sup> Davis, *supra* n. 3.

## *Mobility of Pollutants*

Pollutants in the marine environment are not static and once introduced into the oceans, their fate is unknown. They may travel long distances from the point of origin, either physically in ocean currents or via marine organisms.<sup>29</sup>

Once in the ocean, land-based pollutants can manifest in three ways. First, the water column may become contaminated by hydrocarbon, nutrients and metal particles. Second, the pollutants may sink to the ocean floor and contaminate sediments. Once imbedded in the sediments, pollutants provide an insidious source of toxins long after land-based pollution has abated. Finally, the pollutants can be ingested by marine plants and animals.<sup>30</sup> Through a process of bioaccumulation, organisms higher up the marine ecosystem food chain become exposed to increasingly high levels of toxification.<sup>31</sup>

## *Sources of Land-based Pollution*

The sources of land-based marine pollution are varied and can be attributed to a wide range of human activities. A comprehensive listing is provided in Agenda 21<sup>32</sup> and includes:

- human settlements;
- land use;
- construction of coastal infrastructure;
- agriculture;
- forestry;
- urban development;
- tourism; and
- industry.

Coastal erosion and siltation were noted to be particularly significant sources of marine pollution at the 1992 UN Conference on the Environment and Development.<sup>33</sup> Poor land use practices including deforestation, urbanisation and unplanned agriculture can cause soil erosion and increase sediment and nutrient flows.<sup>34</sup> For example, the inappropriate use of fertilisers in agriculture is one of the main sources of nutrients which find their way into the marine environment.<sup>35</sup> The clearing of land,

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<sup>29</sup> *Id.* 192.

<sup>30</sup> Brunton, *supra* n. 4 at 2.1.2.

<sup>31</sup> Davis, *supra* n. 3 at 193.

<sup>32</sup> Agenda 21, *supra* n. 13 at 17.19.

<sup>33</sup> *Ibid.*

<sup>34</sup> UNEP Report, 'Rio Follow-up', *supra* n. 23.

<sup>35</sup> *Ibid.*

overgrazing and cropping have greatly increased soil erosion and, consequently, the volume of sediments entering the sea.<sup>36</sup>

Industrial wastes include heavy metals, radioactive nuclides, inorganic chemicals and heated water.<sup>37</sup> Heavy metals such as copper, lead, cadmium, zinc and mercury have become more prevalent in marine environments in recent years.<sup>38</sup> Industrial wastes reach coastal waters through direct industrial discharges, stormwater drains or via the atmosphere as industrial burn-off or acid rain.

Pollution via domestic sewage outfalls was identified as a particular concern in both Agenda 21<sup>39</sup> and the follow-up Washington Declaration which adopted a Global Action Plan for the Protection of the Marine Environment. Participating States agreed that 'domestic waste-water discharges are considered to be one of the most significant threats to the coastal environment world wide'.<sup>40</sup>

### *Range of Pollutants*

The pollutants introduced to the marine environment via human activities generally include raw sewage, nutrients, synthetic organic compounds, sediments, litter and plastic, metals, radionuclides, oil, hydrocarbons and polycyclic aromatic hydrocarbons.<sup>41</sup>

Non-biodegradable waste such as plastic poses a significant threat to marine life. This includes plastic bags, containers and fishing nets (the long-range variety).<sup>42</sup> A study in 1992 estimated that as much as 4,000 tonnes of plastic litter enters Australian seas annually via upstream dumping.<sup>43</sup> A survey into sources of beach litter found that 44.7 per cent of the litter was some form of plastic, either bags, rope, containers or bottle tops.<sup>44</sup>

### *Tourism as a Source of Land-based Marine Pollution*

There is a lack of hard data on the effects of tourism on the marine environment. The impact is often hard to measure or quantify. The best indicator is the significant increase in tourist numbers and expenditure in

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<sup>36</sup> L. Zann, *Our Sea Our Future, Major Findings of the State of the Marine Environment Report (SOMER) 1995*, Department of Environment, Sport and Territories 55 (subsequently: Zann, 'SOMER').

<sup>37</sup> Schachter and Serwer, *supra* n. 1 at 99.

<sup>38</sup> Zann, 'SOMER', *supra* n. 36 at 59.

<sup>39</sup> Agenda 21, *supra* n. 13 at 17.27.

<sup>40</sup> Washington Declaration, *supra* n. 20 at Chapter V, para. 105.

<sup>41</sup> Agenda 21, *supra* n. 13 at 17.18.

<sup>42</sup> White, *supra* n. 6 at 22.

<sup>43</sup> *Ibid.*, per Victorian Institute of Marine Science Study, 1992.

<sup>44</sup> Zann, 'SOMER', *supra* n. 36 at 62. This figure is extracted from the pie graph illustrating the types of litter found in the survey.

recent years.

Tourism contributed 5.4 per cent of Australia's Gross Domestic Product in 1990/91.<sup>45</sup> In the three years from 1985 to 1988, the number of overseas tourists visiting Australia doubled to reach 2.2 million. The Bureau of Tourism Research predicts that this figure will continue to rise to reach 5.15 million by the year 2001.<sup>46</sup> Approximately 22 million tourists (domestic and international) visit the Great Barrier Reef each year, spending a cumulative minimum of \$1 billion per year in the area.<sup>47</sup>

The impact of these increasing tourist numbers on the marine environment through pollution or physical damage will be discussed later in this article. Immediately following is a review of international, regional and domestic initiatives to control, reduce and eliminate land-based marine pollution.

## INTERNATIONAL AND REGIONAL INITIATIVES

### Overview

Notwithstanding the significant threat land-based pollution poses for the marine environment, the international community has been rather slow in adopting an international convention specifically addressing the issue. The lack of international conventions addressing land-based sources of marine pollution can be attributed, to an extent, to the fact that the pollution usually has a national source, in that it originates from an area under the sovereignty of an individual State, well outside the scope of international organisations or international law.<sup>48</sup> There has been an understandable reluctance by States to restrict the management of coastal areas and waters, which have traditionally been seen as a matter of exclusive national concern.<sup>49</sup>

Another problem which complicates assigning responsibility for the pollution, is that the ocean is constantly mobile, with currents, winds and tides mixing and merging waters. Pollutants are often carried far from their point of entry into the water and can have widespread effects.<sup>50</sup> By virtue of this mixing and moving of waters, land-based pollution is very

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<sup>45</sup> S. Driml, 'Protection for Profit — Economic and Financial Values of the Great Barrier Reef World Heritage Area and other Protected Areas', Report to GBRMPA, 1994, 4.

<sup>46</sup> *Ibid.*

<sup>47</sup> *Id.* 10.

<sup>48</sup> R. Churchill and A. Lowe, *The Law of the Sea* (Manchester: Manchester University Press, 1983), 245.

<sup>49</sup> T. Treves, 'The Protection of the Oceans in Agenda 21 and International Law', *The Environment after Rio*, International Environmental Law and Policy Series (London: Graham and Trotman Ltd, 1994), 163.

<sup>50</sup> R. Kenchington, 'Protecting and Managing the Offshore Estate' (Seminar paper, Royal Australian Navy Maritime Studies Program, May 1994), 2.

difficult to monitor or trace. It may enter the ocean through several mediums, including the atmosphere, water courses such as rivers and estuaries, or industrial outfalls. This mobility of pollution permits nations to use the oceans as an alternative, cheap and often anonymous vehicle for dumping land-based waste. Thus the difficulty and cost of disposing of the waste is externalised by ocean dumping.<sup>51</sup> Whilst governments follow the policy of 'out of sight, out of mind', there is no foreseeable point when they will willingly relinquish control of maritime areas to an international convention and undertake to pursue alternative, more costly measures of waste disposal.

## Stockholm Declaration 1972

In 1972 the UN Conference on the Human Environment declared the protection and improvement of the human environment to be the urgent desire of the peoples of the whole world and the duty of all governments.<sup>52</sup> The conference at Stockholm was the first UN conference to specifically consider environmental problems. It was convened by a UN General Assembly Resolution declaring 'an urgent need for intensified action at the national and international level to limit and where possible eliminate the impairment of the human environment'.<sup>53</sup>

The Declaration contains 26 principles in conjunction with an action plan for the implementation of the environmental principles. Principle 7 specifically addresses the marine environment, requiring States 'to take all possible steps to prevent pollution of the seas by substances that are liable to create hazard to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea'. Legitimate uses would include swimming, fishing, the right to freely navigate and travel, and the right to use the seas for recreation.

Part B of the Action Plan for the Human Environment contains ten recommendations addressing the problem of marine pollution. Recommendation 86(f) urges States to strengthen national controls over land-based sources of marine pollution, in particular in enclosed and semi-enclosed seas. By 1972, the post World War II re-industrialisation of the Mediterranean coastal States caused the enclosed Mediterranean Sea to be referred to as a 'stinking puddle'.<sup>54</sup> The chief causes of pollution of the Mediterranean were land-based sources — sewage, industry and agricultural run-off.<sup>55</sup>

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<sup>51</sup> Davis, *supra* n. 3 at 191.

<sup>52</sup> Stockholm Declaration, *supra* n. 16 at Preamble.

<sup>53</sup> UN Res. No. 2398.

<sup>54</sup> J.W. Kindt, *Marine Pollution and the Law of the Sea* (New York: William Hein & Co, 1986), 1041. It takes 70–80 years for a complete change of water to occur in the Mediterranean Sea.

<sup>55</sup> *Ibid.*



The majority of the recommendations in the Stockholm Declaration, however, deal with research, review and monitoring of marine pollution by inter-governmental bodies such as the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP)<sup>56</sup> and the Inter-Governmental Oceanographic Commission.<sup>57</sup> The Declaration does not provide any mechanisms for dealing with the pollution. In summary, the Stockholm Declaration can best be classified as a passive document, reactionary to the recognised problem of pollution of the marine environment, rather than prescribing obligations to take positive steps to control and eliminate pollution. It was, however, a significant step in international law and could be regarded as the start of international environmental law. Although the Declaration is non-binding, it does represent a strong sense of dedication by States to establish basic rules of international environmental law.<sup>58</sup>

## The Paris Convention 1974

The 1974 Paris Convention was the first convention, albeit regional,<sup>59</sup> to specifically address land-based marine pollution. In doing so, it was also the first convention to define key terms such as 'pollution', 'maritime area' and 'land-based sources'. These definitions were subsequently drawn upon a decade later by the drafters of the Montreal Guidelines<sup>60</sup> and, as will be discussed shortly, there has been no significant departure from the basic concepts and principles agreed upon in Paris.

Mindful that the ecological equilibrium and legitimate uses of the sea were becoming increasingly threatened by pollution,<sup>61</sup> the contracting parties<sup>62</sup> defined pollution to mean:

... the introduction by man, directly or indirectly of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as hazards to human health, harm to living resources and to marine ecosystems, damage to amenities or interference with other legitimate uses of the sea.<sup>63</sup>

<sup>56</sup> Stockholm Declaration, *supra* n. 16 at Recommendations 86, 88 and 89.

<sup>57</sup> *Id.* Recommendations 90 and 91.

<sup>58</sup> P. Birnie and A. Boyle, *Basic Documents at International Law and the Environment*, (Oxford: Clarendon Press, 1995), 1.

<sup>59</sup> Paris Convention, *supra* n. 14 Article 2 — the main area of application is the north-east Atlantic Ocean and North Sea.

<sup>60</sup> UNEP Report, 'Protection of the Marine Environment against Pollution from Land-based Sources', (1985) 13 *Environmental Policy and Law* 77.

<sup>61</sup> Paris Convention, *supra* n. 14 Preamble.

<sup>62</sup> The contracting parties were: Austria, Belgium, Denmark, France, Federal Republic of Germany, Iceland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Finland and Italy attended as observers.

<sup>63</sup> Paris Convention, *supra* n. 14 Article 1.

It is interesting to note that pollution is defined not only in physical terms (substances or energy) but also in terms of the consequences of its introduction into the marine environment. In this respect, the second part of the above definition in Article 1 of the Paris Convention is almost identical to Principle 7 in the Stockholm Declaration in recognising possible detrimental effects to the marine environment. The only noteworthy departure is the replacement of the phrase 'marine life' with 'marine ecosystems', indicating perhaps a growing appreciation of the intricate web of marine life.

The original definition of land-based sources in Article 3 of the Paris Convention included watercourse, pipelines and 'man-made' structures. The amending Protocol in 1986 expanded this to include emissions via the atmosphere from land or 'man-made' structures.<sup>64</sup>

The Convention employs the phrase 'maritime area' rather than 'marine environment', which is the term adopted in the LOSC, Montreal Guidelines, Agenda 21 and the Washington Declaration. This is of no great significance; the essence of both definitions is the maritime area and, in the case of water courses, up to the freshwater limit.<sup>65</sup>

The Paris Convention creates specific obligations, including the requirement to implement both time limits within programs to eliminate marine pollution,<sup>66</sup> and a permanent monitoring system,<sup>67</sup> and the establishment of a Commission to supervise the implementation of the Convention.<sup>68</sup> To assist with implementation, the Convention contains a phased approach to the elimination of pollutants. Substances are divided into three groups on the basis of persistency, toxicity and tendency to bioaccumulate. Those substances allocated to Part 1 are targeted for elimination as sources of pollution as a matter of urgency, whilst parties undertake to 'limit strictly' pollution of substances listed in Part 2. Substances in Parts 1 and 2 are differentiated on the basis of noxiousness and susceptibility to degradation by natural processes. Among the substances listed under Part 1 are mercury, cadmium, and persistent synthetic materials and oils.<sup>69</sup>

## LOSC 1982

Under international law, the only binding obligations on States regarding the marine environment are contained in the LOSC. Article 308 requires 60 ratifications before the Convention shall enter into force. The

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<sup>64</sup> Protocol to Paris Convention, 26 March 1986. (1988) 27 ILM 625.

<sup>65</sup> Paris Convention, *supra* n. 14 Article 3 and Montreal Guidelines (1985) 13 *Environmental Policy and Law* 77.

<sup>66</sup> Paris Convention, *supra* n. 14 Article 4.

<sup>67</sup> *Id.* Article 11.

<sup>68</sup> *Id.* Article 15.

<sup>69</sup> *Id.* Article 4 and Annex A — Parts 1 and 2.

60th instrument was deposited by Guyana, a coastal State, on 16 November 1993, with Australia ratifying the treaty on 5 October 1994.<sup>70</sup> As of 29 January 1996, 85 instruments of ratification had been deposited with the UN.<sup>71</sup> This considerable international support was probably more for the new maritime zones codified in the Convention than for the two articles specifically addressing land-based pollution in Part XII.

The definition of pollution in Article 1(4) has become more comprehensive in the eight years since the Paris Convention. Pollution of the marine environment means:

... the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hinderance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.<sup>72</sup>

The importance of water quality and fisheries is expressly recognised in the definition. The inclusion of the latter is not surprising considering the emergence of national claims over maritime areas and their resources since the Truman Declaration in 1945.<sup>73</sup>

The LOSC contains a general obligation on States to prevent, reduce and control pollution of the marine environment using the 'best practical means at their disposal' and 'in accordance with their capabilities'.<sup>74</sup> The specific obligations with respect to land-based sources appear in Article 207:

States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.

States are required to enforce these laws and regulations<sup>75</sup> and are liable in international law for non-fulfilment of obligations under Part XII.<sup>76</sup> However, the manner in which States meet the requirements of Article 207 is a matter for their determination. The probable effect of the general

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<sup>70</sup> UN home page on the Internet at <http://www.un.org>.

<sup>71</sup> *Ibid.*

<sup>72</sup> LOSC, *supra* n. 70 Article 1(4).

<sup>73</sup> C.C. Joyner, 'The Exclusive Economic Zone and Antarctica', (1980) 21 *Virginia Journal of International Law* 696. The Truman Declaration provided for the exercise of US jurisdiction over natural resources of the subsoil and sea bed of the continental shelf and conservation areas in adjacent high seas to regulate fishing.

<sup>74</sup> LOSC, *supra* n. 70 Article 194(1).

<sup>75</sup> *Id.* Article 213.

<sup>76</sup> *Id.* Article 135(1).

obligation in Article 194 is to allow States to use their discretion in determining what are the best means at their disposal, in accordance with their capabilities.<sup>77</sup> The ambiguity of this phrase weakens the ability of the international community to insist on compliance with the LOSC provisions. It has been said that 'the obligation is so precisely and broadly formulated that it is unlikely to have much practical effect'.<sup>78</sup>

## Montreal Guidelines 1985

The Montreal Guidelines were drafted by an Ad Hoc Working Group of Experts meeting in Montreal in 1985, under the sponsorship of the UN Environmental Program.<sup>79</sup> The Guidelines were expressly stated to be of a recommendatory nature to assist governments in the process of developing appropriate bilateral, regional and multilateral agreements, and national legislation for the protection of the marine environment.<sup>80</sup>

As mentioned previously, existing agreements were drawn upon in drafting the Guidelines, including the Paris Convention, LOSC, the Helsinki Convention and the Athens Protocol.<sup>81</sup>

The interrelationship between international agreements in this area is demonstrated by the fact that in the fulfilment of obligations under Article 207 of the LOSC, to reduce and control marine pollution taking into account international rules, it is likely that States will, in the absence of any other international criteria, refer to the Montreal Guidelines.<sup>82</sup>

The definition of pollution in the Guidelines is a reflection of the definition in the LOSC. The differences between the two definitions are highlighted in italics below:

The introduction by man directly or indirectly of substances or energy into the marine environment which results or is likely to result in such deleterious effects as harm to living resources and *marine ecosystems*, hazards to human health, *hinderance to marine activities, including fishing* and other legitimate uses of the sea, *impairment of quality for use of sea water* and reduction of amenities.

The main advance in the Guidelines is in the definition of land-based sources. It is significantly more comprehensive than the one contained in

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<sup>77</sup> D.E. Fisher, 'Land-Source Pollution of the Marine Environment', Australian Institute of Marine Law Seminar, 19 October 1994, 12 [a modified version of this paper is also in 12 EPLJ (1995)].

<sup>78</sup> Churchill and Lowe, *supra* n. 48.

<sup>79</sup> Fisher, *supra*, n. 77 and UNEP Report, 'Protection of the Marine Environment', *supra* n. 60.

<sup>80</sup> UNEP Report, 'Protection of the Marine Environment', *supra* n. 60.

<sup>81</sup> Helsinki Convention for the Protection of the Marine Environment in the Baltic Sea Area, Athens Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources.

<sup>82</sup> Fisher, *supra* n. 77.

the Paris Convention. Offshore facilities have been included for the first time. The term has been defined as:

Municipal, industrial or agricultural sources, both fixed and mobile, on land, discharges from which reach the marine environment, in particular:

- (a) from the coast, including from outfalls discharging directly into the marine environment and through run off
- (b) through rivers, canals or other watercourses including underground watercourses and
- (c) via the atmosphere

Sources of marine pollution from activities conducted on offshore fixed or mobile facilities within the limits of national jurisdiction, save to the extent that these sources are governed by appropriate international agreements.<sup>83</sup>

As previously stated, the Guidelines are not binding and are an example of only soft law, with terms such as 'Basic Obligations' and 'should'. States *should* ... in accordance with their capabilities take all measures necessary to prevent and control pollution.<sup>84</sup> States *should* take appropriate measures<sup>85</sup> and *should* adopt and implement national laws and regulations for the protection of the marine environment from land-based sources.<sup>86</sup> The provision for liability for pollution damage is rendered completely without effect with the words such as States *should* ensure recourse is available in accordance with their legal system for prompt and adequate compensation.<sup>87</sup>

Nevertheless, for States wishing to take positive steps to combat land-based marine pollution, the Guidelines do provide a useful reference point. Annex 1 contains strategies for protecting, preserving and enhancing the quality of the marine environment, while Annex II classifies polluting substances. Substances are classified taking into account:

- persistence;
- toxicity or other noxious properties; and
- tendency to bioaccumulation.<sup>88</sup>

These are the same criteria listed in Annex A of the Paris Convention. Similarly, the basis for the inclusion of substances in the Black List in the

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<sup>83</sup> Montreal Guidelines, *supra* n. 65 at para. 1(b).

<sup>84</sup> *Id.* para. 4(1).

<sup>85</sup> *Id.* para. 7(1).

<sup>86</sup> *Id.* para. 16(1).

<sup>87</sup> *Id.* para. 17(1).

<sup>88</sup> *Id.* Annex II — Introduction.

Montreal Guidelines is identical to that found in the Paris Convention,<sup>89</sup> namely:

- because they are not readily degradable or rendered harmless by natural processes;
- because they may either:
  - give rise to the dangerous accumulation of harmful material in the food chain, or
  - endanger the welfare of living organisms causing undesirable changes in the marine ecosystems, or
  - interfere seriously with the harvesting of sea foods or with other legitimate uses of the sea; and
- because it is considered that pollution by these substances necessitates urgent action.

Black-listed substances in the Guidelines include organic biocides such as organohalogen compounds, persistent hydrocarbons of petroleum origin, certain metals, persistent synthetic materials, radioactive materials, carcinogenic substances, and products produced for biological and chemical warfare.<sup>90</sup> Radioactive substances are not included in the Paris Convention's equivalent to the Black List as they were the subject of separate research and therefore were treated in isolation.<sup>91</sup> Grey-listed substances in the Guidelines are less noxious or more easily absorbed by natural processes, and basically the list includes all remaining pollutants not already black-listed.

## Rio Declaration 1992

The Rio Declaration on Environmental Law and Development is not formally binding in international law. However, it was the result of consensus by 176 States and, as such, indicates an intention by States to be bound by the Principles.<sup>92</sup>

The UN Conference was held on the 20th anniversary of the Stockholm Declaration, and many of its principles were reaffirmed.<sup>93</sup> The Rio Declaration also saw the introduction of new concepts, including the

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<sup>89</sup> Paris Convention, *supra* n. 14 Annex A — Part 1 substances and Montreal Guidelines, *supra* n. 65 at Annex II — para. 1.0.

<sup>90</sup> Montreal Guidelines, *supra* n. 65 Annex II — paras. 1.1–1.7.

<sup>91</sup> Paris Convention, *supra* n. 14 Annex A — Part 3.

<sup>92</sup> Birnie, *supra* n. 58.

<sup>93</sup> For example, Principle 21 of the Stockholm Declaration was reaffirmed by Principle 2 of the Rio Declaration.

precautionary principle<sup>94</sup> and the polluter pays principle,<sup>95</sup> and the reaffirmation of the concept of ecologically sustainable development.<sup>96</sup> The 27 principles in the Rio Declaration do not address land-based marine pollution; this is covered in Agenda 21. Chapter 21 of Agenda 21 specifically deals with oceans. One of the main program areas is Marine Environmental Protection. Specific areas flagged for attention include:

- updating, strengthening and extending the Montreal Guidelines;
- reviewing regional agreements and implementing new ones;
- according priority to sewage discharge; and
- establishing regulatory and monitoring programs to control effluent discharges and emissions.<sup>97</sup>

The focus on the protection on the marine environment, however, is tempered by programs for the sustainable development of coastal resources and marine areas and the sustainable use and conservation of marine resources in the high seas.

## Washington Declaration 1995

Pursuant to Agenda 21, an intergovernmental conference to adopt a Global Programme of Action for the Marine Environment was convened in May 1993 by the Executive Director of UNEP. The conference was attended by representatives from over 100 States, 17 global and regional intergovernmental organisations and 27 non-governmental organisations.<sup>98</sup> At the close of the final meeting in Washington in November 1995, the parties agreed to a Declaration pertaining to the Global Programme of Action.

The issue of enforceability of international declarations and agreements was raised by the Chairman during the final session, when he stressed the importance of effective implementation and reminded participants that the Montreal Guidelines, containing no compliance requirements, had not achieved the results hoped for.<sup>99</sup> International declarations are not binding on States; they do, however, represent a UN practice of formalising principles of special importance, evidencing a strong sense of dedication to the idea of trying to establish basic rules of international environmental law.<sup>100</sup>

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<sup>94</sup> Rio Declaration, *supra* n. 13 Principle 15 — lack of full scientific evidence shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

<sup>95</sup> *Id.* Principle 16 — the polluter should in principle bear the cost of pollution.

<sup>96</sup> *Id.* Principle 4 — environmental protection should constitute an integral part of the development process.

<sup>97</sup> Agenda 21, *supra* n. 13 at 17.25, 17.27 and 17.28(a).

<sup>98</sup> UNEP Report, 'Rio Follow-up', *supra* n. 23 at 11.

<sup>99</sup> *Ibid.*

<sup>100</sup> Birnie, *supra* n. 58, 1.

The text of the Washington Declaration reads in the narrative, providing a factual account of the existing state of the environment. The Declaration contains no enforcement provisions and is designed to be a conceptual and practical guide to assist governments in taking action to prevent, reduce, control and eliminate marine degradation from land-based activities.<sup>101</sup> For example, Chapter V provides recommended approaches for targeting sources and pollutants by category. Some of the pronouncements made in the Declaration may arguably be rules of customary international law; however, the majority of the Declaration is more appropriately classified as soft law.

## Summary

Despite the laudable intentions of the international community to halt the flow of land-based pollutants into our coastal watercourses and seas, there is no specific, enforceable international agreement. To a large extent, the inherent difficulties in obtaining international consensus, together with the absence of an international judiciary with sufficient jurisdiction to determine disputes, accounts for this position. Many of the declarations refer to regional agreements as the means by which to control land-based pollution. Program B of Agenda 21 encourages States to take action at the national level and, where appropriate, regional and sub-regional levels.<sup>102</sup> The Washington Declaration states that regional and sub-regional co-operation and arrangements are crucial for successful action to protect the marine environment from land-based activities.<sup>103</sup>

## AUSTRALIAN LEGISLATION

As previously mentioned, Australia has a coastline of some 36,700 kilometres, making it the second longest coastline in the world.<sup>104</sup> Decades of land clearing, over-grazing, dredging, building and poor land-use practices have damaged Australia's coastline and the marine ecosystems, such as mangroves, coral reefs and sea grasses.<sup>105</sup> For example, it is estimated that in Queensland four times more sediments, nitrogen and phosphorus enter the sea each year than in pre-European times.<sup>106</sup> Even more alarming are the results of a 1992-93 survey by the Surfriders Australia Association. The survey found that of the 439 beaches investigated

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<sup>101</sup> Washington Declaration, *supra* n. 20 Chapter 1, para. 14.

<sup>102</sup> Agenda 21, *supra* n. 13 at Chapter 17, para. 17.24.

<sup>103</sup> Washington Declaration, *supra* n. 20 at Chapter III.

<sup>104</sup> Brunton, *supra* n. 4 at 2.1.1. Canada has the longest coastline.

<sup>105</sup> G.M. Bates, *Environmental Law in Australia* (Sydney: Butterworths, 1995), 210.

<sup>106</sup> Zann, 'SOMER', *supra* n. 36 at 55.



Australia-wide, 33 per cent had some form of development on the dune system and 34 per cent had one or more stormwater drains discharging to the beach or an associated lagoon.<sup>107</sup>

Notwithstanding the urgent need for a uniform federal approach, and despite the recommendation of the Resource Assessment Commission for a National Coastal Action Program including a Commonwealth Coastal Resource Management Act,<sup>108</sup> there is no specific Commonwealth legislation addressing land-based marine pollution.

Under the Ocean Rescue 2000 program, introduced by the Keating Labor Government, a comprehensive review of Australia's marine environment was undertaken. The resulting report, the State of the Marine Environment Report for Australia (SOMER), covers the total offshore area under Australian jurisdiction, including external territories.<sup>109</sup> The report found that declining water quality and sedimentation were regarded as probably the most serious issues affecting Australia's marine and coastal environments. This is largely the result of inappropriate catchment land-use practices, sewage discharges and urban run-off.<sup>110</sup>

The principal recommendations of the SOMER were:

- the need for immediate action;
- that Australia's marine environment should be managed as a series of large marine ecosystems whose boundaries are determined on biological and not political criteria;
- that a co-ordinating body should be established to co-ordinate a national integrated and strategic approach to managing coastal marine regions; and
- that community groups be better resourced to improve their input and role in decision-making and information exchange.<sup>111</sup>

Australian offshore jurisdiction is shared between the Commonwealth and the States under the Offshore Constitutional Settlement of 1980.<sup>112</sup> This settlement was precipitated by the decision in *NSW v Commonwealth*<sup>113</sup> when the High Court upheld the validity of the *Seas and Submerged Lands Act 1973* (Cth). The Act, in practical terms, asserted Commonwealth sovereignty over waters which had traditionally been viewed by the States as state waters. That is, the Act asserted Commonwealth sovereignty over coastal waters right up to the low water mark.

Under the Offshore Constitutional Settlement, and the resulting *Coastal*

<sup>107</sup> *Id.* 64.

<sup>108</sup> Bates, *supra* n. 105 at 210.

<sup>109</sup> Zann, 'SOMER', *supra* n. 36 at 3.

<sup>110</sup> Department of Environment, Sport and Territories, 'Summary of SOMER', 1995.

<sup>111</sup> GBRMPA Annual Report 1994/95, 57 (subsequently: Annual Report 94/95).

<sup>112</sup> *Offshore Constitutional Settlement — A Milestone in Co-operative Federalism* (Canberra: AGPS, 1980).

<sup>113</sup> *NSW v Commonwealth* (1976) 135 CLR 337.

*Waters (State Powers) Act 1980* (Cth) and *Coastal Waters (State Title) Act 1980* (Cth), the States have jurisdiction in respect of adjacent territorial seas (up to three nautical miles) as if the waters were within state limits.<sup>114</sup> This arrangement puts the day-to-day management of ports, shipping, coastal fisheries, dredging, coastal works and mining in the States' hands. Legislation relating to land-based marine pollution can therefore be passed by the States; however, the Commonwealth may still legislate over this area.

Relevant Queensland legislation includes the *Marine Parks Act 1982*, the *Fisheries Act 1976*, the *Queensland Marine (Sea Dumping) Act 1985* and the *Transport Operations (Marine Pollution) Act 1994*. Under the *Fisheries Act 1976* alone, 83 Marine Protected Areas have been declared, comprising habitat reserves, wetland reserves and fish sanctuaries.<sup>115</sup> Whilst not specifically addressing land-based marine pollution, these Acts are an important step in the process of recognising the importance of the marine environment.

In this context it is disappointing to find that the Howard Liberal Government has given the go-ahead to the proposed development of a marina and resort at Oyster Point.<sup>116</sup> This approval is reported to be on the proviso that 'best practice' engineering is used during construction.<sup>117</sup> Oyster Point is situated between two World Heritage areas, the Great Barrier Reef World Heritage Area (GBRWhA) and the Wet Tropics World Heritage Area.<sup>118</sup> The mangroves of Missionary Bay (Hinchinbrook Island) and the Hinchinbrook Channel are one of the largest and most accessible occurrences of mangroves in Australia.<sup>119</sup> Mangrove destruction has already occurred following partial consent to the development under the *World Heritage Properties Conservations Act 1983* (Cth) by the previous federal government in September 1995.<sup>120</sup> This consent was delayed following representations in particular by the Australian Marine Conservation Council and the North Queensland Conservation Council.<sup>121</sup>

The proposed development involves the removal of 4.5 hectares of mangroves, including all those located along the northern foreshore of the channel.<sup>122</sup> The channel itself is to be dredged and a breakwater is to be constructed for the marina. The impact on the marine environment is glaringly obvious. As Jim Downey, the Executive Director of the

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<sup>114</sup> *Coastal Waters (State Powers) Act 1980* (Cth), s. 5; see also *Coastal Waters (Northern Territory Powers) Act 1980*.

<sup>115</sup> Zann, 'SOMER', *supra* n. 36 at 83.

<sup>116</sup> *The Courier-Mail*, 10 July 1996, 3.

<sup>117</sup> *Ibid.*

<sup>118</sup> North Queensland Conservation Council Newsletter, Vol. 13, No. 3, April 1996, 1.

<sup>119</sup> Queensland Department of Environment and Heritage, *Environmental Review Report — Proposed Marine and Resort Port Hinchinbrook* (1994), 7.

<sup>120</sup> North Queensland Conservation Council Newsletter, *supra* n. 118.

<sup>121</sup> *Ibid.*

<sup>122</sup> Queensland Department of Environment and Heritage, *Environmental Review Report, supra* n. 119 at 12.

Australian Conservation Foundation stated: 'Even a layman would not believe that dredging a marina entrance channel, clearing mangroves and building a 1000 bed mega-resort would not impact on the environment.'<sup>123</sup>

Given the Commonwealth Government's ability to legislate over the Port Hinchinbrook area either under existing legislation or by passing specific Acts,<sup>124</sup> its inaction is a sad indictment on Australia's commitment to the global problem of land-based marine pollution. More so given that tourism is expressly recognised by the international community as a source of land-based marine pollution.

## THE GREAT BARRIER REEF

### Introduction

The *Great Barrier Reef Marine Park Act* (Cth) was passed in 1975 with bipartisan support.<sup>125</sup> During the 1960s, public support for Commonwealth legislation protecting the area increased. This was due to concerns about the potentially adverse effects of petroleum exploration and mining, and the recovery of limestone from dead coral.<sup>126</sup> It is significant that this legislation was passed before the reef had been damaged or polluted. In a society where laws are often made to restore already badly damaged environments, the anticipatory approach of the Act is quite remarkable. It may even be seen as an application of the precautionary principle before its time.

The Great Barrier Reef Marine Park (GBRMP) established under the Act is a multi-use protected area.<sup>127</sup> The Act establishes an Authority (GBRMPA) consisting of a chairman and two part-time members.<sup>128</sup> The GBRMPA is responsible for the management of the Marine Park<sup>129</sup> and may make recommendations to the Commonwealth minister in relation to the care and development of the park. The GBRMPA is also responsible for preparing the park's zoning plans which control the use of the Marine Park and the activities conducted within.<sup>130</sup>

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<sup>123</sup> *The Courier-Mail*, 15 July 1996, 5.

<sup>124</sup> The external affairs power would allow the federal government to pass legislation pursuant to the International Convention for the Protection of the World's Cultural and Natural Heritage 1972. See *NSW v Commonwealth*, *supra* n. 113.

<sup>125</sup> S. Sparks, 'Environmental Protection and Wise Use of the Great Barrier Reef' (paper presented to the Qld Country Valuers Conference, 29-30 May 1992), 1.

<sup>126</sup> R. Kenchington, 'Conservation and Reasonable Use of the Great Barrier Reef' (GBRMPA Paper), 1.

<sup>127</sup> *Ibid.*

<sup>128</sup> *GBRMP Act 1959*. See, generally, Parts II and III.

<sup>129</sup> *Id.* s. 7(1A).

<sup>130</sup> *Id.* s. 7(1)(a)-(c).

## Objective

The object of the GBRMP Act is to:

... make provision for and in relation to the establishment, control, care and development of a marine park in the Great Barrier Reef region.<sup>131</sup>

This over-reaching object is clarified by s. 32 which provides for the declaration of zoning plans within the Marine Park. This section states that in preparing zoning plans, the Authority shall have regard to the following objects:

- (a) the conservation of the Great Barrier Reef;
- (b) the regulation of the use of the Marine Park so as to protect the Great Barrier Reef while allowing the reasonable use of the Great Barrier Reef region;
- (c) the regulation of activities that exploit the resources of the Great Barrier Reef region so as to minimise the effect of those activities on the Great Barrier Reef;
- (d) the reservation of some areas of the Great Barrier Reef for its appreciation and enjoyment by the public; and
- (e) the preservation of some areas of the Great Barrier Reef in its natural state undisturbed by man except for the purposes of scientific research.

It has been said that notwithstanding the Act's explicit conservation objective, it is one of the first pieces of legislation in the world to apply the concept of ecological sustainable development to the management of a large natural area.<sup>132</sup> The Act's aim has been summarised as 'achieving reasonable use consistent with conservation'.<sup>133</sup>

## Area of Application

The area of the Marine Park is approximately 350,000 square kilometres, containing some 2,900 individual reefs ranging in size from less than one hectare across to more than 100 square kilometres.<sup>134</sup> It is the largest system of coral reefs and associated life forms in the world.<sup>135</sup> A wide variety of marine life have established habitats in the Great Barrier Reef, including an estimated 1,500 species of fish, 350 species of hard reef-building coral,

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<sup>131</sup> *Id.* s. 5.

<sup>132</sup> W. Craik, 'The Great Barrier Reef Marine Park as a Model of Ecological Sustainable Development' (EIA National Conference, 1993), 2.

<sup>133</sup> Kenchington, *supra* n. 126.

<sup>134</sup> Craik, *supra* n. 132 at 1.

<sup>135</sup> *Ibid.*

more than 4,000 mollusc species, and 400 species of sponge, marine worms, anemones, crustaceans and echinoderms. In addition, the reef provides a unique habitat for several endemic species such as the dugong, green turtle and logger head turtle. The reef is a breeding ground for many marine species, further increasing its scientific importance.<sup>136</sup>

The GBRMP extends along the north-east coast of Australia from just north of Bundaberg to the tip of the Cape York peninsula.<sup>137</sup> It overlaps with the Great Barrier Reef World Heritage Area (GBRWHA) which was declared in 1981 pursuant to the Convention for the Protection of the World's Cultural and Natural Heritage 1972. The GBRWHA is slightly larger than the GBRMP because it includes islands and internal waters seawards of the coastline, which are coastal waters of Queensland under the Offshore Constitutional Settlement. However, the federal government may still legislate over the World Heritage Area pursuant to its external affairs power.<sup>138</sup>

The park is divided into four sections:

- Mackay/Capricorn section;
- Central section;
- Cairns section; and
- Far Northern section.

## Prohibited Activities

There is an absolute prohibition on the recovery of minerals, either by mining or drilling, in the Marine Park.<sup>139</sup> Some operations are permitted by the Authority for research relevant to the establishment, care and development of the park, or for scientific research.<sup>140</sup>

No waste may be discharged in the Marine Park, whether intentionally or negligently, unless the discharge is for scientific purpose or is sewage and such discharge is authorised under the regulations.<sup>141</sup> Some exceptions to this prohibition include:

<sup>136</sup> *Ibid.*

<sup>137</sup> *GBRMP Act*, Schedule 1.

<sup>138</sup> The external affairs power: *Commonwealth of Australia Constitution Act*, s. 51(xxix) and the *World Heritage Properties Conservation Act 1993* (Cth).

<sup>139</sup> *GBRMP Act*, s. 38(2).

<sup>140</sup> *Id.* s. 38(3).

<sup>141</sup> *Id.* s. 38(j).

- zoning plans specifically for the purpose of discharging waste;
- discharge from a vessel or aircraft of human waste where the vessel does not contain adequate storage tanks;
- discharge from a vessel or aircraft of offal from fish caught within the Marine Park; and
- biodegradable waste in certain circumstances.<sup>142</sup>

## Zoning Plans

Each of the four sections in the Marine Park has zoning plans regulating use within the section. Within these zoning plans, broad categories of use have been established to manage activities within the park. Tourism is allowed to occur (under permit) in all but the preservation and scientific research zones. In practical terms, this means within 99.8 per cent of the Marine Park.<sup>143</sup>

Tourism operations conducted outside the GBRMP may also require approval from the Authority, as in many areas complementary zoning plans exist in the *Marine Parks Act 1982* (Qld), effectively extending the provisions of the *GBRMP Act* to the highest tide.<sup>144</sup> Alternatively, the operation may be subject to the *World Heritage Properties Conservation Act 1993* (Cth) if the tourist operation is within the slightly larger GBRWHA.

## Tourism on the Reef

There has been a significant growth in tourism in the GBRMP which will place extra stress on the marine environment if not managed very carefully.<sup>145</sup> Indeed, tourism management is recognised as one of the major issues facing the GBRMPA, with management of the amenity (overcrowding, incompatible activities) as important as management of the ecological impact.<sup>146</sup>

### *Tourist Numbers*

There was a substantial growth in tourism in the GBRMP during the 1980s. This growth followed a 40-fold growth in tourism numbers from 1946 to 1980.<sup>147</sup> Bureau of Tourism research shows that visitor nights, in the

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<sup>142</sup> *Ibid.*

<sup>143</sup> Craik, *supra* n. 132 at 5.

<sup>144</sup> Sparks, *supra* n. 125 at 3.

<sup>145</sup> D. Alcock *et al.*, 'Could Tourism Damage the Great Barrier Reef?' (1991) 14 *Issues* 3.

<sup>146</sup> Craik, *supra* n. 132 at 5.

<sup>147</sup> Driml, *supra* n. 45 at 8.

GBRWHA and the adjacent mainland, increased significantly between 1984 and 1992. Specifically, visitor numbers increased from 13 million in 1984/85 to 22.3 million in 1991/92.<sup>148</sup> For the purposes of this article, it is necessary to include the adjacent mainland in research, as both the infrastructure and tourists contribute to the pressure placed on the coastal margin and therefore to land-based pollution.

To accommodate the increasing numbers of visitors, Bureau of Statistics data for 1989 show a 36.8 per cent increase in the number of island resorts since 1976.<sup>149</sup> The resorts have also increased in size, with a growth in bed numbers, so that tourists can now be accommodated in greater concentrations. This places more pressure on the surrounding marine environment. In fact, all of the boats, buildings and harbours built to support the tourism industry have a significant effect on the delicate marine environment.<sup>150</sup>

The popular Cairns section of the GBRMP has experienced a rapid growth in the use of many reefs, cays and islands over the past ten years.<sup>151</sup> In fact, the impact of tourism on this section of the Marine Park has been so significant that the Authority has placed a moratorium on the issue of tourist operator permits in the Cairns section until the completion of a major planning review.<sup>152</sup>

### *Environmental Management Charge*

As previously stated, the estimated financial value of tourism can conservatively be expected to be greater than \$1 billion per annum. Part of this expenditure is channelled via an Environment Management Charge (EMC) back into the Marine Park. The EMC was introduced in July 1993 as a levy of \$1 per passenger on commercial passenger vessels operating in the Marine Park.<sup>153</sup> The object of the EMC is to recover part of the increasing cost of management, research and education associated with the marked increase in the use of the Marine Park, particularly by tourism.<sup>154</sup>

The total revenue for 1994/95 was \$1.57 million, which indicates high numbers of tourists visiting the Marine Park.<sup>155</sup> This is illustrated by the fact that since the introduction of the EMC, the number of commercial operators attracting the charge has increased from 420 to 530.<sup>156</sup> A major

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<sup>148</sup> *Id.* 71, Table A3.2.

<sup>149</sup> Alcock, *supra* n. 145 at 3.

<sup>150</sup> *Ibid.*

<sup>151</sup> Annual Report 94/95, *supra* n. 111 at 21.

<sup>152</sup> Conversation with Legal section of GBRMPA, June 1995.

<sup>153</sup> Driml, *supra* n. 45 at 7.

<sup>154</sup> GBRMPA Annual Report 1993/94, 29 (subsequently: Annual Report 93/94).

<sup>155</sup> Annual Report 94/95, *supra* n. 111 at 33.

<sup>156</sup> *Ibid.*

part of the EMC revenue for the year 1994/95 was committed to the Co-operative Research Centre for Ecologically Sustainable Development of the Great Barrier Reef.<sup>157</sup>

### *High-tech Tourism*

Before the development of high-speed passenger vessels, few reefs in the GBRMP were accessible to day trippers and tourist numbers were therefore relatively low.<sup>158</sup> In 1982, high-speed diesel-powered catamarans capable of speeds of 25 knots (previous speed 7–10 knots) opened up the Great Barrier Reef to tourism.<sup>159</sup> Capable of carrying up to 150 people, the number of passengers increased by a massive 35-fold between 1977 and 1987 to 450,000.<sup>160</sup> More significantly, the number of sites regularly visited increased four-fold.<sup>161</sup>

These 'Quicksilver'-type super cats disembark passengers on permanently moored pontoons from which they can snorkel, scuba dive and view the coral from semi-submersible vessels.<sup>162</sup> There are currently about 12 of the large tourist pontoons in the Marine Park, with another 12 helicopter pontoons located in the park.<sup>163</sup> In their basic form, the tourist pontoons are large 800 square metre steel platforms anchored to the reefs.<sup>164</sup> More elaborate structures provide coral viewing facilities from beneath the platform, toilets, showers and eating facilities.<sup>165</sup>

### *Impact*

There is a significant impact on the GBRMP from this increase in tourist numbers, operators, resorts and pontoons. The impact of uncontrolled tourism can harm the very environmental features that attract tourists in the first instance.<sup>166</sup> International tourists visiting North Queensland come

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<sup>157</sup> Annual Report 94/95, *supra* n. 111 at 34. \$750,000 of the \$1.57 million was committed to the Co-operative Research Centre.

<sup>158</sup> R. Kenchington, 'Tourist Development in the Great Barrier Reef Marine Park' (GBRMPA Paper, 1989), 5.

<sup>159</sup> *Ibid.*

<sup>160</sup> *Ibid.*

<sup>161</sup> *Ibid.*

<sup>162</sup> S. Woodley, 'Monitoring Environmental Impacts of Tourism in the Great Barrier Reef Marine Park' (paper presented to the IVth World Congress on National Parks and Protected Areas, Caracas, Venezuela, 1992), 2.

<sup>163</sup> Conversation with GBRMPA, 6 August 1996.

<sup>164</sup> *Ibid.*

<sup>165</sup> *Ibid.*

<sup>166</sup> A. Crabtree and A. Givson, 'A Case History of Symbiosis between Reef Tourism, Education and Research' (1992 Eco Tourism Papers), 217.



primarily to see the Great Barrier Reef.<sup>167</sup> It is clear the reef has become both financially and ecologically important to our society. The question is whether all of the impacts of tourism are rightly classified as sources of 'land-based pollution', or does it really matter as long as they are being appropriately managed?

The definitions of pollution and land-based sources in the Montreal Guidelines have been generally accepted at international law.<sup>168</sup> Pollution emanating from the anchored pontoons, island resorts and catamarans would arguably fall within the definition of land-based sources. That is because they fall within the definition 'from activities conducted on offshore fixed or mobile facilities within the limits of national jurisdiction'.<sup>169</sup> It is not immediately clear, however, whether every impact flowing from these facilities would be properly regarded as 'pollution' in the traditional sense.

The impact of tourism on any coastal region is significant. Structural damage and pollution occurs from the following list of associated activities, which is provided more by way of illustration than as an exhaustive list:<sup>170</sup>

- dredging;
- land reclamation;
- over-use of a site;
- building development;
- coastal stabilisation;
- construction of jetties, moorings, pontoons, marinas and observation decks;
- support facilities such as sewerage, power and water supply;
- anchoring offshore;
- fumes discharged from vessels;
- reef walking;
- collecting of shells, corals and plants; and
- over-fishing.

### *Case Study — Pontoons*

The GBRMP acknowledged in its 1994/95 annual report that damage to heavily used fringing reefs by anchors and chains had been occurring.<sup>171</sup> A detailed study of the impact of the offshore pontoons for the offloading

<sup>167</sup> Craik, *supra* n. 132.

<sup>168</sup> Fisher, *supra* n. 77.

<sup>169</sup> Montreal Guidelines, *supra* n. 65 at para. 1(b)(ii).

<sup>170</sup> See, in general, Kenchington, *supra* n. 158 at 6–7 and Crabtree and Givson, *supra* n. 166 at 1.

<sup>171</sup> Annual Report 94/95, *supra* n. 111 at 4.

of passengers in outer-lying reefs is instructive because these pontoons are a feature of the newly developing 'high-tech, expensive' tourism on the reef.<sup>172</sup>

It has been acknowledged that pontoons have the following effects:<sup>173</sup>

- shading of the reef and marine organisms;
- waste disposal from vessels (oil, fuel) and the pontoon (food, litter);
- heavy metals release;
- concentrations of metals in the marine ecosystem food chain;
- increased fishing and 'collecting' pressures;
- anchor damage from vessels and pontoons;
- loss or damage to pontoons in storms and resulting damage to the adjacent reefs;
- damage from dragging chains in shifting tides and storms;
- loss of amenity;
- increased sediments;
- trampling by feet on reefs and shorelines; and
- changes to water quality.

It has been found that the shading of the reef affects the coral and benthic communities in the marine environment.<sup>174</sup> A study is being undertaken into the effects following the removal of a pontoon to investigate changes to water quality and nutrient levels through eutrophication from the shading.<sup>175</sup>

An initiative to minimise the impact of pontoons and other offshore structures was achieved through the re-zoning of the Cairns section of the Marine Park. Within the zoning plan is a no-structures sub-zone covering 22 per cent of the reef in the Cairns section.<sup>176</sup> This section of the GBRMP is close to large centres of coastal population and is subject to heavy use. The no-structures initiative ensures that this same area is not subject to additional stress by becoming covered by structures.<sup>177</sup>

### *Is it Pollution?*

The Montreal Guidelines' definition of pollution refers to 'the introduction by man directly or indirectly of *substances* or *energy*'.<sup>178</sup> Clearly, heavy metals, waste, litter and oil fall within the traditional definition of land-

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<sup>172</sup> Craik, *supra* n. 132 at 1.

<sup>173</sup> Alcock, *supra* n. 145.

<sup>174</sup> Woodley, *supra* n. 162.

<sup>175</sup> Crabtree and Givson, *supra* n. 166.

<sup>176</sup> Craik, *supra* n. 132.

<sup>177</sup> *Ibid.*

<sup>178</sup> Montreal Guidelines, *supra* n. 65 at para. 1(a).

based pollutants. However, not all of the above listed impacts of tourism would fall, at first instance, within the ordinary meaning of 'substance or energy'. For example, the shading of the reef is recognised as a significant problem, but can it be regarded as the result of the 'direct or indirect introduction of a substance or energy'? Can the pontoon shading the reef be regarded as a substance? Similarly, the dragging of chains and anchors on the reef causes structural damage to the coral formations; however, is it pollution in the strict sense of the word? Can trampling of shorelines and reefs be regarded as pollution?

It is clear that the States participating in the Earth Summit at Rio in 1992 regarded tourism as one of the significant sources of land-based marine pollution. It is arguable, then, that the intention was not to restrict management of the sources to only the traditional pollutants as defined and listed in international declarations and conventions. Just as the definition has expanded to take into account diffuse-source pollution via the atmosphere as knowledge of pollutants became more sophisticated,<sup>179</sup> it can be argued that the definition should now take into account the physical impacts on the marine environment caused by land-based activities.

International regulation of the significant threat land-based marine pollution poses to our marine environment has only been a recent development. As previously mentioned, the 1974 Paris Convention was the first convention, albeit regional, to specifically address land-based marine pollution and to define key terms. In 1974, parties to the Paris Convention placed radioactive substances in their own category.<sup>180</sup> However, by 1985, the drafters of the Montreal Guidelines knew enough about the characteristics and effect of radioactive substances to include them in the black-listed substances.<sup>181</sup>

The common thread to these international and regional conventions and declarations, is that it has been recognised that the States themselves must combat land-based marine pollution by introducing measures to prevent and control pollution.<sup>182</sup> The Rio Declaration took this obligation one step further. Whilst recognising the sovereign right of States to exploit their own resources, States were also reminded of their responsibility to ensure that activities within their jurisdiction did not cause damage or harm to the environment.<sup>183</sup>

The object of Program B — Marine Environment Protection, in Agenda 21, is as follows:

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<sup>179</sup> Protocol to Paris Convention, *supra* n. 14 at 79.

<sup>180</sup> Paris Convention, *supra* n. 14 at 14, Annex A. Although radioactive substances displayed some characteristics similar to 'Part 1' substances, the parties considered they were still the subject of research and categorise them separately for 'stringent control'.

<sup>181</sup> Montreal Guidelines, *supra* n. 65. See Annex 2.

<sup>182</sup> See, for example, Montreal Guidelines, *supra* n. 65 at Guideline 4; Paris Convention, *supra* n. 14 at Article 2.

<sup>183</sup> Rio Declaration, *supra* n. 13 at Principle 3.

States in accordance with the provisions of the UN Convention of the Law of the Sea on the protection and preservation of the marine environment, commit themselves in accordance with their policies, priorities and resources to prevent, reduce and control degradation of the marine environment so as to maintain and improve its life support and productive capacities.<sup>184</sup>

The significant word in the above extract is 'degradation'. Its use suggests that control of land-based marine pollution is part of a wider goal of protection of the marine environment from any degradation or harm. Therefore, whilst shading of the reef, or dragging of anchors and chains, or the trampling of 22 million pairs of feet<sup>185</sup> may not fall within the accepted definition of land-based sources, it is clear that the intention of the international community is not to limit measures strictly to the control of land-based marine pollution. States are encouraged to go as far as they can in protecting and preserving the marine environment, as it is widely accepted that domestic legislation is the most effective means of achieving these aims.

## CONCLUSION

The achievements of the GBRMPA are a good example of how effective domestic legislation can be in preserving the marine environment against pollution or degradation. It is suggested that to separate impacts of tourism on the Great Barrier Reef into two categories — 'sources of land-based pollution' and 'other impacts' — is a counter-productive academic exercise. To achieve the objectives of the Act, all impacts must be taken into account when zoning plans are being developed.<sup>186</sup> The Act and regulations do not distinguish between traditional pollutants and physical impacts, and monitoring systems investigate every impact on the marine environment, not just land-based pollution or even just pollution from any source.

A review of the literature on tourism and the Great Barrier Reef indicates the potential impact of poorly planned and uncontrolled tourism on the marine environment.<sup>187</sup> However, the financial benefits of tourism cannot be forgotten, and a balance between conservation and use must be achieved.<sup>188</sup> The success of the GBRMPA in managing these competing interests, while taking into account all possible impacts human activity will have on the reef, has been considerable. The above-mentioned EMC is an example of the proactive management capable under the legislation.

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<sup>184</sup> Montreal Guidelines, *supra* n. 65 at para. 17.22.

<sup>185</sup> Zann, 'SOMERS', *supra* n. 36 at 55.

<sup>186</sup> GBRMP Act, s. 32.

<sup>187</sup> Refer n. 145.

<sup>188</sup> See GBRMP Act, s. 32(7)(b) and (d) for competing interests.

Further, the decision to issue no more tourist operator permits in the heavily used regions around Cairns and Port Douglas is evidence of the type of timely response required to meet emerging threats to the marine environment.

Whilst the results of the GBRMPA in managing the Marine Park are encouraging, the lack of comprehensive Commonwealth legislation addressing land-based marine pollution is not. It has been 21 years since the enactment of the *GBRMP Act*, which was progressive legislation for its time. However, since 1975 successive Commonwealth Governments, despite having clear jurisdiction over the offshore area and the support of the High Court in enacting legislation giving effect to international obligations, have failed to pass any form of legislation addressing the issue.<sup>189</sup>

What is needed now is uniform legislation setting standards for centralised control over such things as pollution emission, sewage treatment, waste water disposal, industrial discharge and tourism development. This would be in line with the recommendations of the RAC Coastal Zone Inquiry and the recent Ocean Rescue 2000 Program. In 1995, two-thirds of the Australian population resided in coastal cities or towns,<sup>190</sup> placing considerable pressure on existing waste disposal methods. The *GBRMP Act* was enacted with the strong and vocal support of the public;<sup>191</sup> however, its success is limited to just 2,000 kilometres of our 36,700 kilometre coastline, and is at best a piecemeal approach to the severe threat land-based pollution poses to the Australian marine environment.

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<sup>189</sup> Offshore Constitutional Settlement 1980. See also *NSW v Commonwealth*, *supra* n. 113.

<sup>190</sup> Zann, 'SOMERS', *supra* n. 36 at 24. See Foreword by Senator Faulkner, Minister for the Environment, Sport and Territories.

<sup>191</sup> See n. 127.