STANDING, ADAPTIVE MANAGEMENT AND THE QUEENSLAND LUNGFISH: *WIDE BAY CONSERVATION COUNCIL INC V BURNETT WATER PTY LTD*

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This short paper critically examines the recent Federal Court decision in Wide Bay Conservation Council Inc v Burnett Water Pty Ltd. The case is notable for two key reasons. First, it questions the efficacy of existing provisions made for legal standing under the Environment Protection and Biodiversity Conservation Act 1999 (Cth). Secondly, it supports many of the principles one would expect of an adaptive management approach for dealing with scientific uncertainty concerning the impacts of a proposed development on the environment.

I INTRODUCTION

It is well recognised that dams, as resource-intensive human structures, will often have a significant impact upon the ecological functioning of natural environments.[1] In Australia, for example, the era of dam construction resulted in several undesirable impacts including declines in the population and species diversity of fish, invertebrates and waterbirds.[2] Bearing this in mind, it is unsurprising to find that a variety of stakeholders have resorted to litigation in an effort to challenge decisions relating to their construction and operation.[3] The case of *Wide Bay* is no exception to this trend.[4]

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[1] R.T. Kingsford, 'Ecological impacts of dams, water diversions and river management on floodplain wetlands in Australia' (2000) 25 *Austral Ecology* 109.

[2] Angela H. Arthington and Bradley J. Pusey, 'Flow Restoration and Protection in Australian Rivers' (2003) 19 *River Research and Applications* 377, 379-380.

[3] Jacqueline Peel and Lee Godden, 'Australian Environmental Management: A 'Dams' Story' (2005) 28 *University of New South Wales Law Journal* 668. See, eg, *Commonwealth v Tasmania* (1983) 158 CLR 1; *Queensland Conservation Council Inc v Minister for the Environment and Heritage* [2003] FCA 1463 (Unreported, Kiefel J, 19 December 2003). This has also occurred in other jurisdictions – see, eg, *Marsh v Oregon Natural Resources Council*, 490 US 360 (US Supreme Court, 1989); *Belize Alliance of Conservation Non-Government Organisations v Department of the Environment* [2003] UKPC 63.

[4] *Wide Bay Conservation Council Inc v Burnett Water Pty Ltd* (No 8) [2011] FCA 175 ('*Wide Bay*'). It should be noted that this case was heard before a single judge, the Honourable Justice Logan.

While this case was largely decided through the application of principles of statutory interpretation, one could argue that it represents an important judicial development in Australian environmental law with relevance internationally due to the Court's consideration of standing and adaptive management principles. This short paper focuses upon these two issues and in doing so, two main points are raised. First, in considering the views expressed by the Court concerning the efficacy of the existing standing requirements under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) ('*EPBC Act*'), it is argued that these views could potentially have significant (and perhaps undesirable) implications for public participation in future environmental decision-making if acted upon. Second, and on a more favourable note, it is suggested that this case reflects the increasing application and implementation of adaptive management principles to deal with scientific uncertainty associated with major developments and their impacts on the environment.

II OVERVIEW OF THE *EPBC ACT*

Before discussing the facts of *Wide Bay*,[5] it is appropriate to provide a brief overview of the relevant *EPBC Act* provisions considered in the case. Commencing on 16 July 2000, the *EPBC Act* is widely recognised as Australia's most important piece of environmental legislation.[6] Part 3 of the *EPBC Act* focuses upon the protection of 'matters of national environmental significance'.[7] At present, these matters include: 1) declared world heritage properties;[8] 2) national heritage places;[9] 3) declared Ramsar wetlands of international importance;[10] 4) nationally listed threatened species and ecological communities;[11] 5) nationally listed migratory species;[12] 6) nuclear actions;[13] 7) the Commonwealth marine environment;[14] and 8) the Great Barrier Reef Marine Park.[15]

If a proposed action has, will have or is likely to have a significant impact upon a matter of national environmental significance, the proponent of that proposed action must receive the approval of the relevant Minister under Part 9 of the *EPBC Act*.[16]

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[5] Ibid.

[6] Australian Government, *About the Environment Protection and Biodiversity Conservation Act* (6 May 2011) Department of Sustainability, Environment, Water, Population and Communities <http://www.environment.gov.au/epbc/about/index.html>.

[7] See Rosemary Lyster, Zada Lipman, Nicola Franklin, Graeme Wiffin and Linda Pearson, *Environmental & Planning Law in New South Wales* (Federation Press, 2nd ed, 2009) 170.

[8] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 12.

[9] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 15B.

[10] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 16.

[11] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 18.

[12] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 20.

[13] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 21.

[14] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 23.

[15] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 24B.

[16] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 67A. The "relevant Minister" is that Minister who has responsibility for administering the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) as determined by the most recently promulgated Administrative Arrangements Order: see MRLL Kelly, *Administrative Law: Law Briefs* (Pearson Education Australia, 2009) 27. At present, the Honourable Tony Burke MP (Minister for Sustainability, Environment, Water, Population and Communities) is the "relevant Minister": Australian Government,

The action is referred to in s 67 of the *EPBC Act* as a 'controlled action' and the prohibitions imposed by Part 3 on undertaking controlled actions without approval are referred to as 'controlling provisions'.[17] In determining whether or not to approve the taking of an action under s 133 of the *EPBC Act*, the Minister must consider the precautionary principle in making a decision.[18]

Traditionally, a person seeking judicial review of a decision relating to the environment generally needed to satisfy either the common law requirements for standing (i.e. the person would require a 'special interest' in the subject matter of the action)[19] or the statutory requirements for standing under the *Administrative Decisions (Judicial Review) Act 1977* (Cth) (i.e. a 'person aggrieved by a decision to which this Act applies').[20] However, the introduction of a much more liberal standing scheme under the *EPBC Act* has extended standing, both for injunctive relief[21] and judicial review,[22] to the broadly defined 'interested person'.[23] For example, s 475(7) of the *EPBC Act* states that, for the purposes of an application for injunctive relief, an organisation may constitute an 'interested person' if it is incorporated in Australia (or an external territory) and one of the following conditions is met:

> (a) the organisation's interests have been, are or would be affected by the conduct or proposed conduct; or
> (b) if the application relates to conduct – at any time during the 2 years immediately before the conduct:
> (i) the organisation's objects or purposes included the protection or conservation of, or research into, the environment; and
> (ii) the organisation engaged in a series of activities related to the protection or conservation of, or research into, the environment;
> (c) if the application relates to proposed conduct—at any time during the 2 years immediately before the making of the application:
> (i) the organisation's objects or purposes included the protection or conservation of, or research into, the environment; and
> (ii) the organisation engaged in a series of activities related to the protection or conservation of, or research into, the environment.[24]

III THE FACTS AND ISSUES

The *Wide Bay*[25] case was principally concerned with the impacts of a dam on the Queensland Lungfish (*Neoceratodus forsteri*). The Queensland Lungfish is widely recognised as a 'truly remarkable species in terms of phylogeny, anatomy and

Administrative Arrangements Order (14 October 2010) Department of Prime Minister and Cabinet <http://www.dpmc.gov.au/parliamentary/docs/aao_20101014.pdf>.
[17] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 67.
[18] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 391.
[19] *Australian Conservation Foundation v Commonwealth* (1980) 146 CLR 493, 527 (Gibbs J), 547 (Mason J).
[20] *Administrative Decisions (Judicial Review) Act 1977* (Cth) ss 3(4), 5(1).
[21] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 475.
[22] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 487.
[23] See, eg, Lee Godden and Jacqueline Peel, *Environmental Law: Scientific, Policy and Regulatory Dimensions* (Oxford University Press, 2010) 103; Andrew Edgar, 'Extended Standing – Enhanced Accountability? Judicial Review of Commonwealth Environmental Decisions' (Paper presented at the 2011 National Administrative Law Conference, Canberra, 21-22 July 2011) 3-4.
[24] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 475(7).
[25] *Wide Bay* [2011] FCA 175.

physiology'.[26] One of only six surviving members of a highly successful group of fish which first appeared during the Devonian period, the Lungfish has experienced significant declines in its population over time.[27] At present, its natural distribution is confined to the Mary and Burnett Rivers located in South-East Queensland.[28]

On 25 January 2002, the Commonwealth Minister for the Environment and Heritage originally approved the construction and operation of the Paradise Dam by Burnett Water,[29] to be located on the lower Burnett River approximately 80km southwest of Bundaberg, Queensland.[30] In issuing his approval under the *EPBC Act*, the Minister had made no reference to the Queensland Lungfish, for it was not listed under the *EPBC Act* at this time as a threatened species.[31] However, on 6 August 2003, the Queensland Lungfish was listed as a threatened species in the 'vulnerable' category under the *EPBC Act*.[32] On 8 August 2003, the Minister responded to the listing through the addition of several conditions to the Paradise Dam approval, including Condition 3 which provided that Burnett Water 'must install a fish transfer device on the Burnett River Dam suitable for the lungfish. The fishway will commence when the dam becomes operational'.[33] The imposition of this condition led to the construction of a fishway consisting of both upstream and downstream fish transfer devices.[34]

In bringing their claim for injunctive relief before the Court as an "interested person" under s 475(7) of the *EPBC Act*, the Conservation Council alleged that Burnett Water had contravened Condition 3 in a number of ways, including that it had:

i. Failed to install a downstream fish transfer device which was suitable for the lungfish;
ii. Failed to commence the operation of the downstream fish transfer device when the dam became operational in or about November 2005;
iii. Failed to operate the downstream fishway continuously, subject only to minor interruptions (e.g. repairs), after the dam became operational in or about November 2005.[35]

The issue of standing and each of these three issues are addressed in turn below.

IV THE DECISION

A *Standing under the EPBC Act*

[26] Ibid, [1].
[27] See Angela H. Arthington, 'Australian lungfish, *Neoceratodus forsteri*, threatened by a new dam' (2009) 84(2) *Environmental Biology of Fishes* 211, 211-212.
[28] Ibid.
[29] *Wide Bay* [2011] FCA 175, [5]-[8]. Burnett Water is a wholly owned subsidiary of SunWater Ltd, a Queensland Government owned corporation.
[30] Ibid, [5]. The approval was issued by the Minister under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 133.
[31] Ibid, [8].
[32] Ibid, [31].
[33] Ibid, [11]-[13].
[34] Ibid, [14].
[35] Ibid, [46].

In lengthy obiter, Justice Logan seriously questioned the efficacy of the existing standing provisions under s 475 of the *EPBC Act*.[36] Despite recognising the fact that the standing scheme provides an 'apprehended benefit' (i.e. it allows an 'interested person' to bring proceedings for injunctive relief in circumstances where the Minister is unwilling or unable to do so), Justice Logan suggested that the scheme created a disjunction with 'the usual practice of public administration and public law in our system of government'.[37] His Honour reasoned as follows:

> The general administration of the EPBC Act is, in accordance with longstanding principles of responsible government, consigned by the Governor-General under the Administrative Arrangements as made from time to time to a Minister responsible to Parliament which, in turn, is responsible to the electorate. More particularly, the power to approve the taking of a controlled action, subject to conditions or otherwise, is consigned to that Minister alone. The claiming of injunctive relief to compel compliance with the terms of such an approval is a logical corollary of that power.
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> In contrast, an "interested person" is neither responsible to Parliament nor to any other constituency beyond its own membership base, large or small. Neither does it have any formal role in an approval process or in the wider administration of the EPBC Act nor access to the resources of a Department of State.[38]

To remedy this 'disjunct', Justice Logan noted that there would be considerable advantages in conferring upon the Minister an ability to take over or decline further to carry on a proceeding commenced by an "interested person",[39] including the prevention of cases which are 'frivolous, vexatious, misconceived or otherwise contrary to the public interest'.[40] Nevertheless, His Honour appropriately noted that the implementation of such a proposal would be for the Legislature to decide and accepted the Applicant's right to bring proceedings.[41]

B Was the Downstream Fish Transfer Device, as part of the Fishway, Suitable?

In considering the principal argument raised by the Conservation Council, Justice Logan emphasised the importance of statutory interpretation in ascertaining the meaning of 'suitable for the lungfish' as expressed in the instrument (i.e. the Minister's approval).[42] The Conservation Council submitted that the fishway would only be 'suitable for the lungfish' if it maintained a 'similar opportunity for lungfish movement as existed prior to the construction of the dam'.[43] His Honour rejected this argument, stating that such an interpretation places 'a gloss on the language of the

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[36] Ibid, [19]-[26].
[37] Ibid, [21].
[38] Ibid, [22]-[23].
[39] Ibid, [24]-[26].
[40] Ibid, [26]. Such a view is supported by *Onus v Alcoa of Australia Ltd* (1981) 149 CLR 27, 35 (Gibbs CJ) ('*Onus*').
[41] Ibid. This may be contrasted with the situation in the United States, for example, where the Supreme Court has been criticised for ignoring the statutory interests and incentives created for the public by the US Congress – see, eg, William W. Buzbee, 'Standing and the Statutory Universe' (2001) 11 *Duke Environmental Law & Policy Forum* 247, 249-250; Cassandra Barnum, 'Injury in Fact, Then and Now (and Never Again): *Summers v. Earth Island Institute* and the Need for Change in Environmental Standing Law' (2009) 17 *University of Missouri Environmental Law and Policy Review* 1.
[42] Ibid, [48]-[77].
[43] Ibid, [64].

condition'.[44] Instead, Justice Logan found that the fishway installed by Burnett Water would be 'suitable for the lungfish' if it took 'into account the needs of the species in the context of the impact of the approved dam as constructed'.[45] According to His Honour, such an interpretation of 'suitable for the lungfish' flowed naturally from the context in which it appeared.[46]

Drawing heavily upon the expertise of two scientists, Justice Logan accepted evidence that the fishway only affected a small proportion of the lungfish population in the Burnett River.[47] While recognising the fact that the downstream fish transfer device reduced opportunities for the lungfish to access spawning habitat downstream (due to its headwater entry level requirements), Justice Logan noted that 'opportunities still existed for the lungfish to move through the fishway during most years'.[48] Furthermore, His Honour observed that even if there were lungfish that could not move through the downstream device in some years, those lungfish had the ability to access alternative spawning sites upstream.[49] Finally, Justice Logan also placed weight on evidence relating to the conditions experienced by lungfish in the Burnett River prior to the dam's construction. Specifically, His Honour observed that it was unlikely that suitable lungfish spawning conditions would have been available every year and that the passage of lungfish in some of those pre-development years would have been prevented due to low water levels in the Burnett River.[50] Thus, His Honour held:

> As designed, the fishway still provides considerable opportunities for lungfish to move past and access habitat downstream. In these circumstances, the existence of the Paradise Dam with this fishway is not likely to result in serious or irreversible harm to lungfish populations in the Burnett River or across the distribution of the species.[51]

C *Did the Downstream Fishway Commence once the Dam became Operational, and did the Downstream Fishway need to be Operated Continuously?*

The Conservation Council further alleged that Burnett Water had failed to commence the downstream fish transfer device once the dam became operational in or about November 2005. This allegation was based on the assumption that the downstream fish transfer device could not commence at this time due to the fact that the headwaters did not reach the entry level required for it to operate until three years later.[52] While recognising the 'impressionistic attraction' of the Conservation Council's submission,[53] Justice Logan held that the downstream device did 'commence' when the dam 'became operational *in that it was ready for use*'.[54] In reaching this conclusion, His Honour reasoned:

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[44] Ibid.
[45] Ibid.
[46] Ibid.
[47] Ibid, [119].
[48] Ibid.
[49] Ibid.
[50] Ibid, [122]-[123].
[51] Ibid, [126].
[52] Ibid, [68]-[69].
[53] Ibid.
[54] Ibid, [75] (emphasis added).

> "Commence" is... used in the condition in its ordinary English sense and with its ordinary English meaning. It is used in an intransitive sense in the condition. As so used it means "to have a beginning; come into being" (Macquarie Dictionary Online).
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> If, apart from its entry level, the downstream fish transfer device were not at all capable of operation when the Paradise Dam became operational then, on any view, it could not be said to have "commenced" in or about December 2005. That is not the case on the evidence. The downstream device was ready for use at that time. It had come into being.[55]

Justice Logan also accepted expert evidence attesting to the fact that the downstream fishway did not need to operate continuously after the dam became operational in order to be 'suitable for the lungfish'.[56] Thus, the Conservation Council failed to substantiate any of the alleged contraventions of Condition 3 and its case was dismissed.[57]

V DISCUSSION

A *The Issue of Standing*

As noted above Justice Logan questioned the standing provisions granted to interested persons and suggested that further powers could be granted to the Minister to discontinue proceedings brought by an interested person. There is extensive academic literature and cases on the issue of standing in environmental law generally, and it is well beyond the scope of this short paper to offer a detailed analysis of this material. Rather, the more modest purpose of this paper is to illustrate some of the key issues and debates on standing and public participation as raised by Justice Logan's obiter comments.

There is little doubt that Justice Logan's observations would find some support in both statute and case law.[58] However, with due respect, it is equally arguable that elements of His Honour's observations could be met with criticism. In particular, one issue raised by Justice Logan's observations relates to the potential curtailment of opportunities for meaningful public participation in environmental decision-making. It is trite to observe that the Australian system of representative and responsible government was largely inspired by the views of Dicey.[59] Under the Diceyan model of government, the will of the people is reflected by the Legislature, the actions of the Executive are controlled by the Legislature, and the Executive is accountable to the Legislature for its actions, which, in turn, is responsible to the people.[60] Writing extra-curially, Sir Gerard Brennan noted that such ideals are obsolete in the context of modern Australian governance: apart from elections, the people have little influence over the Legislature's *modus operandi* and the Legislature exercises little control over

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[55] Ibid, [73]-[74].
[56] Ibid, [125].
[57] Ibid, [139]-[142], [166]-[168].
[58] See, eg, *Director of Public Prosecutions Act 1983* (Cth) s 9(5); *Onus* (1981) 149 CLR 27, 35 (Gibbs CJ).
[59] Sir Gerard Brennan, 'Courts, Democracy and the Law' (1991) 65 *Australian Law Journal* 32, 33.
[60] Tony Blackshield and George Williams, *Australian Constitutional Law and Theory: Commentary and Materials* (Federation Press, 5th ed, 2010) 1-3.

the Executive.[61] As a result of this situation, the courts have become an increasingly important forum in environmental law for the public to enforce legal obligations and review administrative action.[62]

If the Parliament were to act upon the views expressed by Justice Logan in this case, the Minister could effectively prevent an "interested person" from bringing a genuine case before the court.[63] In vesting such a power in the Minister, one could argue that the implementation of His Honour's proposal may produce at least two undesirable outcomes: 1) it could serve to reduce the public's perception of the credibility, transparency and accountability of the *EPBC Act* decision-making process; and 2) it could serve to reduce the effectiveness of public interest environmental litigation as a legitimate method for ensuring executive accountability, maintaining institutional integrity and promoting the progressive and principled development of environmental law and policy in all its forms.[64]

Implicit in Justice Logan's discussion of standing is a concern about the liberal nature of the standing scheme under the *EPBC Act*. Specifically, His Honour raises concerns that frivolous cases may be brought by litigious busybodies. Of course, one cannot deny that the standing scheme under the *EPBC Act* is less stringent than the common law standing requirements. In this regard, one could argue that the likelihood for frivolous cases is *theoretically* increased under such a statutory standing scheme.[65] However, *practical* experience in Australia has shown that the floodgates have not been opened as a result of the more liberal standing requirements expressed in statute.[66] In this regard, it seems that the major factor behind this trend has been cost.[67] Many potential litigants, especially in developing countries, lack the financial resources to pursue lengthy court challenges of government decisions.[68] Yet, it should be recognised that for some potential litigants, particularly in developed nations such as Australia, money is no object. Given this, one might suggest that Justice Logan's concerns about the standing scheme under the *EPBC Act* have some merit in practice with respect to wealthy litigants bringing frivolous cases.

However, it could also be argued that these concerns are overstated for several reasons. First, the scheme under the *EPBC Act* cannot be regarded as an open

[61] Brennan, above n 59, 33-34.
[62] See Justice Brian J. Preston, 'The role of public interest environmental litigation' (2006) 23 *Environmental and Planning Law Journal* 337, 340-342; Chris McGrath, 'Flying Foxes, dams and whales: Using federal environmental laws in the public interest' (2008) 25 *Environmental and Planning Law Journal* 324, 328-329; Godden and Peel, above n 23, 103.
[63] Of course, one could argue that implementation of Justice Logan's proposal may enable the Minister to take over an action brought by an "interested person" and pursue it himself or herself. In this way, such a power would be beneficial for the Minister would, in all probability, be better equipped at pursuing a legal case before the courts.
[64] Preston, above n 62, 340-350; McGrath, above n 62, 331.
[65] Roger Douglas, 'Use of standing rules 1980-2006' (2006) 14 *Australian Journal of Administrative Law* 22, 29. This may be compared with other jurisdictions such as South Africa, for example, which has witnessed similar practical experiences - see Tumai Murombo, 'Strengthening Locus Standi in Public Interest Environmental Litigation: Has Leadership moved from the United States to South Africa?' (2010) 6 *Law, Environment and Development Journal* 163, 171.
[66] Douglas, above n 65. See also Allan Hawke, 'Report of the Independent Review of the *Environment Protection and Biodiversity Conservation Act 1999*' (October 2009), 261.
[67] Douglas, above n 65; Hawke, above n 66, 262.
[68] Murombo, above n 65, 171.

standing scheme;[69] on the contrary, it is somewhat restrictive. Take the case examined here as an example: the Conservation Council was not automatically granted standing. Rather, it needed to satisfy the Court that it was an "interested person" as required by the *EPBC Act* – e.g. the Conservation Council needed to demonstrate that it had engaged in a series of activities relating to the conservation of the environment during the two years immediately before Burnett Water's conduct.[70] In this way, any litigant (wealthy or otherwise) must still demonstrate to the court that it is indeed an "interested person". Secondly, the courts have the ability to summarily dismiss cases which have no reasonable cause of action, or are frivolous or vexatious.[71] Finally, given that environmental cases often involve decisions of an inherently political nature, the courts may decide that the matter is inappropriate for determination by the courts (i.e. the decision is non-justiciable), notwithstanding the fact that a plaintiff has satisfied the standing requirements under the *EPBC Act*.[72]

The above issues are of course complex and open to debate. However, the discussion above has hopefully served to illustrate some of the potentially significant (and perhaps undesirable) implications for public participation in future environmental decision-making if the court's views on the efficacy of standing were acted upon by the Legislature.

B *The Increasing Application of Adaptive Management Principles*

The second reason why this case represents an important judicial development in Australian environmental law relates to its consideration of adaptive management principles.[73] In the face of scientific uncertainty concerning the environmental impacts of human activities, there has been an increasing tendency for decision-makers, both in Australia[74] and other jurisdictions, such as North America for

[69] Cf. the open standing scheme provided by s 123 of the *Environmental Planning and Assessment Act 1979* (NSW). This standing scheme has not led to an opening of the floodgates: see Justice Paul L. Stein, 'Specialist environmental courts: the Land and Environment Court of New South Wales, Australia' (2002) 4 *Environmental Law Review* 5, 10-11.

[70] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 475(7).

[71] See, eg, *Federal Court Rules* O 20, r 5. Generally speaking, a court will only make such an order in circumstances where the plaintiff's case is so obviously untenable that it cannot possibly succeed: see, eg, *Spencer v Commonwealth* (2010) 241 CLR 118, 131 [24] (French CJ and Gummow J); 140 [55] (Hayne, Crennan, Kiefel and Bell JJ). Given the difficulty in making this ground out, one author has found that there have been no examples of summary dismissal in judicial review cases brought under the *Environment Protection and Biodiversity Act 1999* (Cth): see Edgar, above n 23, 8-9.

[72] See Edgar, above n 23, 9.

[73] It should be noted that the Court made no explicit reference to the concept of "adaptive management" in discussing the conditions placed on the construction of the Paradise Dam in this case. This is probably due to the fact that the Minister had also made no explicit reference to the concept in specifying the conditions attaching to his approval. Notwithstanding this, one could strongly argue that many of the conditions attached to the construction of the Paradise Dam were consistent with such a management approach (for reasons discussed later in this short paper).

[74] Justice Brian J. Preston, 'Water and Ecologically Sustainable Development in the Courts' (2009) 6 *Macquarie Journal of International and Comparative Environmental Law* 129, 143; Godden and Peel, above n 38, 285. See, eg, *Conservation Council of SA Inc v Development Assessment Commission & Tuna Boat Owners Association (No 2)* [1999] SAEDC 86, [35]; *St Ives Development Pty Ltd v City of Mandurah* (2003) SR (WA) 313, 322; *Telstra Corporation Ltd v Hornsby Shire Council* (2006) 146 LGERA 10, 46 ('*Telstra*'); *Environmental Planning Authority v Ballina Shire Council* (2006) 146 LGERA 278, 290-1; *Ulan Coal Mines Ltd v Minister for Planning* (2008) 160 LGERA 20, 40.

example,[75] to approve a proposed development subject to conditions that require adaptive management or monitoring.[76] Originally conceived by Holling as an experimental process through which "active" scientific testing occurs "in the field", the concept of adaptive management has since been applied by decision-makers in a much broader sense.[77] Specifically, many decision-makers now apply a form of *passive* adaptive management, an iterative yet flexible decision-making process which generally involves the following key features: defining problems and objectives; determining the baseline for the environmental resource being managed; implementing, monitoring and evaluating the success of management actions; and adjusting implemented decisions in light of performance results.[78] "Adaptive management" is referred to in the passive sense for the rest of this paper.

While the Minister made no *explicit* reference to the concept of "adaptive management" in the conditions he placed on the construction of the Paradise Dam in this case, it is apparent that many of these conditions were consistent with such a management approach. Condition 4 requires Burnett Water to adhere to the environmental flow requirements of three strategic planning documents.[79] To meet the environmental flow requirements of one of these strategic planning documents – the *Resource Operation Plan (Burnett Basin) 2003* – Burnett Water are required to conduct ecological monitoring of environmental flows to determine whether water has been both allocated and managed to achieve community aspirations with respect to the conservation of the lungfish.[80] Importantly, this planning document states that monitoring programmes under the plan are 'designed to include adaptive management techniques'.[81] For example, the plan recognises that 'with time and a better understanding of the science behind environmental flows...different methodologies and indicators may well be developed and adopted.'[82]

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[75] See, eg, J.B. Ruhl and Robert L. Fischman, 'Adaptive Management in the Courts' (2010) 95 *Minnesota Law Review* 424, 443 (United States); Martin Z.P. Olszynski, 'Adaptive Management in Canadian Environmental Assessment Law: Exploring Uses and Limitations' (2010) 21 *Journal of Environmental Law and Practice* 1 (Canada).

[76] Generally speaking, adaptive management may be described as follows: 'adaptive management consists of managing according to a plan by which decisions are made and modified as a function of what is known and learned about the system, including information about the effect of previous management actions.' – see Ana M. Parma and NCEAS Working Group on Population Management, 'What Can Adaptive Management Do for Our Fish, Forests, Food and Biodiversity?' (1998) 1 *Integrative Biology* 16, 19.

[77] See Cameron Holley and Darren Sinclair, 'Collaborative Governance and Adaptive Management: (Mis)applications to Groundwater, Salinity and Run-off' [2011] *Australasian Journal of Natural Resources Law and Policy* (forthcoming); Bradley C. Karkkainen, 'Panarchy and Adaptive Change: Around the Loop and Back Again' (2005) 7 *Minnesota Journal of Law, Science and Technology* 59, 70.

[78] Holley and Sinclair, above n 77. "Passive" adaptive management can be distinguished from "active" adaptive management on the basis that the former lacks the process of "deliberate probing for information" from active, hypothesis-testing experimentation specified by the latter – see Karkkainen, above 77, 70.

[79] *Wide Bay* [2011] FCA 175, [38].

[80] Australian Government, *Final Compliance Audit Report Paradise Dam* (25-28 June 2007) Department of Sustainability, Environment, Water, Population and Communities, Attachment B, 8 <http://www.environment.gov.au/epbc/publications/pubs/burnett-attachment-b.pdf>.

[81] Queensland Government, *Burnett Basin Resource Operation Plan – May 2003, Amended April 2010* (April 2010) Department of Environment and Resource Management, 10 <http://www.derm.qld.gov.au/wrp/burnett_rop.html>.

[82] Ibid.

Condition 5 requires Burnett Water to supply the Minister with a report detailing the results of baseline monitoring of lungfish populations in the vicinity of the Paradise Dam Wall.[83] Condition 6 requires Burnett Water to undertake annual ecosystem monitoring for a period of 10 years, with a particular emphasis on the condition of the lungfish and its habitat.[84] Condition 7 requires Burnett Water to conduct a review of the impacts of the Paradise Dam on the lungfish at the conclusion of the 10 year monitoring programme (in consultation with the Commonwealth Government) to determine whether future monitoring is required.[85] Condition 8 requires Burnett Water to make its lungfish information and research freely available for Commonwealth and State programmes relating to lungfish recovery and water quality in the Burnett River.[86] Finally, Condition 9 states that if the ecological monitoring of environmental flows under Condition 4 indicates ongoing lungfish population decline that is not attributable to natural periodic fluctuations, Burnett Water must initiate appropriate lungfish recovery actions.[87]

To support his conclusion that the fishway was 'suitable for the lungfish' in this case (i.e. that Burnett Water had not contravened Condition 3), Justice Logan made reference to the existence of the monitoring programme required by Condition 6.[88] In accepting scientific evidence concerning the progress of the monitoring programme after two years, His Honour noted that the lungfish population structure after the dam's construction was similar to the lungfish population structure observed prior to the dam's construction.[89] Justice Logan also observed that Burnett Water had voluntarily contracted with the Queensland Department of Primary Industries (DPI) to undertake an "independent" and detailed monitoring programme of the fishway itself.[90] Again, when examining scientific evidence concerning the progress of this programme, it is apparent that the programme was, to some extent, informed by adaptive management, notwithstanding the absence of explicit reference to the concept. For example, the Court identified the fact that the DPI's voluntary monitoring programme had raised concerns about the 'flow of water from the downstream fishway competing with the attraction water for the upstream fishway during times of simultaneous operation'.[91] In responding to this feedback, the DPI had undertaken a voluntary form of "learning by doing" through making the decision to adjust 'attraction flow rates, hopper positions and gate openings...to improve operations'.[92]

[83] *Wide Bay* [2011] FCA 175, [38]. Condition 6 was a condition precedent to the operation of the Paradise Dam.
[84] Ibid.
[85] Ibid.
[86] Ibid.
[87] Ibid.
[88] Ibid, [127], [151].
[89] Ibid, [151].
[90] Ibid, [143]. While both Burnett Water and the DPI are Queensland Government entities, Justice Logan suggested that there was 'nothing on the evidence' to persuade him that there was a conflict of interests with respect to the DPI carrying out independent monitoring of the fish transfer device and lungfish.
[91] Ibid, [144].
[92] Ibid.

C *The Implementation of Adaptive Management – Some Comments*

In exploring the Court's consideration of adaptive management principles (described above), it is evident that this case reflects the increasing application of adaptive management principles to deal with scientific uncertainty concerning the impacts of a proposed development on the environment. Indeed, it seems that the presence of monitoring programmes informed by adaptive management principles influenced the ultimate conclusion reached by Justice Logan in this case concerning the suitability of the fishway for the lungfish. At the very least, this case should be welcomed as a positive legal development with respect to providing a further example of the increasing application and implementation of adaptive management principles. Adaptive management, when *properly implemented*, represents a pragmatic method for dealing with scientific uncertainty concerning the impacts of a proposed development on the environment.[93] Specifically, this flexible approach draws strength from its recognition of the incomplete knowledge humans have of ecosystem functioning, its emphasis on "learning from doing", and, its proactive promotion of principles of ecologically sustainable development (especially the precautionary principle).[94] While adaptive management, in any form, cannot be regarded as a panacea for all environmental problems and is certainly not without its challenges,[95] it seems that our ability to succeed in the "new age of environmental restoration" will be very much dependent upon the effective implementation of its principles.[96]

It should be noted that adaptive management should only be implemented in circumstances where it is appropriate, taking into account 'the combined effect of the degree of seriousness and irreversibility of the threat and the degree of uncertainty'.[97] For example, if an action will have or is likely to have a significant impact on the environment, adaptive management should not be implemented. Rather, the precautionary principle should be strongly applied to prevent that action from being

[93] One could possibly suggest that the conditions imposed by the Minister in this case failed to impose a robust adaptive management process on the Paradise Dam development – i.e. adaptive management was *not* properly implemented in this case. The main basis for this claim rests on the apparent absence of a condition requiring Burnett Water to formally adjust its ongoing operation and management of the Paradise Dam in circumstances where feedback (e.g. feedback from the monitoring of recovery actions taken under Condition 9) reveals that such an adjustment may benefit the long-term ecological sustainability of the vulnerable and threatened Queensland Lungfish. While a comprehensive examination of this claim is well beyond the scope of this short paper, it is worth noting that similar concerns have been raised in the context of developments in other jurisdictions. For example, while the Glen Canyon Dam adaptive management program in the United States initiated successful recovery actions with respect to the humpback chub (an endangered species), the success of these actions has not resulted in a formal adjustment of ongoing dam operations, despite the fact that these actions may well have promoted the long-term ecological sustainability of that species – see Lawrence Susskind, Alejandro E. Camacho, and Todd Schenk, 'Collaborative Planning and Adaptive Management in Glen Canyon: A Cautionary Tale' (2010) 35 *Columbia Journal of Environmental Law* 1, 27-29.

[94] Godden and Peel, above n 23, 285-287.

[95] An examination of these challenges is well beyond the scope of this short paper. See, eg, Alastair T Iles, 'Adaptive Management: Making Environmental Law and Policy more Dynamic, Experimentalist and Learning' (1996) 13 *Environmental and Planning Law Journal* 288, 297-304; Stephen Dovers, 'Adaptive Policy, Institutions and Management: Challenges for Lawyers and Others' (1999) 8 *Griffith Law Review* 374, 385-390; J.B. Ruhl, 'Regulation by Adaptive Management – Is It Possible?' (2005) 7 *Minnesota Journal of Law, Science and Technology* 21.

[96] Holly Doremus, 'Adaptive Management, the Endangered Species Act, and the Institutional Challenge of "New Age" Environmental Protection' (2001) 41 *Washburn Law Journal* 50, 51-52.

[97] See *Telstra* (2006) 146 LGERA 10, [161] (Preston CJ).

effectuated. Conversely, if an action will not have or is likely not to have a significant impact on the environment, there would be no need for the proponent of the action to take any precautionary measures whatsoever.[98]

Additionally, effective implementation of adaptive management principles should manifest itself in the form of explicit yet flexible conditions placed upon the formal approval of development actions.[99] These conditions would need to be informed by and fully consistent with those passive adaptive management features outlined above.[100] If the proponent of the action desired, he or she could then supplement these conditions through voluntary measures informed by best practice environmental regulation (e.g. Burnett Water's undertaking of a voluntary fishway monitoring programme in this case). Without an effective and meaningful implementation of adaptive management principles, the approach may represent nothing more than rhetoric.[101]

VI CONCLUSION

This short paper has examined the case of *Wide Bay*[102] – an important judicial development in Australia with international relevance. In considering the obiter comments made by Justice Logan regarding the efficacy of the standing requirements under the *EPBC Act* in this case, it was argued that these views may potentially have significant (and perhaps undesirable) implications for public participation in future environmental decision-making if acted upon. On a more favourable note, it was suggested that this case should be viewed as a positive development with respect to the increasing application and implementation of adaptive management principles to deal with scientific uncertainty associated with major developments and their impacts on the environment. Finally, in commenting on the implementation of adaptive management generally, this paper recognised the role adaptive management may play as an approach for proactively promoting principles of ecologically sustainable development, provided that it is *properly implemented in appropriate circumstances*.

[98] *Telstra* (2006) 146 LGERA 10, [138] (Preston CJ).
[99] As Ruhl and Fishman note, courts in the United States have recognised the place of adaptive management within administrative law through balancing flexibility (adaptive management) with certainty (final agency action) – above n 75, 466. See also *Pacific Coast Federation of Fishermen's Associations v Gutierrez*, 672 F Supp 2d 1105, 1116 (D. Mont, 2009).
[100] For a refresher of the key features of passive adaptive management, refer to part V, section B of this short paper.
[101] Holley and Sinclair, above n 77.
[102] *Wide Bay* [2011] FCA 175.