Abstract (as submitted)

The Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 provides for a new marine consent regime for discretionary activities undertaken in New Zealand's Exclusive Economic Zone ('EEZ') and Continental Shelf, including future energy generation and resource production activities. For the first time, the consent regime expressly contemplates that an 'adaptive management approach' may be required as part of a marine consent. This paper will explore the potential role of adaptive management in marine consents granted for energy and resource activities in New Zealand's EEZ and Continental Shelf, drawing on recent New Zealand and overseas cases in which adaptive management approaches have been considered.

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Adaptive management of activities in the Exclusive Economic Zone and Continental Shelf of New Zealand

Introduction

Both the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act) generally and the concept "adaptive management" specifically have generated significant public interest recently. In November alone both made the news. In that month, a claim was filed against the Environmental Protection Agency (EPA) alleging that it misapplied transitional provisions under the Act.[1] Around the same time, the New Zealand Supreme Court heard arguments on the meaning of adaptive management in *King Salmon* (pending at the time of writing).[2]

This essay discusses the concept of "adaptive management" as it appears in the EEZ Act. Adaptive management is commonly applied by the Environment Court in cases involving activities with potentially uncertain adverse effects. It refers to a condition or set of conditions permitting an activity to proceed on a limited, monitored basis so that adverse effects can be properly measured, controlled, and, ideally, avoided. This existing case law should inform the EPA and courts' interpretation of adaptive management under the EEZ Act. In light of this case law and overseas experiences, adaptive management can serve as a useful tool for the EPA and applicants seeking to undertake activities in the EEZ and Continental Shelf.

This essay proceeds in three parts. The first outlines the EEZ Act generally. The second details how the concept of adaptive management has been applied in case law. The third considers the definition given to "adaptive management" in the EEZ Act and explains the value and limitations of adaptive management in terms of marine consents under this legislation.

[1] Aaron Leamon and Christ Gardner "Anadarko oil drill battle to high court" stuff.co.nz (26 November 2013) <www.stuff.co.nz>.

[2] *Environmental Defence Society Incorporated v New Zealand King Salmon Company Ltd* [2013] NZHC 1992, [2013] NZRMA 371 [King Salmon]; and *Environmental Defence Society Incorporated v New Zealand King Salmon Company Ltd* [2013] NZSC 101.

1. Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act (EEZ Act)

The EEZ Act came into force on 28 June 2013,[3] after a relatively tumultuous progress through Parliament.[4] It has already been subject to minor amendments yet to come into force,[5] and the Government will soon introduce further legislative changes.[6] Following amendment, its purposes will include promoting the sustainable management of natural resources in the EEZ and continental shelf and protecting the environment from pollution through regulation or prohibition.[7] The EEZ Act also enables and continues particular international obligations of New Zealand.[8]

An excellent discussion of this legislation has already been provided by Kenneth Palmer.[9] It is sufficient to briefly outline the activities subject to the EEZ Act and to touch on the marine consent process.

1.1 Activities subject to EEZ Act

The EEZ Act lists a range of activities occurring in the EEZ or Continental Shelf that are regulated by the legislation. The list comprises activities we would expect to occur in this area including, significantly, the removal of natural materials from the seabed or subsoil[10] and the construction of structures, whether floating[11] or fixed.[12] Other than some activities regulated by transitional provisions,[13] all activities are by default

[3] See the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act Commencement Order 2013 (SR 2013/282).

[4] See, for example Exclusive Economic Zone and Continental Shelf (Environmental Effects Bill) – Second Reading (18 July 2012) 681 NZPD 3580; and Exclusive Economic Zone and Continental Shelf (Environmental Effects Bill – In Committee (21 August 2012) 683 NZPD 4592. See also Chris Simmons "The RMA at Sea?" [2012] NZLJ 385; and Celia Warnock "Regulating the environmental impact of oil and gas activities in the exclusive economic zone and extended continental shelf" (2011) 9 BRMB 76.

[5] See the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Amendment Act 2013.

[6] See Ministry for the Environment *Activity Classifications under the EEZ Act* (Wellington, 2013).

[7] EEZ Act, s 10(1).

[8] Section 11.

[9] Kenneth Palmer "Environmental Management of Oil and Gas Activities in the Exclusive Economic Zone and Continental Shelf of New Zealand (2013) 31 *Journal of Energy and Natural Resource Law* 123.

[10] Section 20(2)(d).

[11] Section 20(4)(a).

[12] Section 20(2)(a).

[13] See ss 21–23.

"discretionary",[14] meaning that a person is prohibited from undertaking them unless they obtain a marine consent from the relevantly regulatory agency, the EPA.[15] Amongst other functions under the EEZ Act,[16] the EPA is given an independent statutory function to determine marine consents.[17]

The legislation permits the Ministry for the Environment (Ministry) to develop regulations reclassifying these activities,[18] including from discretionary to "permitted" (i.e. no consent required)[19] or "prohibited" (i.e. not allowed at all).[20] Regulations have already been developed reclassifying certain activities as permitted.[21] Relevantly, these permit exploration,[22] including any drilling (except petroleum drilling) where reasonably necessary.[23]

The Ministry also intends to amend the legislation further to introduce another major category, "non-notified discretionary activities".[24] The key distinctions between discretionary and non-discretionary marine consents are that, first, non-discretionary consents will not be publicly notified, and, secondly, no rights of appeal will be available to any person other than the applicant.[25]

Significantly, the Ministry intends to reclassify exploratory drilling for oil and gas as "non-notified discretionary'". Production drilling will remain discretionary (and therefore notified).[26] The Ministry says that exploratory drilling has a unique risk profile and characteristics that mean it should be treated differently from other exploratory work (currently classified as permitted under regulations), because it will require greater regulatory oversight.[27] However, the consent process is to be non-notified because this

[14] Section 36(c).
[15] See section 36.
[16] See s 13.
[17] Section 13(1)(a) and 14 (although note the typographical error in s 14).
[18] Section 29. See also s 27.
[19] See s 35.
[20] See s 37.
[21] Exclusive Economic Zone and Continental Shelf (Environmental Effects – Permitted Activities) Regulations 2013 (2013/283).
[22] Clause 5.
[23] Clause 3.
[24] See Ministry for the Environment *Activity Classifications under the EEZ Act* (Wellington, 2013).
[25] At Table 2.
[26] Ministry for the Environment *Activity Classifications under the EEZ Act* (Wellington, 2013) at [2.2].
[27] At [2.2.1].

"provides an appropriate balance between the assessment and management of environmental effects on the one hand, and increased investor certainty in the timeframes and process on the other".[28]

1.2 Marine consent process

The EEZ Act sets out a detailed structure for obtaining a marine consent.[29] An applicant must file an application for a marine consent with the EPA,[30] which must include an impact assessment detailing various matters.[31] The EPA must deal with applications promptly,[32] and may return incomplete applications[33] and request further information.[34] The legislation currently requires that applications be publicly notified,[35] and allow for a submission process[36] and a hearing (if requested by any submitter).[37]

When reaching its decision, the EPA must take into account various considerations,[38] and may impose conditions.[39] The EPA's decision must be given within 20 working days following completion of an application process,[40] must be reasoned and in writing,[41] and must be notified.[42]

The particular role of adaptive management in the marine consent process is discussed below. Before outlining this, however, it is useful to outline how this term is understood in existing case law.

2. Adaptive management generally

This section will outline adaptive management generally, and then comment in particular on its relationship to the "precautionary principle" and the concepts of risk

[28] At [2.2.4].
[29] EEZ Act, Part 3.
[30] Section 38.
[31] Section 39.
[32] Section 40.
[33] Section 41.
[34] Section 42. See also s 43 and 61.
[35] Section 45.
[36] Sections 46–48.
[37] Sections 50–58.
[38] Sections 59–61.
[39] Sections 62 – 67.
[40] Section 68.
[41] Section 69.
[42] Section 70.

and uncertainty. It will then provide examples of adaptive management in action in resource consent applications.

2.1 Description of adaptive management

Speaking generally, adaptive management describes a process for managing risks.[43] In the resource arena, an adaptive management process is one in which one or more conditions are placed on consents that allow an activity to proceed, initially on a small scale, despite uncertainty.[44] The management is adaptive in that conditions will be altered as is necessary as more information is gathered, i.e., consent conditions will adapt in response to uncertainties through experimentation.[45] Royden Somerville QC describes adaptive management as "a policy response to potential adverse effects, which are unable to be assessed by considering primary or adjudicative facts".[46] One definition of this term, taken from the *New Zealand Biodiversity Strategy*, reads:[47]

> **Adaptive management**: An experimental approach to management, or "structured learning by doing". It is based on developing dynamic models that attempt to make predictions or hypotheses about the impacts of alternative management policies. Management learning then proceeds by systematic testing of these models, rather than by random trial and error. Adaptive management is most useful when large complex ecological systems are being managed and management decisions cannot wait for final research results.

Adaptive management has gained acceptance generally before the Environment Court.[48] It appears to have been first applied by the Court in 2001[49] although Dr Somerville

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[43] See *Minister of Conservation v Tasman District Council* HC Nelson, CIV-2003-485-1072, CIV-2003-485-1073, CIV-2003-485-1074, 9 December 2003 at [11].

[44] See, for example, *Director-General of Conservation v Marlborough DC* [2010] NZEnvC 403 at [764].

[45] See, for example *Golden Bay*, above n 47, at [422]; and *Biomarine Ltd v Auckland Regional Council* ENC Christchurch A147/2007, 13 February 2007 [*Biomarine*] at [155]. See also Bram F Noble "Strengthening EIA through adaptive management: a systems perspective" *Environmental Impact Assessment Review* 20 (2000) 97.

[46] Dr Roydon Sommerville QC (ed) *Brookers Resource Management* (online looseleaf ed, Brookers) at [IN7.02(7)].

[47] Department of Conservation and Ministry for the Environment *New Zealand Biodiversity Strategy* (February 2000) at 137. See also *Golden Bay Marine Farmers v Tasman District Council* ENC Wellington W19/2003, 27 March 2003 [*Golden Bay*] at [405]—[406]; and *Clifford Bay Marine Farms Ltd v Marlborough District Council* ENC Christchurch C131/2003, 22 September 2003 [*Clifford Bay*] at [151]. See also *Kuku Mara Partnership (Forsyth Bay) v Marlborough District Council* ENC Wellington W025/02, 16 July 2002 at footnote 6.

[48] See Simmons, above n 4, at 386.

notes that "[a]daptive management approaches have often been addressed by the Environment Court over a number of years without being described as such".[50] An adaptive management approach may encompass conditions such as "management plans, monitoring, reviews, financial contributions, environmental audits, environmental standards and community participation".[51] The precise conditions will necessarily depend on the facts. For example, sometimes staged monitoring of development will be required, while at other times other adaptive management techniques will be used without staging.[52]

2.2 Relationship to precautionary principle

Adaptive management is closely linked with the "precautionary principle" or "precautionary approach".[53] For the purposes of this essay, these two terms are treated as identical.[54] The precautionary principle is an important principle of environmental law. It is relevant to the application of the Resource Management Act 1991 (RMA)[55] and forms part of New Zealand's international obligations,[56] including obligations that the EEZ Act was enacted to enable and continue,[57] although there is legitimate debate over the ambit of this principle.[58]

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[49] See *Golden Bay Marine Farmers v Tasman District Council* ENC Christchurch W42/2001, 27 April 2001 at, for example, [411]—[423] and [966]—[975].

[50] Dr Roydon Sommerville QC (ed) *Brookers Resource Management* (online looseleaf ed, Brookers) at [IN7.02(7)].

[51] *Golden Bay*, above n 47, at [397].

[52] Compare *Clifford Bay*, above n 47, at [158] with *Jackson Bay Mussels Ltd v West Coast Regional Council* ENC Christchurch C77/2004, 4 June 2004 [*Jackson Bay*] at [220].

[53] See *Minister of Conservation v Tasman District Council* HC Nelson CIV-2003-485-1072, CIV-2003-485-1073, CIV-2003-485-1074, 9 December 2003 at [11]; *Oruawharo Marae Trust* ENC Auckland A083/2006, 23 June 2006 [*Oruawharo*] at [93]; *East Bay Conservation Society Inc v Marlborough District Council* ENC Wellington W106/2006, 21 December 2006 at [105]; *Golden Bay*, above n 47, at [396]; and *Director-General of Conservation v Marlborough District Council* [2010] NZEnvC 403 at [764]. See generally *Crest Energy Kaipara Ltd v Northland Regional Council* [2011] NZEnvC 26, [2011] NZRMA 420 [*Crest*].

[54] See Robert Mackill, Kellie Dawson, and Nicola de Wit "The Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill 2011 *April 2012 RMJ* at 5—6.

[55] Dr Roydon Sommerville QC (ed) *Brookers Resource Management* (online looseleaf ed, Brookers) at [IN7.01], referring to RMA, s 32(4)(b).

[56] See, for example, the Rio Declaration on Environment and Management 1992 [Rio Declaration], Principle 15; and Convention on Biological Diversity 1982, Preamble.

[57] EEZ Act, s 11(b), referring to the Convention on Biological Diversity.

[58] See *Jackson Bay*, above n 52, at [131].

The precautionary approach recognises that it may be preferable to protect the environment in the absence of a complete understanding of the potential effects of not acting.[59] The Rio Declaration states "[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation".[60] In considering resource consents, the precautionary principle is commonly applied as a reason against allowing consent for an activity where potential risks are not fully understood.[61]

The precise relationship between adaptive management and the precautionary approach is unclear.[62] The best view is that an *adaptively managed activity* may lead to an activity being permitted where it would otherwise be prohibited on the basis of the precautionary principle. This understanding of the relationship between the two principles is reflected in multiple Environment Court decisions in which adaptive management was determinative to the Court's determination to allow the activity.[63]

2.3 Understanding risk and uncertainty

To understand the usefulness and limits of an adaptive management approach it is necessary to grapple with the related problems of uncertainty and risk. There are three key points to bear in mind. First, there will always be uncertainty and (usually as a result) risk when considering any new activity affecting the environment. The precautionary principle does not require that absolute knowledge is required before

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[59] See Robert Mackill, Kellie Dawson, and Nicola de Wit "The Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill 2011" *April 2012 RMJ* at 5, citing Caroline Foster Science and the Precautionary Principle in International Courts and Tribunals: Expert Evidence, Burden of Proof and Finality (Cambridge University Press, New York, 2011 at 1.

[60] Rio Declaration, Principle 15.

[61] See, for example, *Kuku Mara Partnership v Marlborough District Council* (2005) 11 ELRNZ 466 (ENC) [*Kuku Mara*].

[62] See *Environmental Defence Society v King Salmon* [2013] NZSC Trans __ per Glazebrook J (unavailable at time of writing). See also, for example, *King Salmon*, above n 2, at [77].

[63] See *Director-General of Conservation v Friends of Nelson Haven and Tasman Bay Inc* ENC Christchurch C18/2006, 21 February 2006 [*Friends of Nelson*] at [14], referring to *Clifford Bay*, above n 47; *Jackson Bay*, above n 52, at [14]; *Biomarine*, above n 45, at [179]; and *Director-General of Conservation v Marlborough District Council* [2010] NZEnvC 403 at [765]—[766]. See also Parliamentary Commissioner for the Environment "Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill: Submission to the Local Government and Environment Select Committee" at 10; and *King Salmon*, above n 2, at [83]—[85].

granting consent.[64] Nor is it necessary (or possible) to eliminate all risk.[65] An activity may proceed despite risk and uncertainty where conditions, in particular, adaptive management conditions, will "afford adequate protection".[66]

Secondly, and in contrast to the first point, adaptive management has its limits. In particular, for adaptive management to be a useful tool in light of potential risks, it is necessary that these risks are reasonably understood[67] and that specific conditions imposed actually address these risks.[68] The High Court recently commented that "[t]here are likely to be situations in which adaptive management conditions could not reasonably be treated as ameliorating concerns that arise because of uncertainty as to the nature and extent of knowable adverse effects".[69] Therefore, risks should be at least "generally understood" even if not "precisely known".[70] To ensure this, it may be necessary to gather base-line knowledge.[71] However, it is not necessary that an applicant foresees every possible risk,[72] and the flexibility inherent in adaptive management may be helpful in responding where previously unknown risks arise.[73] To ensure adaptive management is actually responsive, an adaptive management plan should include objectives that are reasonably certain and enforceable.[74] The Environment Court has ordered further information be provided in the face of insufficient detail.[75]

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[64] *Groome v West Coast Regional Council* [2010] NZEnvC 199 [*Groome*] at [124]—[127] and [135]. See also Robert Mackill, Kellie Dawson, and Nicola de Wit "The Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill 2011" *April 2012 RMJ* at 5; and Bram F Noble "Strengthening EIA through adaptive management: a systems perspective" *Environmental Impact Assessment Review* 20 (2000) 97 at 109.

[65] See, for example, *Golden Bay*, above n 47, at [425].

[66] *Oruawharo*, above n 53, at [144]. See also *Lower Waitaki River Management Society v Canterbury Regional Council* ENC Christchurch C80/09, 21 September 2009 [*Lower Waitaki*] at [381].

[67] *Kuku Mara*, above n 61, at [36] and [40]. See also *Oruawharo*, above n 53, at [43] and [92].

[68] See *Kuku Mara*, above n 61, at [80]; and *Groome*, above n 64, at [135].

[69] *King Salmon*, above n 2, at [83] (under appeal). See also *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2013] NZSC 101.

[70] *Royal Forest and Bird Protection Society v Gisborne District Council* [2013] NZRMA 366 (ENC) at [87], citing the evidence of Mr Dennis Nugent, planner.

[71] *Crest*, above n 53, at [226].

[72] Crest, above n 53, at [228]—[229].

[73] See *Kuku Mara*, above n 61, at [36].

[74] *Lower Waitaki*, above n 66, at [381]. See also *Oruawharo*, above n 53, at [227]; and *Groome*, above n 64, at [14].

[75] See, for example, *Lower Waitaki*, above n 66, at [382] and [408].

2.4 Examples

The usefulness—and limits—of adaptive management can be demonstrated by briefly considering some examples. First, it is useful to compare two decisions of the Environment Court assessing whether development of marine farms should be permitted in the face of potential adverse effects on local dolphins. In the first, the Court upheld a decision of the local Council to authorise a marine farm[76] in light of a proposed "comprehensive adaptive management regime".[77] Although there were potential adverse effects to Hector's dolphin, there were also potential (and likely) *positive* effects,[78] because the monitoring programme would produce "desperately-needed information" about the mammal.[79] The Court was also comforted by the fact that the monitoring programme would allow the farm to be reduced or closed down altogether if adverse effects were recorded.[80]

The opposite conclusion was reached in a similar case several years later, however.[81] Proposed marine farms were declined despite a supposedly "stringent monitoring programme".[82] The Court referred to evidence of potential adverse effects on individual Dusky dolphins.[83] Adaptive management was seen as inappropriate both because the risks were unclear[84] and because the Court was not convinced (as a result) that adaptive management could respond to the potential adverse effects on the Dusky dolphins.[85]

Adaptive management has also been applied in a number of cases dealing with energy consents.[86] The value of adaptive management in this arena is demonstrated by a Canadian Federal Court case arising from the Kearl Oil Sands Project.[87] The appellants

[76] *Clifford Bay*, above n 47.
[77] See *Friends of Nelson*, above n 63, at [14], referring to *Clifford Bay*. See also *Clifford Bay*, above n 47, at [147].
[78] At [106].
[79] At [106(7)].
[80] At [106)7)].
[81] *Kuku Mara*, above n 61.
[82] At [36].
[83] At [14].
[84] At [14]. See also [40].
[85] At [41].
[86] See, for example, *Crest*, above n 53; *Geotherm Group Ltd v Taupo District Council* ENC Auckland A047/06, 13 April 2006; and *Pembina Institute for Appropriate Development v Attorney-General (Canada)* 2008 FC 302, (2008) 35 CELR (3d) 254 [*Pembina Institute*].
[87] *Pembina Institute*, above n 86, at [3].

expressed "deep concern" about the inability of conditions, including adaptive management approaches, to address "the cumulative impacts of oil sands development".[88] They claimed "there was no evidence … upon which to evaluate" mitigation measures arising from surface water effects,[89] and that "reclamation of peatlands" was so uncertain that it could not be effectively addressed.[90] In response, the Court drew heavily on the nature of adaptive management,[91] and dismissed each concern.[92] (The appeal was allowed in part on another basis.)[93] It noted, for example, that although there was some uncertainty around the technology being used to address concerns "the existing level of uncertainty is not such that it should paralyze the entire project".[94]

The decisions described above are helpful in articulating the extent (and limits of) adaptive management. The superficial similarity of the facts between the first two highlights the importance of approaching each application in light of all surrounding circumstances, as the Court recognised.[95] The final decision helpfully demonstrates the value of adaptive management when assessing energy consents, particularly in response to claims that technology is new and untested.

3. Adaptive management in the EEZ Act

An adaptive management approach may be incorporated by the EPA into a marine consent. The EPA is also specifically required to consider the potential for adaptive management to ameliorate risk and uncertainty before it declines an application on these grounds. This section outlines how EEZ Act provides for adaptive management. It then addresses concerns raised with adaptive management in this legislation. Finally, it explains how adaptive management can be used as a valuable tool in relation to marine consents.

[88] At [42].
[89] At [46]—[47]
[90] At [59].
[91] See [32]—[33].
[92] See [44]—[45], [47]—[58], and [60]—[62].
[93] See [70] to [81].
[94] At [56]. See also [62].
[95] See *Clifford Bay*, above n 47, at [149]; and *Kuku Mara*, above n 61, at [39].

3.1 Description in the EEZ Act

As discussed, the EPA may grant marine consents subject to a number of conditions, including "any condition it considers appropriate to deal with adverse effects of the activity authorised by the consent on the environment or existing interests".[96] Conditions must, however, be consistent with the EEZ Act and any regulations.[97]

The EPA is specifically permitted to require an adaptive management approach at section 63(b) (included in attached Schedule). An applicant could also suggest adaptive management as a condition (or set of conditions) on their own initiative as part of its impact assessment.[98] An "adaptive management approach" is defined at section 64 (see Schedule). Much of the language in this section echoes the case law described above at [2.3]. The focus is on monitoring activities to gain further knowledge, setting limits on activities in various ways, and allowing activities to only progress in stages, subject to the approval of the EPA or other observer.

In addition, adaptive management also arises at section 61 (see Schedule), which sets out how the EPA should approach generally information when assessing applications. The EPA must "favour caution and environmental protection" if information is uncertain or inadequate. However, before declining an application on this basis the EPA must consider whether an adaptive management approach would sufficiently address these concerns. Although the statutory language avoids the phrase precautionary principle (and has been criticised on that basis)[99] it nonetheless generally reflects the relationship between adaptive management and the precautionary principle outlined in case law, as summarised at [2.2] above.[100]

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[96] Section 63.
[97] Section 63(3).
[98] See s 39(1)(h).
[99] See, for example, See also Exclusive Economic Zone and Continental Shelf (Environmental Effects Bill – In Committee (21 August 2012) 683 NZPD 4592 at 4606–4607 per Catherine Delahunty; New Zealand Law Society "Submission on Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill at [22]; and Royal Forest and Bird Protection Society of New Zealand Inc "Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill: Forest and Bird Submission" at [58]––[69].
[100] See also *Jackson Bay*, above n 52, at [131].

3.2 Concerns raised

Significant concerns were raised about the content of this legislation as it progressed through Parliament, including the approach that the Government had taken to adaptive management in the (then) Bill. There are two key concerns. First is the claim that adaptive management is inherently unsuitable for activities being regulated under the Bill, either generally or at least for deep sea drilling.[101] This is essentially an argument that adaptive management has no effective use under the EEZ Act. This is assessed at [3] below

The second concern is that the particular definition given to adaptive management is imperfect as it differed from the case law. A specific concern is that the legislation fails to spell out that adaptive management is inappropriate where there is a risk of significant or irreversible environmental harm.[102] The *general* criticism (that the legislative definition differs from the case law) is largely without merit: it is clear from the comments at [3.1] above that there are substantial similarities between the legislative treatment of adaptive management and the existing case law. Courts are therefore highly likely to interpret the legislation in light of case law.

A full response to the *specific* concern (about the absence of a reference to irreversibility) is beyond the scope of this essay. However, it is at least arguable that courts will interpret sections 61(2) and (3) as restricting the EPA to allowing a marine consent with adaptive management conditions *only where no irreversible harm will result*, This follows from the fact that section 61(3) does not expressly overrule section 61(2), i.e., there is no suggestion that the EPA should ignore the need for caution and environmental protection when assessing the possibility of adaptive management. This

[101] Warnock, above n 4, at 77. See also the Exclusive Economic Zone and Continental Shelf (Environmental Effects Bill – In Committee (21 August 2012) 683 NZPD 4592 at 4596–4597 per Moana Mackey and at 4606 per Catherine Delahunty.

[102] Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill (321-2) at 9 (Labour Party minority view) and 13–14 (Green Party minority view). See also Exclusive Economic Zone and Continental Shelf (Environmental Effects Bill – In Committee (21 August 2012) 683 NZPD 4592 at, for example, 4599 per Grant Robertson and at 4610–4611 per Moana Mackey; Environmental Defence Society "Submission on the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill" at 2; Royal Forest and Bird Protection Society of New Zealand Inc, above n 99, at [10.4] and [58]—[69]; and Parliamentary Commissioner for the Environment, above n 63, at 10—11.

[102] At 13–14. See also Exclusive Economic Zone and Continental Shelf (Environmental Effects Bill – In Committee (21 August 2012) 683 NZPD 4592 per Catherine Delahunty and Moana MacKey.

interpretation of section 61 would be justifiable as according with the purposes of the EEZ Act[103] and New Zealand's international commitments.[104] However, it is far from certain that a court would necessarily adopt this view,[105] particularly in light of Hansard recording a refusal by Parliament to adopt references to irreversible harm.[106]

3.3 Potential for adaptive management under the EEZ Act

In light of the above analysis, adaptive management should be welcomed as an appropriate tool available to both applicants and the EPA under the EEZ Act. In considering the appropriateness of adaptive management in any particular case the EPA should consider the existing case law (as discussed above at [2]), including its limitations. The EPA and applicants should be guided with approaches to adaptive management taken by parties under the RMA and in literature.[107]

It is beyond the scope of this paper to address the particular efficacy of activities in the EEZ or Continental Shelf. However, assuming that activities are to occur, adaptive management is an appropriate inclusion in the EEZ Act, given the high level of uncertainty and (therefore) risk arising from undertaking activities in these areas.[108] Adaptive management, at its most general, is appropriate for dealing with uncertainties, and has a particular use in water[109] and energy consent issues.[110] Whether adaptive management can usefully be used to avoid potential adverse effects in any particular case will turn on the particular circumstances of each fact scenario, including the extent to which sufficient base-line knowledge about risks is available.

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[103] EEZ Act, s 10.

[104] See n 57 above.

[105] See, for example, John Burrows "Common Law Among the Statutes: The Lord Cooke Lecture 2007" (2008) 39 VUWLR 401 at 408–410.

[106] Exclusive Economic Zone and Continental Shelf (Environmental Effects Bill – In Committee (21 August 2012) 683 NZPD 4592. See *New Zealand Maori Council v Attorney-General* [1987] 1 NZLR 641 (HC and CA) at 658–659 per Cooke P (as he then was).

[107] See, for example, Melinda Harm Benson "Integrating Adaptive Management and Oil and Gas Development: Existing Obstacles and Opportunities for Reform" *Environmental Law Reporter* 39 (2009) 10962.

[108] Courtney Fidler and Bram Noble "Advancing strategic environmental assessment in the offshore oil and gas sector: Lessons from Norway, Canada, and the United Kingdom" *Environmental Impact Assessment Review* 34 (2012) 12 at 12; and Eriv V Hull "Crude Injustice in the Gulf: Why Categorical Exclusions for Deepwater Drilling in the Gulf of Mexico are Inconsistent with US and International Ocean Law and Policy" *Journal of Environmental Law* 29 (2011) 1 at 3–4.

[109] See, for example, *Clifford Bay*, above n 47; and *Kuku Mara*, above n 61.

[110] See n 86 above.

Overseas experiences of adaptive management of offshore oil and gas activities strengthen this conclusion. Adaptive management has been used or suggested as being a valuable tool for offshore oil and gas development in a number of countries, including Norway,[111] Canada,[112] Australia,[113] and the USA.[114] The fact that adaptive management has been specifically mandated in an Executive Order published by President Obama in the wake of the Deepwater Horizon is evidence of this.[115]

A comprehensive assessment of adaptive management in this area is not possible within the confines of this essay.[116] By way of example only, it can be noted that adaptive management has been used as a tool to assess and minimise pollution from offshore structures.[117] Furthermore, over time, adaptively managing activities will allow the EPA to accumulate valuable baseline information about risks to more efficiently assess future applications.[118]

Adaptive management cannot, however, cure all ills. For example, the on-going measurement of the Hibernia Offshore Oil Development Project in Canada has been criticised as ineffective on the basis that incorrect aspects of the project were selected for monitoring (only 5% of which could be effectively used to monitor change).. As Noble cautions, it is key "to look at previous choices to sharpen the choice of processes and factors rule into the assessment".

[111] Fidler and Noble, above n 108, at 16.
[112] Sandra Elvin and Gail Fraser "Advancing a National Strategic Environmental Assessment for the Canadian Offshore Oil and Gas Industry with Special Emphasis on Cumulative Effects" *J En Assmt Pol Mgmt* 14 (2012) 120015-1 at 19.
[113] Angus Morrison-Saunders "Environmental impact assessment as a tool for ongoing environmental management" *Project appraisal* 11 (1996) 95 at 99–100.
[114] Hari Osofsky "Multidimensional governance and the BP Deepwater Horizon Oil Spill" *Fla L Rev* 63 (2011) 1077 at 1121–1122. See also Thomas Ahlfeld, Gregory Boland, and James Kendall "Protection of deep-sea corals with the development of oil and gas reserves in the US Gulf of Mexico: an adaptive approach" in RY George and SD Caims (eds) *Conservation and adaptive management of seamount and deep-sea coral ecosystems* (Rosenstiel School of Marine and Atmospheric Science, University of Miami, 2007) at 59.
[115] See Hull, above n 108, at 39.
[116] See Benson, above n 107; and Fidler and Noble, above n 108.
[117] See Morrison-Saunders, above n 113, at 99–100.
[118] See Fidler and Noble, above n 108, at [3.7].

Conclusion

Adaptive management is a helpful addition to the EEZ Act. Although there are legitimate debates over the extent to which activities should be permitted in the EEZ or Continental Shelf, assuming they are to occur it is clear that adaptive management is an appropriate tool for the EPA to have at its disposal. Adaptive management is particularly useful in allowing activities to occur in the face of uncertainties around potential risks, as international experiences demonstrate.

The particular wording of the legislation invites the EPA to draw on existing case law when considering the appropriateness of adaptive management in relation to consents. The EPA (and applicants offering adaptive management conditions) should draw on precedents in the RMA environment to highlight the appropriateness or inappropriateness of adaptive management in each particular fact scenario. Over time, an adaptive management approach will permit the EPA to accumulate significant base-line data about the EEZ and Continental Shelf, as well as information about the potential adverse effects of particular activities in these areas. This will directly assist the EPA in considering applications and will increase the effectiveness of tailored adaptive management conditions over time.

Schedule—Relevant sections of the EEZ Act dealing with adaptive management

61 Information principles

(1) When considering an application for a marine consent, the Environmental Protection Authority must—

(a) make full use of its powers to request information from the applicant, obtain advice, and commission a review or a report; and

(b) base decisions on the best available information; and

(c) take into account any uncertainty or inadequacy in the information available.

(2) If, in relation to making a decision under this Act, the information available is uncertain or inadequate, the EPA must favour caution and environmental protection.

(3) If favouring caution and environmental protection means that an activity is likely to be refused, the EPA must first consider whether taking an adaptive management approach would allow the activity to be undertaken.

(4) Subsection (3) does not limit section 63 or 64.

(5) In this section, **best available information** means the best information that, in the particular circumstances, is available without unreasonable cost, effort, or time

[Emphasis in *italics* added.]

63 Conditions of marine consents

(1) The Environmental Protection Authority may grant a marine consent on any condition that it considers appropriate to deal with adverse effects of the activity authorised by the consent on the environment or existing interests.

(2) The conditions that the EPA may impose include, but are not limited to, conditions—

(a) requiring the consent holder to—

(i) provide a bond for the performance of any 1 or more conditions of the consent:

(ii) obtain and maintain public liability insurance of a specified value:

(iii) monitor, and report on, the exercise of the consent and the effects of the activity it

authorises:

(iv) appoint an observer to monitor the activity authorised by the consent and its effects on the environment:

(v) make records related to the activity authorised by the consent available for audit:

(b) that together amount or contribute to an adaptive management approach.

(3) However, the EPA must not impose a condition on a consent if the condition would be inconsistent with this Act or any regulations.

(4) To avoid doubt, the EPA may not impose a condition to deal with an effect if the condition would conflict with a measure required in relation to the activity by another marine management regime or the Health and Safety in Employment Act 1992.

[Emphasis in italics added.]

64 Adaptive management approach

(1) The Environmental Protection Authority may incorporate an adaptive management approach into a marine consent granted for an activity.

(2) An adaptive management approach includes—

(a) allowing an activity to commence on a small scale or for a short period so that its effects on the environment and existing interests can be monitored:

(b) any other approach that allows an activity to be undertaken so that its effects can be assessed and the activity discontinued, or continued with or without amendment, on the basis of those effects.

(3) In order to incorporate an adaptive management approach into a marine consent, the EPA may impose conditions under section 63 that authorise the activity to be undertaken in stages, with a requirement for regular monitoring and reporting before the next stage of the activity may be undertaken or the activity continued for the next period.

(4) A stage may relate to the duration of the consent, the area over which the consent is granted, the scale or intensity of the activity, or the nature of the activity.