

A Critical Interrogation of the Relation between the Ecosystem Approach and Ecosystem Services

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1. Introduction

This article offers a critical interrogation of the relationship between two emerging conceptual frameworks whose importance has grown quickly within the context of international environmental law: the ecosystem approach and ecosystem services. Both premised on the concept of ecosystem, their origin is common, their development - albeit occurred within different disciplinary contexts - contiguous, and their present and future increasingly convergent and intertwined. Both, importantly, have gained a prominent role in current global environmental legal discourse and practice. The ecosystem approach, increasingly deployed in a variety of normative and regulatory contexts (biodiversity protection; water and ocean management; fisheries management; climate adaptation etc.) has become a key strategy for the integrated management of human activities, despite the complexities and contestations that surround the concept. Its novelty lies in its incorporation of a series of key ecological principles into legal, policy and governance regimes, and has been characterized as a paradigm shift in environmental law and governance. The framework of ecosystem services, in turn, mainstreamed by the Millennium Ecosystem Assessment report series in the early 2000s, refers to the benefits people obtain from ecosystems. The relation between the two conceptual frameworks is arguably under-explored.¹ This article aims at filling this gap from a particular critical legal theoretical perspective.

¹ Thus e.g. D. Diz, E. Morgera and M. Wilson, 'The Unrealised Potential of Ecosystem Services: some reflections concerning (marine) ecosystem services, the ecosystem approach and benefit-sharing', 5 April 2016,

This article is structured as follows. First I will briefly outline each of the two concepts, the ecosystem approach and ecosystem services. After outlining the relation at the broad conceptual level, I will review how the relationship is described in some international scholarly literature, in international legal regimes and by some institutional actors. Based on the latter part of the review, which indicates an increasing convergence between the two conceptual frameworks, I will offer my own reading of the relationship, which I describe in terms of *biopolitical entanglement*.

2. The Ecosystem Approach

The ecosystem approach can be broadly understood as a legal and governance ‘strategy for the integrated management of land, water and living resources’.² It is being increasingly adopted within a wide variety of international environmental legal regimes, from international watercourses³ to oceans,⁴ from biodiversity⁵ to fisheries⁶, from Antarctica⁷ to climate

BENELEX Project Blog, <<http://www.benelexblog.law.ed.ac.uk/2016/04/05/the-unrealised-potential-of-ecosystem-services-some-reflections-concerning-marine-ecosystem-services-the-ecosystem-approach-and-benefit-sharing/>>. Diz, Morgera and Wilson however are one exception, in that they are part of the Marine Benefits research project, one of whose aim is to explore whether and how is it possible to integrate the ecosystem approach and the concept of marine ecosystem services through the legal tool fair and equitable benefit-sharing. See <https://www.strath.ac.uk/research/strathclydecentreenvironmentallawgovernance/marinebenefits/abouttheproject/>

- ² Decision V/6 ‘Ecosystem Approach’ adopted by the Conference of the Parties to the Convention of Biological Diversity at its Fifth meeting, Nairobi, 15-26 May 2000, UNEP/COP/5/23.
- ³ For a current review of the ecosystem approach in international watercourses see O. McIntyre, ‘The Emergence of an “Ecosystem Approach” to the Protection of International Watercourses Under International Law’, *Review of European, Comparative and International Environmental Law*, 13:1, 2004, 1.
- ⁴ M. Belsky, ‘Using Legal Principles to Promote the “Health” of an Ecosystem’, *Tulsa Journal of Comparative and International Law*, 3, 1995, 183, p. 196. See also Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its Seventh Meeting, 17 July 2006, UN Doc. A/61/156 (ICP-7 Report); Convention For The Protection Of The Marine Environment Of The North-East Atlantic (OSPAR Convention), 32 ILM 1069, (1993); OSPAR Commission, *The North-East Atlantic Environment Strategy of the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic 2010–2020*, OSPAR Agreement 2010-2013; Statement on the Ecosystem Approach to the Management of Human Activities “Towards An Ecosystem Approach To The Management Of Human Activities”, First Joint Ministerial Meeting Of The Helsinki And OSPAR Commissions (JMM) (Bremen: 25–26 June 2003, Agenda item 6) JMM 2003/4-Rev.1-E; R. Long ‘Legal Aspects of Ecosystem-Based Marine Management in Europe’ in A. Chircop., S. Coffen-Smou and M. McConnell (ed.) *Ocean Yearbook*, The Hague: Hijhoff, 2012.
- ⁵ See in particular Decision II/8 ‘Preliminary Consideration Of Components Of Biological Diversity Particularly Under Threat And Action Which Could Be Taken Under The Convention’, adopted by the Conference of the Parties to the Convention of Biological Diversity at its Second meeting, Jakarta, 6–17 November 1995, UNEP/CBD/COP/2/19, and Decision V/6, 2000, cit..
- ⁶ See in general Food and Agriculture Organisation (FAO), *Fisheries Management. The Ecosystem Approach to Fisheries, FAO Technical Guidelines for Responsible Fisheries* (No. 4, Suppl. 2. Food and Agriculture Organizations of the United Nations 2003).
- ⁷ Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), 1329 UNTS 48; 19 ILM 841(1980).

adaptation.⁸ There exist arguably many articulations of the ecosystem approach, so that finding a meaningful common denominator can be difficult. However, what is most important, particularly for our purposes here, is not necessarily to define precisely what the ecosystem approach is, but rather to identify the conceptual and discursive space it occupies, and to appreciate what it promises to be, regardless of the competing narratives and genealogical complexities involved in the construction, deconstruction and reconstruction of the concept.⁹ In this respect, the contours of the ecosystem approach can be sketched with the help of four ideas: integration; integrity; information; iteration.

Responding to hopes of arresting and reversing the increasingly negative trends of resource depletion and ecological degradation affecting most ecosystems in the world, the ecosystem approach promises to ‘protect the environment, maintain healthy ecosystems, preserve biological diversity, and achieve sustainable development’¹⁰ - all at once. One of the key ideas of the ecosystem approach then (some argue it is the central one),¹¹ is integration. Moreover, in a second register of this integrative orientation, the ecosystem approach ‘attempts to facilitate the removal of artificial barriers between economics, social science and ecology, and places humans firmly within the ecosystem model’.¹² The ecosystem approach thus challenges the traditionally fragmentary approach of environmental law, and promotes the integration of laws that regulate living resources with laws that regulate pollution and degradation of the physical environment. Moreover, it promotes the integration, within a transversal ecosystem perspective, of fragmented jurisdictional and political boundaries, and of the social and ecological aspects of environmental governance.¹³

The ecosystem approach, some argue moreover, is the clearest evidence of a shift from an outdated anthropocentric legal framework, to an ecocentric one, attuned to ecology as both a science and as a new philosophical paradigm.¹⁴ This is particularly evident in relation to a second key element of the ecosystem approach, ecological integrity. This in turn entails a focus on the preservation of the structure and function of ecosystems, and on the maintenance of

⁸ The ecosystem-based adaptation programme to climate change is being promoted by the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) and the International Union for Conservation of Nature (IUCN) <<http://ebaflagship.org/>> (Accessed 4 August 2014).

⁹ For a discussion of these complexities see V. De Lucia, “Competing Narratives and Complex Genealogies. The Ecosystem Approach in International Environmental Law”, 24:2, 2015 *Journal of Environmental Law*, 91

¹⁰ R. Lackey, ‘Seven Pillars of Ecosystem Management’, *Landscape and Urban Planning*, 40, 1998a, 21

¹¹ Expert Meeting, 2003, op. cit., para 8

¹² Expert Meeting, 2003, op. cit., para 8

¹³ See e.g. Malawi Principles

¹⁴ R. Brooks, R. Jones and R. Virginia, *Law and Ecology: The Rise of the Ecosystem Regime*, Aldershot: Ashgate, 2002.

ecosystem health.¹⁵ Additionally, the ecosystem approach hinges on deep and comprehensive knowledge of the relevant ecosystem processes. This type of knowledge requirements however, make it also difficult to implement the ecosystem approach, because of the knowledge gaps, the scientific uncertainties and the complexities of multi-scalar ecosystem processes. In this respect, and this is the fourth key idea, given precisely the informational complexities and the inevitable uncertainties and gaps, the ecosystem approach must rely on iterative management models, that incorporate new knowledge adaptively as it becomes available.

To summarize, the ecosystem approach promises to translate and to operationalize a number of key ontological and epistemological insights of ecology into law. It is precisely this promise that has facilitated its relatively quick and widespread adoption in international environmental law and policy. This despite the fact that in some contexts, such as international fisheries management, the ecosystem approach takes a specific inflection that rather remains in continuity with previous models of environmental governance (such as target resource oriented management). Indeed, FAO, who has greatly contributed to the development of the ecosystem approach to fisheries (EAF), maintains that most of the principles of EAF are already contained in the Code of Conduct for Responsible Fisheries, and that EAF is avowedly anthropocentric.¹⁶

3. Ecosystem Services

First discussed in the late 1970's,¹⁷ the idea of the valuation of the services nature provides to human beings was refined in the late 1990's within the context of ecological economics.¹⁸ At the most elementary level, ecosystem services (which expression, in the framework of MA, includes ecosystem goods)¹⁹ are the benefits people obtain from ecosystems.²⁰ This elementary

¹⁵ However, for a problematization of both ecosystem integrity and ecosystem health see, e.g. De Lucia 2015, op. cit. and more comprehensively R. Lackey, 'Appropriate Use of Ecosystem Health and Normative Science in Ecological Policy' in D. Rapport *et al.*, *Managing for Healthy Ecosystems*, Boca Raton, FL: CRC Press, 2002

¹⁶ FAO, 2003, op. cit., esp. pp. 11ff. See also S. Garcia et al., *The Ecosystem Approach to Fisheries: Issues, Terminologies, Principles, Institutional Foundations, Implementation and Outlook*, FAO Fisheries Technical Paper 443, Rome: Food and Agriculture Organization of the United Nations, 2003, esp. p. 6

¹⁷ Probably the first exploration of the idea of measuring the monetary value of ecosystem services was an article appeared in the journal *Science* in 1977, W. Westman, 'How much are nature's services worth.', *Science*, 197:4307, 1977, 960, as mentioned in M. Ntona, and E. Morgera, 'Connecting the Dots between SDG 14 and the Other SDGs: The Value Added of the Ecosystem Services Concept and the Integration of Equity Through Marine Spatial Planning', 2017, Forthcoming, *Marine Policy (Special Issue on 'SDG Synergies for Sustainable Fisheries and Poverty Alleviation')*, available at SSRN: <https://ssrn.com/abstract=2931829> or <http://dx.doi.org/10.2139/ssrn.2931829>, p. 7. For more on the history of ecosystem services see e.g. J. Ruhl, and J. Salzman, 'The Law and Policy Beginnings of Ecosystem Services', *Journal of Land Use & Environmental Law* 22:2, 2007, 157 as well as T. Kaime, 'Symposium Foreword: Framing the Law and Policy for Ecosystem Services', *Transnational Environmental Law*, 2:2, 2013, 211

¹⁸ See in particular R. Costanza *et al.*, 'The Value of the World's Ecosystem Services and Natural Capital', *Nature*, 1997, 387

¹⁹ *Ibid.*

²⁰ UNEP, 2003, op. cit., p. 53; UNEP, 2005, op. cit., p. 26.

description explicitly takes on board earlier conceptual frameworks developed within the context of that branch of economics called *ecological economics*.²¹ Ecological economics aims at explicitly inscribing the economy within the wider ecology in an attempt at ‘greening’ the dominant neoclassical economic orthodoxy, which remains insensitive to the role of ecology (what traditionally would be factored in as the ‘land’ production factor, but has been thinned out of economic theory); to the limits of resource availability; and to environmental costs determined by production processes, costs that consequently are not borne by the producer, but are imposed on society at large.²²

A significant focus of ecological economics is in this respect that of finding ways to value nature and thus make it *visible* to the market. ‘Ecosystem goods (such as food) and services (such as waste assimilation)’ are in this perspective those ‘benefits human populations derive, directly or indirectly, from ecosystem functions’.²³ Robert Costanza, one of the pioneers of ecological economics, is the main author of a seminal study that attempted to value the global flow of ecosystem goods and services.²⁴ Such services, the study argued, ‘represent part of the total economic value of the planet’.²⁵ The study put the economic value of ecosystem services at US\$16-54 trillion (1012) per year. By comparison, the global gross national product, at the time of the study, was US\$18 trillion. However, the value of ecosystem services remains invisible and largely outside the market. Gretchen Daily, another prominent ecological economist, described ecosystem services as those ‘conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life. They maintain biodiversity and the production of ecosystem goods, such as seafood, forage timber,

²¹ There are various currents within ecological economics, some more radical and oriented towards structural modifications of the economic system (see e.g. H. Daly, *Economics, Ecology, Ethics: Essays Toward a Steady-State Economy*, W.H. Freeman and Company, 1980 and J. Martinez-Alier, *Ecological Economics: Energy, Environment and Society*, Oxford: Basil Blackwell, 1990), rather than towards what can be called ecosystem services and ‘natural capitalism’ (see e.g. G. Daily, ‘Introduction: What are ecosystem services?’ in G. Daily (ed.) *Nature’s Services: Societal Dependence on Natural Ecosystems*, Washington, D.C.: Island Press, 1997 and P. Hawken, A. Lovins and H. Lovins, *Natural Capitalism: Creating the Next Industrial Revolution*, Back Bay Books; 1st edition, 2008). I will mostly refer to the more mainstream current. For the trajectory followed by ecological economics from its beginnings in the early 1980’s to its ‘fall’ once absorbed back into the mainstream economic framework of utility theory, M. Sagoff, ‘The Rise and Fall of Ecological Economics A Cautionary Tale’, *Breakthrough Journal*, 2012, available HTTP: < <http://thebreakthrough.org/index.php/journal/past-issues/issue-2/the-rise-and-fall-of-ecological-economics>> (Accessed 19 October 2015)

²² See e. g. Daly, 1980, op. cit.

²³ Costanza *et al.*, 1997, op. cit., 253.

²⁴ *Ibid.*

²⁵ *Ibid.*, p. 253.

biomass fuels, natural fiber, and many pharmaceuticals, industrial products, and their precursors'.²⁶

The conceptual framework of ecosystem services was mainstreamed more recently, in two subsequent reports published in 2003²⁷ and 2005²⁸ under the auspices of UNEP, and forming the Millennium Ecosystem Assessment (MA) series. Before exploring in some detail the concept of ecosystem services, it is important to show the overall framing of the conceptual framework, as developed in the MA. While it is 'recognized' in the preamble of the CBD that biodiversity and ecosystems (included indeed under the definition of biodiversity) 'have intrinsic value', the conceptual framework presented in the MA 'places [firmly, I would add] human well-being as the central focus for assessment'.²⁹ Indeed, both reports are titled 'Ecosystems and Human Well-being', thus immediately establishing the central functional linkage between the framework of ecosystem services and the crucial concern with the well-being of humans.

The MA series takes as its starting point precisely the ecological economics literature,³⁰ and emphasizes the fact that '[h]uman demands for ecosystem services are growing rapidly' and that, simultaneously, 'humans are altering the capability of ecosystems to continue to provide many of these services'. Hence, the solution lies in ensuring the '[m]anagement of this relationship', so as to 'enhance the contribution of ecosystems to human well-being without affecting their long-term capacity to provide services'.³¹ Yet while ecosystem services underlie and sustain a significant part of the global economy,³² their importance, value and 'pivotal role', suggests the MA, is under-recognized (at best).³³ This, according to the MA, is a crucial element in the continuing deterioration of the capacity of ecosystems to deliver their services.

In the MA framework, ecosystem services are organized into four categories: provisioning services; regulating services; cultural services; and supporting services. These categories however, overlap significantly, and, as the MA underlines 'the purpose is not to establish a

²⁶ Daily, 1997, op. cit., p. 3.

²⁷ UNEP, *Ecosystems and Human Well-being. A Framework for Assessment*, Washington, D.C.: Island Press, 2003.

²⁸ UNEP, *Ecosystems and Human Well-being. Current State and Trends*, Volume 1, Washington, D.C.: Island Press, 2005.

²⁹ Ibid., p. 28.

³⁰ This is made explicit in UNEP, 2003, op. cit., pp. 55–6.

³¹ Ibid., p. 27.

³² 'The production and manufacture of industrial wood products in the early 1990s contributed on the order of \$400 billion to the global economy (Matthews et al. 2000). The world's fisheries contributed \$55 billion in export value in 2000 (FAO 2000)', UNEP, 2003, op. cit, p. 27.

³³ Ibid., p. 28.

taxonomy but rather to ensure that the analysis addresses the entire range of services'.³⁴ *Provisioning services* supply goods of *direct* benefit to people. These goods are usually already commodities with a clear monetary value (timber, medicinal plants, wild fish etc.). *Regulating services* are all those regulatory functions ecosystems perform (from climate regulation to water and air filtering, from protection against landslides to pollution removal). These functions, while greatly beneficial, generally lack a monetary value in conventional markets. *Cultural services* often do not provide direct material benefits and are not exchanged in formal markets, and need to be estimated through so-called contingent valuation methods; in other words, their value can be measured only indirectly (rather than through direct market transactions) through willingness to pay evaluations.³⁵ These services include – though the term ‘service’ is commonplace in the general discourse of nature, here it is arguably quite strident – spiritual and sacred places, landscapes of aesthetic value, and tourist attractions. Finally, there are *supporting services*, which operate ‘underneath’ all other ecosystem services and enable them to deliver their direct or indirect benefits to human beings. These include all biogeochemical processes supporting life, plant growth, soil formation etc.³⁶

Despite the fact that there still remain a large space of inconsistencies and uncertainties as to the appropriate delineation of the concept of ecosystem services,³⁷ the primary orientation is arguably linked to benefits humans can extract from nature, regardless of the typology of benefits.³⁸ The concept of ecosystem services, in other words, while it can be considered an ‘organising principle to consider multi-scale and cross-sectoral synergies and tradeoffs’,³⁹ remains primarily a tool aimed at a particular calculating, disaggregating and abstracting perspective, where natural ecosystems are deconstructed into a set of properties or streams of services that can be separately addressed, organized and reorganized in order to optimize and

³⁴ UNEP, 2003, op. cit., p. 38.

³⁵ See e.g. R. Costanza *et al.*, *An Introduction to Ecological Economics*, (e-book) 2010, available [HTTP: http://www.eoearth.org/view/article/150045](http://www.eoearth.org/view/article/150045) (Accessed 19 October 2015), esp. chapter 3

³⁶ The description of these ecosystem services is derived from UNEP, 2003, op. cit.

³⁷ Ntona and Morgera, 2017, op. cit., p. 9. For an overview of the criticisms and contestations over the concept see M. Schröter *et al.* ‘Ecosystem Services as a Contested Concept: a Synthesis of Critique and Counter-Arguments’, *Conservation Letters*, 7:6, 2014, 514.

³⁸ A full assessment of the concept of ecosystem services is outside the scope of this paper. Some commentators are hopeful in relation to their potential role (e.g. Ntona and Morgera, 2017, op. cit.), while others are decisively critical (e.g. S. Sullivan, ‘Banking Nature? The Spectacular Financialisation of Environmental Conservation’ *Antipode*, 45:1, 2013, 198 and S. Sullivan, ‘Green Capitalism, and the Cultural Poverty of Constructing Nature as Service Provider’, *Radical Anthropology*, 3, 2009, 18)

³⁹ M. van den Belt *et al.*. ‘Scientific Understanding of Ecosystem Services’, in United Nations First Global Integrated Marine Assessment (First World Ocean Assessment) 2016, p. 6

enhance their productivity and foster the positive streams (rather than the negative ones, also called ecosystem disservices).⁴⁰

4. The relationship between Ecosystem Services and the Ecosystem Approach in International Legal Discourse

4.1. Introduction

When interrogating the relationship between the ecosystem approach and ecosystem services, a key question is whether the two frameworks embody two different paradigms. While, as already mentioned, the ecosystem approach is caught in a field of competing narratives, the horizon of its promises (though not necessarily the experiences of its implementation) remains predominantly ecocentric.⁴¹ By contrast the framework of ecosystem services is arguably anthropocentric. This juxtaposition has been in fact outlined especially in relation to the different goals of the two frameworks, and despite the same conceptual origin in ecology and ecosystem theory.⁴² Indeed, some consider that the two concepts represent two distinct paradigms. There is in this respect a growing literature which separately discusses ecosystem services as anthropocentric,⁴³ and the ecosystem approach as ecocentric.⁴⁴ Yet the articulations of the two frameworks in international law have increasingly converged towards a common conceptual horizon and a shared goal orientation. In the next sections I will offer an illustrative review of a variety of articulations of the relationship between the ecosystem approach and ecosystem services in scholarly discourse (section 4.2), and then within the context of the CBD (section 4.3) and within the international marine context (section 4.4.)

4.2. Scholarly Discourse

Scholarly attention to the relationship between the ecosystem approach and the framework of ecosystem services is arguably not abundant. However, some scholars have considered the interactions between the two from varying perspectives. Morgera and Tsioumani, for example, suggest that '[a]lthough the concept of ecosystem services as developed within the CBD framework has attempted to reconcile a rights-based and an economic approach to biodiversity

⁴⁰ On ecosystem disservices see e.g. R. Dunn, 'Global Mapping of Ecosystem Disservices: The Unspoken Reality that Nature Sometimes Kills us', *Biotropica*, 42:5, 2010, 555

⁴¹ De Lucia, 2016, op. cit.

⁴² Thus for example Ruhl 2013, op. cit.

⁴³ E.g. Ruhl, 2013 op. cit., Sullivan 2013, op. cit.

⁴⁴ See e.g. R. Grumbine, 'Reflections on "What Is Ecosystem Management?"', *Conservation Biology*, 11:1, 1997, 41, Ruhl, 2013, op. cit. For an overview of different positions and articulations of the ecosystem approach see De Lucia, 2015, op. cit.

policy, tensions persist'.⁴⁵ Morgera and Tsioumani note that the concept of ecosystem services has increased the focus on the ecosystem approach, and its role in relation to strategies of poverty eradication.⁴⁶ However, the narrative of ecosystem services emphasizes economic valuation 'as a key instrument for mainstreaming biodiversity [...] and for tackling effectively all the drivers of biodiversity loss'.⁴⁷ Yet this focus on the economics of biodiversity conservation is understood as a key move. The Global Biodiversity Outlook 3 identifies some of the central causes for the failure to reach biodiversity targets in the 'insufficient integration of biodiversity issues into broader policies, strategies and programmes'.⁴⁸ In this respect, '[t]he real benefits of biodiversity, and the costs of its loss, need to be reflected within economic systems and markets'.⁴⁹ This shows clear conceptual and operational linkages with MA, which seeks to mainstream the ecosystem services framework and the natural valuation theme. These linkages are in fact embraced in full by some commentators, who understand the ecosystem approach and ecosystem services as "associated" concepts, particularly within the context of the CBD.⁵⁰

In an article discussing the ecosystem approach in an international watercourses law context, McIntyre suggests that the general adoption of a 'meaningful ecosystem approach' would have 'truly far-reaching' implications.⁵¹ He also acknowledges that the 'parameters and practical implications of a meaningful 'ecosystems approach' to the protection of [international] water resources are only now becoming clearer'. However, he observes, 'the 2005 Millennium Ecosystems Assessment now provides a detailed elaboration of the concept of 'ecosystem services''.⁵² He notes that the concept of ecosystem services is '[c]losely linked to the continuing evolution of the ecosystems approach',⁵³ a notation which resonates with the official position of the CBD.⁵⁴ Moreover, while discussing the technical guidance issued under the auspices of the UNECE Water Convention, McIntyre mentions *both* the 1993 Guidelines on

⁴⁵ Morgera and Tsioumani, 2011, op. cit., p. 13.

⁴⁶ See e. g. Decision X/4 on 'The Third Edition of the Global Biodiversity Outlook: Implications for the Future Implementation of the Convention', UNEP/CBD/COP/10/27, and especially para 5(d) and 5(f).

⁴⁷ Morgera and Tsioumani, 2011, op. cit., p. 13.

⁴⁸ Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 3*, Montréal: Secretariat of the Convention on Biological Diversity, 2010, p. 9.

⁴⁹ *Ibid.*, p. 12.

⁵⁰ Thus for example S, Raum, 'The Ecosystem Approach, Ecosystem Services and Established Forestry Policy Approaches in the United Kingdom', *Land Use Policy*, 64, 2017, 282, p. 282

⁵¹ McIntyre, 2014, op. cit., p. 88

⁵² *Ibid.*, p. 88.

⁵³ *Ibid.*, p. 92.

⁵⁴ See e.g. Decision VII/11, 2004, cit., para 6, where the COP 'Notes the relevance of the conceptual framework of the Millennium Ecosystem Assessment in supporting the implementation of the ecosystem approach'.

the ‘ecosystem approach’ in Water Management *and* the 2007 Recommendations on Payments for Ecosystems Services in Integrated Water Resources Management.⁵⁵ McIntyre⁵⁶ seem to imply that the two frameworks are mutually supportive. This further suggests that the two conceptual frameworks of ecosystem approach and ecosystem services, unified by the terminological commonality, are synergic.

John Ruhl has also recently offered an assessment of the relationship between the ecosystem approach and ecosystem services. Ruhl considers that,

[e]cosystem management and ecosystem services management share many methodological traits. Both take a multiscalar, cross-boundary perspective. Both will demand robust data, performance monitoring, and adaptive decision-making capacity. Both depend on managing ecosystem integrity to sustain their goals’.⁵⁷

However, Ruhl underlines that it is at the level of *goals* that the two frameworks part ways, and that tensions emerge, hence taking a more critical position. Ecosystem management in fact takes, according to Ruhl, a ‘biocentric [...] perspective’.⁵⁸ Ecosystem services on the other hand take a decisive anthropocentric perspective.⁵⁹ Indeed, part of the initial and growing interest in ecosystem services is according to some commentators linked to the ‘search for new revenue streams for landowners to support sustainable practices’.⁶⁰

Unlike McIntyre, and more clearly than Morgera and Tsioumani, Ruhl thus emphasizes the different narratives within which the ecosystem approach and ecosystem services operate. Yet Ruhl’s analysis is limited by a lack of discussion of the multiple articulations of the ecosystem approach, which may align with both anthropocentric and ecocentric approaches to environmental law and governance, as I suggested elsewhere.⁶¹ Moreover, this binary frame of analysis, we will see in the next section, is unable to sufficiently and satisfactorily capture the

⁵⁵ McIntyre, 2014, op. cit., p. 89.

⁵⁶ But also others, see e.g. S. Brels, D. Coates and F. Loures, *Transboundary water resources management: The Role of International Watercourse Agreements in Implementation of the CBD*, CBD Technical Series No. 40, Montréal: Secretariat of the Convention on Biological Diversity, 2008.

⁵⁷ Ruhl, 2013, op. cit., p. 116.

⁵⁸ Ibid., p. 116. Here the reader should remember that Ruhl uses Grumbine’s concept of the ecosystem approach (and in this respect the term biocentric is equivalent to ecocentric) as the reference point against which he carries out his analysis, itself only one, and not the most widely accepted, articulation of the ecosystem approach), see in this respect De Lucia, 2015

⁵⁹ Ruhl, 2013, op. cit., p. 116.

⁶⁰ L. Scarlett and J. Boyd, ‘Landscape-wide Conservation and Ecosystem Services. Leveraging Federal Policies’ in K. Robbins (ed.) *The Laws of Nature: Reflections on the Evolution of Ecosystem Management Law and Policy*, Akron, US: University of Akron Press, 2013, p. 218.

⁶¹ De Lucia, 2015, op. cit.

complexities and ambiguities inherent in both the ecosystem approach and in the relationship between the ecosystem approach and ecosystem services.

4.2. Biodiversity Regime

The biodiversity regime is comprised of a number of conventions and other international agreements. While the most important is arguably the 1992 Convention on Biological Diversity (CBD),⁶² together with its two Protocols,⁶³ the broader regime includes, at a minimum, the Convention on Conservation of Migratory Species of Wild Animals (CMS),⁶⁴ the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention),⁶⁵ the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),⁶⁶ the International Treaty on Plant Genetic Resources for Food and Agriculture (Plant Treaty),⁶⁷ and the Convention Concerning the Protection of the World Cultural and Natural Heritage.⁶⁸

Because the ecosystem approach is most comprehensively articulated in the CBD (and in no other biodiversity-related Convention),⁶⁹ and because within the context of the CBD the framework of ecosystem services is also increasingly central, as well as for reasons of space and focus, this Section will *primarily* discuss the CBD (and refer to other biodiversity-related international regimes only if and as relevant).

In 1991 the Intergovernmental Negotiating Committee that was to lead to the adoption of the CBD, presented in its report a draft article 9(b)(v) that, under the rubric of research and training, considered that parties should ‘promote and encourage’ the ‘[e]stimation of economic and social values of biological resources’. This makes very visible that the valuation of nature was,

⁶² Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, 1760 UNTS 79; 31 ILM 818 (1992), (hereinafter CBD).

⁶³ The Cartagena Protocol on Biosafety to the Convention on Biological Diversity, 2226 UNTS 208; 39 ILM 1027 (2000) and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, 31 ILM 818 (1992).

⁶⁴ Convention on Conservation of Migratory Species of Wild Animals, 1651 UNTS 333

⁶⁵ Convention on Wetlands of International Importance especially as Waterfowl Habitat, 996 UNTS 245

⁶⁶ Convention on International Trade in Endangered Species of Wild Fauna and Flora (hereinafter CITES), 993 UNTS 243

⁶⁷ International Treaty on Plant Genetic Resources for Food and Agriculture, 2400 UNTS 303

⁶⁸ Convention Concerning the Protection of the World Cultural and Natural Heritage, 1037 UNTS 151

⁶⁹ The Ramsar Convention however is said to “embrace” an ecosystem approach to wetland conservation, Jing, 2014, *op. cit.*, p. 9. Moreover, the doctrine of wise use, central to the Ramsar Convention, has been redefined in order to accommodate the new language of conservation as developed particularly in the CBD, and was consequently deemed to be fully “congruent” with the ecosystem approach, Ramsar Secretariat, 2010, *op. cit.*, p. 28. This congruence is transformed into identification by some literature to the extent that wise use is considered to be *one* form or model of an ensemble of ecosystem approaches. In the words of one study, “[w]ise use is the longest-established example among intergovernmental processes of the implementation of what have become more recently to be known as ecosystem approaches for the conservation and sustainable development of natural resources”, Finlayson *et al.*, 2011, *op. cit.*, p. 177 (but the authors also speak of congruence, p. 191)

from the very beginning, part of the conceptual approach of the CBD,⁷⁰ notwithstanding other narratives that found a minority view within the negotiations.

After the adoption and entry into force of the CBD, the Conference of the Parties (COP) to the CBD has adopted a number of decisions relevant for understanding the relation between the ecosystem approach and the framework of ecosystem services. The potential implications of the MA in relation to the conservation and sustainable use of biodiversity are also explicitly explored within the context of the CBD. Decision VIII/9 for example, entitled ‘Implications of the findings of the Millennium Ecosystem Assessment’, requested SBSTTA as well as invited Parties, ‘to make use as appropriate’ of the conceptual framework and methodologies of MA, ‘in further developing work on [...] the ecosystem approach’.⁷¹ The 2003 MA however, had already clearly underlined the linkage of the framework of ecosystem services with the CBD’s ecosystem approach in very explicit terms: ‘the conceptual framework of the MA provides a useful assessment structure that can contribute to the implementation of the CBD’s ecosystem approach’.⁷²

The Malawi Principles on the ecosystem approach, and more precisely Principle 5, also bring the two perspectives together, and state that the ‘conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach’.⁷³ The series of Pathfinders workshops, aimed at taking stock of the implementation of the ecosystem approach to date and to refine its principles and operational guidance, further considered how a central impediment to the full implementation of the ecosystem approach is the ‘[l]ack of scientific assessment and quantification of the services provided by most ecosystems’, and the ‘absence of generally agreed mechanisms and procedures for the valuation of ecosystem services’.⁷⁴ After the Pathfinders workshop series was completed, the refinement of the principles of the ecosystem approach led to a restructuring of the principles under different group headings and thematic focuses. One such group heading became the ‘provision of environmental goods and services’.⁷⁵ Finally, COP

⁷⁰ Report of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity on the Work of its Third Session/Fifth Negotiating Session (UNEP/Bio.Div/N5-INC.3/4, 4 December 1991).

⁷¹ Decision VIII/9 on ‘Implications of the findings of the Millennium Ecosystem Assessment’, in the Report of the Eighth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, 20–31 March 2006 - Curitiba, Brazil, UNEP/CBD/COP/8/31 (UNEP/CBD/COP/DEC/VIII/9)

⁷² *Ibid.*, p. 52 and p. 29.

⁷³ Decision V/6, ‘Ecosystem Approach’, in the Report of the Fifth Meeting of the Conference of the Parties to the Conference of the Parties to the Convention of Biological Diversity, 15–26 May 2000, Nairobi, UNEP/COP/5/23 (UNEP/CBD/COP/DEC/V/6), Section B, Malawi Principles, Principle 5

⁷⁴ Smith and Maltby, 2003, *op. cit.*, p. 26

⁷⁵ Decision VII/11, 2004

decision X/29, devoted to marine and coastal biodiversity, urged in many respects Parties to protect ecosystem services through ecosystem approaches.⁷⁶

One further example, taken from the broader biodiversity context, and more specifically from the Ramsar Convention, highlights the increasing entanglement of ecosystem services and the ecosystem approach within the broader biodiversity legal field. The Ramsar Convention has in fact updated its vocabulary (and its key concept of wise use) in relation to the emerging narrative of ecosystem services, integrating the ecosystem approach and ecosystem services in a unitary framework where wise use must be understood within the context of sustainable development.⁷⁷ Finlayson *et al.* observe in this respect how, in the Ramsar Convention, discourses and narratives are intertwined. The Ramsar Convention has in fact since the beginning “fully recognised and addressed the importance of wetlands to people and biodiversity and that maintaining the ecological character of wetlands through an ecosystem approach is critical to the continued provision of ecosystem services”.⁷⁸

4.3. International Marine Context

Within a more specifically marine context, the proximity of the two conceptual frameworks is equally evident. The ecosystem approach has had a specific, peculiar development within the marine and, especially, fisheries field. A separate discussion can be then useful, especially insofar as it will show how the relation between the ecosystem approach and ecosystem services is, by and large, articulated along the same lines. The review will be, again, illustrative, rather than comprehensive, but it will be arguably sufficient for the purposes of this article. We can start with the ongoing consultative process organized under the aegis of the United Nations Division for Ocean Affairs and the Law of the Sea, the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS). A report adopted at its seventh session in 2006 (ICP-7),⁷⁹ as well as the activities preceding and leading up to it, was dedicated to the ecosystem approaches and oceans. ICP-7 offered a list of key elements of the ecosystem approach, agreed by consensus. The list is rather comprehensive, and is comprised of two sets of elements. The first set is comprised of those elements that should normally be

⁷⁶ COP Decision X/29, "Marine and Coastal Biodiversity", 29 October 2010, UNEP/CBD/COP/DEC/X/29

⁷⁷ Ramsar Secretariat, 2010, *op. cit.*, p. 27-8 and Resolution IX/1, Annex A, 'A Conceptual Framework for the wise use of wetlands and the maintenance of their ecological character', adopted at 9th Meeting of the Conference of the Parties to the Convention on Wetlands, Kampala, Uganda, 8-15 November 2005, throughout and para 24

⁷⁸ Finlayson *et al.*, 2011, *op. cit.*, p. 193.

⁷⁹ United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its Seventh Meeting, 17 July 2006, UN Doc A/61/156 (hereinafter ICP-7)

present for a management framework to be following an ecosystem approach. There are fourteen elements in this set, including, inter alia, the ‘conservation of ecosystem structures and their functioning and key processes *in order* to maintain ecosystem goods and services’.⁸⁰ This, indeed is a key element, and is in fact listed first.⁸¹

The OSPAR Commission, which has carried out significant and important work in relation to the ecosystem approach in a marine context, similarly links intimately the ecosystem approach and ecosystem services. OSPAR defines the ecosystem approach “a comprehensive integrated management of human activities based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health of the marine ecosystems, thereby achieving *sustainable use of ecosystem goods and services* and maintenance of ecosystem integrity”⁸² (a definition then adopted by ICES, a key scientific player in the development of the ecosystem approach in a marine context).⁸³ OSPAR, moreover, elsewhere considers the “the essence” of the ecosystem approach to be “to allow sustainable exploitation of natural resources while maintaining the quality, structure and functioning of marine ecosystems”.⁸⁴

Within the context of the Food and Agriculture Organization of the UN (FAO), an important player in the development of the ecosystem approach in a fisheries context, we can find the following definition: “the purpose of an ecosystem approach to fisheries is to plan, develop and manage fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems”.⁸⁵

The European Union, which has deployed the concept of the ecosystem approach in all of its recent marine policy documents and relevant legislation, has adopted FAO’s definition in relation to its Common Fisheries Policy, with the emphasis on the crucial linkage between the

⁸⁰ ICP-7, 2006, op. cit., para 6(a), emphasis mine.

⁸¹ Ibid.

⁸² OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, Meeting of the Biodiversity Committee (Bdc), Dublin: 20-24 January 2003, Summary Record, BDC 03/10/1-E, Annex 13, para 6, emphasis mine. See also Statement on the Ecosystem Approach to the Management of Human Activities, ‘Towards an Ecosystem Approach to the Management of Human Activities’, First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions (Jmm) Bremen: 25–26 June 2003, Agenda item 6, ANNEX 5 (Ref. §6.1), para 5

⁸³ International Council for the Exploration of the Sea (ICES), *Guidance on the Application of the Ecosystem Approach to Management of Human Activities in the European Marine Environment*, ICES Cooperative Research Report no. 273, 2005, p. 4, para 4(1)

⁸⁴ OSPAR Commission, Quality Status Report 2010, OSPAR, 2010 at 9

⁸⁵ FAO, *Fisheries Management. The Ecosystem Approach to Fisheries*, FAO Technical Guidelines for Responsible Fisheries, No 4, Suppl. 2., 2003, p. 14

ecosystem approach and the goods and services from living aquatic resources that the ecosystem approach should help secure.⁸⁶ Similarly, the Marine Strategy Framework Directive, which sets the general legal framework for all EU marine waters, with particular focus on the protection of marine biodiversity, underlines the same linkage between the ecosystem approach and the provision of “marine goods and services”.⁸⁷

5. Synergic Concepts

The preceding review has shown the increasing conceptual and operative proximity between the ecosystem approach and the framework of ecosystem services. Such proximity is perhaps most clearly and immediately visible within the context of the CBD, but it is evident throughout the range of interactions – conceptual and institutional - between the two concepts that we have reviewed. International legal discourse – including regimes and institutions *as well as* scholarly literature – seem to underline in fact how the framework of ecosystem services has a key role to play for the further development and the functional orientation of the ecosystem approach. By converse, the ecosystem approach appears to be increasingly framed as a key strategy for maintaining a stable provision of ecosystem goods and services and, ultimately, for ensuring human well-being.

From the perspective of the first ‘direction’ of the relation, the framework of ecosystem services serves to facilitate the implementation of the ecosystem approach, to provide knowledge and a rational basis for management decisions, as underlined, for example, by McIntyre, as we have seen in the preceding section. This particular inflection of the relation was, however, already recognized in 1999 in a speech of then Norwegian Minister of International Development and Human Rights. When summarizing the Norway/UN Conference on the Ecosystem Approach for Sustainable Use of Biological Diversity, the Minister observed that ‘[t]o make rational choices, we need to know both which ecosystem goods and services are provided by the environment and what those services are worth to us’.⁸⁸

We have seen also how within both the context of the MA and of the CBD in general, the framework of ecosystem services is consistently understood to function as a crucial enabler for

⁸⁶ EU Commission Communication, *The Role of the CFP in Implementing an Ecosystem Approach to Marine Management*, Brussels, 11.4.2008 COM(2008)187 final, p. 3

⁸⁷ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive), OJ L164/19 25.6.2008, article 1(3)

⁸⁸ Minister of International Development and Human Rights Hilde F. Johnson, Norway/UN Conference on the Ecosystem Approach for Sustainable Use of Biological Diversity Trondheim, 6–10 September 1999, available at HTTP < https://www.regjeringen.no/nb/aktuelt/norway-un_conference_on_the_ecosystem/id263361/ >.

the development of the ecosystem approach. The conceptual framework of the MA provides indeed a useful assessment structure that can contribute to the implementation of the CBD's ecosystem approach.⁸⁹ The enabling role of ecosystem services is also increasingly facilitated and operationalized through initiatives such as The Economics of Ecosystems and Biodiversity (TEEB)⁹⁰ and science-policy interfaces bodies such as the Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES).⁹¹

A second perspective on the relationship between two conceptual frameworks however, goes the other 'direction', albeit the two directions are indeed mutually supportive. The ecosystem approach, from this second perspective, is a key tool to ensure the sustainable provisions of ecosystem goods and services, and this functions as a critical strategy for 'the continued provision of ecosystem services'.⁹² Malawi principle 5 is in this respect an important key for the interpretation of the relationship between the ecosystem approach and ecosystem services. To recall, Principle 5 states that 'conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach'. It is evident here that the ecological framework informing the ecosystem approach is to be put to use in order to ensure, as a priority, the maintenance of ecosystem services, which are increasingly framed as the key metric for the measurement of the usefulness of biodiversity, and the central framework for the achievement of human well-being. This orientation becomes even clearer with the proposal for refinement of the Malawi principles and for the further elaboration of ecosystem approach,⁹³ which, as we have seen, make the 'provision of environmental goods and services' one of the key headings in the re-articulation of the ecosystem approach.⁹⁴

An important element to underline is that ecosystem services increasingly provide the overarching narrative within which the ecosystem approach is articulated. In this respect, the risk is that the promises of the ecosystem approach become frustrated by being folded within a

⁸⁹ UNEP, 2003, op. cit.

⁹⁰ TEEB is a process and a programme that was initiated in 2007 during the G8 + 5 summit held in Potsdam, and in particular by the Environment Ministers Meeting. Its aim is the valuation of nature, so as to enable a more effective and more rational conservation policy. See The Economics of Ecosystems & Biodiversity <<http://www.teebweb.org>>

⁹¹ Created in 2012, Resolution 'Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services' in Report of the second session of the plenary meeting to determine modalities and institutional arrangements for an intergovernmental science-policy platform on biodiversity and ecosystem services, 18 May 2012, UNEP/IPBES.MI/2/9, Annex I

⁹² Ramsar Secretariat, 2010, p. 27-28

⁹³ Decision VII/11, 2004, cit., Annex I: 'Refinement and Elaboration of the Ecosystem Approach, Based on Assessment of Experience of Parties in Implementation'.

⁹⁴ Ibid.

decidedly market-oriented model of environmental policy. In this respect, it may be useful to refer also to Malawi Principle 4, as it allows to establish a (problematic?) link between the ecosystem approach and the mechanism of Payment for Ecosystem Services (PES). McIntyre has indeed traced the connection between the two and has noted the relevance, within the specific context of international water law, of the technical guidance issued under the auspices of the UNECE Water Convention for the development of the ecosystem approach. McIntyre indeed mentions *both* the 1993 Guidelines on the Ecosystem Approach in Water Management *and* the 2007 Recommendations on Payments for Ecosystems Services in Integrated Water Resources Management.⁹⁵ McIntyre (but also others),⁹⁶ consider the two frameworks to be mutually supportive and synergic. Others still, finally, emphasize the complementarity between the two frameworks.⁹⁷

Synergy appears then, from what we have seen thus far, to be an apt descriptor of the relation between the ecosystem approach and ecosystem services. However, I shall in the next section take the analysis a bit further, through the lens of a biopolitical theoretical framework.

6. A Biopolitical Entanglement?

In order to read this synergy between the ecosystem approach and ecosystem services with a more penetrating critical gaze, this section will attempt a biopolitical reading of the relationship. This, I claim, will allow to sharpen further the analysis. By way of the shortest of summaries,⁹⁸ biopolitics is a mode of governing nature with the objective of achieving the optimization and regularization of its bio-ecological processes.⁹⁹ Under a biopolitical regime, the environment is to be managed *simultaneously* for its instrumental value to human well-being *and* independently, with the aim of fostering and optimizing ecosystem processes. In this sense, ecosystem services and the ecosystem approach can be conceptually, politically and juridically located in the same horizon of sense, rather than being considered instances of two different paradigms. A combined reading of *both* the ecosystem approach and ecosystem services through biopolitics allows then to see how nature is no longer *simply* an object of exploitation but becomes subjected to a series of *positive* interventions, whose aim is that of maintaining its

⁹⁵ McIntyre, 2014, op. cit., p. 89.

⁹⁶ See e.g. S. Brels, D. Coates and F. Loures, *Transboundary Water Resources Management: The Role of International Watercourse Agreements in Implementation of the CBD*, CBD Technical Series No. 40, Montréal: Secretariat of the Convention on Biological Diversity, 2008.

⁹⁷ Diz, Morgera and Wilson, 2015, op. cit.; Ntona and Morgera, 2017, op. cit.

⁹⁸ For a longer exploration of biopolitics in relation to environmental law, see V. De Lucia, 'Beyond Anthropocentrism and Ecocentrism. A Biopolitical Reading of Environmental Law', *Journal of Human Rights and the Environment*, 9:1, forthcoming 2018

⁹⁹ Darier 1999; De Lucia 2017 and forthcoming JHRE

integrity, nurturing and fostering its processes, and enhancing its productive capacity. In this respect, placing ecosystem services and the ecosystem approach on opposite sides of the anthropocentric/ecocentric dividing line is not entirely satisfactory, as it misses the inevitable nuances and ambiguities that traverse contemporary environmental legal discourse, and link in multiple ways the two conceptual frameworks discussed in this article.

A biopolitical reading is also able to appreciate the key role that ecology as a science has played in the construction of a particular biopolitical regime of knowledge from which *both* – and this is an important point - the ecosystem approach and ecosystem services emerge. Indeed, both frameworks are premised on the concept of ecosystem and on an ecological view of the world where all processes, ecosystems and species are interdependent. And while the pathways they followed from their common genealogy to their entanglement are different, biopolitics allows appreciating *simultaneously* both negative and positive elements. The stream of economic benefits, ecological integrity, the rights of future generations, the function and structure of ecosystems, the conservation *and* exploitation of biological resources, societal desires: arraying these elements on different sides of a crisp line of demarcation (some ecocentric, some anthropocentric) arguably misses the ambiguities, overlaps, contradictions and complexities that traverse and shape international environmental law.¹⁰⁰ Yet the dilemma of biopolitics lies in the continuous and perhaps inevitable transformation of the positive care for nature into its subjugation. Combining ecological knowledge with legal principles and institutions, biopolitics ultimately facilitates particular forms of management and interventions that, in order to optimize and regularize natural processes, enframe nature in a grid of multiple systems of surveillance and control – including the analytical re-construction of nature as a discrete set of goods and services – that ultimately abandon the holistic vision of nature, and risk rather to contribute to its degradation. The discourse and practice of ecosystem approaches to environmental protection, and their entanglement with the framework of ecosystem services, I am suggesting, embody precisely this dilemma. This is also where the promise of the ecosystem approach is frustrated, as the discernment between useful and detrimental nature becomes a crucial, and dangerous, guiding element of environmental policy.¹⁰¹

¹⁰⁰ On these ambiguities and complexities, see De Lucia 2015, op. cit. with regards to the ecosystem approach, and more in general De Lucia forthcoming JHRE

¹⁰¹ Indeed, “not all ecosystem processes sustain and fulfill human life. Processes such as fire, drought, disease, or flood work against this goal, yet they are vital for ecosystem function, structuring landscapes, and providing vital services and regulatory functions to nonhumans. There is a danger that an economically driven focus on those ‘services’ that are valuable to humans in their nature, scope, and timing may lead to calls to ‘regulate’ ecosystem services to times and in flows that match human needs. Such regulation may be highly detrimental to long-term

7. Conclusions

This article has tried to illustrate the relationship between two increasingly important conceptual and policy tools for international environmental law and governance: the ecosystem approach and ecosystem services. This relationship is arguably underexplored in the literature, and this article has thusly tried to fill this gap from a critical legal perspective. The article has reviewed in particular the way the relationship has been articulated in the scholarly literature and within the institutional context of the biodiversity regime and of international marine governance. The two concepts emerged from the same conceptual and theoretical cradle, namely the science of ecology, and while they have followed until recently a parallel track that had in many ways put them at the two opposite of the anthropocentric/ecocentric axiological gradient, they have more recently converged towards a common policy outlook.

While there are different ways to analyse and problematize the relationship, I have chosen to follow a documentary trail. As the analysis carried out in this article has shown, the relationship between the two conceptual frameworks is one of functional and operational proximity. Their relationship, moreover, goes both ways. In fact, if on the one hand ecosystem services offer crucial knowledge for the further development and for the rational implementation of the ecosystem approach, the ecosystem approach, in turn, increasingly adopts as its goal the maintenance of a stable provision of ecosystem goods and services.

Finally, using a biopolitical register of analysis, I have tried to offer a novel and critical perspective that has shown how the relation between the ecosystem approach and ecosystem services, and especially their synergic convergence, can be understood in terms of biopolitical entanglement.

survival of the nonhuman parts of the ecosystems”, K. Redford, and W. Adams, ‘Payment for Ecosystem Services and the Challenge of Saving Nature’, *Conservation Biology*, 23:4, 2009, 785, p. 786