CHAPTER THREE

ALTERNATIVE HISTORIES AND FUTURES OF INTERNATIONAL FISHERIES LAW

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1. INTRODUCTION

What if we were to apply counterfactual thinking to the international regulation of fisheries? Would it help improve our understanding of fisheries law? Possibly. Counterfactual thinking is used to analyse historical events or the effectiveness of political regimes.[1] It is also used to show the contingency of events. The approach is sometimes used in law, where it is inherent to questions of causation.[2] In one of the few papers on counterfactuals by an international lawyer, Venzke suggests that counterfactual thinking is useful in three ways.[3] First, to help free analysis from the bias of necessity; of seeing law as it is as somehow pre-determined by historical events. Second, it allows us to explain the workings of law without recourse to abstract theories. Counterfactuals allow us think about how events might have been different with calibrated changes to real world events, thus allowing us to remain true to how law operates in practice. Third, it stimulates imaginative thinking. If law is not inevitable, but in part the result of historical contingencies, then by foregrounding these contingencies we can strengthen calls for change to address any shortcomings that are the product of those past, less relevant, contingencies.

These are important ambitions, but they must be weighed against the challenges. The principal challenge is to cope with the potential complexities of real and imagined multi-causal scenarios, and so to retain the coherence and analytical merit of any comparison between these scenarios.[4] Invariably, events are the result of complex processes and to describe the counterfactual approach as challenging is perhaps an understatement. Consider for a moment: what if the tribunal in the *Bering Fur Seals*

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1 J.D. Fearon "Counterfactuals and Hypothesis Testing in Political Science" (1991) 43 *World Politics* 169-195.

2 Having surveyed the extent to which it features explicitly in legal analysis, Mushkat argues for its use as an additional tool of empirical enquiry. R. Mushkat "Counterfactual Reasoning: An Effective Component of the International Law Methodological Armor?" (2017) 18 *German Law Journal* 59-98.

3 I. Venzke "What If? Counterfactual (Hi)stories of International Law" *Amsterdam Law School Research Paper* No. 2016-66; available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2881226. See further K. Raustiala "Compliance & Effectiveness in Regulatory Cooperation" (2000) 32 *Case Western Reserve Journal of International Law* 387-440.

4 M. Glennon "Remarks. Does International Law Matter?" (2004) 98 *ASIL Proceedings* 315. Also, R.B. Mitchell "Evaluating the Performance of Environmental Institutions: What to Evaluate and How to Evaluate It?" in O.R. Young, L.A. King and H. Schroeder (eds.) *Institutions and Environmental Change: Principal Findings, Applications and Research Frontiers* (MIT Press, Cambridge MA: 2008) 79-114.

case[5] had found in favour of the United States? What if the Stockholm Declaration[6] had emerged decades earlier, prompting the consolidation of international environmental law before the LOS Convention[7] had been negotiated? These are important questions because fishing is one of the main adverse effects on marine biodiversity and many lawful fishing practices are environmentally unsound. It is therefore justified to think about how differently we should conduct them.

Such creative thinking is not so far-fetched. Indeed, many aspects of fisheries management are based upon scientific models about stock conditions, and so entail some form of counterfactual thinking.[8] As anyone familiar with environmental impact assessment (EIA) knows, a key element of the EIA process is to present to a decision-maker some form of scenario analysis enabling her or him to make a decision, in part based upon a comparison of two situations: one with and one without a development. In the future, oceans governance will increasingly involve some form of impact assessment, whether through the extension of domestic EIA processes to fisheries, or through the adoption of international agreements requiring some form of EIA as part of the international regulation of fisheries.[9] Counterfactual thinking will be increasingly used in fisheries and oceans governance, so it is both instructive and enlightening to explore such thinking now.

In Section 2, I outline the relationship between international fisheries law and international environmental law so that we have a point of comparison for the counterfactual analysis. In Section 3, I set out the main approaches to counterfactual analysis. Given the novelty of a counterfactual approach, it is important to identify and assess its modes of application as far as possible. In Section 4, I provide some short case studies to show how counterfactual analysis can help evaluate international fisheries regulation. The tentative conclusions are that the systemic complexity of international fisheries and environmental law make it difficult to posit clear and instructive counterfactuals. As such we have to be very cautious about the lessons that we draw. For example, one should not assume that fisheries management would be more sensitive to environmental concerns. Whilst this is not as positive as we would like, one encouraging lesson is that it is precisely the systemic complexity that inhibits counterfactual thinking that might actually serve us well in developing a stronger environmental dimensions to fisheries management in the longer term.

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5 Award between the United States and the United Kingdom relating to the rights of jurisdiction of United States in Bering's Sea and the preservation of fur seals of 15 August 1893 (28 *Reports of International Arbitral Awards* 263).

6 Declaration of the United Nations Conference on the Human Environment of 16 June 1972 (11 ILM 1416 (1972)).

7 United Nations Convention on the Law of the Sea of 10 December 1982 (1833 UNTS 3).

8 See e.g. T.K. Davies, C.C. Mees and E.J. Milner-Gulland "Use of a counterfactual approach to evaluate the effect of area closures on fishing location in a tropical tuna fishery" (2017) 12(3) *PLoS One* e0174758. See also Chapter 2 (Cheung, Lam, Ota and Swartz) in this Volume.

9 See the development of the third implementation agreement to the LOS Convention on 'the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction' (further: BBNJ Implementation Agreement) envisaged by United Nations General Assembly (UNGA) Res. 72/249 of 24 December 2017. See also Chapter 10 (Marsden) in this Volume.

2. CONTEXT: FISHERIES AND ENVIRONMENTAL LAW

If we are to understand the lessons of history and the alternative futures, then we need a clear picture of the current position and how we arrived there. There needs to be a point of comparison for the counterfactual analysis. What follows is a schematic outline of international fisheries law, which seeks to identify some of the key institutions, processes, content and variables in fisheries law, in order to provide points of references when testing our counterfactual thinking.

International fisheries law is part of the law of the sea and a branch of international law more generally, sharing the same structural attributes of international law (i.e. actors, sources, jurisdiction, State responsibility, dispute settlement and cross-cutting institutions like the United Nations (UN)). It is a State-centric, horizontal system of law that places primacy on consent for law-making. Such features can be regarded as fundamental structural constraints that must be accounted for in any counterfactual analysis. These shared structural attributes do not necessarily entail the integration of substantive norms, either externally or internally. Thus, many aspects of general international law or specific fields of international law - such as international human rights law - have not permeated law of the sea to any significant extent. And, within the law of the sea, there remains a strong disaggregation of regulation along sectoral lines. Although the idea that international law is a systemic body of law, with coherence and mutual influence of related norms, is compelling and can be witnessed in some areas,[10] it remains a work in progress. Despite the ambition of the LOS Convention to establish an integrated framework to address the problems of oceans space as a whole, in reality it falls considerably short of integrating sectoral activities, and in particular fisheries and environmental concerns.[11] Only with the start of the BBNJ process in 2006,[12] some 24 years after the conclusion of the third United Nations Conference on the Law of the Sea (UNCLOS III), did a stronger integrative agenda emerge. And even here, the extent to which fisheries should form part of a new LOS Convention Implementation Agreement remains contested.[13]

Whilst fisheries regulation has long been a concern of the law of the sea, marine environmental protection is a relative newcomer. The same is true of domestic fisheries management, and the dominance of sectoral approaches to marine regulation. Only recently have these areas of regulation begun to merge. As such, much of international fisheries law has evolved separately from international environmental law. This is unfortunate because fishing is one of the most significant threats to marine biodiversity and the health of marine environments more generally.[14]

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[10] C. McLachlan "The Principle of Systemic Integration and Article 31(3)(c) of the Vienna Convention" (2005) 54 *International and Comparative Law Quarterly* 279-319.

[11] R. Barnes "The Law of the Sea Convention and the Integrated Regulation of the Oceans" (2012) 27 *International Journal of Marine and Coastal Law* 859-866.

[12] See note 9.

[13] R. Barnes "The Proposed LOSC Implementation Agreement on Areas Beyond National Jurisdiction and its Impact on International Fisheries Law" (2016) 31 *International Journal of Marine and Coastal Law* 583-619.

[14] R. Barnes "Fisheries and Biodiversity" in M. Fitzmaurice, D. Ong and P. Merkouris (eds.) *Research Handbook on International Environmental Law* (Edward Elgar, Cheltenham: 2010) 542-563.

Fisheries regulation is invariably framed in terms of 'conservation and management'. Whilst this may be indicative of environmental concerns, the environment and, indeed, conservation were simply incidental consequences of regulating access.[15] Historically, fisheries were subject to limited protection. Prior to the 20th century, international fisheries law was principally concerned with managing local conflicts, rather than conservation and management in general.[16] The idea that stocks were inexhaustible dominated management approaches into the late 19th century.[17] Exceptional claims to apply conservation restrictions were generally resisted, as was shown in the *Bering Fur Seals* case. Advances in our understanding of the state of fish stocks improved in the 20th century. With it came a realization that unrestricted access to resources was contributing to overfishing. The International Council for the Exploration of the Sea met for the first time in 1902, seeking to put fisheries management decisions on a scientific footing. In the early 20th century, a number of stock-specific agreements applied the principle of abstention, and the need to limit or stabilize fishing effort to ensure stocks were not overfished.[18] However, conservation really only gained traction in the years after World War II, as States sought to justify and secure claims to preferential fishing rights in coastal waters. This paved the way for the exclusive economic zone (EEZ) and the possibility of more sophisticated conservation and management systems within domestic law, and via regional fisheries bodies. Throughout this period we have moved steadily away from the oceans as a hunting ground to a space in which economic activities are structured - spatially and legally - and where many activities operate on an industrial scale.

It is important to stress that the LOS Convention is a product of its time, negotiated before environmental norms gained traction in international law more generally. This means few of its provisions on EEZ or high seas fisheries directly address the protection of the marine environment. The main focus of the LOS Convention is to prevent over-exploitation of stocks, whilst targeting their optimum utilization.[19] Article 56(1)(b)(iii) grants coastal States jurisdiction to protect and preserve the marine environment. This acknowledges regulatory authority without any linkage to fisheries management. The main direction to an integration of rights and duties is found in Article 56(2), which

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15 P. Birnie, A Boyle and C Redgwell *International Law and the Environment* (3rd ed.; Oxford University Press, Oxford: 2009) 712.

16 Typical of this was the International Convention for the Purpose of Regulating the Police of the Fisheries in the North Sea Outside Territorial Waters of 6 May 1882 (160 CTS 219), which focused on rules for fishing gear, as well as reciprocal inspection measures, beyond territorial waters. See further K. Bangert "The Effective Enforcement of High Seas Fishing Regimes: The Case of the Convention for the Regulation of the Policing of the North Sea Fisheries of 6 May 1882" in G. Goodwin Gill and S. Talmon (eds.) *The Reality of International Law: Essays in Honour of Ian Brownlie* (Oxford University Press, Oxford: 1999) 1-20.

17 T. Smith *Scaling Fisheries: The Science of Measuring the Effects* (Cambridge University Press, Cambridge: 1994) at chapter 2.

18 E.g. the Convention on Preservation and Protection of Fur Seals of 7 July 1911 (37 Stat. 1542); the Convention between the United States of America and Canada for the Preservation of the Halibut Fisheries of the Northern Pacific Ocean of 2 March 1923 (32 LNTS 93); and the Convention for the Protection, Preservation and Extension of the Sockeye Salmon Fisheries of the Fraser River System of 26 May 1930 (184 LNTS 305).

19 Arts. 61-62 of the LOS Convention.

requires coastal States to have due regard to the rights and interests of other States.[20] At best, Article 60(3) provides that, in adopting conservation measures, States shall seek to maintain or restore populations of harvested species at levels that "can produce the maximum sustainable yield, as qualified by relevant *environmental* and economic factors" (emphasis added).[21] The door is open for consideration of environmental issues, but States do not have to make use of this in any particular way. This stands in marked contrast to instruments adopted after the LOS Convention, where the influence of environmental considerations is noticeable.

International environmental law is usually traced to the 1972 Stockholm Conference on the Human Environment. Too early to really influence negotiations at UNCLOS III, this later had an influence on some aspects of international fisheries law. Apart from producing the CBD,[22] the 1992 Rio Conference on Environment and Development, and Agenda 21 in particular served to initiate developments in fisheries law by calling for the convening of a conference to deal with the regulation of straddling and highly migratory fish stocks.[23] This eventually resulted in the Fish Stocks Agreement.[24] The influence of international environmental law can also be traced through the various instruments adopted by the United Nations Food and Agriculture Organization (FAO), for instance to the Code of Conduct[25] and the Compliance Agreement.[26] The explicit reference to environmental law and distinctive environmental components of such instruments adds credence to the hypothesis that fisheries law could have taken a different pathway - or at least made quicker progress - if international environmental law had consolidated sooner.

The Code of Conduct is more explicit in addressing the environmental impact of fishing. Article 6.6 provides, for instance, that:

> Selective and environmentally safe fishing gear and practices should be further developed and applied, to the extent practicable, in order to maintain biodiversity and to conserve the population structure and aquatic ecosystems and protect fish quality. Where proper selective and environmentally safe fishing gear and practices exist, they should be recognized and accorded a priority in establishing conservation and management measures for fisheries […]

The Fish Stocks Agreement has yet stronger environmental credentials. It requires the application of the precautionary approach (Article 6), the adoption of measures to prevent pollution and use of environmentally safe gear (Article 5(f)), the use of

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20 On the high seas, the equivalent provision is Art. 87(2).

21 See also Art. 119(1)(a) in respect of the high seas.

22 Convention on Biological Diversity of 22 May 1992 (1760 UNTS 143).

23 Report of the United Nations Conference on Environment and Development (UN Doc A/CONF.151/26 vol. II, 13 August 1992, available at http://www.un.org/documents/ga/conf151/aconf15126-2.htm) para. 17.49.

24 Agreement for the implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks of 4 August 1995 (2167 UNTS 3).

25 Code of Conduct for Responsible Fisheries of 31 October 1995 (available at www.fao.org/fishery/en), preface, para 4.

26 Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas of 24 November 1993 (33 ILM 969), preambular paras. 4 and 6.

integrated and ecosystem-based approaches (Article 5(d) and (e)), the protection of marine biodiversity (Article 5(g)) and conducting impact assessments (Article 5(d)). These provisions have since influenced the practice of regional fisheries management organizations (RFMOs), although the extent to which environmental principles have permeated such institutions is inconsistent and sometimes quite deficient.[27] Not all RFMO constitutive instruments include a commitment to protect and preserve the marine environment, with even fewer requiring the protection of marine biodiversity, the adoption of an ecosystem-based approach to fisheries management or conducting rigorous EIAs. Indeed, the limited remit of RFMOs generally precludes the adoption of environmental measures, other than as incidental to controls on the conduct of fishing activities. The gap in integrated fisheries and environmental regulation is compounded by the fact that regional marine environmental bodies lack the authority to manage fisheries. Exceptionally there is cooperation between fisheries and environmental bodies.[28] In 2008, a Memorandum of Understanding (MOU) between the North-East Atlantic Fisheries Commission (NEAFC) and the Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Commission) was adopted, recognizing their respective competences and areas of shared concern, and establishing mechanisms for sharing of information, joint discussions and common approaches to the application of precautionary approaches and area-based management measures.[29] However, this is a somewhat recent development and it falls someway short a systemic practice.[30] It is interesting to note that the fusion of fisheries and environmental objectives has been very much a concern in the preparatory meetings for the BBNJ Implementation Agreement.[31]

Other environmental agreements have become relevant to fisheries management, but they do not comprise an integral aspect of fisheries management. They operate alongside or in parallel to fisheries management, but do not form a fundamental part of fisheries management obligations. Thus the CBD requires States to plan for the conservation and sustainable use of biodiversity, and to take in situ and ex situ measures to conserve it.[32] Although the Ramsar Convention[33] predates the LOS Convention, it applies to wetlands and, potentially, adjacent waters, so it only marginally impacts on commercial fishing when conducted in wider ocean areas.[34]

As a sweeping generalization, it might be concluded that it took around 20 years for environmental principals to permeate into international fisheries law. It has taken another 15 years for some degree of institutional coordination of fisheries and environmental matters to emerge. Even now, this cross-cutting governance of issues remains ad hoc and under development. This indicates a slow process of cross-fertilization of ideas and practices.

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27 See Barnes, note 13 at 601 and Table 1.

28 Ibid., 602.

29 Available at https://www.ospar.org/about/international-cooperation/memoranda-of-understanding.

30 Barnes, note 13 at 602.

31 Ibid., 592-596.

32 Arts. 6, 8 and 9.

33 Convention on Wetlands of International Importance especially as Waterfowl Habitat of 2 February 1971 (996 UNTS 245).

34 See Arts. 1(1) and 2(1).

3. Counterfactual Methodologies

We cannot change the past, but we can learn its lessons. Counterfactual thinking is not merely wishful thinking.[35] It is an established analytical technique in political and historiographical research, as well other social sciences, where it is used to test arguments about the importance of historical events.[36] It enables the construction of different points of comparison and thereby facilitates the evaluation of events. It is a common, although often under-acknowledged, facet of legal thinking,[37] one Strassfield describes as pervasive.[38] Counterfactual analysis provides an important tool for thinking creatively and critically about international fisheries law, but before using this tool, we must present a methodology because it is a novel approach, and one that is not free of weaknesses.[39]

3.1 A Short Account of Counterfactual Thinking

Let us begin with a basic definition: "A counterfactual is a statement, typically in the subjunctive mood, in which a false or "counter to fact" premise is followed by some assertion about what would have happened if the premise were true."[40] For example, if international environmental law had existed prior to international fisheries law, this would have resulted in a higher degree of environmental protection within fisheries management regimes.

There are three key elements in the process of counterfactual reasoning: the use of a false antecedent, a reliance on causal reasoning, and the assertion of contingencies. In the present example, the false premise is the prior existence of a body of international environmental law. It is constructed in order to help evaluate the significance of environmental law on fisheries law. However, since this state of affairs did not occur in the real world, there is no empirical evidence upon which we can evaluate the counterfactual. In order to get round this problem, it is typical to consider the premise as if it were true in the closest possible world. This in turn requires one to evaluate other variables sufficiently closely connected to the false antecedent, otherwise the purpose of the exercise would be defeated as only one thing would have changed. This means we must evaluate the effect of other variables, either in the event itself (i.e. what were

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35 Cf. E.H. Carr *What is history?* (Macmillan, London: 1961) 127-128.

36 M. Weber *Kritische Studien auf dem Gebiet kulturwissenschaftlicher Logik* (Archiv für Sozialwissenschaft und Sozialpolitik: 1904; reprinted as "Critical Studies in the Logic of the Cultural Sciences" in *The Methodology of the Social Sciences* (transl. and ed., E.A. Shils and H.A. Finch; Free Press, New York: 1949)) 113-188, at 171-188.

37 Venzke, note 3 at 3.

38 R.N. Strassfield "Counterfactuals in the Law" (1992) 60 *George Washington Law Review* 339-416, at 345.

39 R.J. Evans *Altered Pasts: Counterfactuals in History* (Brandeis University Press, Lebanon NE: 2014). More stridently, E.P. Thompson described it as "geschichtswissenschlopff' (unhistorical shit) *The Poverty of Theory: or an Orrery of Errors* (Merlin Press, London: 1995) 144-145.

40 H.E. Brady "Causation and Explanation in Social Science" in R.E. Goodwin (ed.) *The Oxford Handbook of Political Science* (Oxford University Press, Oxford: 2011) 1054-1107, at 1057.

the particular contents of this earlier constructed body of law, or changes to the dates of adoption) or from other events (i.e. could other regulatory changes have prevented or precipitated some of the consequences for fisheries law).

The latter point direct concerns the second element of counterfactual thinking: causation. This commits us to identifying plausible and similar cause/effect scenarios in the real and counterfactual worlds. This is challenging because the fundamental nature of causation and causal relationships is evasive. Even Hume had to settle for the somewhat loosely constructed observation that events are causally related when they are contiguous in time and place, that one precedes the other and they occur with regularity.[41] Causality entails identifying and weighing up events and their relationship. Some events may have more causative potency than others. Also, some may be more fragile than others (meaning that the event could easily not have occurred) and so we need to think carefully about the how, whether and when of the event.[42]

This leads us to the contingency of events. When we describe something as contingent, we mean that something is not certain or preordained. Its form is shaped by conditioning factors (determinants). These determinants are not unlimited because some are more probable than others, so we need to be able to indicate and explain these. To return to the point above: the LOS Convention was a product of its time, its content and structure was determined by the number and diversity of States, the negotiating venue and process, the state of knowledge, the resources of the delegates, the state of play of international law in general and law of the sea in particular. These contingencies need to be considered.

3.2 The Benefits of Counterfactual Thinking

Whilst counterfactual thinking has its critics, some, like Weber, have argued forcefully for its value: "If history is to be raised above the level of a mere chronicle of notable events and personalities, it has no alternative but to pose such questions."[43] It moves us beyond narrating events and opens up possibilities in analytical critique. Drawing upon Venzke, three benefits from counterfactual thinking are considered next, to contextualize the later discussion of fisheries and environmental counterfactuals

The first benefit is freedom from the necessity bias. Law is often fixated on the past. Precedent appears to predetermine the future, by requiring that legal disputes are resolved consistently with past decisions.[44] This is not to say that we are always in the grip of the past. The role of lawyers is to mediate the past for use in the present under conditions of free will. Nothing is inevitable unless it has already happened, but in using history we must guard against the use of false assumptions: that because something has

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[41] D. Hume *A Treatise of Human Nature* (1739), edited by L.A Selby-Bigge and P.H. Nidditch (Clarendon Press, Oxford: 1978) 155.

[42] See D. Lewis "Causation as Influence" in J. Collins, E. Hall, and L. Paul *Causation and Counterfactuals* (Cambridge, Mass, MIT Press: 2004) 75-106.

[43] Weber, note 36 at 164.

[44] As Anne Orford observes: "The past, in other words, may be a source of present obligations" (A. Orford "The Past as Law or History? The Relevance of Imperialism for Modern International Law" *Institute for International Law and Justice (IILJ)* Working Paper 2012/2, 2).

happened, it was somehow inevitable. When we know that things have happened, we tend to load our evidence of circumstances in favour of those outcomes. We elevate the inevitable and ignore or marginalize the contingency of things.[45] This is reinforced by insights from social psychology, which show that we suffer from hindsight bias: that we see the probability of an outcome happening as higher once we know that outcome has in fact happened.[46]

The second benefit is that it forces us to explain how law works free of recourse to abstract theories. It focuses the mind on actual events and so foregrounds the authentic over the ideal. In order to maintain coherence, theories carve out regularities from the world and overlook the way in which concrete events influence what happens.[47] We must be careful not to ignore the importance and influence of actual events. Since counterfactual thinking is explicitly concerned with context, it provides better accounts of how legal practices work. It exposes the contingency of events and so is closer to how law works in practice. If we can provide more exact accounts of how events unfold, then we can think about how to utilize or respond to such contingencies when charting the course of future regulation.

The third benefit is that it stimulates imaginative thinking and regulatory possibility. Much legal thinking is concerned with the consequences. For a judge, the legal and behavioural consequences of his ruling.[48] For a law-maker, the regulatory impacts, costs and benefits of proposed legislation.[49] The same holds true, and more, for a researcher, who is less bound by the institutional demands of his/her office. Counterfactual thinking forces us to consider possible consequences - real and imagined - in detail. It can improve the rigor of consequentialist analysis. More than this, it can inspire thoughts of what may yet be. This creativity is deeply rooted in our approaches to legal thinking. Rawl's veil of ignorance is just one such device used to provoke reflection upon alternative possibilities.[50] By thinking about how fisheries regulation might be, for better or worse, we can choose to imagine or follow different regulatory pathways.[51] In this way, the act of counterfactual thinking can facilitate behavioural change.

3.3 Some Limitations of Counterfactual Thinking

There are four broad challenges with the use of counterfactual thinking: evidence, complexity and the related issue of causation. First, since counterfactuals depend on hypotheticals - rather than empirical cause and effect - it is impossible to provide actual

45 Venzke, note 3 at 7 citing R.M. Unger *False Necessity* (Verso, London: 2001).
46 Ibid., 9 - referring to N.J. Roese and K.D. Vohs "Hindsight Bias" (2012) 7 *Perspectives on Psychological Science* 411-426.
47 Ibid., 10.
48 B. Rudden "Consequences" (1979) 24 *Juridical Review* 193-201. See also K. Mathis "Consequentialism in Law" in K. Mathis (ed.) *Efficiency, Sustainability, and Justice to Future Generations* (Springer, Dordrecht: 2012) 3-29.
49 See C.A. Dunlop and C.M. Radaelli (eds.) *Research Handbook of Regulatory Impact Assessment* (Edward Elgar, Cheltenham: 2016).
50 J. Rawls *A Theory of Justice* (Oxford University Press, Oxford: 1973) 136-142.
51 The analogy from literature is the fate of Ebenezer Scrooge in Charles Dickens' *A Christmas Carol.*

evidence to 'prove' the outcome of the thought experiment. The absence of proof means outcomes are more readily open to challenge. Accordingly, the effectiveness of our analysis depends upon the counterfactual's proximity to real world situations. Accordingly, smaller and more proximate false antecedents are likely to generate stronger case studies than more general or radical scenarios. However, this may limit the potential for counterfactual thinking.

Second, how do we handle complexity? It is difficult enough to make sense of the past, but this pales into comparison when trying to predict the future.[52] This is usually done with some form of scientific model, simulation or scenario testing.[53] These techniques often entail assumptions, generalizations or simplifications of the variables, and so science can be more easily contested. Counterfactual thinking requires one to contextualize an antecedent (and so have some sense of a past situation), and then effectively predict what will follow from this changed variable. As such, there is an element of real and imagined predictive thinking inherent in counterfactual analysis. This is no small task since reality is so rich in detail and meaning.

Third, one must reconstruct causal relationships in an alternative world in light of a changed antecedent. As such one needs a clear and reliable account of causation. As noted above, counterfactual thinking is most effective in simple cause and effect scenarios. For example, if I had not dropped the glass, it would not have smashed. However, when the phenomenon under analysis is complex, one has to account for a greater array of variables. Fisheries regulation is one such complex scenario, and so one must be very careful in how one explains causal relationships between antecedents and consequences.[54] Potentially, there is scope to draw upon other legal approaches to inform this, such as tort law with its notions of multiple causation and necessary and sufficient conditions.

Finally, it should be acknowledged that counterfactual thinking often suffers from extrapolating a general lesson from a single event into a generalized causal explanation.[55] Lawyers are drawn to make policy recommendations, but it is important not to make sweeping inductive leaps from limited premises. For example, taking the *Estai* case[56] scenario as a counterfactual, if we allowed Canada to enforce multilaterally-agreed catch restrictions on all - foreign and Canadian - vessels fishing on the entirety of the Grand Banks, then this would have averted the collapse of the cod stock.[57] The conclusion might be that coastal State enforcement of catch limits on the high seas is a necessary restriction on fishing. However, this analysis might be contested for a number of reasons, but specifically on the grounds that it assumes that the specific

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52 P.E. Tetlock "Theory-Driven Reasoning About Plausible Pasts and Probable Futures in World Politics: Are We Prisoners of Our Preconceptions?" (1999) 43 *American Journal of Political Science* 335-336.

53 M. Haddon *Modelling and Quantitative Methods in Fisheries* (2nd ed.; CRC Press, Boca Raton: 2011).

54 See further H.L.A. Hart and T. Honoré *Causation in the Law* (2nd ed.; Clarendon Press, Oxford: 2002).

55 G. Mitchell "Case Studies, Counterfactuals, and Causal Explanations" (2004) 152 *University of Pennsylvania Law Review* 1517-1608, 1540.

56 Fisheries Jurisdiction (Spain v. Canada), Judgment of 4 December 1998; ICJ Reports 1998, p. 432.

57 P.G.G. Davies "The EC/Canadian Fisheries Dispute in the Northwest Atlantic" (1995) 44 *International and Comparative Law Quarterly* 927-939.

lessons from the *Estai* case are generalizable to all other situations where straddling fish stocks are over-fished. That said, there seems to be little disagreement that poor flag State monitoring and compliance has undermined effective fisheries regulation, and this must be addressed going forward.[58]

3.4 Making Counterfactual Thinking More Robust

Mitchell has broken important ground by developing some responses to the main criticism of counterfactual analysis, and, in particular, the claim that counterfactual approaches can only draw inferences from single case studies.[59] He provides six normative criteria for use in strengthening counterfactual narratives: 1) transparency; 2) counterfactuality of the proposed antecedent; 3) consideration of competing hypotheses; 4) theoretical and statistical reasonableness of the proposed causal chain; 5) co-tenability and counterfactual minimalism; and 6) projectability.

Transparency entails being explicit and precise in stating the terms of the counterfactual, including the selection of evidence, causal inferences and generalisations that flow from this.[60] The more particular the detail, then the more testable the hypothesis. In the cases studies advanced in the next Section, this entails: 1) precision about what elements of environmental law (the antecedents) could have precipitated changes in fisheries law; 2) drawing a clear link between the antecedents and the consequences; and 3) providing details about the alternative regime of fisheries that would result from this.

The second requirement is that the antecedent is actually a counterfactual; something that does not exist in the real world.[61] It may be difficult to separate out real from imagined events because the antecedent may change just one dimension of reality, for example the point in time of an event. In most cases this normative check serves to reinforce the importance of precision in the selection of the antecedent. In our case, some elements of environmental law predated some fisheries law (e.g. the *sic utere* principle), whilst others did not (e.g. the precautionary principle). Thus we should be specific in identifying those elements of environmental law that have emerged after international fisheries law had matured.

Third, competing hypotheses must be considered. Mitchell notes that single observation case studies (i.e. use of singular antecedents) are vulnerable to challenge because there may be multiple causative antecedents.[62] It is only when competing explanations are discounted that the remaining hypothesis is strengthened. This is important because counterfactuals are easily controvertible given their imagined status. Here we can discount patent absurdity or logical failures, but this may still leave scope

[58] See further Chapter 15 (Klein) in this Volume. Also, R. Barnes "Flag States" in D.R. Rothwell, A.G. Oude Elferink, K.N. Scott and T. Stephens (eds.) *The Oxford Handbook on the Law of the Sea* (Oxford University Press, Oxford: 2015) 304-324.

[59] Mitchell, note 55 at 1587-1602.

[60] Ibid., 1589-1591.

[61] Ibid., 1591.

[62] Ibid., 1592.

for debating alternative causal factors. Even if these cannot be fully discounted, a failure to address them leaves one open to the criticism of over-determination or outcome bias.

Fourth, it is necessary to consider the robustness of the causal link between the antecedent and the consequences. As Mitchell states: "The more theoretically or statistically justifiable the propositions in a thought experiment, the more defensible the conclusions drawn from the experiment."[63] It seems unlikely in the following scenarios, that one can provide a high - let alone absolute - probability of cause and effect. Of course, most social science approaches tend to rely upon probability-based causation. As such, we settle for weaker statistical thresholds, such as 'more likely than not', or 'on the balance of probabilities'. What is critical in this context is to identify and explain the probabilities on the basis of identifiable patterns of behaviour and real world constraints on action. For example, we understand how international law deals with conflicts of norms, and we also have experience of how States have handled the emergence of environmental norms subsequent to the development of international fisheries law. These insights can inform how our scenario might work, with fisheries law emerging post-environmental law. To quote Marks: "[…] possibilities are framed by circumstances. While current arrangements can indeed be changed, change unfolds within a context that includes systematic constraints and pressures."[64] These constraints (as outlined in Section 2 above) may provide reasonable proxies for explaining how States would have handled matters in our counterfactual.

Fifth, co-tenability requires us to consider "whether the features of the alternative world are logically and historically consistent". [65] As far as possible the counterfactual world must resemble the real world, so the logic, structure and operation of that world should be retained. Arguably, this is the most difficult criterion to satisfy because it entails consideration of the systemic context and consequences of one's proposed antecedent. For example, it would be less tenable to assert the emergence of much environmental law preceding the emergence of the UN, given its pivotal role in facilitating the advance of environmental issues. On the other hand, a decision in favour of the United States in the *Bering Fur Seals* case might have turned on the quality of the litigants' arguments. This points towards a minimisation of change in the antecedent. The greater the change, the greater the risk of systemic inconsistency. Compensating for this entails more and more explanation. These explanations become more difficult to articulate and so the greater likelihood of ignoring some variables that would impact upon the predicted consequences. Indeed, this requirement must inform how we approach the task of constructing an antecedent around the pre-existence of international environmental law to international fisheries law. International environmental law comprises a complex system of values, rules, standards, processes, institutions and actors. To explain and map the implications of these is a Sisyphean task. A more tenable counterfactual would therefore be to focus on a specific rule or process.

Finally, a strong counterfactual will 'project' valid predictions for other cases.[66] This should follow from the requirement that the counterfactual is co-tenable and plausible. It further allows the hypothesis to be tested in other contexts and identify any

[63] Ibid., 1594.
[64] S. Marks "False Contingency" (2009) 62 *Current Legal Problems* 1-21, 2.
[65] Mitchell note 55, at 1595-1596.
[66] Ibid., 1600-1601.

limits in its potential application. Space precludes multiple scenario testing, but if counterfactual analysis can illuminate historical contingencies that no longer matter, and which have resulted in unsatisfactory or out-dated regulatory arrangements, then exposing these contingencies helps strengthen the case for reform in those areas.

4. "What if international environmental law predated international fisheries law…?"

Would international fisheries law be any different if it had been preceded by a body of rules of international environmental law? If we want to imagine how international fisheries law might be different, then we need to reimagine history at some point prior to the preparatory work of the International Law Commission (ILC) on the four Geneva Conventions on the law of the sea of 1958. In examining how some of the key rules and principles of international environmental law could have influenced international fisheries law, an effort is made to ensure that the six normative criteria in subsection 3.4 are considered.

There are good reasons for this choice of scenario. First, it uses a self-evidently false antecedent. Second, it allows us to reconstruct international fisheries law at a critical juncture in time, when treaty-law was becoming the preferred modus operandi of law-making. This allows us to generalize not just about specific rules, but also about processes. Much of modern international fisheries law can be traced back to the 1958 Geneva Conventions, which codified and structured the main features of the law of the sea. Many of the Geneva rules (e.g. zonal allocations of authority, freedom of the high seas, and primacy of flag State jurisdiction on the high seas) found their way into the LOS Convention with little change, and so became more firmly established as core elements of the law of the sea. Much of international environmental law became established by 1992, as signified by the Rio Conference. It is accepted that these statements are rough generalizations, and that they gloss over the full legal heritage of both areas of law. However, this makes it possible to draw out from the Rio Declaration and related agreements both general points of evaluation and specific analysis of novel environmental principles and rules that are fundamentally relevant to fishing activities. We can assume that any changes to the 1958 Geneva Conventions would permeate through to the LOS Convention in similar fashion. In a sense we are advancing the progress of legal development. The timeframe also allows us to draw upon insights as to how international fisheries law has developed in the 25 years or so since Rio. This is important as these insights can help ensure the tenability and robustness of some of the analytical lessons drawn from the counterfactual.

By way of transparency, some caveats are required about the following scenario analysis. In setting out the provisions of law and providing some indication of the outcomes, it is quite clear that we are often proceeding from one set of generalities to another as regards the principles canvassed. The LOS Convention is a framework instrument. One of its most observed features is the open-textured language and structure which admits of a variety of different principles and approaches to be accommodated within its framework, including environmental norms. In our counterfactual, clear and strong norms on environmental protection could have been

integrated into the 1958 Geneva Conventions. Over time these would have consolidated and more directly influenced the text of the LOS Convention and later agreements. Paradoxically, this could have a counter-productive effect of rendering the LOS Convention's text more fixed and less open to flexible development. A second paradox relates to the specific principles of international environmental law. As one moves to greater levels of specificity, it becomes increasingly difficult to isolate precise normative developments and their consequences. Many principles or approaches such as precaution, polluter pays and ecosystem-based management are deeply rooted in complex processes and so cannot be surgically isolated and introduced into counterfactual. For example, due diligence to prevent environmental harm (e.g. through licensing of fishing vessels) is not a novel, discrete principle, but something that originated in and developed since the *Trail Smelter* case.[67]

4.1 The 'Rio Conference 1952: What if…'

Imagine the following:[68]

> *The Earth Summit took place between 3 and 14 June 1952, and became known as 'Rio 1952'. It marked a turning point in the development of measures to protect the global environment. Attended by representatives from nearly 100 nations, the conference resulted in three major international conventions (the '1952 United Nations Framework Convention on Climate Change, the '1952 Convention on Biological Diversity' (1952 CBD), and the '1952 United Nations Convention to Combat Desertification') and the 1952 Rio Declaration, which set forth 27 core principles of international environmental law. It also spurred on the development of regional seas environmental agreements, such as the '1962 OSPAR Convention'. The ILC had already begun work on codifying the law of the sea in 1949. However, it was sensitive to the wider developments in international law and so these formed part of the existing legal structure into which the law of the sea and fisheries law would need to fit.*

Before looking at how some specific principles of international environmental law would have impacted upon international fisheries law, some general observations can be made. First, the make-up of international society was quite different in 1952, with many present-day States still part of colonial empires. If nothing else, this points to the contingency of law-creation upon the number and identity of members of the legal

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[67] Trail Smelter case (United States of America, Canada) Award of 16 April 1938 and 11 March 1941, *3 Reports of International Arbitral Awards* 1905-1982.

[68] To ensure narrative clarity, accounts of the counterfactual are italicised. Comment and analysis thereof is left in regular text format. In the counterfactuals, alternative versions of real environmental instruments are used. These are self-evident given the false dates. The counterfactual law of the sea conventions remain fixed in time at 1958 and 1982 to facilitate the analysis. To ensure these are clearly distinguished from the real conventions, they are specifically designated as 'alternative' conventions.

order. Here, the particular interests and aims of developing States would have had less profile in negotiations and the outcomes of Rio 1952.

Second, treaties are drafted with sensitivity to existing legal frameworks. This is generally reflected in preambular statements of context, as well as specific conflict clauses.[69] In the 1958 Geneva Conventions, there were no such references to relevant or overlapping treaties. This would need to be accounted for in the counterfactual. The mere existence of potentially overlapping agreements would force States to address the question of priority as a political matter, and to structure the relationship between different agreements within a conflict clause. As a general rule, compatible agreements or terms are often preserved, and later agreements usually take priority over older agreements.[70] However specific terms can be included in the later treaty to preserve the rules of earlier agreements deemed more foundational or constitutive of the general legal order.[71] The key point is that once this is done, it secures and structures treaty relationships at a given point of time. This may make it difficult to restructure legal relationships or normative priorities between treaties at a later date. This is a particular concern with the constituent agreements of RFMOs predating the Fish Stocks Agreement, and which do not accommodate modern principles of international fisheries law. This highlights the contingency of agreements, and the need to ensure conflict clauses (or means of amending agreements) are capable of adapting to changes in wider legal frameworks. Both environmental and fisheries agreements deal with dynamic systems and regulatory agendas, so caution must be taken in trying to embed certain rules and regimes too strongly in the international legal framework.

> *Rio 1952 resulted in a number of important outcomes, both symbolically and substantively. The former included its role in raising collective awareness about the magnitude of environmental issues and the need to address them.*[72] *Indeed, its partner instrument, Agenda 20, carried with it a strong "moral obligation to ensure its fulfilment" by the end of the century. This clear signal from so many States exerted a sway over contemporary law-making agendas. The latter included a range of techniques and principles relevant to fisheries: Principle 3 (inter-generational equity); Principle 7 (ecosystem approach); Principle 10 (participatory decision-making); Principle 15 (precaution); Principle 17 (environmental impact assessment); and Principle 27 (cooperation).*

Before looking at the substantive rules of international environmental law, a brief comment is offered on the symbolism and agenda-setting influence of Rio 1952.[73]

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[69] See, e.g., Art. 311 of the LOS Convention, Art. 4 of the Fish Stocks Agreement, and Art. 4 of the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing of 22 November 2009 (available at www.fao.org/Legal).

[70] See Art. 30 of the Vienna Convention on the Law of Treaties of 23 May 1969 (1155 UNTS 331).

[71] This is done in Art. 4 of the Fish Stocks Agreement, which states it to be without prejudice to the LOS Convention. See also Art. 103 of the United Nations Charter.

[72] D.C. Esty "Beyond Rio: Trade and the Environment" (1993) 23 *Environmental Law* 387-396, 388.

[73] A counterfactual around Principle 1 of Rio 1952 and a right to a healthy environment could have been included. However, it was omitted on the basis that such a right remains contested, and so difficult to evaluate on the basis of co-tenability. At best it would serve to reinforce the significance attached to State concerns rather than individual concerns in international fisheries law.

Whilst not strictly normative, Rio 1952 and related instruments are regularly emphasized within the preamble of modern fisheries agreements (and other environmental agreements). They are part of the context for purposes of treaty interpretation.[74] It may be observed that the term 'environment' does not appear in any of the 1958 Geneva Conventions, and there is only limited reference to pollution.[75] In contrast, the language and terminology of the '1952 Rio instruments' (e.g. sustainable use, ecosystem) would permeate later agreements. The shared language and conceptualization of issues can shape the understanding of what particular rules mean. We know this already occurs in the sense that the LOS Convention is a 'living instrument'. The evolution of treaties is indirect in that it utilizes a flexible approach to the interpretation of treaties, something that can be contested. A direct embedding of rules, concepts and institutions into earlier fisheries agreements could have removed much of the uncertainty about how these rules relate to environmental activities. Of course, this risks the prized flexibility of some fisheries agreements as noted above.

> *Principle 3 of the 1952 Rio Declaration emphasized the importance of meeting the developmental and environmental needs of present and future generations. This foregrounding of intergenerational concerns directed attention to the need to limit or restrict fishing effort. Accordingly, Article 2 of the alternative 1958 High Seas Fishing Convention stated the objective of fishing to be to secure "a* long term *supply of food for human consumption." This general commitment proved to be uncontentious since "long term" was not defined. The ILC drew upon and attached greater weight to the abstention doctrine in its draft articles. This doctrine sought to limit fishing when a stock was fully exploited. Ultimately, a duty to abstain from fisheries was framed in hortative terms, or made subject to specific agreements between interested fishing States. Debates at the ILC demonstrated that it was difficult to secure agreement on the precise operation of the abstention doctrine, and many feared that it could be cynically used to appropriate resources.*[76] *Following the adoption of the alternative 1958 Geneva Conventions, the virtue of limiting access to depleted stocks was hampered by difficulties in securing 'abstention' in specific agreements. Whilst abstention worked well within a bilateral fishery, it remained difficult to sustain as a general rule of international fisheries law.*[77] *As a result, it served mainly to precipitate unilateral claims to exclusive control over important coastal fisheries at risk of overfishing.*

In reality, the abstention doctrine gained limited traction in United States fisheries after World War II, and took longer to feed into international debates about fisheries.[78] It remained on the periphery of debates, although, indirectly, it focussed attention on the

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74 See, e.g., paras. 5 and 7 of the preamble to the Fish Stocks Agreement, and paras. 4 and 6 of the Compliance Agreement.

75 See Arts. 24-25 of the Convention on the High Seas of 29 April 1958 (450 UNTS 11).

76 This resonates with the actual debates in the ILC: See Summary Records of the Eighth Session, [1956] 1 *Yearbook of the International Law Commission* 123; UN Doc. A/CN.4/SR.357, 43-49.

77 H. Scheiber "Origins of the Abstention Doctrine in Ocean Law: Japanese-US Relations and Pacific Fisheries. 1937–1958" (1989) 16 *Ecology Law Quarterly* 23-99, 94.

78 Ibid., 91.

notion of the maximum sustainable yield (MSY). The impact on the alternative 1958 Geneva Conventions was limited to strengthening sustainability with an intra-generational focus. Even now, fisheries regulation remains strongly focused on intra-generational equity, as indicated in the preamble of the LOS Convention.[79] Also, Article 59 - concerning conflicts between States in the EEZ - and Article 69 - concerning land-locked States - both possess an intra-generational focus. Inter-generational equity is indirectly addressed through Articles 61 and 119, which articulate the notion of the MSY. However, this is more narrowly concerned with conserving resources than advancing broader environmental interests.

It might be possible that some concern for future needs could have appeared in the preamble to an alternative LOS Convention, and might have suffused other provisions with a stronger concern for inter-generational concerns. The scenario indicates that despite awareness of inter-generational concerns it remains difficult to accommodate such interests within a system of law that lacks representative standing for future generations. And that meeting the current needs of their populace represents a more immediate political concern for States.

> *The term ecosystem first appeared as a concept in 1937.[80] Principle 7 of the 1952 Rio Declaration provides that "States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem." This was developed in more detail in Chapter 17 of Agenda 20. By the time that the alternative 1958 Geneva Conventions were being drafted, it had gained sufficient credibility in science, and traction in policy debates, to merit inclusion. Thus, Article 2 of the alternative 1958 High Seas Fishing Convention required States to assess the impacts of fishing on associated species within the same ecosystem. By the time the alternative LOS Convention had developed, the obligation had strengthened into a duty to take steps to maintain the integrity of marine ecosystems. This was factored into a more complex institutional process for assessing the impacts of fishing, and designating marine protected areas. More significantly, the unexpected collapse of several major commercial fisheries and scientific appreciation of the way in which ecosystems operated - both locally and at larger scales - provided a compelling reason to adopt more nuanced forms of spatial management that correlated to the natural boundaries of ecosystems. As a result, exclusive coastal State jurisdiction was limited to a 'security zone of 12 nautical miles (nm)'. Beyond this, regional seas arrangements under the shared management coastal States became responsible for adopting fisheries conservation and management measures, as well as measures to protect and preserve the marine environment.*

[79] "[T]he achievement of these goals will contribute to the realization of a just and equitable international economic order which takes into account the interests and needs of mankind as a whole and, in particular, the special interests and needs of developing countries, whether coastal or land-locked."

[80] A.J. Willis "The Ecosystem: An evolving concept viewed historically" (1997) 11 *Functional Ecology* 268-271.

We operate a regime of maritime zones that have little connection to the function of ecosystems. An explicit ecosystem-based approach is absent from the LOS Convention in our reality. The term ecosystem is used in the Fish Stocks Agreement (Articles 5(d) and (e)), but only as a factor linking species/stocks, and not as way of managing in light of how ecosystems function. Whilst the LOS Convention considers the issues of oceans space as closely related and to be considered as a whole, this arguably refers to different sectoral activities, rather than nuanced concepts of ecosystem functioning. The LOS Convention's framework for managing fisheries is tied to the rather crude and ecologically meaningless maximum outer limit set for the EEZ.[81] It also possesses a sectoral structure that divides resource matters from marine environmental protection.

Post LOS Convention, this has been a key focus of regulatory developments. One of the objectives of Chapter 17 of Agenda 21 was to "integrate protection of the marine environment into relevant general environmental, social and economic development policies".[82] However, international fisheries law remains wedded to jurisdictional arrangements that simply do not match ecological needs, or indeed, the dependent resource activities.[83] At a regional level, the European Union (EU) Marine Strategy Framework Directive operates on the basis of regional seas and sub-regions.[84] Although this is contingent upon underlying jurisdiction over EEZs, the actual management measures operate across jurisdictions. It establishes 11 descriptors (targets) of good environmental status - which includes fisheries - and so represents a significant improvement in the alignment of regulatory measures with natural systems. This element of the scenario highlights the contingency of legal developments upon the state and influence of scientific information. It also flags up the possibilities for change in how we designate spatial management zones.

Principle 17 of the 1952 Rio Declaration provides that "Environmental impact assessment (EIA), as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority". The 1952 Rio Declaration does not articulate how this is to be done, leaving such matters to individual States.

This complemented Principle 10, which called for participatory decision-making, appropriate access to information about the environment, and opportunities for involvement in decision-making and access to effective judicial and administrative remedies. This provision was strongly influenced by the wider recognition afforded to human rights at the time. Both these provisions were

[81] R.R. Churchill and A.V. Lowe *The Law of the Sea* (3rd ed.; Manchester, Manchester University Press: 1999) 163.

[82] Agenda 21, para. 17.22.

[83] Less radically, Árnadóttir suggests changing ecological circumstances could justify changing some parts of an agreed maritime boundary, when the boundary no longer suits the underlying fishing or resource activities that helped determine its course (S. Árnadóttir "Ecological changes justifying termination or revision of EEZ and EFZ boundaries" (2017) 84 *Marine Policy* 287-292).

[84] Art. 4 of 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. OJ L 164, 25.6.2008, pp. 19-40.

> *recognized in the alternative 1958 High Seas Fishing Convention, although to a lesser extent. It required States to adopt processes to assess the impact of fishing and ensure that information concerning such decision-making process be publically available. Within domestic environmental and fisheries regimes, more sophisticated marine impact assessment processes emerged. These established more specific criteria concerning the threshold for assessments, the factors to be assessed, and any mitigation or adaptation measures to be taken if a development was to proceed despite the potential for harm. Initially focused on physical developments at sea, these were extended to fish farms, new fisheries, and fisheries that had been closed to facilitate stock recovery. Significantly, the data and understanding derived from such assessments was used to inform a wider range of marine planning initiatives. The use of EIA helped facilitate the integration of fisheries and environmental matters. By the time UNCLOS III had convened, States recognized the value of accommodating such assessments, and facilitating the conduct of project- and programme-based assessments between States. As a result the alternative LOS Convention embodied detailed provisions on EIA. This was complemented by a broader commitment on States to conduct strategic assessments at a regional level.*

In our world, Article 206 of the LOS Convention contains only general requirements to assess the potential effects of activities. This falls short of the standard of environmental assessment anticipated by the 1992 Rio Declaration. Whilst some States require EIAs for marine projects, this usually excludes fisheries because such systems are designed to apply to new activities rather than continuing activities.[85] Fisheries are part of the background noise of environmental harm.

The LOS Convention merely contains general provisions on publication of information, or the provision of information to other States, particularly in the context of marine scientific research.[86] It does not countenance individual engagement in, for example, decision-making in fisheries management or marine environmental protection. A low level of participatory decision-making has undermined confidence in some fisheries management regimes, such as the EU Common Fisheries Policy.[87]

This element of the scenario again highlights the contingency of legal developments upon the state and influence of scientific information. It also demonstrates the adverse impacts of path dependency in legal developments. As most commercial fishing activities have existed prior to the legal requirement to conduct full EIAs, they tend to be excluded from this process. Although we recognize the adverse impact of fishing on marine ecosystems, it is difficult to retrofit fisheries management regimes with more rigorous assessment processes.

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85 F. Guerra, C. Grilo, N.M. Pedroso and H. Cabral "Environmental Impact Assessment in the marine environment: A comparison of legal frameworks" (2015) 55 *Environmental Impact Assessment Review* 182-194.

86 Arts. 200, 244, 248 and 302 of the LOS Convention.

87 J. Hatchard and T. Gray "Stakeholders and the Reform of the European Unions' Common Fisheries Policy" (2003) 2 *Maritime Studies (MAST)* 5-20; C. Pita, G.J. Pierce and I. Theodossiou "'Stakeholders' participation in the fisheries management decision-making process: Fishers' perceptions of participation" (2010) 34 *Marine Policy* 1093-1102.

> *Arguably the most important but challenging contribution of Rio 1952 was the precautionary principle: "Where 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". This had no analogue in other instruments adopted at the time, although it has similarities with the abstention doctrine.[88] Fishing would not then resume until sufficient scientific evidence was provided showing the stocks were capable of supporting fishing effort. Following intense debates within the ILC, precaution was included in the draft text. Article 2(2) of the alternative 1958 High Seas Fishing Convention provided that: "States shall apply the precautionary approach to conservation, management and exploitation of fish stocks in order to protect the living marine resources and preserve the marine environment." Implementation remained sporadic in early years, largely due to disputed data on stock conditions. However, following the collapse of some major commercial fisheries, States began to establish precautionary reference points for fish stocks. By focusing attention on risk assessment, scientific evidence came more strongly to the fore in decision-making processes. By the mid-1960s, over-exploitation of some fisheries was reducing, but at some social and political cost. Excess capacity remained in the industry, and so more radical steps were taken to try and remove this capacity, including decommissioning payments. In some cases excess capacity moved into unregulated fisheries, either on the high seas, or in coastal waters of developing States.*

It is relatively easy to claim that the precautionary principle (or approach) would have permeated a wider range of legal instruments sooner. This is evident from how modern fisheries agreements developed post-Rio 1992.[89] The challenge with counterfactual thinking about the precautionary principle is that it really demands some assessment of the behavioural or problem-solving impacts of the principle. For example, what would be the state of global fish stocks if we had used precautionary measures 30 years earlier? FAO data indicates that production from capture fisheries more than trebled between 1950 and 1980, but has remained relatively static since then.[90] Stocks have not improved. The proportion of fish stocks within biologically sustainable levels decreased from 90 percent in 1974 to 68.6 percent in 2013. The number of under-exploited stocks decreased in the same period.[91] This might indicate that precautionary measures in fisheries have not had any impact. However, the response to this is that they might be in even worse shape had not some precautionary measures been introduced. It is not unreasonable to assume that the earlier introduction of precautionary measures may

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[88] Exceptionally, one might note the International Convention for High Seas Fisheries of the North Pacific Ocean of 9 May 1952 (205 UNTS 80), which used adopted conservation measures on grounds including the *abstention* principle. See note 77 and the accompanying discussion.

[89] D. Freestone "International Fisheries Law since Rio: The Continued Rise of the Precautionary Principle in A. Boyle and D. Freestone (eds.) *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford, Oxford University Press": 1999) 135-164

[90] *The State of World Fisheries and Aquaculture 2016* (Rome, FAO: 2016), 2-3.

[91] Ibid., 5-6.

have helped restrict major fleet expansion post-World War II and so mitigate over-exploitation. We simply do not know.

In our reality, the precautionary principle found its way into international fisheries and environmental instruments during the late 1980s and 1990s.[92] This indicates that the strength and influence of the precautionary principle is rooted in the numerous instruments within which it is found.[93] Posited alone in the Rio instruments, the precautionary principle would have had far weaker normative standing. As such one might question and doubt how a principle rooted only in a soft-law instrument would have been factored into early fisheries agreements. This points to the importance of systemic relationships within the law-creation process, rather than singular cause and effect relationships. Our counterfactual cannot escape the complexity of such contingent relationships. On a positive note, the precautionary principle serves to inform everyday fisheries management with a counterfactual method: it demands that future scenarios (i.e. limited or unconstrained fishing levels) be evaluated and optioned. As such we may become better equipped to engage in counterfactual analyses within fisheries going forward.

It is opportune to make some general remarks on the counterfactual in light of the criteria for counterfactual analysis noted above. The first relates to the theoretical and statistical reasonableness of the proposed causal chain. On the balance of probabilities, the 1958 Geneva Conventions would have been suffused with some important, but rather general changes owing to the existence of earlier environmental norms. These in turn would have evolved further and penetrated the LOS Convention to a greater extent. The precise outcome of this is hard to map. However, the existence of such changes can be readily assumed because treaties are not negotiated in a vacuum. Drafters are careful to ensure a degree of coherence between new and existing treaties. As post-LOS Convention developments in our real world indicate, jurists have sought to reconcile subsequent developments with the LOS Convention. Our desire to ensure system coherence requires us to mediate potential conflicts. Given the generality of the LOS Convention and also of the 1992 Rio Principles, there is little reason to suspect that drafters of the LOS Convention in a counterfactual world would have sought to detach the LOS Convention from contemporary and potential compatible environmental norms. It is highly probable that this integration would have extended to cooperation between different sectoral bodies, or that cross-cutting regional arrangements could have evolved. In recent years, semi-formalized cooperative approaches to fisheries and marine environmental issues have been developed.[94] This is not an isolated phenomenon, but is part of a broader trend of cooperation within and between

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[92] D. Freestone and E. Hey "Origins and Development of the Precautionary Principle" in D. Freestone and E. Hey (eds.) *The Precautionary Principle and International Law: The Challenge of Implementation* (Kluwer, The Hague: 1996) 3-15; G. Hewison "The Precautionary Approach to Fisheries Management: An Environmental Perspective" (1996) 11 *International Journal of Marine and Coastal Law* 301-332.

[93] P. Cameron and J. Abouchar "The Status of the Precautionary Principle", in Freestone and Hey, note 92, 29-52 at 30.

[94] For example between OSPAR and NEAFC (see note 29 and accompanying text).

multilateral environmental agreements (MEAs).[95] This has grown naturally out of institutional practices, by virtue of express or implied powers, and the growth of institutional capacity per se.[96]

To shore up some of the above analysis, lessons can be drawn from a comparison between fisheries regimes and the development of the deep-seabed mining regime, and how the latter demonstrates the traction and impact that environmental principles have had. The deep-seabed mining regime emerged after the LOS Convention through the Deep-Seabed Mining Agreement[97] and has continued to develop through the International Seabed Authority (ISBA)'s Mining Code[98] since 2000. As such, it was negotiated and drafted in light of a stronger body of international environmental rules and principles, which, in turn, advance both inter- and intra-generational concerns.[99] Here the ISBA acts as a quasi-legislator and administrator for activities in the Area. The ISBA's environmental mandate was partially structured within the LOS Convention: with Article 165(2)(d) requiring its Legal and Technical Commission to "prepare assessments of the environmental implications of activities in the Area". This does not quite correspond to a detailed EIA process, but indicates the importance of having facilitative provisions built into the basic structure of agreements, which can be built upon by later agreements or institutional developments.

Perhaps the greatest weakness is to establish co-tenability. This is because law is the product of complex and diffuse processes. Agreements are highly contingent upon preceding events, the state of knowledge and wider political agendas. Whilst aspects of international fisheries law and the 1992 Rio instruments might be complementary,[100] they are also distinctive in terms of nature and scope. The careful observer might note that our 'Rio 1952' was not preceded by an equivalent 'Stockholm 1932', and so lacked that intellectual and policy heritage. To rectify this we are required to revisit and restructure another major event in order to account for this, locating an international conference in the inter-war years. Alternatively, we could simply assert that Stockholm 1972 produced the same outcomes as Rio 1992. However, this ignores the progressive development of principles between the two. It also ignores the fact that these developments are not singular events in history, but rather the apex of more complex processes of negotiation and preparatory events. Important way stations included the work of the Brundtland Commission (1982-1987) and its development of the core principle of sustainable development. More challenging is the fact that the influence of many of the principles and approaches advanced at Rio 1992 cannot be viewed apart

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95 Strengthened links between MEAs were recommended in the Report of the United Nations Task Force on Environment and Human Settlements (Annex to UN Doc. A/53/463 of 6 October 1998, at para. 30).

96 See R.R. Churchill and G. Ulfstein "Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law" (2000) 94 *American Journal of International Law* 623-659, at 654-655.

97 Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 of 28 July 1994 (1836 UNTS 42).

98 Available at https://www.isa.org.jm/mining-code.

99 A. Jaeckel, K.M. Gjerde and J.A. Ardron "Conserving the common heritage of humankind – Options for the deep-seabed mining regime" (2017) 78 *Marine Policy* 150-157, at 151-152.

100 A. Yankov "The Law of the Sea and Agenda 21: Marine Environmental Implications" in Boyle and Freestone, note 89, 271-96.

from the complex structure of agreements and practices within which it is located. As such it is difficult to understand Rio 1992 apart from these; hence undermining the tenability of the counterfactual. Paradoxically, Agenda 21 assumes the existence of the LOS Convention and built upon its general framework. For that reason we would have to reimagine Agenda 21 without the LOS Convention and this might present quite different outcomes for our analysis. Of course, the briefly sketched picture of deep-seabed mining serves to strengthen our conclusion that international fisheries law would have been imbued with stronger environmental law norms.

5. Counterfactual Lessons

The following tentative conclusions are suggested from our counterfactual exercise. First, at best, cross-cutting integrative approaches would be more deeply rooted in international fisheries law, and we could have seen the evolution of institutional practices and mechanisms at an earlier stage. One of the most important - but general - consequences of international environmental law is that is encourages systemic thinking. This is not inconsistent with a LOS Convention in either the real or an alternative world, and so one could foresee that an alternative LOS Convention negotiated against a background of greater environmental awareness and putative environmental norms would have been imbued with stronger systemic linkages between different sectors. However, whilst we can claim with some degree of confidence that the content of the law would be different, it is far more challenging to assess the behaviour and problem-solving impacts this would have had on fisheries. This is because the wider technological, economic and social changes within which such rules operate, are complex and have changed quite significantly over the past six decades since 'Rio 52'.

Second, international environmental law has developed in a systematic, progressive fashion, with a gradual evolution and building of norms. This shows that there are quite strong constraints built into the legal system, and implies that counterfactual thinking may be limited or at least should focus on how discreet events could induce different outcomes. Counterfactual scenarios focusing on broad systemic changes, such as the earlier consolidation of international environmental law, have limits as analytical tools. Sharper insights can be drawn from examining specific principles or events and tracing their alternative pathways. Even at a general level these flag up some of the contingencies that have driven legal developments. Given that many of these historical contingencies have less significance now, this can be used to strengthen calls for reform of current legal instruments. In other words, we should refuse to be tied to outdated historical contingencies. This represents something of a departure from the dominant mode of thinking in international fisheries law, which is often quite cautious and sensitive to past events.

Third, another challenge is that some principles of modern international environmental law require the existence of particular institutional capacities to maximize how information is gathered, held, verified, used, monitored and evaluated. For example, the ability to conduct EIAs requires a certain quality of information and expertise (within decision-making structures). Given the limitations in some States to

support this, it is quite probable that the LOS Convention would not have established rigorous commitments to conduct EIAs. However, if these processes had gained traction within domestic law earlier, there is the chance that States would have been more comfortable with their inclusion in the LOS Convention or RFMOs. Alongside the International Tribunal for the Law of the Sea, the ISBA and the Commission for the Limits of the Continental Shelf, it is possible there would have been other institutional structures to handle such assessments.