



Cinderella or Saviour?

Climate Engineering and the Oceans

Never Stand Still

Faculty of Law

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The Cinderella of the UN Climate Negotiations

‘Despite the fact the world’s oceans constitute the biggest sink of carbon dioxide and represent more than 30% of the global carbon cycle, no one has asked them to the Ball’ [David Freestone]



- Transformation of ocean systems as a result of climate change poses significant challenges for existing international regimes for the conservation and management of marine biodiversity
- Current international legal framework = fragmented, incoherent, over- and under-lapping assortment of global, regional, area specific, species specific or sector specific agreements.
 - Global: ie, LOSC, CBD, CMS, IWC, MARPOL, LC/LP, WHC, Ramsar
 - Regional: ie, RFMOs, OSPAR, Noumea, Barcelona, CCAMLR, AT, UNEP Regional Seas Agreements, other regional wildlife conventions
 - No general protection for MBD in ANBJ
- Ill-equipped to respond to challenges of spatial shifts and changes in phenology, species abundance and species interactions caused by climate change - particularly problematic for fisheries regimes/RFMOs

- Polar Bear Agreement – in danger of losing its *raison d'être*
- CMS – studies show the high vulnerability of a number of species listed in the appendices including marine mammals and fish
- WHC – has explicitly recognized climate change as a 'real danger' to some WH properties, including the iconic Belize Barrier Reef and the Australian Great Barrier reef
- CBD – has formally recognized the threats to the marine and coastal biodiversity and has called on its parties to implement plans to improve ecosystem resilience and to restore degraded ecosystems as a means of contributing to both the conservation of biodiversity and to climate change mitigation and adaptation
- IWC, CCAMLR and FAO COFI have also taken action to study the effects of climate change on marine biodiversity
- UNGA has called for specific studies on the topic of climate change and the marine environment
- RFMOs – (only) 6 have taken 'action' with respect to climate change since 1992

- However – is hard to separate climate change from existing stressors
- Also requires functioning of governance structures ‘across multiple scales and levels’ and their alignment ‘between and across jurisdictional, sectoral and geographic boundaries’ (Lockwood et al)
- Difficulties keenly demonstrated by the problem of ocean acidification and proposals to enhance oceanic CO₂ absorption (ie ocean fertilisation)

The Problem of Ocean Acidification

- Absorption of anthropogenic CO₂ is acidifying the surface layers of the oceans and threatening coral reefs and other calcereous organisms including krill
- Changing ocean carbonate chemistry observed in all ocean areas, especially at high latitudes
- Rate of acidification unprecedented in last 65-300 million years and will continue for centuries
- Risks to organism physiology and population dynamics at all trophic levels
- Evolutionary rates are not fast enough for sensitive animals and plants to adapt to the projected rate of future change
- OA poses substantial risks to marine ecosystems - especially polar ecosystems and coral reefs, associated with impacts on the physiology, behavior, and population dynamics of individual species from phytoplankton to animals and human sectors dependent thereon

International Law and Ocean Acidification

- OA not specifically referred to in any binding legal document. Various regimes applicable depending on whether regulatory focus is cause, effect, or both. No regime focus in LOS.
- CBD has called for its effects to be minimised by 2015 but no precise mechanics re how
- **Given main driver is CO₂ emissions - only way to address OA is to reduce emissions**
- Reducing emissions = the concern of the UNFCCC and KP
- **BUT** - UNFCCC and KP are concerned with atmospheric effects of emissions - not effects on the oceans
- **MOREOVER** - KP calls for reduction of CO₂ 'equivalent' emissions - not CO₂
- **AND** - UNFCCC calls for enhancement of 'sinks' of which oceans are the largest. Has led to calls to 'actively' enhance ocean uptake of CO₂ (ie through ocean fertilisation)

The Ocean as Victim: CO₂ as Pollution

- Introduction *by man, directly or indirectly*, of *substances or energy* into the marine environment, including estuaries, *which results or is likely to result in* such deleterious effects as *harm to living resources and marine life, hazards to human health, hindrance to marine activities*, including fishing and other legitimate uses of the sea, *impairment of quality for use of sea water and reduction of amenities*. (LOSC Art 1(4))

The Ocean as Saviour: Ocean Fertilisation

- Commercial operators plan “pilot” projects to dissolve tons of iron over 10,000 k² patches of open ocean in the high seas to create phytoplankton blooms to sequester CO₂.
- Legal concerns raised as to whether this constitutes ‘pollution’ or ‘dumping’
- Dumping = Includes any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea; **BUT does not include** Placement of matter for a purpose other than the mere disposal thereof, provided that such placement is *not contrary* to the *aims* of the LOSC (or the LC/LP)
- Does introduction of a fertiliser into the ocean constitute ‘placement’?
- Is iron or other fertiliser ‘matter’?
- Is the ‘purpose other than the mere disposal thereof’?
- Is the placement contrary to the aims of the LOSC or LC/LP (protection and preservation of the marine environment, prevention of dumping, prohibition on transferring one type of pollution to another)

Consideration of OF by the LC/LP

- 2007: Statement of concern by Scientists
- 2007 LC/LP decide to take it under consideration – intention to regulate:
 - Ocean fertilisation activities fall under the competence of the LC/LP, in particular in relation to their objectives of protecting the marine environment
- May 2008 – preparation of technical background
- 2008: CBD ‘moratorium’ on all but small-scale local experiments
- October 2008 – Resolution LC-LP.1
 - Non-binding resolution disallowing OF except for legitimate scientific research
 - “...given the present state of knowledge, ocean fertilization activities other than legitimate scientific research should not be allowed”

Regulating OF

- February 2009 – LP parties start work on Assessment Framework
- Voluntary AF adopted in 2012
LOAHFEX
Planktos
- Legally binding AF adopted in 2013.
Calls for two stage process – first to decide whether is legitimate scientific research and then whether adequate EIA conducted.
Only if both stages met can the research go ahead.
- **Applies to all marine geoengineering activities listed in annex although currently only ocean fertilisation listed**
- **HOWEVER: LP only applies to states parties and only applies to ship/ocean based activities. Does not apply to land based or atmosphere/space based activities or ‘conventional’ aquaculture/mariculture**

Conclusion

- Whether the oceans are viewed as a victim or as part of the solution, climate change presents a number of challenges for 'Oceans Law'
- LOS institutions have important contributions to make to both mitigation and adaptation efforts
- However, given existing inadequacies of LOS regime much work will be needed to deal with climate change threats to oceans and with threats posed by our responses to climate change
- In particular, the overarching issue of ocean acidification requires consideration of complicated, overlapping, inadequate and sometimes inconsistent treaty and customary rules relating to 'pollution' and a level of cooperation and coordination between the LOS and the climate regime which currently does not exist
- Query whether the issue of ocean acidification is best dealt with in the climate regime?



Cinderella may be dressed for the ball – but she is not there yet