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*by Lucy Wiggins**

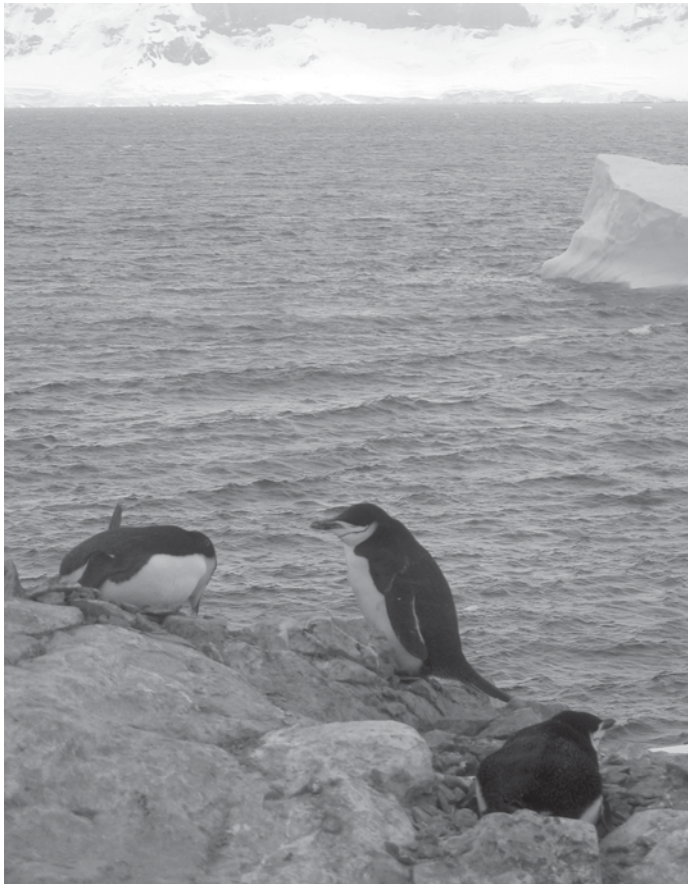
Introduction

Despite the fact that water covers approximately seventy percent of the planet, the ocean is the Earth's least protected area.[1] While the ocean absorbs carbon dioxide ("CO_2") from the atmosphere and therefore helps to mitigate some of the effects of climate change,[2] the ocean can also aggravate global warming. Warmer ocean water absorbs less CO_2, so as its temperature increases the ocean's ability to absorb CO_2 diminishes.[3] This phenomenon has the potential to create a "positive-feedback cycle" where warming temperatures increase the temperature of the ocean, resulting in less CO_2 absorbed and more CO_2 in the atmosphere, which in turn will cause higher global temperatures.[4] Higher global temperatures also cause more water vapor, a greenhouse gas ("GHG"), to evaporate from the ocean's surface, further contributing to the build up of GHGs in the atmosphere.[5]

Additionally, climate change affects animals living in and around the ocean. Birds suffer reduced nesting areas, fish move further toward the poles to escape warming waters, and creatures, such as corals, which cannot migrate to cooler waters, start to die.[6] Addressing global climate change will require a comprehensive mixture of domestic and international law because much of the ocean lies beyond the national jurisdiction of any one state. This article surveys a few of the existing international environmental treaties requiring states to curb activities that contribute to climate change and discusses gaps in their respective coverage. It concludes by suggesting a few improvements to these existing treaties to facilitate further protection of marine species and ocean habitats from the impacts of climate change.

Existing Treaties Articulate Some Protection For Oceans

Mandatory reductions in GHG emissions is the proverbial "elephant in the corner" in any international conference concerning climate change: at meeting after meeting, the participants acknowledge the scope of the problem,[7] but when it comes to recommending solutions, language calling for emission cuts is replaced with language calling for more studies.[8] With the creation of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, a few dozen countries finally committed to curbing emissions of GHGs.[9] Since its adoption, however, the United States has withdrawn from the Protocol and many of the states that committed to reductions are experiencing difficulty in meeting their obligations.[10] Kyoto is further complicated by the fact that many states interpret it as a trade agreement as much as an emissions treaty.[11]



Courtesy of Ursula Kazarian

Oceans are home to numerous species threatened by climate change, such as these Antarctic penguins.

In attempting to build political pressure to force state action on climate change, it is useful to examine other instruments that articulate obligations to curb GHG emissions. Specifically, the Convention Concerning the Protection of the World Cultural and Natural Heritage ("World Heritage Convention"), the United Nations Convention on the Law of the Sea ("UNCLOS"), and the Convention on Biological Diversity ("CBD") each contain provisions imposing responsibilities on states to reduce emissions in order to protect the ocean.

The World Heritage Convention

The World Heritage Convention requires a state to "do all it can," within its capabilities to "ensur[e] the identification, protection, conservation, presentation and transmission to future generations" of areas of outstanding natural beauty or cultural

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heritage.[12] Once recognized as a World Heritage Site, protection of the site becomes the combined responsibility of the international community as a whole;[13] states cannot deliberately take measures that would damage these sites, "directly or indirectly"[14] and must adopt internal policies to protect and rehabilitate its own heritage sites.[15] It does not stretch the imagination to interpret these provisions to include cuts in GHG emissions among the many measures a state should take to "do all it can."[16]

Designation as a World Heritage Site affords some protection to threatened marine areas because the establishment of preservation areas allows species to recover more quickly.[17] For example, the listing of the Sian Ka'an biosphere reserve on Mexico's Yucatán peninsula allowed for the establishment of local non-governmental organizations ("NGOs") in the area, increased national and international funding for the reserve, and gave the local community enough political power to lobby the government to establish strict development regulations for the surrounding areas, thereby limiting the type and number of private development projects that can be built in its vicinity.[18] Increasing the number of designated World Heritage marine sites will provide additional protection necessary to allow marine species and habitats to recover or adapt to climate change.

When listing alone does not halt the decline of a heritage site, the Convention provides that sites threatened "by serious and specific dangers," can be designated as being "in danger."[19] In danger status increases the amount of funding and international attention given to a site.[20] If successfully listed as in danger, the member state must develop a "programme for corrective measures" to abate the causes of the site's deterioration.[21] Consequently, in danger status requires affirmative steps to repair damaged areas, in effect reversing the causes of the destruction in the first place, on top of the general obligation against taking deliberate measures that could harm a site.

In November 2004, a NGO in Belize tested the power of these provisions to force member states to take steps mitigating the impacts to oceans from climate change by filing a petition with the World Heritage Committee requesting that it list the Belize Barrier Reef as an in danger site.[22] While the Committee declined to place the Reef on the in danger list, forestalling a showdown over climate change at the time, it left the door open for future consideration.[23] The Committee ordered a policy paper from the World Heritage Centre on the impacts of climate change to sites.[24] It then took a decision recognizing that climate change was impacting at least 125 heritage sites and indicated that it would continue to review petitions to grant in danger status to sites threatened by climate change on a "case by case basis."[25]

Warmer ocean water absorbs less CO_2, so as its temperature increases the ocean's ability to absorb CO_2 diminishes.

In addition to foot-dragging by the Secretariat, those hoping to force action through the World Heritage Convention face other problems. For example, the Convention lacks a method for listing sites existing outside the national jurisdiction of a state.[26] This includes the approximately sixty-four percent of the ocean that constitutes the high seas and belongs to the world as a whole.[27]

The United Nations Convention on the Law of the Sea

In contrast with the World Heritage Convention, UNCLOS covers the entire ocean, not just areas within a State's territory.[28] The treaty's provisions on conservation and preservation of the marine habitat can assist in understanding states' responsibilities with regard to impacts on the ocean from climate change.[29] As an umbrella rule, UNCLOS contains a general obligation on the parties to protect the marine environment.[30] While the sovereign right to exploit national resources within the areas of territorial control somewhat qualifies the obligation to protect,[31] UNCLOS recognizes this right in conjunction with the obligation. Arguably the obligation to protect is, therefore, at least co-equal with the right to exploit. UNCLOS further clarifies that protection extends to that "necessary to protect and preserve rare or fragile ecosystems" and threatened marine life.[32] Upon discovering ocean pollution, states must "eliminat[e] the effects. . . and prevent or minimiz[e] the damage," albeit "to the extent possible," and take necessary measures to abate "pollution of the marine environment from any source."[33]

GHG emissions appear to be pollution covered under UNCLOS,[34] because UNCLOS defines "pollution of the marine environment" as "the 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."[35]

UNCLOS implies a collective duty on the part of signatory states to implement strategies to combat climate change.[36] For states unwilling to participate in the fulfillment of this obligation, UNCLOS conveniently contains a dispute resolution mechanism, allowing the parties to refer disputed matters to an international court or tribunal.[37] However, the provisions concerning the protection and conservation of the marine environment have not yet been interpreted by an international tribunal, leaving little guidance on how they might ultimately be applied.[38]

The Convention on Biological Diversity

The CBD is a conservation-oriented convention providing for the protection of biological diversity, the promotion of sustainable development, and the equitable sharing of benefits

derived from natural resources.[39] In similar fashion to the World Heritage Convention, the CBD only covers areas existing within the control of individual states.[40]

Under the CBD, states develop strategies for the conservation of their biodiversity and create "as far as possible and appropriate. . . a system of protected areas or areas where special measures need to be taken to conserve biological diversity."[41] In doing so, states should also "[p]romote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings."[42] The CBD specifically includes "marine and other aquatic ecosystems and the ecological complexes of which they are part," as part of the definition of biological diversity, while mandating implementation "with respect to the marine environment consistently with the rights and obligations of states under the law of the sea."[43]

Broadly interpreted then, the Convention obligates member states to establish protected marine areas and to take steps to shelter these areas from the impacts of climate change. Additionally, because the ocean is one of the least understood and least studied areas,[44] the CBD could require states to increase their funding for scientific studies into the predicted aquatic impact from climate change. It might also require member states to consider potential ocean impacts when conducting environmental assessments or deciding whether to grant certain permits, such as those for factories intending to emit GHGs.

Under the CBD, states have been successful in establishing protected areas, but the Secretariat acknowledges that marine protected areas remain "under represented."[45] The CBD also recognizes the establishment of marine protected areas outside the areas of national jurisdiction as a priority.[46] Conceding that the impacts from climate change will not simply disappear, even if GHG emissions are cut, the CBD recommends the development of "biological corridors" to facilitate the unhampered migration of species to more suitable habitats.[47]

Suggestions for Improvement

The establishment of marine protected areas specifically to preserve regions threatened by climate change acknowledges both that marine areas have intrinsic value and that these areas are ripe for protection.[48] Marine protected areas also offer a haven where threatened species can escape the myriad pressures, including climate change, that jeopardize their existence and endanger their habitat. Amending all three treaties to allow for the multilateral establishment of marine protected areas outside the boundaries of national jurisdictions would help accomplish these objectives.

Because so much of the ocean is beyond the borders of any state, any amendment of the conventions should include a process for the establishment of protected areas on the high seas. In this process, a member states could nominate areas of the high seas for protection, subject to review by a committee before submission to the parties for inclusion within the relevant convention's protocols.[49] Since complete unanimity is rare, some sort of qualified majority of the voting parties — similar to the way chemicals are added to the Stockholm Convention on Persistent Organic Pollutants or new ozone depleting substances are included within the phase-out schedule to the Montreal Protocol on Substances that Deplete the Ozone Layer — could be enough to secure passage of the proposed protected area.[50]

Within the areas of national jurisdiction, providing incentives to designate marine protected areas could encourage states to establish new areas. For example, member states that have also signed the Kyoto Protocol could receive some sort of credit for creating the protected area. These measures might follow the Clean Development Mechanism provisions of the Kyoto Protocol that allow for the allotment of credit to industrialized countries for financing sustainable development projects in developing countries[51] or the Joint Initiative programs that foster the exchange of credits for similar projects between developed country signatories to the Kyoto Protocol.[52] States would receive credit after taking into account such factors as the size or sophistication of the protected area and its contribution to helping marine species survive climate change impacts.

Admittedly, amendment of the conventions requires extreme coordination between the parties, but amendment is feasible. Further, to avoid concerns about control over otherwise neutral areas, an international conservation committee to oversee and manage these protected areas should be established. The committee could be comprised of member state representatives and technocrats from the relevant conventions or it could fall under the auspice of the United Nations. The coordination committee will also have the added benefits of increasing communication between the various conventions and potentially result in greater cross-pollination of their respective obligations.

Conclusion

While imperfect, the existing treaties articulate a general obligation on states to reduce their GHG emissions and protect existing marine resources. Because each treaty speaks differently about a state's obligations to the ocean, taking advantage of all three instruments to establish a global network of marine protected areas provides maximum protection. Under the World Heritage Convention, designation of a World Heritage Site makes funds available for the protection of the actual site and builds pressure for protective measures in the surrounding areas. Any deterioration of a Site helps focus international attention on the underlying factors contributing to the decline. Establishing protected areas pursuant to UNCLOS does not create this same obligation, but the creation of protected marine areas will help fragile marine ecosystems and threatened species weather the climate change storm without additional human-induced pressures. Finally, protected areas under the CBD reminds parties of their responsibilities to preserve the planet's biodiversity and focuses attention on developing a holistic strategy for marine protected areas that include features, such as migratory corridors, which would allow marine species to migrate or adapt to climate change. Additionally, these protected areas should exist both within areas of national jurisdiction and on the high seas. Developing a system of protected marine areas under the World Heritage Convention, UNCLOS, and the CBD will help species recover from, and adapt to, climate change.

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[1] Kalemani Jo Mulongoy & Stuart Chape, Iunc – The World Conservation Union, Protected Areas And Biodiversity: An Overview Of Key Issues 28 (2006), *available at* http://www.biodiv.org/doc/publications/pa-brouchure-en.pdf (last visited Feb. 15, 2007).

[2] *See* Marsha Walton, *Scientists Study High seas in High Style: Researchers Get Volumes of Data from Explorer of the Seas*, CNN Online, June 25, 2004, *available at* http://www.cnn.com/2004/TECH/science/06/24/Scienceship/index.html (last visited Feb. 15, 2007) (estimating that the ocean absorbs thirty percent of greenhouse gases emitted from the burning of fossil fuels).

[3] Walton, *id.*; Steve Connor, *Climate Change Is Killing the Oceans' Microscopic 'Lungs,'* Independent (London), Dec. 7, 2006, at 42.

[4] Connor, *supra* note 3.

[5] Richard Black, *Air Trends 'Amplifying' Warming*, BBC News (Apr. 7, 2006), *available at* http://news.bbc.co.uk/1/hi/sci/tech/4880328.stm (last visited Feb. 15, 2006).

[6] Steve Connor, *Climate Change Already Affecting UK's Marine Life*, The Independent (London), Nov. 29, 2006, at 14.

[7] *See*, *e.g.*, Fifth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, May 15–26, 2000, *Progress Report on the Implementation of the Programme of Work on Marine and Coastal Biological Diversity (Implementation of Decision IV/5)*, ¶ 5, Decision V/3 (acknowledging the "significant evidence that climate change is a primary cause of the recent and severe extensive coral bleaching, and that this evidence is sufficient to warrant remedial measures being taken in line with the precautionary approach").

[8] *See*, *e.g.*, World Heritage Convention Secretariat, A Strategy to Assist States Parties to Implement Appropriate Management Responses, *available at* http://whc.unesco.org/uploads/news/documents/news-262-2.doc (last visited Feb. 15, 2006) (limiting recommendation of emission reductions to the local site).

[9] Kyoto Protocol to the Framework Convention on Climate Change, art.3, Annex 2, Dec. 10, 1997, 37 I.L.M. 32.

[10] Jennifer Lee, *Exxon Backs Groups That Question Global Warming*, NY Times, May 28, 2003, at C5.

[11] Meinhard Doelle, *Climate Change and the Use of the Dispute Settlement Regime of the Law of the Sea Convention 3* (Aug. 31, 2005) (unpublished article), *available at* http://law.dal.ca/Files/Climate_Change_and_the_use_of_the_Dispute_Settlement_Regime_.pdf (last visited Feb. 15, 2007).

[12] Convention Concerning the Protection of the World Cultural and Natural Heritage art. 4, Oct. 17, 1972, 27 U.S.T. 37, 1037 U.N.T.S. 151 (entered into force Dec. 17, 1975) [hereinafter World Heritage Convention].

[13] World Heritage Convention, *id.* art 6(1).

[14] World Heritage Convention, *id.* art. 6(3).

[15] World Heritage Convention, *id.* art. 5.

[16] *See* The Sydney Centre for International and Global Law, University of Sydney, Australia, Global Climate Change and The Great Barrier Reef: Australia's Obligations Under the World Heritage Convention 3 (2004), *available at* http://www.law.usyd.edu.au/scigl/SCIGLFinalReport21_09_04.pdf (arguing that Australia's decision not to ratify the Kyoto Protocol constituted a breach of the World Heritage Convention).

[17] Kalemani Jo Mulongoy & Stuart Chape, *supra* note 1, at 30; *see also* Steve Bloomfield, *Climate Change Threatens Heritage Sites*, Independent, Nov. 8, 2006, at 22 (reporting that coral in protected areas recovered faster than coral "exposed to impacts from coastal developments and pollution").

[18] About World Heritage: Sian Ka'an — Mexico, http://whc.unesco.org/en/284/ (last visited Jan. 25, 2007). Listing as a Heritage Site also helped the Philippine's Tubbataha Reef Marine Park implement sustainable fishery programs. The success of the programs led the locals to endorse expansion of the Park to encompass another nearby reef. About World Heritage: Tubbataha Reef Marine Park — Philippines, http://whc.unesco.org/en/81/ (last visited Jan. 25, 2007).

[19] World Heritage Convention, *supra* note 12, at art. 11(4).

[20] World Heritage Convention, *id*, art 13(4); The List: World Heritage in Danger, http://whc.unesco.org/en/158/ (last visited Jan. 28, 2007).

[21] United Nations Educational, Scientific, and Cultural Organization (UNESCO) Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, Operational Guidelines for Implementation of the World Heritage Convention, ¶ 183, WHC. 05/2 (Feb. 2, 2005).

[22] Belize Institute of Environmental Law and Policy, Petition to the World Heritage Committee Requesting Inclusion of Belize Barrier Reef Reserve System in the List of World Heritage in Danger as a Result of Climate and for Protective Measures & Actions (Nov. 15, 2004), *available at* http://www.climatelaw.org/media/UNESCO.petitions.release/belize.barrier.reef.doc (last visited Feb. 15, 2007).

[23] *Heritage Body 'No' to Carbon Cuts*, BBC News (July 10, 2006), *available at* http://news.bbc.co.uk/1/hi/sci/tech/5164476.stm (last visited Feb. 15, 2007).

[24] World Heritage Committee Adopts Strategy on Heritage and Climate Change, http://whc.unesco.org/en/news/262 (last visited Jan. 22, 2007).

[25] *UNESCO Adopts Climate Change Strategy for World Heritage Sites*, Envtl. News Service, July 11, 2006, *available at* http://www.ens-newswire.com/ens/jul2006/2006-07-11-01.asp (last visited Feb. 15, 2007).

[26] John Charles Kunich, *Losing Nemo: The Mass Extinction Now Threatening the World's Ocean Hotspots*, 30 Colum. J. Envtl. L. 1, 71, 76 (2005).

[27] WWF-World Wide Fund for Nature, Cold-Water Corals: Fragile Havens in the Deep 8 (2004), *available at* http://assets.panda.org/downloads/cwcbrochure.pdf (last visited Feb. 15, 2007).

[28] The Secretary General, *Oceans and the Law of the Sea: Report of the Secretary-General Addendum*, ¶ 178, delivered to the General Assembly, U.N. Doc. A/60/63/Add.1 (July 15, 2005) (explaining that UNCLOS applies to "areas beyond national jurisdiction") [hereinafter Secretary General's Report].

[29] *See* Secretary General's Report, *id.*, ¶ 178 (noting that "the Convention applies to all activities in the oceans" including "the conservation and sustainable use of biodiversity").

[30] The United Nations Convention on the Law of the Sea, pmbl. art 192, Dec. 10, 1982, 1833 U.N.T.S. 397 ("Recognizing the desirability of establishing . . . a legal order for the seas and oceans which will facilitate . . . the conservation of their living resources, and the study, protection and preservation of the marine environment") [hereinafter UNCLOS].

[31] UNCLOS, *id.* at art. 193.

[32] UNCLOS, *id.* at art. 194(5).

[33] UNCLOS, *id.* at arts. 194(1), 199

[34] Meinhard Doelle, *supra* note 11, at 6-7.

[35] UNCLOS, *supra* note 30, at art. 1(4).

[36] Meinhard Doelle, *supra* note 11, at 11.

[37] UNCLOS, *supra* note 30, arts. 281, 286. *See generally* Tullio Treves, *New Trends in the Settlement of Disputes and the Law of the Sea Convention*, *in* Law Of The Sea: The Common Heritage And Emerging Challenges 61 (Harry N. Scheiber, ed. 2000) (explaining UNCLOS settlement provisions).

[38] *See* Meinhard Doelle, *supra* note 11, at 12 (listing dispute settlement cases that discuss UNCLOS conservation provisions, but have not yet analyzed them).

[39] United Nations Conference on Environment and Development: Convention on Biological Diversity art. 1, 31 I.L.M. 818 (1992) [hereinafter CBD].

[40] CBD, *id.*, art. 4; *see also* John Charles Kunich, *supra* note 26, at 65-66 (interpreting CBD Articles 4 and 22(2) to prohibit creation of protected areas outside a state's own territory).

[41] CBD, *id.* at arts. 6, 8(a).

[42] CBD, *id.* at art. 8(d).

[43] CBD, *supra* note 39 at arts. 2, 22(2).

[44] Kunich, *supra* note 26, at 21; *see also* Mulongoy & Chape, *supra* note 1.

[45] Protected Areas: Introduction, http://www.biodiv.org/programmes/cross-cutting/protected/default.asp (last visited Jan. 28, 2006).

[46] Eighth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, Mar. 20–31, 2006, *Protected Areas*, ¶ 11, Decision VIII/24.

[47] Mulongoy & Chape, *supra* note 1, at 36.

[48] *See* Seventh Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, Feb. 9–20, 2004, *Marine and coastal biological diversity*, ¶ 30, Decision VII/5 (recognizing the "urgent need" to establish marine protected areas on the high seas); G.A. Res. 240, ¶ 52, U.N. GAOR, 58th Sess., U.N. Doc. A/RES/58/240 (Mar. 5, 2004) (expressing the need "to better address" threatened marine ecosystems in areas beyond national jurisdiction).

[49] *See* Stockholm Convention on Persistent Organic Pollutants art. 5, May 22, 2001, 40 I.L.M. 1531 (explaining that any party may submit a proposal for a new chemical to be added to the Convention and setting aside the criteria by which the Review Committee will screen the chemical before recommending it to the Conference of Parties) [hereinafter POPs Convention].

[50] *See* POPs Convention, *id.* at art. 21 (permitting amendment by a three-fourths majority); Montreal Protocol on Substances that Deplete the Ozone Layer art. 5, Sept. 16, 1987, 1522 U.N.T.S. 3, 26 I.L.M. 1550 (entered into force Jan. 1, 1989) (allowing adjustments to ozone depleting substances banned by the treaty to take effect with only a two-thirds majority vote if consensus cannot be reached).

[51] *See* Kyoto Protocol, *supra* note 9, at art. 12. *See generally* The World Conservation Union, Afforestation and Reforestation for Climate Change Mitigation: Potentials for Pan-European Action (2004) (explaining the inherent problems in the Kyoto CDM aforestation programs).

[52] Kyoto Protocol, *supra* note 9, at art. 6.