CLIMATE CHANGE LAW AND SEA LEVEL RISE: A PROPOSAL FOR THE ADOPTION OF CLIMATE CHANGE CLAUSES IN MARITIME DELIMITATION AGREEMENTS

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Abstract

Regardless of scientific or political debate concerning the causes of sea level rise, whether or not they be associated with climate change, purposeful political and legal responses to sea level rise are long overdue. This paper is an outcome of the empirical observations of the author and seeks to contribute to a discussion on the development of the law of the sea and international law to climate change and the resulting sea level rise that is already affecting the lives, of people throughout the world. The paper begins by examining the growing trend in climate change litigation cases being brought in national courts throughout the world and examines its implications for international law relating to sea level rise. This paper's proposal for consideration of the adoption of climate change clauses in maritime delimitation agreements would help to avoid climate change litigation in connection with sea level rise before international courts. Therefore, it suggests that the adoption of such clauses would constitute an important step in providing predictability, certainty and security to relations between States amidst the climate crisis.

Key words: climate change; sea level rise; climate litigation; climate change clauses

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Introduction

This article reflects the experience and thoughts of the author. It is the result of bilateral meetings carried out *in loco* with major decision-makers from 99 countries, visited between September 2019 and April 2020, as well as over 170 bilateral meetings held at the headquarters of the United Nations in New York since April 2017. This empirical research stems from direct observation of debates and the reflections they have elicited, and aims to contribute to the identification of a movement of change and response in the law of the sea, in international law, as well as in the response of institutions and States, to natural phenomena linked to climate change and sea level rise. Actors - including States, judges, NGOs, companies, and individuals - play an important role in the implementation of agreements and initiatives relating to the mitigation of the effects of pollution and the sustainable use and conservation of the oceans. These initiatives include Sustainable Development Goal 14, the United Nations Convention on the Law of the Sea (hereinafter "UNCLOS"), and the United Nations Convention on Climate Change.

There is a climate change crisis in the Pacific

Sea levels are rising. This is a fact. Regardless of scientific or political debate concerning the causes of this increase, whether or not they be associated with climate change, purposeful political and legal responses to sea level rise is long overdue.

On July 30, 2019, representatives of small island developing States, gathering at the "Pacific Islands Development Forum" in Nadi, an important city in the Republic of Fiji Islands, endorsed a meaningful declaration proclaiming a climate change crisis in the Pacific.[2] Soon thereafter, between August 13 - 16, 2019, the Pacific Island States, meeting at the "Fiftieth Pacific Islands Forum" in Funafuti, Tuvalu, declared climate change the single greatest threat to the way of life, safety, and well-being of Pacific peoples.[3]

Whilst attention swirls around the development of the oncoming global climate crisis, it is notable that a climate change crisis with geographically localized and perceptible effects is already evident in the Pacific and is affecting small island

[2] Nadi Bay Declaration on the Climate Change Crisis in the Pacific. Available at https://cop23.com.fj/nadi-bay-declaration-on-the-climate-change-crisis-in-the-pacific/ . Accessed May 2, 2020.

[3] Fiftieth Pacific Islands Forum, Funafuti, Tuvalu, 13 – 16 August 2019, Forum Communiqué, PIF (19)14, Pacific Islands Forum Secretariat, p. 3, para. 14. Available at https://www.forumsec.org/wp-content/uploads/2019/08/50th-Pacific-Islands-Forum-Communique.pdf. Accessed May 2, 2020. A similar declaration is contained in the Nadi Bay Declaration on the Climate Change Crisis in the Pacific, op. cit. para. 6. See previous footnote.

developing States. The risks associated with rising sea levels include challenges to the survival and the sovereignty of States. Sea level rise is affecting peoples.

In September 2019, on a visit to Nadi, I asked a 12-year-old child "how the rise of the sea level would affect her life." Her answer was: "I will lose my island. My family will be homeless. I'm not going to live here any longer." Critics may comment that the insight of a single child does not offer an empirical picture of sea level rise. However, I would argue that this child's comment shows far greater perceptiveness than the theoretical explanations offered by the majority of these same critics, whose knowledge stems solely from books. It is an insight drawn from the real world.

During the same field experience in September 2019, while in Nuku'alofa, capital of the Kingdom of Tonga, I asked another 10-year-old child the same question. The response was almost identical: "I'll no longer be here when the sea rises. We will all be gone." In just a few decades these children and their descendants will all be environmental refugees.[4] Regardless of ongoing debates as to the cause of sea level rise, evidence shows that this outcome is certain.[5] Sea level rise is a problem that must be faced immediately.[6]

Sea level rise has wide-ranging and multi-dimensional implications. As the problem escalates, we shall see the rapid emergence of these interrelated issues.

There is a geographic dimension that includes, for example, the flooding of coastal, agricultural, and urban areas, the permanent submersion of low tide elevations, and the total or partial disappearance of small islands.

There is a human dimension that includes the dislocation of populations, increase in poverty, and negative health impacts. These will affect not only displaced peoples, but also those in whose territories they seek refuge.

There is also a legal dimension, regarding the alteration of base points and baselines used to measure the territorial sea and all other maritime spaces. Changes in this area are likely to impact both conservation efforts and industry, including fishing activities and the exploration and exploitation of hydrocarbons.

Finally, there is also an economic dimension. More severe tidal and wind conditions in

[4] Nadi Bay Declaration, op. cit. para. 3.

[5] NOAA, Technical Rep. NOS CO-OPS 083, Global and Regional Sea Level Rise Scenarios for the United States 23 (Jan. 2017). Available at: https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf. Accessed May 2, 2020.

[6] In the recent U.S. court case, Juliana v. U.S, the judges considering the case conclusively agreed on the negative effects of climate change, even whilst disagreeing with each other on the question of the jurisdiction of the court to hear the case.. Details of this case will be discussed further below (United States Court of Appeals for the Ninth Circuit, Juliana v. U.S., No. 18-36082, D.C. No. 6:15-cv-01517- AA).

ports may have negative impacts on the flow of maritime trade. The tourism industry, which is an important source of income for a large majority of small developing island States, is also likely to suffer.[7]

Across all of these dimensions, aspects of human rights and environmental rights associated with sustainability in the use and conservation of the ocean space must be taken into account.

There is general scientific consensus that sea levels are rising across the globe. There remains, however, an active debate regarding the cause of the phenomenon and its relation to anthropogenic climate change. However, the continued deliberation as to the cause of the issue has resulted in a stalemate, where both discussions and practical responses to the effects of sea level rise are at a standstill.

The Brazilian legal system provides a useful instrument for settling environmental damages while preserving common interests via a so-called "Deferred Prosecution Agreement". This instrument is present in both Brazilian anti-trust and environmental law and establishes agreements between the State and the supposed party or parties responsible for damage. The instrument allows for cessation of causes of the damage, ensuring settlement of the issue and the establishment of mitigatory and compensatory measures without, however, the party responsible for the damage formally assuming blame. In general, the obligation assumed must be commensurate with damages caused.

In theory, it is possible to find solutions to legal problems raised by climate change without imputing responsibility to one State or another, or even to a set of States, by negotiating a conduct for reparation. This conduct enables a more transparent, ambitious approach to climate mitigation, in line with the Paris Agreement's approach to the reduction of GHG emissions on the basis of obligation of conduct.

However, States' obligations to mitigate climate change at the national level, beyond international obligations, involve high domestic political costs. Climate policies predominantly affect traditional sectors that are based on fossil fuel consumption, and demand financial investments in clean and sustainable development, which are costly for climate vulnerable developing countries. States' ability to implement climate change mitigation at the national level also depends on – preferably low cost and easily replicable - scientific, technological, and innovative solutions.[8] These solutions depend on

[7] CHRISTODOULOU, A., CHRISTIDIS, P. and DEMIREL, H., Sea-level rise in ports: a wider focus on impacts, Maritime Economics and Logistics, ISSN 1479-2931 (online), 21 (4), 2019, p. 482-496, JRC113247.

[8] The Paris Agreement went into force on November 4, 2016, thirty days after the date when at least 55 Parties to the Convention, representing an estimated total of at least 55% of total global greenhouse gas emissions, deposited

technology transfer measures between developed and developing states that extend beyond the transfer of older generation technologies to the transfer of current state-of-the-art technologies. More advanced technology may, however, often be either proprietary or secret and, therefore, inaccessible for developing countries.

It is, of course, not fair to disregard the large investments made by developed countries into science, technology, and innovation. Such investments should be recovered and remunerated. It is necessary, however, to reduce imbalances between countries' ability to respond to climate threats. Climate change transcends national frontiers and intellectual property rights. Climate change will affect damage across the globe. Yet, when it comes to paying the price of mitigation, we have a situation in which responsibility is not divided equally. Here, we are left with an important question: is there a genuine motivation for utilizing our current multinational forums to find ways to mitigate and even provide compensation for the effects of climate change, or will they simply be used to attribute historic blame?

It is necessary, however, to reduce imbalances between countries' ability to respond to climate threats.

Personally, I tend to conclude, albeit being cautiously optimistic, that there is indeed interest in mitigating the effects of climate change, but none with regards to establishing any mechanism of direct indemnificatory compensation for damages.

Scientific cooperation, especially technology transfer and capacity building, are considered to offer a certain kind of general and diffuse compensation for historic responsibilities, besides having an evident preventive, urgent, and necessary function with regards to climate change. Depending on its object, on its range, and on its solidity, scientific cooperation may be a powerful and much more valuable instrument than direct financial compensation. However, in order to be meaningful, scientific cooperation and technology transfer must respect and share the state-of-the-art, and not merely involve outdated technologies. It needs to be practiced "in situ" in developing countries, avoid "brain drain", and foster research, science, technology, and innovation in-country. If it does not, scientific cooperation risks being ineffective and will be pointless for a planet already approaching the 1.5º C heat threshold.

Sea level rise, and the related geographic, human, economic and legal issues for which it holds implications, is only one of many harmful effects attributed to climate change. Given that the effects hereof are transboundary, it follows that the climate response must be approached through multinational global forums. After all, it

their instruments of ratification, acceptance, approval or adhesion with the Depository.

makes no sense to cut greenhouse gas emissions in one country and not in another, or to attempt to do so without the participation of those countries producing the most emissions. Responses may also be approached through the jurisdiction of international courts. In the near future, litigation that touches on climate change issues, what has been termed "climate change litigation", is to be proposed before international courts, following a growing trend at the national level.

However, the role that international courts can play in the face of climate change remains uncertain and dependent on external factors. For example, in the event that there is lack of evidence of a legally binding obligation between the parties, an international court cannot adjudicate a case. They should be the last recourse after unsuccessful diplomatic negotiation between parties involved in a court case. Nevertheless, their role is important given that international courts, besides exercising jurisdiction over controversies, also hold a consultative role and can be used by States to offer guidance in multilateral negotiation processes.[9]

In this sense, international courts and their judges ought to be acknowledged as holding a potentially important role in the governance of the oceans, obviously with full respect to the legal limits of jurisdiction of the international courts, and to the impartiality and conscience of the judges.

In this sense, international courts and their judges ought to be acknowledged as holding a potentially important role in the governance of the oceans, obviously with full respect to the legal limits of jurisdiction of the international courts, and to the impartiality and conscience of the judges. The limits on engagement with the law on climate change by international courts and their judges is not to be confused with indifference, but rather to be identified with a commitment to the law of the sea and with general international law as permanent paradigms for the peaceful settlement of disputes.

It is against this background that this paper shares some thoughts on two developments concerning the law related to climate change, deriving from the author's own experience in the field: the first being the relation between legal obligations under the international law on climate change and climate change litigation before international courts, and the second being the effects of sea level rise on maritime delimitation.

The analysis in the first part of the paper is based on the observed trend that climate change litigation at the national level may

[9] The negotiation processes of the Draft of Economic Regulation and Use (Exploration) of Mineral Resources in the Area has been guided taking into account the aspect of responsibility of sponsoring States by the advisory opinion issued by the International Tribunal in 2011 (Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, ITLOS Case No. 17, [2011] ITLOS Rep 10, ICGJ 449 (ITLOS 2011), February 01, 2011, International Tribunal for the Law of the Sea [ITLOS].

inspire and influence climate change law at the international level. Therefore, the question this paper seeks to answer is as follows: if there is no diplomatic consensus on the mitigation of climate change, might affected climate vulnerable States instead refer to international courts?

The second part considers a specific aspect of effects relating to climate change: sea level rise and law of the sea. The paper asks: "how to ensure current maritime delimitation agreements remain applicable under the effects of climate change?" The paper suggests that the adoption of climate change clauses in maritime delimitation agreements would provide predictability, certainty, and security to the relations between States in the face of climate change.

1. The climate crisis and climate change litigation

The use of the term "climate crisis" seems to be taboo: the term still does not appear in official UN documents. In September 2019, following the "UN Climate Actions Summit" held in New York, the words of Secretary-General António Guterres would be echoed in newspapers throughout the world: "the climate emergency is a race that we are losing, but one that we can win".[10]

Crisis or emergency, if a State fails to carry out its obligations under international law, and such failure results in damage, it is then obliged to provide reparations or compensation.[11]

For example, depending on the nature of a State's commitment to mitigate climate changes under international law, loss and damage caused by sea level rise could be declared, based upon the legal obligations of the States whose GHG emissions are highest.

However, establishing causation connecting an actor's conduct with their effects is not simple, nor is the establishment of criteria to decide which States should be held accountable for their conduct and the proportion of their emissions. It is not untypical that damages caused to the environment generate environmental litigation. Damages caused by climate changes may result in similar cases.

"Climate change litigation" has appeared throughout the world at the national level. To date, it has been used by NGOs, individuals, and sub-national institutions (States or municipalities of a federation) as a tool for influencing the formulation of public policies by States, to regulate the behavior of

[10] The original declaration: "The climate emergency is a race we are losing, but it is a race we can win". Available at https://www.un.org/sites/un2.un.org/files/un75_climate_crisis.pdf. Accessed May 02, 2020.

[11] According to Articles 2, 12, 13, 31 and 36 of the Draft Articles on the Responsibilities of States for Internationally Wrongful Acts by International Law Commission. Available at: https://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf. Accessed May 02, 2020.

companies, and to seek compensation for loss and damage associated with climate change.[12]

In their study of global trends in climate change litigation, Setzer and Byrnes (2019, p. 3-5) identify 343 climate lawsuits brought across 27 different countries between 1994 and 2019. Of these cases:

- A high number of climate lawsuits were identified in Australia (94 cases), the European Union (55 cases), and the United Kingdom (53 cases);
- 43% (148) of the climate lawsuits during the period led to an outcome that is considered favorable to advancing climate change efforts;
- 81% (278) of the climate lawsuits are brought by companies, NGOs, and citizens against governments;
- 80% (275) of the climate lawsuits have the government as main defendant type.

Within the United States Setzer and Byrnes identified 1,027 climate lawsuits, triple the number of lawsuits from other countries during the period 1990 to 2018: there were 873 lawsuits between 1990 and 2016, and 154 lawsuits between 2017 and 2018 (Trump Administration).

1.1. The Juliana v. U.S case: inspiration for international litigation

Among the U.S. lawsuits identified by the researchers, the ongoing case of *Juliana v. United States* was identified by the researchers as especially relevant in the context of global climate litigation, having, influenced similar cases in Ireland, Canada, and France. I am of the opinion that domestic climate litigation such as *Juliana v. U.S.* may also inspire litigation in international courts.

The *Juliana v. U.S.* case is an ongoing landmark constitutional climate lawsuit.[13]The case is being coordinated by the NGO Our Children's Trust in the name of a group of 21 young people between the ages of 12 and 23. The case was heard in the Ninth Circuit Court of Appeals in Portland, Oregon. The plaintiffs alleged that actions by the government in creating a national energy system based upon the extraction of fossil fuels cause climate changes and violate their constitutional rights to life, liberty, and property, besides failing to protect essential public resources that should be preserved for common use.

[12] SETZER J; BYRNES R (2019) Global trends in climate change litigation: 2019 snapshot. London: Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science. Available at: http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2019/07/GRI_Global-trends-in-climate-change-litigation-2019-snapshot-2.pdf . Accessed May 02, 2020.

[13] Idem, p. 6. See also the sponsor NGO's website at https://www.ourchildrenstrust.org/juliana-v-us. Accessed May 2, 2020.

On January 17, 2020, the three judges' panel of the Ninth Circuit Court of Appeals decided in a 2 to 1 vote that, despite there being proof of the damages caused by the federal government, judging the damages caused to the young plaintiffs was beyond judicial power.[14]

However, even when voting against the jurisdiction of the Ninth Circuit Court of Appeals to hear the case, and therefore contrary to the arguments of the plaintiffs, Judge Andrew Hurwitz recognized a number of the plaintiffs' arguments in relation to injuries suffered resulting from climate change, these being: a) proof that climate changes is occurring at an increasingly rapid pace; b) a large volume of proof establishing that the unprecedented increase in carbon dioxide levels is the result of the fossil fuel combustion, and that this will cause damages to the planet if not controlled, including a 60 to 90cm rise ocean levels by 2100; c) that the records of the case conclusively establish that the federal government has long known about the risks of using fossil fuels and of the increase in carbon emissions; d) that the records of the case establish that the federal government contributed to climate change through affirmative actions in full knowledge of their damaging effects.[15]

In her opinion favorable to the jurisdiction of the Ninth Circuit Court of Appeals, which affirmed the constitutional climate rights of the young plaintiffs, Judge Josephine L. Staton included in her opinion evidence of the damaging effects of climate change, sourced from official studies produced by federal government agencies, including the National Oceanic and Atmospheric Administration (NOAA)[16]:

> *Even government scientists project that, given current warming trends, sea levels will rise two feet by 2050, nearly four feet by 2070, over eight feet by 2100, 18 feet by 2150, and over 31 feet by 2200. To put that in perspective, a three-foot sea level rise will make two million American homes uninhabitable; a rise of approximately 20 feet will result in the total loss of Miami, New Orleans, and other coastal cities. So, as described by plaintiffs' experts, the injuries experienced by plaintiffs are the first small wave in an oncoming tsunami—now visible on the horizon of the not-so-distant future—that will destroy the United States as we currently know it*[17].

[14] On March 2, 2020 the plaintiffs' attorneys filed a petition for rehearing *en banc* by asking the full Ninth Circuit Court of Appeals to convene a new panel of 11 circuit court judges to review the divided opinion. At the date of this paper's publication the Ninth Circuit Court of Appeals had not delivered any decision.

[15] United States Court of Appeals for the Ninth Circuit, No. 18-36082, D.C. No. 6:15-cv-01517- AA, Opinion by Judge Hurwitz, Appeal from the United States District Court for the District of Oregon. Judges Ann L. Aiken, District Judge, President; Dissent by Judge Staton. Filed January 17, 2020. Available at: https://cdn.ca9.uscourts.gov/datastore/opinions/2020/01/17/18-36082.pdf. Accessed May 02, 2020.

[16] NOAA, Technical Rep. NOS CO-OPS 083, Global and Regional Sea Level Rise Scenarios for the United States 23 (Jan. 2017). Available at: https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf. Accessed May 02, 2020.

[17] In United States Court of Appeals for the Ninth Circuit, op. cit., p. 34.

At the national level, climate lawsuits are being brought on the basis of domestic law, many of them on a constitutional basis, as in *Juliana v. U.S.* Moreover, the decision of a court obeys a constitutional hierarchy that legally binds the parties, especially the State.

The contribution of such national jurisprudence to the responsibility of the State for illegal acts as determined in international law is important, especially in light of the principle of unity of the State.[18]

If the State is declared responsible by its own courts for wrongful acts, whether stemming from a legally binding obligation under international law or from a domestic law merely coincidental with the former, may this same conduct be considered contrary to the State's obligation under international law? In other words, may the evidence presented before a national court, and consequently the court's decision, serve as a causal link between a wrongful act under international law, a non-fulfilled obligation, and the damages caused by the actions of one State to another?

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The growing number of climate litigation cases appearing in domestic courts present a number of different arguments relating to States' actions on climate change. They also offer indication that, very soon, international courts could be referred to in the decision or issuing of advisory opinions about the impacts of climate changes. The jurisdiction of international courts, however, is weighed very differently from that of domestic courts.

In considering climate-related threats where various States have contributed in an inconsistent and geographically dispersed manner to effects that may take place thousands of kilometers from the source of emission, it may be difficult to adopt a criterion for choosing respondents to bring before an international court in relation to a participation quota, or possible solidarity in terms of the damages alleged.

Moreover, if one, some, or all the respondents identified do not agree to submit the dispute or do not recognize the jurisdiction of a chosen international court, the case can be dismissed without consideration due to lack of jurisdiction. Thus, the international court does not enter

[18] "According to a well-established rule of international law, the conduct of any organ of a State must be regarded as an act of that State. This rule … is of a customary character." (Difference Relating to Immunity from Legal Process of a Special Rapporteur of the Commission on Human Rights, Advisory Opinion, I.C.J. Reports 1999, p. 87, para.62. See also Article 4 of the Draft articles on Responsibility of States for Internationally Wrongful Acts. Available at: https://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf. Accessed May 02, 2020.

into the merit of the nature of the obligation claimed.[19]

At the same time, it would also be necessary to identify proof of the legal bond between the parties as to the obligation or duty claimed, or of the unobserved right.

Against this background, assuming that sea level rise is linked to human-induced climate change and will affect maritime boundaries, the following questions should be raised in line with the paper's proposal for an assessment of the adoption of climate change clauses in maritime delimitation agreements:

- Is sea level rise likely to be considered a harmful effect of the pollution of the marine environment caused by GHG emissions, as defined in Article 1 (1) (4) of the UNCLOS?
- Might the obligation to mitigate GHG emissions that pollute the marine environment be linked to the general, whole, and legally binding obligation to protect and preserve the marine environment, the object of Part XII of the Convention, especially taking into account the legal nature of Article 192 of the UNCLOS?
- Does sea level rise impede States from exercising the right of sovereignty over natural resources, according to States and according to their environmental policies foreseen in Article 193 of the UNCLOS?
- Might GHG emission reductions be considered among the "necessary measures" that should be taken by States in order to prevent, reduce, and control pollution of the marine environment, or in order to prevent activities under their jurisdiction or control from causing pollution damage to other States and their environments, as foreseen in Article 194 (1) and (2) of the UNCLOS?

Similar questions about the legal implications of State obligations under international law can be asked with regards to pollution by plastics and microplastics. There are also further questions to be asked regarding the uncertainties about the acceptance of legal claims relating to plastics pollution by an international court, and the rights of a State for which, for example, the public health, fisheries, and tourism of its people have been affected by pollution.

Within this context, international courts' advisory opinions could offer useful the guidance to solving contentious cases related to the aforementioned legal issues. The International Tribunal for the Law of the

[19] In the consideration of preliminary objections of the Case Relative to the Legality of the Use of Force (Serbia and Montenegro v. Belgium, 2004), the International Court of Justice established the distinction between recognition of jurisdiction and judgment of the merits based on the claimed right: Legality of Use of Force, Serbia and Montenegro v Belgium, Judgment, Preliminary Objections, [2004] ICJ Rep 279, ICGJ 33 (ICJ 2004), 15th December 2004, United Nations [UN]; International Court of Justice [ICJ], para. 128. Available at https://www.icj-cij.org/files/case-related/105/105-20041215-JUD-01-00-EN.pdf. Accessed May 02, 2020.

Sea, especially, could contribute a response to the questions I have raised. Since 2011, the Tribunal has issued two relevant advisory opinions. The International Court of Justice, for its part, has issued 28 advisory opinions since 1948.

In the face of the current climate crisis, I would suggest that States should perhaps consider requesting an international court's advisory opinion on the appropriate legal response to the effects of sea level rise. The pressing nature of this issue justifies its consideration by the International Law Commission by, for example, a working group created especially for this purpose.[20]

Finally, it is worth noting that, as paradoxical as it may seem, climate litigation at the domestic level may be a means towards stability, security, and certainty with regards to the interpretation and application of the law, in imposing limits on governments, in establishing rules and guidance for the private sector, and in regulating the implementation of mitigation policies.

On the international level, climate change litigation could potentially provide similar guidance, based on the extensive and rich contentious and advisory jurisprudence of the International Court of Justice, the Permanent Court of Arbitration, the International Tribunal for the Law of the Sea, the Inter-American Court of Human Rights, and the European Court of Human Rights. I reiterate however, that courts should be the last recourse only after unsuccessful diplomatic negotiation.

2. Sea level rise and maritime boundaries

The effects of sea level rise can be identified across several inter-related dimensions: the geographic, the human, the legal, and the economic. In the context of maritime jurisdiction, the law of the sea and geography are linked; geography is given a key role in the law determining claims to maritime space and constructing maritime limits. The rise in sea levels will change the coordinates of the maritime baselines and base points, on which the measurements of all maritime zonal limits are based, which for coasts, low tide elevations and archipelagos are determined according to Articles 5 to 14, and 47 of the UNCLOS.

The base points and baselines are unilaterally established by coastal States.[21] They are noted on charts or coordinates displaying lines of delimitation, that are

[20] International Law Commission. Seventy-first Session (2019). Topics considered in 2019. Sea-level rise in relation to international law. Available at: https://legal.un.org/ilc/sessions/71/index.shtml#a11. Accessed May 02, 2020.

[21] In maritime delimitation agreements, points and baselines are defined unilaterally, and then conferred and accepted bilaterally, coming to be part of a list or table of coordinates through which geodetic lines are drawn that form the limit between coastal states.

deposited with the Secretary-General of the United Nations.[22]

A change in the coordinates of the base points and baselines has the potential to cause legal and diplomatic instability in innumerable maritime delimitation agreements. Based on the current system being implemented in the Pacific, there appears to be a general consensus among States that base points and baselines, and consequently the maritime zones they define, should not be recalculated or reduced as a result of sea level rise, in order to uphold the stability, security, certainty, and good relations between neighboring States that the law seeks to achieve.[23]

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Consider the case of Tuvalu, a small circle of islands and atolls in the South Pacific that may disappear as a result of sea level rise. The rising sea levels threaten the homes and infrastructure, culture, and possibly even the rights of Tuvalu's citizens to belong to the territory. They will also alter the maritime limits of the State, as the geographic features upon which baselines are constructed disappear.[24]

Consequently, the coordinates of the baselines constructing Tuvalu's maritime limits will remain existent only under the legal perspective of Articles 16 (2), 47 (8), 75 (2), 76 (9), and 84(2) of the UNCLOS, as deposited with the Secretary-General of the United Nations. The same threat faces other small island States, such as Kiribati, Maldives, Seychelles, Micronesia, Palau, and Solomon Islands.

Already in 1998, a paper published by Khadem in the 'Boundary & Security Bulletin' noted that, following the Conventions on the Law of the Sea in 1958,

[22] For the territorial sea, Article 16 (2); for archipelagos, Article 47 (9); for exclusive economic zones, Article 75 (2); for the continental shelf, Article 76 (9) of the UNCLOS.

[23] At the "Fiftieth Pacific Islands Forum", the Pacific Islands placed in the Forum Communiqué: "26. Leaders committed to a collective effort, including to develop international law, with the aim of ensuring that once a Forum Member's maritime zones are delineated in accordance with the 1982 UN Convention on the Law of the Sea, that the Members maritime zones could not be challenged or reduced as a result of sea-level rise and climate change."

[24] Article 1 of the Convention on the Rights and Duties of States, signed in Montevideo on December 26, 1993, at the Seventh International American Conference foresees as an element of states the existence of a territory. The doctrine and diplomatic practice, however, recognize peoples without territory, such as the Palestine people, but this is not so understood by all: "The need for a defined territory focuses upon the requirement for a particular territorial base upon which to operate. However, there is no necessity in international law for defined and settled boundaries. A state may be recognized as a legal person even though it is involved in a litigation with its neighbors as to the precise demarcation of its frontiers, so long as there is a consistent band of territory which is undeniably controlled by the government of the alleged state. For this reason, at least, therefore, the 'State of Palestine' declared in November 1988 at a conference in Algiers cannot be regarded as a valid state. The Palestinian organizations did not control any part of the territory they claim." (SHAW, Malcolm N. International Law. 6. ed. New York: CUP, 2008).

the "international law is ill-equipped" to provide a clear and "satisfactory solution" to what he called the "highly unstable coastlines" that are subject to extension or erosion by ocean level activity[25] The solution proposed by Khadem, with reference to a similar proposal made by Bangladesh at the Caracas Session of the Third United Nations Conference on the Law of the Sea, was to apply straight baseline delineation to unstable shorelines. The author argued that this would prove an effective solution as long as the length of segments was limited and avoided the possibility for States to artificially increase the areas of ocean space under their jurisdiction. Recently Schofield (2013) and Sefrioui (2017) have broadened this perspective. [26]

Schofield's work (2013) studies how sea level rise has caused the dislocation of lowland peoples such as those living in the Mekong River Delta and the Red River Delta. The author identifies how sea level rise will cause salinity intrusion on agricultural production in the area. He also notes that sea level rise will impact the delimitation of the outer limits of maritime areas, which are made using those base points and baselines established by coastal States, and that it is likely to affect the lines of equidistance according to the three-phase method.[27]

Sefrioui (2017) notes that physical changes in the base points used to establish baselines may cause conflict between States with opposite or adjacent coasts, either because such base points disappear, or because they end up affecting low tide elevations and islands formed by rocks.[28] There is, moreover, the risk that small island developing States will disappear beneath the sea, and thus will no longer have a territory. It may be the case that, with the disappearance of certain land masses certain disputes may also disappear, as was the case with the offshore island in the Bay of Bengal - named South Talpatti by Bangladesh and New Moore by India – which disappeared in 2010, settling a long-running dispute.

Both Schofield and Sefrioui propose the adoption of fixed baselines or fixed maritime limits. However, both authors also recognize that these measures would depend on an amendment of the UNCLOS, which remains unlikely. Nevertheless, it can be argued that

[25] KHADEM, Alain. Protecting Maritime Zones from the Effects of Sea Level Rise. IBRU Boundary and Security Bulletin, Autumn (1998), p. 76-78, spec. p. 76. Available at https://www.dur.ac.uk/ibru/publications/view/?id=133. Accessed May 02, 2020.

[26] SCHOFIELD, Clive. Holding back the wave: sea level rise and maritime claims. in O. C. Ruppel, C. Roschmann and K. Ruppel-Schlichting(ed), Climate Change: International Law and Global Governance: Legal Responses and Global Responsibility Vol.1 (2013), p. 593-614. SEFRIOUI, S. Adapting to Sea Level Rise: A Law of the Sea Perspective. In: Andreone G. (eds) The Future of the Law of the Sea. Springer, (2017), p. 3-22

[27] The three-phase delimitation method has as a basis the cases of the North Sea Continental Shelf (1969) and is described in the Bangladesh/Myanmar Case (Bangladesh v. Myanmar), Judgment, 14 Mar 2012 par. 233; and in Maritime Delimitation in the Black Sea (Romania v Ukraine). Judgment, ICJ Reports 2009, p. 61, p. 101, par. 116, 120 and 122.

[28] Low tide elevations are treated in Article 13 of the Convention. Islands formed from rocks are referred to in Article 121 (3) of the Convention.

though an amendment of this kind would face a formidable negotiation/diplomatic barrier, the arguments raised by these critics highlight the importance of preserving the rights of small islands over their natural sea resources.

In 2017, at the 18th meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, an entire panel was dedicated to the effects of climate change on the oceans. The panel included proposals on the possibility of adopting fixed baselines in response to sea level rise, and included a discussion around the possibility for small island developing States to sign treaties with neighbors for occupation of a new territory (e.g. an uninhabited or little inhabited island). In this scenario, the States would follow the historical example set by the United States in relation to Texas and Alaska, paying for occupation or including in negotiation counterproposals the sharing of resources included within the maritime areas that had been established as their territory. In this solution, however, the baselines should be fixed.[29]

Under this model, the "legal coast" should take precedence over geographical circumstances in constructing maritime limits. The establishment of fixed baselines would have to be by means of bilateral international agreements, given that it does not seem politically viable to create them by amending the UNCLOS or through the development of a new, specific international agreement. In extreme cases, sea level rise may result in the transfer of maritime space from the jurisdiction of one coastal State to that of a different State that may be opposite or adjacent, or even to the high seas or to the Area, thus changing the applicable legal regime under the UNCLOS.

2.1. "The geographical configuration of the present-day coasts"

Against this background, I would like to explore two arguments in relation to the debate on sea level rise and the legal response envisioned in the discussion on "fixed" base points and baselines.

The first argument relates to coastal States whose territory will be permanently submerged as a result of sea level rise. There should be no alteration in the base points, though these will in effect disappear. Base points and baselines should continue to exist from the legal perspective as coordinates deposited with the Secretary-General of the UN according to the UNCLOS.

This response would mean that there would be an existing territorial sea, exclusive economic zone, and continental shelf, only

[29] See the presentation of Christina Hioureas, an attorney at the law firm Foley Hoag LLP. Available at http://www.un.org/depts/los/consultative_process/icp18_presentations/hioureas.pdf. Accessed May 02, 2020.

from a legal perspective, without the corresponding geographic dimension under national jurisdiction, and therefore not in accordance with the UNCLOS.

Given that base points and baselines are unilaterally established and measured and cannot be altered except by decision of the coastal State, unilaterally or by agreement, or by decision of a judicial body to which jurisdiction has been attributed, if the State decide to keep its base points and baselines as listed and deposited with the Secretary-General of the United Nations, these baselines ought to become "ipso facto" fixed and inalterable. I call this a "do nothing" decision.

The second argument relates to States with opposite or adjacent coasts, whose base points and baselines will be altered with reciprocal impact on their respective maritime boundaries.

The effects of sea level rise are unique to each coastline, given particular characteristics of relief, relevant circumstances such as indented coastlines, and fringes. Consequently, by altering the location of base points and baselines, sea level rise may "transfer" an exclusive economic zone from one coastal State to another. The same may occur with a continental shelf.

Under this scenario, the maritime limits defined by fixed base points and baselines would remain the same legally; that is, those currently deposited with the General-Secretary of the United Nations. Here, the impact of sea level rise on base points and baselines could be considered as presenting an element of legal unpredictability, therein threatening the stability, certainty, and security that a maritime delimitation agreement is intended to ensure, as defined by the Permanent Court of Arbitration:

> *216. The Tribunal notes that maritime delimitations, like land boundaries, must be stable and definitive to ensure a peaceful relationship between the States concerned in the long term. As the International Court of Justice noted in its decision in the Temple of Preah Vihear case, "[i]n general, when two countries establish a frontier between them, one of the primary objects is to achieve stability and finality" (Merits, Judgment of 15 June 1962, I.C.J. Reports 1962, p. 6 at p. 34). The same consideration applies to maritime boundaries.*[30]

Agreements, however, may be revised. The Permanent Court of Arbitration has adopted the position that neither climate change nor its effects shall place at risk the large number of both unilateral and bilateral maritime delimitation agreements that currently exist around the world:

[30] The Bay of Bengal Maritime Boundary Arbitration (Bangladesh/India), Permanent Court of Arbitration, Judgment, July 7, 2014, para. 216. Available at https://www.pcacases.com/web/sendAttach/383. Accessed May 02, 2020.

"217. In the view of the Tribunal, neither the prospect of climate change nor its possible effects can jeopardize the large number of settled maritime boundaries throughout the world. This applies equally to maritime boundaries agreed between States and to those established through international adjudication.

218. The importance of stable and definitive maritime boundaries is all the more essential when the exploration and exploitation of the resources of the continental shelf are at stake. Such ventures call for important investments and the construction of off-shore installations, including those governed by the Convention in Parts VI and XI and in article 60. Bangladesh rightly points out the importance of such resources to a heavily populated State with limited natural resources. In the view of the Tribunal, the sovereign rights of coastal States, and therefore the maritime boundaries between them, must be determined with precision to allow for development and investment. The possibility of change in the maritime boundary established in the present case would defeat the very purpose of the delimitation."[31]

"In the view of the Tribunal, the sovereign rights of coastal States, and therefore the maritime boundaries between them, must be determined with precision to allow for development and investment. The possibility of change in the maritime boundary established in the present case would defeat the very purpose of the delimitation."

In light of this second argument, States with opposite or adjacent coasts may decide: a) to "do nothing" and continue to respect the agreement in force between; or b) to convene a meeting for negotiating new maritime boundaries; or c) to challenge the opposite or adjacent States before an international court.

Going forward, all States directly at risk to the effects of sea level rise, especially those with opposite or adjacent coasts, must prepare themselves for the event of rising sea levels and engage with the questions that this issue will raise. They must consider deploying new surveys on the current location of base points and establishing new baselines. They must also reflect on the history of their bilateral relations with other States, and - in a negotiation scenario - whether it is worth the risk to review the base points and baselines coordinates of the agreement currently in force. These steps are crucial, in preparing for a scenario in which a State decides to take a case relating to sea level rise before an international court. In this instance, the States must take into account that base points and baselines are very likely to be delimitated by an international court "*on the basis of the geographical facts of the case*"[32], using the "physical geography of the

[31] Idem.

[32] Litigation Concerning the Delimitation of the Maritime Boundary between Bangladesh and Myanmar in the Bay of Bengal (Bangladesh/Myanmar), ITLOS, Judgment, 14 March 2012, para. 264. Bay of Bengal Maritime Boundary Arbitration (Bangladesh/India), para. 221 and 222.

relevant coasts"[33], and by "taken into account for the purpose of delimitation are the physical circumstances as they are today", and "the geographical configuration of the present-day coasts" [34].

The discussions witnessed during the 170 bilateral meetings that I have held have indicated a general interest in the introduction of climate change clauses into already existent and future maritime delimitation agreements, in order to avoid climate change litigation before an international court.

2.2. A proposal for the introduction of climate change clauses

I propose that if States with opposite or adjacent coasts desire to review a maritime delimitation agreement between them, they ought to implement a climate change clause that guarantees stability, certainty, and security in regard to reciprocally accepted base points and baselines.

There could be two types of climate change clauses applicable, in the context of rising sea levels, to maritime delimitation agreements between States with opposite or adjacent coasts, with legal effects on fishing and exploitation of hydrocarbon reserves that cross national boundaries

The first suggested clause would allow base points and baselines to be "fixed" on mutual agreement between States, with the caveat that this does not affect the rights of other States, nor affect international obligations that the parties have contracted through other agreements (particularly the UNCLOS) as customary binding rules. It could read as follows:

> The line of maritime delimitation between the Parties, defined as geodetic lines connecting the base points defined by the fixed coordinates of this agreement, shall not be altered by sea level rise or by climate changes, except if they impact the rights and duties of other States or become incompatible with the provisions of international agreements ratified by the Parties.

The second suggested clause would apply to States which coastlines maritime areas with a frequent and high variation of ocean levels, creating a permanent mechanism with a time trigger. It could read as follows:

> The line of maritime delimitation between the Parties, defined as geodetic lines connecting the base points defined by the coordinates fixed by this agreement, may be revised, every "[number]" years, as a consequence of the rise or reduction of sea levels, or of

[33] Litigation Concerning the Delimitation of the Maritime Boundary between Bangladesh and Myanmar in the Bay of Bengal (Bangladesh/Myanmar), para. 264. Maritime Delimitation in the Black Sea (Romania v. Ukraine), I.C.J. Reports 2009, para. 137 and 149.

[34] Continental Shelf (Tunisia/Libyan Arab Jamahiriya), Judgment, I.C.J. Reports 1982, p. 18 at p. 54, para. 61. Bay of Bengal Maritime Boundary Arbitration (Bangladesh/India), para. 378.

climate change, by a group of experts nominated by the Parties according to this agreement.

Solutions based on diplomatic negotiation such as these clauses could not be adjudicated by an international court, but they could be negotiated and implemented between the coastal States involved[35].

Conclusion

Climate change is a global issue that is already affecting people throughout the world. Although its effects remain still relatively imperceptible in some areas of the world, in the Pacific deleterious effects are already perceivable in a climate crisis that must inspire legal solutions to mitigate its wide-ranging and multi-dimensional implications. The legal issues concerning the effects of sea level rise on the base points and baselines used for measuring the territorial sea, as discussed in this paper, are a hugely important aspect hereof.

This paper's proposal for consideration of the adoption of climate change clauses in maritime delimitation agreements would help to avoid climate change litigation in connection with sea level rise before international courts. The introduction of these clauses also has the potential to improve the long-term effectiveness of these agreements, providing predictability, security, and certainty on existent maritime boundaries and preventing international disputes.

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[35] See Delimitation of the Maritime Boundary between Bangladesh and Myanmar in the Bay of Bengal (Bangladesh/Myanmar), para. 476; The Bay of Bengal Maritime Boundary Delimitation between Bangladesh and India (Bangladesh/India), PCA, Judgment, 7 July 2014, para. 500 and 508; and Obligation to Negotiate Access to the Pacific Ocean (Bol. v. Chile), ICJ, Judgement, 01 October 2018, para. 175.

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