

# Discussion on Maritime Entitlements of “Disappearing Islands” Under the Situation of Rising Sea Level

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## Abstract

The impact of climate change-induced sea-level rise has been increasing in recent years. Recent estimates by the United Nations Intergovernmental Panel on Climate Change indicate that sea levels will rise by 98 centimeters by 2100—a considerable increase from the 59 centimeters predicted in 2007. As sea levels continue to rise, the land area of islands shrinks or is even submerged, creating “disappearing islands”. On land, habitats are destroyed, endangering species and threatening coastal investments such as coastal cities and harbors; on the sea, low-tide lines may be altered, inundating important baselines, with boundaries advancing or retreating in tandem with the baselines that have been drawn. The “disappearing islands” will no longer be a remote issue.

**Keywords:** sea-level rise, baselines, ambulatory baselines, disappearing islands

## 1. Introduction

The newest report of the International Panel on Climate Change has concluded that, up to 1.1m of global mean sea level will rise by 2100 if the greenhouse gas emissions are not controlled<sup>1</sup>. So “disappearing islands” will not be a remote issue in the near future. “Disappearing islands” has already resulted in realistic impacts. As for the land area, it will destroy habitats and endanger species, as well as threaten coastal investments such as coastal cities and harbors; as for the sea area, the low-water line can be changed, the important base points can be inundated, and the boundaries are to advance or recede in step with the baselines from which

they are drawn.

However, at the time the 1982 United Nations Convention on the Law of the Sea was stipulated, the factor of sea level rise was not considered, and now the possibilities of rising sea level force us to rethink many fundamental assumptions about the world. The International Law Association established the Baselines Committee in 2008, which considers how international law may be able to respond to those unprecedented existential challenges. Therefore, it is reasonable and necessary to predict the impacts on maritime entitlements of “disappearing islands” under rising sea level and provide coping strategies.

For small island States, coastal areas will become uninhabitable and the boundaries of marine rights will change, leading to legal challenges, such as should the territorial sea baselines move with sea level rise? Should maritime rights shrink with sea level rise?

Currently, the studies of sea level rise in China mainly focus on climate refugees. There has been no in-depth study of the maritime rights of “disappearing islands”. So this research will be of academic help and provide guidance for practice through advanced theoretical research. It will also provide a reference for the formulation of domestic protection policies.

## 2. Literature Review

### 2.1 Domestic Literature Review

The current literature has different focuses on international law issues caused by sea level rise, which can be roughly divided into the following categories:

The first type of literature focuses on the study of climate refugees. This type of literature accounts for a large proportion. There are many dissertations on climate refugees. Liu Wenjun and Hong Ping's *Climate Refugees Should be Protected by International Law* believes that climate refugees do not belong to international refugees, but when sea level rise submerges the territory of countries with low altitude and seriously threatens human survival, climate refugees cannot return to their places of residence like international refugees. Therefore, it is necessary to equate it with the protection of international refugees under international law. The same view is shared by Mao Yingjie's *International Legal Issues and Countermeasures for Climate Refugee Protection*. The author believes that the current problem faced by climate refugees lies in unclear definitions in both international and domestic laws, so the protection of climate refugees at different levels has not been implemented. He further proposes that climate refugees should be clearly defined and the international community should work together to improve the living status of climate refugees by giving them full rights to life, health, property and land, and protecting the rights of climate refugees through the establishment of an international climate refugee relief fund. Liu Yongjun and Li Huiling's *Dilemma and Way out of the Protection of “Environmental Refugees” Under International Law - From the Perspective of Small Island States Facing the Threat of Global Warming*

also believe that the current “environmental refugees” are not included in the protection scope of the Convention relating to the status of refugees, which is the biggest dilemma of current protection.

Such articles focus on the issue of climate refugees and adopt the same ideas. They all point out that the current problem is that the definition of “climate refugees” is not clear and cannot fall into the category of international refugees, and then they compare the similarities and differences between climate refugees caused by natural factors such as sea level rise and international refugees in the general definition, and finally, they point out that climate refugees should be classified as international refugees for protection. The researches on this issue have been relatively rich, and views are not so different. In recent years, it has gradually faded from the focus of discussion.

The second kind of literature focuses on the international law issues of “disappearing islands”. Some of the literature make a macro analysis, and some have a more in-depth analysis of specific issues. He Zhipeng and Xie Shenqing select the specific issue of national qualification, and in the article *Research on the International Law Qualification of a States Whose territory is Completely Submerged Under the Sea*, they believe that the lack of several factors of the standard of nationality qualification may not necessarily lead to the loss of national qualification. In Bai Xuhui's *Analysis of the International Legal Issues on the Disappearance of Islands from the Perspective of the Protection of the Basepoints of the Territorial Sea*, he first made it clear that States have maritime rights to create territorial sea for their islands, but the islands may be disappeared in fact or in law due to the rise of sea level, submarine earthquake and other factors. However, the Convention does not expressly stipulate the legal consequences of the disappearance of islands. He further advocates that even if islands have disappeared due to malicious damage, their maritime rights should still be preserved. He also creatively puts forward the solution of the system of “fictitious islands” to protect and continue the legal rights of relevant islands disappeared for specific reasons. Compared with the previous two articles, Feng Shoubo's article *Disappeared States: Challenges and Responses of Sea Level Rise to International Law* involves many complicated legal issues, including maritime boundaries, the

protection of human rights of cross-border climate refugees and so on.

The third category focuses on States' response to sea-level rise, which provides rich materials for comparing and analyzing the existing response measures and future response suggestions of various countries. For example, Li Mengqi and Wang Hui's *Legal Mechanism and Enlightenment for Coastal Areas of Extraterritorial States to Adapt to Sea Level Rise*, Ma Bo's *Challenges and Responses to International Law of Small Island States Caused by Sea Level Rise - Prospects for Cooperation between China and Small Island States*, Zhang Lei's *Impacts of Climate Change on Small Island Developing States and Ways to Seek Relief Under International Law*, Huang Bo, Deng Yuncheng and Zhang Xiangjun's *Research on the Path and Direction of China-Fiji Cooperation in Coping with Climate Change*, Zhang Nan, Sun Zhenqing, He Yankun and Hou Xiaobo's *Research on the Internal Mechanism of the Alliance of Small Island States - Taking the Position of International Climate Negotiations as the Starting Point for Analysis*, etc.

Such articles are relatively rich and their logical structures are quite different, which can mainly be divided into three categories: (1) Most of the articles involve not only the response of coastal States, but also make some comments and suggestions on the response measures in combination with the impact of sea level rise. The general structure of such articles is to first put forward the impacts of sea level rise or climate change on small island States, then evaluate and analyze the existing regulations, and finally put forward various suggestions on the response of small island States; (2) Some articles directly study the legal protection mechanism of foreign coastal States to cope with sea level rise, and summarize the relevant experience applicable to China's coastal areas to adapt to sea-level rise. For example, Li Mengqi and Wang Hui respectively analyze the coastal legal mechanisms of America, New South Wales, Australia and South Africa. They believe that China can adopt a top-down management model according to the actual situation of each region, and formulate a legal norm that considers China's basic national conditions; (3) Some other articles study different cases of small island States. For example, Lin Lihan takes Tuvalu as an example to analyze the plight of "climate refugees" in resorting to international human rights law.

As for the specific measures involved, the

conclusions are different due to different problems in different articles. For example, the majority suggests that climate refugees should be included in the category of international refugees to be protected at the level of international law. With regard to the existence of national qualifications, He Zhipeng and Xie Shenqing believe that the submerged small island States can claim to retain the sovereignty of the original marine area, concentrate on the resettlement of people and construct artificial islands to maintain the existence of national status.

After a macro classification of article types, this paper focuses on the issues to be solved, namely, whether the marine rights of "disappearing islands" should be retained and how to be retained. The relevant articles can be summarized as follows:

In the discussion of this issue in domestic articles, few scholars advocate the theory of "ambulatory baselines", but only mention it, which shows that it is not widely accepted. At the same time, they say that "the academic community has reached a consensus that the current Convention cannot solve the practical problem of the change of territorial sea baseline caused by sea level rise, and it is bound to improve the current provisions". Most of the articles expressed that the baselines should be permanently frozen when referring to the coping strategies. As Feng Shoubo said in his article, "The area of the high seas will increase with the disappearance of territories and small island States, and the interests of coastal States will be damaged. Having a permanently fixed baseline will help to reduce delimitation disputes and the uncertainty of the scope of sea areas under national jurisdiction caused by sea level rise."

In general, the current articles on the impact of sea level rise on international law are relatively rich in types and considerable in quantity. These researches are of academic value and practical significance. The issue of climate refugees has been discussed more and the views are similar, while the special studies on sinking or disappearing islands, are less.

## 2.2 Foreign Literature Review

Some scholars put forward the theory of "ambulatory baselines". For example, in David D. Caron's article *When Law Makes Climate Change Worse: Rethinking the Law of Baselines in*

*Light of a Rising Sea Level*, he believes that the baseline system is based on the assumption that the sea level will not rise significantly, but this assumption is no longer tenable. The author believes that the baseline system “will not only hinder the adaptation to the sea level rise, but may also aggravate the consequences of climate change”. Finally, the author reviews the possible alternatives to the current law and proposes to adopt a new system, “In this system, the boundaries of all sea areas, especially the exclusive economic zone, are determined according to the currently accepted baselines”, that is, the theory of “ambulatory baselines” is recognized<sup>2</sup>. In *The Effects of a Rising Sea Level on Maritime Limits and Boundaries* written by Alfred Soons, the author also believes that sea level rise will change the sea boundary<sup>3</sup>. Other than that, there are cases in the United States that support the theory of “ambulatory baselines”<sup>4</sup>.

The theory of “ambulatory baselines” is not widely accepted, although in this case, the designated baseline accord with the marine geographic situation. The uncertainty of the boundaries and locations of the areas involved under the ambulatory baselines will result in repeated changes and adjustments of the charts by coastal States, which will easily lead to disputes over maritime rights and interests. It may also lead to disputes over sovereign rights over living and non-living resources. For this reason, many scholars have proposed that baselines should be fixed or frozen. For example, Rosemary Rayfuse advocates, in his article *W(h)ither Tuvalu? International Law and Disappearing States*, to freeze the existing baselines and sea areas so that coastal States facing the threat of “disappearing islands” can continue to enjoy and use marine resources<sup>5</sup>. Stoutenburg shares the same view<sup>6</sup>. Although the theory of “ambulatory baselines” has not been widely recognized, at least it is certain that the current Convention has been unable to solve the practical problem of the change of the territorial sea baseline caused by the rise of sea level, and it is bound to improve the current provisions.

### 3. Maritime Rights of “Disappearing Islands”

What will be the impact of sea level rise on territorial sea baselines and maritime rights? Should the baselines be changed in response to sea level rise? Should the marine rights of the “disappearing islands” be preserved and in what way should they be realized?

#### 3.1 Whether Maritime Rights Are Impaired with the Rise of Sea Level

If small-island States want to preserve or protect their maritime rights to a certain extent, the principle of “land dominates the sea” may be impacted. Under this principle, if an island is completely submerged by the rise of sea level, its corresponding marine rights will also disappear.

Some scholars believe that this principle can be applied as a general principle in the case of “disappearing islands” caused by sea level rise. Some members of the International Law Association Committee on International Law and Sea Level Rise believe that this principle does not exist in the text of the Convention, and its essence is “pragmatic judge-made axiom” for maritime delimitation<sup>7</sup>. However, in any case, the rise of sea level has challenged the rules of maritime rights, resulting in the uncertainty of maritime rights.

#### 3.2 Conflict Caused by Change of Outer Boundary of Maritime Areas

As the sea level rises, the baseline for measuring the breadth of the territorial sea will move to the land, the outer limits of the territorial sea and EEZ will move at the same time, thus affecting the outer limits of each sea area.

Driven by the disappearance of islands and competition for marine resources caused by climate change, coastal States may try to find reasons to question the fairness of the maritime delimitation agreements reached with neighboring countries in the past. Although countries usually try their best to maintain the effectiveness of the maritime delimitation agreements that have already entered into force. Sea level rise is likely to become an essential reason for countries to question the stability of maritime delimitation agreements. Of course, some scholars believe that the rise of sea level is not enough to change the original maritime delimitation agreement, because the delimitation treaty has priority, even if the situation change<sup>8</sup>. Although the preliminary opinion expressed by the International Law Association Committee on International Law and Sea Level Rise in its 2016 interim report tends to believe that the boundary treaty has certainty and stability, it is not clear whether “change of circumstances” can be applied to the boundary agreement on maritime rights.

### 4. Rethinking on the Existing System Caused

## by Sea Level Rise

### 4.1 *Changes in the Institutional Foundation of the Convention*

The negotiators of the Convention hardly foresaw the significant changes in coastal geography caused by significant natural phenomena such as sea level rise. At that time, international law was based on geographical conditions that were generally considered relatively stable. However, the existing scientific research shows that the sea level has risen significantly in this century. Yet no remedy for the consequences of sea level rise can be found in the Convention. So the challenge to the law of the sea is bound to appear.

### 4.2 *The Theory of "Ambulatory Baselines"*

Territorial sea baselines are considered to be "ambulatory", meaning that as the low-water line shifts landward, so too will the baseline and boundary<sup>9</sup>. This principle is not expressly stated in UNCLOS, but arises out of "negative implication". The only UNCLOS provisions explicitly fixing territorial sea baselines or boundaries are Articles 7(2) and 76(9). Article 7(2) provides that baselines measured from coastlines that are unstable "because of the presence of a delta and other natural conditions" will be fixed until modified by the coastal States, "notwithstanding subsequent regression of the low-water line". This Article was originally inserted into UNCLOS at the behest of Bangladesh to lower the threshold for establishing straight baselines for deltaic coasts to ensure the stability of territorial sea baselines in the case of an unstable coastline. Similarly, under Article 76(9) the outer limits of the continental shelf are 'permanently' fixed once charts are deposited. As no other provisions explicitly States whether territorial sea baselines or boundaries are fixed, they are not considered to be so. The International Law Association Committee on Baselines under the International Law of the Sea has confirmed this, stating that "the normal baseline is ambulatory, moving ... landward to reflect changes caused by ... sea level rise".

The impact of ambulatory baselines is two-fold. Firstly, as the low-water line, from which territorial sea baselines are measured, shifts landward with sea level rise, the outer boundary will also move landward and maritime zones will shift accordingly. Secondly, as baselines are not fixed, the status of features can change if

they become uninhabitable or inundated by sea level rise, and maritime entitlements will consequently also change.

## 5. The Choices of Coastal States for the Preservation of Maritime Rights

### 5.1 *The Practice of Pacific Island States*

A regional practice appears to be emerging among States in the Western Pacific whereby small-island States are unilaterally re-declaring their maritime zones, and including coordinates delineating not just the position of the territorial sea baselines, but the position of the outer limits of the EEZ<sup>10</sup>. This practice is significant because it appears to be an intentional effort to pre-emptively declare that alteration to the coastline or the status of any features through sea level rise will not change the position of territorial sea baselines or outer limits. Legislation to this effect has been passed by the Marshall Islands, Kiribati, Tuvalu, and by other States in the Western Pacific region including Palau, the Cook Islands, Fiji, Nauru, and Niue<sup>11</sup>. The purpose of this legislation seems to be to gain international recognition of EEZ limits to prevent a decrease of maritime entitlements if sea level rise causes the low-water line to recede or occasions the loss of or alteration to critical features. This appears to indicate the development of a regional practice by the States who are most vulnerable to sea level rise. Although not a group with great political power, their coordinated and consistent efforts strongly evidence the development of States practice.

### 5.2 *Physical Reinforcement*

UNCLOS allows for physical protection of the coastline. "Permanent harbor works", including the construction of seawalls and land reclamation works, are permitted. However, their utility to protect the coast from sea level rise is limited. The cost of construction to the extent needed to fully conserve territorial sea baselines of small-island States would likely be prohibitive. It has been estimated, for instance, that constructing seawalls to protect the low-water line of the Marshall Islands would cost approximately USD\$147 million, almost three-quarters of the annual GDP. Likewise, to protect Tuvalu's capital, Funafuti, 54km of defenses are required to protect a mere 2.5km<sup>2</sup> of land<sup>12</sup>. It can be surmised that the sheer extent of defenses needed to protect the entirety of Tuvalu's territorial sea baselines would be insurmountably challenging and expensive.

Moreover, preserving the low-water line can cause environmental harm. Waves rebounding off the internal barrier of a seawall erode the shoreline, and though preserving the high-water line, can disintegrate the low-water line and have the inverse effect of moving the territorial sea baselines landward. Physical protection of the low-water line can also inhibit sediment flow and prevent coral atolls from growing at pace with sea level rise, thereby accelerating erosion.

### 5.3 Freeze Baselines or Outer Limits of Maritime Areas

Most experts on the law of the sea have so far proposed the formulation of a new rule of international law, the effect of which is to freeze the baselines of the territorial sea or permanently fix the outer limits of the maritime areas. In other words, the proposal to deal with sea level rise aims to maintain a static legal situation in the face of an increasingly dynamic natural change process<sup>13</sup>.

The advantage of freezing the territorial sea baselines is that the means of defining baselines and maritime rights of coastal States will continue to be effective without re-determination or re-drawing. Even if the rising sea level makes the coastal territory or base point of the coastal States disappear, the existing maritime rights will continue to be retained. The cost of blindly investing a lot of resources to maintain the baseline will be reduced. In this way, the status quo of the allocation of maritime rights under the Convention will be maintained, and coastal States will be less affected by climate change. However, its defect lies in that, the coastal States choose to maintain a legal baseline that no longer reflects the actual position of the low-water line. With the rise of sea level, those marine features that generate maritime rights have been submerged, but the marine rights still exist, which breaks through the principle of "land dominates the sea".

By freezing the outer limits of maritime areas, coastal States can retain their existing claims on marine areas, and no longer blindly invest a large amount of resources to preserve important natural features to preserve maritime rights. At the same time, the existing baseline system will not be changed, and the baseline can be moved to reflect the physical reality of sea level rise. Of course, this approach also has significant defects, that is, maintaining the outer limits of maritime

rights means that the maritime rights of coastal States may go beyond the definition of the Convention, which will bring corresponding challenges to the breadth of the territorial sea and EEZ.

## 6. Conclusion

Examining the maintenance of the maritime rights of "disappearing islands" under the framework of the Convention can be achieved by physical reinforcement, freezing the territorial sea baselines or the outer limits of maritime areas. The way of freezing the territorial sea baselines has less impact on the existing Convention and has been supported by some States' practice. Based on fully summarizing the current experience, the international community can make up for the defects of the existing rules by establishing new rules, and rationally examining the maintenance of the marine rights of the "disappearing islands."

## References

- Alfred Soons. (1990). The Effects of a Rising Sea Level on Maritime Limits and Boundaries, *Netherlands International Law Review*, 37(2), 207.
- Caron D D. (2009). Chapter I. Climate Change, Sea Level Rise and the Coming Uncertainty in Oceanic Boundaries: A Proposal to Avoid Conflict. *Maritime Boundary Disputes, Settlement Processes, and the Law of the Sea. Brill Nijhoff*, 1-17.
- David D, Caron. (1990). When Law Makes Climate Change Worse: Rethinking the Law of Baselines in Light of a Rising Sea Level, *Ecology Law Quarterly*, 17, 621.
- Freestone D, Vidas D, Camprubí A T. (2017). Sea Level Rise and Impacts on Maritime Zones and Limits: The Work of the ILC Committee on International Law and Sea Level Rise. *The Korean Journal of International and Comparative Law*, 5(1), 5-35.
- Lal K R. (2017). Legal Measures to Address the Impacts of Climate Change-induced Sea Level Rise on Pacific Statehood, Sovereignty and Exclusive Economic Zones. *Te Mata Koi: Auckland University Law Review*, 23, 235-268.
- Lathrop C G, Roach J A, Rothwell D R. (2019). Baselines under the International Law of the Sea: Reports of the International Law Association Committee on Baselines under the International Law of the Sea. *Brill*

- Research Perspectives in the Law of the Sea*, 2(1-2), 1-177.
- Murphy R E. (1949). "High" and "Low" Islands in the Eastern Carolines. *Geographical Review*, 39(3), 425-439.
- Pratt C, Govan H. (2010). Our sea of islands our livelihoods our Oceania. Framework for a Pacific Oceanscape: a catalyst for implementation of ocean policy. Suva.
- Qiu W, Firestone J. (2020). The non-negligible influence of global sea level change on the distribution of maritime zones. *Marine Policy*, 122, 104267.
- Reynolds J. (2020). A Sinking Feeling: The Effect of Sea Level Rise on Baselines and Statehood in the Western Pacific. *International Community Law Review*, 38, 60.
- Rosemary Rayfuse. (2009). W(h)ither Tuvalu? International Law and Disappearing States, University of New South Wales Faculty of Law Research Series.
- Schofield C. (2010). Rising waters, shrinking States: the potential impacts of sea level rise on claims to maritime jurisdiction. *German YB Int'l L.*, 53, 189.
- Stoutenburg. (2011). Implementing a New Regime of Stable Maritime Zones to Ensure the (Economic) Survival of Small Island States Threatened by Sea Level Rise, *The International Journal of Marine and Coastal Law*, (26), p. 275.
- Thao N H. (2020). Sea-Level Rise and the Law of the Sea in the Western Pacific Region. *JE Asia & Int'l L.*, 13, 121.
- Vidas D, Schei P J. (2011). Introduction the World Ocean in Globalisation: Challenges and Responses for the Anthropocene Epoch. *The World Ocean in Globalisation. Brill Nijhoff*, 1-15.
- 
- <sup>1</sup> Vidas D, Freestone D, McAdam J. (2014). International law and sea level rise: The new ILA committee. *ILSA J. Int'l & Comp. L.*, 21, 397.
- <sup>2</sup> David D. Caron. (1990). When Law Makes Climate Change Worse: Rethinking the Law of Baselines in Light of a Rising Sea Level. *ECOLOGY LAW QUARTERLY*, 17, 621.
- <sup>3</sup> Alfred Soons. (1990). The Effects of a Rising Sea Level on Maritime Limits and Boundaries. *NETHERLANDS INTERNATIONAL LAW REVIEW*, 37(2), 207.
- <sup>4</sup> United States v. California, 382 U.S. 448, 449. (1966). This case regarded the coastline as something that "can be modified by natural or artificial means", rather than something fixed at a particular time in history.
- <sup>5</sup> Rosemary Rayfuse. (2009). W(h)ither Tuvalu? International Law and Disappearing States, University of New South Wales Faculty of Law Research Series.
- <sup>6</sup> Stoutenburg. (2011). Implementing a New Regime of Stable Maritime Zones to Ensure the (Economic) Survival of Small Island States Threatened by Sea Level Rise. *The International Journal of Marine and Coastal Law*, (26), p. 275.
- <sup>7</sup> Caron D D. (2009). Chapter I. Climate Change, Sea Level Rise and the Coming Uncertainty in Oceanic Boundaries: A Proposal to Avoid Conflict // Maritime Boundary Disputes, Settlement Processes, and the Law of the Sea. *Brill Nijhoff*, 1-17.
- <sup>8</sup> Schofield C. (2009). Shifting limits: sea level rise and options to secure maritime jurisdictional claims. *Carbon & Climate L. Rev.*, 405.
- <sup>9</sup> Lathrop C G, Roach J A, Rothwell D R. (2019). Baselines under the International Law of the Sea: Reports of the International Law Association Committee on Baselines under the International Law of the Sea. *Brill Research Perspectives in the Law of the Sea*, 2(1-2), 1-177.
- <sup>10</sup> Pratt C, Govan H. (2010). Our sea of islands our livelihoods our Oceania. Framework for a Pacific Ocean scape: a catalyst for implementation of ocean policy. Suva.
- <sup>11</sup> Burns W C G. (2000). The Impact of Climate Change on Pacific Island Developing Countries in the 21st Century. *Climate change in the South Pacific: Impacts and Responses in Australia, New Zealand, and small island states*. Springer, Dordrecht, 233-250.
- <sup>12</sup> Ödalen J. (2014). Underwater self-determination: Sea-level rise and deterritorialized small island states. *Ethics, Policy & Environment*, 17(2), 225-237.
- <sup>13</sup> Vidas D, Schei P J. (2011). Introduction The World Ocean in Globalisation: Challenges and Responses for the Anthropocene Epoch. *The World Ocean in Globalisation. Brill Nijhoff*, 1-15.