

Protecting Maritime Zones from the Effects of Sea Level Rise

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A Potential Threat To Ocean Limits

Coastlines serve a vital function in the law of the sea, not least because they establish the position of (normal) baselines from which the breadth of virtually every maritime zone is measured. They not only determine the geographic scope of internal and archipelagic waters, but are the point of reference from which the limits of the territorial sea, the contiguous zone, the exclusive economic zone, the high seas, and occasionally the continental shelf are defined.

Since the first major codification of the laws of the sea at Geneva in 1958, coastlines have remained relatively stable (Bird, 1985: ix). However, rapid climatic changes, which many scientists now suggest are accelerating, could affect coastlines in ways which the architects of the law of the sea had not anticipated. There is mounting evidence that increasing levels of carbon dioxide and other greenhouse gases threaten to raise the temperature of the earth's atmosphere between 1.5° C and 4.5° C by the middle of next century (Mintzer, 1992: 26). This is expected to increase the surface temperature of sea water, accelerate melting of glaciers, and contribute to an overall rise in sea level. If scientific projections are correct, rising waters could exert enough pressure along coastlines to permanently flood low-lying sectors, and radically modify the topography of the littoral in certain areas of the world.

The large scale changes in coastal outline that could accompany the unprecedented climatic changes of the coming century represent a singular threat to the existing law of the sea regime. International law provides a detailed set of rules describing how baselines should be constructed in relation to the coast. It also imposes strict limits on how far each maritime zone can extend seaward. Rapidly receding shorelines could result in declared baselines to violate these rules and lead to claimed maritime zones exceeding their permissible breadth. While states are required to portray these limits on charts, there is no indication whether, or how often, the charts must be revised. In the absence of a clear rule, states experiencing severe erosion may not feel obligated to amend their charts, particularly if such a move would result in loss of control over valuable ocean resources. In extreme cases, such

as the submergence of remote offshore islands, vast areas of ocean space could find their juridical identity threatened. Changes of this magnitude could prove a fertile source of inter-state conflict and spark disputes over navigation rights and more particularly sovereignty rights to living and non-living marine resources.

As it stands, international law is ill-equipped to respond to this type of situation. None of the provisions of the 1958 Geneva Conventions address the problems that are associated with shoreline migration. The 1982 United Nations Convention on the Law of the Sea appears to suffer from a similar defect. While Article 7 of that instrument contains a provision which focuses on highly unstable coastlines, its scope is extremely narrow, and its language is too cryptic to yield a satisfactory solution. Several aspects of the rule are so ambiguous that it may be of limited use, if any use at all, in the context of rising sea levels.

This article considers how straight baselines could be used to protect the limits of maritime zones from the effects of shoreline migration and describes an innovative technique for controlling the length of straight segments. It points out the relatively mild effect that adopting this approach would have on most maritime zones, and proposes a set of rules to preserve navigation rights in the littoral.

Using Straight Segments Along Unstable Coastlines

The normal method of drawing baselines is to simply follow the low-water line along the coast, which is the point at which land meets the sea at low tide. This type of baseline is particularly vulnerable to movement of the shoreline, because it coincides with the coastline throughout its entire length. By contrast, baselines that are formed by straight segments are more resilient to shoreline migration, because it is only at their extremities that they come in contact with land (Prescott and Bird, 1990: 288).

Prescott and Bird point out that states could take advantage of this fact to:

...draw straight baselines according to Article 7(1) along those sections of coast liable to retreat and anchor the baselines on features unlikely to be eroded. Then the straight lines would remain in place even though [sic] the coastline behind them retreated (Prescott and Bird, 1990: 297).

Bangladesh had proposed a similar solution at the Caracas Session of the Third United Nations Conference on the Law of the Sea (Platzöder, 1982: 181). However, its proposal was rejected by the Second Committee.

The main obstacle to applying Article 7(1) wherever the coastline is unstable, is that it would produce baselines that are situated further out to sea than is sanctioned by the traditional rules of international law. The only circumstances under which states may currently use Article 7(1) baselines is where their coastline is deeply indented and cut into, or where there is a fringe of islands in its immediate vicinity. Allowing coastal states with unstable shorelines to arbitrarily apply the straight baseline method of delineation throughout the entire length of their coastal front would considerably increase the areas of ocean space under their jurisdictional control, and carries with it the potential for being thoroughly abused. Naturally, the international community is not inclined to adopt a new method of constructing baselines which does not contain any safeguards against abuse.

An Innovative Technique Designed To Control The Length Of Straight Segments And Prevent Abuse

So far, it appears that little attention has been devoted to how the method of straight baseline delineation could be used to draw straight segments that are resilient to shoreline migration, but deviate as little as necessary from the general direction of the coast. Along a given stretch of unstable shoreline there may be several combinations of suitable points which could serve as safe havens for the termini of straight segments. The temptation for a state bent on increasing the areas of ocean space under its command is to avoid linking each stable point to the next available stable point on the shoreline, thus increasing the length of individual segments and correspondingly the additional areas of maritime space claimed. However, it is possible to prevent states from using unnecessarily long segments. This can be achieved in two ways.

The first is to simply promulgate a rule that would require states to rely on the combination of safe

anchoring points, that produces the shortest possible straight segments which connect each stable point to the next available point along the shore.

The second is to compel states to rely not only on every stable point that is situated on the water's edge, but to incorporate any stable point located within a narrow ribbon of land immediately adjacent to the shoreline. The breadth of this strip of land could depend on the scale which the coastal state has used to portray the low-water line. For example, as Prescott points out,

[a]t a scale of 1:100,000 the thickness of lines on charts portraying either the coastline or baselines, will represent about 100 meters (Prescott, 1983: 49).

Thus, where the charts are at that scale, any stable point situated 100 meters from the water's edge could serve as anchoring point for straight segments. In the view of the present author, compelling states to use this technique would considerably shorten the length of straight segments and would virtually eliminate abuse.

A mild form of creeping jurisdiction

Even with adequate safeguards, allowing states to use straight baselines along their unstable shorelines will tend to increase the areas of ocean space under their control. However, that is not as disruptive as some states may fear. Abandoning the low-water line of the coast in favour of straight segments would have a minimal impact. This is because the ability of a state to propel the outer limit of its maritime zones further out to sea by using straight baselines diminishes with increasing distance from land (Bird and Prescott, 1989: 185-186).¹ The effect on the outer limit of the 200 nautical mile exclusive economic zone will be either non-existent or minor. The same applies to the outer limit of the continental shelf which is too far from the low-water line to be seriously affected. In any event, once the outer limit of the continental shelf has been established it is permanently fixed and will not shift.

The greatest impact will be felt in zones that are immediately adjacent to the coastline. Replacing normal baselines with straight segments will naturally convert areas that were initially part of the territorial waters of the state into internal waters. This would place greater restrictions on the right of innocent passage of ships in those areas. Not all states may be willing to endorse a solution that adversely affects their navigation rights in the territorial waters of states with unstable shoreline. However, there is a simple remedy to this problem.

Article 8(2) of the United Nations Convention on the Law of the Sea provides that when straight baselines along deeply indented coasts or coasts that are fringed with islands enclose areas which previously had not been internal waters, the right of innocent passage survives in those areas. There is no reason why this principle could not be extended to ocean spaces that straight baselines drawn along unstable coastlines would convert into internal waters.

Shifting from normal baselines to straight baselines would likewise push the envelope of territorial waters further out to sea. This would force territorial waters to encroach upon areas of the high sea or the exclusive economic zone where foreign vessels are unlikely to abdicate their right to freedom of navigation. The remedy is to adopt a new rule that would preserve the freedom of navigation in areas of the high seas or the exclusive economic zone which are converted into territorial waters.

Conclusion

The law of the sea has a remarkable ability to adapt to changing circumstances. At several stages in its evolution, new methods of drawing baselines emerged, some of which rely on segments that depart considerably from the low-water line. Archipelagic baselines are a good example. These can extend up to 125 nautical miles in length without coming in contact with land except at their extremities. They join the outermost islands and drying reefs of archipelagic states and can enclose vast areas of ocean space.

By comparison, applying Article 7(1) baselines to unstable shorelines is a rather tame deviation from conventional methods of baseline delineation. Although this solution was rejected at the Third United Nations Conference on the Law of the Sea, it deserves to be reconsidered, particularly in light of the innovative techniques which have been proposed to limit the length of straight segments and the real threat of sea level rise.

References

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Note

¹ Applying the envelope of arcs of circles method, the further the outer limit of a zone is from the coastline, the fewer of the sinuosities of the coastline are reflected in the outer limit of that zone. As O'Connell has observed in relation to 3, 12 and 200 nautical mile territorial seas:

[e]xtending the territorial sea from three to twelve miles obviously does not result in a projection on to a larger scale of the envelope of arcs of circles because different centres of arcs result from different circles. The greater the extent of the territorial sea the more difficult it becomes to draw circles whose circumferences cut two separate points on the coast, since in relation to that extent the scale of the curvature of the coast proportionately diminishes, until it becomes virtually a straight coast when the extent of the territorial sea is 200 nautical miles. Hence the further removed from the coast is the exterior limit of the territorial sea the nearer it approximates to a trace parallele.

Similar distortions occur along sections of shorelines that support straight baselines. Thus, abandoning the low-water line of the coast in favour of straight segments would have a minimal impact.

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