

The Delimitation of Maritime Boundaries in the Timor Sea

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Introduction

The island of Timor is situated in the Indian Ocean north west of Australia about 300 miles* from Darwin. It is surrounded by the Timor Sea which stretches from the Arafura Sea in the north east to the region south west of Timor and surrounding islands. It has an area of more than 25 000 square metres and a population of over one million people.

The western portion of the island (West Timor) was part of the Dutch East Indies and became part of the Indonesian Republic when the Dutch colony achieved independence after the Second World War. The eastern portion of the island (East Timor) was a Portuguese colony until its occupation by Indonesia in 1975 after a revolt by the indigenous inhabitants against Portuguese rule was suppressed after the intervention of Indonesian armed forces. East Timor was subsequently incorporated into the Indonesian Republic.

The most notable feature of the maritime geomorphological pattern of the seabed separating the shelf adjacent to Australia (known as the Sahul Shelf) from the seabed adjacent to Timor is the submarine trough known as the Timor Trough which is between 40 and 70 miles from Timor and over 200 miles from the Australian coastline. To the north of the Trough and east of the Tanimbar Islands, the geological shelf between Australia and West Irian is a common one and extends past the Indonesia-Papua New Guinea border into the Torres Strait and the Coral Sea.

The Timor Trough constitutes a significant feature of the maritime environment in the Timor Sea. Its axis lies in a north-east to south-west direction for a distance of 800 km between Timor and north-west Australia where it terminates, opening at the southern tip of Timor into an eastern stretch of seabed known as the Java Trench, although a plateau (the Scott Plateau) intervenes in part of the region. The Trough is up to 3400 metres in depth, with the greater part of the area being within the 2000 metres isobath.

The Australian shelf stretches to a distance of over 200 miles from the Northern Territory coastline. The major part of the seabed on the Australian side (ie the eastern and southern side) of the Trough is within the 200 metre depth. Beyond this depth there is a continental slope which by gradual inclination extends to and constitutes part of the southern section

* The references to 'miles' in this article are to 'nautical miles'. The paper was written on the basis of the text of the Informal Composite Negotiating Text, Rev 1: for the latest text entitled Draft Convention on the Law of the Sea (Informal Text), see A/Conf. 62/WP. 10/Rev. 3.

of the Trough. On the northern and western side, the Trough is bounded by a slope and a rise (less than 60 miles from the Timor coastline) which is narrow in width compared with the Australian shelf.

A complete picture of the geology of the Shelf is still to be established by experimental work and analysis. It appears that the Australian shelf is underlain by sediments which continue beneath the southern slope. The Trough itself appears to constitute a major structural discontinuity, although little is known of the nature of the area to the north adjacent to Timor. There has been some speculation about the region in terms of the application of the theory of plate tectonics. It may be conjectured that the Australian 'plate' is moving under an Asian 'plate' to the north on which Indonesian islands are situated, but whether the dividing line of the plates is to the north or south of Timor is unknown.

An Agreement¹ (supplementing an earlier Agreement² in 1971) was entered into in 1972 between Australia and Indonesia in relation to seabed boundaries to the north and south of the area adjacent to East Timor. This Agreement entered into force in 1973. A seabed boundary (consisting of lines joining co-ordinates of points of latitude and longitude) has been drawn from a point to the south of the Tanimbar Islands (where it joins the extremity of a boundary negotiated under the earlier agreement dividing the Continental Shelf off West Irian from that of Northern Australia) to a point opposite the northern tip of East Timor.³ A second boundary (consisting of lines joining co-ordinates of points) commences at a point opposite to the boundaries of East and West Timor and continues south to a point between Roti Island (belonging to Indonesia) and Ashmore Reef (belonging to Australia).⁴ Thus there is a gap (the 'Timor Gap') in the area of the seabed opposite East Timor (previously Portuguese Timor) which extends across the north-eastern portion of the Trough.

The actual boundary agreed upon in 1972 in the area off West Timor was not located at the foot of the Australian continental slope or the middle of the Trough but was located approximately a third of the way down the Australian slope between the 200 metre line and the 100 metre line.⁵ This concession of Australian continental slope jurisdiction was

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1. Agreement between the Government of the Commonwealth of Australia and the Government of the Republic of Indonesia Establishing Certain Seabed Boundaries in the Area of the Timor and Arafura Seas Supplementary to the Agreement of 18 May 1971. Signed, Jakarta, 9 October 1972, entered into force 8 November 1973 (Aust TS 1973 No 32).
 2. Agreement between the Government of the Commonwealth of Australia and the Government of the Republic of Indonesia Establishing Certain Seabed Boundaries. Signed, Canberra, 18 May 1971, entered into force 8 November 1973 (Aust TS 1973 No 31).
 3. Supplementary Agreement, Article 1.
 4. *Ibid*, Article 2.
 5. Prescott, *The Political Geography of the Oceans* (1975), p 194, states that 'Australia conceded about 1350 square nautical miles of the continental shelf, for which exploration permits had been granted'. This reference must be taken to be to the

made in the interests of reaching an agreement with Indonesia which preserved Australian *shelf* jurisdiction (ie jurisdiction over the area within 200 metres).

Negotiations commenced in 1978 between the two countries on the seabed boundary opposite East Timor. The major point of difference between the Indonesian and Australian Governments in these negotiations appears to be based (as it was in the earlier negotiations) on the significance of the Trough and the 'equity' of a median line.⁶ The view of the Australian Government is that the Timor Trough constitutes a geomorphological feature which separates the Australian shelf from the East Timor shelf. The Indonesian Government, on the other hand, appears to take the view that current legal developments support the proposition that the 200 mile limit is the relevant criterion for demarcating the seabed as well as water column resource jurisdiction between opposite States (at least where the distance between the countries involved does not exceed 400 miles), and that consequently a half-way split or median line constitutes the equitable line of demarcation.

The Australian position is based on the argument that the division of the seabed between opposite States is, according to the current state of international law confirmed by Article 76 of the Informal Composite Negotiating Text,⁷ to be based on equitable principles taking account of all the relevant circumstances. Such principles and circumstances entail recognition of geomorphological features including the existence of a trough. Such a feature requires a departure from the median line principle where as in the case of the Timor Sea between Australia and Timor two separate shelves and margins are involved. Consequently, in the Australian view, the principle which is central to the determination of the boundary line is the concept that Australia has inherent sovereign rights over the resources of that part of the seabed which constitutes the natural prolongation of the Australian land mass extending to the edge of the continental margin. At the very least the rights dependent on natural prolongation (a principle recognised in customary international law as elucidated in the *North Sea Continental Shelf* cases⁸) require recognition of sovereign rights over the shelf proper (a principle also recognised in customary international law and in Article 1 of the Convention on the Continental Shelf).

It appears that Indonesia disputes this interpretation and argues that the geomorphological criterion is subordinate to the geographical (distance from shore) criterion. On this view the natural prolongation criterion only becomes a paramount criterion where a shelf extends beyond 200 miles or in the context of opposite states where (in the absence of other special

continental slope rather than the continental shelf proper (ie the area within the 200 metre isobath) all of which remained within Australian jurisdiction.

6. *Australian Financial Review*, 10 October 1979, p 9; 17 October 1979, p 9.

7. Informal Composite Negotiating Text, Rev 1 (hereafter cited as ICNT) A/Conf. 62/WP. 10/Rev. 1, 28 April, 1979.

8. ICJ Rep 1969, p 3.

circumstances) the distance between the baselines of the two countries exceeds 400 miles.

It would seem that the question of fisheries jurisdiction will also arise in the negotiations. The issue here is whether a fisheries delimitation line should be identical with a seabed resources line. The development of the EEZ (exclusive economic zone), which is recognised in Part V of the ICNT, tends to unite jurisdictional rights over seabed and water column resources, although Article 56(3) of the Text prescribes that rights in relation to the seabed of the EEZ shall be exercised in accordance with Part VI (the continental shelf provisions). Moreover the boundary delimitation article of Part V is similar in substance to the corresponding article of Part VI affirming that the delimitation 'shall be effected by agreement in accordance with equitable principles employing, where appropriate, the median or equidistance line, and taking account of all the relevant circumstances'.⁹ It can be argued, however, that where a country has not adopted an EEZ but merely a 200 mile fisheries zone (in addition to a pre-existing seabed resources line) it is open to the country to adopt different lines for seabed resources and fisheries purposes although practicalities (particularly in the light of regulation of sedentary resources) may suggest the need for a unified line.¹⁰ Even in this context, where the maritime area is a complex one, questions will arise as to whether a fisheries delimitation line should be the median line or whether the concept of equity and the criterion of relevant circumstances require that the fisheries delimitation should follow a seabed line based on geomorphological features.

Principles to be applied in a Seabed Delimitation

The principles to be applied in the delimitation of the maritime boundaries of opposite States (ie States whose coastlines face each other) are derived from a combination of the Convention on the Continental Shelf and customary international law. The articles of the ICNT are relevant in the context, some as reflecting a developing customary international law component, others as *lege ferenda* to be converted into treaty law only when a treaty is signed and comes into operation. Until then, the latter articles (which would include Part V) may reflect an international consensus but such consensus in itself will not be sufficient to generate new principles of international law to replace existing principles.

Of fundamental importance in the definition of maritime customary international law principles on delimitation is the judgment of the International Court of Justice in the *North Sea Continental Shelf* cases¹¹ which dealt with the demarcation of boundaries between *adjacent* States. The

9. Article 74(1). Cp Article 83(1).

10. Colson, 'The United Kingdom-France Continental Shelf Arbitration' (1978) 72 AJIL 95 at 111. But see below pp 81-86.

11. ICJ Rep 1969, p 3. See Grisel, 'The Lateral Boundaries of the Continental Shelf and the Judgment of the International Court of Justice in the North Sea Continental Shelf Cases', (1970) 64 AJIL 562.

oft-quoted dictum of the Court which enshrines the basic principle to be applied is as follows:¹²

'Delimitation is to be effected by agreement in accordance with equitable principles, and taking account of all the relevant circumstances, in such a way as to leave as much as possible to each Party all those parts of the continental shelf that constitute a natural prolongation of its land territory into and under the sea without encroachment on the natural prolongation of the land territory of the other'.

In emphasizing the doctrine of equity the court departed from the more precise formulation of the principles of the delimitation in Article 6 of the Convention on the Continental Shelf which relate to the demarcation of boundaries between opposite and adjacent States. Article 6 provides:

1. Where the same continental shelf is adjacent to the territories of two or more States whose coasts are opposite each other, the boundary of the continental shelf appertaining to such States shall be determined by agreement between them. In the absence of agreement, and unless another boundary is justified by special circumstances, the boundary is the median line, every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.
2. Where the same continental shelf is adjacent to the territories of two adjacent States, the boundary of the continental shelf shall be determined by agreement between them. In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary shall be determined by application of the principle of equidistance from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.'

The effect of the decision in this case was to downgrade the strict legal rule of delimitation based on equidistance and to elevate the more uncertain concept of equity, thus attributing more importance to the criterion of special circumstances in Article 6, those circumstances reflecting *inter alia* geographical and geomorphological criteria. But it may also be argued that this is no more than a nuance of emphasis and that the principle of equidistance and the doctrine of natural prolongation are themselves part of a wider governing framework which embodies (a) the requirement of agreement (and therefore negotiations leading to that end), (b) a presumption that an equidistant or median line will be adopted in the absence of special circumstances, and (c) a departure from the median or equidistant line where such special circumstances exist, the nature of that departure to be adapted to the nature of the special circumstances.¹³ In any case, Article 83(1) of the ICNT is designed to

12. ICJ Rep 1969, p 53.

13. See Blecher, 'Equitable Delimitation of Continental Shelf' (1979) 73 AJIL 60 at 70.

reformulate the principles by a re-arrangement of the criteria of delimitation. It provides:

'The delimitation of the continental shelf between adjacent or opposite States shall be effected by agreement in accordance with equitable principles, employing, where appropriate, the median or equidistance line, and taking account of all the relevant circumstances.'

This formulation would suggest: (a) a priority accorded to the principle of equity, (b) a qualified acceptance of the median line and (c) an affirmation of the fact that relevant circumstances are to be recognised in determining the line of demarcation.

In the *North Sea Continental Shelf* cases the Court suggested that the adoption of the median line was (leaving aside special circumstances) itself demanded by equity where States were *opposite* to one another.¹⁴ On the other hand, where States were adjacent to each other, the appropriateness of a pure median line is more doubtful. In such a situation a coastline may be undulating or indented or have a concave shape: the State which has such a coastline may be disadvantaged by the application of a median line *vis-à-vis* a State whose coastline protrudes into the adjacent maritime space. Consequently, principles of equity, taking account of the geomorphological feature of natural prolongation, require that lines of demarcation be used to accommodate the interests of that State whose area of continental shelf would otherwise be 'squeezed'. The specific matters to which attention is directed by the doctrine of natural prolongation were listed by the Court as (a) geographical features (eg configuration of coastlines), (b) physical and geological structure¹⁵ (eg natural features of the seabed), and (c) the concept of proportionality¹⁶ (eg length of coastlines).

In the case of *opposite* as distinct from adjacent States the distorting effect of a concave coastline is reduced or eliminated because a median line can take account of such a feature. Consequently, the actual decision in the *North Sea Continental Shelf* cases is not of great assistance in determining appropriate methods of demarcation in the case of opposite States where features are present other than those referable to configuration of coastline, for example, the presence of islands or the existence of seabed features such as a trough or channel. But the specific features referred to by the Court within the other classification (which include physical features) and the criterion of proportionality are clearly relevant.

14. ICJ Rep 1969, p 36.

15. At p 54. But with the qualification 'so far as known or readily ascertainable'.

16. Formulated as follows: 'The element of a reasonable degree of proportionality, which a delimitation carried out in accordance with equitable principles ought to bring about between the extent of the continental shelf areas appertaining to the coastal State and the length of its coast measured in the general direction of the coastline, account being taken for this purpose of the effects, actual or prospective of any other continental shelf delimitations between adjacent States in the same region': ICJ Rep 1969, p 54. The concept of proportionality was treated by the Arbitral court in the *Channel Islands Arbitration* as a broader but vaguer concept to be utilized in determining the delimitation of the shelves of islands. See Blecher, *op cit*, pp 73 et seq.

Certainly the criterion of 'proportionality' has been decisive in determining the extent of the shelves of islands situated on a common continental shelf between two States but which may lie on the 'wrong side' of the median line.¹⁷ The criterion of 'proportionality' would appear to require some 'discounting' of such islands for the purposes of the delimitation.

It is not, however, the presence of islands between East Timor and the north-west coast of Australia which constitute a 'relevant' or 'special circumstance' in the demarcation of seabed boundaries in the Timor Sea: it is a geomorphological feature—the Timor Trough. Attention is directed to this feature by the doctrine of natural prolongation as well as by the delimitation provisions of the ICNT.

In the *North Sea Continental Shelf* cases the reference by the Court to geological features must be taken to include a reference not only to the geological structure of the subsoil (eg nature of the rock system and minerals) but also to geomorphological features (contours, and depth of seabed).

We will therefore attempt to determine to what extent the geomorphological feature of a trough requires a delimitation in a maritime area between opposite States which embodies a departure from the median line principle.

Seabed troughs and delimitation of boundaries

The significance which a seabed trough has in the delimitation of a boundary between two opposite States is a matter which has not been determined by an international court but it has been and is currently a feature of maritime disputes and negotiations on seabed boundaries in various parts of the world.¹⁸

Much of the discussion of the significance of troughs depends on geomorphological and geological information which as yet is indeterminate, or with respect to which there are gaps in knowledge. It appears to be the case that where a submarine trough, canyon or trench intervenes in a maritime area between two opposite States, argument takes place on the question whether there are two separate continental shelves or whether the trough is a mere depression in a common continental shelf and therefore to be disregarded on grounds of equity or of special circumstances; the corollary in this latter case being that the median line or mid-seabed line between the two States is the equitable and appropriate line.

Reference may be made to three cases where such considerations have

17. Blecher, *op cit*, p 80.

18. See Prescott, *The Political Geography of the Oceans*, pp 190 et seq; Prescott, *Boundaries and Frontiers* (1978) pp 163-4; Ely and Pietrowski, 'Boundaries of Seabed Jurisdiction off the Pacific Coast of Asia', (1975) 8 *Nat Res Lawyer* 611; Park, 'Oil under Troubled Waters: The Northeast Asian Sea-bed Controversy' (1973) 14 *Harv Int LJ* 212; and 'Boundary Delimitation of the Economic Zone: The Gulf of Maine Dispute', (1979) 30 *Maine L Rev* 207; Swan, 'That Gulf of Maine Dispute: Canada and the United States Delimit the Atlantic Continental Shelf', (1977) 10 *Nat Res Lawyer* 405.

been involved: the boundary between the United Kingdom and Norway in the North Sea (relating to the Norwegian Trough), the boundary between various States in the East China Sea region (relating to the Okinawa Trough) and the boundary in the Gulf of Maine in the Georges Bank region (relating to the Northeast Channel).

The Agreement between the United Kingdom and Norway on their continental shelf delimitation¹⁹ was based on the principle of equidistance, thus disregarding the Norwegian Trough which is close to the Norwegian coast, which cuts off a narrow strip of Norwegian continental shelf and which would have restricted that shelf to a distance from a shore of not more than 12 miles. The Norwegian position was that the Trough was an accidental feature and not a structure dividing two shelves. The special feature of this Trough was that in the south it was itself enveloped by the Norwegian Shelf (ie the area within the 200 metre isobath). Thus there was merit in the Norwegian argument that the Trough was an accidental feature. Moreover because of the narrow width in the Norwegian Shelf proper and the vast area to the west of the trough, it would have been inequitable to have established a dividing line down the centre of the Trough.

The situation in the area of the East China Sea is extremely complicated and is characterized also by a dispute over the ownership of islands in the region.²⁰ The East China Sea dispute basically concerns the significance of the Okinawa Trough and the effect to be given to small groups of islands on the mainland side of the Trough. There are two areas involved: the first containing two groups of islands, Danjo Gunto and Tori Shima (belonging to Japan) which are located on the mainland side of the 200 metre isobath encompassing the seabed of the East China Sea. These groups of islands are located on the shelf east of the People's Republic of China and south of the Republic of Korea. They are separated from the continental shelf surrounding the southernmost major island of Japan—Kyushu—by the Okinawa Trough.

The second group—the Senkaku or Tiao yu-t'ai Islands—are located in the southern region of the Trough east of the People's Republic and north east of Taiwan. They are separated from the Ryukyu Islands to the east by the southern portion of the Okinawa Trough. Sovereignty over the Islands is in dispute.

In relation to the first group, Japan claims to use them as baselines for measuring the continental shelf of its main islands, thus jumping the Trough and claiming a major portion of the mainland shelf to the median line. The mainland countries assert that the Trough is a natural dividing feature²¹ and that the Danjo Gunto and Tori Shima Islands are entitled only to a small continental shelf appropriate to their size and status.

19. Agreement relating to the Delimitation of the Continental Shelf between the United Kingdom and Norway, 10 March, 1965 (UKTS 1965 No 71).

20. Park, *op cit*, pp 248 et seq.

21. As to the difficulty of determining the 'geological' facts see Ely and Pietrowski, *op cit*, pp 622-3.

As to the second group—the Senkaku Islands—sovereignty is disputed between Japan, Taiwan and the People's Republic of China. Consequently, it is only if the Japanese claim is sustained that the question of 'jumping' the Trough in this region will arise. However, it is probable that even in this case the Ryukus would not generate a large continental shelf area as compared with the main Japanese Islands in the north.

The third dispute to which reference may be made is that between Canada and the United States over the Gulf of Maine and the Northeast Channel.²² The major disputed area is the Georges Bank which lies between Cape Cod (Massachusetts) and Nova Scotia. But the situation is not a complete 'opposite State' situation, as the boundaries of the United States and Canada are located to the west of the Bank. It is therefore an 'adjacent State' situation as well.²³ There is a deep channel (the Northeast Channel) separating the Canadian shelf (ie the area within the 200 metre isobath) from the Georges Bank which is located on the Cape Cod side of the Channel and within the 200 metre isobath on that side.

If an equidistant line were adopted, Canadian jurisdiction would encroach on the United States shelf proper. In the Canadian view, the Channel is a mere 'fissure' to be disregarded in favour of the median principle. On the other hand, the United States treats the Georges Bank as part of the seabed which is the natural prolongation of United States territory, the Northeast Channel marking the limits of this prolongation.²⁴

The geography and geomorphology of the seabed in the Timor Sea between north-west Australia and Timor is not affected by the presence of islands in the intervening maritime space (as is the case of the Torres Strait islands on the north eastern side of Australia). It is thus dissimilar to the East China Sea situation. However, it is also unlike the Gulf of Maine and Norwegian situations in that the Timor Trough is a discrete feature clearly dividing the continental shelves of two different land masses and with no entanglement with 'arcing' or 'enveloping' shelves of either land mass. Its location is of such a nature as to leave the island of Timor with an adequately wide shelf. It is, moreover, much greater in depth than the other troughs and channels.

Another relevant consideration is that the Australian margin is slightly in excess of 200 miles and therefore is not completely within the 'exclusive economic zone' as described by Article 57 of the ICNT. It thus falls within the 'margin' definition of Article 76(3).

The major questions which are relevant for the determination of the boundaries of the seabed between Australia and East Timor are: first, the relationship between a distance from shore criterion and the natural prolongation criterion and whether the principles of equity and relevant

22. Park, 30 *Maine L Rev* pp, 232 et seq.

23. But with respect to the Georges Bank the geographical features are basically that of an opposite State situation, although a dividing line may be affected by certain land border features and a dispute over the ownership of an adjacent island. See Swan, *op cit*, p 415.

24. In 1979 agreement was reached to resolve the boundary dispute by binding third party settlement: Park, 30 *Maine L Rev*, p 237.

circumstances (which would also take account of existing boundary delimitations) require that the Trough be treated as the *prima facie* boundary. Associated with this question is the issue whether in maritime boundary delimitation the 200 metre isobath has some paramountcy, flowing as it does from the twin sources of the Continental Shelf Convention and the doctrine of natural prolongation as recognized in customary international law. The second question is whether fisheries and seabed resources lines are to be determined in accordance with the same principles thus bringing about a unified line of demarcation, or whether different principles (the one based on equidistance, the other on natural prolongation) apply to such lines.

(a) *Relationship between geomorphology and distance*

The question here is the relationship between Article 57 and Article 76(1)²⁵ of the ICNT on the one hand and Article 76(3)²⁶ on the other hand, and the corresponding application of principles of delimitation contained in Article 74(1)²⁷ and Article 83(1)²⁸ of the Text viewed in the light of the existing doctrines of customary international law. A subsidiary question is the status to be attributed to a trough in relation to adjacent shelves—a question which may ultimately depend on scientific evidence or inferences.

It is not proposed to outline the history of developments which led to the development of the 'distance from shore' principle which ultimately became the rationale of the EEZ covering both seabed and water column resources. But until such a concept (with its emphasis on a half-way split between opposite States) replaces the disparate seabed resources and 200 nautical mile swimming fisheries zones which are claimed by a number of nations, the principles of delimitation appropriate to separate zones must be applied.

Under the doctrine of natural prolongation recognized by customary international law and by the Convention on the Continental Shelf the seabed to the 200 metre isobath (the geographical and geological shelf

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25. Article 57: 'The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured'.
Article 76(1): 'The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.'
 26. 'The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the sea-bed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor or the subsoil thereof.'
 27. 'The delimitation of the exclusive economic zone between adjacent or opposite States shall be effected by agreement in accordance with equitable principles, employing, where appropriate, the median or equidistance line, and taking account of all the relevant circumstances.'
 28. 'The delimitation of the continental shelf between adjacent or opposite States shall be effected by agreement in accordance with equitable principles, employing, where appropriate, the median or equidistance line, and taking account of all the relevant circumstances.'

proper) is regarded as subject to the jurisdiction of the adjacent political entity so far as resource utilization is concerned. However, at the 200 metre isobath the Convention and customary international law diverge. Under the Convention, sovereign rights on the slope depend on the 'exploitability' criterion,²⁹ while the doctrine of natural prolongation has the effect of including the whole of the margin (shelf, slope and rise) within coastal State resource jurisdiction.

Fisheries jurisdiction is basically a development of customary international law. Certainly the 12 miles exclusive fisheries zone was established in the nineteen sixties by unilateral national acts which were accepted by the international community.³⁰ This was supplemented in the nineteen seventies by a recognition in the *Fisheries Jurisdiction* case of an undefined preferential right of the coastal State to establish fishing controls in the area of the high seas outside the 12 mile zone.³¹ Ultimately the zone within which fishing management jurisdiction of the coastal state may be exercised has been recognized as the 200 limit. But the concept of 'optimum sustainable yield' drawn from pre-existing fisheries practice and embodied in the 1958 Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas,³² requires the coastal state to grant access rights to fishing vessels of other nations where it cannot harvest the total allowable catch.³³ There is no doubt that a 200 miles coastal fisheries management zone (also described as an exclusive fisheries zone) is today part of customary international law.

It can therefore be suggested that delimitation of the fisheries zone of opposite States is, because of the nature of the resource zone being delimited, more appropriately achieved by the use of a 'distance from shore' method of demarcation and consequently that, in the absence of special circumstances, an equidistant line will usually be the equitable method.

However, the developments at the Law of the Sea Conference indicate that the methods of determining the width or extent of the two zones may be in the process of uniting at least to some extent. This arises (a) from the fact that fisheries jurisdiction is included within the concept of the EEZ, and (b) from the fact that a distance from shore element has been included in the definition of the continental shelf. In this latter respect reference may be made to Article 76(1) which attributes to a country a continental shelf to a distance of 200 miles, where the geological margin terminates before that line, and Article 82(1)³⁴ which imposes a duty to

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29. See, generally, Jennings, 'The Limits of Continental Shelf Jurisdiction: Some Implications of the *North Sea Case* Judgment', (1969) 18 ICLQ 819.
30. This was recognized in the *Fisheries Jurisdiction* case, ICJ Rep 1974, p 3.
31. ICJ Rep 1974, p 23.
32. Article 2. See now ICNT Articles 61, 62.
33. The actual implementation of such access rights is the subject of ICNT Articles 61-73. See in particular Articles 69 and 70. On the question of the justiciability of coastal state controls see Rosenne, 'Settlement of Fisheries Disputes in the Exclusive Economic Zone', (1979) 73 AJIL 89.
34. 'The coastal State shall make payments or contributions in kind in respect of the

make payments to an international fund arising from the exploitation of the non-living resources in the area of the margin beyond 200 miles.

Any incorporation of these Articles in a new Law of the Sea Convention will involve some derogation from the traditional continental shelf doctrine. But there does appear to be an incompatibility between the alternative definitions of the shelf which are contained in Article 76(1), particularly as Article 76(3) does not also contain an alternative 'distance from shore' definition.

Until this incompatibility is removed it might well be argued that the doctrine of the continental margin based on geomorphology continues to have an operative status and function in international law. Consequently, when the principles of delimitation recognized in Article 83 are to be applied, it will be necessary to take account of underwater features of the margin such as geological structures and seabed contours, as well as ocean surface and sub-surface features such as islands, reefs and navigable channels. Where the features are not irregular, then, as the International Court has indicated in the *North Sea Continental Shelf* cases, a median line will be the most equitable method of delimitation. Where islands are present near the shores of either State a baseline may be used for establishing the seabed line which will lead to a modified median line: such islands may however be partially or fully discounted where the islands are on the 'wrong side of the line'. In such a case, there will be two separate categories of seabed delimitation lines—a major median line dividing the two mainlands and the island continental shelf boundaries.³⁵

When we take account of seabed morphology such as a trough new considerations arise which may lead to a rejection of the median line and the adoption of another line. In this context the doctrine of natural prolongation becomes critical, directing our attention to circumstances that may be described, because of their irregularity, as relevant and special. Consequently, where the geomorphology of the seabed located between two opposite States discloses a significant break, trench or trough, that structural discontinuity will, subject to appropriate scientific evidence being adduced as to the nature of the break,³⁶ prima facie be treated as marking the limits of the continental shelves or margins of those States. This prima facie evaluation may however be affected by other relevant or equitable considerations (such as in the case of the Norwegian Trough where the particular geomorphological features of the Trough were not treated as decisive in the light of other features of seabed and adjacent territory, which led to a rejection of the Trough as a relevant circumstance). In such a case the trough may either be totally ignored or discounted.

Applied to the Timor Sea, this method of approach would lead to the

exploitation of the non-living resources of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.'

35. Blecher, *op cit*, pp 77 et seq.

36. But it must be recognized that there will be great difficulties in adducing such evidence. See, for example, in relation to the East China Sea area, Ely and Pietrowski, *op cit*, pp 662 et seq.

conclusion that, because of the length of the Trough and its position, fronting as it does Timor and its shelf, the Trough constitutes a natural dividing structure between the wide shelf stretching from the coastline of north-west Australia and the shelf of the island of Timor located on the other side of the Trough. The characterization of the Trough in this way would be both in accord with equity and also be a relevant circumstance which is not outweighed or itself negated by a more compelling circumstance.³⁷

Moreover, in the light of the fact that a non-median line has already been negotiated with Indonesia in the region of the trough off *West Timor*, that would appear to suggest that a closure of the gap by a straight line continuing from this point and joining the line to the north, would be the most appropriate method of delimiting this portion of the seabed boundary.

Although Australia conceded part of its slope in that earlier Agreement, the concession may be regarded as an attempt to accommodate disparate positions. Certainly, the 1972 line off *West Timor* could be regarded as a modified trough line rather than as a modified median line. If one is to derive a rationale from the earlier Agreement it would be this: a seabed delimitation line of a State which crosses a trough separating its margin from the margin of the opposite State should not encroach on the continental shelf proper (ie the area within the 200 metres isobath) of that opposite State.

This may involve a distinction being made between that part of the continental margin which is shelf proper and that part which is slope and rise. This distinction may be justified on two grounds, first that the doctrine of the continental shelf as extended by the 'exploitability' criterion is a much older doctrine than that of the continental margin, and second, that, in the case of a trough, the *slopes* inclining from opposite State *shelves* may be treated as the 'walls' of the trough and therefore specifically related to the trough as well as to those shelves.

But whether or not a mid-trough line or a mid-slope line is adopted to demarcate the Timor Sea boundary, the doctrine of natural prolongation recognized in customary international law and in the first section of Article 76(1) as well as in Article 76(3) of the ICNT would appear to require recognition of the 'separateness' of the two shelves, the Trough being a relevant circumstance which makes the median line *inappropriate* under Article 83.

(b) *Fisheries demarcation line*

The determination of a fisheries delimitation line in the Timor Sea raises the difficult question of whether one unified line is required by equity or is dictated by relevant circumstances.

37. Such as is the case with the Norwegian Trough where the total geographical picture including the distance of the trough from the coastline leads to a conclusion that it would be in accordance with equitable principles to disregard it and instead to apply a median line demarcation. For a contrary opinion on the nature of the seabed depressions see Prescott, *Boundaries and Frontiers*, p 164.

As a general principle it might be said that where there are no abnormal or irregular features the two lines will usually coincide even though they remain, in theory at least, two lines.³⁸ When however there are unusual features which have been referred to earlier, such as the presence of islands belonging to one country on the 'wrong side' of a median line, differing seabed resources and swimming fisheries lines may be necessary to give effect to the equities of the situation, for example, by attributing larger fisheries area and a smaller belt of continental shelf to the islands where, as in the Torres Strait area, the inhabitants of the islands are more dependent, than are the Papuan 'mainland' inhabitants, on the waters surrounding their islands for traditional fishing and associated activities.³⁹ This may entail a corresponding increase in the shelf jurisdiction and a decrease in the swimming fisheries jurisdiction of the mainland, although a particular regime may be established for sedentary resources as distinct from mineral resources.⁴⁰

However, in the Timor Sea no such islands are located in the area to be delimited. Consequently, it is necessary to determine whether, assuming that a seabed delimitation line following the Trough or at least the 200 metre isobath is appropriate, a median line is appropriate for the fisheries delimitation line.

The factors which tell in favour of a unified boundary relate (a) to the dependence of fishery species on the environment of the seabed⁴¹ and (b) to the administration of national laws, particularly that part of the law relating to sedentary resources.⁴²

As to (a) it will be necessary for biological evidence to be adduced to indicate whether particular species (particularly demersal species) of fish are related to the different shelf environments of Timor and Australia. Ecological principles might suggest that the species on the Australian side are a separate stock from those on the Timor side. The dependence of the fish on the nutrients provided by one or other shelf environment would also be an important factor in determining whether the Trough should affect the demarcation of fishery zones or whether certain areas might appropriately be made the subject of a regime of joint use.⁴³

38. See for example, the Cuba-United States Maritime Boundary Agreement (Signed at Washington December 16 1977): text in (1978) 17 ILM 110; Mexico-United States Maritime Boundaries Treaty (Signed at Washington, May 4 1978): text in (1978) 17 ILM 1073.

39. The Torres Strait Treaty which was entered into by the Governments of Australia and Papua-New Guinea in December 1979 provides for a common swimming fisheries-seabed boundary except in the northern region of the Torres Strait where the fisheries and seabed lines diverge: See 'Treaty between Australia and the Independent State of Papua-New Guinea concerning Sovereignty and Maritime Boundaries in the area between the two countries, including the area known as Torres Strait, and Related Matters', signed at Sydney 18 December 1978 (subject to ratification). See in particular Article 4. The main features of the Treaty are examined by Stanford in (1978) 49 Aust FA Rec 572. See also below pp 87 et seq.

40. As has been done in the Torres Strait Treaty by 'sharing-of-take' arrangements.

41. See Park, 30 Maine L Rev, p 243.

42. Ibid.

43. As suggested for the Georges Bank by Johnston, 'Legal and Diplomatic Develop-

As to (b) it may be observed that obviously it will be difficult, in terms of the licensing of vessels, control of equipment and establishment of conservation areas, to have different regimes applicable to the same maritime space of water column and seabed, one relating to swimming fisheries, the other to sedentary resources. If a unified line were not adopted, then, in the absence of a regime of joint management, two sets of national laws imposing different obligations would apply to the same surface and sub-surface portion of maritime space. However, *in the absence of biological evidence or evidence relating to practicalities of fishery law enforcement*, a median line may be regarded as the *prima facie* equitable method of delimitation of fishery zones.⁴⁴

Conclusion

Certain conclusions may be put forward in the light of the previous discussion. It appears that the Timor Trough is a fundamental geomorphological feature of the seabed separating East Timor from Australia. Consequently an appropriate delimitation line in accordance with customary international law based on the doctrine of natural prolongation and the criteria of equity and relevant circumstances would be the middle of the Trough. In so far as a previous delimitation has delineated a seabed line opposite to West Timor which is located on the Australian continental slope, that previous line is a relevant circumstance in determining a seabed delimitation line opposite East Timor.

A fisheries boundary may be demarcated by way of an equidistant line. However a unified line may be suggested by the doctrine of relevant circumstances. Such circumstances would include the need for a unified system of fisheries administration (applying to both sedentary resources and swimming fisheries) and ecological considerations relating to the dependence of swimming fisheries on shelf environment.⁴⁵

ments in the Northwest Fisheries', (1977) 4 Dal LJ 37 at 61.

44. See, however, Colson, *op cit*, p 111.

45. The 200 mile Australian Fishing Zone came into operation on the 1 November, 1979 (Commonwealth Government Gazette S 189). It has been decided that, pending the conclusion of delimitation agreements with neighbouring countries, median lines will be adopted by the Australian Government for the interim delimitation of the zone between Australia and those neighbouring countries.