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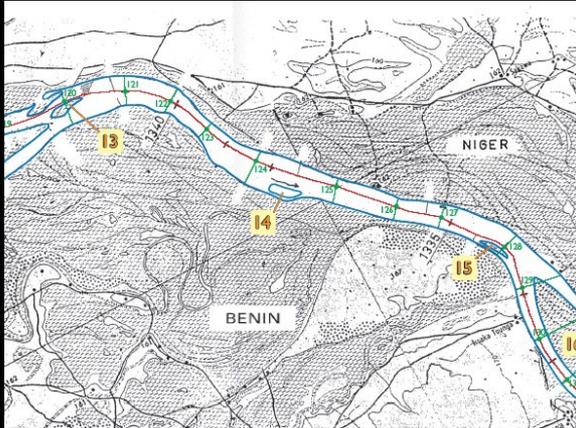
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Thank you.



The legal framework for river boundary definition



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Geographical intelligence for international
boundary-making and dispute resolution

Sources of international law

ICJ Statute, Article 38

- International conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
- International custom, as evidence of a general practice accepted as law;
- The general principles of law recognized by civilized nations;
- ... judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.

International law on river boundary definition

- None!
- No international conventions
(nb. Convention on the Law of Non-Navigational Uses of International Watercourses)
- Varied state practice - so no customary law
- General principles of law too general to be of much use in clarifying the alignment of an international boundary
- Differing views among scholars
- Limited jurisprudence with no clear statements of principle

The 'teachings of the most highly qualified publicists' on river boundaries

Some scholars argue that the following legal rules exist:

1. the boundary automatically follows the thalweg in navigable rivers and the median line in non-navigable rivers;
2. the boundary moves with changes due to accretion but stays in the old river channel following an avulsion.

Other scholars are more cautious, noting that there is some support for the existence of these rules in the literature on river boundaries, but warning that there are numerous examples of alternative practice. Generally, the more in-depth the review of State practice around the world, the more likely the author is to conclude that the argument that customary rules exist is at least debatable.

ICJ statements on river boundaries: thalweg / median line

“Treaties or conventions which define boundaries in watercourses nowadays usually refer to the thalweg as the boundary when the watercourse is navigable and to the median line when it is not, although it cannot be said that practice has been fully consistent.”

Case Concerning Kasikili/Sedudu Island (Botswana/Namibia), 1999

“The Chamber notes that in all likelihood there is a negligible difference between the course of the thalweg and the course of the median line of the Mekrou river, but considers that, in view of the circumstances, including the fact that the river is not navigable, a boundary following the median line of the Mekrou would more satisfactorily meet the requirement of legal security inherent in the determination of an international boundary.”

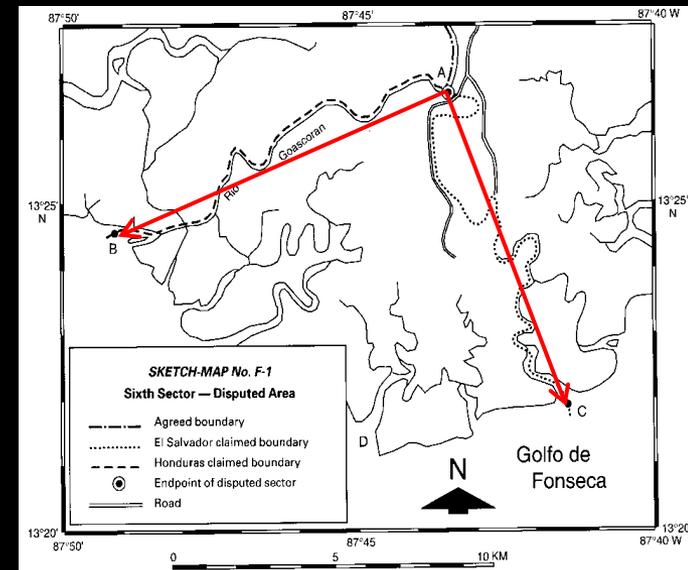
Case Concerning the Frontier Dispute (Benin/Niger), 2005

ICJ statements on river boundaries: accretion / avulsion

“El Salvador’s argument of law is that where a boundary is formed by the course of a river, and the stream suddenly leaves its old bed and forms a new one, this process of ‘avulsion’ does not bring about a change in the boundary, which continues to follow the old channel. No record of such an abrupt change of course having occurred has been brought to the Chamber’s attention, but were the Chamber satisfied that the river’s course was earlier so radically different from its present one, then an avulsion might reasonably be inferred. While the area is low and swampy, so that different channels might well receive different proportions of the total run-off at different times, there does not seem to be a possibility of the change having occurred slowly by erosion and accretion, to which, as El Salvador concedes, different legal rules may apply.

... In fact, the alleged rule originated in Roman law as a rule applicable to private property, not as a rule relating to rivers as boundaries of jurisdiction and administration. Furthermore, whatever its status in international law – a matter to be determined, if necessary, by the Chamber...”

Case Concerning the Land, Island and Maritime Frontier Dispute (El Salvador/Honduras: Nicaragua intervening), 1992



Likely ICJ views on river boundaries

- If the location of the boundary in the river is not already agreed, in navigable rivers (or navigable sections of rivers) the boundary will follow the thalweg and in non-navigable rivers/sections the boundary will follow the median line between the banks.
- Sovereignty over islands in boundary rivers will most likely be determined by the location of the islands relative to the boundary. However, effectivités or other evidence of title may also be significant in terms of determining sovereignty.
- If there is no agreement concerning what happens to the boundary if the river channel moves, the boundary will move with the river channel if the movement of the channel is the result of accretion, but it will continue to follow its old course if the channel shifts due to a sudden avulsion.
- **But no ICJ declaration of rules or principles to date – no indication of customary law.**

Eritrea-Ethiopia Boundary Commission on river boundaries

- The boundary in rivers should be determined by reference to the location of the main channel, and that the main channel should be identified during the dry season.
- Regard should be paid to the customary rights of the local people to have access to the river.

Decision regarding delimitation of the border between Eritrea and Ethiopia, 13 April 2002

Eritrea-Ethiopia Boundary Commission on river boundaries

“(a) the identification of a river, as a boundary, should normally suffice without actual demarcation therein save as regards the identification of such turning points as might otherwise give rise to doubts, and of headwaters or sources;

(b) the boundary is the middle of the main channel (the channel of greatest volume) and will move in accordance with any change in position of the middle of the main channel;

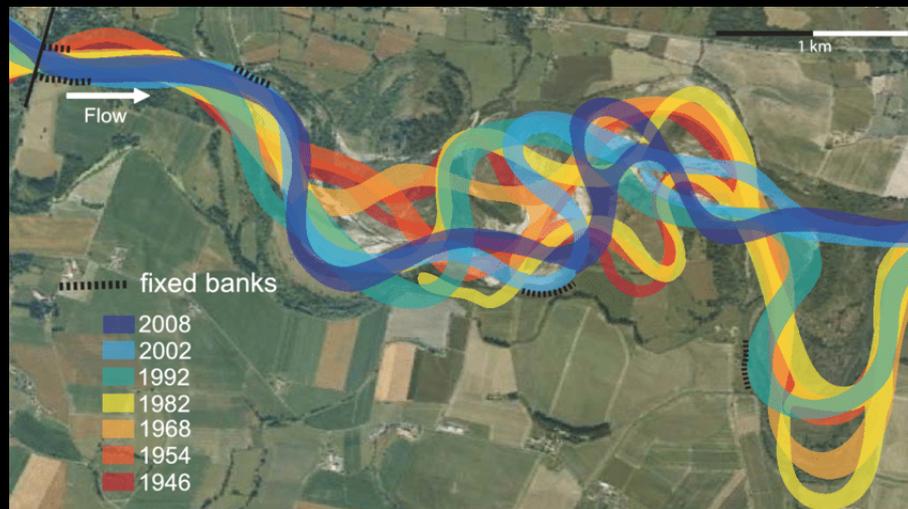
(c) the middle of the main channel, as defined in (b) above, shall not be demarcated;

(d) islands shall fall within the territory of either Party according to their location in relationship to the main channel.”

The legal framework for river boundary definition: conclusions

- States are free to define a boundary in a river in any way that best fits their needs.
- If an existing delimitation fails to specify where in the river the boundary is located, or fails to state what happens to the boundary if the river moves, there are no ‘default’ arrangements that apply automatically. The precise alignment of the boundary would therefore be uncertain....

Issues to be addressed in river boundary definition agreements



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Geographical intelligence for international
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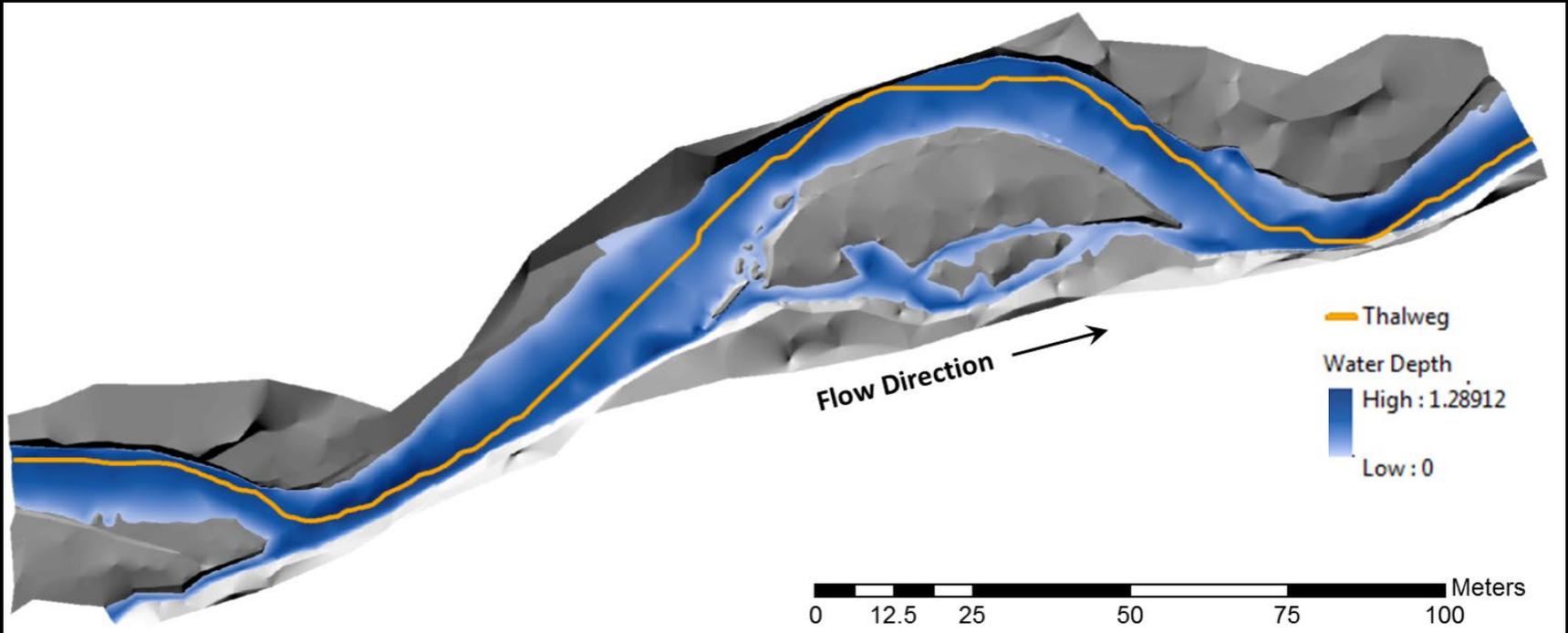
Overview of issues to be addressed

- Where in the river is the boundary located?
- Treatment of islands
- Changes in the river
- Demarcation
- Dispute resolution
- Access to and use of boundary rivers (Friday)

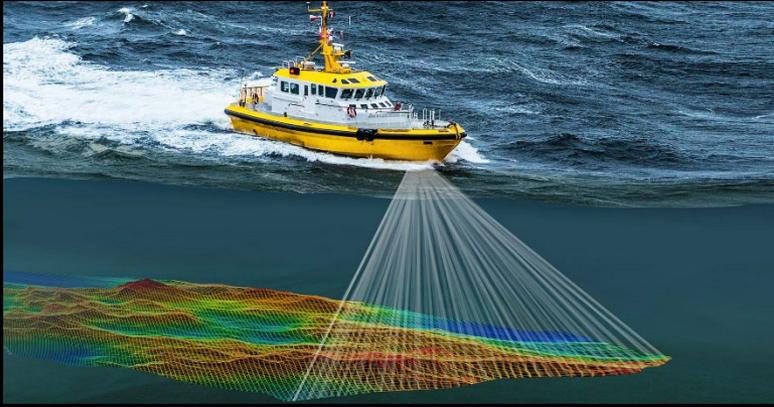
Where in the river is the boundary located?

- Thalweg
- Median line
- Bank
- Main channel
- Condominium (whole river shared)?

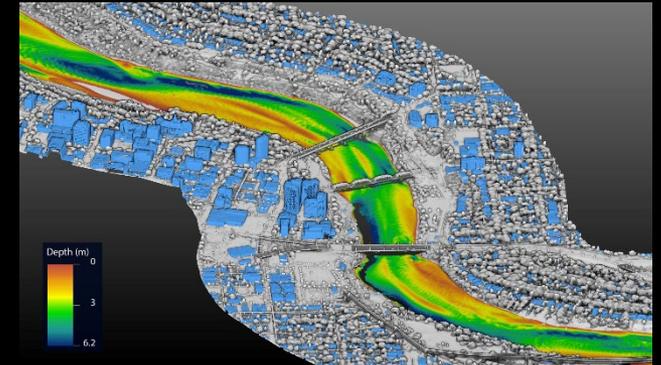
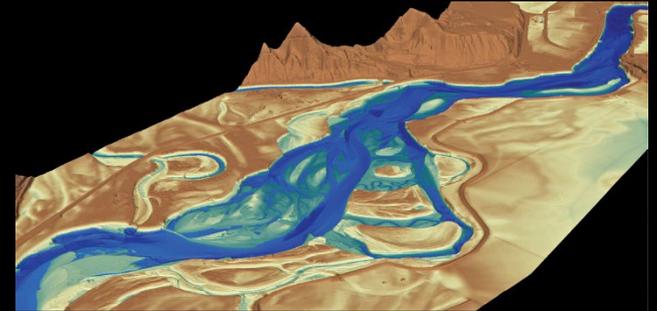
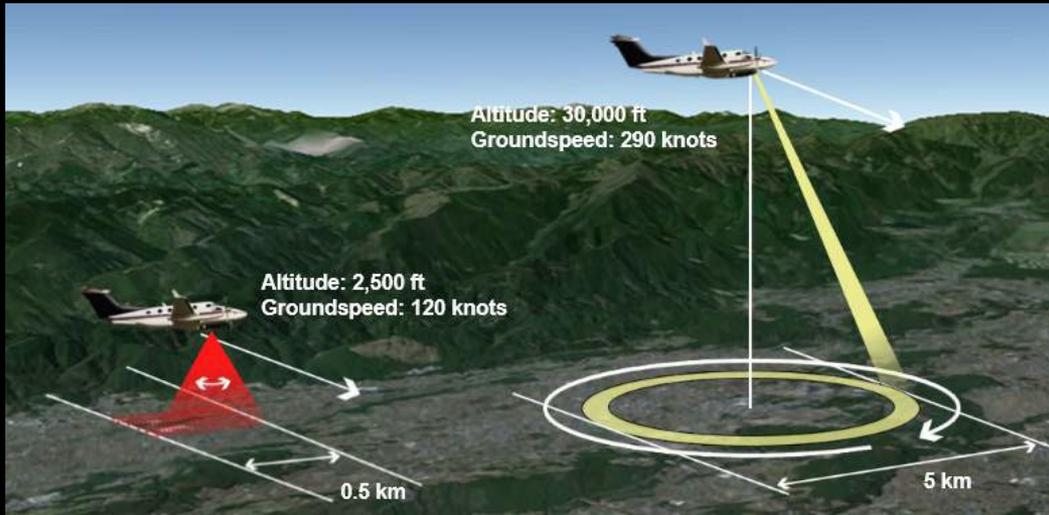
Thalweg



Thalweg identification



LIDAR survey for thalweg identification?



Thalweg identification



Navigability

US Supreme Court: The Montello case (1870)

- navigability must be linked to some kind of commercial trade or travel “not every small creek in which a fishing skiff or gunning canoe can be made to float at high water which is deemed navigable, but in order to give it the character of a navigable stream, it must be generally and commonly useful to some purpose of trade or agriculture.”

Berlin Rules on Water Resources adopted by the International Law Association in 2004, Article 43(4)

- Rivers and lakes are navigable “if in their natural or canalized state they are currently used for commercial navigation or are capable by reason of their natural condition of being so used.”

Navigability

Botswana-Namibia: Kasikili/Sedudu Island case (ICJ, 1996-99)

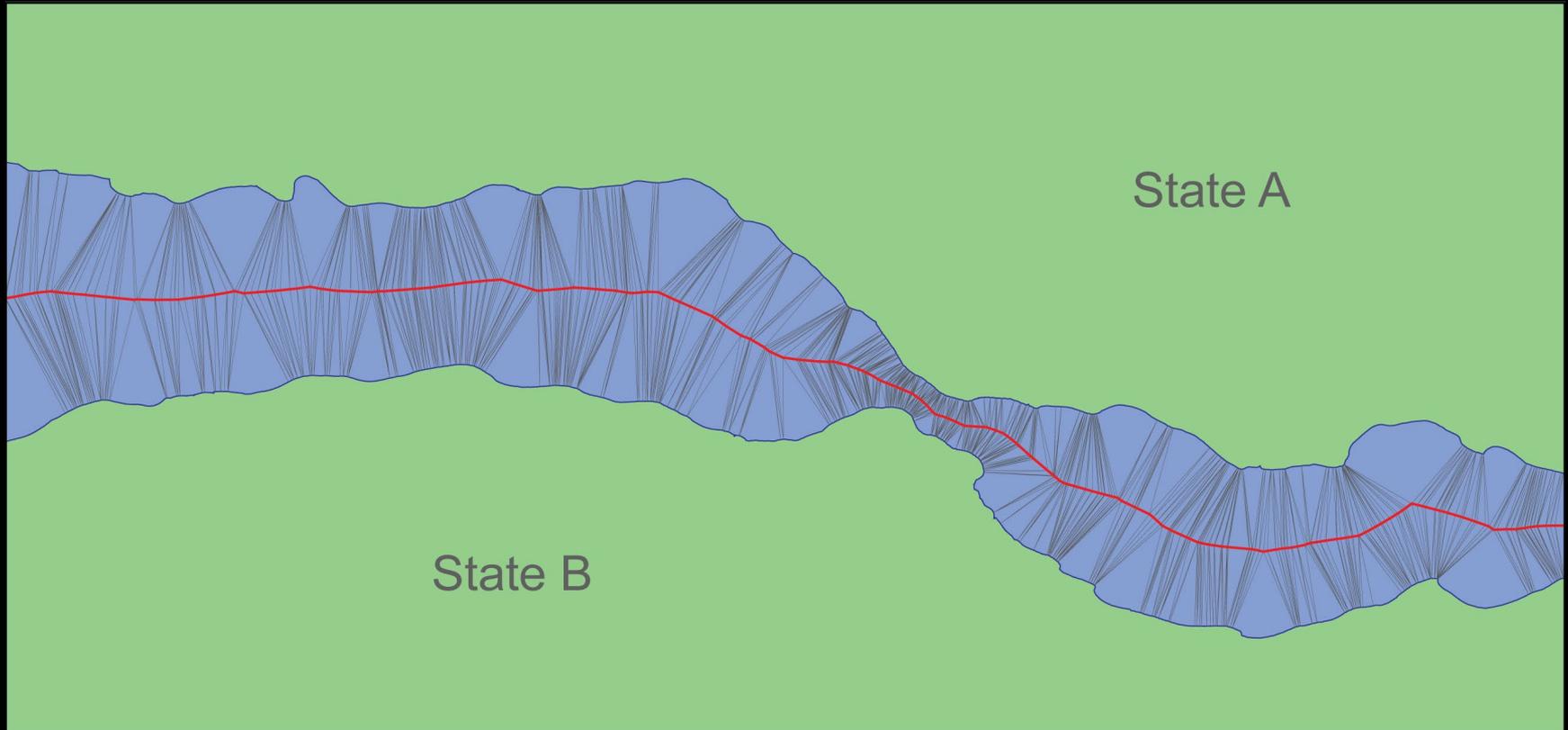
40. The navigability of a watercourse is the combined result of its depth, its width and the volume of water it carries, taking account of natural obstacles such as waterfalls, rapids, shallow points, etc., along its course.

The Court notes that the navigability of watercourses varies greatly, depending on prevailing natural conditions. Those conditions can prevent the use of the watercourse in question by large vessels carrying substantial cargoes, but permit light flat-bottomed vessels to navigate.

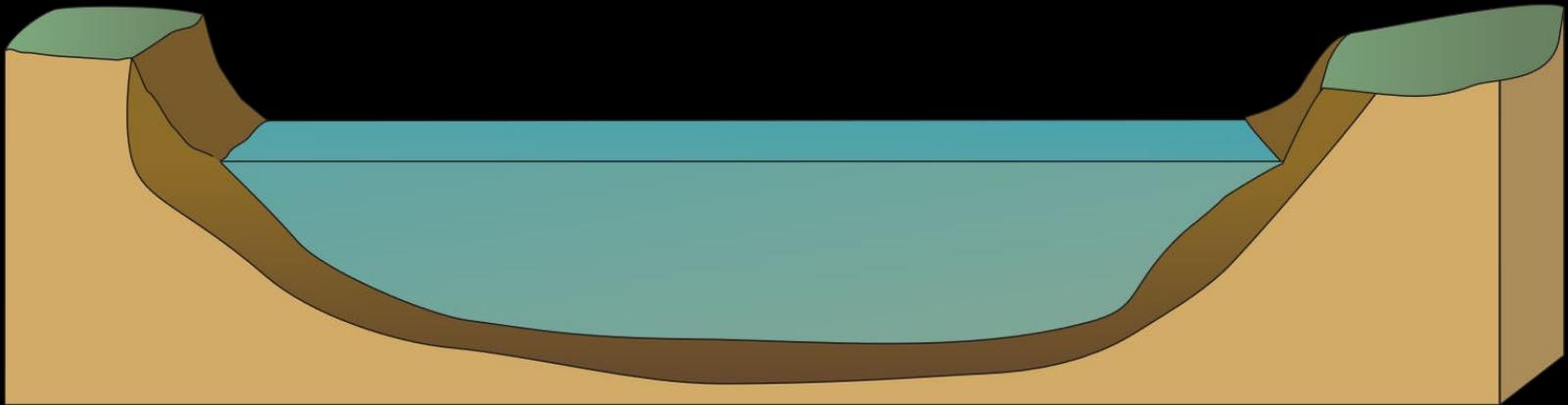
Median line / *ad medium filum aquae*

The line “every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured”

United Nations Convention on the Law of the Sea, Article 15



River banks



<https://vecta.io/symbols/279/ecosystems-freshwater/40/river-3d-cross-section-4>

River banks



vnexpress.net/mua-lua-chin-ben-song-quay-son-3994129.html



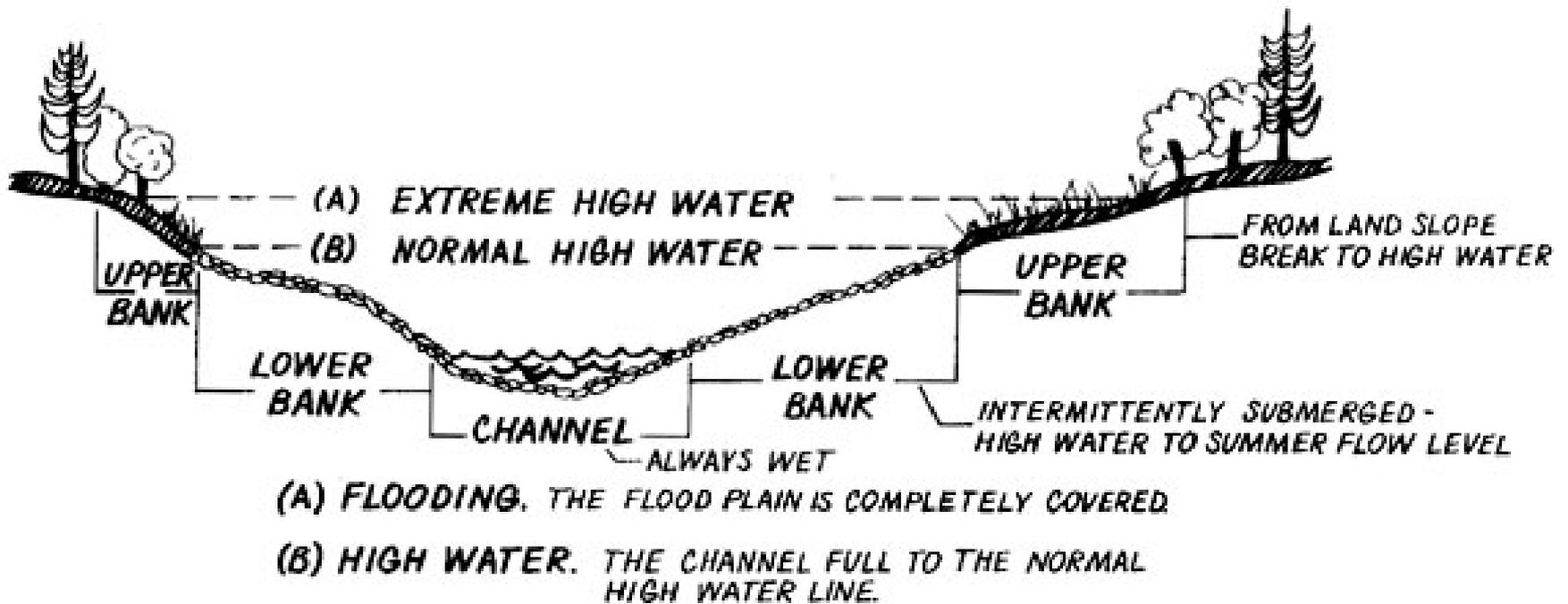
www.flickr.com/photos/rod_waddington/31112843528

River banks

Mozambique-Zambia (Luangwa River)

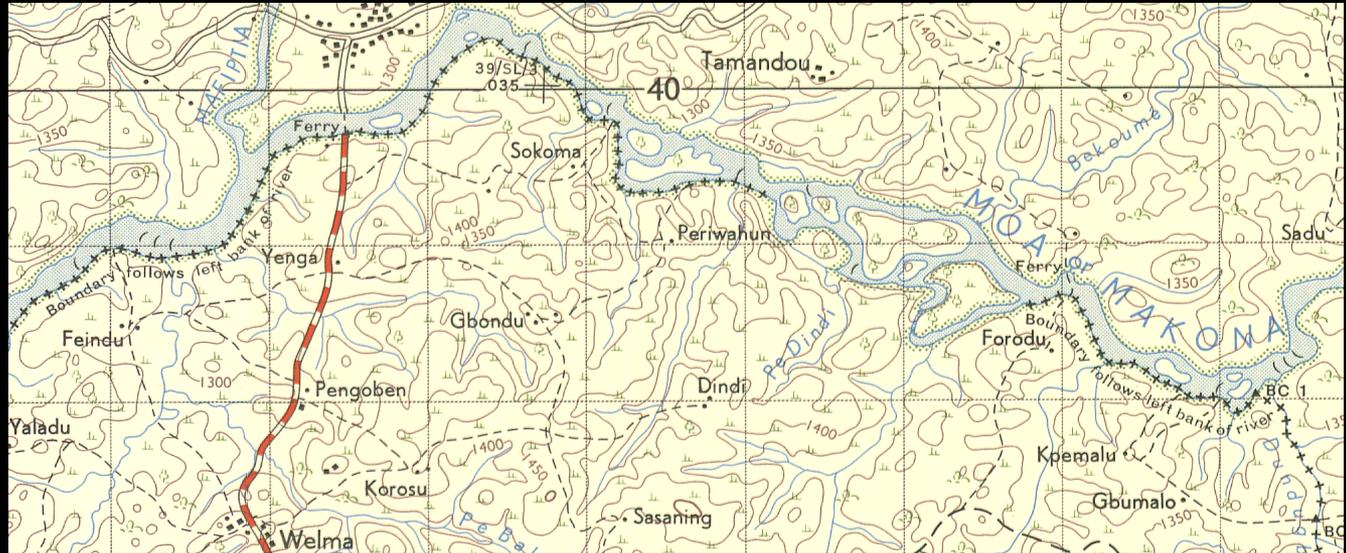


River banks



Disagreement over the location of the bank

Guinea-Sierra Leone



What is the main channel?

Eritrea-Ethiopia Boundary Commission

Main channel is the channel of greatest water volume during the dry season.

What is the main channel?

Botswana-Namibia: Kasikili/Sedudu Island case (ICJ, 1996-99)



What is the main channel?

Botswana-Namibia: Kasikili/Sedudu Island case (ICJ, 1996-99)

30. The Court finds that it cannot rely on one single criterion in order to identify the main channel of the Chobe around Kasikili/Sedudu Island, because the natural features of a river may vary markedly along its course and from one case to another. The scientific works which define the concept of “main channel” frequently refer to various criteria: thus, in the *Dictionnaire français d'hydrologie de surface avec équivalents en anglais, espagnol, allemand* (Masson, 1986), the “main channel” is “**the widest, deepest channel, in particular the one which carries the greatest flow of water**” (p. 66); according to the *Water and Wastewater Control Engineering Glossary* (Joint Editorial Board Representing the American Public Health Association, American Society of Civil Engineers, American Water Works Association and Water Pollution Control Federation, 1969), the “main channel” is “**the middle, deepest or most navigable channel**” (p. 197). Similarly, in the *Rio Palena* Arbitration, the arbitral tribunal appointed by the Queen of England applied several criteria in determining the major channel of a boundary river.

What is the main channel?

Botswana-Namibia: Kasikili/Sedudu Island case (ICJ, 1996-99)

Court considered:

- Depth
- Width
- Flow (volume of water carried)
- Bed profile configuration
- Navigability

What is the main channel?

Botswana-Namibia: Kasikili/Sedudu Island case (ICJ, 1996-99)

37. The Court is of the opinion that the determination of the main channel must be made according to the low water baseline and not the floodline.

What is the main channel?

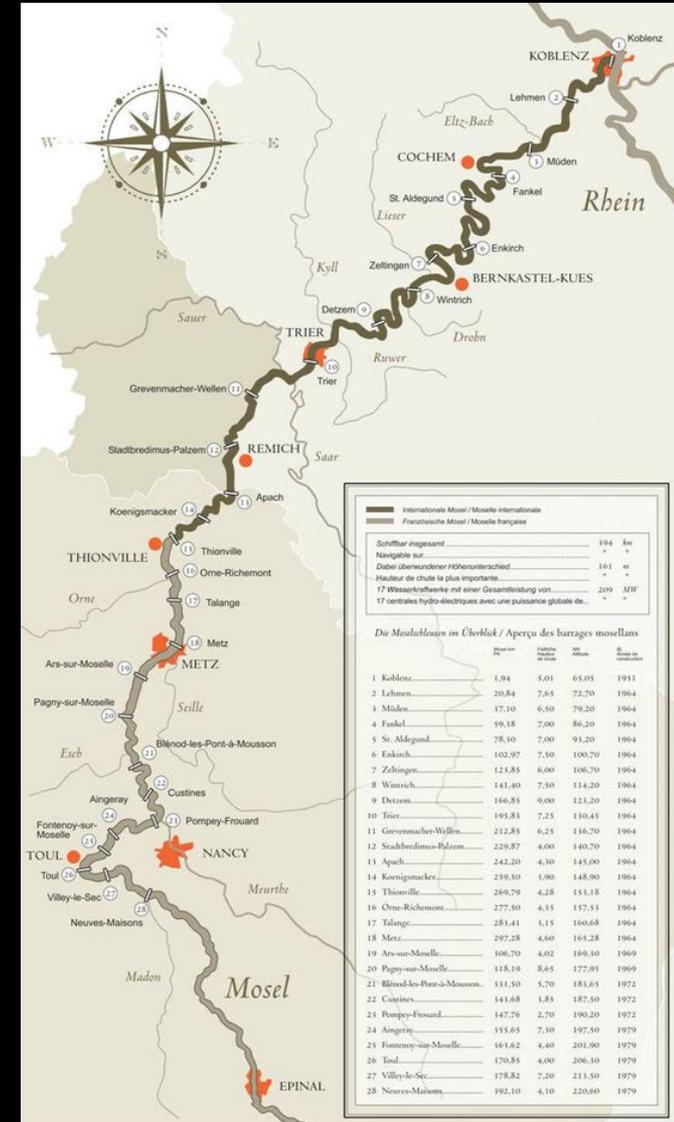
Botswana-Namibia: Kasikili/Sedudu Island case (ICJ, 1996-99)

40. The navigability of a watercourse is the combined result of its depth, its width and the volume of water it carries, taking account of natural obstacles such as waterfalls, rapids, shallow points, etc., along its course.

The Court notes that the navigability of watercourses varies greatly, depending on prevailing natural conditions. Those conditions can prevent the use of the watercourse in question by large vessels carrying substantial cargoes, but permit light flat-bottomed vessels to navigate. In the present case, the data furnished by the Parties tend to prove that the navigability of the two channels around Kasikili/Sedudu Island is limited by their shallowness. This situation inclines the Court to the view that, in this respect, **the “main channel” in this part of the Chobe is that of the two which offers more favourable conditions for navigation.**

Condominium

- Numerous historical examples of shared sovereignty over territory; only a handful today
- Rare for rivers, but not unheard of: Moselle (Germany-Luxembourg)
- Why not?



Treatment of islands

- Definition of an island
- Sovereignty over islands

Definition of an island

United Nations Convention on the Law of the Sea (Article 121)

“... a naturally formed area of land, surrounded by water which is above water at high tide”

Mozambique (Portugal)-Tanzania (UK), 1937

“For the purpose of this agreement there shall be considered as islands only those which emerge when the river is in full flood and which contain land vegetation and rock or firm soil and are not shifting sandbanks.”

Islands or river bed? (Luangwa river)



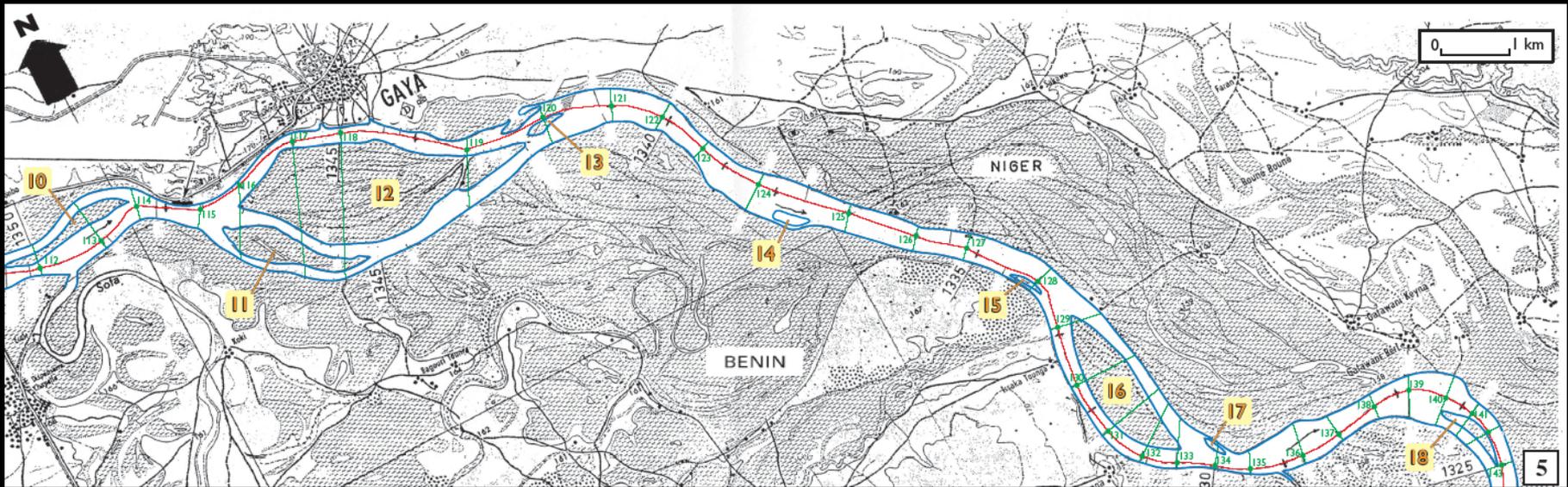
Sovereignty over islands

- Boundary determines island sovereignty
- Island sovereignty determines boundary
- Combination of the above
- Divided islands / shared sovereignty

Boundary (mostly) determines island sovereignty

Benin/Niger, ICJ Judgment 2005

- Islands were allocated based on the definition of the main channel as defined in a 1967-70 hydrographic survey, except islands where colonial *effectivités* had established sovereignty (Gaya).



Sketch map No. 4: International Court of Justice, *Judgment of the Chamber 12 July 2005*, Frontier Dispute, Benin/Niger

Boundary (mostly) determines island sovereignty

Eritrea-Ethiopia Boundary Commission, 2002-06

- “islands shall fall within the territory of either Party according to their location in relation to the main channel.”

Demarcation Instructions, August 2003, para. 20 b

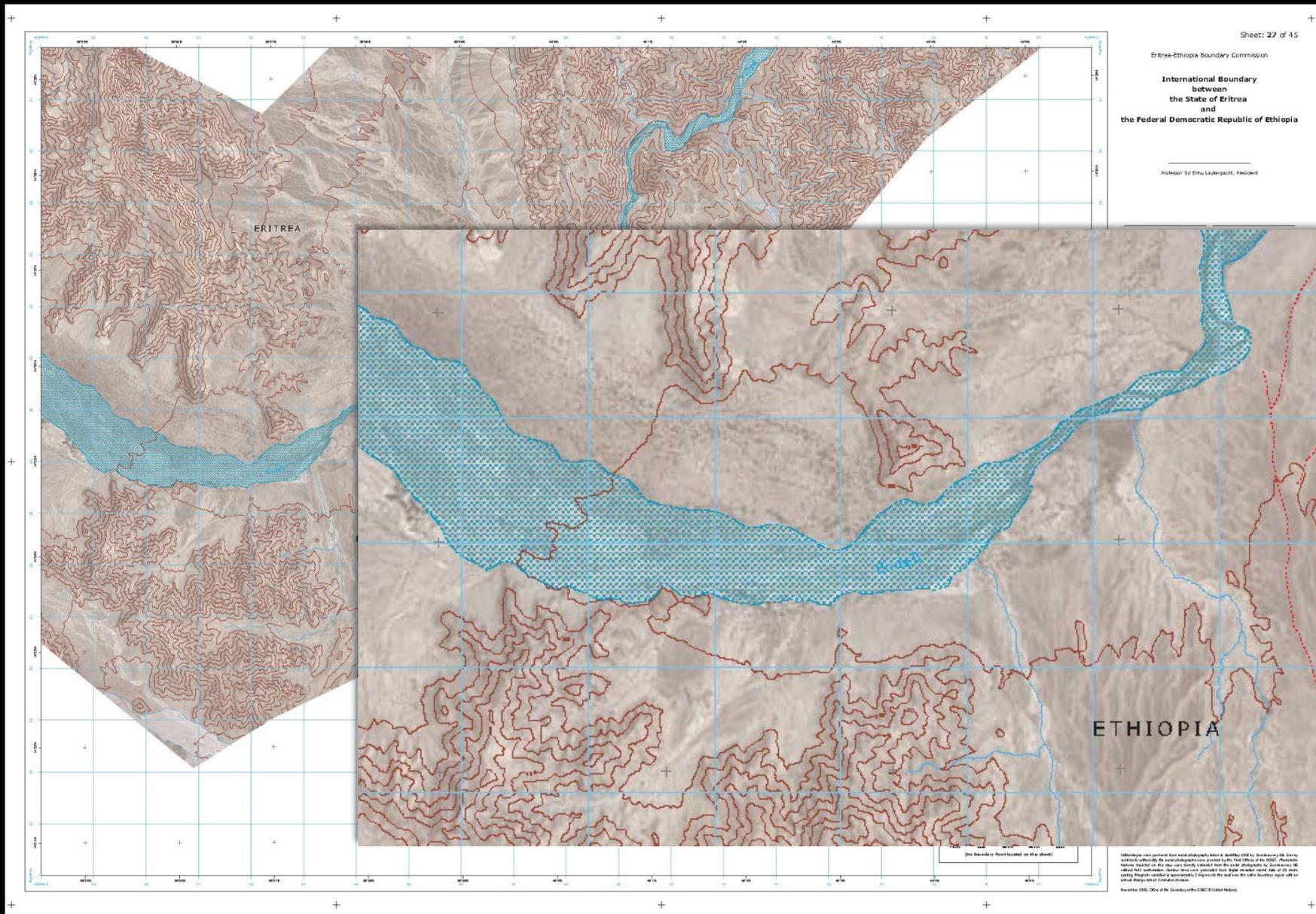
- “Although there were general comments from the Parties on some islands, these comments did not provide substantial or specific evidence requiring a variation from the Commission’s delimitation formula for boundaries in rivers; accordingly, all islands are distributed in accordance with this formula.”

Comments accompanying Statement of 27 November 2006

- “the demarcation team shall determine by appropriate methods the position in relation to the main channel of those islands.”

Demarcation Instructions, para. 20 d

Eritrea-Ethiopia Boundary Commission, 2002-06



Eritrea-Ethiopia Boundary Commission, 2002-06



Sovereignty over islands determines boundary

Mozambique (Portugal)-Tanzania (UK), 1937

“All the islands of the Rovuma River situated between the confluence of the River Domoni with the Rovuma River and the mouth of the latter belong to Portugal. All the islands situated above the said confluence are part of the Tanganyika Territory.”



Boundary generally follows the thalweg of the river, but:

“In places in the river where the channel between the islands and the bank belonging to the other territory does not contain the thalweg of the river, the boundary shall follow the thalweg of that subsidiary channel until it meets the thalweg of the Rovuma river.”

Combined approach to island sovereignty

Canada-USA, 1908

“The line of boundary through River St. Croix shall be a water line throughout and shall follow the centre of the main channel or thalweg as naturally existing, except where such course would change or disturb, or conflict with the national character of an island as already established by mutual recognition and acquiescence in which case the line shall pass on the other side of any such island, following the middle of the channel nearest thereto.”

Divided islands and shared sovereignty

- c. 70 divided river islands, mostly Canada-USA
- Pheasant Island shared by France and Spain



Changes in the river

- Accretion and avulsion
- Changes affecting islands

Accretion and avulsion: most common practice

Gradual change in river channel (erosion / accretion)

→ Boundary moves with river

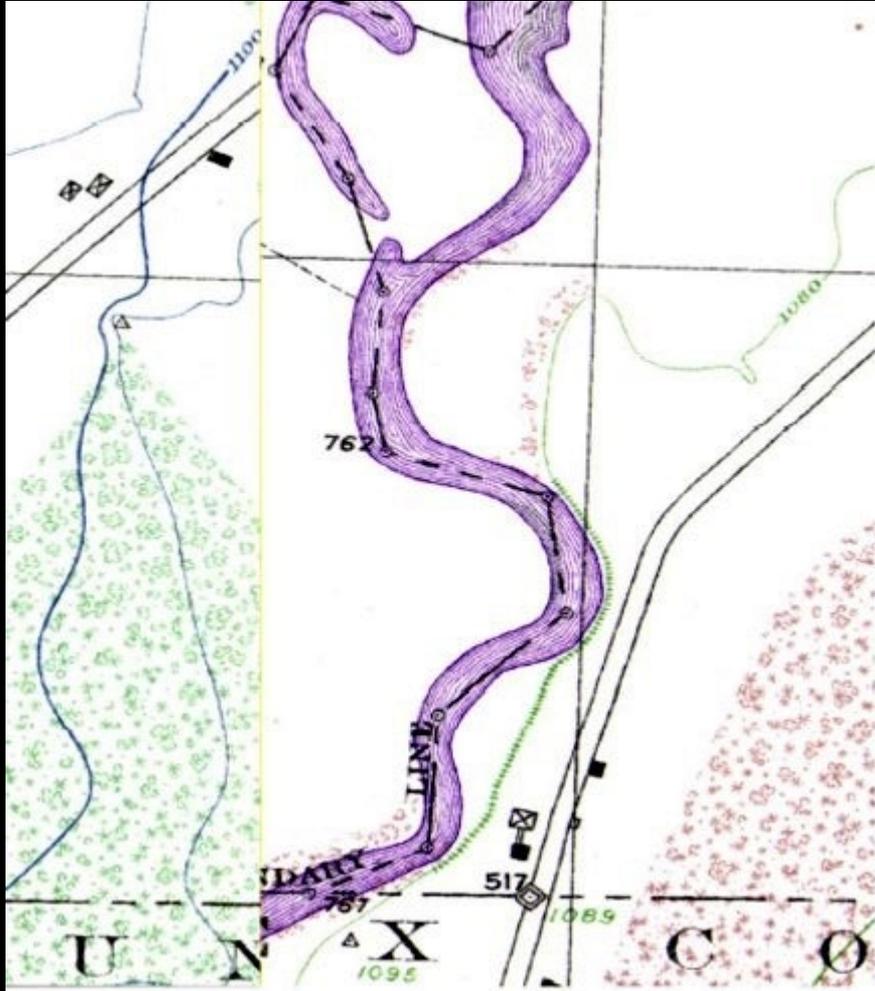
Sudden change in river channel (avulsion)

→ Boundary continues to follow original river

Not the default situation under international law.

Rules for a particular boundary need to be specified.

Accretion and avulsion: alternative state practice Canada-USA



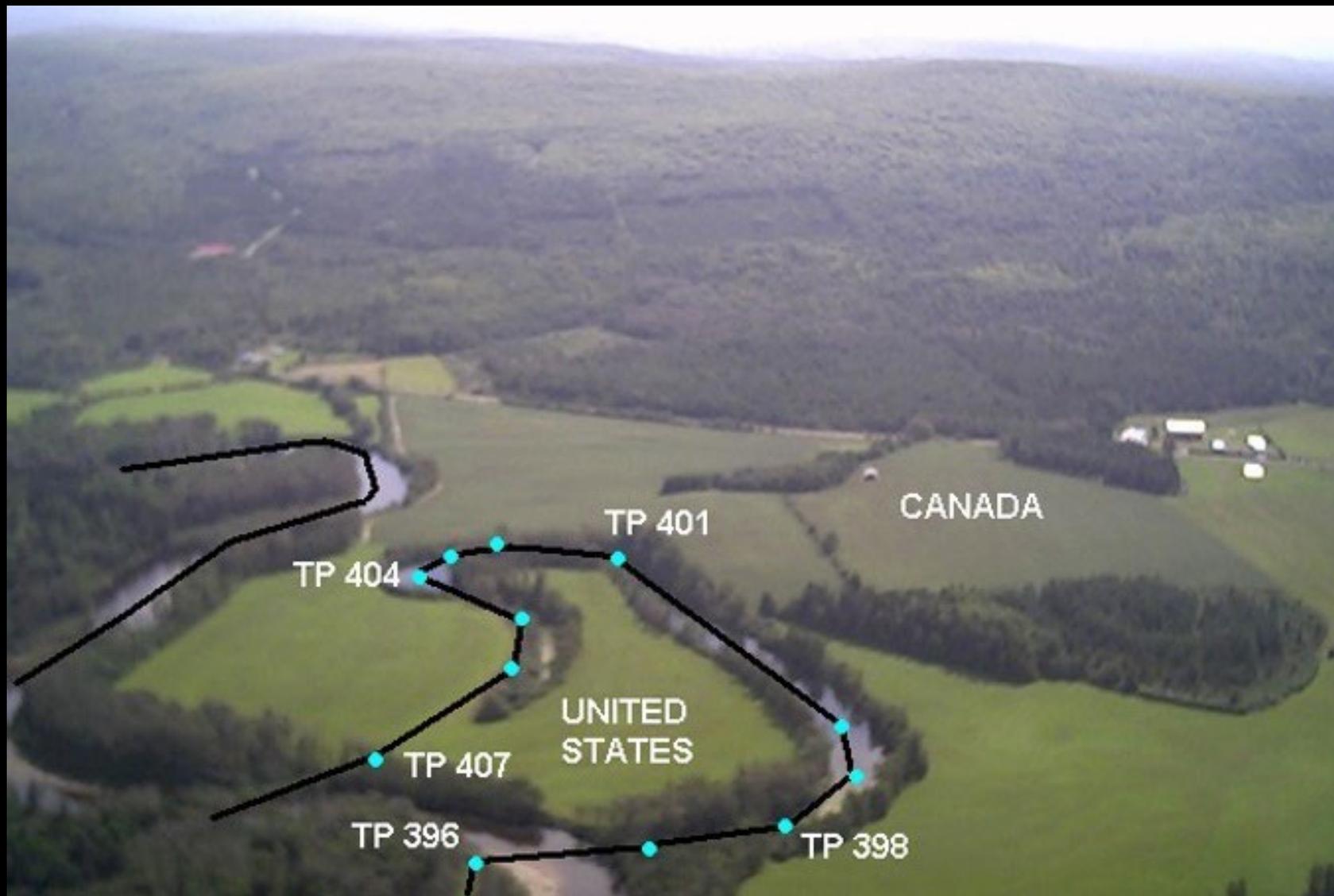
1923



2009

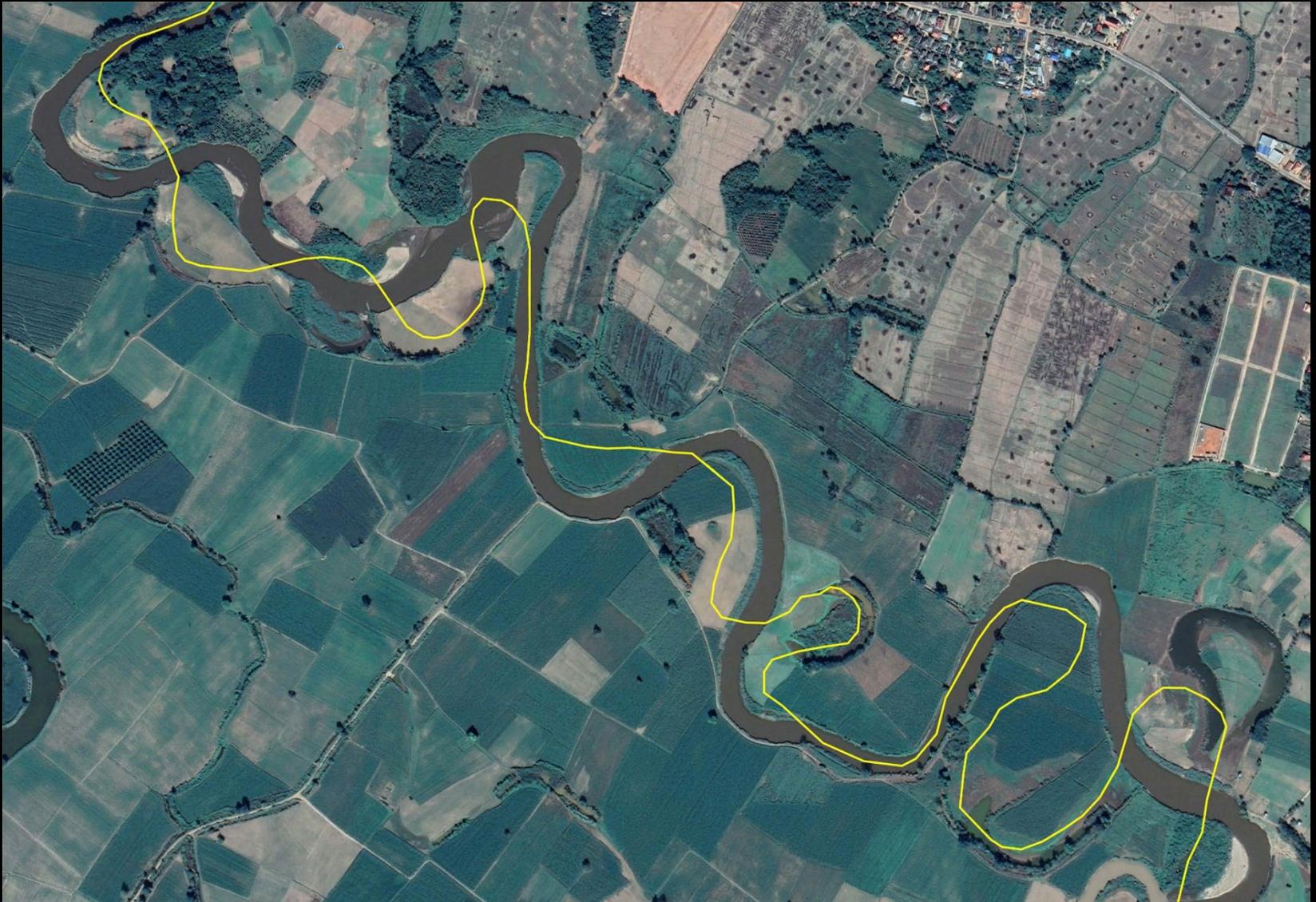
Accretion and avulsion: alternative state practice

Canada-USA



Accretion and avulsion: alternative state practice

Myanmar-Thailand



Accretion and avulsion: alternative state practice

Myanmar-Thailand



Accretion and avulsion: alternative state practice

United Kingdom (Burma)-Thailand, 1934

“The deep water channel of the River Pakchan, wherever it may be, should always be accepted as the boundary.”

Belgium-Netherlands, 1843

“If, by reason of any catastrophe whatsoever the Meuse shall leave its present bed and form a fresh one, the thalweg of this new bed shall none the less continue to form the frontier between the two States. However, the State which sustains loss by the separation of a portion of its territory, shall have the right to execute at its own expense the work necessary to make the river return to its old bed.”

Accretion and avulsion: alternative state practice

Mexico-USA, 1970

In the case of avulsion, if the area affected is less than 250 hectares (618 acres) and with a population of less than 100, the state losing territory can restore the river to its old channel within 3 years and notify the other state through the IBWC. If that state does not, or chooses not to restore the old channel within three years, then the boundary shifts to the new channel. When the area involved is more than 250 hectares (618 acres) and with a population over 100, the boundary will not change and the IBWC will restore the river to its old bed as soon as possible.

See http://www.ibwc.gov/Files/1970_Treaty.pdf for full text

Sovereignty over islands: changes in the river

Islands whose sovereignty is undefined are usually allocated based on their position in relation to the boundary. Emerging islands will be allocated likewise.

But what happens if:

- the thalweg shifts and leaves the island on the ‘wrong’ side of the boundary?
- an emerging island straddles a fixed river boundary (or an existing island expands across the boundary)?
- an island belonging to State A becomes physically connected to the bank of State B?
- two islands of different sovereignty merge to form a single island?

Sovereignty over islands: changes in the river

Brazil-Guyana (UK), 1933

(iii) The position of the thalweg cannot be relied upon to remain constant owing to the natural action of the water, e.g., the gradual deposit of alluvium silting up and perhaps even closing channels. The question of the change of sovereignty of islands on account of the movement of the thalweg through such causes shall be determined as follows:

(a) Where, owing to the gradual movement of the thalweg, an island situated at the time of demarcation on one side of it is found, at any subsequent time, to be situated on the opposite side of the thalweg and still remains an island, its sovereignty shall not change, despite the change in the position of the thalweg.

(b) Where, owing to the gradual movement of the thalweg or to the deposit of alluvium or to the other gradual and natural causes, an island situated at the time of demarcation in the territory of one State becomes joined to the territory of the other State its sovereignty shall change.

Sovereignty over islands: changes in the river

Brazil-Guyana (UK), 1933

(c) Where, in virtue of the gradual and natural action of the river, two islands of different sovereignty unite and form one island, the sovereignty of the island resulting from that union shall be determined by its position with relation to the thalweg at that time.

(d) An island shall be deemed to be joined to another island or to the mainland when the level of the bed separating the two shall have risen to a height greater than that of the water at other than flood periods in that part of the river.

(e) Where, owing to the deposit of alluvium, or other gradual and natural causes, a new island is formed attaining a height greater than that of the water at other than flood periods in that part of the river, where previously no land existed, it shall belong to that State on whose side of the thalweg it may be situated, wherever the thalweg may be at the time of the appearance of the island.

(f) Each State shall have the right both to protect its own banks and islands from the gradual and natural action of the river and also to effect works in its own territory to prevent any local deviation of the current of the main stream, or of any branch of the river, from its course at the time, provided in both cases that such works do not themselves cause any deviation elsewhere.

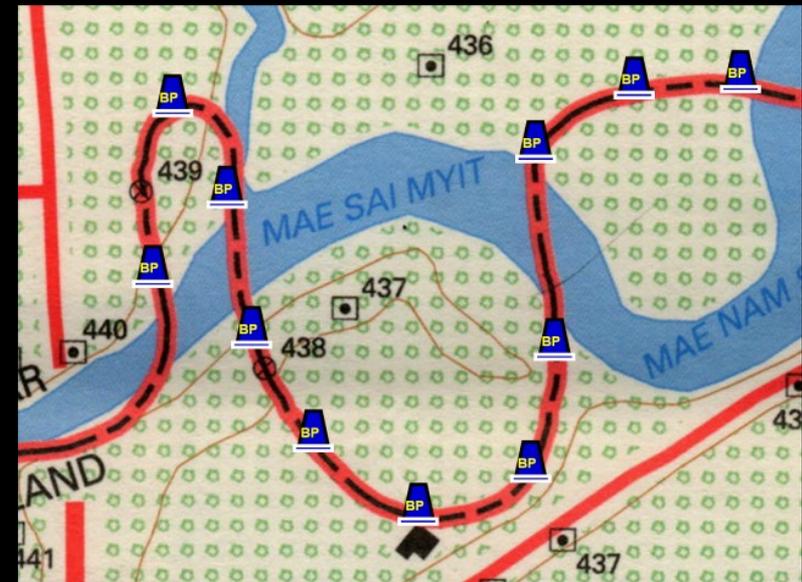
Sovereignty over islands: changes in the river

China-Russia, 1911

“The islands indicated on the map...as having been formed between the old channel of the Argun, the former State frontier, and the modern Argun which in the course of time has gradually moved westwards, shall remain in the possession of Russia. The State frontier between Russia and China shall be the modern course of the Argun.”

Demarcation of river boundaries

- Is demarcation necessary at all?
- Does it need to be mentioned in delimitation agreement?
- Method of demarcation
 - Monuments in the river
 - Witness markers
 - Signs for borderland inhabitants
- Demarcation of old river channel



Dispute resolution provisions

- Not essential but, if an indication of dispute resolution procedures is considered desirable, be more specific than “shall be settled by consultation”, e.g.
 - Specify relevant authorities for negotiation (boundary commission, government ministers)
 - Identify potential mediators / conciliators
 - Identify options for adjudicated settlement (arbitration, ICJ)
 - Time limits for different dispute resolution methods (e.g. 2 years for negotiation; then 3 years for mediation; then ICJ...)

River boundary definition: questions for discussion

For each of your country's river boundaries:

1. Identify the existing definition of the boundary (treaty, treaties, protocols, demarcation reports, etc)
2. Is the existing definition 'fit for purpose'? If not, what changes / additions would you recommend? Consider the needs of both countries.
3. What additional work will be required in order to make the boundary definition fit for purpose? Who should / could undertake that work?
Are sufficient human, technical and financial resources available?
If not, what case could you make for acquiring those resources?
4. Would a new boundary treaty be required, or can adjustments be made within existing regulatory frameworks?
5. Is demarcation required anywhere along the boundary? If so, why? Are there any alternatives to formal demarcation to help make the boundary visible?

Further reading

- Biger, G. (1988) *Physical geography and law: the case of international river boundaries*, GeoJournal, 17(3).
- Bouchez, L. J. (1963) *The fixing of boundaries in international boundary rivers*, International and Comparative Law Quarterly 12
- Donaldson, J.W. (2009) *Where rivers and boundaries meet: building the international river boundaries database*, Water Policy 11
- Gleditsch, K. (1952) *Rivers as international boundaries*, Nordisk Tidsskrift for International Relations 22
- Schroeter, F. (1992) *Les Systèmes de Délimitation dans les fleuves internationaux*, Annuaire Français de Droit International, XXXVIII

Thank you!



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