ABSTRACT

Title of Dissertation: THE OIL BLESSING?
HYDROCARBONS' EFFECTS ON
MARITIME BOUNDARY FORMATION

Patrick L. O'Brien, Doctor of Philosophy, 2023

Dissertation directed by: Professor Paul H. Huth, Government and Politics

Do natural resources help states resolve contentious maritime boundary issues? Literature on maritime boundaries suggests that states often sign maritime boundary agreements to acquire offshore hydrocarbons, yet there are also ample examples when resources have been the reason why states dispute maritime zones. To explain this apparent contradiction, an oil effect is posited that is conditional on states' pre-existing claims. When maritime neighbors do not have overlapping maritime claims, the onset of oil interests in bordering maritime space make states more likely to sign delimitation agreements to achieve the legal certainty necessary to extract the oil. However, among states engaged in a maritime dispute prior to the onset of hydrocarbon interests, a different industry risk calculus, increased audience costs, and institutional challenges in reducing extant claims all mean that the same effect should not be observable. Meanwhile, the increased issue salience born from the oil interest should also make states more likely to pursue peaceful settlement attempts through other agreements related to their maritime zones, like establishing a joint development zone or pursuing third party conflict management. A dataset of maritime boundaries was improved upon to test this theory on 447 pairs of maritime neighbors from 1946 to 2016. Regression analyses confirm that a nearby oil discovery makes delimitation agreements more likely only among dyads without a prior existing dispute. Closer examination of 27 joint development zone agreements and 38 agreements to pursue binding third-party dispute settlement suggest that the order of events also plays a key role. Indeed, states engaged in a new dispute prompted by hydrocarbon interests are the most likely to sign all three agreement types—delimitation, joint development zone, and judicial settlement. In a comparative case study using U.S. maritime boundaries, oil interests are shown to have hastened delimitation agreements between the United States and Mexico, whereas oil interests made dispute resolution more difficult in U.S.-Canada maritime boundary areas. After resorting to and enduring the ordeal of a World Court case to achieve one partial settlement, Ottawa and Washington had little appetite to address remaining disputes. The implications of these findings for the world's remaining undelimited boundaries are then discussed, focusing on East Asia.

THE OIL BLESSING?
HYDROCARBONS' EFFECTS ON MARITIME BOUNDARY FORMATION

by

Patrick L. O'Brien

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2023

Advisory Committee:
Professor Paul H. Huth, Chair
Professor Todd Allee
Professor Nienke Grossman
Professor Scott L. Kastner
Professor Robert H. Sprinkle

For my sons Filip and Stefan, who didn't exist when I started my doctoral work.
They've done so much to delay completion of this dissertation.
Imagine what they'll be capable of when they use their awesome powers for good.

ACKNOWLEDGEMENTS

I hereby request that the University of Maryland bestow honorary doctorate degrees to my wife (in family and marriage therapy) and to her parents (humanities). I was working full time while writing this dissertation, which meant that it necessarily took time that I otherwise would have had with family. My wife juggled her own demanding work (on whom real people depend) and two rambunctious kids to allow me to work on weekends and an occasional week away. She experienced lost sleep, lost income, lost family time just as I did, so it wouldn't be fair that only I get the extra three letters after my name. My in-laws were equally dedicated to my success, watching our kids for far more time than what they signed up for, packing delicious Balkan food for the days I got away, and generally keeping the house functioning when I wasn't. If degrees aren't feasible, a plaque in my family's honor in Tydings Room 1111—where I was often spotted re-learning Stata and testing out ideas on the white board, while my wife was home caring for seemingly forever-sick kids and putting in late hours of her own—might suffice. My wife's sister and her family lent me comfortable places to work with few distractions. My father, who was the first to teach me about politics, and my brother, who also knows a few things on the subject, provided many helpful comments and copyedits to a draft. To say that I could not have done this without my family's support would be a gross understatement.

I was very fortunate to have worked with Paul Huth as my advisor, who ensured my theory remained central and that my analysis was rigorous. He also aided me many times with professional advancement both in and outside academia. He will remain a model scholar to emulate in any future research or academic work I do. All my committee members were supportive of me, exceedingly helpful in their feedback, and patient with my slow progress. And an extra thanks to Todd Allee for an occasional pep talk.

I owe a great deal to Umut Yüksel, whom Paul introduced me to just as I was about to commit to the grueling task of creating an original maritime boundaries dataset. Collaborating with Umut not only saved me time, but it meant using better quality data than I could have produced on my own. I'm looking forward to continuing to collaborate in our area of mutual interest.

Many in the Maryland Government and Politics Department contributed to this project at some stage of its development, just a few of whom are Bill Read, Mike Hanmer, Andrew Lugg, Peggy McWeeney, and Sean Rao. Then-UMD undergrad Linus Nemiroff graciously aided in my early data work.

Isaac Kardon at the Naval War College gave significant help to a course paper that was the basis for what is now a dissertation chapter. Thanks also to International Mapping, and Marissa Wood in particular, for generously providing me access to the Sovereign Limits database, for permission to use images, and for some interesting boundary blogging.

The views expressed in this dissertation are my own and do not necessarily reflect the positions of the U.S. Navy, the Department of Defense, or any other entity with whom I may have had an affiliation. Of course, any errors are also my own.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

List of Abbreviations and Acronyms

AAPG	American Association of Petroleum Geologists
AP	Associated Press
ASEAN	Association of Southeast Asian Nations
BC	British Colombia
CACJ	Central American Court of Justice
CINC	Composite Index of National Capability
CLCS	Commission on the Limits of the Continental Shelf
CS	Continental Shelf
DPRK	Democratic People's Republic of Korea
DV	Dependent Variable
EC	European Commission
ECJ	European Court of Justice
ECS	Extended Continental Shelf
EEZ	Exclusive Economic Zone
EIF	Entered into force
FONOP	Freedom of Navigation Operation
GDP	Gross Domestic Product
IBWC	International Boundary and Water Commission (U.S.-Mexico)
ICJ	International Court of Justice
ICOW	Issues Correlates of War (data project)
IMB	International Maritime Boundaries (reference series)
IR	International Relations
ITLOS	International Tribunal for the Law of the Sea
IUA	International Unitization Agreement
JDZ	Joint Development Zone
MID	Militarized Interstate Dispute
NM	Nautical Miles
NOAA	(U.S.) National Oceanic and Atmospheric Administration
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
PCA	Permanent Court of Arbitration
PETRODATA	Petroleum Dataset (Lujala, Rod, and Thieme 2007)
TS	Territorial Sea
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNCLOS III	Third United Nations Conference on the Law of the Sea
U.S.	United States
USGS	U.S. Geological Survey
USSR	Union of Soviet Socialist Republics

Chapter One: Offshore Oil, Undelimited Boundaries, and Maritime Disputes

"Anyone who has dreamed of winning the lottery or finding buried treasure assumes that a large cash windfall will make them better off..."

Michael Ross[1]

1.1 Motivation and Research Question

Offshore oil and gas[2] in the South and East China Seas, the Arctic, eastern Mediterranean, near the Falklands/Malvinas Islands, and elsewhere are often cited as sufficient explanations for why states engage in acrimonious disputes over patches of ocean.[3] To phrase it in a way that can be tested, if there is significant economic interest in some maritime space, nearby states should be less likely to agree on boundaries, when compared to states near maritime space that lack significant natural resources. But can this conventional wisdom be trusted?

---

[1] Although our applications differ, I owe to Ross' seminal book both the inspiration for the title of this dissertation and an appreciation for the nuanced role natural resources play in complex socio-political phenomena. Michael Ross, *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations* (Princeton, NJ: Princeton University Press, 2012), xiii.

[2] I refer variously to "hydrocarbons", "oil and gas", or simply "oil." Unless referring to specific cases (e.g., the discovery of a particular gas field or oil field), I mean by each of these any lucrative hydrocarbon resource but namely oil/petroleum and natural gas. Treating these as equivalent expressions is common practice in both modern colloquial English and in academia (e.g., Ross, 2012).

[3] Examples from the popular press: "The New Cold War: Drilling for Oil and Gas in the Arctic," The Guardian, June 16, 2015, https://www.theguardian.com/environment/ng-interactive/2015/jun/16/drilling-oil-gas-arctic-alaska; Sam Meredith, "Turkey's Pursuit of Contested Oil and Gas Reserves Has Ramifications 'well beyond' the Region," CNBC, August 18, 2020, https://www.cnbc.com/2020/08/18/turkey-greece-clash-over-oil-and-gas-in-the-eastern-mediterranean.html.

Consider the case of Cyprus and Israel. These states had not determined their maritime boundary when, between 2009 and 2010, exploratory drilling revealed the Tamar and Leviathan natural gas fields below the seabed between them. Either state could have made extensive claims to maximize the amount of energy resources they would have the rights to. But instead, the two states quickly signed an agreement on the boundary of their exclusive economic zones (EEZs) in December 2010, and each ratified it by February 2011.[4] The presence of resources did not result in dispute onset; rather it seemingly resulted in a quick resolution of the boundary question.

Meanwhile, for many years, Israel had been unable to settle its boundary with another maritime neighbor, Lebanon. Both states issued licenses in the disputed area. Despite their tense bilateral relations generally, both states regarded boundary settlement as a priority and enlisted the mediation of the UN and the U.S. Yet instead of leading to compromise, if anything, the positions hardened with time. In particular, Lebanon adopted a more expansive claim than when it began formal negotiations. Complicating the Lebanese government's precarious position, in July 2022 Israel shot down Hezbollah drones that were allegedly conducting reconnaissance over the disputed waters, and Hezbollah threatened to take further action to defend Lebanese waters. Thus despite keen interest in settling the boundary to not hold up petroleum

---

[4] This "EEZ" agreement pertained to rights normally included in an EEZ *and* continental shelf agreement. Marissa D. Wood and Meghan K. Gilbert, "Cyprus-Israel Maritime Boundary Brief" (Sovereign Limits: International Boundaries Database, 2018), https://sovereignlimits.com.

extraction, a breakthrough appeared elusive for years.[5] Though there was a surprise breakthrough with an agreement signed at the end of 2022, this still begs the question of why it took 12 years longer than in the case of Israel-Cyprus.[6]

Given the variation in outcomes of cases to choose from, close observers of the politics and law surrounding maritime boundary disputes have suggested contradictory effects of offshore hydrocarbons. Some posit that oil and gas lead to an increased likelihood of maritime disputes and armed conflicts over those disputes.[7] Others argue that even in cases where oil is present in abundance, oil interests are surprisingly not a major factor in breaking through on disputes.[8] Yet the little attention maritime boundary formation specifically has received in the international relations (IR) literature suggests that oil often leads states to seek joint benefits and settle their boundary.[9] That is, oil is actually helpful. But while this research gets us further than the simplistic oil-leads-to-disputes theory, it remains unsatisfying given

---

[5] Dario Sabaghi, "Explained: Renewed Israel-Lebanon Maritime Border Dispute," Middle East Eye, June 11, 2022, http://www.middleeasteye.net/news/explained-israel-lebanon-maritime-border-dispute-renewed; "Lebanon's Hezbollah Launches Three Unarmed Drones towards Disputed Area with Israel," Middle East Eye, accessed August 22, 2022, http://www.middleeasteye.net/news/lebanon-israel-hezbollah-three-unarmed-drones-disputed-area.

[6] "Israel, Lebanon Sign US-Brokered Maritime Border Deal," *Al Jazeera*, October 27, 2022, https://www.aljazeera.com/news/2022/10/27/israel-lebanon-sign-us-brokered-maritime-border-deal.

[7] Elizabeth Nyman, "Offshore Oil Development and Maritime Conflict in the 20th Century: A Statistical Analysis of International Trends," *Energy Research & Social Science* 6 (March 2015): 1–7, https://doi.org/10.1016/j.erss.2014.10.006.

[8] Arild Moe, Daniel Fjærtoft, and Indra Øverland, "Space and Timing: Why Was the Barents Sea Delimitation Dispute Resolved in 2010?," *Polar Geography* 34, no. 3 (September 2011): 145–62, https://doi.org/10.1080/1088937X.2011.597887.

[9] Áslaug Ásgeirsdóttir and Martin C. Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims," *Journal of Conflict Resolution* 62, no. 6 (2016): 1284–1313, https://doi.org/10.1177/0022002716677568.

the variation in outcomes that resources have been associated with. What explains why coastal states with valuable resources between them sometimes quickly delimit their boundaries, and sometimes engage in drawn-out disputes?

It should be noted that a third possibility exists, whereby states punt on compromising over their overlapping claims yet sign agreements that aim to achieve joint benefits. Even disputants with acrimonious disputes over islands and maritime space have done so. Consider northeast Asia where China, Japan, and South Korea each have an outstanding maritime boundary dispute with the other. Despite this, each of the three has also signed agreements with the others on joint fisheries zones: Seoul and Tokyo in 1998, Tokyo and Beijing in 1997 and 2000, and Beijing and Seoul in 2001. Likewise, two of these dyads have signed agreements on hydrocarbon joint development zones (JDZs): Seoul and Tokyo in 1974, and Tokyo and Beijing in 2008. Yet despite these moments of conciliation, subsequent negotiations on implementing these JDZs failed, and the sovereignty issues remain highly contentious. Though much of this dissertation focuses on getting to an agreement, issues of effectiveness of agreements—and thus resolving the underlying disputes—is a secondary theme.

Knowing under what circumstances offshore energy deposits lead to conciliation versus contestation has enormous implications for the study of maritime boundaries, maritime disputes, and related areas such as territorial disputes. It also has serious practical relevance for both states and industry as they consider how best to manage the more than half of maritime boundaries that are not fully delimited to this today.

1.2 Dissertation Overview

This dissertation posits a theory to explain the differing roles offshore energy deposits have on maritime boundaries that have not been fixed. The proposed key determinant is the legal status of the boundary, namely whether there is an existing dispute in the form of publicly made overlapping claims at the time of discovery. After offshore oil or gas is discovered in the vicinity of two states' maritime zones, energy firms' need for legal certainty to make long-term investments in extractive infrastructure compels the states to settle their maritime boundaries. However, if there is a dispute over the boundary, the energy industry's risk calculus is qualitatively different such that they are more likely to avoid investing in the disputed zone (assuming they have not already) until the parties resolve the dispute. Thus the pressures to settle found in non-disputed cases are dampened. This, combined with domestic audience costs and other challenges with reducing extant maritime claims, make it especially difficult for leaders to compromise. The greater the economic salience of the dispute, the harder such compromise would be. The observable result is that maritime delimitation agreements should generally be signed faster where there are known, viable offshore hydrocarbons; but this "oil effect" will not be present when the two states have pre-existing, publicly-made, overlapping claims.

The option remains for leaders of disputant states to seek an alternative agreement which entails less political risk—either establishing a joint development zone or deferring to third party dispute resolution. Although not directly, these alternative agreements have the potential to get closer to resolving a disputed boundary, either by (for intermediation) putting forth a potential boundary solution from a neutral party or (for a JDZ) by reducing tensions over resources and rendering the location of the eventual boundary less important. While these are often good options for states, as will be explored later, they can also entail significant costs and risks to implementation.

The rest of this chapter is structured as follows. I first provide some background on the offshore industry and the state's relationship to it. I then provide a primer on the modern Law of the Sea (LOS) regime, noting particularly the nature of claim-making and the uncertainties surrounding delimitation methods. Then I summarize the relevant literature on resources and maritime boundary issues and highlight my point of departure from it.

Chapter Two expounds on the theory of a conditional effect of energy resources on maritime boundary agreements. I present three hypotheses which are taken up again in the subsequent empirical chapters. Chapter Three describes the improvements to an existing dataset of potential maritime boundaries and subsequent large-N regression analyses of all three agreement types. Chapter Four looks closer at agreements to establish joint development zones and agreements to pursue third party dispute resolution, both to explore the extent to which oil affects their frequency and to evaluate how well they serve as alternatives to delimitation agreements. Chapter Five presents a comparative case study, aiming to use qualitative methods to evaluate the theory and to illustrate it in action. Finally, Chapter Six expounds on and synthesizes the conclusions from the previous chapters, offers implications for the

East Asia region where maritime boundaries are of particular interest, and suggests areas for future research.

1.3 Definitions: Delimitation, Dispute, Settlement

Before continuing, a clarification of key terms is in order. A boundary dispute and an undelimited boundary are different concepts. Yet even when authors use the correct terms, by not sufficiently emphasizing the distinction, they may give the wrong impression to those not versed in Law of the Sea issues. Likewise for the term "settlement," which may in one context refer to an act that fixes a boundary line but did not resolve a dispute, yet in another refer to an act that resolves a dispute but did not fix a boundary line.

Maritime delimitation is the boundary-making phase that involves the "drawing of bilateral boundaries between two neighboring states with opposite or adjacent coasts."[10] The act of delimiting involves fixing the line that separates two allocations or entitlements of maritime space. Delimitation is always accomplished through "agreement" in a generic sense, that is, the two states must concur on where the line between their respective maritime spaces lies. It is a bilateral act, never unilateral, though the form of agreement varies. The vast majority of maritime

---

[10] The phases of boundary-making are: allocation, delimitation, demarcation, and administration, though maritime boundaries rarely experience demarcation like land boundaries. Delimitation should not be confused with unilateral acts of delineation (such as the promulgation of baselines that will be used as starting points for a state's maritime zones) or determination of seaward limits. Douglas M. Johnston, *The Theory and History of Ocean Boundary-Making* (McGill-Queen's University Press, 1988), 8–9.

boundaries are delimited with formal treaties, or bilateral "agreements" in the narrow sense. Some have been delimited by exchange of diplomatic notes. Still others have been delimited by the concurrence of states to the outcome of a binding dispute settlement process. Sometimes such an outcome—for example, an International Court of Justice (ICJ) judgment—is followed by a separate treaty that affirms the parties' concurrence. But agreement can also be affirmed by political statements that demonstrate each parties' acceptance of the outcome. Should a party fail to concur to such outcome—even if it is legally obligated to—the relevant boundary will not be considered as being delimited for the purposes of this study. A delimitation agreement may cover either the full boundary between the two states or a partial boundary that leaves other boundary segments undelimited. For this study, "undelimited boundaries" include boundaries that are only partially delimited.

A maritime boundary dispute describes a situation where competent authorities in neighboring states have expressed as official policy a claim of exclusive sovereign rights over the same maritime space. This can be done either by promulgating incompatible maps and/or coordinates, by one state rejecting the other state's claims, by endorsing different delimitation methods that would imply overlapping claims, or by acknowledging the existence of a dispute.[11] Disputed boundaries are a subset of undelimited boundaries.[12]

Because a dispute is defined as overlapping claims, settlement of a dispute necessarily involves the reduction of an earlier claim by at least one party. Boundary dispute settlement can occur simultaneously with the settlement of an undelimited boundary, as when two disputing states sign a delimitation treaty that makes clear that there is no longer an overlap in claims. But these two events need not be the same. For example, if a state unilaterally promulgates coordinates for the purposes of marine regulation that leave out a disputed zone, this may represent the reduction of earlier claims and the end of the era of the earlier dispute (barring evidence to the contrary), while still leaving the boundary unsettled. Table 1 summarizes the distinction between these terms as well as provides selected counts of total potential boundaries, undelimited boundaries, and disputed boundaries from the dataset that will be described in Chapter 3.

---

[11] Johnston distinguishes between several levels of boundary problems: an unthreatening "difference", an officially recognized "issue", a "dispute" of elevated importance, and a more active "conflict" involving the breaking out from the diplomatic and legal realms to serious administrative and/or military enforcement of claims. I find these distinctions ambiguous, and because states choose how to characterize their disputes, treating only a narrow subset of boundary differences would unnecessarily introduce endogeneity problems to the present study. Nonetheless, future maritime boundary studies might benefit from this or a similar typology. Johnston, 10–11.

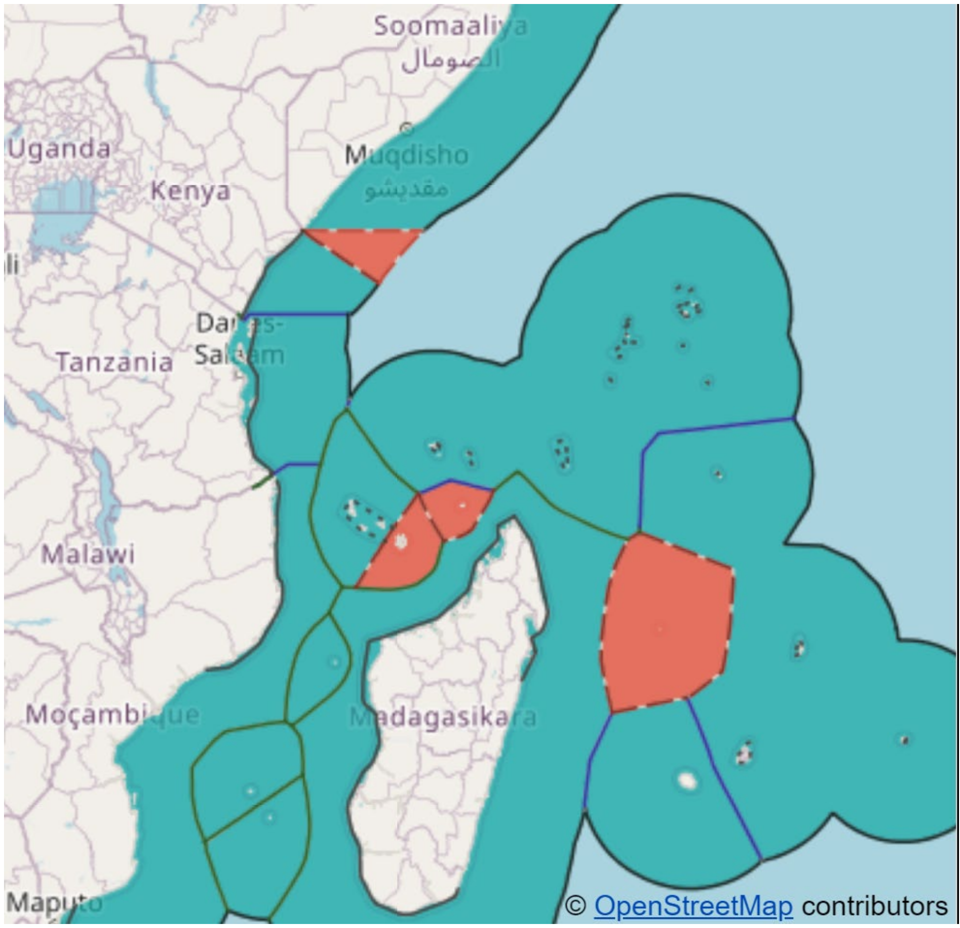
[12] For discussion on what constitutes a dispute in a legal sense, see: Christine Sim, "Maritime Boundary Disputes and Article 298 of UNCLOS: A Safety Net of Peaceful Dispute Settlement Options," *Asia-Pacific Journal of Ocean Law and Policy* 3, no. 2 (2018): 256–58.

Table 1: Undelimited Versus Disputed Boundaries

	Undelimited Boundary	Disputed Boundary
Onset Event	Geographic, historical, or legal factors permit states to reasonably claim the same or adjacent maritime space (or actual overlapping claims are made, even if not reasonable)	Competent authorities of multiple states claim exclusive maritime spaces that overlap
Offset / Settlement Event	Either a boundary delimitation agreement or acceptance of the outcome of intermediation	Reduction in earlier claims such that there is no longer an overlap
# in 1946, out of 79 potential boundaries	79 (100%)	5 (6%)
# in 1981, out of 307 potential boundaries	268 (87%)	53 (17%)
# in 2016, out of 336 potential boundaries	205 (61%)	49 (15%)

Figure 1 illustrates these concepts with maritime space off the east African coast. Kenya and Tanzania established their TS boundary through an exchange of notes in 1976 and their CS and EEZ boundary through a delimitation agreement in 2009. This fully delimited boundary is in blue. But Kenya and Somalia dispute a triangular wedge of maritime space, even after the ICJ ruled in Somalia's favor in 2021. This disputed area is in red. Many boundaries in this region—for example, that of Madagascar-Mozambique—are undelimited yet undisputed and are represented by notional median or equidistance lines in green. Black lines represent the 200 nautical miles (NM) limit out to which states can claim the continental shelf and an exclusive economic zone (regardless of whether the states have in fact made such a claim).

Figure 1: Maritime Boundaries Off East African Coast



Blue lines: Settled boundaries. Red: Overlapping claims / disputed areas. Green lines: Median lines pertaining to undelimited and undisputed boundaries. Black lines: 200 NM limits. Data current for 2022. Credit: Flanders Marine Institute (VLIZ)

1.4 Evolution of the Law of the Sea

As with international law in general, there are two primary sources for the Law of the Sea and, more specifically, states' rights to establish maritime zones: custom and treaties. By the 19th century, there was a widely accepted norm for maritime states in Europe to claim exclusive jurisdiction in a continuous band of water with a breadth of three NM extending from their shores.[13] These early maritime zones were the product of security and domestic fisheries interests. As technology and globalization pushed states toward territorialization of the sea, and national consciousness began to take on meaning beyond the very near-shore, there emerged a need for a more complex legal regime.[14]

The first UN Conference on the Law of the Sea (UNCLOS I) in 1958 was the first successful attempt to codify states' entitlements to maritime space and the principles for delimiting between them. UNCLOS I resulted in four conventions, all concluded in 1958, notably the Convention on the Territorial Sea and Contiguous Zone and the Convention on the Continental Shelf.[15] But the most sweeping such treaty is the UN Convention on the Law of the Sea (UNCLOS), a product of the Third UN Conference on the Law of the Sea (UNCLOS III), which lasted from 1973 to 1982.[16] For states that have ratified UNCLOS, it supersedes the four 1958

---

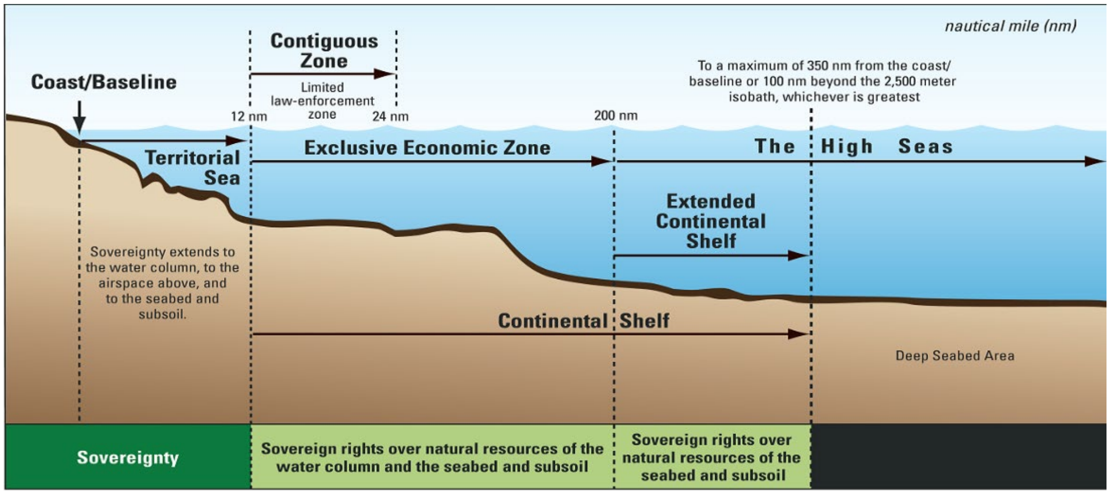
[13] Denmark was the first to claim a continuous belt of water at a fixed width around their coasts as a zone for which only their own nationals could fish, in 1598 around Iceland for 2 Danish leagues, or 8 NM. The Scandinavian states would experiment with these exclusive zones also being neutral zones in order to avoid becoming embroiled in others' wars. For the same reasons, some Mediterranean states applied the "cannon-shot rule" to an unspecified and mutable distance. But they could not sustain their broad claims in the face of opposition by the stronger powers and so progressively reduced the width to something more defensible. When the major powers began to acquiesce to these claims in the mid-1700s, they coalesced around the nautical league used in the Mediterranean, which is 3 NM, at a time when the maximum cannon range was about the same. See: H. S. K. Kent, "The Historical Origins of the Three-Mile Limit," *The American Journal of International Law* 48, no. 4 (1954): 537–53, https://doi.org/10.2307/2195021.
[14] For more on broad trends associated with territorialization of the sea, see: Philip E Steinberg, *The Social Construction of the Ocean* (Cambridge; New York: Cambridge University Press, 2001); Johnston, *The Theory and History of Ocean Boundary-Making*.
[15] "Convention on the Territorial Sea and the Contiguous Zone," 526 UNTS 205 § (1958); "Convention on the Continental Shelf," 499 UNTS 311 § (1958).
[16] "United Nations Convention on the Law of the Sea," *1833 UNTS 3*, December 10, 1982, https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

conventions. Most coastal states have ratified UNCLOS, and still other states (e.g., the United States) regard nearly all its provisions as reflecting customary international law.

Yet it is important to note that the Law of the Sea developed continuously prior to UNCLOS—including in the conventions already cited—and has continued to evolve since, most notably through case law. Therefore, although UNCLOS is the single best reference for Law of the Sea provisions, it is by no means complete, nor should its entering into force be treated as the starting point for rules about delimitation or maritime zones.

Nonetheless, per UNCLOS, a state may claim a territorial sea (TS) extending up to twelve NM seaward from the coast, wherein it exercises a high degree of sovereignty. A state can claim a contiguous zone of twelve NM beyond the TS where it can maintain certain law enforcement and administrative powers. A state may also claim an exclusive economic zone (EEZ) up to 200 NM from the same baseline as the TS where it has sole rights to natural resources in and on the waters, though its rights to regulate in other areas are very limited. Many states once claimed fisheries zones beyond their TS, though many fisheries zones have been superseded by an EEZ as defined by UNCLOS. States can also claim a 200 NM continental shelf (CS), meaning that it would have exclusive rights to natural resources on or below the seafloor—including hydrocarbons. Claims of a CS out to 200 NM usually align exactly with EEZ claims, though there is no requirement to do so. States can also claim an extended continental shelf (ECS) beyond 200 NM if it can demonstrate to the Commission on the Limits of the Continental Shelf (CLCS) that the geological continental shelf appertaining to its coast meets certain geological and geomorphological criteria.

Figure 2: Maritime Zones per UNCLOS



Credit: NOAA Office of Ocean Exploration and Research

The prevailing legal view is that states must positively establish a maritime zone in order for that zone to exist.[17] States do not automatically have an EEZ of 200 NM breadth just because they ratified UNCLOS. A unilateral maritime claim usually takes the form of either legislation, an executive proclamation, a statement by a competent minister such as that for foreign affairs, or a submission of a claim to the United Nations (UN) Division for Oceans Affairs and the Law of the Sea, though a domestic court can also affect a state's claims.[18] Regardless of the method and any

[17] Przemysław Saganek, *Unilateral Acts of States in Public International Law* (Boston, MA: Brill Nijhoff, 2015), 244–49.
[18] By invalidating a delimitation agreement with Greece, the Albanian Constitutional Court in 2010 effectively negated the Albanian government's claims as expressed in that treaty; the country would then have had ambiguous claims until the government took up a new position on the matter. Kyriaki Noussia, "Albania Current Legal Developments," *International Journal of Marine and Coastal Law* 25, no. 4 (2010): 601–8.

domestic effect it may have, a unilateral claim does not automatically have international legal effect. That would depend on other factors, namely how well the claim comports with the contemporary Law of the Sea regime and whether other states respect the claim.

Regarding delimitation between TSs, UNCLOS Article 15 repeats language from the Convention on the Territorial Sea and Contiguous Zone of 1958 which established the default method of delimitation as "the median line every point of which is equidistant from the nearest points of" both states' coastal baselines. But exceptions to this equidistance default can be made in cases where there are "historical title or other special circumstances." Neither of these terms are elaborated on in the Convention, and they have led to varying schools of thought and a fair amount of litigation.

Delimitation of other maritime zones is still less clear. Article 6 of the 1958 Continental Shelf Convention placed equidistance in an elevated position just as the parallel convention had done for the territorial sea. However, the ICJ determined in its 1969 *North Sea Continental Shelf Cases* that equidistance was not customary international law and thus did not apply to non-parties of the Continental Shelf Convention.[19] The lack of clarity was not aided much by UNCLOS. Article 83 says

---

[19] On the *North Sea Cases*, some commentators do not mince words: "The contrasting of equidistance and equitable principles, as if the two were opposing concepts, embodied an unnecessary 'attack' on equidistance from which maritime delimitation law is yet to fully recover." Nuno Marques Antunes and Vasco Becker-Weinberg, "Entitlement to Maritime Zones and Their Delimitation: In the Doldrums of Uncertainty and Unpredictability," in *Maritime Boundary Delimitation: The Case Law: Is It Consistent and Predictable?*, ed. Alex G. Oude Elferink, Signe Veierud Busch, and Tore Henriksen (Cambridge: Cambridge University Press, 2018), 78, https://doi.org/10.1017/9781108344302.004.

the CS should be delimited “by agreement on the basis of international law” and “in order to achieve an equitable solution”. Article 74 reads identically to Article 83 except that it applies to delimitation of the EEZ instead of to the CS. This vague formulation in two parts—reference to international law and reference to an equitable solution—was the result of a compromise at UNCLOS III. One faction favored the use of the equidistance principle for delimitation of all maritime zones but was finally assuaged by the reference to international law, given that equidistance had been used so much in maritime delimitation theretofore that it had seemingly earned the status of customary international law. The opposing faction regarded principles of equity, as well as alternative principles that may be relevant to certain cases, to be more important than establishing a single rule to define every boundary.[20] This situation reflects what has been characterized as the delicate balance between the values of efficiency and equity in boundary making. An ideal boundary “must be evaluated by this dual standard of seeming to be fair and proving to be workable in some organizational or sociological sense.”[21]

Part XV of UNCLOS requires states to settle disputes over the interpretation of the Convention by peaceful means, and it describes various such means that parties

---

[20] Nugzar Dundua, “Delimitation of Maritime Boundaries between Adjacent States” (United Nations, 2007), 11–13, https://www.un.org/depts/los/nippon/unnff_programme_home/fellows_pages/fellows_papers/dundua_0607_georgia.pdf. The facts that states were divided at UNCLOS III based on their preferred principles of delimitation and that the interplay between such factions shaped the Convention are reminders that international law is not exogenous to state behavior. Similarly, seemingly contradictory principles have been espoused in the case law. Thus, what some regard as settled law others view as not settled at all.

[21] Johnston, *The Theory and History of Ocean Boundary-Making*, 20.

may agree to use including the ICJ, the International Tribunal for the Law of the Sea (ITLOS), a general or special arbitral tribunal, and conciliation.[22] Such a proceeding can be obligatory, pressed by a single party. However, states may opt out of the applicability of compulsory binding proceedings in any of several defined areas, including delimitation. As of 2023, 33 out of 140 coastal states party to UNCLOS have made such a declaration excluding delimitation from compulsory proceedings. Most declarations were made some time after ratification (and in the case of Kenya, even after mandatory dispute proceedings were filed against it by Somalia).[23]

Many adjudicative and arbitral cases have pitted one state that prefers equidistance against another state that prefers some other principle(s).[24] One example of an alternative principle to equidistance is proportionality of coastal length to maritime space. Application of the equidistance principle alone would disadvantage states with concave coastlines vis-à-vis states with convex coastlines, an apparent

---

[22] Hon Choon-ho Park, "Judicial Settlement of International Maritime Disputes — An Overview of the Current System," *Stetson Law Review* 28 (1999): 1035–46.

[23] One landlocked state party, Belarus, also excluded delimitation from compulsory settlement. Another five states made declarations limiting the type of procedures, for example, Nicaragua will only accept ICJ jurisdiction over such an issue. "United Nations Convention on the Law of the Sea, 'Declarations and Reservations,'" United Nations Treaty Collection, accessed March 5, 2022, https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=_en#EndDec; Sim, "Maritime Boundary Disputes and Article 298 of UNCLOS: A Safety Net of Peaceful Dispute Settlement Options."

[24] Early examples include the *North Sea Cases*, the *Anglo-French Continental Shelf Case*, the *Malta v. Libya Case*, and the *Gulf of Maine Case*. But even recent cases, such as *Somalia v. Kenya* concluded in 2021, are from the standpoint of delimitation principles largely about equidistance versus some alternative method.

injustice rectified by the ICJ in the *North Sea Cases* between West Germany (with its convex coast) on the one hand and the Netherlands and Denmark on the other.[25]

Decades of jurisprudence since UNCLOS, and a constant tug and pull between flexibility and predictability, have produced a method of delimitation that has gained wide (though not universal) acceptance. Best articulated by the ICJ in its 2009 *Black Sea Case*, it is a three-step process. First, a provisional equidistance line is drawn. Then any relevant circumstances are considered which require the adjustment to that line. Finally, a test of proportionality is applied—namely by using the coastal length criterion introduced in the *North Sea Cases*, to ensure that the adjusted line does not produce a disproportional area-to-coastline ratio.[26]

Much of the remaining uncertainty with this approach lies in the consideration of which circumstances a court or tribunal will deem to be relevant. Geographic factors already form the basis for the three-step method and have been accepted as relevant factors necessitating adjustment. However, states' assertions of economic factors as special or relevant circumstances have had very limited success. And when they have been accepted it typically involved fisheries, as in the *Jan Mayen Case* where the ICJ adjusted the line in order to transect the most fertile fisheries zone. Hydrocarbon deposits have generally not influenced third-party drawing of maritime boundaries. More precisely, the case law has established that economic factors *can* be

[25] North Sea Continental Shelf (Federal Republic of Germany v. Netherlands) (International Court of Justice February 20, 1969).
[26] Maritime Delimitation in the Black Sea (Romania v. Ukraine) (International Court of Justice February 3, 2009).

a relevant circumstance, but that the bar is very high for such factors—and especially hydrocarbon deposits—to actually be used to adjust the provisional line.[27] In the *Tunisia v. Libya Continental Shelf Case*, the ICJ held that economic considerations "are virtually extraneous factors since they are variables which unpredictable national fortune or calamity, as the case may be, might at any time cause to tilt the scale one way or the other. A country might be poor today and become rich tomorrow as a result of an event such as the discovery of a valuable economic resource."[28] This is in spite of the fact that the whole point of such boundaries beyond the territorial sea is to establish jurisdiction to natural resources—whether living resources in the EEZ or non-living on/below the continental shelf. States must thus consider this when deciding whether to move from bilateral negotiations (where resource allocation can play a significant role) to arbitration or adjudication (where economic factors will very likely be ignored).

Part of the reason for courts' reluctance to consider energy resources stems from the very uncertainty that a boundary is meant to resolve. In undelimited areas, and especially in areas with disputed title, there tends to be less reliable information on the scope and viability of hydrocarbon deposits.[29] Why adjust a boundary in the name of equity based on one party's speculation and flimsy data that may prove to be

---

[27] Malcolm Evans, "Relevant Circumstances," in *Maritime Boundary Delimitation: The Case Law: Is It Consistent and Predictable?*, ed. Alex G. Oude Elferink, Tore Henriksen, and Signe Veierud Busch (Cambridge: Cambridge University Press, 2018), 253–56, https://doi.org/10.1017/9781108344302.
[28] Continental Shelf (Tunisia/Libyan Arab Jamahiriya) (International Court of Justice February 24, 1982).
[29] Evans, "Relevant Circumstances," 254–55.

worthless by the time the ink on the judgment dries? Further, some argue that courts' non-consideration of petroleum in determining boundaries creates a disincentive for states to engage in competitive exploration which could in turn sour bilateral relations.[30]

Oil exploration has sometimes entered legal proceedings also when a disputant state offers boundaries between oil blocks as evidence that an international boundary already exists. The ICJ ruled in 1977 that limits to earlier Libyan and Tunisian oil concessions were precedential to the location of the international boundary, despite Libya's assertion that no boundary existed.[31] In spite of this, the case law took a different tack beginning with the ICJ's 2002 judgment in *Nigeria v. Cameroon*. The Court ruled that *even though* oil concessions by the parties respected an equidistance line and this was evidence that they acquiesced to equidistance as a delimitation principle, the locations of the concessions themselves should not be taken into consideration when establishing the final boundary. An ITLOS Special Chamber followed suit in *Ghana v. Côte d'Ivoire*, which involved active hydrocarbon activity in and around the disputed zone. The Chamber accepted Côte d'Ivoire's contention that the limits to the two states' exploration permits did not constitute an agreed boundary, and it further held that such concessions should not be considered as relevant circumstances to adjust the equidistance line. The Chamber used strict

---

[30] Ted L McDorman, *Salt Water Neighbors: International Ocean Law Relations between the United States and Canada* (Oxford; Toronto: Oxford University Press, 2009), 205.
[31] *Tunisia v. Libya*; Tullio Scovazzi and Giampiero Francalanci, "Libya-Tunisia: Report Number 8-9," in *International Maritime Boundaries*, ed. Jonathan I. Charney and Lewis M. Alexander (Boston: Martinus Nijhoff Publishers, 1993), 1669.

equidistance to delimit the boundary, yet it selected a different starting point than had been used for permitting purposes. One result is that both states and several oil companies had to adjust almost all existing blocks for mineral resource extraction.[32] These experiences surely give further pause to multinationals considering exploration in undelimited border areas.

Ghana v. Côte d'Ivoire was the first instance where a tribunal ordered provisional measures to pause ongoing extraction activities while the arbitration continued. The arbitral panel in *Guyana v. Suriname* also considered each sides' contentions that the other had violated sovereign rights with exploration or related activities (though it opted to only rule on this during the merits phase rather than make a preliminary injunction). These precedents should translate into industry's further reticence to invest in undelimited border areas.

Although some degree of clarity has been achieved in the legal treatment of maritime delimitation, many additional issues of maritime zones and boundaries are left unclear. What is the line between reasonable and excessive straight baselines? What are the precise criteria for distinguishing an island (which generates full entitlements) from a rock (which does not)? Should small islands be afforded the same ability to generate maritime rights as nearby densely populated continental coastlines? Should the undersea geology and geomorphology affect boundaries of any maritime zone, or are these only applicable to ECS claims? While some of these

---

[32] "Special Chamber Fixes Maritime Boundary between Ghana and Côte d'lvoire," *Offshore*, January 2, 2018, https://www.offshore-mag.com/regional-reports/article/16755874/special-chamber-fixes-maritime-boundary-between-ghana-and-cte-dlvoire.

questions have been addressed by international courts and tribunals, and even if eminent legal scholars have come to a consensus, the degree to which these subsidiary sources of international law are respected depends on a state's legal traditions and selective interpretations.[33] And thus there remain significant variation in the claims that states have made and continue to assert. The evolving nature of and ever-present uncertainty in the Law of the Sea provisions, particularly surrounding delimitation, leaves ample space for different states and different interest groups within them to stake out various positions, each with their respective legal justifications.

1.5 Economic and Political Context

The earth-changing developments in the Law of the Sea in the latter half of the 20th century occurred in the same historical moment as significant development in offshore extractive technology. This is no coincidence, as the Law of the Sea has generally changed as a result of contemporary technology. This was true of developments in navigation in earlier centuries and in environmental conservation in the 20th century and beyond. This connection is most obvious when noting how the ability to exploit natural resources at a distance from shore led to expansive claims by

---

[33] Jeanette Greenfield, *China's Practice in the Law of the Sea* (Clarendon Press, 1992), chap. 1.

coastal states and ultimately driving to a broad consensus described earlier over the CS and EEZ regimes.[34]

The evolution of offshore petroleum development typically goes through the stages of reconnaissance/geophysical study, exploratory drilling, and finally extraction/production. Geological and geophysical studies may be conducted by an agency of the coastal state (e.g., a hydrographic office or minerals and mines ministry), by an oil company (whether private or state owned), or by academic institutions or foreign agencies (e.g., USGS). Inputs to such studies can include: mapping the seafloor bathymetry using sonar or other sounding techniques; sampling the seabed with rock cuttings or by recovering narrow columns of rock taken from a drilled hole ("coring"); and measuring seismic wave propagation, magnetic, relative gravity, or other physical properties of the seabed. By analyzing the recovered—and inferring the unrecovered—layers of rock (a branch of geology known as stratigraphy), these analyses may reveal at both the regional and site-specific level the probability of finding a gas or oil field. A conventional field is a hydrocarbon reservoir overlayed by a trap rock with low permeability that prevents upward seepage of the buoyant oil and gas.[35] Thus in the study phase petroleum geologists have the challenge of not only predicting the content of a layer of the earth's crust

---

[34] Johnston, *The Theory and History of Ocean Boundary-Making*.
[35] Unconventional fields trap the oil or gas in a highly porous rock and thus do not require a separate trap rock. While unconventional extraction has boomed on land in recent decades, its more complicated and expensive operations have thus far prevented it from being done in the offshore, where petroleum operations are already more expensive.

which can only be indirectly observed; rather they are tasked with predicting multiple such layers.

The same type of studies conducted for petroleum exploration can provide valuable data useful to further other scientific and security interests as well. For example, states must submit substantial geological and geomorphological data and analyses to the CLCS in order for their ECS claims to be validated and recognized by other states. And ocean floor mapping developed for the hydrocarbon industry in one decade can help spur the burgeoning deep sea minerals industry in a subsequent decade. Thus undersea data can be a valuable commodity for both industry and states. This fact was validated by ITLOS when Côte d'Ivoire successfully argued at the start of its delimitation case with Ghana for provisional measures, which included that Ghana "prevent information resulting from past, ongoing or future exploration activities conducted by Ghana, or with its authorization, in the disputed area that is not already in the public domain from being used in any way whatsoever to the detriment of Côte d'Ivoire."[36]

Given the expense of drilling, multiple such studies are often conducted before any exploratory drilling. In addition to all the other reasons offshore drilling is more expensive is the consistently lower chance of success for exploratory drilling

---

[36] Dispute Concerning Delimitation of the Maritime Boundary between Ghana and Côte d'Ivoire in the Atlantic Ocean (Ghana/Côte d'Ivoire), Provisional Measures (ITLOS, Order of April 25, 2015), 1(b), 166.

offshore compared to onshore.[37] The goal of exploratory drilling is to find new hydrocarbon fields that can be exploited in a relatively short timeframe at a relatively low cost.

Through concessions, states grant rights to explore and/or produce in precisely defined zones where the state has sovereign rights to the mineral resources. Selection for companies may be done in a variety of ways: first-come-first-served, a "beauty contest" approach where the best project proposal is selected, or through auctions. Though each method has advantages, auctioning is often the preferred approach as it tends to maximize revenue for the state, encourage competition, and reduce risk for the bidding companies by efficiently pricing in the prospective value for each specific auction block.[38] If a commercially viable field is discovered, then production can commence, though it usually first requires either renting a drill ship or constructing a permanent platform, drilling new wells, and establishing a variety of supporting infrastructure. Oilfield service firms (e.g., Schlumberger, Haliburton) enter into

---

[37] Chance of success (COS) figures for "wildcat" drills in plays where there has been no production to date vary widely, but the offshore odds have historically been lower than onshore. For example, an analysis of Australian drilling found the COS to be 35% offshore and 45% onshore in the 2000s. Balakrishnan Kunjan, "Exploration Chance of Success Predictions — Statistical Concepts and Realities," *ASEG Extended Abstracts* 2016 (December 1, 2016): 1, https://doi.org/10.1071/ASEG2016ab150. However, largely due to the unavailability of new, easily exploitable prospects onshore, since 2018, the onshore COS has plummeted to below that of offshore. Thus offshore exploration may today be seeing the long-anticipated secular trend where it is actually less risky than onshore exploration. "Wildcat Safari Running Dry: Onshore Success Rate Dips to Lowest on Record, Falls for Fourth Year in a Row," Rystad Energy, accessed February 19, 2022, https://www.rystadenergy.com/newsevents/news/press-releases/wildcat-safari-running-dry-onshore-success-rate-dips-to-lowest-on-record-falls-for-fourth-year-in-a-row/.

[38] Peter Cramton, "How Best to Auction Oil Rights," in *Escaping the Resource Curse*, ed. Macartan Humphreys, Jeffrey D. Sachs, and Joseph E. Stiglitz (Columbia University Press, 2007), 114–52.

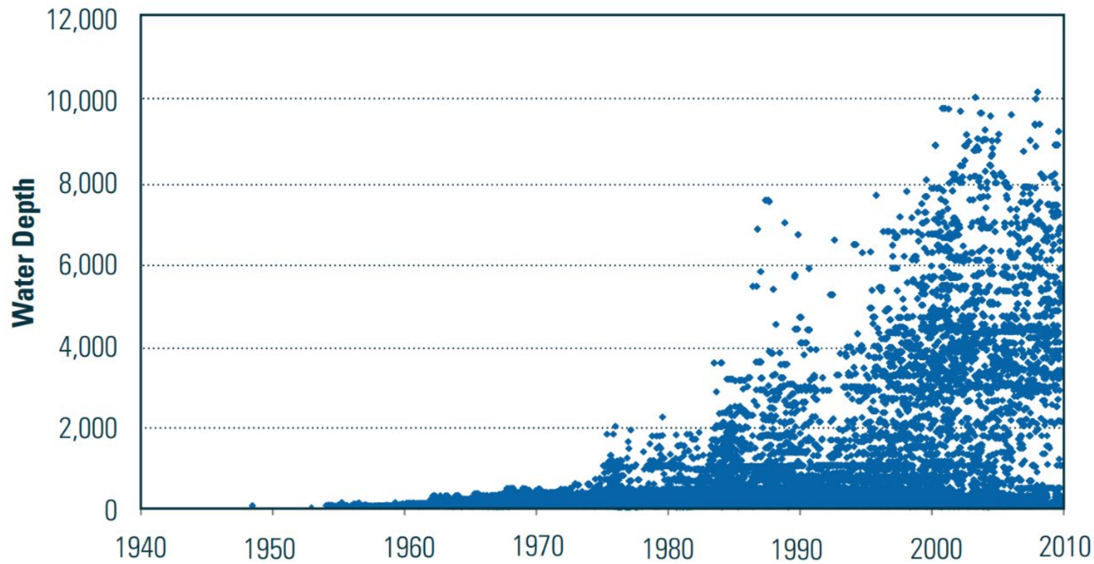
contract with bigger-name oil majors (e.g., ExxonMobil, BP) and state-owned enterprises (e.g., Malaysia's PETRONAS, Brazil's Petrobras) that own rights to offshore blocks, and the services provided often include the drilling itself.[39] Benefits to the state include direct revenue from the concessionaire (e.g., license fees, royalty on production, taxation on profits), indirect revenues (e.g., production sharing with a state-owned oil company, income taxes from the jobs created), and increased human capital and the potential to grow domestic extractive industries, not to mention any side payments that may be made to leaders in the selection process.

Through all stages of exploration and production, companies are dependent on global oil prices. The estimates on the quantity of recoverable oil or gas are refined through each stage of study, exploration, and production. It would make no sense to spend more on surveys, exploration, and production than the expected return. And because they are more expensive to operate, offshore wells are the first to shut down when there is a major fall in prices. The 1980 price peak then bottomed out by the middle of the decade. As shown in Figure 3, there was a ramping up of both maximum depth and the density of wells drilled in the Gulf of Mexico during the early 1980s, and then drilling became sparse in the early 1990s. The lag of several years is due to the necessary planning and financing of such ventures, and oil executives and investors want dearly to avoid being victims of such a lag.

---

[39] As an example, the world's largest offshore drilling company Schlumberger was recently awarded a contract for both ExxonMobil and a state-owned Iraqi company. "Schlumberger Wins $480-Million Contract to Drill for Basra Oil and ExxonMobil in Iraq," JPT, March 24, 2021, https://jpt.spe.org/schlumberger-wins-480-million-contract-to-drill-for-basra-oil-and-exxonmobil-in-iraq.

Figure 3: U.S. Wells Drilled in the Gulf of Mexico



From Report to the President, Deepwater Horizon Oil Spill Commission, using BOEM data

The prospect of exploiting natural resources can greatly influence state behavior, and it often benefits state leaders personally. The role that energy wealth has on corruption in developing countries is well established.[40] But the oil and gas industry also has significant influence in developed countries and regardless of whether the relevant companies are state-owned or private.[41] The tax revenue,

---

[40] Ross, *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations*; Rabah Arezki and Markus Bruckner, *Oil Rents, Corruption, and State Stability: Evidence from Panel Data Regressions*, IMF Working Paper, WP/09/267 (Washington, D.C.: International Monetary Fund, 2009).

[41] Though one could argue that archetypes of national and international oil companies would have varying degrees of influence on domestic politics, I do not attempt to distinguish these in my theory in part because a simple classification is not as straightforward as it might seem. Further, the sovereign control over offshore energy deposits translates to political influence by the energy industry, regardless of the governance structure of the particular firms involved. Curtis Whitson, "International vs. National Oil Companies - What's the

subsidized energy costs, good paying jobs, and support to amenable politicians can be substantial motivators in any state, regardless of political or economic regime. Many factors can influence a state's maritime claims, choice of preferred delimitation methods, and negotiating strategy. Certainly, among such factors is the interest of the fossil fuels industry.[42]

1.6 Maritime Boundaries and Resources in the IR Literature

Maritime boundary issues are treated extensively in the literatures of public international law,[43] political geography,[44] marine resource policy,[45] and security studies,[46] though nearly all are purely qualitative analyses. And while the mainstream

---

Difference?," *The Way Ahead* 05, no. 03 (October 1, 2009): 10–11, https://doi.org/10.2118/0309-010-TWA.

[42] For one oil executive's account of his industry's influence on the maritime claims and negotiation of Guinea—replete with coups, fighter jet crashes, and other international intrigue—see Frank Walsh, "Leading to a 'Compromis d'Arbitrage,'" in *The Continental Shelf: Resources, Boundaries, and Management*, ed. Thomas A. Grigalunas and Lynne Carter (Kingston, R.I: Center for Ocean Management Studies, 1986).

[43] Some examples: Bjarni Már Magnússon, "Outer Continental Shelf Boundary Agreements," *International and Comparative Law Quarterly* 62, no. 2 (April 2013): 345–72, https://doi.org/10.1017/S0020589313000067; Myron H Nordquist and John Norton Moore, eds., *Maritime Border Diplomacy* (Leiden; Boston: Martinus Nijhoff Publishers, 2012), https://doi.org/10.1163/9789004230941.

[44] Steinberg, *The Social Construction of the Ocean*; Sun Pyo Kim, *Maritime Delimitation and Interim Arrangements in North East Asia* (The Hague/London/New York: Martinus Nijhoff Publishers, 2012).

[45] R.R. Churchill, "Fisheries Issues in Maritime Boundary Delimitation," *Marine Policy* 17, no. 1 (January 1993): 44–57, https://doi.org/10.1016/0308-597X(93)90005-N; Rebecca Retzlaff and Charlene LeBleu, "Marine Spatial Planning: Exploring the Role of Planning Practice and Research," *Journal of Planning Literature* 33, no. 4 (November 1, 2018): 466–91, https://doi.org/10.1177/0885412218783462.

[46] Eric R. Eissler and Gözde Arasıl, "Maritime Boundary Delimitation in the Eastern Mediterranean," *The RUSI Journal* 159, no. 2 (March 4, 2014): 74–80, https://doi.org/10.1080/03071847.2014.912809; Liselotte Odgaard, *Maritime Security*

international relations (IR) literature on territorial disputes is quite deep, that on maritime boundary disputes remains shallow. Until recently, when they had been treated, they are sometimes regarded as equivalent to territorial disputes.[47]

But for a variety of reasons maritime disputes manifest differently from territorial disputes. For example, maritime disputes are rarely the cause of war. Only a handful of militarized interstate disputes (MIDs) have occurred over purely maritime disputes. While the lower salience may be a partial explanation for the lack of violent conflict over water, another reason may be the nature of the violence itself: a clear victor in a land war can occupy the conquered territory, while a victor in a naval battle cannot "occupy" disputed waters or seabed.[48] As the classical maritime strategist Jeremy Corbett put it, "You cannot conquer sea because it is not susceptible to ownership."[49] Just ask Beijing, which had superior forces in a MID with Vietnam in 2014 over a spat about a Chinese oil rig closer to Vietnam than to mainland China. The underlying dispute remains, and the Chinese have shied away from deploying

---

between China and Southeast Asia: Conflict and Cooperation in the Making of Regional Order (Aldershot, Hampshire, England ; Ashgate, 2002), http://catdir.loc.gov/catdir/toc/fy022/2001098851.html.

[47] As an example, when exploring factors that make states amidst a dispute more likely to come to the negotiating table, Bearce, et al, test territorial, maritime, and river disputes without distinguishing between these three either in their theory or in their quantitative analysis. David H. Bearce, Katharine M. Floros, and Heather Elko McKibben, "The Shadow of the Future and International Bargaining: The Occurrence of Bargaining in a Three-Phase Cooperation Framework," *Journal of Politics* 71, no. 2 (April 2009): 719–32, https://doi.org/10.1017/S0022381609090562.

[48] Andreas Østhagen, "Maritime Boundary Disputes: What Are They and Why Do They Matter?," *Marine Policy* 120 (October 2020), https://www-sciencedirect-com.proxy-um.researchport.umd.edu/science/article/pii/S0308597X20302426.

[49] Jeremy Corbett, *Some Principles of Maritime Strategy* (London: Longmans, Green, and Co., 1918), 91.

any more extractive infrastructure far from their own immediate littoral, even despite Chinese militarization of disputed land features elsewhere in the South China Sea.[50] The weaker power had an even greater victory in the so-called "Cod Wars" of the 1980s when the United Kingdom (UK) relinquished its claims over fishing rights in what Iceland claimed as its EEZ.[51]

Another difference between territorial and maritime disputes is that maritime disputes are more easily divisible. When Fearon named information problems, commitment problems, and issue indivisibility as the three rational explanations for war, he downplayed indivisibility since he reasoned that any issue can be divided if the players include side payments.[52] While this may be true for perfectly rational, unitary actors with perfect information, states in the real world rarely divide disputed land between them. Yet it is quite common for states to compromise on their initial positions amidst maritime boundary negotiations. For example, during negotiations in the 1970s, the U.S. and Cuba disagreed on whether it was appropriate to apply straight baselines. They ultimately drew two provisional equidistance lines—one using straight baselines for each state, and one without—and then drew a line between the two provisionally drawn lines to use as the actual boundary. In 1990, the U.S. and USSR used a similar "split the difference" approach to resolve another

---

[50] Michael Green et al., "Counter-Coercion Series: China-Vietnam Oil Rig Standoff," Asia Maritime Transparency Initiative, June 12, 2017, https://amti.csis.org/counter-co-oil-rig-standoff.
[51] Walker D. Mills, "The Cod Wars and Today: Lessons from an Almost War," Center for International Maritime Security, July 28, 2020, https://cimsec.org/the-cod-wars-and-today-lessons-from-an-almost-war.
[52] James D. Fearon, "Rationalist Explanations for War," *International Organization* 49, no. 3 (1995): 379–414.

technical difference regarding their boundary in the Bering Sea. And if the states opt to pursue arbitration to settle an entrenched dispute, they can expect the result to likely be a division of the disputed area as judges and arbitrators are inclined to find compromise solutions that will satisfy both parties, even in the absence of legally sound grounds to do so.[53] Such compromise awards are far more common for maritime space than for land territory. This may be an additional reason why maritime issues rarely lead to violent conflict.

Yet the low risk of conflict over maritime disputes should not lead one to conclude that they are easily resolved. On the contrary, such disputes often last for decades, sometimes as isolated and low-salience issues and sometimes highly salient and tied up with other hot-button political issues. Interests in resources, security, and national pride can all be serious motivators to make, extend, and defend a state's claims.[54]

Using the Issues Correlates of War (ICOW) database, Nyman contends that maritime disputes in areas believed to have oil only began to experience MIDs after offshore extraction became a real prospect following the first oil rig beyond the sight from shore in 1947.[55] Yet Meierding brings into question the oil-leads-to-conflict

---

[53] Nienke Grossman, "Solomonic Judgments and the International Court of Justice," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, February 24, 2017), https://doi.org/10.2139/ssrn.2923435.
[54] Østhagen labels it a paradox that maritime boundaries are so difficult to resolve and yet are rarely the cause of war; though this would only be a paradox if one assumed that maritime and territorial disputes are substantially the same. Østhagen, "Maritime Boundary Disputes: What Are They and Why Do They Matter?"
[55] Nyman, "Offshore Oil Development and Maritime Conflict in the 20th Century."

theory with regard to land disputes,[56] as well as when combining land and maritime disputes.[57] In the latter, she argues that in the subset of cases when the presence of oil actually does lead to a MID, it is the result of third-party interest in that oil rather than a purely bilateral dispute between two claimant states. And Chawalitthomrong contends that the presence of offshore oil does not have an impact—either positive or negative—on the escalation of maritime-related conflicts.[58]

Writing for a legal audience, Oxman suggests what none of the IR specialists dare to think: the easiest boundaries to settle might actually be those without resources. He made this suggestion after noting that the U.S. had settled many boundaries relating to its islands in the Pacific and the Caribbean and yet had not delimited three of its four boundaries with Canada. But he also concedes that motivation is needed to settle, and resources are a significant motivator to attempt to settle a boundary.[59]

In a similar vein, Hensel, et al, in the inaugural ICOW study suggested that issue salience generally correlates with more frequent settlement attempts over territorial, maritime, and river disputes. For maritime disputes, such salience is

---

[56] Emily Meierding, "Dismantling the Oil Wars Myth," *Security Studies* 25, no. 2 (April 2016): 258–88, https://doi.org/10.1080/09636412.2016.1171968.
[57] Emily Meierding, "Who Cares About Resources? Claimant States, Third Parties, and the Dynamics of International Territorial Disputes" (International Studies Association Annual Meeting, San Francisco, CA, 2008).
[58] Kingkanok Chawalitthomrong, "Disputes over Offshore Areas: Does Oil Determine the Escalation of Conflicts?" (PhD diss., Claremont, California, The Claremont Graduate University, 2007), https://www.proquest.com/nytimes/docview/304890767/abstract/8E92EF86AC9B4257PQ/5.
[59] Bernard H. Oxman, "International Maritime Boundaries: Political, Strategic, and Historical Considerations," *University of Miami Inter-American Law Review* 26, no. 2 (1995 1994): 243–96.

largely related to resources: oil, gas, fish, or otherwise. They claim that high overall salience leads to both more frequent peaceful settlement attempts—such as negotiations, mediation, or arbitration—and non-peaceful settlement attempts, or MIDs.[60] Yet sometimes overlooked are the authors' caveats regarding maritime issues specifically. First, the high salience did *not* correspond to more frequent MIDs for maritime issues. And second, the salience effect on peaceful settlement attempts was weakest for maritime issues, as compared to land territory or river issues. The ICOW maritime data is not operationalized specifically for maritime *boundary* disputes but rather a more broadly defined set of maritime issues.[61] Nonetheless, this raises doubts about the received wisdom that resources compel states to negotiate or litigate their disputes. And each of the aforementioned studies only speak to existing disputes and thus cannot speak to all potential boundaries as I intend to do.

Some have explored variation in states' motivation to secure resources. Markowitz takes on the conventional wisdom that resource-scarce states should be the most determined to secure new resources, arguing instead that the more a state is dependent on resource rents, the more its foreign policy will prioritize acquiring still more resources. He contrasts resource-dependent Russia's muscular posturing in the Arctic with the United States' modest Arctic presence. Likewise, Norway is highly dependent on energy exports and has invested heavily in military capabilities in the

---

[60] Paul R. Hensel et al., "Bones of Contention: Comparing Territorial, Maritime, and River Issues," *Journal of Conflict Resolution* 52, no. 1 (February 2008): 117–43, https://doi.org/10.1177/0022002707310425.

[61] See Footnote 106.

High North. Yet Denmark—also a NATO member with territory and maritime claims in the Arctic—has not followed suit.[62]

I am only aware of three systematic analyses of the covariates of maritime boundary settlements or agreements. Ásgeirsdóttir and Steinwand (2016) share Meierding's skepticism of the role of resources in exacerbating a maritime boundary dispute. Using an original dataset of potential maritime boundaries, they find that the discovery of oil in a boundary region increases the likelihood that neighboring states will reach a negotiated settlement through a maritime boundary agreement. They argue that legal certainty is necessary for firms to commit to long-term investment projects like oil extractive infrastructure. Therefore, a new oil or gas discovery between two states compels them to quickly delimit their boundary, since the alternative of disputing the boundary or engaging in long negotiations would mean that no one benefits from the resources.[63]

---

[62] Jonathan N. Markowitz, *Perils of Plenty: Arctic Resource Competition and the Return of the Great Game* (New York: Oxford University Press, 2020), https://doi.org/10.1093/oso/9780190078249.001.0001.

[63] Ásgeirsdóttir and Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims". They derive the inside option concept from: Abhinay Muthoo, "A Non-Technical Introduction to Bargaining Theory," *World Economics* 1, no. 2 (2000): 145–66. This dissertation relies heavily on Ásgeirsdóttir and Steinwand's work on the likelihood of settlement. They further contend that states treat the median line as the de facto status quo boundary until an actual boundary agreement, and that therefore the median line acts as an "inside option" that the state with a higher tolerance for legal uncertainty can fall back on. I disagree with this approach to distributional outcomes, a topic I do not address elsewhere. Often one state regards the median line as the appropriate boundary while the other regards—with legal justification—some other line as the appropriate boundary. And sometimes neither prefers the median line; or both prefer the median line but cannot agree on how to draw it. The median line therefore is *not* usually an inside option of negotiations, neither in the sense of necessarily being the default provisional boundary nor the legally correct boundary outcome, nor even a line that the parties can agree on definitionally. Further, while there can be an occasional settlement when one state gains

The other two quantitative studies of maritime boundary formation in the IR literature give only secondary attention to oil and gas yet come to opposite conclusions. Yüksel used uncertainty in the international legal regime as his explanatory variable. But he included oil as a control and—like Ásgeirsdóttir and Steinwand—found that the presence of oil is generally associated with boundary making.[64]

However, Purser's findings contradict this. He develops a typology of three maritime dispute types: those regarding solely maritime delimitation, those derived from near-shore territory or islands disputes, and those involving distant disputed territory. Other dispute dynamics vary based on dispute type, yet he finds that hydrocarbon potential has a negative effect on resolving all three types.[65]

Ásgeirsdóttir and Steinwand's theory on the need for legal certainty is a satisfying explanation for why resource discovery can sometimes lead to boundary delimitation, but it does not account for cases that involve oil discovery and yet continue as long-term disputes.[66] Others have similarly suggested that oil can help resolve disputes, and yet oil has failed to resolve so many of them. Even if on average the presence of oil has a positive effect on the probability of signing an agreement,

---

the lion's share of disputed maritime space, most often the states compromise by splitting the disputed area between them.

[64] Umut Yüksel, "Bargaining Over Maritime Boundaries in Times of Legal Uncertainty" (PhD diss., Graduate Institute of International and Development Studies, 2019).

[65] Benjamin Swift Purser III, "Lines in the Water: Why Do Some Maritime Disputes Linger While Others Get Resolved?" (Ph.D. thesis, Boulder, Colorado, University of Colorado at Boulder, 2015), https://scholar.colorado.edu/concern/graduate_thesis_or_dissertations/qn59q408f.

[66] Haijiang Henry Wang, "The Perplexing Dispute over Oil," vol. 23, Resources Policy, 1997.

this remains a vague assessment of the role of oil in boundary delimitation and disputes. One might erroneously conclude that if oil helps states sign an agreement related to their boundary, then oil is ultimately a helpful thing to resolving disputes. But this conflates the delimitation of a boundary segment with the resolution of a dispute. And as Purser shows, oil does not help resolve maritime disputes. Further, other related agreements—such as to establish a joint development zone or to pursue third party intermediation over a dispute—are not always effective. Once again, a casual observer might conclude that oil is a useful motivator that can lead disputing states to reach a conciliatory compromise in order to jointly profit. Yet with these agreements too, we must take care not to conflate the mere signing of an agreement with the often much harder process of settling a dispute.

CHAPTER TWO: A THEORY OF A CONDITIONAL OIL EFFECT

"During the years 1981, 1982, and 1983, several negotiation sessions took place between the two sovereign governments. The legal opinion was, in the main, the oil company's primary contribution. However, the chief negotiator for Conakry was Ismael Toure. He was also the Minister of Mines and Geology, and Chairman of the joint venture, so by the convention: 'my boss.' Increasingly, he sought my advice on the boundary matter. My foremost concern, of course, was the proper execution of the contractual obligations under the convention and the preservation of the permit in its original dimensions."

Frank Walsh, then-general manager of the joint venture between several American oil companies and the republic of Guinea[67]

2.1 Who Cares About Lines in the Water?

We can identify three sources of salience for a maritime border region and the relevant actors that have interests related to that salience type. The first type is economic salience. When there are economically valuable resources in nearby maritime space, economic actors would wish to take advantage of those resources. Oil or mining companies want to engage in exploratory drilling and prospecting to understand the undersea geology and evaluate the commercial viability, and if viable, they would want to extract those resources for profit. Fishermen would like to fish in high-yield waters. Interest groups representing the energy, mining, fishing, and other ocean development industries may thus pressure the state's political leaders to secure the nation's rights to those areas.

[67] Walsh, "Leading to a 'Compromis d'Arbitrage.'"

Next, strategic salience applies to maritime space that affect a state's perceived national security interests. This includes its ability to defend itself from hostile powers by, for example, having title to a strategic strait or waters around islands that enable force projection beyond its homeland. Many argue that China's primary interest in claiming most of the South and East China Seas is in the military advantage it would have in controlling the maritime space out to the "first island chain", and in denying its use by the U.S.[68] Strategic salience also includes sovereignty over waters for the purposes of navigation to the open sea without the need to traverse another state's waters. (Thus, this salience can apply to both large and small states.) For example, a state with a coastline at the interior of a bay that is enclosed by the territorial seas of other states is less secure than if it had a designated maritime corridor connecting it to international waters. This type of strategic salience applied to Honduras' interests in its dispute over the Gulf of Fonseca, and to Slovenia in its dispute with Croatia over their boundaries in the north Adriatic. The actors most interested in such issues will be the domestic shipping industry, the military, and a subset of voters who are mobilized by national security issues.

Finally, nationalist salience applies when a public considers some maritime space to be part of their "homeland". Early theorists, like Prescott, claimed that "resource development issues" can be more easily resolved than "territorial disputes" because the former can be handled for example with joint development schemes that

---

[68] Toshi Yoshihara, "China's Vision of Its Seascape: The First Island Chain and Chinese Seapower," *Asian Politics & Policy* 4, no. 3 (2012): 293–314, https://doi.org/10.1111/j.1943-0787.2012.01349.x.

benefit both sides, whereas the latter have emotional attachment assigned to them.[69] Later Shelef introduced constructivist theories of nationalism and geography into the rationalist-dominated literature of territorial conflict. He demonstrated that disputed territory that is considered part of a nation's homeland—as opposed to a colony or a recent but not integral addition to the state—is more contentious and prone to violent conflict.[70] Shelef's conception of homeland works well to illustrate nationalist salience as a theoretically distinct type of salience from economic or strategic salience. Nationalist salience manifests itself through nationalistic citizens and nationalist elites who apply pressure on leaders to defend the state's claims. And given the right conditions, nationalist salience can apply to disputed waters as well as land territory.

While these three types of issue salience are theoretically distinguishable, the lines between them easily blur in the real world. A dispute that is associated primarily with one type of salience may change over time as new resources are discovered, strategic perspectives adapt, and national identities evolve. Though the present study will not attempt to measure the relative weight of these various types of saliences, suffice it to say that they are often mutually reinforcing. State-controlled media, public education, and other official institutions can be enlisted in instilling the notion that some maritime zone is an inalienable part of the state.[71] The governments of

---

[69] J. R. V. Prescott, *Political Frontiers and Boundaries* (London: Unwin Hyman, 1987), 131–33.
[70] Nadav G. Shelef, "Unequal Ground: Homelands and Conflict," *International Organization* 70, no. 1 (June 2015): 33–63, https://doi.org/10.1017/S0020818315000193.
[71] H. E. Goemans, "Bounded Communities: Territoriality, Territorial Attachment, and Conflict," 2006, https://www.ebsco.com/terms-of-use.

several East Asian countries embroiled in decades- or centuries-old island and maritime disputes, which subsequently gained economic salience in the 1960s and 1970s amidst hydrocarbon exploration, have actively encouraged nationalist sentiments around their nations' historical ties to the disputed regions, for example, by indoctrination through school textbooks.[72] And as the degrees of salience change over time, so too would the preferences of the various domestic actors and the leaders who must make claims and negotiate with their foreign counterparts.

The theory presented here focuses primarily on the roles of economic and nationalist salience on the signing of maritime delimitation agreements, and secondarily on agreements to appeal to arbitration or establish interim arrangements made in lieu of a negotiated boundary. In each case, such an agreement represents two states' attempt to settle issues of exclusive maritime rights. But to understand what role resources—or any other variable—has on states' proclivity to establish boundaries, we must first understand both how and why maritime boundaries are made.

2.2 Maritime Claims: Once Made, Hard to Change

The claims of neighboring states can be made unilaterally first, or states can withhold making specific claims until they are already engaged in negotiations. Either

[72] "Hearts and Minds: Japan Reviews History Textbooks for Its Schoolchildren, and Riles Its Neighbours," *The Economist*, April 10, 2015, https://www.economist.com/asia/2015/04/10/hearts-and-minds.

way, the act of claiming a maritime space does not obligate other states to respect such a claim. For this dissertation, a maritime boundary dispute is defined as a situation in which competent authorities in two (or more) states have exerted overlapping claims to some maritime space.

States can be surprisingly reluctant to make claims, clarify ambiguous claims, or to expand on earlier claims even when international law clearly allows for it. Why do more states not make maximalist claims in order to acquire natural resources that may potentially be present, and why would they not do so as quickly as possible? There are several possible explanations.

First, states or their leaders want their claims to be acknowledged by other states and may therefore be reticent to make claims beyond what a reasonable interpretation of international law would afford them for fear of reputation costs stemming from being labeled non-compliant with international law, both by their neighbors and by Great Powers that call out claims perceived to be excessive.[73] Second, in cases where there is a complicated boundary to be delimited, a unilateral claim would prejudge the result of an amicable process to determine a boundary potentially without gaining any additional maritime space. Third, sometimes states wish to maintain ambiguity about their maritime claims in order to maintain freedom of action. In the meantime, a beneficial legal interpretation may be discovered, their bargaining power may increase, or any number of unforeseen events could occur that

[73] The U.S. is the primary state engaged in this type of “naming and shaming”. For what the U.S. considers excessive claims, see: J. Ashley Roach and Robert W. Smith, *Excessive Maritime Claims: Third Edition*, 3rd ed. edition (Leiden; Boston: Brill - Nijhoff, 2012).

compels the state to make a claim one way rather than another. China's ambiguity about its claims in the South China Sea results from the incompatibility of its strategic goals with the existing Law of the Sea regime, but by practicing strategic patience, Beijing hopes to secure a better bargaining position in the future.[74] Fourth, a state occasionally determines that it is in its interest to claim something less than what it is allowed under international law. For example, while Japan claims the normal 12 NM TS in most areas, it claims only 3 NMs around five major straits. This was meant to allow Japan's U.S. ally to navigate nuclear-armed Navy vessels between and around Japanese islands without technically entering Japanese territory.[75] Fifth, particularly for small or developing states, the costs necessary to develop the scientific and legal expertise in order to make and defend appropriate claims may be prohibitive or at least cause the issue to be put off for some time. This is most relevant for ECS claims which must be based on geomorphology, requiring expensive hydrographic and undersea geological surveys.

Sixth and crucially, claims are sticky. Malta has not established an EEZ, but only a 25 NM fisheries zone, in part because the 1978 law creating this zone was from before UNCLOS was finalized. Institutional momentum and transaction costs prevent major legislation from occurring. As with so many path-dependent social phenomena, the most likely value for any given year is a similar or the same value as

---

[74] Stephen E. Gent and Mark J.C. Crescenzi, *Market Power Politics: War, Institutions, and Strategic Delay in World Politics* (Oxford University Press, 2021), chap. 7, https://doi.org/10.1093/oso/9780197529805.001.0001.
[75] Hee Kwon Park, *The Law of the Sea and Northeast Asia: A Challenge for Cooperation* (Boston: Kluwer Law International, 2000), 31.

in the previous year. There are high institutional thresholds specifically for changing a state's territorial and maritime claims. Often these are defined in the constitution, meaning a change may require supermajorities in the parliament, consent by multiple branches of government, joint action by federal and sub-national levels of government, or even a popular referendum.

2.3 Why States Settle Boundaries

Simmons offers a broad typology of theoretical conceptions of borders into three groups. First, the realist tradition tends to treat territorial gains as a means to an end such as power and prestige, and therefore treat territorial exchanges as a zero-sum game. Second, the globalization literature highlights the increasing importance of inter- and trans-national phenomena, such as the growing power of multinational actors and control over markets versus traditional emphasis on territorial resources, and the concomitant decrease in the overall importance of borders. Contrasting with these and drawing on the liberal-institutional tradition in her own work on borders and joint economic gains, Simmons emphasizes the institutional nature of borders. In particular, she argues for the importance of establishing borders in order to provide the certainty necessary for both national and transnational prosperity.[76]

---

[76] Beth A. Simmons, "Rules over Real Estate: Trade, Territorial Conflict, and International Borders as Institution," *Journal of Conflict Resolution* 49, no. 6 (December 1, 2005): 823–48, https://doi.org/10.1177/0022002705281349.

These theories are not mutually exclusive of each other. States make boundaries—whether maritime or otherwise—for multiple reasons: To safeguard their territory and populace, by focusing defensive resources on the border areas; to allow for more efficient interstate trade; and to establish clear rules over which state has rights to which natural resources. In this final reason, they can focus efforts on actually extracting and profiting from—rather than securing and defending—those resources. There is thus the possibility that both states could benefit by establishing a boundary that straddles the resource-rich area, such that the joint profits far exceed either state's expected utility of fighting to control all the territory and resources.

The relative strength of each salience type largely determines which of the border theories best explains a particular state's actions at a given time. If a state's public largely believes that a particular area is part of its homeland, it will pressure state leaders to treat the territory as inviolable. This is true of land territory,[77] and it should also be true for maritime space. On the other hand, if economic salience is the only significant interest, rational economic actors may be inclined to support a compromise which would satisfy each state and allow drilling to start sooner. Even so, mutual interest in settlement is a necessary but not a sufficient condition for the parties to begin negotiating. They may also forestall the process for a variety of reasons. Developing states in particular may prefer to wait until more is known about the resource potential of the relevant maritime zone and for regional ocean

[77] Shelef, "Unequal Ground: Homelands and Conflict."

governance institutions to develop to the point that they can weigh their effects on bilateral delimitation.[78]

2.4 Throwing Oil in the Mix

As already described above, natural resources affect the salience of an undelimited boundary. Oil supermajors are more likely to explore in an area with strong institutions, most especially the fundamental institution of an undisputed border.[79] And particularly following the discovery of oil, the economic salience of a maritime area rises considerably, as compared to the same boundary prior to discovery.

Theoretically, what matters is whether oil is believed to be in the relevant maritime area, and not discovery itself. But a date of discovery of oil provides a convenient cutoff point between a period when there is no known oil and a subsequent period when there is known oil. Thus discovery can be used as a rough indicator of industry's interest in the applicable area of the continental shelf. All else equal, states should be more likely to settle their boundary when there is known oil compared to before discovery. And this positive effect of oil on the probability of signing an agreement may need not vary significantly over time, so long as the states do not make overlapping claims in the meantime. So long as the oil is untapped and

---

[78] Johnston, *The Theory and History of Ocean Boundary-Making*, 264–65.
[79] James Cust and Torfinn Harding, "Institutions and the Location of Oil Exploration," *Journal of the European Economic Association* 18, no. 3 (June 13, 2019): 1321–50, https://doi.org/10.1093/jeea/jvz028.

presumed to be abundant, it can drive industry to lobby the states to settle. Likewise, if oil is initially "discovered" but later exploration reveals that the oil reserves are not significant enough or too difficult to extract, thus making exploitation economically unviable, the positive oil effect vis-à-vis probability of settlement would be lost.

The cooperative effect of oil on delimitation arises because the resources can only be extracted if there is certainty over jurisdiction.[80] International law will often provide the clarity and thus a focal point around which negotiations will be conducted.[81] Yet even in cases where the relevant international law is unclear the salience brought on by the resources would make it more likely that some mutually beneficial compromise will be reached, compared to the same dyad prior to discovery. This desire for jurisdictional certainty may be present whether the boundary is disputed or not. This would then translate to pressure to settle the boundary from the oil industry directly and secondarily by rent seekers in the government.

The same would presumably apply for another source of economic salience: an undelimited boundary can mean unregulated fish stocks. If both countries extract fish without regulation, a tragedy of the commons situation occurs, and the fish stocks

---

[80] Ásgeirsdóttir and Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims."

[81] Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960); Paul K. Huth, Sarah E. Croco, and Benjamin J. Appel, "Does International Law Promote the Peaceful Settlement of International Disputes? Evidence from the Study of Territorial Conflicts since 1945," *American Political Science Review* 105, no. 2 (May 2011): 415–36, https://doi.org/10.1017/S0003055411000062; Paul Huth, Sarah Croco, and Benjamin Appel, "Law and the Use of Force in World Politics: The Varied Effects of Law on the Exercise of Military Power in Territorial Disputes," *International Studies Quarterly* 56, no. 1 (March 2012): 17–31, https://doi.org/10.1111/j.1468-2478.2011.00695.x.

are depleted to both sides' detriment. This analysis is complicated, though, by the need to differentiate short-term gains by allowing one's own fishermen to continue to fish unimpeded from long-term gains resulting from sustainable regulation. In the case of hydrocarbons, there are no comparable short-term gains.[82]

But other things change when there is a dispute. First, energy firms and states may perceive their risk differently. States are quick to issue drilling permits where there are suspected hydrocarbons within the bounds of their established claims. If those claims overlap with a neighboring state, they may be even *more* motivated to issue permits in order to exercise their claim through state practice. Should the other claimant fail to protest such activity, it could be used as evidence of acquiescence. Yet if it protests, there is little downside as they are already engaged in a dispute. In such an environment, firms that are already licensed to and perhaps even engaged in drilling have a vested interest in the state through which they are licensed to maintain its current claim. For that state to concede would mean delays and potentially a loss of part or all their projected hydrocarbon revenues. Indeed, since "losing" such disputed land or maritime space is regarded as a loss, prospect theory suggests that both industry actors and state actors that depend on them will be risk-acceptant when defending them.[83] That is, they will be prone to double down on the existing claims

---

[82] There are other reasons why the fishing industry does not require the same jurisdictional certainty as the hydrocarbon industry. These include that both the resource itself (fish) and the capital investments (fishing vessels) are mobile. See Ásgeirsdóttir and Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims," 9.
[83] Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47, no. 2 (1979): 263–91, https://doi.org/10.2307/1914185.

or investments, so as not to lose what they already perceive to have, even if it means accepting risks and costs associated with a protracted dispute. These firms may thus engage in lobbying through the state that had issued the licenses to maintain the current claims.

On the other hand, if oil is discovered near the disputed waters and still more is suspected to be in the disputed waters but oil companies are not yet committed there, private oil firms in particular would be more likely to pressure the two states to settle their dispute. Only then can they know which state has jurisdiction in order to begin the process of exploration. National oil firms in the disputant states, if any, may instead pressure their governments to hold firm to the existing claims, since they may be limited to exploring and extracting only from their state's continental shelf.[84] Hence, the direction that industry risk perceptions will affect state behavior depends on various other factors such as whether exploration is already taking place in the disputed area and the governance structure of the relevant firms.

The second thing that is different when there are overlapping claims is greater public interest in the boundary issue. Because salience types tend to be mutually reinforcing, the presence of hydrocarbons should generally be associated with higher nationalist salience as well. The dispute—now about both "our waters" and "our oil"—can lead to political mobilization aimed at defending the state's claims. Leaders thus risk incurring domestic audience costs if they compromise on existing claims.

[84] Though the state-vs-private distinction is not always clear cut, since some state-owned oil firms operate globally, e.g., China's CNPC, Malaysia's Petronas.

Audience cost theory contends that leaders are accountable to their publics for failed foreign policy.[85] And just like signaling resolve in a military escalation, signaling support for one's state claims similarly constrains a leader's ability to subsequently compromise. But even in cases when a specific leader has not publicly advocated for the claim, the fact that the government has taken a position means that the leader risks backlash by compromising on such a position.

These audience costs can be a relevant factor in any dispute situation. However, they may be more significant when there is hydrocarbon activity, for two reasons. First, the public may take an interest in the oil for its own sake and thus latch on to the maritime boundary issue. Extracting the natural resources promises to bring good paying jobs and economic growth to their country. Second, the state may be motivated by the natural resource wealth to actively inculcate the conception of the state's exclusive claims to the disputed region in the general populace.

Democratic leaders are more likely to suffer electorally if they fail to follow through on promises. But authoritarian states also have varying levels of audience costs, as they must satisfy domestic elites, particularly in certain regime types such as one-party rule.[86] States that deliberately stoke nationalist attachment to disputed claims further strengthen the risks of backlash against any backtracking of claims. All in all, a wide swath of state leaders engaged in a maritime dispute, even across regime

---

[85] James D. Fearon, "Domestic Political Audiences and the Escalation of International Disputes," *The American Political Science Review* 88, no. 3 (1994): 577–92, https://doi.org/10.2307/2944796.
[86] Jessica L. Weeks, "Autocratic Audience Costs: Regime Type and Signaling Resolve," *International Organization* 62, no. 1 (2008): 35–64.

types, will be pressured to "stand their ground". Backing down can be more costly than the opportunity costs associated with the forgone hydrocarbon revenue.

The theory presented here relies in part on audience costs as a mechanism to explain state leaders' reluctance to retract established claims. But note that it is not dependent on the other states' leaders believing in the former's vulnerability to such audience costs. That is, State A's leader will resist compromising on claims regardless of how State B's leader views State A's leader and regardless of State B's negotiating strategy.[87] The specific mechanism of audience costs vis-à-vis the probability of signing a delimitation agreement is a purely domestic one. This avoids some critiques of audience costs theory as a *strategic* mechanism, where its role explicitly depends on one party believing that the other party is constrained by audience costs (and that the latter believes that the former believes this).[88]

One final difference when there is a dispute is the need to overcome significant institutional hurdles in order to reach a boundary agreement. As discussed earlier, while claims are sometimes made merely through proclamation which the executive has the prerogative to change, in many other cases, claims are made

---

[87] These are, of course, important considerations in determining the course of delimitation negotiations. Vocally supporting a claim prior to or during negotiations and subsequently conceding those claims could be perceived as a bluff. Domestic audiences would interpret such a bluff as damaging to national reputation and to the state's future bargaining power. And thus, state leaders with higher audience costs may be able to use this to their advantage when negotiating the terms of a delimitation treaty. "There is no way my public could support giving up this much of our waters, so if we agree on some boundary it has to be more generous to my side." The fact that there is a dispute translates to greater potential audience costs, meaning that leaders will be less willing to compromise and thus less likely to settle, all else being equal.
[88] Jonathan Mercer, "Audience Costs Are Toys," *Security Studies* 21, no. 3 (2012): 398–404, https://doi.org/10.1080/09636412.2012.706488.

through constitutional provisions, legislation, or a regulatory framework which can be especially hard to change. Achieving a threshold of support necessary to reduce such claims can be a challenge, regardless of whether there is oil involved.

Still, when there is hydrocarbon activity, there is likely to be even more such institutional scaffolding built around the claim. For example, legislation that establishes oil concession leases may need to be amended. Or if actual contracts have been signed with drilling companies in the disputed area, in addition to the lobbying discussed earlier, the state may need to weigh the costs of renegotiating or reneging on the contract if was serious about reaching a negotiated settlement with its neighbor. Thus, institutional impediments to reducing claims are a challenge to reaching a compromise amidst a dispute, and even more so when hydrocarbon activity is involved.

2.5 Summary of Mechanisms

So if valuable resources are discovered in an area that could be claimed by either side, the response will depend on the legal status of the boundary. If overlapping claims have not been made, settling the boundary on equitable terms may not be politically risky at all. In this way, the presence of resources helps states establish the boundary through bilateral negotiations. When the boundary has significant economic salience, both leaders may have an incentive to claim as much of the valuable waters and/or seabed as they reasonably can. However, knowing that the other leader has the same view, they are compelled to search for a mutually acceptable outcome. The result may be application of a particular delimitation method such as equidistance, though the application of international law to achieve an equitable result still leaves a wide negotiating space.

We can imagine this situation as analogous to perfectly rational, unitary actors in Fearon's famous conception of rationalist explanations for war. In order to avoid the enormous costs of war, they may negotiate a compromise division of the disputed good.[89] Except that the costs being avoided by dividing the disputed maritime space aren't due to war but rather economic opportunity costs stemming from a delayed settlement. Of course, the states aren't unitary, but rather the motive to compromise is shared by the leader and the domestic interests applying the political pressure to settle. Investors are often unwilling to accept the risk of developing expensive extractive infrastructure in a disputed area. Their investments can be destroyed if a war breaks out, or expropriated if title to the seabed is settled in favor of a different state. It can thus be more profitable for the states to settle their maritime boundary in such a way that both benefit from energy revenues. Put simply, states' decisions to pursue and sign delimitation agreements—including disputed ones—can be explained when the costs of signing an agreement outweigh the costs of not signing an agreement.[90]

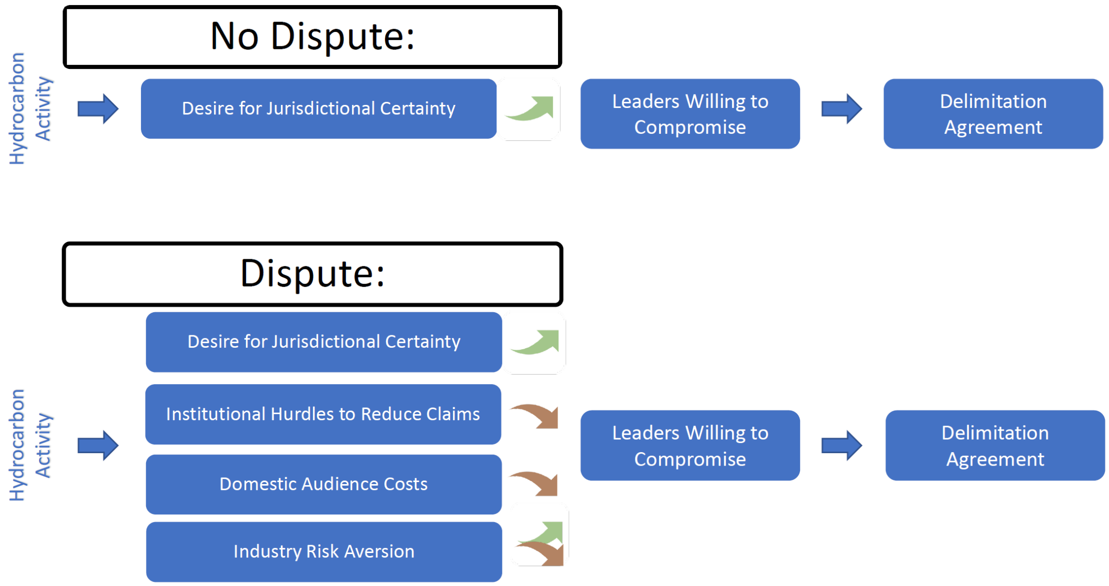
---

[89] Fearon, "Rationalist Explanations for War."
[90] Áslaug Ásgeirsdóttir, "Settling of the Maritime Boundaries of the United States: Cost of Settlement and the Benefits of Legal Certainty," *Marine Policy* 73 (November 2016): 187–95.

Several mechanisms amidst a dispute may increase the costs of signing an agreement and thus make it difficult for leaders to compromise on claims and settle the boundary. First, the energy industry itself may be divided. On the one hand, settling the boundary would provide jurisdictional certainty. But in certain circumstances, particularly if companies are already invested in the disputed area, industry may opt to support the claims of one particular state in the hope of not losing their sunk costs. Further, leaders take serious political risk through audience costs derived from their backtracking on claims. Since the political pressure on the leaders is such that they would be punished for compromising, they may instead engage in posturing for the sake of domestic consumption, regardless of any economic opportunity costs of not settling. Finally, reducing claims requires meeting a higher institutional threshold than setting new claims. This makes the task of compromising on a state's maritime claims exceedingly difficult, even for a leader that is willing to risk domestic audience costs. But this mechanism only dampens any positive oil effect that may already be present.

Figure 4 illustrates the difficulty in modeling the relationship between oil and agreements when there is a dispute. With competing mechanisms at play the overall effect of oil will be a wash, or at least exceedingly difficult to predict. The overall result is that the positive effect of oil in delimitation agreements—seemingly so well established in earlier studies—is contingent on there being no active dispute.

Figure 4: Mechanisms Connecting Oil and Probability of Settling Boundary



While an initial maritime claim may occur without much attention, any attempt to reduce an existing claim is more likely to be contentious. Interest groups include the domestic energy and fishing industries that fear lost revenue resulting from the loss of their state's jurisdiction over the relevant maritime space, thus motivating them to mobilize in opposition to such a change. It also includes a wide swath of the population who—through years of being ingrained with the notion of their country's territory as inviolable and being convinced of their state's legal reasoning—would oppose actions perceived as "giving away" their country's waters.[91] A leader thus risks domestic audience costs by attempting to compromise the state's boundaries.[92] Or put differently, nationalism prevents reduction in

---

[91] Johnston, *The Theory and History of Ocean Boundary-Making*, 315.
[92] Fearon, "Domestic Political Audiences and the Escalation of International Disputes"; Todd L. Allee and Paul K. Huth, "The Pursuit of Legal Settlements to Territorial Disputes," *Conflict Management and Peace Science* 23, no. 4 (September 1, 2006): 285–307, https://doi.org/10.1080/07388940600972644.

maritime zones, even if it was not a serious factor when those zones were initially established. Although maritime space in a different situation could be considered a divisible good, when they are part of a well-established claim they are treated more like an indivisible good.[93] Disputed territory that is considered part of a nation's homeland—as opposed to a colony or a recent but not integral addition to the state's sovereign territory—is more contentious and prone to violent conflict.[94] And the same phenomenon would apply to a state's claim to a maritime zone, particularly when that claim has been well incorporated into the public consciousness. Leaders must then contend with the highly emotive and powerful forces of the politics of sovereignty, in which the public demands a defense of their nation's territory.[95]

2.6 An Agreement Typology: Pure Delimitation vs. Low-Risk Alternatives

If a leader wants to settle a maritime boundary, the most straightforward and quickest way to do so is to engage in bilateral negotiations with the aim of signing a delimitation agreement. A delimitation agreement represents a negotiated settlement over a maritime boundary and necessarily involves political risk on the part of state leaders. This sometimes involves compromise of a preferred delimitation principle or particular boundary area, and leaders sometimes judge such compromise to be

---

[93] Paul R. Hensel and Sara Mc Laughlin Mitchell, "Issue Indivisibility and Territorial Claims," vol. 64, 2005, 275–85, https://doi.org/10.1007/s10708-005-5803-3.
[94] Shelef, "Unequal Ground: Homelands and Conflict."
[95] McDorman, *Salt Water Neighbors*, 80–81.

worthwhile in order to exercise the gains from settling the boundary, including but not limited to hydrocarbon revenue. In such cases, we should expect the states to sign a delimitation agreement.

But in other cases, a particular delimitation principle or border area already holds political salience, and compromising on these can be risky to a leader. Should the agreement be perceived as giving away what rightfully belongs to one's own state, leaders risk backlash in the form of domestic audience costs. Such leaders can attempt to reap the economic benefits of settlement while minimizing the political risks by pursuing certain types of other agreements.

It is already well demonstrated that leaders engaged in a territorial dispute that is particularly salient to domestic political audiences or who are particularly accountable to domestic opposition are more likely to resort to international arbitration or adjudication. States have many options for third party dispute settlement of a maritime boundary. In addition to the ICJ, the Permanent Court of Arbitration (PCA), and ad hoc arbitration, ITLOS was created through UNCLOS to deal specifically with maritime disputes. Indeed, states seem to be more likely to use such formal mechanisms of dispute resolution for resolving maritime disputes as opposed to disputes over land territory or river claims.[96] These third-party methods of dispute resolution are often viewed as legitimate and unbiased.

---

[96] Andrew P. Owsiak and Sara Mc Laughlin Mitchell, "Conflict Management in Land, River, and Maritime Claims," *Political Science Research and Methods* 7, no. 1 (January 2019): 43–61, https://doi.org/10.1017/psrm.2016.56.

Turning to one of these institutions gives state leaders the opportunity to give necessary concessions in order to settle the boundary with reduced risk of a political backlash.[97] If an international body rules to reduce the state's prior claims, the leader can grudgingly concede, reaping the benefits of boundary settlement while passing any blame to a third party.[98] And if the judgement or award is so unfavorable, they even retain the option to renege on earlier commitments to abide by the decision. For example, Colombia in 2012 and Kenya in 2021 rejected ICJ judgements regarding their maritime boundaries with Nicaragua and Somalia, respectively.

The second type of alternative agreement is one that establishes a joint development zone. Exceedingly rare in land territory, JDZs are often pursued as an alternative to a maritime delimitation agreement, and they are exhorted by UNCLOS Article 74 to engage in "provisional arrangements of a practical nature." A JDZ is often established in an area where two states have not agreed on their sovereignty. However, this does not always mean that they actively dispute it, and it is not uncommon to establish a boundary while simultaneously establishing a JDZ that transects that new boundary. In cases where delimitation is difficult, establishing a JDZ allows state leaders to jointly profit from any hydrocarbons without having to risk political backlash from political opposition or interest groups. And unlike third party dispute resolution, the JDZ option can be appealing even to state leaders that are

---

[97] Allee and Huth, "The Pursuit of Legal Settlements to Territorial Disputes."
[98] Allee and Huth.

not engaged in a dispute. This makes their relationship to disputes and hydrocarbons more complicated.

Chapter Four will deal more extensively with the various motivations for pursuing both types of alternative agreements. The desire for jurisdictional certainty, in order to start hydrocarbon activities, serves as an important motivation for signing either a JDZ agreement or pursuing judicial dispute resolution. And none of the three countervailing mechanisms described earlier that prevent delimitation agreements amidst a dispute are significant impediments to these alternative agreements.

2.7 Testable Hypotheses

Assume two states that share a *potential* maritime boundary. There are three basic legal situations that these states can find themselves in at any given time. First, the states have no overlapping claims but have not fully delimited their boundary. Second, the states have made overlapping claims. Third, they have fully established their boundary. Because established boundaries are so rarely changed, this third scenario can be put aside.[99] I will focus on the differences between unsettled boundaries either with or without overlapping claims.[100]

In the first scenario, the maritime neighbors do not have overlapping claims. After oil is discovered, the domestic audience costs associated with compromising on the preferred delimitation principle are relatively low, and there are few institutional impediments to making claims that are in line with the outcome of bilateral negotiations. Indeed, since at least one and very often both states have not established claims in the relevant area, there may not even be well defined preferences on delimitation principles. The energy industry and rent-seeking state actors are the primary interest groups. Their preference is to come to an amicable agreement on the boundary in order to establish the legal certainty necessary to begin extracting the oil. State leaders feel relatively safe in negotiating and are more likely to reach a mutually satisfactory boundary, compared to if there had not been a discovery.

---

[99] Some delimitation treaties from before UNCLOS remain in force even though they don't reflect how UNCLOS would today prescribe delimitation. Australia and Indonesia established EEZs up to the median line in 2007, yet the continental shelf below much of Indonesia's EEZ water column belongs to Australia, per agreements of 1971 and 1972, resulting in what many perceive as an inequitable denial of mineral rights to Indonesia. Despite such states having reason to withdraw from the treaty, make a more extensive claim, and insist on new bilateral negotiations, this seemingly is yet to happen with any maritime boundary treaty. The Vienna Convention on the Law of Treaties Art 62(2) precludes the withdrawal of treaties that establish boundaries. Sticky law—both domestic and international—which had already established the boundary will prevent even the disadvantaged state from seeking a change. One might be tempted to cite East Timor's withdrawal from its 2006 CMATS treaty as the sole exception to this rule, and indeed this is an extraordinary case involving changed hydrocarbon potential (as well as alleged Australian espionage as the basis for withdrawal). But the Timorese sought to withdraw from what was essentially a JDZ agreement, not a delimitation agreement.

[100] For simplicity, I am treating each dyad's maritime boundaries as a whole. Future data and research are warranted to examine the implications for dyads with non-contiguous boundary segments and/or partial delimitation.

In the second situation—when there are overlapping claims—the effect of oil on delimitation is more difficult to pin down. On the one hand, any boundary agreement would require one or (more likely) both sides to reduce their earlier claims. Having already been in a dispute in the lead-up to the resource discovery, the two states would be even less likely to make such necessary concessions now, due to industry's more conservative risk assessment, higher domestic audience costs, and institutional impediments to revising sticky claims. On the other hand, the same desire to quickly determine legal title and jointly profit that applies to states without overlapping claims may cause some states with perhaps less contentious disputes or otherwise better bilateral relations to negotiate. With mechanisms operating in opposite directions, the result may be a wash, i.e., no observable oil effect.

In sum, the net positive effect of oil on settling undelimited boundaries is conditional on there not being an active dispute.

Hypothesis 1a*: Where two states have no overlapping claims to their unsettled maritime boundary, the known presence of exploitable hydrocarbons below or near such waters increases the probability they will sign a delimitation agreement.*

Hypothesis 1b*: Where two states have overlapping claims to their unsettled maritime boundary, the known presence of exploitable hydrocarbons below or near such waters does not increase the probability they will sign a delimitation agreement.*

These two states with offshore oil amidst an existing dispute may pursue third-party dispute resolution in the hopes of settling the boundary and—hopefully—getting legitimate rights to the oil, with reduced risk of political backlash from domestic political actors. When the issue is more salient because of oil, there should be a greater likelihood of such an alternative approach that can potentially result in the economic benefits of delimitation without the political risk of a delimitation agreement. Appeals to arbitration only occur amidst a dispute, and therefore there is no conditional relationship analogous to that of Hypothesis 1.

> ***Hypothesis 2****: Where two states have overlapping claims to their unsettled maritime boundary, the known presence of exploitable hydrocarbons below or near such waters increases the probability they will sign an agreement to pursue binding third-party dispute resolution over the overlapping claims.*

Two states with offshore oil amidst an existing dispute may also consider a joint development zone (JDZ) such that they can achieve joint benefits even in the absence of an agreed boundary. But JDZs are established for a variety of reasons; neither a dispute nor proven oil are prerequisites. (More on this will be elaborated in Chapter Four.) Nonetheless, states should be more likely to establish such zones following oil discovery since a JDZ may be the only option to quickly extract the resources. Likewise, if there is a dispute it suggests that settling the boundary outright is more difficult, and therefore the oil effect should be stronger.

Hypothesis 3a*: Where two states have an unsettled maritime boundary, the known presence of exploitable hydrocarbons below or near such waters increases the probability they will sign an agreement to establish a joint development zone.*

Hypothesis 3b*: The positive effect of hydrocarbons on the probability of signing a joint development zone agreement (as per Hypothesis 3a) is stronger among states with overlapping claims, as compared to the same effect among states without overlapping claims.*

To sum up, I posit that the effect of known hydrocarbons in the vicinity of a potential maritime boundary on the likelihood that that boundary is settled is contingent on the status of the boundary. When there are no overlapping claims, oil compels states to seek the legal certainty that can only be obtained through an agreed-upon boundary, thus making maritime boundary agreements more likely. But when there are overlapping claims, several countervailing forces come into play: high institutional thresholds to change claims, industrial lobbying, and domestic audience costs. In essence, oil can cause the two states to "dig in" on their earlier claims, making agreement less likely. Yet the same conciliatory effect of oil present when there are no overlapping claims can still apply; that is, oil might cause some leaders to risk the political consequences. With mechanisms operating in opposite directions, it is hard to predict the overall effect of oil on delimitation agreements amidst a dispute.

Meanwhile, alternative agreements which might allow progress toward mutually recognized oil rights that allow leaders to avoid the political risks of and impediments to reducing claims will be more appealing after hydrocarbon discovery. Thus, oil causes states amidst a dispute to be more likely to seek third party dispute resolution. Likewise, oil may compel maritime neighbors in any legal situation to establish a JDZ, and this option is still more likely when the states have overlapping claims. Table 2 summarizes the hypotheses based on dispute status.

Table 2: Summary of Hypotheses

Dispute?	Effect of Oil on Pure Delimitation Agreements	Effect of Oil on 3rd Party Settlement Agreements	Effect of Oil on JDZ Agreements
No	Agreement More likely w/Oil Than w/o Oil (Hypothesis 1a)	N/A	Agreement More Likely w/Oil Than w/o Oil (Hypothesis 3a)
Yes	Agreement No More Likely w/Oil Than w/o Oil (Hypothesis 1b)	Agreement More likely w/Oil Than w/o Oil (Hypothesis 2)	Agreement More likely w/Oil Than w/o Oil & This Effect Is Stronger Than When No Dispute (Hypothesis 3b)

2.8 Other Peaceful Settlement Attempts

Before continuing to my analyses, I will note certain types of agreements which are not the focus of this study. "Provisional arrangements of a practical nature," called for in UNCLOS Art. 83(3), include more than JDZs. The other relatively common arrangement is a joint fisheries area. These do not have an obvious link to hydrocarbons, except that in some instances of intractable disputed maritime zone, the states have engaged in simultaneous attempts to establish both types of joint zones. Other provisional arrangements involve establishing joint enforcement of sea regulations or security patrols. For example, Indonesia and Malaysia signed an agreement in 2002 on joint patrols in the Celebes Sea. Such agreements tend not to touch on energy resources, even if this is a factor in the dispute itself. Finally, the establishment of a provisional boundary has the potential to be motivated by hydrocarbon resources. The UK and Ireland agreed to a provisional continental shelf boundary in 2001 at a time when there was some interest in potential hydrocarbons in the area beyond 200 NM.[101] But provisional boundary agreements are very rare, and in the case of the UK and Ireland, the two went on to formalize their single maritime boundary with a delimitation agreement in 2013.

Third party intermediation in a dispute includes non-binding methods such as mediation and good offices, which are not the focus of the present research. Non-binding attempts do not afford the same level of political cover as binding attempts since they do not involve the same relinquishment of decision control over the outcome. But excluding non-binding attempts does not significantly affect the present analysis since the number of non-binding attempts is small, and many such cases also involved binding attempts either in the years shortly before or after. For example, French mediation in 1996 succeeded in bringing Eritrea and Yemen to sign an arbitral

[101] See list of provisional arrangement agreements between 1994 and 2010: Igor V Karaman, *Dispute Resolution in the Law of the Sea*, Publications on Ocean Development (Brill Nijhoff, 2012), 351–53.

agreement in the same year.[102] Likewise, after Argentina rejected the award in binding arbitration that it had agreed to with Chile, it agreed to Vatican mediation. Ultimately, the Vatican proposals were also rejected, though the dispute was soon resolved when the military junta in Buenos Aires was replaced by a democratic government that accepted the terms of the arbitral award. The facts of this case thus must be considered in their entirety rather than attempting to isolate the causes and effects of the arbitration in isolation. Only one case of non-binding intermediation was not associated with a binding attempt, though it was associated with a negotiated boundary treaty: in their 1980 agreement on the delimitation of their EEZ, Norway and Iceland also established a conciliation commission charged with making recommendations on their continental shelf boundary. By 1981, both states agreed with the commission's recommendations to fix the CS boundary at the same location as that of the EEZ and to establish a JDZ transected by that boundary. Fish resources was the predominant driver of the maritime boundary issue in this case, and the two sides had not articulated claims that would warrant classifying them as being in dispute.[103]

[102] Jeffrey A. Lefebvre, "Red Sea Security and the Geopolitical-Economy of the Hanish Islands Dispute," *Middle East Journal* 52, no. 3 (1998): 380–83.
[103] D. H. Anderson, "Iceland-Norway (Jan Mayen): Report Number 9-4," in *International Maritime Boundaries*, ed. Jonathan I. Charney and Lewis M. Alexander (Boston: Martinus Nijhoff Publishers, 1993), 1719–34.

CHAPTER THREE: QUANTITATIVE ANALYSES

[After informing Libya of Tunisian petroleum exploration permits in the area "adjacent to the future line of demarcation":] "Thus, the importance and urgency which the question of delimitation of the continental shelf in the shortest time possible now has, is seen clearly."

Note Verbale from the Tunisian Embassy in Tripoli to the Libyan Ministry of Foreign Affairs, November 24, 1971

"…[O]ur brother Tunisian Government has granted a new permit for offshore oil exploration…part of which is located within the Libyan continental shelf under current Libyan legislation."

Note Verbale from the Libyan Ministry of Foreign Affairs to the Tunisian Embassy in Tripoli, June 7, 1972[104]

3.1 Introduction

Studying the actual proceedings of bilateral boundary negotiations is hampered by the fact that states invariably do not publish minutes to such sensitive negotiations. States can invoke any circumstance they deem relevant when staking out their positions and when negotiating behind closed doors, yet these relevant factors generally do not appear in any treaty text. A much larger record is available of proceedings of international courts and tribunals, after an agreement to appeal to such a body has been negotiated. But there is strong precedent in the case law that restricts courts and tribunals from considering a variety of factors, notably economic factors

[104] As translated in: Umberto Leanza, Luigi Sico, and Maria Clelio Ciciriello, *Mediterranean Continental Shelf: Delimitations and Regimes: International and National Legal Sources*, vol. 2, Book IV (Oceana Publications, 1988), 1701. Although negotiations typically remain secretive, this series is a treasure trove of diplomatic correspondence relating to maritime boundaries in one particular region, allowing for inference of some negotiation positions.

like hydrocarbons.[105] Nonetheless, there are methods available to tease out the role of hydrocarbons in boundary agreements. The first will be large-N analyses designed to test all three hypotheses presented in Chapter Two.

Each hypothesis deals with the following question: does the discovery of oil in the vicinity of an undelimited boundary affect the likelihood of signing a boundary-related agreement, and if so, is this effect contingent on whether there is an active dispute? My dependent variables are thus the signing of agreements: either delimitation agreements, agreements to establish a JDZ, or agreements to pursue arbitration or adjudication. My independent variables are the known presence of oil in the boundary area, the legal status of the boundary, and the interaction between these. Each hypothesis test sheds some light on the overarching questions of whether, when, and how oil helps or hinders states manage uncertainty and contention surrounding their maritime boundaries. Throughout the chapter, some additional quantitative analysis will be presented to add clarity on these broader questions.

3.2 Variables of Interest

Until recently, the only database that included maritime boundary issues to be used in the IR literature focused on disputes. But the ICOW database is unsuitable to studying maritime boundaries specifically for several reasons. First, the maritime

[105] Stanislaw Pawlak, "Some Reflections on Factors Exerting Influence on Maritime Boundary Delimitation," in *Coexistence, Cooperation and Solidarity*, vol. 1 (Brill Nijhoff, 2012), 227, https://doi.org/10.1163/9789004214828_013.

cases include not only overlapping claims to maritime zones, but also other disputes related to issues like navigation or fishing even if the relevant area is far from one of the claimant states.[106] In addition, the ICOW method of case selection involved scouring news and other sources to discover the existence of a contentious issue. This means that dispute salience—which is measured in a variety of ways including the presence of resources—is endogenous to case selection. That is, there is a risk of selection bias towards more salient disputes which are somehow newsworthy. One result is that ICOW cannot be used to test a theory that applies to states without a dispute (nor to states involved in claim *making*), but only to states dealing with existing overlapping claims.

Yüksel created an original dataset for his dissertation, which focused on the role of systemic legal uncertainty on states' proclivity to establish their maritime boundaries.[107] We are currently collaborating on expanding and improving his dataset with the goal of publishing it along with a data feature article, and in the interim I am using it for the present study. Thus the version used in this dissertation incorporates some additions and quality control checks to his original dataset. I also included several variables used in the Ásgeirsdóttir and Steinwand's dataset.[108] Both of these

---

[106] For example, the "Turbot War" was a dispute involving Spanish fishing vessels operating near the Canadian EEZ in the 1990s. It is included as a maritime issue in ICOW, which has a more expansive definition of maritime issues than what I use for maritime boundary disputes. More recently, directors of the ICOW project have made a variable to distinguish disputes over EEZs from other maritime disputes. See Owsiak and Mitchell, "Conflict Management in Land, River, and Maritime Claims."
[107] Yüksel, "Bargaining Over Maritime Boundaries in Times of Legal Uncertainty."
[108] Ásgeirsdóttir and Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims."

datasets were designed to consider potential maritime boundaries as the unit of analysis.

Each dyad-year accounts for those state pairs that share a potential maritime boundary given the legal context in that year. The states either share a land boundary with a coastal terminus or their opposite coasts are separated by no more than twice the prevailing legal maximum breadth of a maritime zone (excluding ECS claims). Thus, many dyads enter the dataset in the year 1975 when the agreement on a 200 NM EEZ was made at UNCLOS III. Beginning in that year, any states with coasts separated by 400 NM or less are included. However, states which had already made claims to unusually wide maritime zones prior to 1975 would cause relevant dyads to be included sooner, beginning with the year that such a claim was first made.

Dyad-years that appear in only one of the original datasets are not included in my updated dataset. This means many cases with debatable merits for inclusion are not included, namely those involving disputed land sovereignty. Yüksel—but not Ásgeirsdóttir and Steinwand—included some dyads based entirely on uninhabited, disputed island claims, for example, the United States' boundaries with Haiti and Jamaica based on Navassa Island, which is claimed both by the United States and Haiti. Whereas Ásgeirsdóttir and Steinwand—but not Yüksel—included dyads for Western Sahara's boundaries with Morocco, Spain, and Mauritania. Besides the issue of introducing potential bias when accounting for missing data, such cases are less likely to represent the population of potential maritime boundaries. The updated dataset also does not include dyad-years from Ásgeirsdóttir and Steinwand involving a colony prior to its independence; I opted instead to follow Yüksel's choice to use the colonial power until the year of the new state's independence.

Data on boundaries and agreements in the original Yüksel dataset came from a variety of sources. Among these are the *International Maritime Boundaries* (IMB) series, the *Maritime Claims Reference Manual* published by the U.S. Navy, and the U.N. *Law of the Sea Bulletins*. Further information on maritime boundary disputes and potentially related territorial disputes come from the ICOW dataset, among others.[109] One improvement in the updated version is the addition of several alternative agreements as found in a variety of sources. Further, the status and history of several boundaries have been revised after checking against a source not consulted in the original version, most notably the commercially available Sovereign Limits dataset by International Mapping, to which I have been given special access.

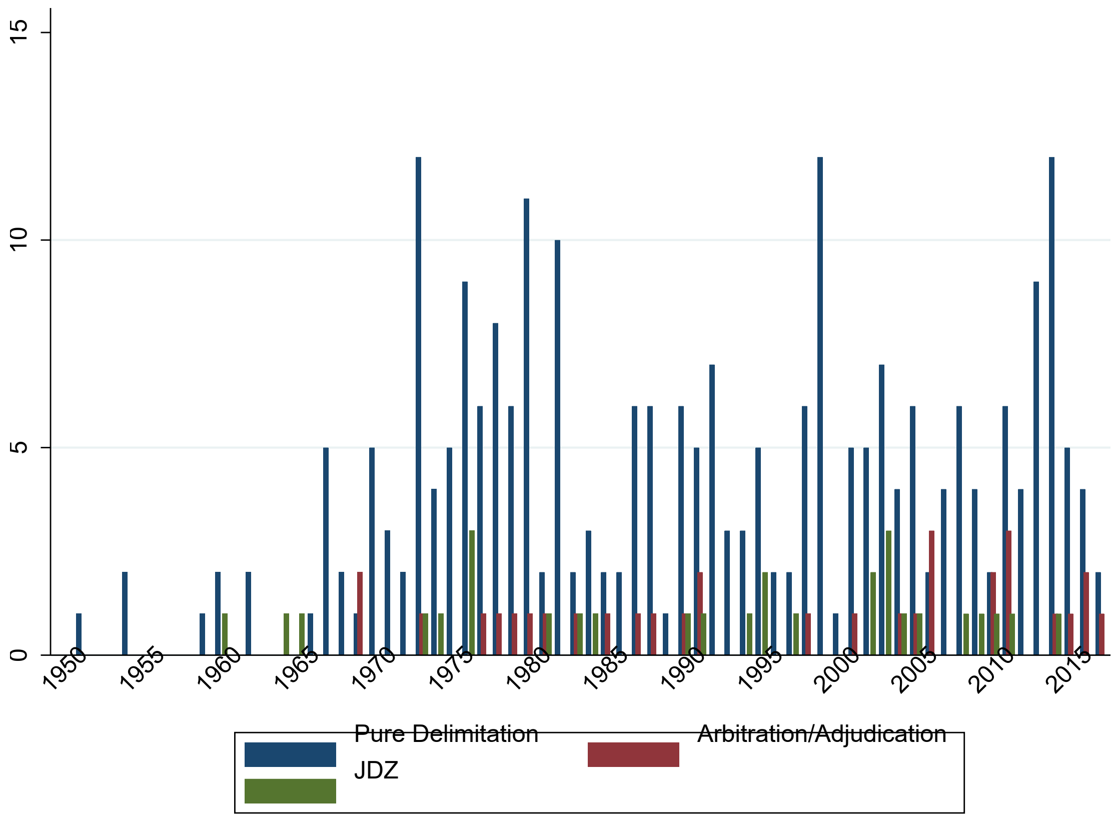
I count as delimitation agreements those applying to any maritime zone, as well as tripoint agreements. "Alternative agreements" include two types. The first is any agreement to go before binding adjudication or arbitration. This includes instances where an applicant state initiates proceedings, and the respondent state readily accepts the jurisdiction of the court or tribunal. When the respondent state either challenged the jurisdiction or admissibility of the case, or else refused to participate at all, this is not included. The second type is an agreement to establish a JDZ. This includes nine instances when simultaneous agreements were made on both

---

[109] Hensel and Mitchell, "Issue Indivisibility and Territorial Claims"; Paul K. Huth and Todd L. Allee, *The Democratic Peace and Territorial Conflict in the Twentieth Century*, Cambridge Studies in International Relations (Cambridge: Cambridge University Press, 2003), https://doi.org/10.1017/CBO9780511491405.

delimitation and a JDZ, typically as components of the same treaty. These observations are thus counted among both delimitation and alternative agreement categories, though this "double counting" should not pose any problems in the subsequent analyses since these agreement types will be used as dependent variables in different regressions.

Figure 5: Maritime Boundary-Related Agreements by Year



Both Yüksel's and Ásgeirsdóttir and Steinwand's datasets rely on the Petroleum Dataset (PETRODATA) for oil and gas data. PETRODATA includes oil and gas discovery and production activities throughout the world from 1946 to

2003.[110] By combining the polygons from PETRODATA with a shapefile from the Flanders Maritime Institute that represents the notional 200-NM limits for EEZs and continental shelf claims, [111] Yüksel was able to determine which areas of hydrocarbon activity fell within or close to the notional boundaries of any two states. If discovery and/or production occurred in or near the 200-NM limits of two states, the Hydrocarbon Activity variable for that dyad is coded as a "1" beginning that year. Because PETRODATA does not cover the period beyond 2003, I coded for hydrocarbon discoveries from 2004 to 2016. Sources included websites utilized by many working in the oil and gas industry, namely, a wiki used by the oil and gas industry that includes country-by-country information on oil and gas fields and project reports on offshore-technology.com.[112] Further research was conducted as necessary to determine the precise location of discoveries.

Table 3 offers a first glimpse at the contingent relationship of oil based on legal status. It shows the frequency of agreements among dyad-years where oil either has or has not been previously discovered and where a maritime dispute either did or did not exist in the year prior. 1.26% of dyad-years with no dispute and no oil saw a delimitation agreement, whereas 2.04% of dyad-years with no dispute and oil saw

---

[110] Päivi Lujala, Jan Ketil Rød, and Nadja Thieme, "Fighting over Oil: Introducing a New Dataset," *Conflict Management and Peace Science* 24, no. 3 (July 2007): 239–56, https://doi.org/10.1080/07388940701468526.
[111] Flanders Marine Institute (VLIZ), Belgium, "Maritime Boundaries Geodatabase, Version 11" (VLIZ, 2019), https://doi.org/10.14284/382.
[112] "Oil And Gas Field Database," Wiki, A Barrel Full, accessed September 21, 2021, http://abarrelfull.wikidot.com/oil-and-gas-field-database; "Projects Archive - Offshore Technology | Oil and Gas News and Market Analysis," accessed September 26, 2021, https://www.offshore-technology.com/projects.

one. This represents a 62% increase in prevalence from the baseline of no oil. Among dyad-years with a dispute, 1.95% of those with no oil had a delimitation agreement, while 2.01% of those with oil did, a mere 3% increase. The stronger correlation that oil has with delimitation agreements when there is no dispute versus when there is a dispute comports well with my theory and succinctly demonstrates the main finding associated with Hypothesis 1. If such a relationship bears out with more probing analysis, it would mean that disputed boundaries are already highly salient enough to garner an interest in settlement and that the offshore energy gives at most a very small increase in the likelihood of settlement, whereas it can significantly raise the probability of settlement of non-disputed boundaries.

I further hypothesized that oil will have a positive effect on the two types of alternative agreement. For JDZ agreements, I argued that this effect should be significant whether there is a dispute or not, but that the effect would be stronger when there is a dispute. Among dyad-years with no dispute, the known presence of oil is associated with an increased prevalence of a JDZ agreement by 420% (from 0.05% to 0.26%); whereas when there is a dispute, oil is associated with an increase of 381% (from 0.21% to 1.01%). The former is thus a larger relative increase, whereas the latter is a larger absolute increase. For third party agreements when there is a dispute, the increase is by a mere 2% (from 1.13% to 1.15%).

As a robustness check, I ran an ordinary least squares regressions of oil on agreement using the subset of data according to dispute status. Consistent with the substantive effects, the p-values are significant for delimitation agreements with no dispute (0.021), and for JDZ agreements both with and without a dispute (0.013 and

0.020, respectively). The effect of oil on party agreements are not significant (p = 0.962). Thus an initial look at the data does not show particularly strong support for my Hypotheses 3, though further investigation will reveal more interesting findings.

Table 3: Agreement Frequency Categorized by Type, Dispute, and Oil

Delimitation Agreements

	No Oil		**Oil**		
Prior Legal Status	**No Agreement**	**Agreement**	**No Agreement**	**Agreement**	**OLS p-value**
No Dispute	10,115	129	3,073	64	
	98.74 %	1.26 %	97.96 %	2.04 %	0.021
Dispute	955	19	1,363	28	
	98.05 %	1.95 %	97.99 %	2.01 %	0.928

Agreements Establishing a JDZ

	No Oil		**Oil**		
Prior Legal Status	**No Agreement**	**Agreement**	**No Agreement**	**Agreement**	**OLS p-value**
No Dispute	10,239	5	3,129	8	
	99.95 %	0.05 %	99.74 %	0.26 %	0.020
Dispute	972	2	1,377	14	
	99.79 %	0.21 %	98.99 %	1.01 %	0.013

Agreements to Pursue Binding 3rd Party Dispute Resolution

	No Oil		**Oil**		
Prior Legal Status	**No Agreement**	**Agreement**	**No Agreement**	**Agreement**	**OLS p-value**
No Dispute	10,244	0	3,137	0	
	100.00 %	0.00 %	100.00 %	0.00 %	
Dispute	963	11	1,375	16	
	98.87 %	1.13 %	98.85 %	1.15 %	0.962

Upper numbers in each cell are the total dyad-years matching three criteria: dispute, oil, and agreement. Lower numbers are the percentage of the upper number out of the total dyad-years matching two criteria: dispute and oil. Observations that were fully delimited in the previous dyad-year are excluded. OLS models from which the p-values are reported used oil as the IV, agreement as the DV, and clustered robust standard errors by dyad.

3.3 Potentially Confounding Variables

Several other factors may affect the likelihood of signing maritime agreements that may also be related to either oil or the status of claims.

States with friendly relations may be both more likely to not make overlapping claims and more likely to achieve win-win solutions to issues of resource allocation. The state of the bilateral relationship would then be a confounding variable affecting both my independent and dependent variables. One measure meant to capture this is joint UN General Assembly voting, a standard variable used as a proxy for foreign policy preferences.[113] While this variable is known to have a high signal-to-noise ratio,[114] it nonetheless should account for things like the divide between the East and West Blocs during the Cold War, and states that have strained relations with others within their region, e.g., Iran versus its Arab neighbors. Ásgeirsdóttir and Steinwand included joint UN voting in their model on coming to agreements and found no effect. I likewise expect not to find an effect, if only because states with generally poor relations may have even more of an incentive to establish clear boundaries, dampening any correlation that might otherwise be present.[115]

---

[113] Erik Voeten, Anton Strezhnev, and Michael Bailey, "United Nations General Assembly Voting Data, V28" (Harvard Dataverse, 2009), https://doi.org/10.7910/DVN/LEJUQZ.
[114] Michael A. Bailey, Anton Strezhnev, and Erik Voeten, "Estimating Dynamic State Preferences from United Nations Voting Data," *Journal of Conflict Resolution* 61, no. 2 (February 2017): 430–56, https://doi.org/10.1177/0022002715595700.
[115] An illustrative example is the Carter Administration concluding a maritime boundary agreement with Cuba (even while all four US-Canada boundary segments were undelimited) not only to resolve important issues of fishing and immigration, but because a boundary

Next, I include bilateral trade as an indicator of the strength of bilateral economic relations. I used data from the Correlates of War project. Ásgeirsdóttir and Steinwand found that higher trade was associated with higher probability of coming to an agreement, and I expect the same to be true in my study.

The other main resource at play—that is, fish—likely influence both states' maritime claim-making and negotiations. Unfortunately, uniform data specifically in the boundary areas is not currently available. Instead, like Ásgeirsdóttir and Steinwand, I include data from Food and Agriculture's FishStat database on annual fish catch at the state level.

The different behavior of democracies, when compared to pairs of non-democracies or mixed pairs, is well established, and this includes being far less inclined to fight over land territory and more inclined to pursue binding dispute settlement.[116] Similarly, Ásgeirsdóttir and Steinwand found some support that joint democratic dyads are more likely to achieve a boundary agreement. More specifically, because leaders in democracies are more vulnerable to domestic political interests, they should be more inclined to sign an alternative agreement.[117] A state will be considered a democracy if it has a Polity5 score of at least 7.[118] For

agreement seemed like a low hanging fruit that could easily be pursued in order to improve relations without having to get much buy-in from the public or Congress. See Association for Diplomatic Studies and Training, "Re-establishing Diplomatic Relations with Cuba, 1977," http://adst.org/2014/12/re-establishing-ties-with-cuba-1977.

[116] Huth and Allee, *The Democratic Peace and Territorial Conflict in the Twentieth Century*.

[117] Allee and Huth, "The Pursuit of Legal Settlements to Territorial Disputes."

[118] Monty G. Marshall, Ted Robert Gurr, and Keith Jaggers, "Polity5 Project: Political Regime Characteristics and Transitions, 1800-2018," *Center for Systemic Peace*, 2019, https://www.systemicpeace.org/polityproject.html.

observations not covered by Polity5, I included data from the Varieties of Democracy Project, with a comparable cutoff of 0.5 in the measure of electoral democracy. While this is not a perfect substitute for Polity5 data, it should be better than imputing and potentially missing transitions to or from democracy that would be captured with real data.

It is plausible that states that agreed to the Convention would be more likely to settle their boundaries because they agree on certain principles and dispute resolution mechanisms within the Convention. Further, some evidence suggests that states that have ratified UNCLOS are less likely to make new overlapping claims.[119] Ásgeirsdóttir and Steinwand control for whether states signed and/or ratified UNCLOS at the time, but they did not find any significant effects. I am not surprised by this given that all states adhere to a large degree to the Law of the Sea regardless of whether they have signed or ratified the Convention, and reasons for not signing often have nothing to do with concerns about delimitation. And significant disagreements exist among states that have ratified UNCLOS regarding delimitation principles. Further, the parties to the UNCLOS III conference reached a compromise on vague delimitation principles precisely because they were so divided. Therefore, it is not surprising that two states that have ratified UNCLOS are no more likely to agree to delimit their boundary than two similar states, one of which has objected to

[119] Stephen C. Nemeth et al., "Ruling the Sea: Managing Maritime Conflicts through UNCLOS and Exclusive Economic Zones," *International Interactions* 40, no. 5 (October 2014): 711–36, https://doi.org/10.1080/03050629.2014.897233. Note though that this research used ICOW's more broadly defined maritime issues.

some aspect of the Convention. Nonetheless, I will still control for UNCLOS ratification. Unlike Ásgeirsdóttir and Steinwand, I do not count signature of the Convention as being equivalent to ratification of it. While it is true that signature and ratification highly correlate and that some states began applying provisions from even before it had been completed, the Convention's effect on delimitation practice in particular was not so apparent. And non-accession to the Convention has been cited as a legal basis for non-application of its provisions. For example, Colombia signed the Convention in 1982 but has never ratified it. It would later argue before the ICJ that it was not bound by Article 76 which defined the outer limits of the continental shelf and had implications on its boundary with Nicaragua.[120]

One might surmise that larger or more powerful states have greater negotiating leverage over their smaller or weaker neighbors, and that this would result in more frequently reaching a boundary settlement. (Or alternatively, a weaker state may be more hesitant to engage in negotiations for fear of actual or perceived losses to their stronger neighbor.) Ásgeirsdóttir and Steinwand use two measures to account for relative power: difference in GDP and the Composite Index of National Capability (CINC) of the Correlates of War Project. They found no effect of the either of these variables, neither on the likelihood of settlement nor on the distribution of settlements. I do not expect to find such an effect on agreements either but nonetheless still include both measures.

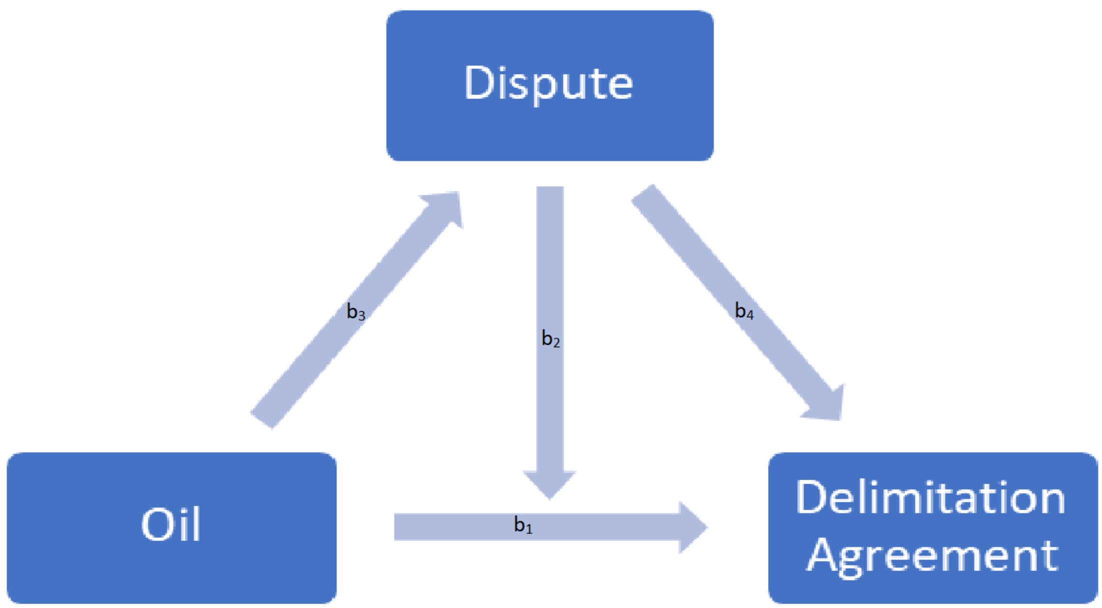
---

[120] Massimo Lando, "Delimiting the Continental Shelf Beyond 200 Nautical Miles at the International Court of Justice: The Nicaragua v. Colombia Cases," *Chinese Journal of International Law* 16, no. 2 (June 1, 2017): 143, https://doi.org/10.1093/chinesejil/jmx014.

A maritime boundary dispute that stems from an intractable dispute over land territory will be especially difficult to resolve. Both Yüksel and Ásgeirsdóttir and Steinwand include variables on territorial disputes, and each found it to be a strong predictor of maritime boundary dispute duration. On examining the measures used by each, I found Yüksel's to be preferable because it only includes territorial disputes that are relevant to the determination of maritime zones, and so I use his measure.

Until now, oil has been described as an explanatory variable acting on the dependent variable of signing an agreement. And this effect has been framed as being conditional on the existence of a dispute. Put differently, and as illustrated in Figure 6, the dispute status of a potential boundary is a moderator variable with a coefficient b_2 that acts on the main "oil effect" with the coefficient b_1.

Figure 6: Potential Relationships Between Variables of Interest



But there are other potential effects that must be considered. Do oil and gas interests influence claim-making? Indeed, one would expect so. If states' claims do not already overlap, the economic salience after discovery would tempt leaders to enlarge their claims. Overlapping claims are thus endogenous, specifically because $b_3>0$.

It is also possible that overlapping claims affect the likelihood of signing a delimitation agreement, i.e., $b_4 \neq 0$, independent of the presence of oil. Either states engaged in a dispute may be more likely to engage in dispute settlement attempts and therefore are more likely to have a breakthrough agreement, or conversely, the existence of a dispute may indicate difficult issue linkages and intransigent positions and thus prevent the two sides from negotiating and ultimately settling their boundary. Given the evidence present in Chapter One,[121] I expect the former to be more likely. But if the latter were true, an oil effect which falsely appears to be conditional on dispute status could actually be due to being a mediating variable with a strength of b_3*b_4. That is, oil could have a positive effect on agreements regardless of dispute status, but it is only observable when there is no dispute, because a negative "dispute effect" negates the positive oil effect. Again, I do not expect this to be the case. At any rate, the order of events—whether oil discovery precedes the onset of a dispute or vice versa—will be taken into account when evaluating whether these possible sources of endogeneity are really a "problem" with evaluating my hypotheses.

---

[121] Hensel et al., "Bones of Contention: Comparing Territorial, Maritime, and River Issues."

3.4 Description of the Data and Models

I include permutations of a time counter—i.e., Time, Time^2, and Time^3—to account for time dependence.[122] To further account for the possibility that time has a more complex relationship between my variables of interest, I created a variable for the time since oil discovery. This Oil Longevity variable is 0 if there has never been a discovery.

The complete combined dataset consists of 443 state dyads and 18,967 dyad-years, covering the period from 1946 to 2016. The theory is not applicable to dyad-years where the potential boundaries were fully delimited actual boundaries in the previous year. Likewise, dyad-years during which third-party dispute resolution proceedings were underway are excluded.[123] Removing these leaves 15,746 observations among 429 dyads.

For each model that included relevant variables, I used multiple imputation to create 10 imputed datasets to account for missing data in some control variables, namely: Fish, Trade, Democracy, UN Voting, Difference in GDP, and Relative Capabilities. None of the variables of interest are imputed. The proportion of missing

---

[122] David B. Carter and Curtis S. Signorino, "Back to the Future: Modeling Time Dependence in Binary Data," *Political Analysis* 18, no. 3 (June 2010): 271–92, https://doi.org/10.1093/pan/mpq013.

[123] Ongoing third-party dispute resolution proceedings are defined as beginning the year after either an agreement to submit a dispute or the actual submission of a dispute (whether unilateral or bilateral) to arbitration or adjudication and ending the year that the proceedings conclude or terminate. The unique case of Iraq-Kuwait also warranted dropping the observations after 1991 when the UN Security Council charged a border commission with demarcating the land and maritime boundaries until 1994 when Iraq accepted that commission's conclusions.

data ranged from 5.3% for Relative Capabilities to 30.8% for Difference in GDP. There are various reasons for missing data. Some countries have not reported information, such as fish catch to the Food and Agriculture Organization. And there are arbitrary cutoffs for inclusion in some datasets: the World Bank has GDP data only starting in 1960, whereas COW's International Trade v4.0 ends in 2014.

One notable pattern is the fact that missing data tends to be among small states, and this is compounded for variables that combine data from two states such as Difference in GDP. The imputed data for certain control variables would thus be closer to the observed population means than the actual values—e.g., imputed fish catch for small states that did not report will be larger than their actual catch—thus making them less sensitive to correlation. But because none of the variables of interest have missing data (i.e., even small states have complete data for disputes, oil, and agreements) this should not pose a serious issue of bias when interpreting these. The alternative of listwise deletion would lead to significant loss of information, especially among dyads that include small states. Nonetheless, one model excluding the imputed data is presented in this chapter alongside an equivalent model; others are presented in Appendix A: Additional Regression Outputs.

I test the hypotheses using two-level mixed-effects probit models. A fixed effects model would be problematic because it requires variation on the dependent variable for each panel included. It would thus drop a significant number of dyads that do not experience an agreement: 257 out of 427 dyads in the case of delimitation agreements, still more for the other agreement types. Not only is this a significant loss of information, but it introduces serious bias since the dropped observations are far less likely to experience an agreement in a given year than the non-dropped observations. But a multilevel mixed-effects model where the second level is the dyad controls for unobserved between-dyad variation without dropping observations.[124]

A Cox hazard model was also considered as an alternative model. But a standard Cox model would only allow inclusion of the first failure event for each individual, in this case, each dyad's first relevant agreement. More sophisticated hazard models can include multiple failure events, but a choice must always be made on when to start the event history.[125] Instead, I used a probit model which considers the probability of signing an agreement for each dyad-year, independent of whether or when other agreements have been signed. It is not unusual for states to sign multiple agreements over time to cover different maritime zones. The number of prior delimitation agreements is included as a control, so any correlation between an initial and subsequent agreements would still be captured.

---

[124] Andrew Bell, Malcolm Fairbrother, and Kelvyn Jones, "Fixed and Random Effects Models: Making an Informed Choice," *Quality & Quantity* 53, no. 2 (March 2019): 1051–74, https://doi.org/10.1007/s11135-018-0802-x; Andrew Bell and Kelvyn Jones, "Explaining Fixed Effects: Random Effects Modeling of Time-Series Cross-Sectional and Panel Data*," *Political Science Research and Methods* 3, no. 1 (January 2015): 133–53, https://doi.org/10.1017/psrm.2014.7; "Stata Multilevel Mixed-Effects Reference Manual, Release 17" (College Station, Texas: StataCorp LLC, 2021), 400, https://www.stata.com/manuals/me.pdf.

[125] Multiple failure analysis requires deciding: 1) whether the events are ordered or unordered; and 2) whether each risk set entry should begin at the time of the first entry or at the time of the previous event. The variety of circumstances in which delimitation agreements are signed and of terms that they cover mean that the present analysis would not neatly comport with the assumptions of any combination of these options. "FAQ: Analysis of Multiple Failure-Time Survival Data | Stata," accessed January 5, 2022, https://www.stata.com/support/faqs/statistics/multiple-failure-time-data/.

3.5 Evaluating the Oil Effect on Delimitation Agreements

Table 4 provides regression results for six probit models for which the outcome variable is the conclusion of a delimitation agreement. Models 1 and 3 are comparable to 2 and 4, respectively, except that the latter include the interaction between oil and dispute. Models 1 and 2 include only a single control, territorial dispute, as it is consistently cited as making maritime delimitation difficult to achieve and does not require imputation. Models 3 through 6 include most control variables, with Model 6 building on Model 4 with a count of prior agreements and the oil longevity variable. Model 5 is equivalent to Model 4 but without imputed data.

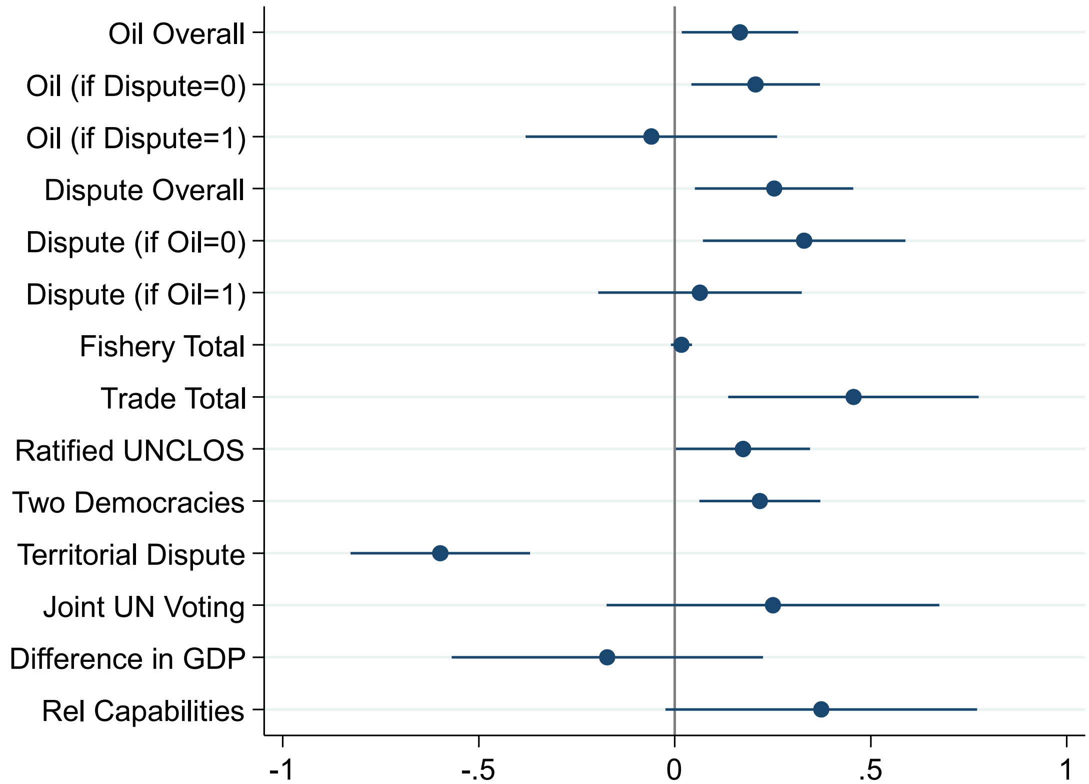
Figure 7 shows the average marginal effects for Model 4. Of note, the effects of oil and dispute are shown both as full effects, e.g., “Oil Overall”, and effects conditional on the value of the other variable. Thus we can evaluate the effect of oil on the signing of an agreement when there is a dispute, as well as the effect of oil when there is no dispute.

Table 4: Probit Regression Outputs on Maritime Delimitation Agreements

	DV: Delimitation Agreement					
	(1)	(2)	(3)	(4)	(5)	(6)
Oil	0.133*	0.190**	0.150*	0.206**	0.162	0.275***
	(0.0788)	(0.0850)	(0.0772)	(0.0837)	(0.113)	(0.101)
Dispute	0.234**	0.384***	0.180*	0.330**	0.531***	0.312***
	(0.100)	(0.131)	(0.101)	(0.132)	(0.164)	(0.115)
Oil X Dispute		-0.269		-0.266	-0.447**	-0.241
		(0.186)		(0.182)	(0.214)	(0.159)
Territorial Dispute	-0.597***	-0.609***	-0.590***	-0.598***	-0.643***	-0.545***
	(0.121)	(0.118)	(0.120)	(0.117)	(0.154)	(0.101)
Fishery Total			0.0169	0.0171	0.0179	0.0183
			(0.0135)	(0.0138)	(0.0170)	(0.0113)
Trade Per Cap			0.470***	0.456***	0.434***	0.307**
			(0.163)	(0.162)	(0.158)	(0.138)
Ratified UNCLOS			0.168*	0.174**	0.196*	0.169**
			(0.0865)	(0.0872)	(0.108)	(0.0823)
Two Democracies			0.215***	0.217***	0.200**	0.164**
			(0.0786)	(0.0785)	(0.0917)	(0.0665)
Joint UN Voting			0.258	0.251	0.352	0.297*
			(0.215)	(0.215)	(0.266)	(0.179)
Diff. in GDP			-0.166	-0.172	-0.0359	-0.173
			(0.198)	(0.200)	(0.233)	(0.169)
Rel. Capabilities			0.363*	0.374*	0.327	0.365**
			(0.200)	(0.202)	(0.243)	(0.171)
Prior Agreements						0.159**
						(0.0631)
Oil Longevity						-0.00731*
						(0.00375)
Dyads	429	429	429	429	301	429
N	15746	15746	15746	15746	8908	15746

Output for time variables not shown. Robust standard errors clustered by dyad are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 7: Average Marginal Effects, Model 4 (DV: Delimitation Agreements)



Model 3 is very similar to those employed by Ásgeirsdóttir and Steinwand but with improvements described above in both the data and model specification. And using Model 3, the predicted probability of signing an agreement in a given year rises from .0145 when there is no oil, to a .0204 probability when there is oil, all other variables held as observed. These values fail to meet the conventional *p*-value of .05, with a *p*-value of .071. This is inconsistent with earlier studies, which each saw a positive and significant relationship between oil and maritime agreements in general.[126]

However, unlike in earlier research, I make a distinction based on whether overlapping claims have been made, i.e., whether there is an active dispute over a maritime zone. And consistent with the conditionally phrased Hypothesis 1, using Model 4, average marginal effects in Figure 7 show that there is no significant relationship between the known presence of oil and the signing of a delimitation agreement when there is a dispute, i.e., "Oil (Dispute = 1)". Indeed, when there is a dispute, the predicted probability of signing a delimitation agreement actually decreases modestly from .0269 without oil to .0239 with oil, though these are not statistically different ($p = .737$). Yet the "oil effect" is strong when there is no dispute, with a rise from .0132 without oil to .0210 with oil ($p = .029$).[127]

There is strong support for Hypotheses 1. This hypothesis asserted that in the absence of overlapping claims, the known presence of offshore oil or gas in the vicinity of a potential maritime boundary would be associated with an increased likelihood that the states concerned sign a delimitation agreement. When there is no dispute, the positive oil effect is both statistically significant and substantively large.

The interaction term is not significant in most models, however, proper interpretation of probit models requires post-estimation techniques. The one model where the interaction term is significant is Model 5, which excludes imputed data and

---

[126] Ásgeirsdóttir and Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims"; Yüksel, "Bargaining Over Maritime Boundaries in Times of Legal Uncertainty."

[127] Other model variations yield similar results. For example, Model 6 produces: .0116 without oil to .0223 with oil in the absence of a dispute ($p = .018$), and .0243 without oil to .0262 with oil amidst a dispute ($p = .831$).

through listwise deletion, much of the good data too. In order to be more conservative with my interpretations, I will focus on the other models with complete data even though the interaction terms are not significant.

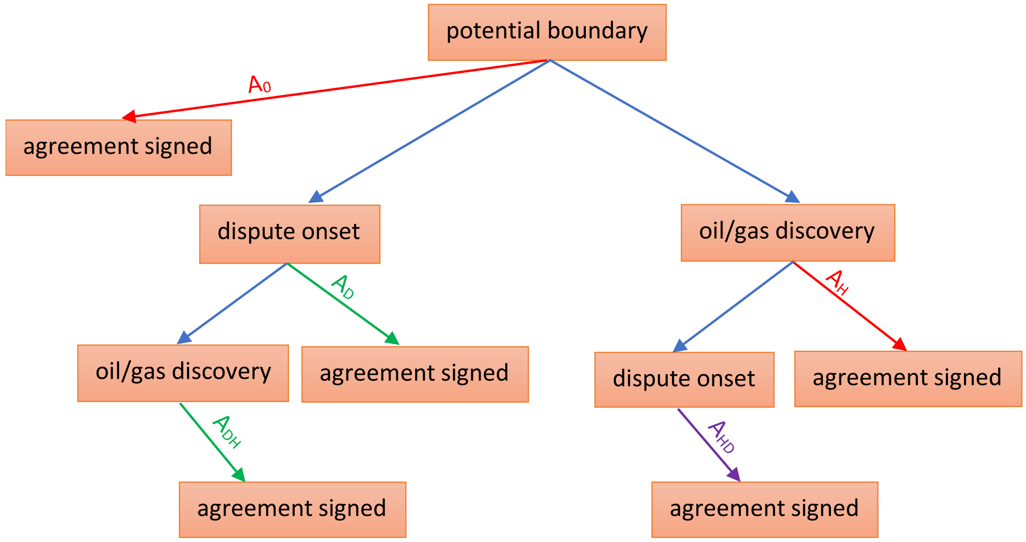
Model 6 includes a measure for oil longevity—how long since oil was discovered (0 if no known oil). Using this model, I found predicted probabilities for every value of the Oil Longevity variable and when there is oil and no dispute, and I tested the independence of these predictions from when there is no oil (and still no dispute). The positive effect of oil remains statistically significant ($p < .05$) at all values of the Oil Longevity variable up to 16 years. The maximum Oil Longevity value is 71, though the density of observations drops precipitously at higher values of Oil Longevity. I conclude that the positive effect of oil on delimitation—when there is no dispute—likely springs from the known presence of oil, and not from oil discovery as such. The effect is essentially time-agnostic, and only when the hydrocarbon activity is especially old can the positive effect not be firmly established for lack of sufficient data to do so. Two states are more likely to settle their boundary if there is known oil compared to if there is no known oil, and this higher likelihood applies beginning with discovery and continuing until either the boundary is settled or until overlapping claims are made.

Yet while the timing of oil discovery may not matter much, the timing of a dispute onset seemingly does. As discussed earlier in this chapter, a leader may react to a discovery of offshore oil by making or extending a maritime claim, and such claims may overlap with those of a neighboring state. Indeed, this is borne out in my data. The onset of a new maritime boundary dispute is more likely to occur when there is oil. In Model 16, I ran the same parameters as Model 2 but used onset of a new dispute as the dependent variable. The predicted probability of a new dispute onset when there is no oil is .0053, whereas with oil it increases to .0111 (p = .001). Therefore, oil should be considered as influencing not only agreements but also overlapping claims. To correct for bias that this introduces, and as a robustness check on my earlier models, I consider the role of the order of events. Figure 8 illustrates the approach by beginning with an undelimited, undisputed boundary with no known oil. For all dyad-years in this initial state, the next relevant event for the dyad can be either discovery of oil, the onset of a maritime dispute, or the signing of a delimitation agreement. Each of these events has an associated probability of occurring within a given year. The signature of an agreement given no prior events is labeled A_0, and its associated probability would be P_{A_0}.[128]

For each dyad-year in which the sole event has been hydrocarbon discovery, the probability an agreement is signed is P_{A_H}. The oil effect in the absence of a dispute would thus be the difference between these: $P_{A_H} - P_{A_0}$. Diagram branches that differ only because of the most recent event being oil/gas discovery are colored similarly, e.g., P_{A_0} and P_{A_H} are each red, P_{A_D} and $P_{A_{DH}}$ are each green. Whereas $P_{A_{HD}}$ in purple has no corresponding branch.

[128] This is not a game tree. For one, the aggregate probabilities of potential events is far less than 1. Note also that a dyad can return to a prior state if either a dispute is resolved without an agreement or if hydrocarbons are demonstrated to be economically unviable. But in the vast majority of cases events progress in the order that they appear in this figure.

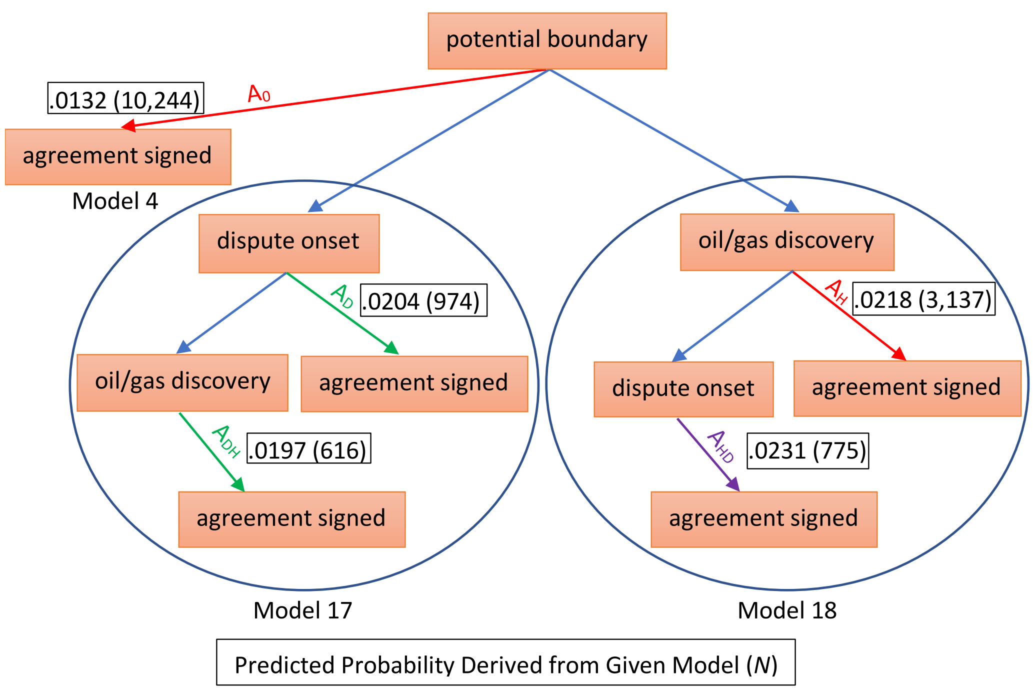
Figure 8: Potential Order of Relevant Events



The probability of signing an agreement if the first and only prior event is dispute onset is P_{A_D}. But there are two branches that represent the signing of an agreement when there has been both a prior hydrocarbon discovery and a dispute: A_{HD} when the discovery preceded dispute onset and A_{DH} when dispute onset preceded discovery. Until now I have treated these as identical, such that the effect of oil on signing an agreement amidst a dispute is the difference between the combined values of these probabilities—weighted by frequency, of course—and the probability of signing an agreement if the only prior event had been dispute onset: $(P_{A_{HD}} + P_{A_{DH}}) - P_{A_D}$.

Hydrocarbon activity can influence dispute onset. An existing dispute can also influence hydrocarbon discovery. A leader engaged in a dispute may intentionally make licensing and exploration a priority in order to bolster state claims, in spite of the known difficulties in doing so amidst a dispute, and these efforts may ultimately pay off with a discovery. To account for these effects, I disaggregated the data based on which event occurred first, either dispute onset or oil discovery, and ran variations of Model 4 using only subsets of the data. Model 17 (full output in Appendix A: Additional Regression Outputs) includes only observations that followed dispute onset in the absence of known oil (N = 1,590) and used Oil as a covariate without interaction with Dispute. The resulting predicted probability for a delimitation agreement when there is a dispute without hydrocarbon discovery (P_{A_D}) is .0204, while that for when discovery occurs following dispute onset ($P_{A_{DH}}$) is .0197, and these are not statistically different (p = .939). I then ran Model 18, an otherwise equivalent model using just observations where oil is discovered in the absence of a dispute (N = 3,912). The resulting probability for signing a delimitation agreement following dispute onset ($P_{A_{HD}}$) is .0231, the probability when there is still no dispute is .0218, and these are not statistically different (p = .858).

Figure 9: Probability of Delimitation Agreement by Ordered Prior Events



In order to better visualize these results, I superimposed the predicted probabilities and the models from which they are derived onto the earlier Figure 8 in creating Figure 9. The key takeaway is that the predicted probability of signing a delimitation agreement rises significantly when there has been hydrocarbon discovery in the absence of a dispute (from P_{A_0} to P_{A_H}), yet it falls—albeit without statistical significance—following discovery amidst a dispute (from P_{A_D} to $P_{A_{DH}}$). We can say this while ignoring those cases where oil discovery may have led to dispute onset ($P_{A_{HD}}$).

I conclude that there is indeed a positive oil effect on delimitation agreements, but that this effect is dependent on there being no active maritime dispute. The fact that oil sometimes prompts dispute onset does not change this conditional effect. The fact that a boundary is actively disputed means that the boundary issue is more salient and garners more attempts at resolution. A positive "dispute effect" is more or less comparable to the strength of the "oil effect" when there is no dispute. But the discovery of oil when there is already a dispute does not increase the probability of resolution. So regardless of how old the oil discovery is and regardless of the order of events, if a boundary is already disputed, oil does little to promote dispute resolution through bilateral delimitation agreements.

3.6 Evaluating the Oil Effect on Alternative Agreements

Hypothesis 3 proposed that the known presence of oil should always make signing a JDZ agreement more likely, although the effect should be stronger when

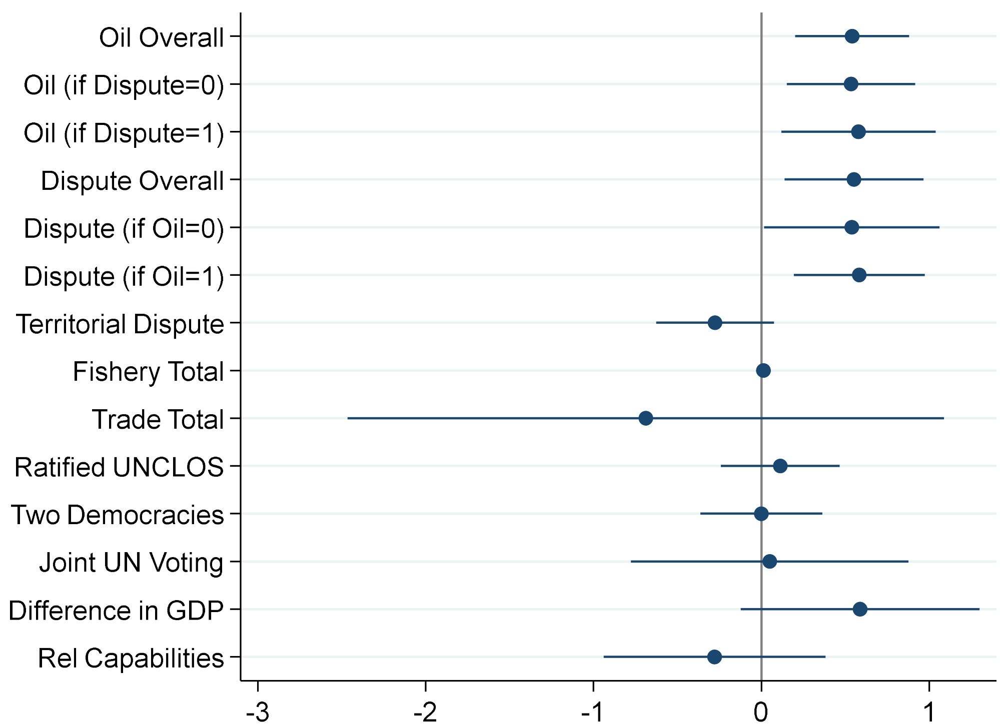
Table 5: Probit Regression Outputs on Alternative Agreements

	DV: JDZ				DV: Binding 3rd Party	
	(7)	(8)	(9)	(10)	(11)	(12)
Oil	0.512*** (0.145)	0.504*** (0.175)	0.534*** (0.195)	0.542** (0.229)	-0.00367 (0.176)	0.316 (0.198)
Dispute	0.553*** (0.167)	0.536* (0.274)	0.539** (0.266)	0.536** (0.271)		
Oil X Dispute		0.0237 (0.300)	0.0440 (0.290)	0.0423 (0.287)		
Territorial Dispute	-0.235 (0.164)	-0.234 (0.163)	-0.276 (0.179)	-0.271 (0.181)	-0.197 (0.160)	-0.222 (0.159)
Fishery Total			0.0126 (0.0189)	0.0121 (0.0194)	-0.0521 (0.0394)	-0.0650 (0.0419)
Trade Per Cap			-0.688 (0.887)	-0.697 (0.886)	0.102 (0.249)	-0.0736 (0.218)
Ratified UNCLOS			0.113 (0.181)	0.115 (0.180)	0.383* (0.198)	0.388** (0.185)
Two Democracies			-0.000225 (0.185)	-0.00148 (0.185)	0.361** (0.178)	0.293* (0.165)
Joint UN Voting			0.0498 (0.422)	0.0498 (0.418)	0.257 (0.814)	0.336 (0.774)
Diff. in GDP			0.588 (0.362)	0.587 (0.364)	0.137 (0.425)	-0.0315 (0.364)
Rel. Capabilities			-0.279 (0.337)	-0.278 (0.332)	-0.803** (0.360)	-0.723** (0.342)
Prior Agreements				0.0157 (0.112)		0.0993 (0.0909)
Oil Longevity				-0.000704 (0.00835)		-0.0171** (0.00806)
Dyads	429	429	429	429	109	109
N	15746	15746	15746	15746	2365	2365

Output for time variables not shown. Robust standard errors clustered by dyad are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

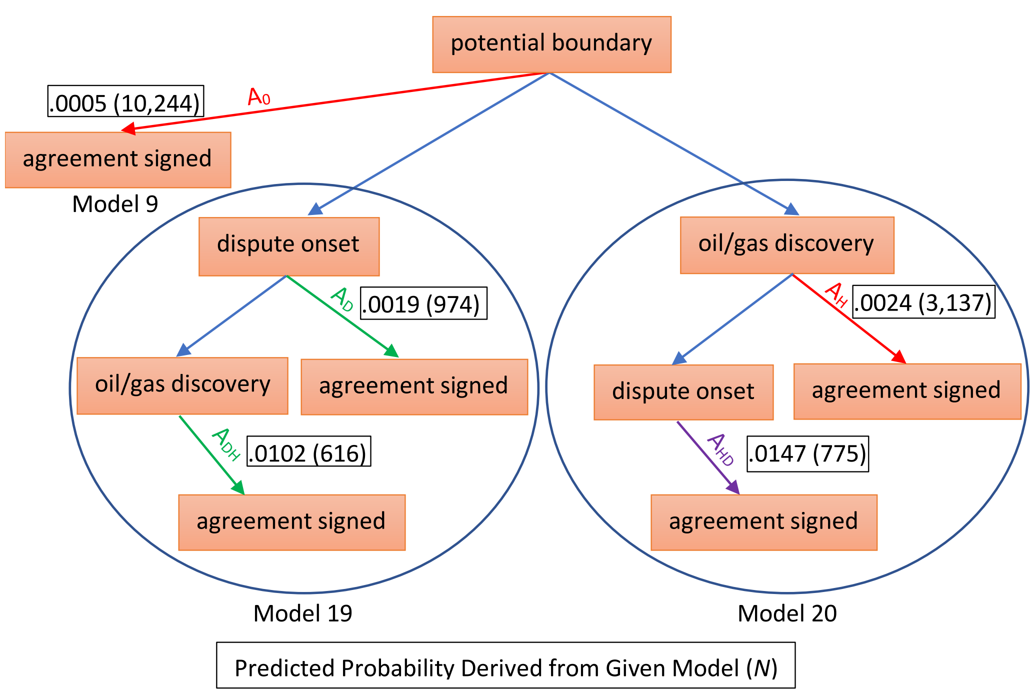
there is a dispute. Models in Table 5 have the same general parameters as those in Table 4 other than the dependent variable. Using Model 9, the predicted probability of signing a JDZ agreement when there is a dispute jumps from .0026 with no oil to .0126 with oil, and these are statistically different (p = .035). The probability when there is no dispute rises from .0005 with no oil to .0026 with oil, and this is also statistically significant (p = .036). Meanwhile, the average marginal effects (Figure 10) indicate a significant rise regardless of dispute status. Whether there is a stronger oil effect when there is a dispute, as predicted, depends on how one measures the strength of the oil effect, i.e., absolute versus relative increase in probability. In retrospect, this should have been better defined when the theory was developed.

Figure 10: Average Marginal Effects, Model 9 (DV: JDZ Agreements)



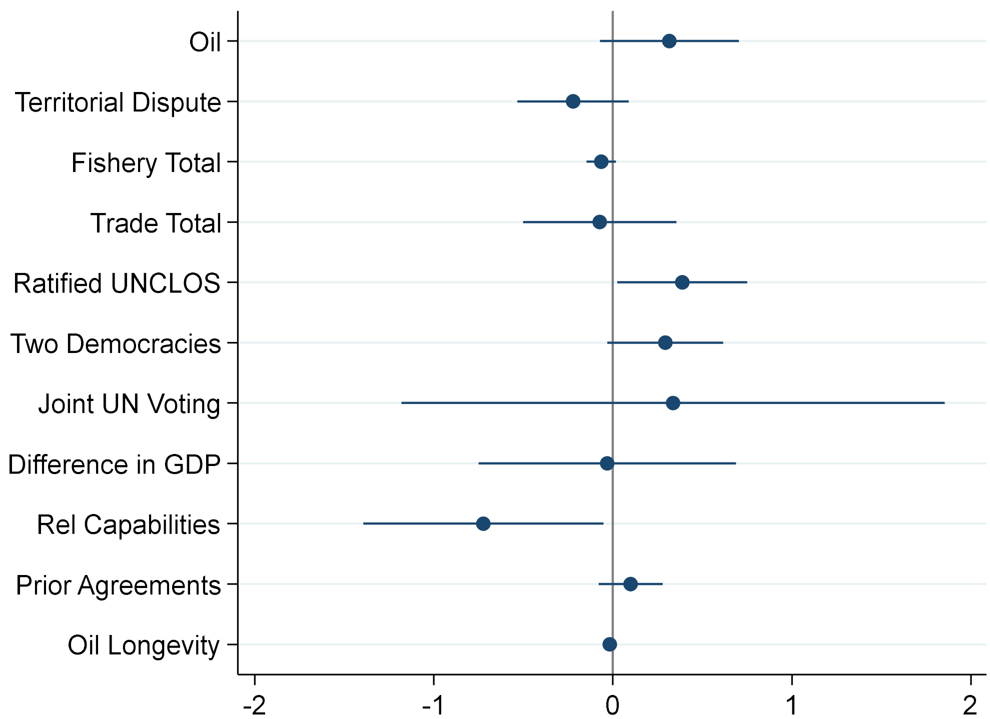
Going a step further, I check if there is a difference between cases where discovery preceded dispute and vice versa. As I did with delimitation agreements, I provide a graphical summary of the predicted probabilities, in Figure 11. The probability of signing a JDZ agreement always increases following either a discovery or dispute onset. But now the difference in the “oil effect” is clearer, even if measured as a relative increase: when no dispute, from .0005 with discovery to .0024 with discovery (a 380% rise); and from .0019 to .0102 amidst a pre-existing dispute (a 439% rise). This supports Hypothesis 3 since a discovery has a stronger effect on signing a JDZ agreement when there is a pre-existing dispute, whether that effect is measured in absolute or relative terms. Nonetheless, the highest probability (at .0147) occurs when dispute onset occurs after discovery.

Figure 11: Probability of JDZ Agreement by Ordered Prior Events



Given that agreements to pursue arbitration or adjudication only occur when there is a dispute, Hypothesis 2 posited simply that oil would make it more likely for such an agreement to be achieved. Both Models 11 and 12 show no statistical relationship between oil and appeals to binding third party dispute resolution, and these models even have opposite signs. The predicted probability using Model 11 if there is no oil and all other values are as observed is .0115; with oil, it is .0114 (N=2,517; p = .983)). I cannot reject the null hypothesis that there is no oil effect on signing agreements to pursue judicial proceedings.

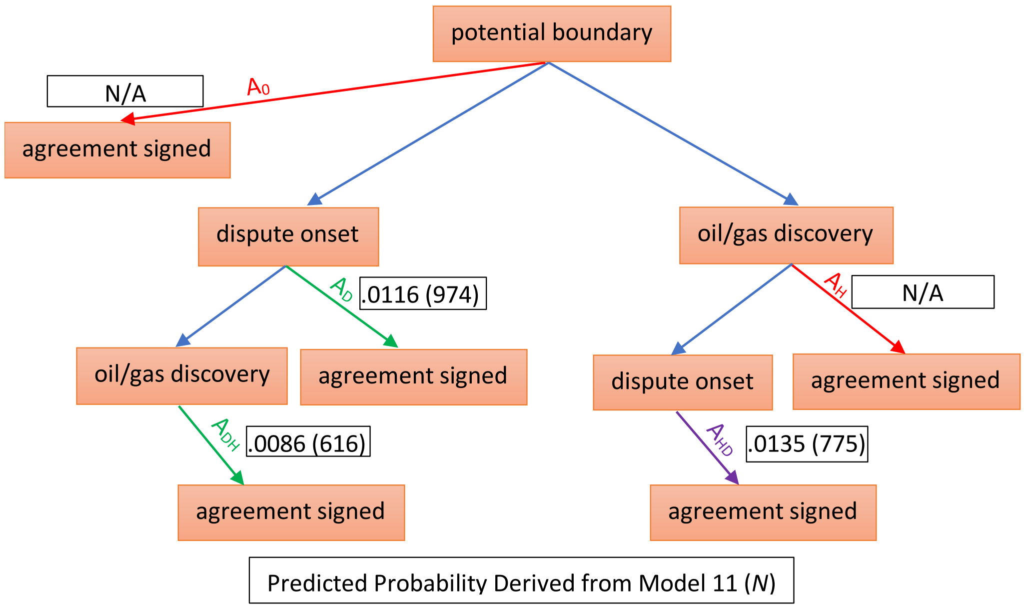
Figure 12: Average Marginal Effects, Model 12 (DV: Binding Intermediation)



I used Model 11 to find predicted probabilities for committing to binding intermediation. The probability actually decreases after discovery from .0116 to .0086. However, there is a large rise (to .0135) when hydrocarbon discovery precedes dispute onset. None of these predications are statistically different from each other.

Nevertheless, it raises the question of whether oil interests might help lead to legal dispute settlement when the oil is a root cause for the dispute, while oil interests arising amidst an extent dispute are not.

Figure 13: Probability of Binding 3rd Party Agreement by Ordered Prior Events



Indeed, so far I have found that two agreement types are more likely to be signed when an oil discovery preceded dispute onset, as opposed to a discovery made amidst an existing dispute. And the third agreement type, despite not being statistically significant, shows the same pattern of a strong substantive significance for this one ordering of events; it may be that with more and better data this relationship can still be demonstrated more confidently. At any rate, the higher rate of signing agreements in oil-before-dispute cases is most likely due to the greater overall salience of the boundary issue after there was both a recent discovery and dispute onset. I will return to this discussion in Chapter 4.

3.7 Other Variables

The presence of a related territorial dispute makes settlement of a maritime boundary dispute with delimitation agreement less likely. This relationship is consistent across models, and it was expected. States often value their territorial claims primarily and in many cases maritime claims are made explicitly in order to reinforce these. In other cases, island claims only become salient because of their purported effects on allocation of valuable maritime space. The islands then take on a symbolic importance in the public perception of the overall dispute, such that agreeing to a boundary that discounts sovereignty of these islands can be perceived as an affront. Meanwhile, a territorial dispute only modestly reduced the likelihood of signing either a JDZ agreement or a *compromis d'arbitrage*, and these effects were not statistically significant. In these instances, since the states are not agreeing on an actual boundary, the fact that there is a contentious dispute over mainland or island territory doesn't necessarily stop them from pursuing these other potential steps toward boundary-making.

Two democracies are more likely to settle their maritime boundaries with a delimitation agreement than a similar dyad that includes at least one non-democracy. This is in line with neoliberal institutionalism, which posits more conciliatory behavior between democracies, and is consistent with democracies' behavior regarding settlement of territorial disputes. Two disputing democracies are also more likely to pursue third party settlement of their boundary than two disputing states that are not both democracies. This is unsurprising given ample research on democracies' proclivity to pursue judicial resolution of disputes, particularly because this approach provides leaders with political cover in the event of an unfavorable decision.[129] But joint democracy has no effect on establishing a JDZ. As will be explored further in Chapter Four, JDZ agreements are made in a surprisingly wide variety of contexts, but at any rate the fact that no decision on sovereignty is made means that political cover is not necessary for their establishment. Democracies and autocracies alike can reap the joint benefits of a JDZ without the hard risks entailed with making a compromise over a sovereignty dispute. Intriguingly, joint democracy is also associated with dispute *onset* (per Model 16 in Appendix B).

Again consistent with neoliberal institutionalism, bilateral trade is also positively associated with a proclivity to delimit. Using Model 4, each additional $1,000 in per capita trade is associated with a 15.3 percentage point rise in probability of signing a delimitation treaty. States can influence their neighbors better when they can leverage a significant trading volume. Trade may also be an indicator of good bilateral relations in general, which could make negotiations over a boundary easier. However, further support for the role general bilateral relations play is lacking in the non-effect of joint UN voting on delimitation. And neither trade nor joint UN voting apparently influence either establishing a JDZ or pursuing third party dispute resolution.

In select models, joint ratification of UNCLOS correlates with states settling their boundaries both through direct delimitation and by pursuing litigation. This came as a surprise. As described earlier, reasons for ratifying or not ratifying

[129] Allee and Huth, "The Pursuit of Legal Settlements to Territorial Disputes."

UNCLOS often have nothing to do with principles of delimitation, and Ásgeirsdóttir and Steinwand found no correlation between UNCLOS *signature* and delimitation agreements.[130] I reasoned that full ratification would be a more theoretically sound variable than signature, even though I did not expect it to make a difference. The present results show that it might. Running the same models with joint signature rather than joint ratification erases this correlation. So in spite of the noise associated with this variable, UNCLOS ratification seemingly is of more than just symbolic importance; it may actually provide a focal point and substantive agreement on legal principles that aid states in coming to agreement. More study is certainly warranted.

Fish catch is not significantly related to signing any of the agreement types. While there are plausible theoretical arguments for such a relationship with delimitation agreements in particular, I am not surprised that one does not appear here simply because the available data is only at the state level. If sub-state level data were available, it might get closer to uncovering a relationship between fisheries and boundary settlement since one could then isolate how much a state values the fisheries of the waters in question.

A greater difference in relative capabilities is associated with a lower likelihood for states to pursue third party dispute resolution. This suggests that powerful states rarely litigate their boundaries with weak states. Intriguingly, a

---

[130] Ásgeirsdóttir and Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims." In fact, these authors counted either signature or ratification. In practice this meant that they included states like Colombia, Iran, and El Salvador which signed the Convention but never ratified it, whereas I excluded these.

greater difference in GDP has no significant effect on any of the agreement types, even though these two variables highly correlate. The relationship between relative capabilities and delimitation were statistically significant in only one of four relevant models (Model 6), suggesting it may either be an anomaly or that the relationship is surprisingly weak. More research is warranted on how states' relative size, wealth, and power affects their behavior vis-à-vis maritime boundary issues.

Finally, a prior delimitation agreement is associated with a higher probability of signing a new delimitation agreement. This often manifests when two states had amicably resolved the boundary for one maritime zone—typically the territorial sea—and are agreeing to the boundary for their continental shelf and EEZ. The earlier agreement indicates that there are no contentious issues of sovereignty in the near waters that would be extended to questions over the far waters. This could also explain why a prior delimitation agreement does not correspond to signing either alternative agreement. If the two states were able to resolve near-shore boundary, they may have no need to resort to JDZs or intermediation.

3.8 Can Oil Discovery Help Resolve Maritime Disputes?

I will summarize the findings so far, and then extend them a bit further. The known presence of oil has a conciliatory effect when there is no dispute, namely by increasing the likelihood that states will sign a delimitation agreement. But in line with my Hypothesis 1, oil has no effect when there is a dispute. These findings remain true regardless of how long ago the oil discovery occurred and regardless of whether the dispute onset came before or after oil discovery.

Hypothesis 2 predicted that oil would lead states to agree to pursue binding third party dispute resolution. I could not demonstrate this effect, though the fewer relevant observations made it difficult to do so. Chapter Four will examine these alternative agreements more closely.

With Hypothesis 3, I expected that oil would have a positive effect on the signing of JDZ agreements, and that this effect would be stronger when there is a dispute. Oil does indeed have a positive effect in both situations, and it is stronger when there is a pre-existing dispute. However, the most likely scenario to lead to a JDZ agreement is when discovery prompts new overlapping claims.

Thus far I examined the role of oil on three agreement types. But the motivation for my research comes not merely from the need to better understand state behavior surrounding signing agreements. It comes from the policy imperative to better understand maritime disputes which have the potential to spill over into conflict. It was already shown that dispute *on*set is more likely when there is oil. A dispute *off*set can coincide with a delimitation agreement, but it can also coincide with a judicial ruling or arbitral award, or with one or both states simply withdrawing earlier claims. There remains the possibility that oil can have a pacific effect on overall offset of disputes. But as one might guess given the results thus far, this turns out not to be the case either. Model 13 is similar to Model 16 (dispute onset, in Appendix A), but it uses dispute offset as the dependent variable and only includes the subset of observations with a dispute. Oil has no statistically significant effect on dispute offset. The predicted probability of a dispute offset when there is no oil is .0140, with oil it is .0219, and these are not statistically different (p = .373).

Table 6: Probit Regression Output on Dispute Offset

	DV: Dispute Offset
	(13)
Oil	0.205 (0.207)
Territorial Dispute	-1.063*** (0.313)
Fishery Total	-0.00844 (0.0253)
Trade	0.484* (0.291)
Ratified UNCLOS	-0.0495 (0.184)
Two Democracies	0.0249 (0.171)
Joint UN Voting	-0.431 (0.563)
Difference in GDP	0.571 (0.381)
Rel Capabilities	-0.213 (0.341)
Dyads	109
N	2365

Output for time variables not shown. Robust standard errors clustered by dyad are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

I will note one final result from my data. Table 7 provides the frequency of delimitation agreements based on oil and dispute status (the same as provided in Table 3) and also breaks these down by either full delimitation or partial delimitation. The great majority of delimitation agreements do not cover the entire length of a dyad's potential boundary: only 34 (14.2%) out of 240 delimitation agreements resulted in full delimitation. The greatest oil effect revealed by the regression analyses was for delimitation agreements when there is no dispute. But as can be seen here, most of that apparent effect was among partial agreements, not only in an absolute sense but as an increase from the baseline of no oil. From 1.06% dyad-years with a partial delimitation agreement without oil to 1.79% with oil is a 69% increase and the difference is statistically significant (OLS *p*-value = 0.021); whereas from a 0.20% chance with no oil to 0.26% chance with oil is merely a 30% increase (*p*-value = 0.543). Even when oil helps spur on an agreement, it does so leaving open the possibility for further disagreement in the future.

Table 7: Partial Versus Full Delimitation Agreements

	No Oil		**Oil**		
Prior Legal Status	**No Agreement**	**Agreement**	**No Agreement**	**Agreement**	**OLS p-value**
No Dispute	10,115	129	3,073	64	
	98.74 %	1.26 %	97.96	2.04 %	0.021
Full delimitation		20		8	
		0.20 %		0.26 %	0.543
Partial delimitation		109		56	
		1.06 %		1.79 %	0.022
Dispute	955	19		28	
	98.05 %	1.95 %	97.99	2.01 %	0.928
Full delimitation		2		4	
		0.21 %		0.29 %	0.689
Partial delimitation		17		24	
		1.75 %		1.73 %	0.976

OLS models from which the p-values are reported used oil as the IV, agreement as the DV, and clustered robust standard errors by dyad.

Chapter Four: Oil and Alternative Agreements

"[I]mproved bilateral relations is the prerequisite for the effective implementation of joint development ventures, and not the other way around."

Song Xue[131]

4.1 Alternatives to Delimitation Agreements

There is a fundamental difference between pure delimitation agreements and alternative agreements that touch on related issues. These alternative agreements – that either commit to third party settlement or establish a joint development zone— are inherently less risky politically for leaders involved in a boundary dispute as they do not involve directly relinquishment of claims. Often state leaders who desire the benefits of a settled boundary yet are politically unable to achieve a negotiated settlement can nonetheless pursue these alternative agreement types as fallback options. As will be seen, other motivations sometimes lead to the same outcome. Three factors will be explored as predictors of states pursuing such alternatives: industry interest in potential offshore hydrocarbons in or near the disputed area, (for JDZs only) the existence of a boundary dispute, and the order of events between the start of oil interest and dispute onset.

Both types of alternative agreements afford leaders the possibility to reap some of the same benefits of a delimitation agreement, including revenue from

---

[131] Song Xue, "Why Joint Development Agreements Fail: Implications for the South China Sea Dispute," *Contemporary Southeast Asia* 41, no. 3 (2019): 418–46.

hydrocarbons. But these alternative options avoid the high risk associated with reducing earlier claims. An agreement to pursue arbitration or adjudication offers leaders political cover from any unfavorable outcome by giving some authority—and thus blame—to a third party. Third party settlement options are *only* sought when there is a dispute. Leaders wish to maintain decision control if possible.[132] It would be non-sensical to ask a panel of arbitrators to decide on a boundary that is not disputed, given how arbitrary the result can be. On the other hand, a JDZ agreement can defer the boundary issue altogether, or alternatively coincide with a delimitation agreement while mitigating any apparent loss of maritime space. Indeed, despite the frequent conception as a tool solely for use when states can not resolve a dispute, JDZs are even employed in undelimited boundaries that are not disputed at all. Thus, JDZs have a more complicated relationship with my explanatory variables of oil and overlapping claims.

This chapter will briefly treat agreements to pursue binding third party dispute resolution before turning to JDZs. Three questions will drive the investigation for each agreement type. First, does hydrocarbon activity affect the likelihood that states sign such an agreement? This is to evaluate Hypotheses 2 and 3 from Chapter Two, which predicted that these agreement types would be more likely to follow discovery of offshore hydrocarbons. Second, I will continue to explore the interesting indications found in Chapter Three that event order may have significance. Finally, I

---

[132] Stephen E. Gent and Megan Shannon, "Decision Control and the Pursuit of Binding Conflict Management: Choosing the Ties That Bind," *The Journal of Conflict Resolution* 55, no. 5 (2011): 710–34.

will look at how effective such methods have been historically, both in terms of being implemented and in resolving any underlying sovereignty dispute. Have those involving offshore oil been any more or less successful compared to similar agreements not motivated by oil? Given constraints on space, it will only be a cursory review. It will be more inductive than deductive, more theory building than theory testing. But with relatively fewer alternative agreements—38 cases of binding intermediation and 27 JDZ agreements—compared to far more delimitation agreements, more regard will be given to specific cases in a search for patterns.

4.2 Choosing Binding Third Party Settlement

The obligation in UNCLOS Art. 83(2) to use third party intermediation to resolve a boundary dispute is an obligation in principle only. It is true that Article 287 affords parties to the Convention the right to initiate compulsory and binding proceedings over interpretation of the Convention to the ITLOS, the ICJ, or a special arbitral tribunal. And states need not be parties to the Convention to *voluntarily* submit to binding dispute resolution. But states that do *not* want to avail themselves of such options can rest easy in exceptions and vague wording, the products of some of the most vigorous debate during UNCLOS III. Art. 298(1) allows states to declare exceptions to compulsory dispute settlement for certain sensitive issues, most notably for delimitation. States that have carved out exceptions over delimitation are still subject to mandatory conciliation. However, such a procedure will only occur when the parties fail to reach an agreement “within a reasonable period of time,” and if conciliation fails the states “shall, by mutual consent” submit the dispute to a binding procedure.[133] To date, compulsory conciliation has only been initiated once: between East Timor and Australia in 2016, concurrent to closely-related arbitration that began in 2013. It was only successful in the sense that the conciliation commission, by finding that it had competence over Australia’s objections, played a role in convincing Australia to renegotiate the boundary in 2017. (Embarrassing media coverage of Australian espionage vis-à-vis its small, impoverished neighbor’s preparations for the proceedings were another key factor in Canberra’s change of heart.) East Timor then dropped both the arbitration and conciliation cases.

But when it is mutually consensual, binding arbitration or adjudication affords leaders the possibility of resolving the dispute and to blame some third party for any associated loss in state claims. This “political cover” is especially attractive to leaders of states with weak legal arguments for their claims. Such a legally disadvantaged leader will have a harder time presenting a credible legal case and so may settle for getting the best possible outcome from a court or tribunal. In addition, the leaders of states with weak claims have reputation costs vis-à-vis international actors if they hold firm to a legally untenable position.[134]

The unilateral initiation of compulsory arbitration sometimes results in consensual proceedings and sometimes not. For example, in 2009 Bangladesh initiated Annex VII arbitral proceedings against India, and the latter readily accepted.

---

[133] Sim, “Maritime Boundary Disputes and Article 298 of UNCLOS: A Safety Net of Peaceful Dispute Settlement Options.”
[134] Allee and Huth, “The Pursuit of Legal Settlements to Territorial Disputes.”

However, if a state is opposed to putting its boundary on trial, it can resist at multiple stages. The Philippines cleverly instituted arbitration against China in 2013 by not calling for delimitation—which China had exempted from compulsory proceedings with an Article 298 declaration—but on other disputes over interpretation of UNCLOS, such as whether certain islets were to be considered islands, rocks, or low tide elevations. China refused to participate and rejected the final award. And in 2017, Kenya made an Article 298 declaration exempting delimitation from compulsory dispute resolution, but only *after* Somalia brought a boundary dispute to the ICJ in 2014. The Court determined that it did in fact have jurisdiction, and Kenya would ultimately reject the judgment on the grounds that it was illegitimate.

Therefore, at least from a political perspective if not a legal one, the analogous act to signing an agreement regarding delimitation or establishing a JDZ can be either the signing of an agreement to proceed to binding settlement, i.e., usually a *compromis d'arbitrage*, or in the absence of such a formal agreement, the concurrence of the respondent state to participate. Like agreements to delimit or establish a JDZ, either signing a *compromis* or agreeing to submit to arbitration or adjudication initiated by another state demonstrates a consensus between the states that they intend to resolve their dispute through such a binding procedure.

Table 8 shows all attempts of binding intermediation over delimitation or closely related issues. For the sake of completeness, it includes those cases where the respondent disputed the court or tribunal's jurisdiction, i.e., where agreement was not present. All cases involve overlapping maritime claims, though not all of them are strictly speaking delimitation cases. For example, the *Pedra Branca* case between

Malaysia-Singapore involved settling title to disputed minor land features and determining what type of land feature they were. The parties reserved their responsibility to negotiate the boundary until after the arbitral award. Such "closely related" cases posed questions to the judges or arbitrators that would directly affect the maritime entitlements of the claimants. Thus, I include cases concerning sovereignty over islands which are widely regarded as being important specifically because of their maritime entitlements. Likewise when a court or tribunal is asked to determine the relevant delimitation principles that the parties should use; even though no specific line was drawn by the judgement or award, the implications for maritime entitlements are clear.

While resorting to judicial proceedings can alleviate political costs, it can also be very costly in a different sense. A small cadre of very specialized international lawyers from American and European firms are repeatedly tapped to represent states in such cases and surely charge appropriately for their valuable services. And far more so than in bilateral negotiations, preparation for arbitration or adjudication has come to rely on extensive scientific investment, since the right data or interpretation of it can have a strong influence over the outcome.[135] As a result, states are compelled to spend on various oceanographic surveys and analyses, satellite data, and services of reputable technical experts.

[135] Johnston, *The Theory and History of Ocean Boundary-Making*, 255–56.

Table 8: Binding Intermediation Attempts Over Maritime Delimitation or Closely Related Issues

States	Agreement	Case	3rd Party/ies	Disp B4 Oil	Resources	Oil Status	Effectiveness / Notes
Norway-Sweden	Compromis (1908)	1908-1909	PCA	Yes	Fisheries	N/A	Effective.
Germany-Netherlands & Denmark	Two Compromis (1967)	1967-1969	ICJ	No	Oil	Exploring	Effective. Boundary constituted with treaty signed in 1971 (EIF 1972).
Chile-Argentina	Compromis (1971)	1971-1977	Ad hoc tribunal, UK	Yes	Both	Suspected	Ineffective. Argentina rejected award, tensions rose. 1979-84 Vatican mediation and 1983 Argentine change of government preceded delimitation agreement based on arbitral award.
UK-France	Compromis (1975)	1975-1978	Ad hoc tribunal	Yes	Neither	None	Effective. UK requested court to provide subsequent interpretation in 1978.
Malta-Libya	Compromis (1976)	1982-1985	ICJ	No	Oil	Suspected	Effective.
Greece-Turkey[a]	None	1976-1978	ICJ	No	Both	Discovery near area	Ineffective.
Tunisia-Libya	Compromis (1977)	1978-1982	ICJ	No	Oil	Discovery in area	Effective, eventually. In 1984 Tunisia applied to revise judgment based on new evidence; ICJ deemed it inadmissible. 1988 delimitation agreement followed ICJ guidance.
United States-Canada	Compromis (1979)	1981-1984	ICJ	Yes	Both	Exploring	Effective. Though it produced a potential "grey area" beyond the Court-established boundary and left the landward dispute intact.
Guinea-Bissau-Guinea	Compromis (1983)	1983-1985	Ad hoc tribunal	No	Oil	Suspected	Effective. Though it produced a potential "grey area" beyond the Tribunal-established boundary.
Guinea-Bissau-Senegal	Compromis (1985)	1985-1989	Ad hoc tribunal	No	Oil	Discovery near in	Effective, eventually. Award confirmed existence of grey zone. G-B urged ICJ to overrule arbitral award; ICJ reaffirmed it. Senegal consented to JDZ before G-B agreed to boundary.
El Salvador-Honduras	Compromis (1986)	1987-1992	ICJ ad hoc chamber	Yes	Fisheries	None	Effective partial delimitation, though El Salvador unsuccessfully appealed and the two have not addressed their Pacific boundaries despite the urging of the ICJ.
Denmark-Norway[a]	Respondent participated	1988-1993	ICJ	Yes	Fisheries	None	Effective. 1995 agreement enshrined ICJ-mandated boundary.
Canada-France	Compromis (1989)	1989-1992	Ad hoc tribunal	No	Both	Discovery near area	Effective.
Qatar-Bahrain[a]	Respondent participated	1991-2001	ICJ	No	Oil	Near area	Effective, eventually. After Bahraini protests of jurisdiction and the longest-running ICJ case ever.
Cameroon-Nigeria[a]	Respondent participated	1994-2002	ICJ	No	Oil	Discovery in area	Effective. Nigeria initially challenged jurisdiction but later participated in the case on the merits.
Eritrea-Yemen	Compromis (1996)	1996-1999	PCA	No	Both	Exploring	Effective.
Indonesia/ Malaysia	Compromis (1997)	1998-2002	ICJ	No	Both	Discovery near area	Effective. Malaysia determined to have title to disputed islands. Dispute arose because of islands' effect on boundary, which was not put before the Court and remains disputed.
Nicaragua-Honduras[a]	Respondent participated	1999-2007	ICJ	No	Both	Exploring	Effective. Nicaragua tried to stop related Hond.-Colombia treaty; CACJ (2001-2012) ruled Hond. shouldn't ratify but couldn't nullify it after Hond. ratified it anyway.

States	Agreement	Case	3rd Party/ies	Disp B4 Oil	Resources	Oil Status	Effectiveness / Notes
Nicaragua-Colombia[a]	None	2001-2012	ICJ	No	Both	None	Ineffective. Colombia opposed ICJ jurisdiction; then it rejected the judgment. In 2013 Nicaragua brought case to ICJ over ECS with Colombia which again challenged jurisdiction.
Malaysia-Singapore	Compromis (2003)	2003-2008	ICJ	Yes	Neither	None	Ineffective. Malaysia twice attempted to appeal judgment; only in 2019 did Malaysian government accept decision; subsequent delimitation talks remain stalled.
Malaysia-Singapore[a]	None	2003-2005	PCA	Yes	Neither	None	Ineffective. Singapore opposed tribunal's jurisdiction. Parties settled the land reclamation disputes out of court and agreed to negotiate the delimitation, but those negotiations stalled.
Barbados-Trin. & Tobago[a]	Respondent participated	2004-2006	PCA	No	Both	Suspected	Effective.
Guyana-Suriname[a]	Respondent participated	2004-2007	PCA	Yes	Oil	Exploring	Effective.
Romania-Ukraine[a]	Respondent participated	2004-2009	ICJ	No	Oil	Discovery in area	Effective.
Peru-Chile[a]	Respondent participated	2008-2014	ICJ	Yes	Fisheries	None	Effective.
Belize-Guatemala	Compromis (2008)	2019-	ICJ	Yes	Oil	Exploring	
Bangladesh-Myanmar[b]	Respondent participated	2009-2012	ITLOS	Yes	Oil	Exploring	Effective.
Bangladesh-India[a]	Respondent participated	2009-2014	PCA	Yes	Oil	Exploring	Effective.
Slovenia-Croatia	Compromis (2009)	2012-2017	PCA, EC facilitator	Yes	Fisheries	None	Ineffective. In 2015 Croatia withdrew over Slovenian arbitrator's conduct, then rejected the award. Slovenia in 2018 brought issue to ECJ which determined it lacked jurisdiction.
Philippines-China[a]	None	2013-2016	PCA	Yes	Both	Discovery near area	Ineffective. China refused to accept or participate in proceedings and rejected the final award.
Costa Rica-Nicaragua[a]	Respondent participated	2014-2018	ICJ	No	Oil	Exploring	Effective.
Somalia-Kenya	None	2014-2021	ICJ	No	Oil	Exploring	Ineffective. Kenya objected to ICJ jurisdiction, was inconsistent in its participation, and rejected the final judgment.
Ivory Coast-Ghana[b]	Compromis (2014)	2014-2017	ITLOS spec. chamber	No	Oil	Discovery in area	Effective.
East Timor-Australia[a,c]	Respondent participated	2013-2017[c]	PCA	No	Oil	Discovery in area	Effective in coercing Australia to re-negotiate 2002 agreement. E. Timor sought to withdraw, alleging Australian espionage. Concurrent compulsory conciliation 2016-2018.
Gabon-Equit. Guinea	Compromis (2016)	2021-	ICJ	Unclear	Oil	Discovery near area	
Mauritius-Maldives[b]	Compromis (2019)	2019-	ITLOS spec. chamber	Yes	Neither	None	Maldives objected to ITLOS jurisdiction given the UK-Mauritius sovereignty dispute, but it relented when ITLOS determined that this dispute had been settled.
Albania-Greece	Statement (2020)		ICJ	Yes	Oil	Exploring	

[a] claimant-respondent; [b] claimant/respondent in arbitration before signing *compromis* for adjudication; [c] case discontinued

One borderline case not included in Table 8 involved the UK and Ireland which in 1977 exchanged notes constituting an agreement to submit their disputed continental shelf boundary to arbitration. This was in a period of active petroleum exploration. Years of negotiations failed to produce a follow-on *compromis d'arbitrage*, so arbitration never started. Apparently the cost of arbitration was a sufficient deterrent. The parties restarted negotiations in 1986 with the explicit proviso that if talks failed they really would submit the dispute to arbitration, with all the associated costs and uncertainty. Duly motivated, they succeeded in crafting a delimitation agreement for the continental shelf in 1988.[136] If OECD member states balked at the price tag for arbitration, cost is undoubtedly a consideration also for developing states.

4.3 Oil and Binding Third Party Dispute Settlement

Unlike the dataset used in Chapter Three, which coded for discovery in or near the disputed area, in Table 8, I indicate whether there was hydrocarbon *interest* in the disputed area. I will ignore the *Grisbådarna* case between Norway and Sweden, since it occurred before offshore extractive technology existed. Of the remaining 37 cases, 29 (78%) involved oil interest. Of those 32 identified as consensual, 25 (78%) involved oil interest.

---

[136] D. H. Anderson, "Ireland-United Kingdom: Report Number 9-5," in *International Maritime Boundaries*, ed. J. I. Charney and L. M. Alexander (Boston: Martinus Nijhoff Publishers, 1993), 1768.

There is a lower threshold for the association with hydrocarbons here as compared to the data used in Chapter Three. If there was exploration activity occurring or being licensed, it is included here, even if no discovery is ever made. For Bangladesh, there was general interest in exploring throughout the northern Indian Ocean following a major discovery in 2002 in Indian waters. It thus instituted Annex VII arbitral proceedings against both of its maritime neighbors, India and Myanmar. Still other states had other motivations to pursue binding proceedings besides resource extraction. For example, Mauritius sought to use its proceedings against Maldives to influence a sovereignty dispute with a third state. There were no significant resource interests involved.[137] These examples highlight the importance of having the more granular coding of oil status. Assignment of a Likert scale gives more precision versus a binary variable based merely on the proximity of the closest past discovery. Unfortunately, the former is not available for the entire population of potential boundaries-years used in Chapter Three.

---

[137] After a 2019 ICJ issued an advisory opinion in favor of Mauritius' claim to the Chagos Islands, which are controlled by the UK, Mauritius instituted Annex VII arbitration against the Maldives over their purported maritime boundary. Mauritius and the Maldives ultimately proceeded to a special chamber of ITLOS. It is true that Mauritius and the Maldives prefer different delimitation principles in this area. Yet the central issue remained over whether Mauritius or the UK hold sovereignty over the Chagos Islands. If the UK, then there is an undelimited yet undisputed UK-Maldives boundary. If Mauritius, then there is a disputed Mauritius-Maldives boundary. Thus Mauritius' suing the Maldives can be viewed as part of its multi-pronged legal, diplomatic, and public diplomacy strategy to wrest control over disputed islands from the UK. In the event, ITLOS determined in 2022 that the ICJ advisory opinion had confirmed Mauritius' sovereignty over Chagos Archipelago (in spite of persistent British claims), allowing ITLOS to proceed to a hearing on the merits of Mauritius and Maldives' delimitation claims. The British government then moved to negotiate the handover of the islands with Mauritius. Thus, despite ITLOS insisting that it can only interpret the Convention, its decisions can affect sovereign claims to land as well.

In Chapter Three, I found no statistically significant relationship between the discovery of hydrocarbons and agreeing to pursue binding third-party dispute resolution. This was unexpected, as Hypothesis 2 was that discovery of oil would make states more likely to sign this type of agreement. But I also found some evidence suggesting an oil effect may vary depending on whether dispute onset was a result of oil discovery. Perhaps one of the three mechanisms described in Chapter 2—industry risk perception, audience costs, and institutional hurdles to reducing claims—can explain why this might be. Institutional hurdles should be the same regardless of whether the claims were made before or after the rise of oil interests. Audience costs might plausibly be tempered by the ordering of events, though this may be in either direction. For example, if a dispute arises as a result of hydrocarbon discovery, any public pressure on leaders not to compromise will be the result of relatively new claims. This could mean that the state's claims have not had time to be well ingrained in the public consciousness, and these new claims may strike some as having been made cynically in reaction to the discovery; thus the audience costs may be dampened. Alternatively, the state could frame the new overlap in claims as being the result of the *other* state's attempt to secure the mineral wealth; this could create a feedback loop with stronger public pressure on the state to not concede. This is certainly worth further study.

At any rate, industry risk perceptions offer a more straightforward and compelling reason why the order of events could matter. If oil interests come first, then there is already at least exploratory drilling in the area, and perhaps even in the disputed zone itself. If a dispute materializes after investments have already been made, then industry has compelling reason to pressure the states to settle the boundary. On the other hand, if a dispute exists prior to any serious interest in oil arises, then industry would avoid the disputed area to begin with. While resolution of the dispute may be in their interest, it is only for the hypothetical possibility of future gains. This is less compelling than the pressure to prevent very real losses if they needed to halt operations.

The oil-before-dispute cases of Libya-Tunisia and Libya-Malta illustrate the seemingly straightforward connection between hydrocarbon activity and the decision to pursue legal dispute settlement. In 1968 Libyan and Tunisian officials met and expressed their differing positions on their continental shelf boundary. For Tunisia, the boundary was de facto settled and ran northeast; for Libya, it was not settled yet it ran due north. The 1971 discovery of the Ashtart oil field in the Gulf of Gabes, in what was clearly Tunisian waters, would be the first such discovery in what would prove to be a very productive stretch of the continental shelf. Later in 1971 Tunisia informed Libya of an exploration permit "adjacent to the future line of demarcation", to which Libya replied in June 1972 that the zone was within Libya's continental shelf. A joint communiqué signed by Colonel Qaddafi and President Bourguiba in December 1972 included an agreement establishing a joint commission to, inter alia, consider the "continental shelf, the sea-bed and fishing zones...as a single economic entity which will be jointly used and exploited". However, this agreement failed to be implemented as the subsequent joint commission meetings in 1973 could not agree on exactly what area was to be considered the joint area and because of other differences in views on the continental shelf. [138] By 1976, Tunisia's frustration with Libyan non-responses to diplomatic correspondence was palpable. In particular, Tunisia repeatedly stressed the urgency of determining the boundary in order to avoid the opportunity costs of delays in drilling.[139] The two parties agreed in 1977 to litigate their case before the ICJ.

A very similar sequence of events occurred concurrently between Libya and Malta, whereby the discoveries in the general vicinity and Malta's notification to Libya that it intended to authorize exploration near the median line preceded a veritable dispute by 1973. Bilateral negotiations failed to make any headway until the two sides agreed by exchange of letters in 1976 to likewise use the World Court (though Libya would stall on crafting the compromise agreement, to Malta's annoyance, until 1982).[140]

Both Libya examples involved the onset of the maritime dispute after discovery of oil in the general vicinity, as well as oil exploration activities in what was or soon became the disputed area. In both cases, therefore, it was especially difficult to entertain compromise since the negotiations (or sometimes, lack of negotiations) were viewed as a high stakes zero-sum-game. And yet, the issue was highly salient such that both wanted to establish the boundary. Turning to a judicial settlement was thus the last option but better than doing nothing.

---

[138] One could argue that the presidents' conciliatory interactions in 1972 and particularly the joint communiqué suggested that there was no longer a dispute, but even if so, this was a brief reprieve. The basic positions that each state would argue at the ICJ from 1978 to 1982 were held as far back as 1968.
[139] Leanza, Sico, and Ciciriello, *Mediterranean Continental Shelf*, 2, Book IV:1693–1768.
[140] Leanza, Sico, and Ciciriello, 2, Book IV:1669–86.

In other instances, the dispute came first. Chile and Argentina made overlapping maritime claims since 1904, stemming from a dispute over islands in the Beagle Channel and different interpretations of an 1884 treaty. Hydrocarbon potential in the offshore area was a driver of increased dispute salience prior to the 1971 agreement to pursue arbitration. But while hydrocarbon exploration took place in the general vicinity, it did not occur in the disputed area itself. And fisheries were at least as significant a factor as hydrocarbons in this case.[141] Dispute-before-oil cases occurred less frequently than oil-before-dispute cases, as can be seen in Figure 14.

I expanded the oil variable beyond a simple indicator into an ordinal variable with five categories in descending order of certainty that commercially viable oil exists in the border area: (1) oil discovered in the disputed area; (2) oil discovered near the disputed area; (3) active oil exploration in the general area; (4) oil suspected (but no active exploration) in the general area; and (5) no significant oil interest in the general area. This applies to the year prior to the agreement to judicial settlement.

Whereas all the cases on the branch A_D by definition must have no substantial oil interest (and thus appear in red), there is no logical reason why those on the A_{DH} branch lack discoveries. That is, not a single dispute-before-oil case resulting in arbitration/adjudication had a discovery in the disputed area. And in only one possible case—that of Gabon and Equatorial Guinea—was there a discovery near the disputed

[141] James L. Garrett, "The Beagle Channel Dispute: Confrontation and Negotiation in the Southern Cone," *Journal of Interamerican Studies and World Affairs* 27, no. 3 (1985): 81–109, https://doi.org/10.2307/165601.

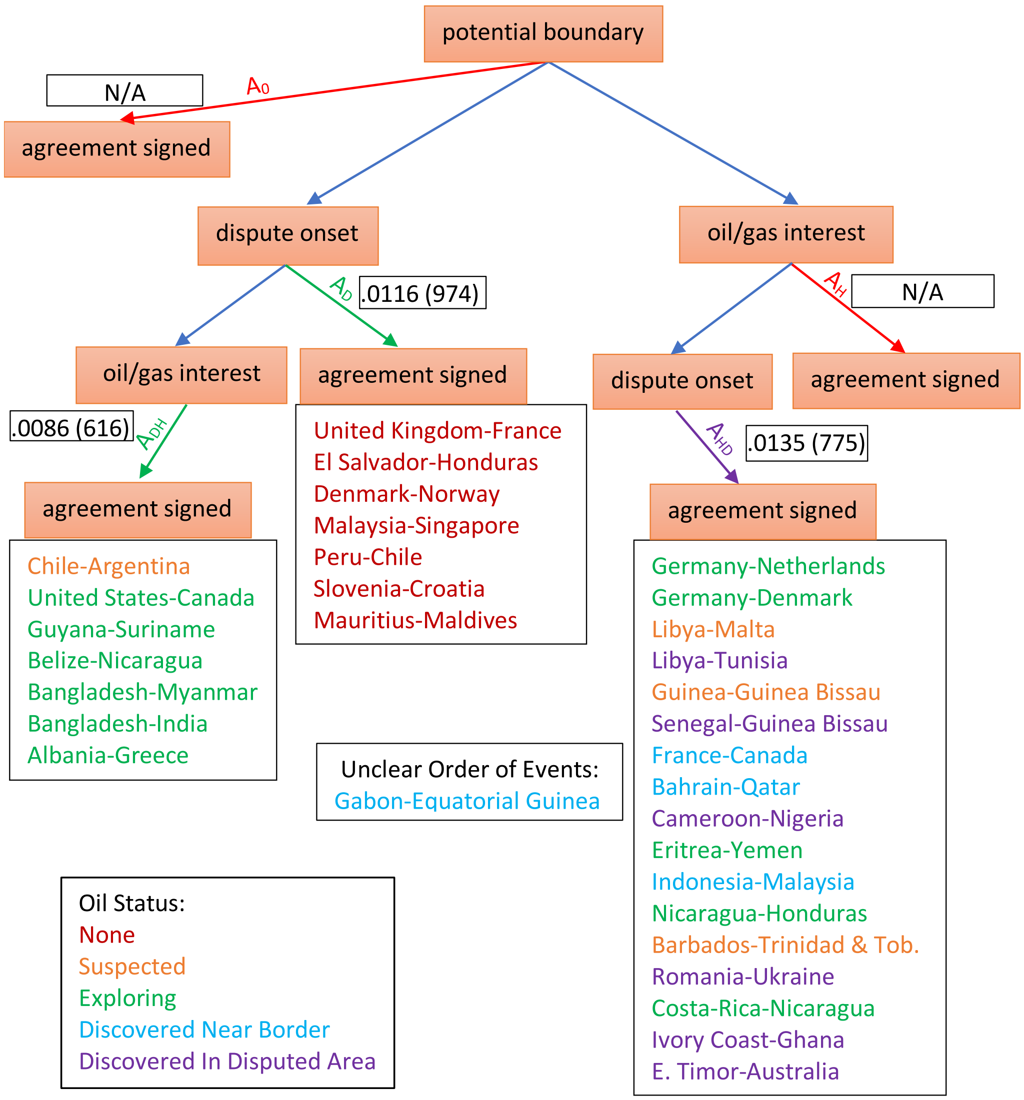
area.[142] But this is easy to explain: industry shies away from exploring in and around disputed maritime space, and it is often prevented from doing so by the disputant states. These cases may have had some moderate pressure, or other reasons to pursue binding mechanisms, but it wasn't the heavy pressure that exists when firms have committed to extraction in the disputed area.

The same predicted probabilities and observation counts that were reported in Chapter Three are in Figure 14 as a reminder to the reader of what was earlier reported, despite the fact that these were not statistically different. However, these were based on a dataset which did not have the same granularity in the oil coding as was done here. In other words, many of the cases reported in this chapter as having had "oil interest" were not coded as having an "oil discovery" in the data used for the regression analyses. Unfortunately, this more precise coding is not available for the entire dataset. And little can be inferred statistically from what I performed on the small subset that resulted in judicial settlement agreements. (Many of the cases outlined above were coded in the dataset as having no oil discovery when they had oil interest, but there would be many other observations that similarly would be coded as having oil interest without discovery that did not result in an agreement.)

---

[142] "*Possible*" because, due to a lack of data and a complex series of events, I could not confidently assign the Gabon-Equatorial Guinea case as either oil-first or dispute-first.

Figure 14: Oil Status when Intermediation Agreement Signed, by Prior Events



4.4 The Effectiveness of Binding Dispute Settlement

Among the risks that leaders of disputing states must weigh when considering arbitration or adjudication is the not insubstantial possibility that the attempt will fail. This can be a costly exercise to engage in if the end result is either a substantial loss served with the judgment/award, or a win that the other party refuses to accept. Of 28 consensual post-WWII cases concluded to date, 25 or 89% can be considered to have been generally effective in bringing about at least partial delimitation (or settlement of related island dispute) agreed upon by both parties, while three were ineffective.[143] Two of the ineffective cases were among the six that did not involve oil interest (67% effectiveness rate), whereas only one out of the remaining 22 that did involve oil interest was ineffective (95% effectiveness rate). While there are relatively few cases to make scientific inferences, some leaders may reasonably conclude that litigating the title to a resource rich area can be a productive affair.

Of course, this assumes that the respondent will agree to participate. Of the 38 total cases, the respondents in five either objected to the jurisdiction until the very end or refused to participate at all. However, no clear pattern is apparent when comparing the participation of respondents between those cases that involved oil interests and those that did not. Cases that did not involve oil interests were sufficiently contentious for other reasons.

The 25 successful cases were not all textbook success stories; they still point to risks that leaders must weigh beforehand. Many involved subsequent and/or concurrent cases in which a party sought to influence or modify the judgment/award.[144]

---

[143] Naturally, not one of the five *non*-consensual cases were effective. If the respondent opposed participating to the end, the claimant had no hope of settling the dispute.
[144] *United Kingdom v. France*; *Tunisia v. Libya*; *Guinea-Bissau v. Senegal*; *El Salvador v. Honduras*; *Nicaragua v. Honduras*; *East Timor v. Australia*.

There is also a tendency for courts to settle only partially. First, this is because they tend to only be asked to address part of the boundary, and this is no worse than if the states had negotiated. But they may settle even less than what they were asked to settle. For example, in *Libya v. Malta*, the ICJ limited the area of the boundary it decided on because of an interjection by Italy. But without adjudging the Italian claims, this left the settled portion of the Libya-Malta boundary only about one quarter of the overall disputed boundary, leaving unresolved a large portion of the Graben Bank area which was of particular interest to the parties because of the high hydrocarbon potential.[145]

Finally, in at least four cases, a court or tribunal actually produced new areas of uncertain jurisdiction. These "grey zones" (or "grey areas") are the result of not applying strict equidistance, leading to an area that lies within 200 NM of the baselines of one party, outside 200 NM of the second party, yet on the side of the delimitation line belonging to the second party. These grey zones are fertile ground

---

[145] Tullio Scovazzi and Giampiero Francalanci, "Libya-Malta: Report Number 8-8," in *International Maritime Boundaries*, ed. Jonathan I. Charney and Lewis M. Alexander (Boston: Martinus Nijhoff Publishers, 1985), 1653. Another example where the ICJ rendered partial decisions multiple times started with the Land, Island, and Maritime Frontier Case between El Salvador and Honduras. The ICJ decided on the land boundary and islands, but omitted the small Conejo Island, leading to a follow-on case filed by El Salvador in 2002. Regarding the maritime boundary, the ICJ decided some sovereignty issues within the Gulf of Fonseca but left others, as well as the question of boundaries in the Pacific, to the parties to decide. They have yet to do so. This case therefore might be best classified as only "partially effective".

for new disputes to arise as the states cast their eyes toward extended continental shelf claims.[146]

4.5 Defining a JDZ

For the purposes of this study, a joint development zone (JDZ) is a maritime area where two states agree to share non-living resources or the revenue from such resources. The agreement must be signed at a time when the relevant maritime boundary is not delimited, though it may be accompanied by provisions (either in the same agreement or a separate one) that also delimit the boundary.[147] The establishment of a JDZ involves treating issues of administration (Johnston's fourth phase of boundary-making) before delimitation (Johnston's second phase of boundary-making).[148]

Some JDZs involve shared sovereignty over the zone, while others do not affect sovereignty but nonetheless assure one or both sides of revenue from hydrocarbons produced from the zone. Agreements can take the form of a formal

---

[146] The four are *Chile v. Argentina*, *Canada v. United States*, *Guinea-Bissau v. Guinea*, and *Guinea-Bissau v. Senegal*. When states delimit through bilateral negotiation, they may be just as likely to use a method other than strict equidistance, but they tend to ensure that all claimable maritime space is claimed by one party or another. For example, the U.S. and USSR "swapped" would-be grey zones. Sovereign Limits provides overviews of each of these grey zones in their Boundary Brief reports.

[147] As discussed in Chapter Three, I have been "double counting" agreements that establish both a boundary and a JDZ. Such agreements will be annotated by "Type" in Table 9 below. Such an agreement still has the character of other JDZ agreements in that the leaders wished to mitigate the risk associated with concessions made in the boundary by creating a JDZ.

[148] Johnston, *The Theory and History of Ocean Boundary-Making*, n. 41 on page 299.

treaty or be as informal as a joint statement. But in any case, it must be made by a competent executive authority.[149]

"Non-living resources" as a term-of-art in the Law of the Sea typically refers to hydrocarbons but also encompasses polymetallic nodules or other mineral wealth. While some agreements apply to hydrocarbons specifically and others apply to all non-living resources, no JDZ agreement has applied exclusively to non-living resources other than hydrocarbons. Some JDZs treated here also apply to living resources, i.e., fish and other commercially valuable marine life. Agreements that only apply to living resources are not treated here. Not only are joint fishery zone agreements not as relevant to the present study, but for a variety of reasons they are more difficult to identify and classify.[150]

Several other types of international agreements or provisions therein which touch on boundaries and hydrocarbons are worth mention if only to make clear that they are also not considered JDZ agreements. First, some delimitation agreements create obligations prior to authorizing drilling near the boundary. For example, the Netherlands (Antilles)-Venezuela boundary agreement of 1978 requires notification in the event of drilling within one mile of the boundary, whereas the 1968 Iran-Saudi Arabia agreement bars either side from drilling within 500 meters of the boundary. Many delimitation agreements obligate the states to unitize if a resource is discovered

---

[149] Ana Bastida et al., "Cross-Border Unitization and Joint Development Agreements: An International Law Perspective," *Houston Journal of International Law* 29 (February 1, 2007): 355.
[150] For a typology of fisheries agreements, see Churchill, "Fisheries Issues in Maritime Boundary Delimitation."

which transcends the boundary (while others merely require consultation prior to extraction). Such obligations do not meet the definition of a JDZ. Second, agreements between multinational oil corporations and a single state, such as a licensing agreement for an offshore block, are not considered JDZs; JDZs are only agreed between sovereign states. This also excludes agreements involving extra-regional state-owned companies. For example, Belize's 2008 exploration agreement with the Taiwanese state-owned oil company is not considered a JDZ. But if hypothetically the same agreement had been made with a company of Guatemala, which disputes Belize's maritime claims, it would have been included. Fourth, zones established with the primary purpose of conservation rather than development are not considered JDZs. For example, the Australia-Papua New Guinea Torres Strait Treaty uniquely creates a "protected zone" that bars any drilling or mining for a period of ten years (and this restriction has since been repeatedly extended). Meant to protect the way of life of the indigenous islanders, this provision would technically require consent by both states to extract hydrocarbons in a defined area just as in the case of a JDZ. But it clearly does not comport with the other JDZs since it is designed to delay rather than speed up such extraction.[151]

Finally, it is worth dwelling on the nature of "unitization agreements" and why they can be classified separately from joint development zone agreements. A unitization agreement "unitizes" multiple contract areas when an oil or gas field is—

---

[151] Stuart B. Kaye, *The Torres Strait*, International Straits of the World 12 (The Hague; Boston: Cambridge, MA: M. Nijhoff Publishers; Sold and distributed in the U.S.A. and Canada by Kluwer Law International, 1997), 93–103.

or is presumed to be—transected by an established boundary. There is a long history of unitization of concession areas falling under the jurisdiction of a single state, i.e., agreements between two firms that leased contiguous blocks. And since the 1970s when the United Kingdom signed several international unitization agreements (IUAs) with Norway and The Netherlands, these have become very common instruments of inter-state commerce.

Cameron gives an excellent description of the differences between an archetypical JDZ agreement and an IUA. JDZs tend to be more formal agreements solely between states, whereas IUAs tend to be more informal umbrella agreements that anticipate a more detailed, subordinate agreement between the firms involved. IUAs are ideal when the primary goal is to maximize efficiency; JDZs tend to be more bureaucratic but are nonetheless preferred by some states which lack domestic offshore drilling expertise because they offer more transparency and oversight of multinational corporations. For each difference that Cameron makes between a JDZ and an IUA, there are exceptions. Critically, as he puts it, unitization "is best understood as a technique that may be applied in many contexts." But the key difference is that JDZs are for areas without an established boundary, while IUAs are for established boundaries.[152]

This difference is very useful for the present study which is concerned with these agreements only in the context of undelimited boundaries. Thus, only JDZs are

---

[152] Peter Cameron, "The Design of Joint Development Zone Treaties and International Unitization Agreements," in *International Taxation and the Extractive Industries*, ed. Philip Daniel et al. (New York: Routledge, 2017).

considered and not IUAs. However, the terms “joint development zone” (and many related terms) and “unitization” are not always used in the same way that Cameron defined them, notably by states themselves. Thus, the so-called “unitization” protocol of 2001 between Angola and the Republic of Congo—while it did indeed unitize two concession blocks that overlapped resulting from a boundary dispute—was also a JDZ agreement.[153] In other words, JDZs and IUAs are not mutually exclusive; they can be one and the same.

There have been JDZs on land, including between Austria and Czechoslovakia in 1960 and between the two Yemens in 1988. But this phenomenon is recent and has developed alongside maritime JDZs. Because land boundaries tend to be well settled—and those disputes that remain are especially contentious—there have been relatively few land JDZs compared to those in maritime space.[154]

There are a variety of ways that JDZs can and have been classified.[155] Where issues of boundaries and sovereignty are at the forefront, the following is a useful typology, where each JDZ falls into one of these categories:

---

[153] The full name of the agreement is the “Protocol of Agreement Dated 10 September 2001 between The Republic of Congo and The Republic of Angola Approving Offshore Unitization Prospects 14K and A-IMI.” Discussed in: Derek C. Smith and Christopher Dolan, “Angola-Republic of Congo: Report Number 4-16,” in *International Maritime Boundaries*, ed. D. A. Colson and R. W. Smith (Boston: Martinus Nijhoff Publishers, 2011), 4281–95.
[154] Francisco Orrego Vicuña, “Regional Cooperation in Nonliving Resources: Joint Management Zones,” Univted Nations University, 1994, https://archive.unu.edu/unupress/unupbooks/uu15oe/uu15oe0j.htm.
[155] Cameron offers one based on the institutional structure that manages the JDZ, whereas Daniel, Veung and Watson classify JDZs by how the finances are managed and revenue shared. Cameron, “The Design of Joint Development Zone Treaties and International Unitization Agreements”; Philip Daniel, Chandara Veung, and Alastair Watson, “Fiscal Schemes for Joint Development of Petroleum in Disputed Areas: A Primer and an

1) The JDZ is a zone of permanent joint sovereignty, i.e., a condominium, or effectively so.
2) The boundary in the area of the JDZ is settled along one side of the JDZ.
3) The boundary in the area of the JDZ is settled and transects the JDZ.
4) The boundary in the area of the JDZ remains unsettled, and the JDZ includes at least part of the overlapping claims area.
5) The boundary is not applicable. The overlapping claims area is completely due to disputed islands, and the JDZ encompasses the entitlements of those islands.
6) The boundary is not applicable. The JDZ is created in an area beyond national claims.

Table 9 provides information on all 27 JDZ agreements. The above typology is used in the "Type" column.

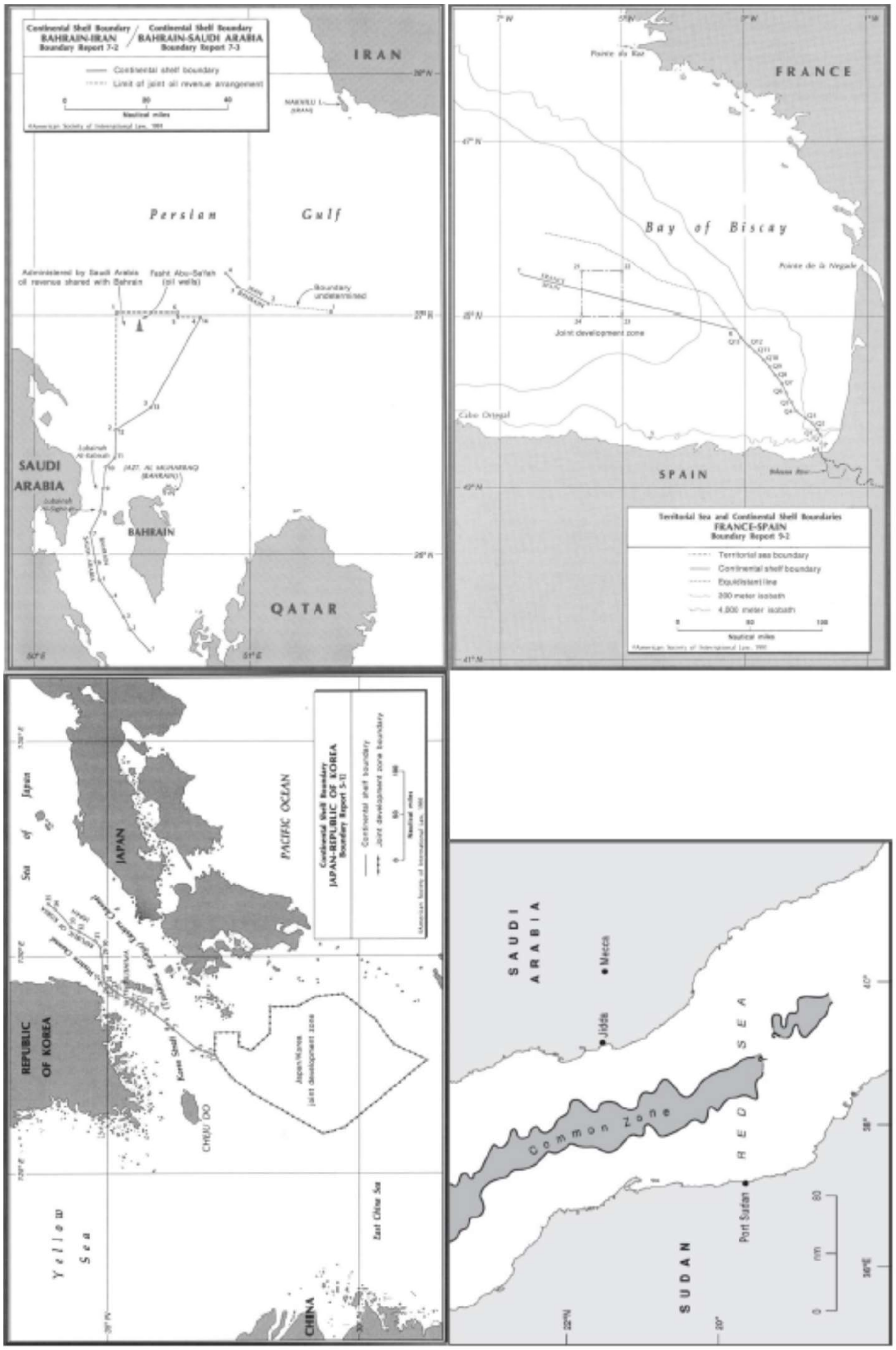
Evaluation," in *International Taxation and the Extractive Industries*, ed. Philip Daniel et al. (New York: Routledge, 2017).

Table 9: Selected Data on Maritime JDZ Agreements

States	Year(s)	Dispute	Oil	Type	Implementation/Notes
Bahrain-S. Arabia	1958	Full	Discovered In	2	Implemented. In '46 KSA began producing oil from Qatif field within Saudi jurisdiction but in near Bahrain. In '58 it signed agreement with self-governing British protectorate Bahrain to both settle disputed boundary and establish Oil Revenue Sharing Zone.
Netherlands-W. Germany	1962	Full	Exploring	4	Implemented. The parties agreed to disagree on the CS boundary in the 1960 Ems-Dollart Treaty; the 1962 supplemental agreement addressed the splitting of profits on natural resources. German and Dutch concessionaires agreed in 1966 to 50-50 split of resources uncovered in the common area, per the 1962 agreement.
S. Arabia-Kuwait	1963, 2000	Implied/ Latent	Discovered In	1	Implemented. The onshore Neutral Zone condominium (delimited because of oil) was extended offshore with '63 "agreement," which only covered Offshore Neutral Zone southern limit and was signed by KSA and Aramco, but Kuwait accepted it. The '00 agreement settled the northern limit and an island issue.
Qatar-Abu Dhabi	1969	Full	Discovered In	3	Implemented. Dispute resolved, boundary traverses JDZ. KSA would later gain territory in '74 and dispute this boundary, leading to KSA-Qatar '09 agreement.
Iran-Sharjah	1971	Full	Discovered In	5	Not implemented. Concerned waters around disputed Abu Musa island, but Iran invaded Abu Musa the next day after signing the agreement.
Libya-Tunisia	1972, 1988	None	Discovered In	3	1972 political agreement on joint sovereignty not implemented. ICJ judgments in 1982 and 1985 not accepted until 1988 delimitation agreement accompanied by separate JDZ agreement, which following recommendation of dissenting ICJ judge.
France-Spain	1974	None	Discovered In	3	Not implemented. JDZ was part of a delimitation agreement.
S. Korea-Japan	1974	Full	Suspected	4	Implemented, but later frozen. Established in non-delimited area concurrent with delimitation of another boundary segment; a third segment remains disputed with no JDZ. Early exploration revealed disappointing results. Japan later urged S. Korea to re-start exploration, but the latter refused.
Sudan-S. Arabia	1974	None	Exploring	6	Implemented. Unusual for being beyond national claims and therefore no possible dispute.
Thailand-Malaysia	1979	Full	Discovered In	4	Implemented, eventually. Implementation negotiations continued until 1990. Since then there have been multiple productive fields.
Norway-Iceland	1981	Implied/ Latent	Suspected	3	Implemented, eventually. Parties followed the recommendations of Conciliation Commission ('80-81). First licensing round in '09 in Icelandic side.
Cambodia-Vietnam	1982	Full	Discovered Near	4	Not implemented. Oil interest and maritime dispute originated with South Vietnam, continued with unified Vietnam. Joint Historic Waters Area agreement signed by Vietnam-backed Cambodian gov't. Khmer Rouge gov't which still maintained UN seat rejected it.
Indonesia-Australia	1989	Implied/ Latent	Discovered In	3	Implemented. Zone of Cooperation established in "Timor Gap" of the IDN-AUS boundary. No longer applicable after E. Timor independence in '02.
Vietnam-Malaysia	1992	Full	Discovered Near	3	Implemented. Petronas-Petrovietnam coordination committee established in 1993. First oil extracted in 1997.
Jamaica-Colombia	1993	None	Suspected	1	Not implemented. At least as late as 2010, parties deferred exploration without explanation.

States	Year(s)	Dispute	Oil	Type	Implementation/Notes
Guinea-Bissau-Senegal	1993	Full	Discovered In	3	Unclear. Arbitration and G-B's ICJ appeal affirmed existence of TS, CZ, and CS boundary; all that remained was EEZ. '93 agreement created JDZ in place of not only a traditional EEZ but also of exclusive rights to the CS. The only oil discovered prior was on Senegalese side of boundary, so Senegal made a significant concession with this agreement.
Argentina-UK	1995	Full	Exploring	5	Not implemented. "Southwest Atlantic Hydrocarbons Commission" met and established an initial zone for exploration. Subsequently, UK made clear it intended to restrict joint exploration to this narrow zone and reserved the right to unilateral exploration elsewhere. Argentina formally withdrew in 2007.
Nigeria-Equatorial Guinea	2000	Implied/ Latent	Discovered In	2	Implemented. '00 delimitation agreement included the Ekanga cut-out such that existing Nigerian extractive infrastructure remained in the Nigerian area; stipulated that a unitization agreement would be negotiated for the already-discovered field there. '02 unitization agreement effectively implemented the JDZ agreed to in '00.
Nigeria-São Tomé & Príncipe	2001	Implied/ Latent	Discovered Near	4	Implemented. Motivations for Nigeria included influencing ongoing Cameroon-Nigeria ICJ case and high level of exploration throughout Gulf of Guinea. Though no discoveries south of the median line, one major field (Akpo) is just north of it, hence why STP was insistent on including it. Cameron calls this "One of the few functional JDZs".
Thailand-Cambodia	2001	Full	Discovered Near	4	Not implemented. MOU establishing Joint Development Area uniquely ties the need to delimit one area with the possibility of jointly exploiting another. Joint Technical Committee established, but meetings have stalled.
R. of Congo-Angola	2001	Implied/ Latent	Discovered Near	4	Implemented. Three implementation agreements in '02: designated ChevronTexaco Congo as prime operator; established the Inter-State Unitization Management Body; and established fiscal terms for participating companies. ChevronTexaco announced major discovery in '04.
East Timor-Australia	2002	Implied/ Latent	Discovered In	4	Implemented. Replaced '89 JDZ between Australia and Indonesia and—in conjunction with '03 unitization agreement and '06 CMATS—with more favorable terms toward E. Timor. There was at least one productive field in the Joint Petroleum Development Area. E. Timor unilaterally withdrew in '16; ultimately a '18 delimitation agreement included a smaller JDZ.
Barbados-Guyana	2003	None	Suspected	1	Unclear. Co-operation Zone established for jurisdiction over living and non-living resources within overlapping EEZs. Various joint initiatives between the two in this period, but no indication of follow-through on joint exploration.
DRC-Angola	2007	Implied/ Latent	Discovered Near	4	Not implemented. This "Common Interest Maritime Zone" may be the result of a '03 MOU. It preceded onset of a maritime dispute beginning in '09, sparked by new DRC law and submission to CLCS which contradicted the '07 JDZ agreement.
China-Japan	2008	Full	Exploring	4	Not implemented. Two Understandings establish: a polygon for a JDZ where there is no proven hydrocarbons, and Japanese participation in an established oil and gas field near the median line on the Chinese side. PRC leadership realized its domestic public would not like implied recognition of Japanese continental shelf up to the median line.
Malaysia-Brunei	2009	Full	Discovered Near	2 or 3	Unclear. Much uncertainty surrounds the still-unpublished Exchange of Letters that allegedly established boundaries and a JDZ. A bevy of joint petroleum arrangements were concluded following this, but their secrecy and public scrutiny raises questions on follow-through.
Mauritius-Seychelles	2012	None	Suspected	1	Implemented. More than the joint submission to CLCS done in 2008 (as other countries have done), as it is now a "Joint Management Area". The Parties jointly issued exploration licenses.

Figure 15: Diversity of Four Early Maritime Joint Development Zones

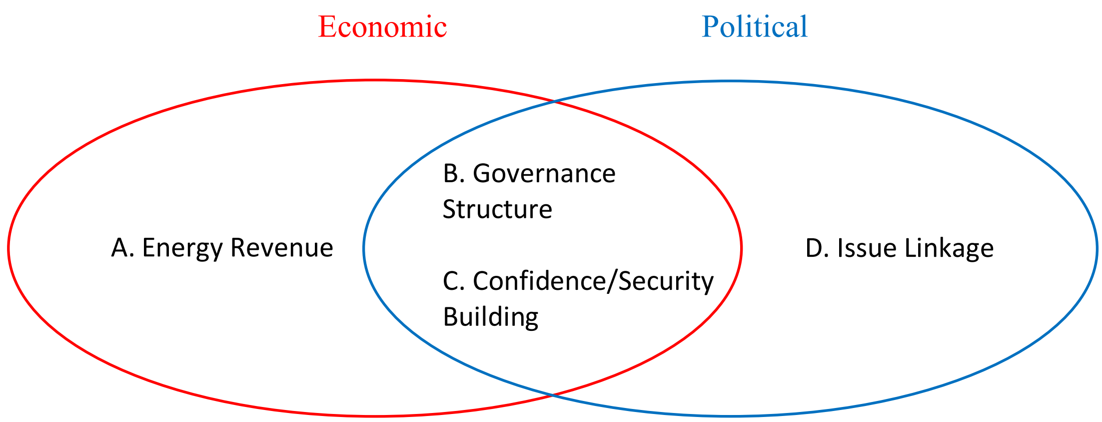


In 1958 Bahrain and Saudi Arabia fixed a disputed boundary along the edge of an oil field and created a JDZ.[156] In 1974: France and Spain created a JDZ and bisected it with a previously undisputed boundary;[157] Japan and South Korea created a JDZ in a still-disputed area and settled a partial boundary elsewhere;[158] and Sudan and Saudi Arabia created a "Common Zone" beyond the limits of each side's claimed zones of exclusive jurisdiction (Miyoshi/IBRU, Durham University, UK).

4.6 Reasons for Signing a JDZ Agreement

JDZ treaties have been characterized as "a victory of economics over politics".[159] While this is often an apt description, the exploration of all cases reveals that there are multiple motivations—both economic and political—for states to sign a JDZ agreement. Figure 16 shows four such motivations derived from the cases.

Figure 16: Reasons for States to Form a JDZ



---

[156] R. Pietrowski Jr., "Bahrain-Saudi Arabia: Report Number 7-3," in *International Maritime Boundaries*, ed. Jonathan I. Charney and Lewis M. Alexander, vol. II (Boston: Martinus Nijhoff Publishers, 1996), 1494.

[157] D. H. Anderson, "France-Spain: Report Number 9-2," in *International Maritime Boundaries*, ed. Jonathan I. Charney and Lewis M. Alexander (Boston: Martinus Nijhoff Publishers, 1993), 1726.

[158] Choon-ho Park, "Japan-South Korea: Report Number 5-12," in *International Maritime Boundaries*, ed. Jonathan I. Charney and Lewis M. Alexander (Boston: Martinus Nijhoff Publishers, 1993), 1062.

[159] Cameron, "The Design of Joint Development Zone Treaties and International Unitization Agreements," 242.

A. Energy revenue. Given that the dispute is intractable, the hydrocarbons can only be extracted through a JDZ.

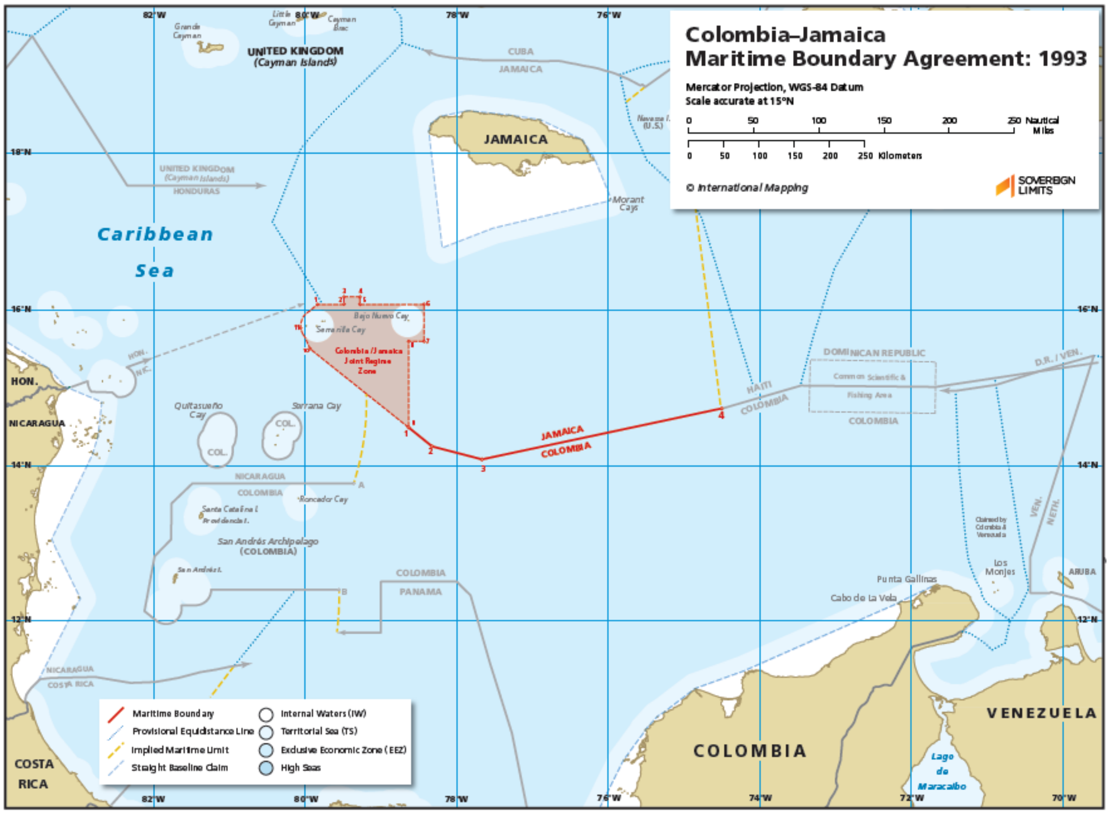
B. Governance structure. A JDZ is preferable to the alternative of direct contract with multinational corporations. (E.g., São Tomé and Príncipe lacked the technical expertise and preferred a joint governance structure with Nigeria in order to maintain a favorable negotiating position and to build indigenous expertise.)

C. Confidence and security building measure. The state leaders have an interest in moving toward delimitation and/or reducing tensions over the disputed boundary. (E.g., Japan and China)

D. Issue linkage. The JDZ plays a role in one or both states furthering a separate interest, whether vis-à-vis the other disputant or a third state. (E.g., Colombia-Jamaica in islands disputes with Nicaragua and Honduras: see Figure 17)

Of course multiple motivations are present in many if not all the cases. It is not necessary to delineate all motivations present in every case. But a couple observations are worth illuminating.

Figure 17: Jamaica-Colombia "Joint Regime Area" and Related Boundaries



Colombia, Honduras, and Nicaragua all claim Serranilla and Bajo Nuevo Cays that Colombia administers and are enclaved within the Colombia-Jamaica JDZ; Jamaica's earlier claim to these islands is long dormant. Credit: Sovereign Limits (International Mapping)

The two Caribbean JDZs—Colombia-Jamaica and Barbados-Guyana—share more than just proximity. They were also motivated in part by disputes with other states. In neither case were there serious hydrocarbon prospects, only vague suspicions about under-explored regions. And both created a more comprehensive joint regime that has been described as joint sovereignty.[160] Thus, the cases where

[160] IMB calls the Colombia/Jamaica case "a virtual 'economic zone condominium'", and Article I of the Barbados/Guyana Agreement similarly runs the gamut by establishing "joint jurisdiction, control, management, development, and exploration and exploitation of living

issue linkages were apparent are also those where there was the least interest in energy revenue. For all these reasons, these cases are outliers from the rest of the population.

4.7 Conditional Oil Effect on JDZ Agreements?

As was done with judicial settlement cases, the oil variable has been expanded beyond a simple indicator into an ordinal variable with four categories in ascending order of certainty that commercially viable oil exists in the border area: (1) oil discovered in the disputed area, (2) oil discovered near the general area, (3) active oil exploration in the general area, and (4) oil suspected (but no active exploration) in the general area. This applies to the year prior to the signing of the JDZ agreement. Unlike for judicial settlement, there is no category for no oil interests because every JDZ case involves the creation of joint rights to hydrocarbon resources. Even in a case where hypothetically the geological consensus was that there was very unlikely to be significant hydrocarbons in the relevant area, there invariably would be some discussion on the topic which would be very difficult for me as a researcher to distinguish from low-level oil interest.

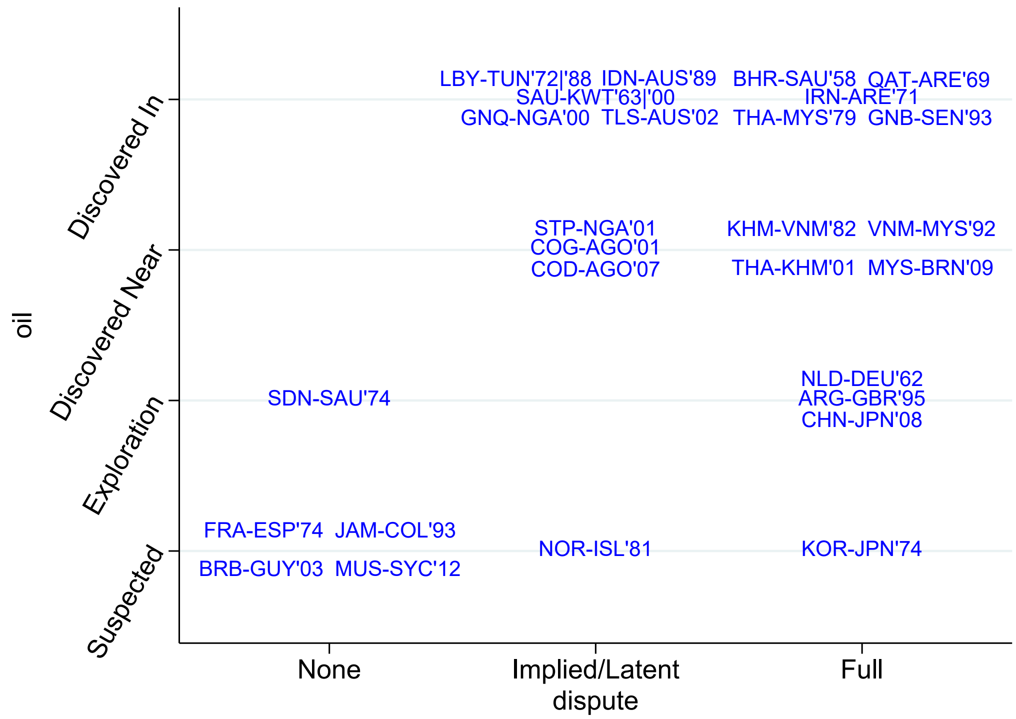
---

and non-living natural resources." Tullio Scovazzi and Giampiero Francalanci, "Colombia-Jamaica: Report Number 2-18," in *International Maritime Boundaries*, ed. Jonathan I. Charney and Lewis M. Alexander (Boston: Martinus Nijhoff Publishers, 1998), 2180.

Rather than a simple binary variable indicating whether the relevant boundary was disputed or not, a third category of "latent or implied dispute" has also been introduced. This applies to several situations, the common thread being that the overlapping claims are not being pressed publicly by either state. One example of an implied dispute was Norway and Iceland prior to establishing their JDZ in 1981. Norway readily acknowledged that Iceland had the right to more than equidistance would afford it and was willing to negotiate, but determining exactly what principles and formulas should be used to derive an equitable division of the maritime space proved challenging. Another example is Angola and the Democratic Republic of the Congo. When the DRC made overlapping claims, Angola offered to immediately negotiate rather than asserting its earlier claims. These cases contrast with those that displayed a full dispute where the two states have gone through some period of public clashes over their claims; "dispute" is a more apt descriptor of this latter category. The hope is that this third category—as well as the more granular coding of the salience of the oil interests—can allow for more robust analyses. For example, leaders involved in a latent/implied dispute have the legal basis to quickly pivot to a full dispute, and public pressure may easily develop to compel them to do so, yet for the moment they have not done so.

Figure 18 plots each JDZ based on dispute and oil status. In several cases, there have been two instances of a JDZ agreement between the same states. When these are signed simultaneously—as between China and Japan—they are treated as a single agreement for analytical purposes. When two agreements are signed in different years, the earlier agreement failed to be implemented and the underlying conditions remained unchanged. Thus, since Libya and Tunisia signed a political agreement on joint development that never materialized in 1972 and later signed a JDZ agreement in conjunction with their delimitation treaty in 1988, only the more significant 1988 treaty is included.

Figure 18: Dispute & Oil Status at Time of JDZ Agreement Signature



Libya-Tunisia and Saudi Arabia-Kuwait each signed two JDZ agreements over essentially the same area, the latter being more specific and reaffirming the earlier agreement which had failed to be implemented. Only the latter of these agreement pairs are used to determine where they appear here.

What is first readily apparent is the concentration toward the upper-right quadrant. Most JDZs fit the common characterization of a provisional arrangement in order to jointly exploit hydrocarbons amidst an intractable border dispute. There is also a smaller concentration in the lower-left quadrant where the lack of a dispute and the relatively low oil interests suggest other motivations for the JDZ.

These visual inferences from Figure 18 are not inconsistent with the findings from the regression analyses in Chapter Three. There it was revealed that oil discovery increases the likelihood of a JDZ agreement regardless of dispute status. That is, the known presence of oil makes signing a JDZ agreement more likely when there is a dispute, as well as when there is no dispute. In fact, Figure 18 simply reflects a finer resolution of the distribution of JDZ agreements thanks to the more granular coding of dispute and oil status. The correlation found in Chapter Three between oil and JDZ agreement when there is no dispute is still apparent above if one imagines combining the “None” and “Implied/latent,” since most implied or latent disputes were coded as non-disputes in the larger dataset.[161]

The outliers are also notable. These created noise in the regression analyses, but a closer look at individual cases reveals that they fall into easily definable subsets. The two already mentioned Caribbean cases stand out, as they are in the opposite quadrant from the bulk of cases. The pairs of Colombia-Jamaica and Barbados-Guyana were not engaged in boundary disputes with each other, but rather found in each other allies of convenience amid their disputes with other states. Oil was not a major motivation in either case. While these states may have had hopes to find

[161] As was suggested earlier with judicial settlement attempts, a future improvement to the dataset by coding dispute and oil status for all observations should prove very useful. Unfortunately, for the time being, I am limited in what I can infer from partial coding.

petroleum, the relevant areas were not especially likely to have commercially exploitable oil, at least not for some time. The Colombia-Jamaica JDZ encircled but did not include small islands controlled by Colombia but claimed also by Honduras and Nicaragua. Jamaica had once claimed the same islands, but this claim had been de facto relinquished since a 1982 Colombia-Jamaica agreement that allowed Jamaican fishing vessels in the surrounding waters. With that agreement expired in 1986, Jamaica had been seeking some sort of replacement on behalf of its fishers. And Colombia saw in Jamaica an ally for its dispute with other states over the islands.[162] Meanwhile, Barbados and Guyana each preferred equidistance for their boundaries.[163] But rather than splitting their small overlap of entitlements, they determined to share it in a "Cooperation Zone" that covered living as well as non-living resources. As with Colombia-Jamaica, the hydrocarbon prospects seems to have been nothing more than a vague and hopeful possibility.[164] But once again, a major motivation was bolstering claims in complicated regional disputes: firstly, by establishing the zone within Venezuelan-claimed waters per a 1990 Venezuela-Trinidad and Tobago delimitation agreement that Barbados and Guyana regard as

---

[162] As IMB sums up: "Colombia and Jamaica met at the negotiation table driven by different motivations: the former had mainly political and strategic objectives, linked to a historical background; the latter had mainly economic and administrative objectives, linked to traditional fishing activities and the potential of prospecting for hydrocarbons." Scovazzi and Francalanci, "IMB: 8-8," 1998.

[163] A. Ralph Carnegie, "The Law of the Sea in the Commonwealth Caribbean: The Domestic Law Context," in *New Law of the Sea for the Caribbean* (Berlin: Springer-Verlag, 1988), 97.

[164] Carl W. Dundas, "Barbados-Guyana: Report Number 2-27," in *International Maritime Boundaries*, ed. D. A. Colson and R. W. Smith (Boston: Martinus Nijhoff Publishers, 2005), 3581.

infringing on their entitlements; secondly, by measuring Guyana's 200 NM limit from territory claimed by Venezuela; and finally, by making counter-claims vis-a-vis a 2009 CLCS submission by Trinidad and Tobago.[165] Thus these JDZs were primarily efforts to influence complicated multi-state disputes, as well as to secure other non-oil interests.

Other states that were not in a dispute had various motivations for establishing a JDZ. Mauritius and Seychelles did not dispute any boundary in 2012 when they created a "Joint Management Zone" over their shared ECS claims, apparently as a show of solidarity and leadership of small island states in the responsible management of deep ocean areas. Saudi Arabia and Sudan were motivated by oil when they signed their 1974 JDZ agreement, but this case did not involve a dispute because it uniquely involved maritime space beyond the limits of either side's prior claims to sovereign rights. A dispute would have been technically impossible. Finally, France and Spain's 1974 JDZ is the only other case not involving a prior dispute (implied or full). It is perhaps notable though that this JDZ was a provision within a delimitation agreement. This boundary proved not to be an intractable one that would necessitate a standalone JDZ. The most likely explanation is that the JDZ was a

[165] Dundas, 3579–82.

sweetener to compensate Madrid for its "loss" of maritime space by moving away from an equidistance line.[166]

4.8 Effectiveness of JDZs

A JDZ can be a means to various ends, and thus the effectiveness of a JDZ can be measured in several ways. But the most widely relevant measures are two: 1) whether the JDZ agreement was actually implemented and led to petroleum extractive activity; and 2) whether the JDZ helped achieve boundary delimitation.

15 out of 23 JDZ agreements, or 65%, that I could confidently establish resulted in implementation of the JDZ agreement. That is, the parties established a governing organization for the management of the joint venture (if necessary) and either issued drilling licenses or at least there were no apparent impediments to doing so. However, at least three of those 15 cases involved serious delays to implementation that lasted over 10 years.[167] And in the case of Japan-South Korea, Tokyo later opted not to permit further drilling in the joint area due at least in part because of disappointing results from early drilling.[168] Still fewer JDZs result in joint

---

[166] The negotiations were complex, and some commentators characterized Spain as being inexperienced in maritime boundary negotiations at that point and having gotten the raw deal. See Anderson, "IMB: 9-2."
[167] Libya/Tunisia; Thailand/Malaysia; Norway/Iceland.
[168] Tokyo claims there isn't sufficient evidence that further drillings would find any oil. But Seoul suspects that the Japanese side would prefer to wait out the 50-year period of the joint development agreement, until 2028, when the area would be exploitable by whichever side

commercial exploitation of petroleum, though establishing a firm number will require further research.

Though less risky than signing a delimitation agreement, a JDZ agreement still presents political challenges not present in a unitization agreement where a boundary already exists. In particular, cases where a significant motivation was confidence building between disputant states consistently failed to achieve this end. In both the UK-Argentina and China-Japan cases, the parties failed to issue drilling licenses because of technical issues stemming from the underlying sovereignty dispute, even though the JDZs were established in order to sidestep such issues. Though policy makers sometimes view joint development programs as a tool to improve poor bilateral relations, the former can easily succumb to the latter.[169] Policy makers should take this into account when considering options to tame contentious maritime disputes.

Nonetheless, JDZs can play a role in achieving delimitation. In many cases, a JDZ was formed simultaneously (or nearly simultaneously) with the delimitation of the boundary in the same area. It can thus serve as a bargaining chip in negotiations,

---

has title to the continental shelf, and based on equidistance Japan would be able to claim the lion's share of the area currently treated as "joint". Keun-Gwan Lee, "Recent Developments of Maritime Delimitation in Northwest Asia from an International Law Perspective," in *Maritime Border Diplomacy*, ed. Myron H Nordquist and John Norton Moore (Leiden; Boston: Martinus Nijhoff Publishers, 2012), 138, https://doi.org/10.1163/9789004230941.

[169] Clive Schofield, *No Panacea? Challenges in the Application of Provisional Arrangements of a Practical Nature*, ed. M. H. Nordquist and J. N. Moore (Leiden, the Netherlands: Martinus Nijhoff, 2012).

where one side may otherwise feel that it was not getting an equitable share of the waters. This was seemingly the case in 11 out of 27 cases examined here, or 37%.[170]

There is a significant literature on the case law surrounding maritime delimitation, and to a lesser extent on joint development zones. However, there is a dearth of research of the co-variates of either signing such agreements or of their effectiveness. Although this chapter is somewhat probative in nature, the information provided is still novel in that it provides the most comprehensive and updated accounting of both classes of agreement alternatives to delimitation. The hope is that the data provided here can further such systematic analyses.

---

[170] Bahrain/Saudi Arabia; Qatar/Abu Dhabi; Libya/Tunisia; France/Spain; Japan/South Korea; Norway/Iceland; Indonesia/Australia; Vietnam/Malaysia; Guinea-Bissau/Senegal; Equatorial Guinea/Nigeria; Malaysia/Brunei. The 1974 Japan/South Korea JDZ thus has the distinction of being effective at aiding in the delimitation of a separate boundary segment yet ineffective at later achieving joint hydrocarbon development.

Chapter Five: A Comparative Case Study of U.S. Boundaries

"For many years, I have felt that the old three-mile limit or twenty-mile limit should be superseded by a rule of common sense. For instance, the Gulf of Mexico is bounded on the south by Mexico and on the north by the United States. In parts of the Gulf, shallow water extends very many miles off shore. It seems to me that the Mexican Government should be entitled to drill for oil in the southern half of the Gulf and we in the northern half of the Gulf. That would be far more sensible than allowing some European nation, for example, to come in there and drill."

F. D. Roosevelt[171]

5.1 Case Selection

Many variables can affect the probability that maritime neighbors sign delimitation agreements. Previous research indicates that joint democracy, high bilateral trade, and positive bilateral relations are associated with a higher likelihood of signing a delimitation agreement.[172] Conversely, if there is a related territorial dispute or if the boundary in question involves dependent territories, agreement is less likely in any given year.[173] And the degree of systemic uncertainty in the Law of the

---

[171] "Memorandum by President Roosevelt to the Secretary of State," U.S. Department of State, Office of the Historian, June 9, 1943, https://history.state.gov/historicaldocuments/frus1945v02/d761.
[172] Ásgeirsdóttir and Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims."
[173] Ásgeirsdóttir and Steinwand; Yüksel, "Bargaining Over Maritime Boundaries in Times of Legal Uncertainty."

Sea regime during certain periods affects the probability that unresolved boundaries were settled.[174]

Orttung and Wenger explored why the Russia-Norway maritime boundary, which was highly salient because of energy deposits, was settled in 2010 after having been disputed since 1967. They posit several factors for why these states settled at this particular time, such as a positive history of working together at the bilateral level on interim arrangements in the absence of a boundary and the skillful handling of the negotiations by each side so as to minimize nationalist backlash against the compromise agreement.[175] Whether these or some other explanations are the right ones, the fact remains that Russia and Norway disputed their boundaries for over 40 years, including 37 years when there were confirmed hydrocarbons. So the presence of oil alone cannot be credited with speeding up negotiations. Further, using only one case is limited in its inferential power.

The approach of the present chapter is to use comparative cases that share a common state, thereby limiting the role that uncontrolled variables could potentially play in other case comparisons. In isolating the ideal cases, we need a state that has had offshore hydrocarbon interest around the same time near two similar maritime neighbors with which it shares undelimited boundaries. There must be a dispute with

---

174 Yüksel, "Bargaining Over Maritime Boundaries in Times of Legal Uncertainty."
175 Robert W. Orttung and Andreas Wenger, "Explaining Cooperation and Conflict in Marine Boundary Disputes Involving Energy Deposits," *Region* 5, no. 1 (2016): 75–96.

one neighbor and not with the other. And early discovery is better to allow for a long period of time to observe any treatment effects.

Thus a single state—the United States—will serve as a common state in a comparison of two pairs of maritime neighbors. Oil had been discovered near the U.S.-Mexico boundaries before those boundaries were delimited, and oil interests seemingly had a role in speeding up delimitation agreements. Unlike with the two U.S.-Mexico boundary segments, each of the four U.S.-Canada boundary segments had existing boundary disputes. Oil was also discovered near two of the four U.S.-Canada maritime boundary segments and suspected near the remaining two, yet these states have failed to sign any modern delimitation agreement. In the one instance where a relevant U.S.-Canada agreement was signed, it was a *compromis* that gave leaders political cover for any unfavorable judgement, and even then it was limited to a partial settlement of the boundary. While the *Gulf of Maine Case* certainly represents a compromise and a success story, it required considerable effort and assumption of political risk to achieve. It also dampened the appetite to address the remaining outstanding boundaries. In sum, the U.S.-Mexico case seems to exemplify the oil-leads-to-conciliation theory, whereas the U.S.-Canada case the oil-leads-to-contention theory. I will investigate whether the early dispute status was the critical factor in determining their divergent paths.

5.2 Overview of U.S. Maritime Boundaries

The U.S. EEZ is either the largest or second largest in the world, about 3.4 million square NM.[176] It has between 16 and 20 maritime neighbors, depending on how they are counted.[177] This is the third most of any state, after the United Kingdom and France. Each of these three have a significant number of boundaries largely due to their overseas dependencies. As such, the U.S. (like France and Britain) aims to harness from its large maritime claims (and future ECS claims) enormous potential maritime resources, as well as military advantages and responsibility to sustain environmental goals such as biodiversity.[178] And the U.S. happens to have among the boundaries with its homeland territory cases that fit each profile within the theory described in Chapter Two. See Table 10.

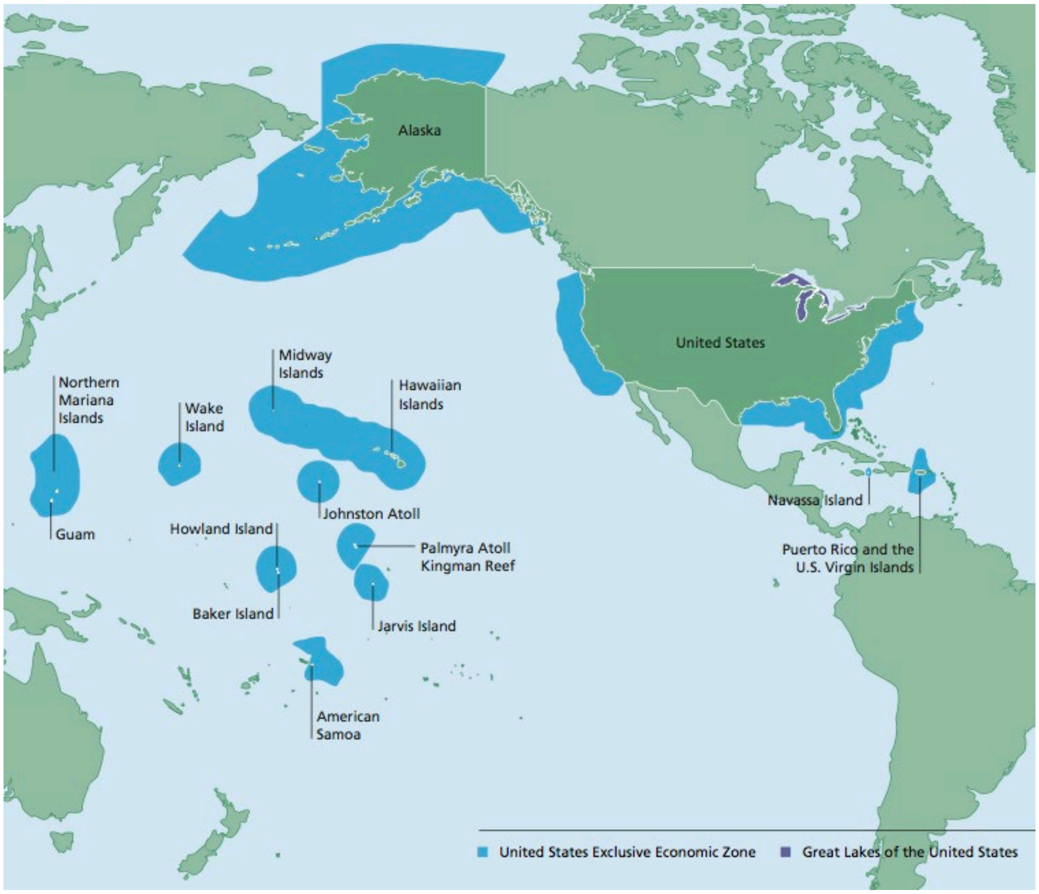
---

[176] NOAA, "The United States Is an Ocean Nation," 2011, https://www.gc.noaa.gov/documents/2011/012711_gcil_maritime_eez_map.pdf. Some assert that France has the largest EEZ. The exact area of each contender's EEZ depends on how one assigns maritime space in undelimited border areas. For the U.S., this applies mainly to the Beaufort Sea wedge and to the overlapping EEZ with the Bahamas.

[177] The Cook Islands and Niue are self-governing territories in free association with New Zealand, and not members of the United Nations. Ásgeirsdóttir and Steinwand and Yüksel count these as forming distinct maritime boundary dyads with the U.S., while Sovereign Limits and the Flanders Marine Institute count the Cook Islands and Niue as dependencies of New Zealand. Navassa Island in the Caribbean is claimed by both the United States and Haiti; whether the U.S. has sovereignty over this island would determine whether it has maritime boundaries with Haiti and Jamaica. Similarly, prior U.S. claims to Caribbean islands created periods when there were hypothetical boundaries between the U.S. and Honduras (until the U.S. officially dropped its claim to the Swan Islands in 1972) and between the U.S. and Colombia (until the U.S. officially dropped claims to Quita Sueño Bank, Roncador Cay, and Serrana Bank in 1981).

[178] Elizabeth M. De Santo, "Militarized Marine Protected Areas in Overseas Territories: Conserving Biodiversity, Geopolitical Positioning, and Securing Resources in the 21st Century," *Ocean & Coastal Management* 184 (February 1, 2020): 105006, https://doi.org/10.1016/j.ocecoaman.2019.105006.

Figure 19: U.S. Exclusive Economic Zone[179]



Five maritime dyads stem from the U.S. homeland, that is, the territory of the 50 constituent states: those with the Bahamas, Canada, Cuba, Mexico, and Russia. Two of these dyads have multiple, non-contiguous boundary segments, and the same two dyads—U.S.-Mexico (Atlantic and Pacific segments) and U.S.-Canada (near both the Gulf of Maine and Beaufort Sea segments)—had oil or gas discovered below the

[179] NOAA, "The United States Is an Ocean Nation." Interestingly this map includes several differences from another NOAA map at https://oceanservice.noaa.gov/facts/eez.html regarding the Beaufort Sea, Navassa Island, the Bahamas, and several Pacific territories, despite no apparent changes in official U.S. claims for these areas.

seabed near their un-delimited boundaries; there were no such discoveries below the waters relevant to other U.S. boundaries. There are active disputes over the maritime boundaries between the U.S. and Canada (all four segments), but none involving U.S.-Mexico boundaries.

Table 10: U.S. Maritime Boundaries Classified by Oil Discovery and Overlapping Claims Prior to Signature of any Delimitation Agreement[180]

	No Oil Discovered Prior to Delimitation	Oil Discovered Prior to Delimitation
No Overlapping Claims	• Cuba [*1977*]† • Venezuela [*1978*] • New Zealand & associated states [*1980, 1980, 1997*] • United Kingdom [*1993*] • Japan [*1994*][181] • Kiribati [*2013*] • Micronesia [*2014*] • Bahamas* • Dominican Republic • Marshall Islands • Netherlands • Tonga	• Mexico-Gulf (**1946**) [*1970, 1978, 2000*] • Mexico-Pacific (**1920**) [*1970, 1978*]
Overlapping Claims	• Canada (BC)-Washington State* • Canada (BC)-Alaska* • USSR* [*1990*]†	• Canada-Gulf of Maine (**1973**) [*1925, 1979 compromis*] • Canada-Beaufort Sea (**1976**)

Year of: (**First oil/gas discovery near border**) / [*Delimitation agreements signed*]

* = oil/gas exploration but no discovery prior to delimitation
† = provisionally in force despite not being ratified by one party

[180] Every state with which the U.S. shares a potential ECS boundary is already included by virtue of a CS/EEZ boundary: Canada, Mexico, the Bahamas, Cuba, and the UK (Bermuda). See Roach and Smith, *Excessive Maritime Claims*, 900–902.
[181] The U.S.-Japan EEZ boundary was effected through a 1994 exchange of notes, not a formal delimitation treaty. U.S. Navy JAG Corps, "Maritime Claims Reference Manual," accessed December 11, 2020, https://www.jag.navy.mil/organization/code_10_mcrm.htm.

5.3 A Representative Sample?

Comparing the boundaries of a single state to the global population of maritime boundaries can be complicated, in part because the number of boundaries changes over time. Table 11 attempts to alleviate this by taking a snapshot of boundaries during two years chosen for reasons that should not influence the comparison entailed: 1982 as the year when UNCLOS III concluded, and 2003 as the year when both Canada and Mexico ratified the Agreement on Implementing Part XI of the Convention.[182] U.S. maritime boundaries are largely representative of maritime boundaries globally, as the percent of boundaries involving overlapping claims, percent at least partially delimited (i.e., whether at least one delimitation agreement had been signed), and percent fully delimited each fall no more than 6% from the global figure.

The one exception is that relatively few U.S. boundaries have had oil discoveries in their vicinity. This raises a couple potential problems with using U.S. case comparisons. First, there are fewer prospective cases to explore vis-à-vis the effect of oil. Fortunately, however, the two maritime neighbors with which the U.S. shares the largest boundaries happen to be the two that had early discoveries. A second and more serious problem is any bias that fewer offshore discoveries may

[182] "Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982," 1836 UNTS 3 (1994), https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXI-6-a&chapter=21&clang=_en.

introduce in U.S. negotiating strategies. This possibility will be revisited as an alternative explanation after the forthcoming analysis.

Table 11: Comparison of U.S. to Global Maritime Boundaries (Selected Years)[183]

	1982		2003	
	Global	U.S.	Global	U.S.
Total dyads	307	18	336	20
	100%	100%	100%	100%
Dyads with overlapping claims	53	2	48	2
	17%	11%	14%	10%
Dyads with oil discovered in vicinity of boundary	107	2	129	2
	35%	11%	38%	10%
Dyads either partially or fully delimited	79	3	137	8
	26%	17%	41%	40%
Dyads fully delimited	39	2	98	7
	13%	11%	29%	35%

Another possible objection to using the U.S. is that it has not ratified UNCLOS and thus may be an atypical practitioner of the Law of the Sea. The Reagan Administration originally opposed Part XI of the Convention, which dealt with regulation of deep sea mining in the so-called "Area" beyond national claims. Along with other industrialized non-signatories such as the United Kingdom, the U.S. successfully negotiated the 1994 Agreement relating to the Implementation of Part XI of UNCLOS. Yet despite the Reagan Administration's satisfaction that this revision to the Convention would prevent transfer of either technology or revenue from deep sea mining, sufficient opposition has persisted among some Republican senators to prevent ratification to the present day. Reasons cited include concerns that the 1994

[183] Data from the Yüksel dataset, as revised for the present study. See Chapter 3 for details. Yüksel, "Bargaining Over Maritime Boundaries in Times of Legal Uncertainty."

Agreement did not sufficiently address technology and wealth transfer, as well as the possibility of opening up the U.S. to environmental litigation. Many industry groups have come out in favor of ratification, notably including the U.S. Chamber of Commerce and the American Petroleum Institute.

But the U.S. is a staunch defender of established Law of the Sea despite not ratifying UNCLOS. U.S. policy is that it conforms with nearly all provisions of UNCLOS as a matter of customary international law.[184] The areas of disagreement are marginal issues. It is debatable whether ratification of UNCLOS has an effect on states' likelihood to signing delimitation agreements or establishing maritime zones (results in Chapter Three notwithstanding). And the U.S. is not especially notable in its maritime boundary and maritime zone history. For example, the U.S. first established a 200 NM fisheries zone in 1976, after many but not most coastal states had adopted some type of 200 NM zone. The U.S. has carried out a Freedom of Navigation Program since 1979, with the State Department lodging protests against—and the Defense Department conducting Freedom of Navigation Operations with ships and aircraft through—areas of perceived excessive claims.[185] Thus, while it

---

[184] William H. Taft IV, "The United Nations Convention on the Law of the Sea," § Committee on International Relations (2004), http://commdocs.house.gov/committees/intlrel/hfa93660.000/hfa93660_0f.htm; See also "Frequently Asked Questions: U.S. Extended Continental Shelf Project," United States Department of State, accessed January 31, 2021, https://www.state.gov/frequently-asked-questions-u-s-extended-continental-shelf-project/.
[185] U.S. Under Secretary of Defense for Policy, "DoD Annual Freedom of Navigation Reports," accessed January 3, 2021, https://policy.defense.gov/ousdp-offices/fon/.

may be ironic in light of Washington's non-accession, no other state can claim to enforce Law of the Sea provisions more.

Being a non-Party precludes the U.S. from participation in four institutions: the International Tribunal for the Law of the Sea (ITLOS, for adjudication of disputes), the Commission on the Limits of the Continental Shelf (CLCS, which validates outer limits to continental shelf claims beyond 200 NM, but does not play a role in delimitation between claims), the International Seabed Authority (which regulates deep seabed mining beyond the limits of national jurisdiction), and the Meetings of States Parties to UNCLOS (largely concerned with membership and oversight of the other three institutions). But its non-participation in these institutions should not—and so far seems not—to affect its practice in delimiting its boundaries with its neighbors.[186] Most dispute resolution mechanisms described in UNCLOS are open to other states, ITLOS being the exception. Non-signatories, including the U.S., have used the ICJ to settle maritime boundaries. So the benefits of institutionalization of the Law of the Sea are felt not only by Parties to UNCLOS. The obverse is also true: UNCLOS signatories have some of the most contentious and long-standing disputes, e.g., between Japan and South Korea, Japan and China, China and South Korea, and all parties to the South China Sea disputes.

---

[186] Thomas A. Clingan, "US—Mexican Maritime Relations in the Aftermath of UNCLOS III," *Political Geography Quarterly* 5, no. 1 (January 1, 1986): 57–62, https://doi.org/10.1016/0260-9827(86)90011-X. NB: Clingan was part of the U.S. delegation to UNCLOS III.

Another plausible problem in using the U.S. is that there is an enormous relative power disparity between the U.S. and practically every other state. One might argue that stronger states use coercive tactics or lucrative issue linkages when negotiating with their maritime neighbors. However, no such relationship between relative power and likelihood to sign delimitation agreements was found in the earlier statistical analyses. Even if such a relative power effect were real, using the U.S. as a common state and Mexico and Canada as two medium powers roughly controls for any such relative power effect. Further, many states have not signed delimitation agreements with the U.S. despite the power disparity. And the fact that the U.S. managed to sign a delimitation agreement with the USSR but not Canada is illustrative: not only should the relative power difference have made U.S.-Canada agreements easier to sign, but so should have joint democracy, higher bilateral trade, and better bilateral relations.

5.4 Offshore Development and Boundaries Until 1975

5.4.1 Mexico-U.S.

The first well to extract underwater oil anywhere was on a pier in the 1880s in Santa Barbara Channel. Southern California would continue to be a productive area for the next century as technology enabled wells to go further away from shore. The Los Angeles Basin includes offshore fields like the Long Beach oil field, discovered in 1920, which lies approximately 50 NM from the equidistance line between the U.S.

and Mexico. Many oil fields have been discovered in the U.S. portion of the Gulf of Mexico, starting with Creole Field off the Louisiana coast, where what is usually considered the first true offshore oil well began producing in 1938.[187] The Gulf of Mexico would soon become one of the most productive regions in the world for hydrocarbon extraction, with production occurring through both the U.S.- and Mexico and always in areas of established jurisdiction.

The two states agreed in the Treaty of Guadalupe Hidalgo of 1848 to a boundary line that begins "in the Gulf of Mexico, three leagues [i.e., nine NM] from the land opposite the mouth of the Rio Grande…" This was a strange starting point, since neither state had claimed a territorial sea as far as nine NM. Though perhaps using the treaty as reference, Mexico claimed a nine-NM territorial sea in 1935. The U.S.—which still claimed only three NM—refused to recognize Mexico's claim. The mismatch in limits contributed to some incidents over fisheries in the 1950s, though the two sides managed with deft diplomatic actions to avoid serious escalations. Of the most relevance to boundary negotiations, the two coordinated establishment of twelve-NM fisheries zones: the U.S. in 1966 and Mexico in 1967.[188] They could thus agree to disagree on breadths of territorial seas while avoiding the root cause of the earlier friction.

---

[187] "Offshore at 60: Remembering the Creole Field," *Offshore*, April 9, 2014, https://www.offshore-mag.com/home/article/16757220/offshore-at-60-remembering-the-creole-field.
[188] Karl Michael Schmitt, "The Problem of Maritime Boundaries in U.S.-Mexican Relations," *National Resources Journal* 22 (1982): 139–53.

In 1967, the two sides charged the International Boundary and Water Commission (IBWC)—managed by the U.S. State Department and Mexican Foreign Relations Secretariat—with defining maritime boundaries out to twelve NM, or failing that, to set provisional boundaries. In 1968, the IBWC agreed to two provisional boundaries using equidistance. The provisional boundary in the Gulf started at the then-current mouth of the Rio Grande, and it would move should the river mouth move.[189] In 1969, with this provisional boundary in place, Mexico extended its territorial sea claim to twelve NM. A formal 1970 agreement resolved several land boundary disputes and also addressed the topic of maritime boundaries. But this time, the two sides fixed a point 2,000 feet seaward of the mouth of the Rio Grande as it was then situated and allowed the small landward segment to "swing like a gate" to follow the moving river mouth, whereas the seaward segment would remain fixed.[190] The parties exchanged ratifications in 1972.[191]

5.4.2 Canada-U.S.

Below are overviews of the four U.S.-Canada boundaries up to 1975.

---

[189] International Boundary and Water Commission, "Delineation of Provisional Maritime Boundaries between the Exclusive Fishery Zones of the United States and Mexico in the Gulf of Mexico and the Pacific Ocean" (Minute 229, El Paso, Texas, January 4, 1968), https://www.ibwc.gov/Files/Minutes/Min229.pdf.
[190] Sovereign Limits: International Boundaries Database, International Mapping, accessed December 11, 2020, https://sovereignlimits.com.
[191] "Limits in the Sea No. 45" (U.S. Department of State, 1972), 3, https://www.state.gov/wp-content/uploads/2019/10/LIS-45.pdf.

Gulf of Maine / Nova Scotia-New England. (For a map, see Figure 23 below in Section 5.5.2) The near-shore maritime boundary was gradually fixed through three agreements: U.S.-Great Britain treaties in 1908 and 1910, and a U.S.-Canada treaty in 1925 that went as far as three NM. But at least by the 1930s a dispute existed over title to the small Machias Seal Island and nearby North Rock.[192] It remained a minor issue until each side licensed oil and gas exploration further to sea in the mid-1960s. In 1969 the U.S. formally protested Canadian permits on Georges Bank: a large, submerged sandbank long known as a rich fisheries area used by nationals from both states.[193] In 1970, Canada specified its continental shelf claims, and the U.S. responded by publicly challenging Canada's claim to any of Georges Bank.[194] The contours of the near-shore dispute were thus extended. Canada preferred equidistance, which would give it the northeast portion of Georges Bank, which by this time was believed to also be rich in hydrocarbons. The U.S. State Department preferred natural prolongation, or what it called the "deep trench" principle, which would give it the entirety of Georges Bank. It would frequently cite the ICJ's recent *North Sea Cases* as justification.

---

[192] Richard R. Baxter and Morton J. Horwitz, "Opinion in Support of the Sovereignty of the United States of America over Machias Seal Island and North Rock, submitted to the Marine Resources Commission, State of Maine," March 1, 1975, 26–27, https://lawguides.mainelaw.maine.edu/c.php?g=194716&p=8959862.
[193] *Gulf of Maine Case* (ICJ 1984), at paragraph 64.
[194] Elliot Richardson, "United States-Canadian Continental Shelf Boundary Question: Notice of Reservation of Exploration and Exploitation Rights of United States and Its Nationals," February 12, 1970, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.

Beyond Juan de Fuca Strait / British Colombia-Washington State. Earlier disputes over islands were resolved in the 19th century, allowing for easy demarcation of the maritime boundary within the Strait in 1908.[195] Amidst internal U.S. government deliberation, concern was raised regarding the effects on this boundary, if guided by natural prolongation. Nonetheless, largely because of the more significant hydrocarbon deposits assumed to be in the Gulf of Maine, the East Coast boundary was determined to be the priority boundary. Canada announced in 1967 that it would adopt a straight baseline system, which the U.S. immediately objected to.[196] And in 1969, Canada promulgated coordinates of its west coast baselines, which the U.S. also immediately objected to.[197] The countries thus had two cartographic issues to contend with: which delimitation principles to apply and which basepoints to use.

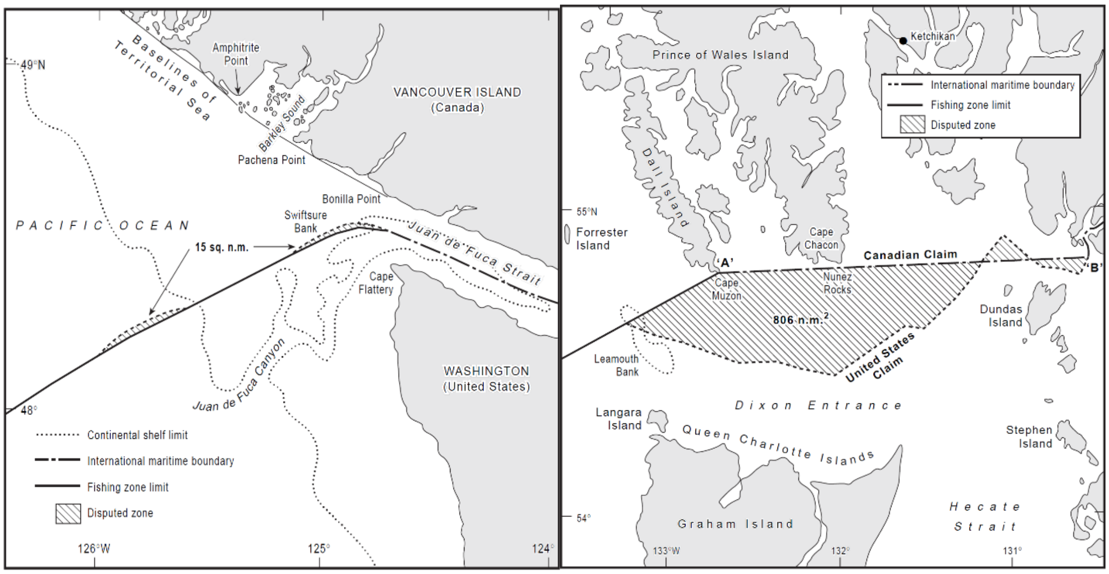
Dixon Entrance and beyond / British Colombia-Alaska. The 1903 *United States-Great Britain Alaska Boundary Arbitration* determined the depth of the Alaska Panhandle and also created the so-called "A-B Line" as the southernmost edge of Alaska. Canadian resentment to this decision was especially strong—particularly toward Great Britain and the British arbiter who sided with the American position. As a sort of consolation, Canada has since 1909 claimed that the A-B Line established a maritime boundary along the northern edge of Dixon Entrance. The U.S. retorted in

---

[195] McDorman, *Salt Water Neighbors*, 124–25.
[196] "Counter-Memorial of United States," *Gulf of Maine Pleadings*, Vol. 4, 1983, 473–74, https://icj-cij.org/public/files/images/logo_xs.png.
[197] "Reply of United States," *Gulf of Maine Pleadings*, Vol. 5, 1983, 503–4, https://icj-cij.org/public/files/images/logo_xs.png.

1910 that this line's only purpose was and remains to allocate title to islands. As already stated, Canada established its west coast baselines in 1969 in spite of U.S. protests.[198]

Figure 20: Juan de Fuca Strait and Dixon Entrance



NB: These maps reflect the fisheries zones established by Canada and the U.S. in 1976 and 1977, respectively. Credit: David H. Gray, "Canada's Unresolved Boundaries," IBRU Boundary and Security Bulletin, 1997, 62.

Beaufort Sea / Yukon Territory-Alaska. (For a map, see Figure 24 in Section 5.6.2) The 1825 Great Britain-Russia treaty fixed the land boundary between Alaska and Canada as 141°W meridian "as far as the Frozen Ocean".[199] In the absence of a deep trench, the choice in principles for maritime delimitation was between equidistance, which the U.S. prefers, and extension of the 141°W

[198] See also McDorman, *Salt Water Neighbors*, 61–62.
[199] "Cession of Alaska" (Washington, 1867), https://www.loc.gov/law/help/us-treaties/bevans/b-su-ust000011-1216.pdf.

meridian.[200] Canada used the latter line as the boundary for oil concessions beginning in 1965.[201] Ottawa would eventually cite the *North Sea Continental Shelf Cases* when arguing that the shape of the coastline—with Alaska convex and the Yukon concave—renders equidistance an inequitable principle.[202]

Thus licensing of or actual oil exploration activity began in the vicinity of all four U.S.-Canada border areas in the early to mid-1960s: on Georges Bank in 1964, the Beaufort Sea in 1965, and both Juan de Fuca (Tofino Basin) and Dixon Entrance (Queen Charlotte Basin) in 1967.[203] The U.S. Bureau of Land Management raised concern with Canadian counterparts in 1965 about permits that potentially applied to the U.S. continental shelf off the coast of Washington, to which the Canadians replied that "since the exact position of [the] median line may be open to some interpretation… a cautionary statement is included in the permit to the effect that it is issued subject to the lands covered thereby being Canada Lands." Beginning in 1968,

---

[200] "Internal U.S. Position Paper: Delimitation of the Continental Shelf Boundaries Between the United States and Canada" (U.S. Department of State, circa 1969), 3, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.

[201] McDorman, *Salt Water Neighbors*, 184.

[202] McDorman, 188.

[203] Brian Hoyle, "U.S. Boundary Delimitation Problems and Practice," in *The Continental Shelf: Resources, Boundaries, and Management*, ed. Thomas A. Grigalunas and Lynne Carter Hanson (Center for Ocean Management Studies, University of Rhode Island, 1986), 54; Norman Dale, "Understanding the Effects of Offshore Oil and Gas on Queen Charlotte Basin Communities" (Prince George, BC: The University of Northern British Columbia's Northern Land Use Institute, Northern Coastal Information and Research Program, February 2005), 8, http://www.em.gov.bc.ca/DL/offshore/reports/norman_dale_report.pdf.

the Interior Department began to share U.S. license applications with the State Department as a part of its approval process.[204] A major onshore field discovered at Prudhoe Bay in northern Alaska in 1968 spurred interest also in the offshore potential in the Beaufort Sea. (But in spite of diplomatic notes exchanged over offshore permits in each of the three lower border areas, the U.S. did not protest Canadian licensing in the disputed Beaufort Sea area until 1976.)[205]

The U.S. suggested a moratorium on drilling in the Georges Bank area in 1969, in order to calm the dispute. Canada rebuffed this suggestion, still formally allowing exploratory drilling, though it took other actions to prevent drilling activity from actually occurring in the disputed area.[206] Despite this, the U.S. issued in 1970 its own moratorium on issuing licenses in the Georges Bank area generally.[207] The first Canadian offshore discovery anywhere, that of Cohasset Field, occurred in 1973 about 200 NM northeast of Georges Bank.

U.S.-Canada maritime relations were at their lowest following several actions taken by Canada in 1970 to unilaterally extend its jurisdiction. These actions included: establishment of "fisheries closing lines"; expansion of the territorial sea from three to twelve NM; establishment of a 100-NM Arctic pollution prevention

---

[204] A. Dewey Acuff to USGS Regional Oil & Gas Supervisors, "Outer Continental Shelf Operations," October 14, 1968, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.
[205] McDorman, *Salt Water Neighbors*, 184.
[206] Memorial of United States, Case Concerning Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada v. United States of America) (ICJ 1984).
[207] Richardson, "Announcement of U.S. Georges Bank Drilling Moratorium," February 12, 1970.

zone; and assertion of rights to continental shelf resources beyond the 200-meter water depth.[208] This final action contradicted a 1970 U.S. policy statement that called on states to refrain from making claims beyond the 200-meter water depth and reflected the two states' differing interpretations of the 1958 Continental Shelf Convention.[209] The Minister of Energy, Mines and Resources claimed in 1970 that, "Canada is probably the most aggressive nation in the world in asserting her rights to offshore mineral resources."[210]

In 1970, Canada proposed linking ongoing talks on fisheries in the contiguous zones with boundaries for hydrocarbons in the Gulf of Maine. The U.S. at first rebuffed this suggestion, not wanting to link the two issues prematurely because it was presumed that oil discussions would bog down progress already underway in the fisheries realm.[211] Yet within months, the U.S. counter-proposed to negotiate all outstanding boundaries together.[212] And in 1973, the U.S. suggested to Canada to submit questions over both Machias Seal Island and the A-B line in the Dixon

---

[208] McDorman, *Salt Water Neighbors*, chap. 3.
[209] "Convention on the Continental Shelf," 499 UNTS 311 (1958), https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXI-4&chapter=21&clang=_en.
[210] As quoted in: McDorman, *Salt Water Neighbors*, 59.
[211] John C. Griffith to Joseph W. Scott, "State Department Memorandum: Gulf of Maine," January 12, 1970, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.
[212] Alex Oude Elferink, "Arctic Maritime Delimitations: The Preponderance of Similarities with Other Regions," in *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction*, ed. Alex G. Oude Elferink and Donald Rothwell, vol. 37, Publications on Ocean Development (The Hague: M. Nijhoff, 2001), 192.

Entrance to the ICJ; Canada declined this suggestion but indicated its willingness to negotiate.[213]

5.4.3 Analysis

Jurisdictional Certainty. An internal 1966 U.S. State Department memo framed the potential continental shelf boundary with Mexico as being in both states' interests: "It would be difficult for Mexico to prevent exploitation of its shelf resources by U.S. parties if there were not a stationary boundary established."[214] And this same motivation for jurisdictional certainty motivated Washington and Ottawa to negotiate their boundaries. As the State Department reasoned in a note to the Canadian government in 1973, urging the submission of the disputes over Machias Seal Island and Dixon Entrance to the ICJ, "Oil leasing and exploration licenses for the continental shelf are being sought by a number of oil companies at this time, but the oil companies are hesitant to proceed in disputed areas. It would seem desirable for governments to settle their disputes whenever possible so that private industry is

---

[213] Arthur W. Rovine, *Digest of United States Practice in International Law 1973* (Washington, D.C.: Department of State, 1974), 465–67; McDorman, *Salt Water Neighbors*, 169.

[214] Anonymous U.S. State Department, "Draft Internal Memo '1958 Geneva Convention on the Continental Shelf,'" 1966, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD. This memo was archived with files related to the *Gulf of Maine Case*, suggesting that those dealing with contemporaneous Canadian issues were following what was happening at the southern border.

not faced with an uncertain legal situation."[215] Thus both pairs shared this motivation. And yet, only one managed to settle any boundaries.

The U.S. and Canada had two disputes starting before World War II: those in the Gulf of Maine and Dixon Entrance. By 1970, the other two boundaries could be characterized as at least in a state of "implied dispute." But it was not as if the Canadian boundaries were complicated while the Mexican ones were not. The U.S. and Mexico disagreed on the breadth of their marine zones. They also had to contend with the moving mouth of the Rio Grande. A changing river mouth could have been the basis for a dispute to materialize, as it was, for example, between Costa Rica and Nicaragua. Instead, Washington and Mexico City developed a novel and mutually beneficial solution.

Industry risk aversion. Unlike near some potential maritime boundaries where companies avoid the border area until the boundary is settled, in the U.S.-Canada case, drilling had already occurred and was on hold, costing money with each day that passed. Industry's interest laid not only in determination of jurisdictional boundaries generally but also in a favorable determination for the state through which they were invested. This particularly applied to companies licensed to drill on Georges Bank. Notably, U.S. oil companies Texaco and Standard Oil of California owned up to half of the Canadian permits that were garnering so much attention. Therefore, while U.S. industry had mixed interests, the companies with the most

---

[215] Rovine, *Digest of U.S. Practice in International Law 1973*, 466.

acute interest may have preferred a Canada win.[216] These same companies communicated with the State Department and members of Congress, though unfortunately, the archived records do not reveal whether these companies pushed for a soft U.S. stance.[217] We do know that State Department officials frequently cited their concern to others in the government that if the boundary was not concluded soon, a discovery of oil would make settlement still more challenging.[218]

Institutional hurdles to reducing claims. There certainly were institutional hurdles to reducing claims, particularly on the Canadian side. Canada's issuance of drilling permits in areas of uncertain jurisdiction set the stage for what was to come. Technically, the onset of disputes, properly classified, only occurred when the U.S. lodged protests in subsequent years, one border area after another. But once the licenses were issued, reversing them would have to be an inter-ministerial decision. Canada's Department of Northern Affairs and Natural Resources deferred the question of the applicability of these licenses to a determination of the un-defined

---

[216] American Embassy Ottawa to Secretary of State, "State Department Telegram: Canadian Sovereignty - Georges Bank," February 25, 1970, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.
[217] Arthur T. Downey to John C. Allen, "Letter: U.S. State Department Attorney to Union Oil of California," July 8, 1966, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.
[218] State Department to (National Security Advisor) Walt Rostow, "Draft Language for Memo to White House on Canadian Issues," May 5, 1966, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD; John C. Griffith to Bernard H. Oxman, "State Department Memorandum: Law of the Sea Discussion at Joint U.S.-Canadian Committee on Trade and Economic Affairs, June 25, 1969," June 27, 1969, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.

boundary, which is in the purview of the Department of External Affairs. It seems highly likely that any consideration of revocation of drilling licenses would have risen to the Prime Minister level. Thus, once the licenses were issued, dispute was all but inevitable. Avoiding these disputes in the late 1960s would have required unusual courage on the part of Canadian leaders, all for uncertain reward. And in 1970, legislation in a variety of maritime policy areas moved Canada toward more confrontation with the U.S. The U.S. side was much more restrained in making explicit claims, consistent with its general preference for open seas versus expanded coastal state rights. But after it too drew a line in the proverbial sand, it would have a hard time retracting its position.[219]

Audience Costs. By this time, if not sooner, domestic audiences were mobilizing to the issues, especially on the Canadian side. A couple samples from contemporary mass media, both from 1970:

- A Dalhousie international law professor—and key supporter to Prime Minister Trudeau—described in a CBC Radio interview the urgency of securing Canada's portion of the continental shelf, "where oil riches may [...] lie in great abundance". He cautioned that "Canada has had a poor

[219] The Geographer of the State Department had earlier written in defense of the use of the median line generally and disputed the application of the "deep trench" principle to the undersea facts surrounding Georges Bank. Nonetheless, this principle and U.S. jurisdiction over the full Georges Bank became the official U.S. position over his objection. Robert D. Hodgson, "Continental Shelf Boundaries in the Gulf of Maine," April 8, 1970, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.

history of negotiating border disputes with the United States and has given away vast portions of its territory. … The Canadian government must not allow these mistakes to recur in […] the seabed."[220]

- A member of the House of Commons repeatedly tried to pin down the Canadian Government's position on the "dispute" with the U.S. in the Gulf of Maine, to which Prime Minister Trudeau questioned whether "dispute" is the right term, but nonetheless emphatically stated that the median line is the appropriate principle under international law and is "our very strong position."[221]

By increasing its own domestic audience costs for backing down, the government in Ottawa was forcefully signaling its resolve to Washington. Meanwhile, while less attention was garnered in the U.S. at the national level, boundary issues were of interest at least to publics in the border states and their members of Congress, who in turn were meeting with the oil industry.[222]

---

[220] American Consulate Halifax to State Department, "Summary and Transcript of Prof. Flemming CBC Interview," March 13, 1970, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.
[221] American Embassy Ottawa to Secretary of State, "State Department Telegram: Canadian Sovereignty," February 25, 1970.
[222] John C. Griffith, "Memorandum of Conversation between State Department and Standard Oil of California: U.S. Canada Continental Shelf Boundaries," February 18, 1970, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.

5.5 1976 to 1997: Out to 200 NM

5.5.1 Mexico-U.S.

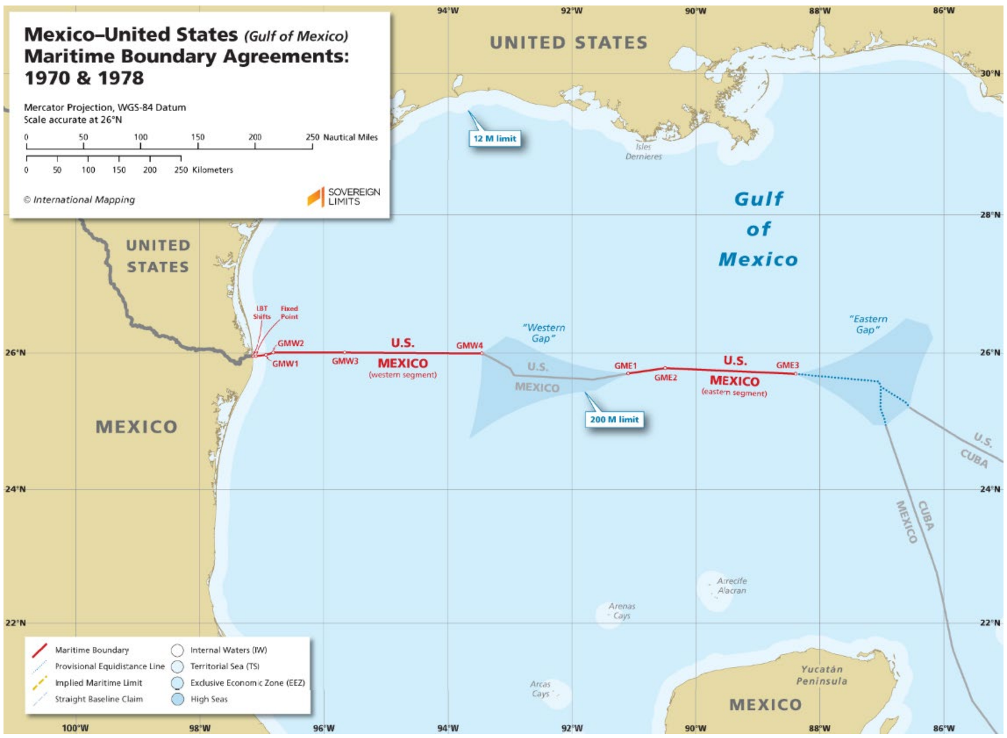
As evidence mounted of reserves trapped below deeper parts of the Gulf of Mexico, Mexico's preeminent goal in ocean diplomacy of the 1960s and 1970s had been linked to its desire to secure access to resources, especially hydrocarbon-rich areas in the Gulf. The concept of a 200 NM EEZ was born in Latin America and promoted by a large faction of developing countries at UNCLOS III, and Mexico was one of the key proponents.[223] As Vargas puts it, "For Mexico—having the longest marine coastline in Latin America with marine resources, including hydrocarbons and natural gas in the Gulf of Mexico—this philosophy was an appealing notion."[224]

Both states established 200 NM maritime zones in 1976: a U.S. fisheries zone and a Mexican EEZ. They immediately began boundary negotiations which took account of the draft Convention text (the Informal Single Negotiating Text) then being circulated during UNCLOS III. The negotiating culminated in an exchange of notes on November 24, 1976, which established a provisional, all-purpose boundary based on equidistance that gave full weight to islands. Mexico requested to formalize

[223] Karin Hjertonsson, *The New Law of the Sea. Influence of the Latin American States on Recent Developments of the Law of the Sea.* (Leiden, 1973), http://hdl.handle.net/2027/uc1.31822012993929.
[224] Jorge A. Vargas, *Mexico and the Law of the Sea: Contributions and Compromises* (Brill, 2011), 131; Alberto Szekely, *México y el Derecho Internacional del Mar* (México, D.F: Universidad Nacional Autónoma de México, 1978), chap. 6.

the boundary with a treaty, which ultimately was signed in 1978.[225] Also following the success of the 1976 informal agreement with Mexico, the U.S. began negotiations with Cuba and Venezuela, culminating in treaties that were signed in 1977 and 1978, respectively.[226] All three other parties quickly ratified their respective treaties, and so the only obstacle that remained was U.S. Senate ratification.

Figure 21: Agreed U.S.-Mexico Boundaries in the Gulf Until 1978



The 1970 agreement concerned the boundary from the shifting land boundary terminus (LBT) to twelve NM seaward. The 1978 agreement established boundaries following a series of points in the Gulf of Mexico-West (GMW) and Gulf of Mexico-East (GME), as well as points in the states' Pacific boundary, each out to 200 NM. Credit: Sovereign Limits (International Mapping)

---

[225] Robert W. Smith and David A. Colson, "Mexico-United States: Report Number 1-5," in *International Maritime Boundaries*, ed. Jonathan I. Charney and Lewis M. Alexander (Boston: Martinus Nijhoff Publishers, 1993), 5–1.
[226] Schmitt, "The Problem of Maritime Boundaries in U.S.-Mexican Relations," 147.

In 1980, when the Senate Foreign Relations Committee considered these treaties, a Princeton geologist, Dr. Hollis Hedberg, testified that certain Mexican islands should be ignored when constructing the boundary. The result would be that the U.S. would gain a substantial portion of a promising area for hydrocarbon potential. State Department witnesses pointed out that not only is using islands normal practice when constructing boundaries, but that the U.S. has done so and intends to do so to its advantage in other border areas. Indeed, the U.S. benefits from the full weight given to islands in the west coast boundary with Mexico covered by the same treaty. Witnesses from the fishing industry also endorsed the treaty with Mexico. The Committee reported favorably on all three treaties. The American Association of Petroleum Geologists (AAPG) submitted a letter arguing, "that in a time of great concern for our energy supplies our country cannot afford to give away areas possibly containing important mineral resources for the sake of expediency in resolving boundary negotiations."[227] It and Dr. Hedberg's testimony had an effect: Senator Javits (R-NY) pulled the Mexican treaty from the unanimous consent agreement with which the Venezuela agreement was approved. (The Cuba agreement was pulled for other reasons.) The Senate requested the U.S. Geological Survey to further study the hydrocarbon potential of the Gulf, which it did in a report submitted

---

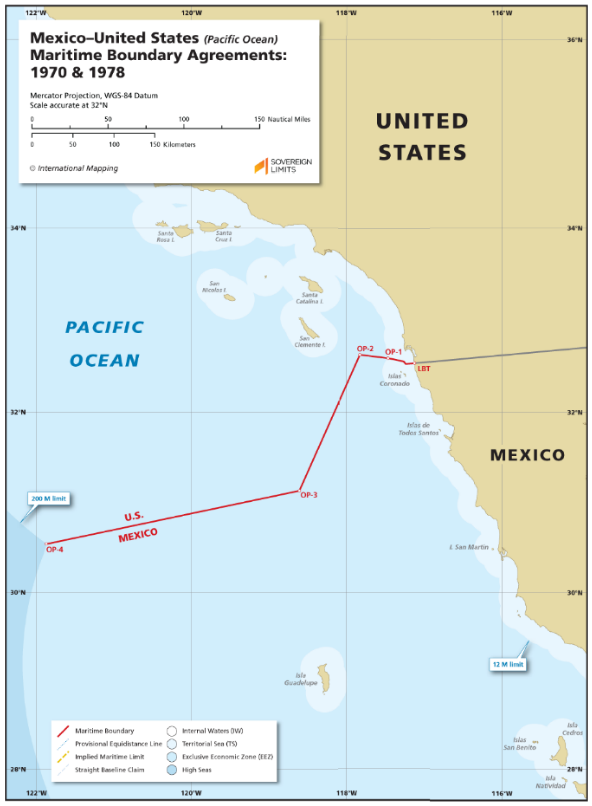
[227] "U.S.-Mexico Dispute Simmering in Gulf," Oil & Gas Journal, April 22, 1996, https://www.ogj.com/home/article/17234576/usmexico-dispute-simmering-in-gulf.

in 1982.[228] By this time, Sen. Javitz had already lost reelection. Still the treaty was only returned to the Senate calendar after industry officially changed its stance. The AAPG wrote to the Committee on July 1, 1997 that it no longer opposed the negotiated boundary, writing "Dr. Hedberg's long-term goal of deep-water exploration in the Gulf can best be achieved by resolution of this matter."[229] Six other oil and gas trade associations submitted a joint letter in favor of the agreement, highlighting the economic necessity of establishing the boundary, as well as throwing water on Dr. Hedberg's delimitation methodology. Shell Oil wrote separately that, "Given the number of leases in close proximity to the provisional boundary, it is not surprising that the industry is unified in its support for prompt treaty ratification."[230] The Senate approved the treaty by unanimous consent on Oct 23, 1997.[231]

---

[228] The Senate Committee on Foreign Relations, "U.S.-Mexico Treaty on Maritime Boundaries" (105th Cong., 1st sess., October 22, 1997), 8, Exec. Rpt. No. 105-4.
[229] The Senate Committee on Foreign Relations, 3.
[230] The Senate Committee on Foreign Relations, 11.
[231] Christian L. Wiktor, *Treaties Submitted to the United States Senate: Legislative History, 1989-2004* (Martinus Nijhoff Publishers, 2006), 226–27.

Figure 22: Agreed U.S.-Mexico Boundaries in the Pacific Until 1978



Credit: Sovereign Limits (International Mapping)

5.5.2 *Canada-U.S.*

The U.S. and Canada established 200 NM fisheries zones in 1976 and 1977, respectively. And during the course of UNCLOS III negotiations, it became clear that the standard limit for states' continental shelf claims would also be extended out to 200 NM. These events, among other actions by the U.S. and Canada, resulted in the extension and increased salience of their existing disputes, or formalization of earlier latent disputes.

- Gulf of Maine. This dispute which had been primarily concerned with hydrocarbons now involved exclusive fishing rights. Each party had been allowing nationals from the other to fish within the contiguous zone out to 12NM. But there was initially no such shared access in the new fisheries zones, notably in the productive Georges Bank area.
- Juan de Fuca / British Colombia-Washington State. Disagreements on permissible basepoints meant that when each side constructed equidistance lines for their respective fisheries zones in 1977, there was a small disputed area of 15.4 square NM.
- Dixon Entrance / British Colombia-Alaska. In 1977, the U.S. asserted a boundary based on equidistance through the Dixon Entrance and beyond. Canada also applies equidistance seaward of the Dixon Entrance, but the resulting difference in starting points creates a narrow overlap in the Pacific.[232] Thus the near-shore dispute remains and has now been extended.
- Beaufort Sea / Yukon Territory-Alaska. The preferences earlier espoused by now have crystalized into conflicting positions. A formal

---

[232] G. B. Bourne and D. M. McRae, "Maritime Jurisdiction in the Dixon Entrance: The Alaska Boundary Re-Examined," *Canadian Yearbook of International Law* 14 (1976): 175–223, https://doi.org/10.1017/S006900580000093X.

dispute exists at least since 1976 when the U.S. protested Canadian oil and gas exploration permits.[233]

In spite of its earlier unilateral moratorium, the U.S. again permitted exploratory activity on Georges Bank, though not in the disputed area. Hence, the Ocean Prod company began exploring southern Georges Bank in 1976 and by 1981 was joined by Mobil, Conoco, Shell, Texaco, and Exxon.[234] This ended when in 1982 Congress enacted a one-year moratorium, which would be renewed and eventually extended to include much of the East Coast. None of the earlier permits led to a discovery before they expired.[235]

Oil and gas were discovered in the Canadian portion of the Beaufort Sea in 1976, in the Mackenzie Delta area (Koanoar and Nektoralik fields) roughly 100 NM from the disputed zone. And in 1978 the Endicott oil field was discovered about 150 NM from the disputed zone on the American portion.[236] In 1984, the U.S. government devised a mechanism to auction tracts of CS in the disputed area in the Beaufort Sea while remaining flexible in case of a breakthrough in boundary negotiations. Winning bids would be placed in escrow until the U.S. government

---

233 McDorman, *Salt Water Neighbors*, 188.
234 "Proposed Oil and Gas Development on Georges Bank Area of the Outer Continental Shelf: Oversight Hearing" (100th Congress, 1st session, June 25, 1987), 236.
235 Gary M. Edson, Donald L. Olson, and Andrew J. Petty, "Georges Bank Petroleum Exploration," Atlantic Outer Continental Shelf (New Orleans: U.S. Department of the Interior, May 2000), https://www.boem.gov/sites/default/files/boem-newsroom/Library/Publications/2000/2000-031.pdf.
236 Lujala, Rød, and Thieme, "Fighting over Oil."

determined that it was in the national interest to drill there, and the money would be returned after five years if this did not occur. It informed the Canadian government of these procedures ahead of time.[237]

Talks on boundaries occurred starting from the late 1960s often in pre-existing fora, as each side developed their positions and postured over the panoply of maritime issues now on the table. By 1977, the frustration in Washington over a lack of boundary progress was palpable. Secretary of State Kissinger directed his ambassador in Ottawa to convey the U.S. Government's "disappointment at and inability to understand persistent [Government of Canada] failure to initiate meaningful negotiations of [a] compromise boundary line and ask [Secretary of State for External Affairs] Jamieson for explanation why, despite previous understandings, authorization has not been given to open negotiations on the Gulf of Maine boundary."[238] The Canadian side ultimately did consent to negotiate and offered to discuss a "package deal" to address all boundaries, potentially conceding something in the Beaufort Sea for U.S. concessions in the Gulf of Maine. Washington rejected this approach in favor of addressing each boundary on its own merits.[239] Later the same year, two Special Negotiators were tasked with examining all outstanding

---

[237] Hoyle, "U.S. Boundary Delimitation Problems and Practice," 59.
[238] Henry Kissinger to U.S. Embassy Ottawa, "Telegram: U.S.-Canada Maritime Boundaries," January 4, 1977, General Records of the Department of State, Record Group 59, National Archives at College Park, College Park, MD.
[239] Michael Byers and Andreas Østhagen, "Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?," *Canadian Yearbook of International Law/Annuaire Canadien de Droit International* 54 (October 2017): 5, https://doi.org/10.1017/cyl.2017.14.

boundaries. They ultimately produced a report that included general principles and a recommendation to put off delimitation and to negotiate both shared fisheries and shared hydrocarbon zones. But even these provisional arrangements proved hard to sell to the interested political constituencies. Though each side agreed on the idea of shared-access zones for offshore hydrocarbon exploitation, and this was reflected in their report, the Special Negotiators failed to agree on any details for such arrangements.[240] They did produce fisheries-only agreements, but by 1979 each was rejected by one government or the other.[241] Even while these negotiations continued, in late 1978 the Special Negotiators were instructed to focus on the Gulf of Maine. The end result was the 1979 Agreement to bring the Gulf of Maine dispute to the ICJ.[242]

On the U.S. side, the prioritization of the Gulf of Maine dispute went surprisingly smoothly with members of Congress from the other border states. But in Canada, the British Colombia government took a firm position that natural prolongation should apply more broadly. Doing so would give Canada a larger share of its western continental shelf, particularly over an area believed to be rich in polymetallic sulfides. Part of BC's argument rested on the fact that the U.S. used natural prolongation to back its claims in the Gulf of Maine, and so it was reasoned

---

[240] E. B. Wang, "Canada-United States Fisheries and Maritime Boundary Negotiations: Diplomacy in Deep Water," *Behind the Headlines* 38, no. 6 (1981): 8–9.
[241] McDorman, *Salt Water Neighbors*, 119, 188–89.
[242] McDorman, 120–21.

that the two sides could settle in a legally consistent way (that would benefit BC to the expense of Nova Scotia).[243] However, the federal government in Ottawa maintained equidistance as its (somewhat consistent) preferred principle. One reason why the federal government was able to ignore BC's position was that the former has since the 1960s had on-again-off-again offshore drilling moratoria largely due to environmental concerns, wholly unrelated to boundary issues. And from 1972, the federal government instituted a moratorium on issuing licenses there. Therefore, despite the province's position taken in this instance, oil interests off Canada's West Coast were dampened during this period.[244] USGS studies off the Pacific northwest in the 1980s continued to hint especially toward other valuable resources—polymetallic sulfides and cobalt-ferromanganese crusts, though the technology and economics would be some decades away before these might be exploited.[245]

In their *compromis*, the two states agreed to charge the ICJ with determining an all-purpose boundary beginning at a point seaward of the disputed Machias Seal Island, thus ignoring the dispute with more history and settling only the more lucrative area.[246] The Parties' arguments reflected their positions developed in the

---

[243] "Submission of the Province of British Colombia on West Coast Maritime Boundaries Between Canada and the United States," April 18, 1977, on file with the author; McDorman, *Salt Water Neighbors*, 172–75. I have not found any evidence of BC taking a position since the *Gulf of Maine Case* concluded.
[244] Al Hudec and Van Penick, "British Columbia Offshore Oil and Gas Law," *Alberta Law Review* 41 (July 1, 2003): 105–6, https://doi.org/10.29173/alr496.
[245] Fillmore C. F. Earney, "The United States Exclusive Economic Zone," in *Maritime Boundaries and Ocean Resources*, ed. Blake Gerald (London and Sydney: Croom Helm, 1987), 175–77.
[246] McDorman, *Salt Water Neighbors*, 144.

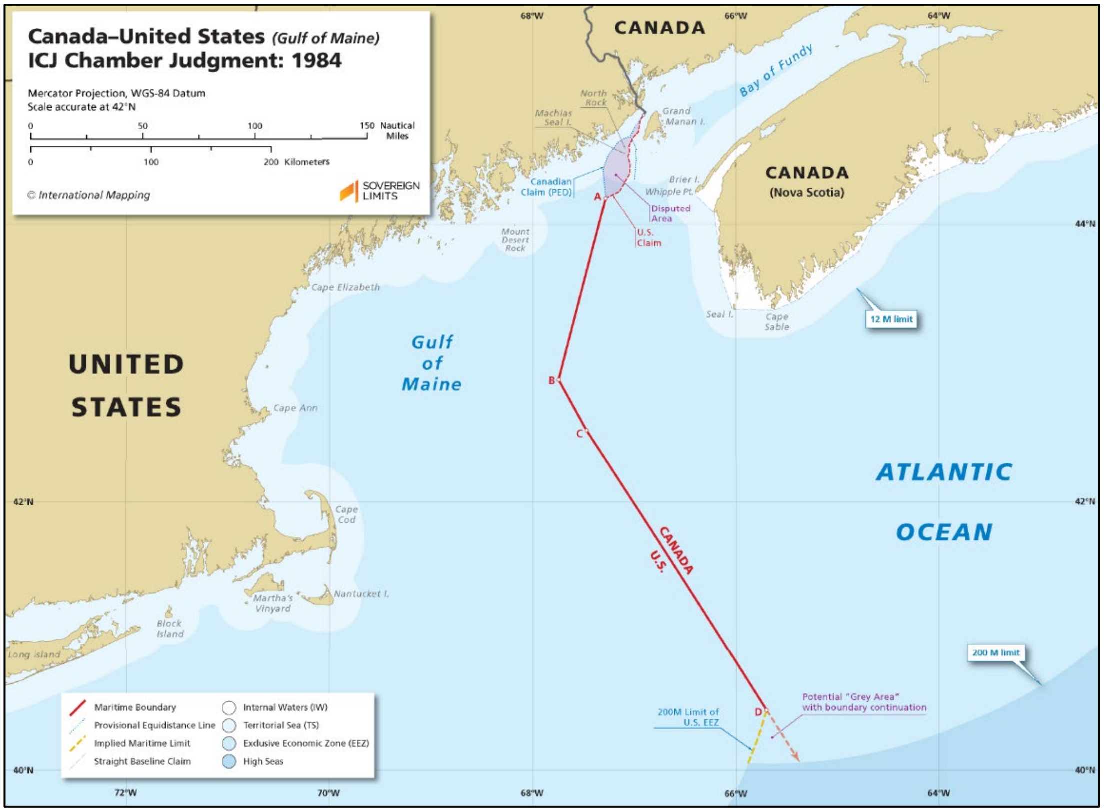
1960s, Canada for equidistance, the U.S. for natural prolongation. Canada's preparations for the case were led by the Department of External Affairs but relied on several other ministries including the Department of Energy, Mines and Resources, and included frequent consultations with the oil industry.[247] The scientific costs for the states' preparations for the case have been called "spectacular," to the point that it may have deterred other states from considering adjudication of their boundary disputes.[248]

The ICJ's judgement in 1984 dismissed the proposed principles of each side as well as arguments over either fishing or hydrocarbon resources. It instead favored an "equitable result" that split the disputed area roughly in half, such that Canada received roughly one-eighth of Georges Bank. The strongest reaction to the judgment was from the U.S. fishing industry, prompting Washington to propose a one-year delay in implementation and negotiation over a joint fisheries arrangement, proposals rejected by Ottawa.[249]

---

[247] Johnston, *The Theory and History of Ocean Boundary-Making*, 314.
[248] Johnston, 256.
[249] McDorman, *Salt Water Neighbors*, 148–49.

Figure 23: Results of the *Gulf of Maine Case*



Two areas of unclear sovereignty remain. One, at the Parties' request, is the disputed area around Machias Seal Island. The other is a "gray area" beyond Point D, within 200 NM of Canada's coast but on the U.S. side of the azimuth of the ICJ-established boundary. Credit: Sovereign Limits (International Mapping)

Shortly thereafter, the U.S. proposed starting negotiations on the remaining boundary disputes, but Canada had no interest in doing so.[250] Yet there was at least a consensus that the next most important boundary is in the Beaufort Sea, given the continued presumption of hydrocarbons there.[251]

[250] McDorman, 121.
[251] Fillmore C. F. Earney, *Marine Mineral Resources* (New York: Routledge, 1990), 223–24.

5.5.3 Analysis

Jurisdictional Certainty. The industry desire for jurisdictional certainty was apparent in both cases. It was a continuation of the same oil interest in the border areas since the 1960s, though with some caveats in the Canadian border areas. On the Canadian West Coast, drilling moratoria and a downgrade of predicted hydrocarbon potential dampened the oil industry's interest in boundary settlement. However, it never went away, as evidenced by BC's appeal to the federal government in 1977 which cited the resource potential. Further, the province and industry made a push to lift the drilling moratorium in the 1980s, and it was on the verge of being lifted just when the Exxon Valdez oil spill in 1989 quashed any such change. Hydrocarbon potential under Georges Bank was also downgraded since the 1960s, though commercial quantities are still presumed to be there. Most of Canada's activity and interest in establishing jurisdictional certainty shifted north to the Beaufort Sea as well as to its boundary with France's St. Pierre and Miquelon islands, which the two ultimately settled through arbitration in 1992.[252]

---

[252] For an overview of Canada's offshore activities, estimated potential, and regulatory history through the late 1980s, see Ted L McDorman, "Canadian Offshore Oil and Gas: Jurisdiction and Management Issues in the 1980s and Beyond," in *Canadian Oceans Policy: National Strategies and the New Law of the Sea*, ed. Donald McRae and Gordon Munro, Canada and International Relations, 0847-0510 2 (Vancouver: University of British Columbia Press, 1989), 39–68.

Institutional hurdles to reducing claims. As already described in the previous section, compromising would have been so difficult to do in part because of the institutionalization of prior claims. It would have required—at least on the Canadian side—the nullification of drilling licenses already issued, the revision of baseline coordinates promulgated through legislation, modification of nautical charts, and more. Ultimately reducing claims in the Gulf of Maine required multiple attempts at difficult negotiations, exploring alternatives such as joint development zones, giving up decision control by resorting to the ICJ, and finally accepting the ICJ's judgment. Though such institutionalization was further along on the Canadian side, U.S. State Department officials also balked at compromise proposals in part because they assessed that these could not pass necessary interagency and Congressional wickets.

Domestic audience costs. All throughout this period, the states' publics observed the negotiations, pressured their governments to maintain their claims, and thus made it difficult for the governments to compromise on a boundary bilaterally.[253] Regarding a proposal by Canada to consider the boundaries as a package deal—and thus make compromises and trades with earlier positions—U.S. negotiators "staunchly believed that even if they agreed to the Canadian proposal, it stood no chance of being politically supported both in the interagency process, and by Congress. Such a proposal would undoubtedly be viewed as predominantly favoring

---

[253] Johnston, *The Theory and History of Ocean Boundary-Making*, 315.

Canadian interests."[254] Ultimately the decision to defer the issue to the ICJ came primarily because neither government could be seen as compromising on their established positions in the eyes of domestic constituencies.[255]

In the Gulf of Mexico, there was an alternative outcome that some in the oil industry entertained for a time. However, no significant constituency emerged around this alternative. One senator and the filibuster rule managed to delay ratification until industry decided that the delay was doing more harm than good.

Industry risk aversion. The U.S. Interior Department earlier estimated crude oil potential in and around Georges Bank at 200 million bbl and natural gas at 139,000 million cubic meters. Yet despite this high oil interest in the lead up to the compromise, by the time the ICJ delivered its judgement in 1984, hydrocarbon prospects had dampened after several exploratory wells elsewhere off the U.S. East Coast came up dry.[256] Thus lower stakes made the compromise result easier to accept. In 1983, Congress enacted a moratorium on leasing formally applying to much of the Georges Bank, and litigation over drilling in other areas would further dampen industry's interest in the U.S. East Coast generally.[257] Industry's interest in the specific boundary distribution thus progressively dwindled in the lower U.S.-Canada

---

[254] As quoted in Byers and Østhagen, "Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?," 6.
[255] Byers and Østhagen, 9.
[256] Earney, *Marine Mineral Resources*, 223.
[257] U.S. House Committee on Interior and Insular Affairs, Subcommittee on General Oversight and Investigations, "Oil and Gas Development on Georges Bank."

boundary areas. But meanwhile, auctions over offshore tracts in the disputed Beaufort Sea demonstrate that some firms had interest in a winner there.

5.6 Since 1997, and Beyond 200 NM

5.6.1 Mexico-U.S.

As of 1996, the U.S. and Mexico held different views over two areas in the Gulf—the Western Gap and Eastern Gap—left over after their EEZs/CSs were delimited out to 200 NM. (See Figure 21 in Section 5.5.1 for map.) Mexico regarded these as part of the international Area that no state could claim apart from the UN process set up by UNCLOS for validating ECS entitlements. The U.S. considered areas beyond 200 NM as high seas, where extracting oil has the same legal status as catching fish. In other words, each held a position that at first blush is logically inconsistent with signing a delimitation agreement in this area.[258]

And yet, Washington and Mexico City began discussions over the Western Gap immediately after the boundary agreement out to 200 NM was ratified by the U.S. Senate in 1997.[259] They concluded a delimitation agreement in 2000 that was

---

[258] Jorge A. Vargas, "The Gulf of Mexico: A Binational Lake Shared by the United States and Mexico. A Proposal," *The Transnational Lawyer* 9 (1996): 464–67.
[259] William Furlow, "US, Mexico about to Deal with Boundary 'Donut Hole,'" Offshore Magazine, July 1, 1997, https://www.offshore-mag.com/home/article/16760490/us-mexico-about-to-deal-with-boundary-donut-hole.

ratified in 2001.[260] Mexico made its submission to the CLCS on the limits of its ECS in 2007, relying on the boundary established by the 2000 agreement. The CLCS made its recommendations in March 2009 affirming Mexico's claims, and in June the UN Secretary General made the UN's first acknowledgement of final and binding ECS limits, again based on the 2000 treaty.[261]

At least one round of trilateral negotiations (U.S., Mexico, Cuba) has occurred over the Eastern Gap, in 2016, the year following re-establishment of relations between the U.S. and Cuba.[262] And in 2017 Mexico and Cuba signed an agreement establishing their Eastern Gap boundary.[263]

5.6.2 Canada-U.S.

By the turn of the century, disputes at all four U.S.-Canada boundaries were well crystallized. The three lower boundaries have not received much recent attention. However, the underlying issue of Canada's straight baseline claims has continued to be the object of U.S. protest in the decades since, as the latter sees its northern neighbor's excessive claims as precedential for other states' claims that can

---

[260] S. Warren Heaton, "Mexico's Attempt to Extend Its Continental Shelf beyond 200 Nautical Miles Serves as a Model for the International Community," *Mexican Law Review* 5, no. 2 (January 1, 2013): 433–50, https://doi.org/10.1016/S1870-0578(16)30031-2.
[261] Magnússon, "Outer Continental Shelf Boundary Agreements," 357–58.
[262] "United States, Cuba, and Mexico."
[263] Sovereign Limits: International Boundaries Database.

affect navigational rights.[264] The same applies to navigational issues in the Northwest Passage. But in general, the two have come to an agree-to-disagree phase, with both sides demonstrating restraint so as not to inflame the disputes. This includes the continuation of drilling moratoria on both the U.S. East Coast and Canadian West Coast, which subdue pressure from the oil industry to negotiate the boundaries.

In the summers of 2008 to 2011, the two sides managed to conduct joint seabed mapping in the disputed Beaufort Sea area. A U.S. icebreaker and a Canadian icebreaker worked in tandem to collect and produce common geological and geomorphological data in the Beaufort Sea for both states to prepare their ECS claims.[265] In 2010, Canadian Foreign Minister Lawrence Cannon made a speech in Washington in which he prioritized the settlement of Canada's disputes in the High North, highlighting in particular the Beaufort Sea boundary with the U.S. Some commentators noted the new potential for a compromise now that the ECS was being considered: the equidistance line that the U.S. prefers bends toward and crosses the meridian line claimed by Canada, such that beyond 200 NM the equidistance line would actually benefit Canada. That is, hypothetically, one side or the other could have conceded their preferred delimitation principle and win a significant concession.

---

[264] The U.S. Navy conducted Freedom of Navigation Operations in Canadian waters in 1967, 1969, 1985, 1986, 1994, and 2010. It did so in Mexican waters in 1969 and 2000, though the only straight baselines that the U.S. considers excessive are around the Gulf of California and do not affect any boundaries. U.S. Navy JAG Corps, "Maritime Claims Reference Manual."
[265] CBC News, "Canada, U.S. to Team up on Arctic Seabed Mapping Project," June 30, 2008, https://www.cbc.ca/news/canada/north/canada-u-s-to-team-up-on-arctic-seabed-mapping-project-1.732578.

(See Figure 24.) After decades of no U.S.-Canada boundary negotiations since the *Gulf of Maine Case*, in 2010 and 2011 discussions occurred on the Beaufort Sea boundary. But they did not result in any progress toward boundary settlement.[266]

Figure 24: Beaufort Sea Boundary Area

Credit: Sovereign Geographic, Inc

[266] Despite being characterized as "negotiations" elsewhere, one participant insisted that they were more like "check-in talks". If the Canadian side had pressed for a third annual meeting, the U.S. would probably have accepted it out of courtesy, but all along they did not seem to think there was much chance of a breakthrough. Anonymous U.S. Government official, interview with the author, September 28, 2022.

There are several credible explanations for the lack of progress. First, more information was needed on the undersea geography in order for either state to seriously consider their ECS claims. Second, Foreign Minister Cannon lost his parliamentary seat and therefore his ministry (though not because of any backlash related to boundaries), so the priority given boundary issues in Ottawa may have diminished. Finally and more fundamentally (and discussed more below), the potential domestic backlash for compromising on claims would not make the gains worthwhile, particularly for Canada which had long maintained that a boundary already existed along the 141st meridian.[267]

Ultimately, Canada made two ECS submissions to the UN's CLCS: in the Atlantic in 2013 and in the Arctic in 2019. The U.S. submitted replies to each noting overlaps in the two states' entitlements, a standard diplomatic practice surrounding ECS claims that permits the CLCS to consider the outer limits of a state's entitlement without prejudicing the boundary which must be worked out between the states. However, given the disputes that remain within 200 NM of shore, Canada and the U.S. are unlikely to resolve these boundaries anytime soon. In the Atlantic, the ICJ's award resulted in a "grey area" of ambiguous jurisdiction outside 200 NM from the U.S. coast but within 200 NM of the Canadian coast; this will further complicate any

---

[267] Anonymous U.S. Government official. Additional possible explanations have been offered by Byers and Østhagen, "Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?," 12–19. But both the need for more information on the location of hydrocarbons and the decrease in oil prices in 2011 were rejected as relevant factors by the interviewed U.S. official.

negotiations over the ECS boundary.[268] (And yet, the U.S. did not submit such a reply to Mexico's 2011 ECS submission for the Eastern Gap, despite Mexico's claimed entitlement quite obviously overlapping what the U.S. might reasonably claim.[269])

The two have managed to largely sidestep their disputes. In the realm of oil and gas, this was largely done by continuing drilling moratoria.[270] Relations remained amicable generally despite the persistent disputes. In December 2016, citing environmental concerns, President Obama and Prime Minister Trudeau declared nearly all of their countries' Arctic waters as indefinitely ineligible for offshore licensing.[271] When this policy was up for review in the U.S. five years later, the Biden Administration opened for new offshore licenses only areas in the Gulf of Mexico and off southern Alaska, thus avoiding the Beaufort Sea, or any other outstanding boundary dispute with Canada.[272]

---

[268] Scott B. Edmonds and Robert W. Smith, "Canada-United States (Gulf of Maine) Maritime Boundary Brief" (Sovereign Limits: International Boundaries Database, 2018), https://sovereignlimits.com.
[269] United Nations, "Submissions to the CLCS," accessed March 21, 2021, https://www.un.org/Depts/los/clcs_new/commission_submissions.htm.
[270] McDorman, *Salt Water Neighbors*, 118.
[271] "United States-Canada Joint Arctic Leaders' Statement," Prime Minister of Canada, December 20, 2016, https://pm.gc.ca/en/news/statements/2016/12/20/united-states-canada-joint-arctic-leaders-statement.
[272] Janet McConnaughey and Matthew Brown, "Biden Proposes Limited Drilling Leases off Gulf of Mexico and Alaska," *Los Angeles Times*, July 1, 2022, sec. Politics, https://www.latimes.com/world-nation/story/2022-07-01/biden-offshore-drilling-proposal-would-allow-up-to-11-sales.

5.6.3 Analysis

In the Gulf of Mexico, the **desire for jurisdictional certainty** continued to motivate the parties to settle boundaries progressively further. With no serious disagreements between the U.S., Mexico, or Cuba, the focus during negotiations of the Eastern and Western Gaps remained on technical aspects of the boundaries.[273] Despite differences on approach to ECS claims in general, the lure of hydrocarbons compelled each side to find the legal means to settle the world's first agreement devoted solely to delimiting beyond 200 NM. What is also notable is that the U.S. acceptance of equidistance in this instance meant that it received only about one third of the area of the Western Gap. In other words, despite having the basis to make a larger claim, Washington opted instead to quickly resolve the boundary.[274]

To the north, this driver has largely been muted thanks to drilling moratoria. The one exception is in the Beaufort Sea which continues to garner intermittent oil interest.

Industry risk aversion. However, despite the occasional talk of opening up drilling in the disputed wedge of the Beaufort Sea, no such licenses have been issued. This is partly for the aforementioned reason that industry will not invest until the jurisdiction is settled. But still further, there is little interest in drilling in the High North given the expense, lack of infrastructure, and uncertainty surrounding

---

[273] Anonymous U.S. Government official, interview.
[274] Furlow, "US, Mexico about to Deal with Boundary 'Donut Hole.'"

environmental regulations.[275] Because industry has not had reason to back either state's claims, this mechanism is not relevant for this period.

Institutional hurdles to reducing claims. Canada's position that a Beaufort Sea boundary already exists makes it especially difficult for it to reach a compromise. Further, Ottawa might be required by its domestic law to consult with the autonomous Inuvialuit Settlement Region, which represents Western Canadian Inuit and like Yukon uses the 141°W meridian as its western boundary.[276]

Domestic audience costs. Perhaps the greatest impediment to settlement in the Beaufort Sea as well as elsewhere is the potential political backlash to compromise. Successive Canadian prime ministers have championed the motto "Arctic sovereignty," whether the threat to Canada's sovereign rights comes from Moscow, Washington, or anywhere else.[277] An opinion poll of eight Arctic nations in 2011 found Arctic sovereignty to be Canadians top foreign policy priority. About half

---

[275] Gregor Sharp, "An Old Problem, a New Opportunity: A Case for Solving the Beaufort Sea Boundary Dispute," *The Arctic Institute* (blog), June 17, 2016, https://www.thearcticinstitute.org/an-old-problem-a-new-opportunity-a-case-for-solving-the-beaufort-sea-boundary-dispute/.

[276] Byers and Østhagen, "Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?," 18. Whether there is a legal requirement to consult with the Inuvialuit is uncertain, though it may prove politically necessary to do so. See: Manicom, "The Domestic Politics of Disputed Arctic Boundaries," 170–71.

[277] Byers and Østhagen, "Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?," 18–19; Gregor Sharp, "Trudeau and Canada's Arctic Priorities: More of the Same," *The Arctic Institute* (blog), December 6, 2016, https://www.thearcticinstitute.org/trudeau-canadas-arctic-priorities/; Jane George, "Arctic Sovereignty Message Resonates in Prime Minister's Visit to Western Nunavut," CBC News, August 26, 2022, https://www.cbc.ca/news/canada/north/justin-trudeau-cambridge-bay-visit-1.6563331.

of Canadians polled believed Canada should be more assertive over its claims in the Beaufort Sea, compared to only 10% of Americans expressing the same for their country.[278]

5.7 Alternative Explanations

The U.S.-Mexico and U.S.-Canada relationships have much in common. Both pairs have high trade volumes. Both have similar relative power imbalance. The U.S. has a history of successful boundary commissions with both Mexico (International Boundary and Water Commission, since 1889) and Canada (International Boundary Commission, formed in 1908); each institution was originally focused on land boundary issues before early successes in maritime boundaries. Both Mexico and Canada were on the vanguard of expanding state jurisdiction over maritime zones. And both were motivated to delimit boundaries with the U.S. to extract non-

[278] "Rethinking the Top of the World: Arctic Security Public Opinion Survey" (Toronto: Ekos Research Associates, January 2011), 25, https://www.ekospolitics.com/articles/2011-01-25ArcticSecurityReport.pdf. "When asked how they feel their government should work to resolve the issue, Canadians were divided; half (50 per cent of Northern Canadians and 49 per cent of southern Canadians) say that Canada should assert its full sovereign rights over the area, while two-fifths (43 per cent in each case) feel that the two countries should work together to come to an agreement. Respondents from the United States, however, are much more keen on the concept of compromise, with 62 per cent saying that their government should work with Canadians officials. Just ten per cent say they would prefer their government assert its full sovereignty over the area and one-quarter (28 per cent) did not respond (perhaps a reflection of the differing levels of awareness between […] residents of the two countries on this issue)."

renewable resources. Both also had fisheries as a significant driver to achieve the same end. Yet only one had success in doing so.

The state of bilateral political relations seems not to be a good indicator of which countries the U.S. signs maritime agreements with. The U.S. signed several delimitation agreements even involving complicated issues and strained bilateral relations, as with Cuba in 1977. In some instances, the U.S. signed agreements without oil having any relevance at all, for example with the United Kingdom (1993), Kiribati (2013), and Micronesia (2014). And in one case, a dispute was overcome without oil having been discovered—though it was being explored for—with the Soviet agreement of 1990. And U.S. relations with its northern and southern neighbors were generally positive throughout the post-WWII period. The U.S. and Canada have had difficult maritime issues since then, though this has not resulted in acrimonious relations generally.

Mexico would only achieve democracy since 2000, as compared to the persistent joint democracy status of the U.S.-Canada dyad. It has been contended that joint democracy is associated with diplomatic dispute onset.[279] It is possible that this may have allowed for the genesis of new disputes between the U.S. and Canada. However, this proclivity of democracies to begin new disputes says nothing about their likelihood to settle them. On the contrary, democracies are more likely to settle

[279] Kelly Daniels and Sara McLaughlin Mitchell, "Bones of Democratic Contention: Maritime Disputes," *International Area Studies Review* 20, no. 4 (December 1, 2017): 293–310, https://doi.org/10.1177/2233865917740269.

maritime boundaries, as confirmed in Chapter Three. For this reason, U.S.-Mexico should have been a harder case to achieve boundary delimitation during the 1960s and 1970s, whereas the U.S. and Canada should have been an easy case to resolve their disputes. Yet the opposite is what happened.

While the comparative case method can control for many variables, inevitably other differences remain that may plausibly explain the different outcomes in the maritime boundary negotiations between the U.S. and Canada versus the U.S. and Mexico. Several such explanations are explored below. While none can be definitively dismissed, they each seem unlikely to be the sole or even primary driver for the different outcome.

As noted in Section 5.3, a relatively low proportion of U.S. maritime boundaries have had nearby hydrocarbon discoveries when compared to the set of potential boundaries globally. Hydrocarbons are distributed in different ways across the globe vis-à-vis boundaries, so it may be that the apparent lack of confirmed oil and gas near potential U.S. boundaries drives American boundary negotiations. That is, the lack of oil and gas in its other boundaries caused the U.S. to adopt different negotiating strategies with Canada from what it used with Mexico. While this cannot be completely discounted, it seems unlikely for a couple of reasons. First, it is difficult to conceive of a theoretical explanation, given that the overall effect must be a conditional one. One could surmise that the lack of hydrocarbon resources leads a state *either* to be more willing to reach a negotiated settlement, or to be less willing to compromise on existing claims. But why would it do both? Second, the U.S. was a leader in developing offshore drilling, and the two neighbors in question are its most significant ones as far as potential offshore deposits. It is difficult to paint the U.S. as lacking offshore resources relative to other states just because its overseas territories proved not to be as hydrocarbon-rich as the seabed around its homeland.

Perhaps the more significant oil discoveries near Mexico compared to near Canada meant the U.S. prioritized settling its boundary to the South. By the 1980s, Mexico and the U.S. were the world's number two and three producers of offshore oil, respectively, and the U.S. was the number one producer of offshore gas, with the lion's share of production occurring in the Gulf of Mexico.[280] But Canada's offshore sector, which is concentrated off Nova Scotia, while smaller than its southern neighbors, is still formidable. And as has already been demonstrated, industry was very interested in oil prospects off Maine and Washington in the 1960s and 1970s. The argument that there was muted interest in the U.S.-Canadian boundary areas is anachronistic. Oil interest was present at least as early as Canada's first offshore permits on its west coast in the early 1960s. The high salience of oil in the Gulf of Maine boundary is indisputable given all the options seriously explored by Washington and Ottawa. After the ICJ judgment and drilling moratoria born out of environmental concerns, there was significantly less interest. But it would be impossible to disentangle the roles of the drilling moratoria from the unknown quantity of natural resources that remain undiscovered.

---

[280] Earney, *Marine Mineral Resources*, 245–46.

Perhaps the mismatch of preferred delimitation principles determined why the boundaries with Canada were harder to resolve than those with Mexico. For example, the continuation of the Dixon Entrance may be tied to the Beaufort Sea dispute, since Canada relies in both instances on interpretations of old treaties in opposition to equidistance, which it championed in the Gulf of Maine. And even internal U.S. Government deliberations pointed out that arguing natural prolongation in the Gulf of Maine would not only be difficult to sustain there but also disadvantage U.S. interests elsewhere. Having made the decision circa 1970 to press natural prolongation in the Gulf of Maine, Washington had cast its lot. As McDorman puts it, "equidistance was the methodology of choice for both States, except where it was not. For the U.S., equidistance was utilized on the Pacific and Arctic coasts but not in […] the Gulf of Maine. For Canada, fidelity to equidistance occurred in the Gulf of Maine and the 200-nautical-mile areas seaward of Dixon Entrance and the Juan de Fuca Strait, but not within Dixon Entrance or in the Beaufort Sea. The issue of consistency of delineation method […] was seen as important in the Gulf of Maine context, but in the *Gulf of Maine Case* and subsequent international boundary cases, this has proven not to be of consequence."[281] Choice of delimitation principles had the potential to play a role in the 1978 U.S.-Mexico boundary agreement, but the U.S. side opted to apply the principle which they knew would achieve settlement without unnecessary drama. Equidistance serves as a useful focal point for negotiations, a view that U.S.

---

281 McDorman, *Salt Water Neighbors*, 118.

negotiators appreciate since the *Gulf of Maine Case*.[282] So between official U.S. and Canada choosing other principles besides equidistance as well as extending existing inland disputes seaward, they tied themselves publicly to conflicting positions, whereas the U.S. and Mexico approached their maritime zones in a practical way by consistently applying the most straightforward method of equidistance.

Amid the Senate ratification for the 1978 Mexico treaty, even the oil industry was unable to *create* a dispute where none already existed. There is a fundamental difference between this minor contention (if it can be called that) over the boundary in the Gulf of Mexico and the widespread and multifaceted contention over the several U.S.-Canada boundary disputes. In each of the Canada cases, the parties had publicly made overlapping claims which multiple industries and the broader public had bought into; whereas the only temporary "dispute" in the Mexico case was intra-energy industry and not speaking for their governments on boundary matters.[283] In this case it resulted merely in hesitation by some in a legislature and thus a ratification delay. Getting that far with a U.S.-Canada delimitation treaty would require difficult compromise on well-established, specific claims. But Washington and Mexico City rather easily negotiated multiple delimitation treaties on progressively extensive maritime zones when circumstances seemed appropriate to do so and without fear of serious public backlash.

---

[282] Anonymous U.S. Government official, interview.
[283] "U.S.-Mexico Dispute Simmering in Gulf."

5.8 Conclusions from U.S. Boundaries

Both dyads were motivated to achieve jurisdictional certainty to aid industry. But because Mexico and the U.S. had not issued deep sea licenses near the boundary, industry did not have a stake in where the eventual boundary landed. Because the two sides refrained from making claims prior to settlement, there were no institutional impediments to reducing non-existent claims. Also because they didn't make overlapping claims, no significant constituency developed in favor of prioritizing pressing unilateral claims over settlement. Thus the Mexican boundaries were relatively easy to settle because there were no disputes. The Canadian boundaries were hard initially because of two pre-existing disputes, and the negotiating history demonstrates that the two governments linked their boundary issues such that they could not resolve the non-disputed ones first. That is, initial discussions considered the boundaries *in toto*. Even when one party found it in its interests to focus on a single boundary, the other refused to do so, until 1978 when they agreed to deal only with the Gulf of Maine. In the meantime, by 1976, all four boundary segments were actively disputed.

Order of Events. This meant that salience was especially high and that the two were likely to sign some agreement. But a delimitation agreement proved to be too difficult. A JDZ was considered. Third party settlement had been discussed over the course of several years. And finally, when all else had failed—and yet interest remained in achieving jurisdictional certainty at least for the Gulf of Maine—they resolved to use this last, costly option. In the counterfactual, if this had been a very old dispute, it would be very unlikely that industry would have explored on Georges Bank in the first place, and the impetus to settle could have waned.

If we consider the U.S.-Canada boundary segments separately, there were two such segments which experienced dispute onset after oil interest emerged (i.e., oil-before-dispute boundaries). Per my Chapter Three findings, this should have made these two more likely to be delimited. If Washington and Ottawa had prioritized either the Juan de Fuca or Beaufort Sea boundaries early on, they may have had an easier time finding a resolution to them. But instead, they opted to (partially) resolve the most contentious and economically salient boundary, in the Gulf of Maine. Having done so through many years of torturous negotiations and costly litigation, they were exhausted to the point that neither had significant interest in addressing the remaining boundaries. Eventually, in the 2010s, when they did return to boundary negotiations, it should not be surprising which one they chose. The Beaufort Sea dispute was the only one that had the potential to reap significant offshore hydrocarbons since drilling moratoria were by then well established in all the lower boundary areas. Yet the newness of the Beaufort Sea dispute had faded, and the bargaining positions had long been strengthened, such that they failed to reach any breakthrough.

Having considered the Gulf of Maine boundary more carefully, I believe this dispute by the 1970s should be regarded as two separate disputes: one over Machias

Seal Island and one over Georges Bank.[284] After all, the two states were able and willing to separate these two issues in their *compromis* to the ICJ. The second dispute over Georges Bank only arose as a result of oil concessions. Thus this separate dispute concerning the CS and fisheries zones is more properly classified as oil-before-dispute. Since this dispute was a recent one and largely motivated by oil interests, it was especially salient. Even more so since concessions had been granted within the disputed zone itself. This is in line with my conjecture from Chapter Three that oil-before-dispute case-type is most prone to achieve some type of agreement, including for third party dispute settlement, which is exactly what happened.

Unlike their complicated history of land disputes, the U.S. and Mexico have easily negotiated their maritime boundaries.[285] The absence of overlapping claims did not mean that delimiting the boundaries was always easy. The states practiced flexibility in boundary construction (e.g., the "swinging door" segment by the Rio Grande Mouth) and in legal interpretation (e.g., convergence of views on the extended continental shelf). Hydrocarbons were a key motivation of U.S.-Mexico boundary negotiations in three phases, culminating in the signature of several agreements: in 1968 and again in 1970 over maritime boundaries out to twelve NM, in 1976 and again in 1978 over 200 NM boundaries, and in 2000 over a segment

---

[284] Other scholars have similarly treated these as separate disputes, for example, Byers and Østhagen, "Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?"
[285] Alberto Szekely, "A Commentary with the Mexican View on the Problem of Maritime Boundaries in U.S.-Mexican Relations," *Natural Resources Journal* 22, no. 1 (1982): 155.

beyond 200 NM. If the 1976 provisional agreement is counted, the first U.S. delimitation agreements of twelve NM breadth, 200 NM breadth, and beyond 200 NM were all signed with Mexico.

The U.S. and Canada have made remarkably little progress on settling their boundaries, despite each having settled most of their other maritime boundaries.[286] Oil exploration in each of the four boundary areas did not lead to a single delimitation agreement. In one, the states were able to reach a partial delimitation by resorting to the ICJ. Hydrocarbons raised the salience of these boundaries, but insofar as they affected the negotiations it was only to reveal the intractability of the pre-existing disputes. The early near-shore disputes were extended along with progressively expansive claims. The same expanding claims were made in the U.S.-Mexico maritime border areas, but there was a stark contrast from the establishment of U.S.-Mexico boundaries, which were settled in a logical sequence moving further seaward.

The U.S.-Mexico case would seem to embody the “oil leads to conciliation” theory whereas the U.S.-Canada case illustrates the “oil leads to conflict” theory. Any oil effect on delimitation agreements seems to have been a conditional one. Hydrocarbons can speed up the extension of existing boundaries which is already easy, but they do not help unblock existing disputes. In a case like U.S.-Mexico, when there is oil interest and no dispute, delimitation is relatively easy. When there is oil interest amidst a dispute, as with Canada, delimitation agreements are especially

---

[286] McDorman, *Salt Water Neighbors*, 115–16.

hard. This makes consideration of alternative agreements more appealing, though achieving one can still be difficult. The two were unable to conclude JDZ agreements despite each side claiming to favor them in the early 1970s. The U.S. and Canada then limited their focus to a single disputed segment and ultimately concluded that adjudication was the only way to resolve it. This state decision was spurred on by the energy industry in both countries that had been stymied in their efforts to explore the Georges Bank area. In the one instance where a U.S.-Canada agreement was signed, it was an agreement to adjudicate that gave leaders political cover.

The *Gulf of Maine Case* did succeed in partially delimiting the boundary; despite some local backlash the two respected the decision. Nonetheless, it needs to be highlighted that while one dispute was resolved, another near-shore dispute remained, and a new area of uncertain jurisdiction was created. From the perspective of a tally of undelimited boundaries, the Court likely made full delimitation of the boundary out to the ECS harder than if the states had managed to conclude a delimitation agreement purely through negotiations.

CHAPTER SIX: EAST ASIAN APPLICATIONS AND OTHER CONCLUSIONS

"When the relationship is tense, we don't discuss the [Code of Conduct]. When the relationship improves, we pretend to discuss the [Code of Conduct]."

Former Singaporean Ambassador-at-Large Bilahari Kausikan, discussing ASEAN-China negotiations over the Code of Conduct for the South China Sea[287]

6.1 Summary of Findings

Maritime boundary disputes are present in every region of the world and, in many cases, have been the source of geopolitical tension and even armed conflict. The popular press—backed up by myriad experts in various fields—frequently assumes or asserts explicitly that natural resources explain the onset, duration, and intensity of maritime boundary disputes. Here is how the Associated Press sums up the disputes in the South China Sea: "China is pitted against smaller neighbors in multiple territorial disputes over islands, coral reefs and lagoons. The waters are a major shipping route for global commerce and are rich in fish and possible oil and gas

---

[287] As quoted in: Bill Hayton, "After 25 Years, There's Still No South China Sea Code of Conduct," *Foreign Policy* (blog), accessed September 3, 2021, https://foreignpolicy.com/2021/07/21/south-china-sea-code-of-conduct-asean. China endorses joint oil and gas development in the SCS while restricting foreign companies' participation in such activities, positions not shared by other SCS claimant states; see Carl Thayer, "A Closer Look at the ASEAN-China Single Draft South China Sea Code of Conduct," accessed September 3, 2021, https://thediplomat.com/2018/08/a-closer-look-at-the-asean-china-single-draft-south-china-sea-code-of-conduct.

reserves."[288] Meanwhile, the few scholars that have looked at resources as a determinant of boundary and dispute outcomes have mostly fallen on the side of resources—and particularly hydrocarbons—having a conciliatory role. We have been told that when oil and gas are involved, states are more like to resolve disputes and more likely to sign boundary agreements.

Johnston observes that boundary-making can be framed in and studied by specialists of various fields, each with their own strengths and potential pitfalls. For example, social scientists typically study boundary-making as a political phenomenon whereby bargaining theory explains the interplay of competing interests. They are prone to overemphasize the flexibility of the players' options. But the few studies that have looked closer at the maritime boundary data suggest that oil has a conciliatory effect on both boundary-making and dispute resolution, relying on what Johnston described as an economic framing. Economists can often be faulted with an overemphasis on rationality and efficiency.[289] Indeed, the current study finds that efficiency cannot overcome political forces when national sentiment is a factor. A more sophisticated approach must involve both the political and economic.

Natural resources can be the cause of either conciliation or contention, depending on the circumstances. The desire to exploit natural resources does not assist states in settling maritime disputes as frequently as some have hopefully

---

[288] "Recent developments surrounding the South China Sea" AP News. https://apnews.com/019a7814652ab490f4881b76374685dc
[289] Johnston, *The Theory and History of Ocean Boundary-Making*, 20–25.

posited. Here I have shown that the conciliatory effect of oil that makes states more likely to settle their maritime boundary directly is contingent on there being no active dispute. The primary mechanism is that identified by Ásgeirsdóttir and Steinwand: that states seek the legal certainty that comes with a settled boundary, because only then can they extract the resources and jointly profit.[290] But when there is an active dispute, this drive to profit is countered by leaders' domestic audience costs which they would face if they withdrew extant claims to reach a necessary compromise. Once a claim is made, there are strong domestic pressures against backtracking on that claim. Further, maritime claims are enshrined in domestic law in ways that make them especially "sticky;" revising them requires extraordinary effort on the part of the leader and other domestic actors. Compromise can be derailed by interest groups such as firms that have already invested through one of the disputant states. Or if no such investment has occurred, the dispute will keep new investment away and thus dampen the pressure to achieve legal certainty.

In sum, the effect of energy resources on the probability of states settling their maritime boundary is conditional on the legal status of the boundary. States without overlapping claims can be motivated to settle by oil interests in order to enjoy the joint benefits that can only come after clear jurisdictional lines have been established. But oil does not aid maritime neighbors with overlapping claims in reaching a

[290] Ásgeirsdóttir and Steinwand, "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims."

negotiated settlement on their common boundary. Offshore oil / gas is associated with new dispute onset and is *not* associated with dispute offset. Further, the “oil effect” applicable to non-contentious boundaries results only in more frequent *partial* delimitations.

Interest in offshore hydrocarbons further encourages states that are unable to resolve a dispute to either establish a joint development zone or seek third party dispute resolution. These methods often come with their own risks: the acrimony generated by the dispute may prevent a JDZ agreement from being implemented or see one of the party’s withdraw from judicial proceedings or reject the eventual ruling. These alternative agreement types are not always perfect substitutes to achieving a delimitation agreement with a negotiated settlement, as they entail additional costs and risks. In general, binding intermediation that is mutually agreed upon by both states is usually effective at resolving at least the narrow dispute put before the court or tribunal. JDZs have a less impressive effectiveness rate. At any rate, JDZs consistently fail as confidence building measures, though they may be a useful bargaining chip in order to reach a more comprehensive delimitation deal.

Through the course of my research, I have found evidence of an important addendum to my original theory. By raising the interest in some maritime space, hydrocarbons also lead to greater contention, including the onset of new disputes. Such oil-before-dispute cases tend to involve hydrocarbon activity in or close to the area now under dispute. Thus when oil interests precede a boundary dispute, such a boundary is especially salient and more likely to achieve any of the three agreement types. The mechanisms that would prevent a long-standing dispute from being resolved have not had a chance to solidify. In particular, it takes time for domestic publics to become attached to their state's maritime claims. Dispute-before-oil cases invariably have some distance between the pre-defined dispute area and the active hydrocarbon activity, an indicator of lower economic salience and thus lower likelihood of agreements being signed. This is in addition to the three mechanisms already elaborated on.

6.2 Implications for Undelimited Boundaries

Determining when and through which mechanisms natural resources lead to intractable disputes versus when they lead to conciliatory boundary delimitation and/or joint exploitation has many implications. On the theoretical side, this is a significant step towards a more complete understanding of maritime boundary formation. Future work on other explanatory variables, e.g., changing norms in international law, nationalism, or relative power, could ultimately lead toward a more comprehensive model of maritime boundary formation.

Further, there are ramifications for theories of territorial disputes and of war, which have been studied to a far greater extent than maritime disputes. For example, some models and data sets of conflict assume that one state makes the "first move" and is thus the initiator of the conflict, as in the Correlates of War project's MID dataset. This assignment of one and only one state as the initiator can be an unrealistic assumption given deep historical path dependencies surrounding title to territory, not to mention the difficulty to identify the initiator with consistent criteria given all the events that happen surrounding disputed territory. But in the maritime realm, such a theoretical construct may be closer to reality: states only began claiming waters and seabed beyond a few miles from their shores within the 20th century, and there is often less "noise" surrounding claims when compared to claims to land. So the maritime realm can offer a new, "cleaner" set of cases on which to test existing theories of territorial disputes.[291]

On the policy side, maritime boundaries have become exceedingly important in international politics. This is just as true for Great Powers and the global security implications that this implies, as well as to subaltern states in every maritime region of the world. An understanding of which boundaries are more likely to be settled than others should be of interest to security, development, and industry experts alike.

Policy implications follow for leaders trying to navigate potential strategies to obtaining maritime space and energy resources. Following onset of offshore oil interests, they face a choice: focus on reaching a settlement through boundary negotiations, or else make formal claims first in the hope that this would give

---

[291] See Lathrop (2013) for a fuller discussion on the differences between territorial and maritime disputes, with a focus on the implications for arbitration/adjudication, see: Coalter G. Lathrop, "Why Litigate a Maritime Boundary? Some Contributing Factors," in *Litigating International Law Disputes: Weighing the Options*, ed. Natalie Klein (Cambridge: Cambridge University Press, 2014), 230–59, https://doi.org/10.1017/CBO9781139062008.015.

leverage in future negotiations. My findings suggest that, all else being equal, leaders would do best to negotiate first, since laying claims will make it difficult to settle on a boundary later. However, if they have a legally disadvantageous position to gaining a substantial portion of the valuable maritime space, they may rationally make a claim over it in court. Starting a dispute with the intent to resolve it through a JDZ is highly inadvisable.

My findings also have implications for interested observers of maritime boundaries, namely by suggesting which cases are more or less likely to be delimited soon. Oil or gas discovered in the vicinity of unsettled and undisputed maritime boundaries will encourage states to settle their boundaries, so long as each state can avoid escalating the issue to a dispute. But we should not expect oil or gas to be associated with a delimitation agreement in cases where states have existing overlapping claims. Other co-variates associated with the signing of delimitation agreements include joint democracy, joint ratification of UNCLOS, high bilateral trade, and the lack of territorial disputes.

I will use the Caribbean region to illustrate. Oil and gas were discovered in some areas where the boundaries had not yet been settled, such as between Grenada and Venezuela, and between Trinidad and Tobago and St. Vincent and the Grenadines. We should not be surprised to see delimitation agreements soon between either of these dyads (though Venezuela not being a democracy is one factor making delimitation less likely).[292] USGS predicted in 2012 that the this region contains sizable quantities of undiscovered, technically recoverable oil and gas, yet little has been discovered in the intervening years.[293] Should a discovery of technically recoverable hydrocarbons be made in the vicinity of boundaries between democracies with no extant claims and no territorial disputes, say, Jamaica and Honduras, or between the island possessions of the United Kingdom and The Netherlands, we might bet on their quickly signing delimitation agreements. However, a discovery near Belize, Guatemala, and Honduras would probably not help resolve an existing three-way dispute over small islands and maritime zones.

The most high-profile maritime claims unfortunately are of the type where oil is unlikely to help aid resolution; they get so much attention precisely because they are disputed. The competing claims in the South and East China seas are unlikely to be aided by further offshore exploration and discoveries. Likewise, in the eastern Mediterranean, where a longstanding maritime dispute over competing delimitation principles between Greece and Turkey has recently expanded and involved other

[292] In searching the data for an ideal case, I could not find a single dyad which currently meets each of the following criteria: unsettled boundary, no overlapping claims, oil discovery, no associated territorial dispute, and joint democracy per Polity V data criteria that I used in my quantitative analyses. The Trinidad and Tobago-St. Vincent and the Grenadines dyad comes close but was excluded because the states were too small to be coded by Polity, though both are parliamentary democracies that would probably be rated as such. This dearth of ideal cases for delimitation of this type no doubt reflects the very thing that I have demonstrated – that hydrocarbon discovery has already helped achieve delimitation and hence why I moved the discussion on to impacts that hypothetical future discoveries might have.
[293] USGS World Petroleum Resources Project. "Assessment of Undiscovered Conventional Oil and Gas Resources of South America and the Caribbean, 2012." https://pubs.usgs.gov/fs/2012/3046/fs2012-3046.pdf.

regional players. In both regions, efforts to explore and/or extract oil and gas has been stymied by competing claimants and by other states aligned with them. Earlier findings in the literature that oil can help states settle boundaries would be misapplied to the most well-known cases, even as it remains true for many other boundaries not in the headlines.

Nonetheless, the significant findings already made contribute to rich research agendas such as on territorial disputes and the role of resources in international relations. It also focuses on an understudied phenomenon that is deserving of more attention because of its enormous and growing role in international politics. As the competition for maritime resources heats up, the need to understand negotiating dynamics surrounding the remaining undelimited maritime boundaries will become as self-evident as the need to study territorial disputes.

6.3 Applying the Findings to East Asia / Pacific

While there are unresolved maritime boundaries in every region of the world, this is a particularly vexing issue in East Asia, where disputes over maritime zones in the South China Sea, East China Sea, and beyond affect not only the claimant states but have the potential to flare into major, international conflict. The theory presented here will thus be applied to undelimited boundaries in East Asia and the Pacific. In general, energy deposits—whether already discovered or any future discoveries—are poised to play a confounding role in the most high-profile boundaries that are already hotly disputed.

In 1990, Johnston and Valencia coded thirteen contentious East Asia/Pacific maritime boundaries based on 51 factors they reasoned to be either facilitative or obstructive to reaching some form of settlement.[294] They assumed that "potential value of resources in the area" was a facilitative factor. With over 30 years of interspersed history, one can now see how their predictions fared. Not well. The disputes that were rated most conducive to settlement—such as those associated with Juan de Fuca and the Dixon Entrance—have not had any delimitation agreements, nor joint development zones or appeals to arbitration. Yet a couple of the most intractable disputes have been fully settled, such as between Thailand and Vietnam.

One can also apply a simpler methodology derived from the present study. Since all the boundaries coded here were disputed, we should not expect that the discovery of oil would aid the states in settling. And indeed, of the 17 dyads where there has been a verified hydrocarbon discovery, there have been five relevant agreements signed since Johnston and Valencia wrote in 1990 (0.29 agreements per dyad). Meanwhile, two agreements were signed among the seven dyads without a discovery (also 0.29 per dyad).[295] This admittedly crude method casts further doubt

---

[294] Douglas M. Johnston and Mark J. Valencia, *Pacific Ocean Boundary Problems: Status and Solutions* (Martinus Nijhoff Publishers, 1991), chap. 5.
[295] I ignore the Bering Sea "Donut Hole" issue because it was not a dispute in the same sense that I have used.

Table 12: Johnston and Valencia (1990) Coding of Pacific Boundary Disputes' Amenableness to Settlement, With Some Additional Data

Dispute	Disputant Dyads	Potential Resource Value	Weighted Net Total	Oil Discovered	Delimitation Agreements	JDZ or 3rd Party Agreements	Notes
Juan de Fuca	U.S.-Canada	+3	+44	–	–	–	
Dixon Entrance	U.S.-Canada	+2	+41	–	–	–	
Bering Sea "donut hole"	U.S.-U.S.S.R./Russia	+3	+29	–	–	–	1994 agreement only on fisheries conservation
Celebes Sea	Malaysia-Indonesia	+1	+19	1938	–	1997	ICJ settled island dispute in 2002; maritme dispute remains
	Malaysia-Philippines			1999	–	–	
Tok-do / Takeshima	Japan-South Korea	+2	+15	1989	–	–	
Malacca & Singapore Straits	Malaysia-Singapore	0	+13	–	1995	2003 (ICJ)	
Senkaku / Tiao-yu Tai	Japan-China	+4	+3	–	–	2008 (JDZs)	JDZs not implemented
Yellow Sea	China-North Korea	+2	-4	1988	–	–	
	China-South Korea				–	–	
Natuna	Indonesia-Vietnam	+3	-9	1974	2003	–	
S. Kuriles (Northern Territories)	Japan-U.S.S.R./Russia	+2	-19	–	–	–	
Gulf of Tonkin	China-Vietnam	+2	-23	1978	2000	–	
Eastern Gulf of Thailand	Cambodia-Thailand	+3	-47	1972	–	2001 (JDZ)	JDZ implementation stalled
	Thailand-Vietnam				1997	–	
Spratley Islands	Brunei-Malaysia	+3	-53	1976	2009	–	
	Brunei-Vietnam				–	–	
	Brunei-China				–	–	
	China-Malaysia				–	–	
	China-Philippines				–	–	
	China-Vietnam				–	–	
	Malaysia-Philippines				–	–	
	Malaysia-Vietnam				–	–	1992 JDZ outside Spratleys; 2009 joint ECS submission
	Philippines-Vietnam				–	–	

Potential Resource Value and Weighted Net Total from Johnston & Valencia (1990); Discovery data from Johnston & Valencia and Lujala, et al (2007). Spratley Islands disputant dyads open to interpretation. On PRC-DPRK boundary status, see Footnote 303.

on the oil-leads-to-agreements theory when applied to the subset of disputed boundaries.

These high-profile cases are exactly the ones that would not be aided by petroleum discovery, at least not for reaching straightforward delimitation agreements. These disputes just mentioned are too well developed to expect hydrocarbons to allow leaders to compromise on their boundaries. This is not to say a leader may not try, but they would best be forewarned that the political backlash can be fierce. And the presumption that oil can help in a case where it cannot is problematic, for both observers and state leaders. Yet oil can still contribute to resolution of the few remaining boundaries in the region that are not disputed.

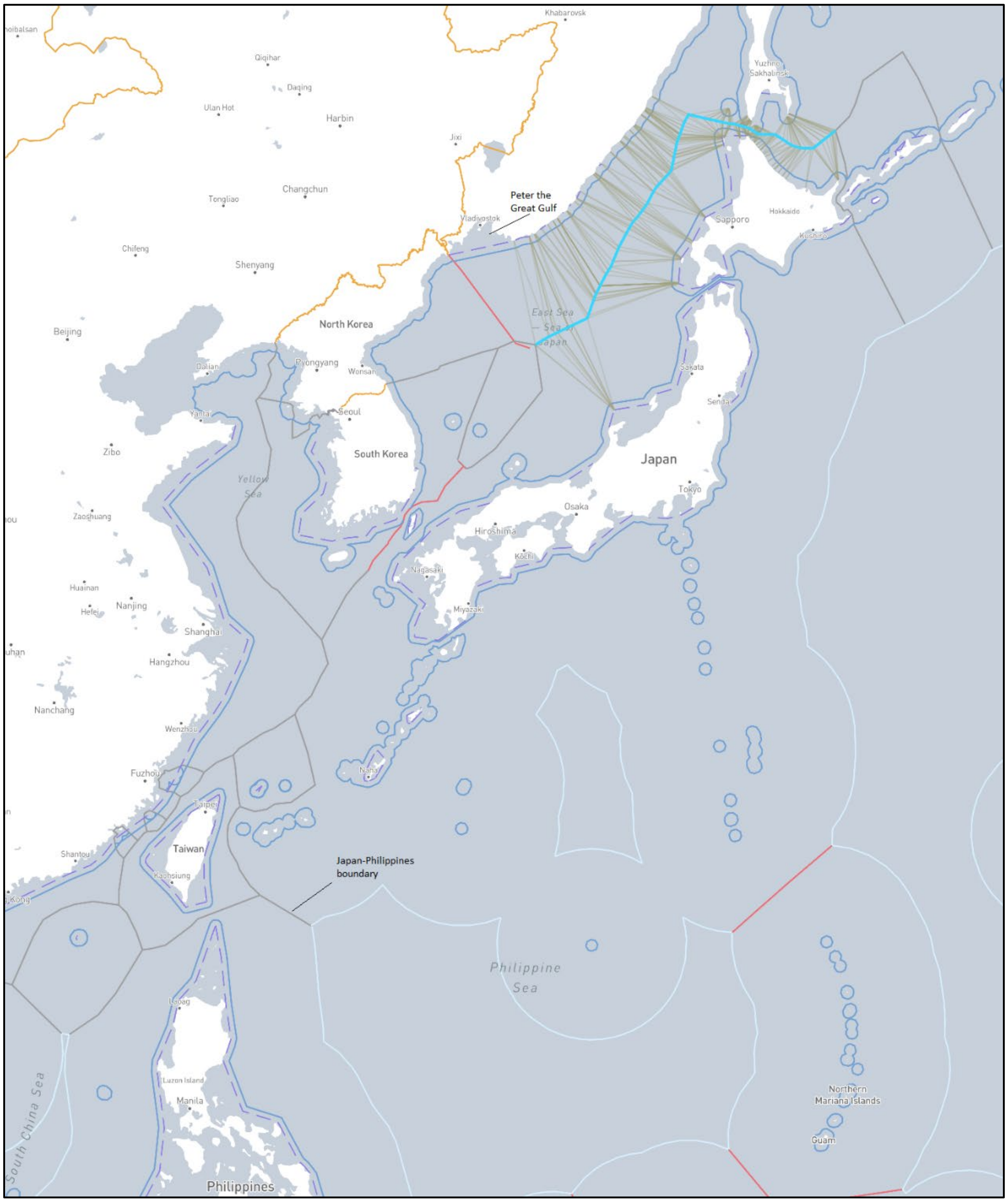
For example, while the Northern Territories / South Kuriles and surrounding waters is a thorny issue in Russo-Japanese relations, to the west in the northern Sea of Japan, their boundary is undelimited and undisputed. The main issue in settling this boundary is issue linkage: Japan argues that it cannot negotiate a peace treaty to end World War II until settlement of the Northern Territories, so signing another maritime boundary might smack of selling out to Russia. Further, Japan objects to Russia's claim that the Peter the Great Gulf is Russian internal waters. However, that area is just far enough south that it need not affect the drawing of a Japan-Russia boundary based on equidistance. The geomorphology of the area does not lend itself to a strong claim of natural prolongation for one side over the other. Japan prefers equidistance in its main disputes with both China and South Korea. And Russia has now settled all its other boundaries out to 200 NM apart from Ukraine (where Crimea complicates things) and Georgia (where Abkhazia complicates things). Land sovereignty is the preeminent issue in these cases, such that Moscow may no longer care much about what precedent it sets with delimitation principles. Both states claim straight baselines. Hydrocarbons have already been discovered around both Hokkaido and Sakhalin islands; and there is a history of Japanese investment in Soviet/Russian offshore ventures around Sakhalin Island going back to the 1980s.[296] Should current exploration[297] closer to the median line be successful, it could become the catalyst to a boundary agreement. In sum, if they deemphasize any emotive connection to boundaries elsewhere and overcome more recent tensions resulting from the Russian invasion of Ukraine, oil has the potential to motivate Moscow and Tokyo to negotiate a partial and technically simple delimitation. For example, as shown in Figure 25, the Sovereign Limits portal developed by International Mapping can draw a provisional equidistance line from Japan's and Russia's declared baselines as far south as the northern tip of the Japan-South Korea disputed zone, without involving base points in the Gulf of Peter the Great.

Similarly, Japan has an undelimited yet undisputed boundary with the Philippines. The two have generally good relations and no territorial disputes. Applying equidistance would be consistent with each states' positions in their respective disputes with China, in Japan's dispute with South Korea, and in the

---

[296] Johnston and Valencia, *Pacific Ocean Boundary Problems*, 119–21.
[297] Mitsui Oil Exploration (MOECO), "Japan | Project," accessed February 19, 2021, https://www.moeco.com/en/project/japan.html.

Figure 25: Japan's Boundaries with Russia and Others



Brown construction lines extend from baselines claimed by Russia and Japan, generating a blue equidistance line. Other undelimited boundaries, including around disputed features, are shown with equidistance lines in gray. Red lines are established boundaries. Unilateral claims are not shown. Credit: Sovereign Limits (International Mapping)

Philippines' dispute with Malaysia.[298] The Philippines has invested recently in exploring its hydrocarbon resources, including the Cagayan Basin, which is believed to have natural gas both on Luzon and in its northern offshore.[299] Granted the seafloor drops off considerably on the Japanese side of the median line,[300] but should considerable gas be found, it may nonetheless prompt interest in negotiating this boundary.

The Cambodia-Vietnam boundary should be ripe for negotiations. Earlier overlapping claims by South Vietnam were not adopted by a unified Vietnam, and island disputes were resolved in 1982. This area is rich particularly in natural gas, which should be a facilitative factor in coming to an agreement.[301]

Oil has been discovered in the North Korea-China maritime border area.[302] However, relations are so opaque that it is unclear what maritime zones a decades-old

---

[298] Johnston and Valencia, *Pacific Ocean Boundary Problems*, 152.

[299] Gurdip Singh, "The Philippines Targets $7.5 Billion Exploration Investment," *Offshore*, November 1, 2011, https://www.offshore-mag.com/business-briefs/company-news/article/16755017/the-philippines-targets-75-billion-exploration-investment; Lujala, Rød, and Thieme, "Fighting over Oil."

[300] NOAA, "Bathymetric Data Viewer," accessed February 19, 2021, https://maps.ngdc.noaa.gov/viewers/bathymetry/.

[301] Johnston and Valencia, Pacific Ocean Boundary Problems, 134–42.

[302] Sungchan Choi et al., "Spatial Distribution of Hydrocarbon Reservoirs in the West Korea Bay Basin in the Northern Part of the Yellow Sea, Estimated by 3-D Gravity Forward Modelling," *Geophysical Journal International* 208, no. 1 (January 1, 2017): 75–85, https://doi.org/10.1093/gji/ggw369.

boundary agreement between these two applies to, and whether there are disputed islands that would complicate boundary negotiations.[303]

Existing geologic studies have given little attention to hydrocarbon potential around small island states.[304] One exception is Palau which has undelimited and undisputed boundaries with Indonesia and the Philippines. All three states have made efforts recently to explore more of their offshore potential, though there is no particular focus on the Palau-Philippines or Palau-Indonesia border areas.[305]

Although the evidence suggests that delimitation agreements are unlikely to be spurred on by hydrocarbons for the disputed Asia-Pacific boundaries, that does not mean that progress cannot be made toward delimitation. Other options are available such as arbitration, adjudication, or establishing JDZ. Leaders of disputing states may also choose to compromise in the hope of jointly profiting from the hydrocarbon wealth and risk the political backlash of compromising. But in those situations, it

---

[303] See uncertain accounts by: Johnston and Valencia, *Pacific Ocean Boundary Problems*, 117; and Keyuan Zou, "China and Maritime Boundary Delimitation: Past, Present and Future," in *Conflict Management and Dispute Settlement in East Asia*, ed. Ramses Amer and Keyuan Zou (Farnham, England; Burlington, Vt.: Ashgate Pub. Co., 2011), 157, http://site.ebrary.com/id/10460637. Though one can infer from these two sources that PRC and DPRK did not sign any new boundary agreement between 1990 and 2011, and hence my inclusion of this dyad in Table 12.

[304] USGS, "World Petroleum Assessment," accessed February 19, 2021, https://certmapper.cr.usgs.gov/data/apps/world-energy/?resource=conventional.

[305] "PPX Farms into Palau License," *Offshore*, May 19, 2009, https://www.offshore-mag.com/home/article/16789963/ppx-farms-into-palau-license; John Mark Bautista, "Oil and Gas Exploration in The Philippines," *GEO ExPro*, July 21, 2020, http://www.geoexpro.com/articles/2020/07/oil-and-gas-exploration-in-the-philippines; Ron Noble et al., "Kofiau and Cendrawasih Bay Frontier Basin Exploration: From Joint Studies to Post-Drill Assessment" (2016 Technical Symposium, Indonesia Exploration: Where From - Where To, Indonesian Petroleum Association, 2018).

probably would have been easier to compromise either before oil was discovered or before the dispute was allowed to crystallize in the public consciousness.

6.4 Limitations and Areas for Future Study

Until now, the mechanisms associated with compromising existing boundary claims—industry risk tolerance, audience costs, and institutional barriers—have been treated as constants. This was sufficient to demonstrate the theory in action. But each of these would likely depend on a variety of observable factors. For example, some disputes are more salient to domestic audiences than others.[306] This is true both for nationalist sentiments surrounding the boundary and to economic interests. Introducing measures of relative salience of claims could thus be a fruitful extension of the present research. Likewise, accounting for the relative difficulty of changing a state's claims—whether a constitutional amendment or merely a presidential proclamation—could be a worthwhile exercise.

If the key determinant of whether or not oil spurs agreement is whether there is a dispute, the next obvious question is why disputes arise sometimes and not others. As was seen in the U.S. cases, difficult technical issues in actually constructing a boundary can precede oil interests and either be resolved creatively or metastasize into a full blown dispute. This study was unable to focus on the question of dispute

---

[306] Though audience costs in particular may be hard to isolate. Kenneth A. Schultz, "Looking for Audience Costs," *The Journal of Conflict Resolution* 45, no. 1 (2001): 32–60.

onset, but future research, perhaps using formal process tracing methods, might be able to unlock the secret.

Another potential conditional relationship may surround the location of the hydrocarbons. If the location of gas and/or oil fields are well known, this may cause states to focus on gaining rights to that particular area. Conversely, if a boundary area merely is known to have some hydrocarbons but the specifics are not well established, states may be inclined to wait until more is known. Currently, sufficient data does not exist to get after this question globally, but case study work could be a good starting point.

The theory applies best to executive leaders and thus the focus of this study has been on the signature of bilateral agreements. However, in some cases, legislatures withheld ratification for extended periods. Returning to the U.S. examples, besides the 1978 Mexican Agreement, which took almost 20 years for the U.S. Senate to ratify, the 1977 Cuba-U.S. and 1990 Soviet-U.S. agreements have also not been ratified by the Senate and the Duma, respectively. And hydrocarbon interest motivated the delayed ratification in the Mexican and arguably Russian cases.[307] But in each case, the agreed boundaries are or were treated as the provisional boundary. And in no case was there any serious consideration of changing the boundary. Oil licenses have been granted in areas near these de facto boundaries, for example in the

---

[307] Clingan, "US—Mexican Maritime Relations in the Aftermath of UNCLOS III," 59.

Chukchi Sea where exploratory drilling occurred in the late 1990s.[308] Thus, it seems fair to consider the successful conclusion of a boundary agreement between state executives as resolving uncertainty over sovereignty in the most practical sense. Nonetheless, it may be worthwhile to examine globally whether this remains the case, or how often signed-but-unratified boundary agreements fail to take on a provisional status. The treaty ratification process varies significantly across states. The U.S. has a particularly burdensome process, with two-thirds approval from the Senate. Canada, on the other hand, only began the practice of tabling treaties before the House of Commons in 2008, and its Westminster system means the government that negotiated the treaty is headed by members of the ruling party in parliament. Therefore, the applicability of the present theory may very well apply only up to treaty signature for certain states but up to ratification for other states, though this deserves further examination.

There is a nascent movement away from offshore drilling that has implications for the applicability of this theory going forward. Due to concerns about greenhouse gasses, on top of the environmental risk that has long been associated with offshore drilling, the industry is facing serious headwinds. The offshore drilling industry had always been hostage to volatility in the demand side—for example, it had nearly shut down because of low oil prices *even before* the COVID pandemic

---

[308] NOAA, "Marine Cadastre National Viewer," accessed February 21, 2021, https://marinecadastre.gov/nationalviewer/.

sunk prices further. But beyond vicissitudes in prices, we may be witnessing a long-term downtrend that would mean a decrease in lobbying pressure from the offshore oil industry. Of course, the relevant political dynamics vary considerably across states; some may be more willing to accept the environmental and climate risks for the energy rents. States that have instituted broad bans on offshore drilling include developed New Zealand and developing Belize.[309] Some private energy firms have also pledged to significantly reduce their carbon footprint. For example, BP recently slashed its oil exploration team,[310] swore off exploration in any new countries where it does not already operate, and committed to becoming a carbon-neutral company by 2050. Seeing greenhouse gas emissions as a liability, multinational energy firms have been writing-off some of the most carbon-intensive projects at already-discovered fields, notably oil sands and deep-water fields.[311] In the near-term, such moves may cost these states and firms, allowing other states and firms to take advantage of rising energy prices. Perhaps developed countries may eventually subsidize developing

---

[309] "How Belize Is Restoring Its Coral Reefs and Damaged Ocean," accessed September 13, 2021, https://www.nationalgeographic.com/science/article/belize-restores-coral-reefs-oil-drilling-ban-environment; "People's Referendum: NO to Offshore Oil Drilling!," The San Pedro Sun, March 1, 2012, https://www.sanpedrosun.com/environment/2012/03/01/peoples-referendum-no-to-offshore-oil-drilling/; "New Zealand Bans All New Offshore Oil Exploration as Part of 'Carbon-Neutral Future,'" The Guardian, April 12, 2018, http://www.theguardian.com/world/2018/apr/12/new-zealand-bans-all-new-offshore-oil-exploration-as-part-of-carbon-neutral-future.
[310] Ron Bouso, "BP's Oil Exploration Team Swept aside in Climate Revolution," *Reuters*, January 24, 2021, https://www.reuters.com/article/us-oil-exploration-bp-insight-idUSKBN29U00C.
[311] Bloomberg, "Oil Companies Wonder If It's Worth Looking for Oil Anymore - News for the Energy Sector," *Energy Voice* (blog), August 17, 2020, https://www.energyvoice.com/oilandgas/259042/oil-exploration-falklands-africa-stranded.

countries to avoid offshore drilling similar to attempts to subsidize Brazil to avoid deforestation in the Amazon.[312] This hodgepodge of firm-, national-, and international-level policies will be one more layer of analysis that would need to be considered when applying this paper's theory to particular cases.

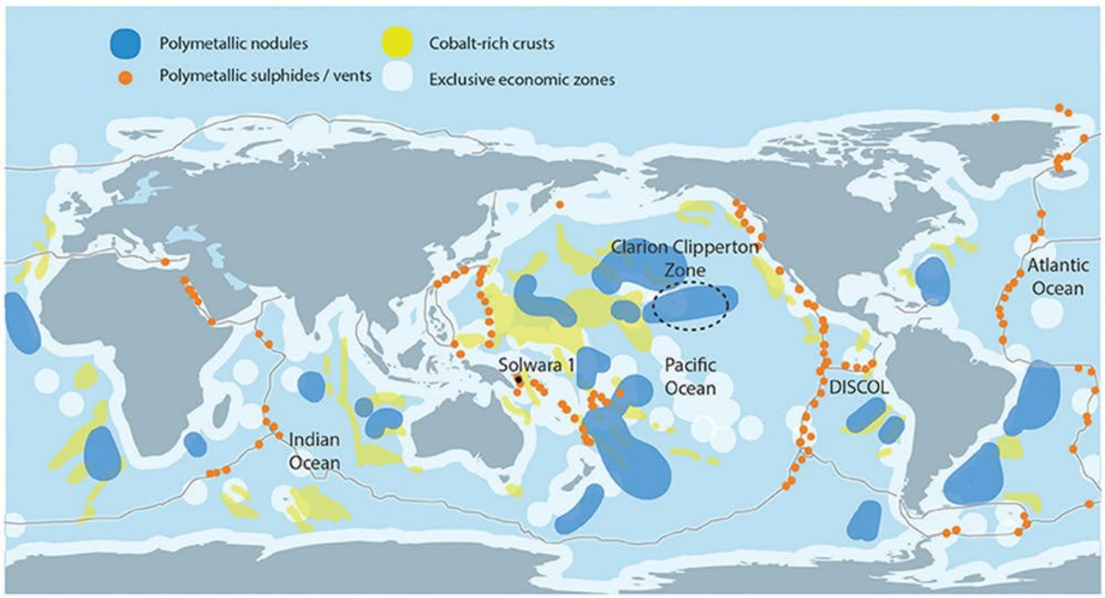
But the theory should still apply generally to undelimited boundaries where such specific restrictions are not in play. Only when alternative energy sources truly drive the global economy and significantly reduce demand for hydrocarbons would we expect the theory to no longer apply more broadly.

But even if decades from now offshore oil and gas lose their influence over maritime boundary politics, other natural resources can perform a similar function. Maritime areas with the right conditions may become valuable real estate for energy production through wave energy or ocean thermal energy conversion. Probably sooner still, mineral resources like polymetallic nodules, seafloor massive sulfides, and cobalt-rich crusts have the potential to be exploited. Each is found in different parts of the ocean floor and contain different mineral commodities. After initial interest following their discovery in the 1960s, the technical challenges of deep-sea mining prevented any commercially viable projects. But more recently, with technological advances and shifting commodity markets—such as for rare earths

[312] "Norway to Halt €30 Million Amazon Subsidy, Saying Brazil 'broke Agreement' on Deforestation," France 24, August 16, 2019, https://www.france24.com/en/20190816-norway-stops-subsidy-brazil-amazon-broke-agreement-deforestation-bolsonaro.

found in polymetallic nodules—this sector may finally be on the verge of its long-anticipated boom.[313]

Figure 26: Locations of Significant Seabed Mineral Deposits[314]



NB: EEZs are only approximations of 200 NM limits from land and not actual state claims.

As shown in Figure 26, most of these mineral deposits lie in the deep seabed, the Area beyond national jurisdiction. But some lie on the continental shelf that is or can be claimed by states. China's aggressive stance surrounding its claims in the East and South China seas since around 2000 may *already* be explained as well from its

---

[313] Elizabeth M. De Santo, Elizabeth Mendenhall, and Elizabeth Nyman, "A Rush Is on to Mine the Deep Seabed, with Effects on Ocean Life That Aren't Well Understood," The Conversation, accessed August 20, 2021, http://theconversation.com/a-rush-is-on-to-mine-the-deep-seabed-with-effects-on-ocean-life-that-arent-well-understood-139833.
[314] Kathryn A. Miller et al., "An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps," *Frontiers in Marine Science* 4 (2018): 418, https://doi.org/10.3389/fmars.2017.00418.

desire to continue to control the rare earths market as it is to secure access to offshore hydrocarbons.[315] There is thus the potential that non-hydrocarbon minerals can play the same role that oil and gas have played until now in claim-making, boundary formation, and interim arrangements. Focused studies would be a valuable addition to the literature.[316]

Fisheries continue to be a major source of both contention and cooperation in maritime politics. But the role that fisheries play in determining maritime boundaries remains elusive, other than in the subset of cases where fisheries provisions appear in the final agreement or in an accompanying agreement.[317] Yet there is a key reason why a fisheries effect would not work like that of oil and gas: fishing does not require the heavy investment that must be sunk into oil and gas production. A state can do nothing and allow its fishermen to exploit the area that remains undelimited. It may even profit from this inactivity by taxing the fishing industry. On the other hand, if regulation becomes necessary because of overfishing, the states may be compelled to make specific claims or negotiate on the boundary or on a joint fisheries arrangement. More granular data on fish catches by region would allow research into the role of fisheries on boundary making than was possible in this study. This could potentially

[315] Gent and Crescenzi, *Market Power Politics*, chap. 7.
[316] James R. Hein, Andrea Koschinsky, and Thomas Kuhn, "Deep-Ocean Polymetallic Nodules as a Resource for Critical Materials," *Nature Reviews Earth & Environment* 1, no. 3 (March 2020): 158–69, https://doi.org/10.1038/s43017-020-0027-0.
[317] Churchill, "Fisheries Issues in Maritime Boundary Delimitation."

be done using satellite imagery of nighttime lights emanating from fishing fleets in order to locate the most productive fishing waters.

Another difference between hydrocarbons and fisheries is that the state's interest in the fishery is not only exploitation for economic ends, but also conservation. While states' transboundary fisheries policies were originally focused on territoriality—on who is allowed to fish where—they have become a complex web of bilateral, regional, and global institutions designed to achieve economic, social, and ecological goals. There is no analogue in the sphere of offshore drilling.[318]

Extended continental shelf claims and the Arctic have received a lot of attention recently, including worries by Western powers that Russia may lay claim to a very large and lucrative maritime zone when global warming makes oil extraction in the High North more feasible. But most boundaries to territorial seas, exclusive economic zones, and continental shelves up to 200 NMs in the Arctic—including all of Russia's—have been delimited. Russia's newest "claims" are submissions to the UN's Commission on the Limits of the Continental Shelf, which manages an institutionalized process for adjudicating ECS limits. Russia's ECS "claims" are therefore of a preliminary nature, and it has already revised its submission twice in response to the Commission's recommendations. Further, there are many instances of

---

[318] This trend is a global one, but for a specifically European perspective on it, see: Leyre Goti-Aralucea et al., "Overarching Sustainability Objectives Overcome Incompatible Directions in the Common Fisheries Policy," *Marine Policy* 91 (May 1, 2018): 49–57, https://doi.org/10.1016/j.marpol.2018.02.006.

joint submissions to the CLCS, whereby maritime neighbors postpone delimitation until the determination of initial entitlement is established. Therefore, it leaves open the hope that overlapping ECS claims may not work the same as other claim types. Perhaps the UN process slows things down and inserts a modicum of political cover into every overlapping ECS entitlement, allowing boundaries to be settled more amicably. There is room for theorizing here, but little empirical testing because of the few ECS submissions to have been fully adjudicated.

Keen observers of maritime boundary issues have long presaged the proliferation of more complex sovereignty regimes.[319] And yet, only one joint development zone was established in the period from 2010 to 2023. It is not readily apparent why this approach has not been used more in recent years, even while delimitation agreements and appeals to arbitration have continued apace and there are plenty of disputed boundaries with nearby discoveries which would fit the most common profile outlined in Chapter Four. Perhaps the checkered results of implementing JDZs has made them less appealing as an interim arrangement. Or perhaps there are other parameters not identified here that support JDZ formation,

---

[319] "It seems likely that future approaches to ocean boundary-making will place less emphasis on permanent and inflexible settlements, and more emphasis on imaginative and sophisticated arrangements for the allocation and administration of ocean space." Johnston, *The Theory and History of Ocean Boundary-Making*, 18. And more recently: "[T]he use of complex resource-sharing mechanisms, or the increasing focus on developing adequate management solutions concerned with transboundary fish stocks, as well as the establishment of protected areas in tandem with greater environmental awareness over the state of the oceans, might make the exact location of the maritime boundary itself (if not the maritime domain) less important." Østhagen, "Maritime Boundary Disputes: What Are They and Why Do They Matter?," 7.

parameters that are rarer among the remaining outstanding boundaries. One such parameter could be bilateral relations: perhaps we ran out of cases where disputing states could be cooperative enough to sign a JDZ agreement. Or maybe the technocrats and scholars who can envisage win-win solutions still underestimate the difficulty of overcoming political constraints to compromise. My own consideration of the effect of oil on JDZs revealed that the situation is more complex than is often assumed, yet it only brushed the surface. Finding these answers might help martial in the era of proliferated use of provisional arrangements in disputed ocean space, or at least give pause to those who want to keep proclaiming its beginning.

APPENDIX A: ADDITIONAL REGRESSION OUTPUTS

	JDZ	Binding 3rd Party	Dispute Onset	Delimittn. / Dispute First	Delimittn. / Oil First
	(14)	(15)	(16)	(17)	(18)
Oil	0.328* (0.189)	-0.00282 (0.181)	0.283*** (0.0759)	-0.0164 (0.214)	
Dispute	0.271 (0.327)				0.0275 (0.152)
Oil X Dispute	0.109 (0.375)				
Territorial Dispute	-0.391** (0.194)	0.0290 (0.174)	0.408*** (0.0747)	-0.856*** (0.204)	-0.402** (0.200)
Fishery Total	0.0285* (0.0151)	-0.0207 (0.0208)	0.0155 (0.0105)	-0.0249 (0.0340)	0.0251 (0.0225)
Trade Per Cap	-1.075 (0.836)	-0.0468 (0.170)	0.0492 (0.286)	0.420** (0.207)	0.590 (0.396)
Ratified UNCLOS	0.174 (0.177)	0.237 (0.193)	-0.00392 (0.112)	0.186 (0.255)	0.244 (0.162)
Two Democracies	-0.0752 (0.214)	0.261 (0.174)	0.224** (0.0876)	0.388** (0.183)	0.304** (0.147)
Joint UN Voting		0.130 (0.856)	0.241 (0.217)	-0.573 (0.697)	0.123 (0.401)
Diff. in GDP	0.492 (0.361)	-0.0611 (0.387)	-0.139 (0.227)	-0.191 (0.494)	0.225 (0.356)
Rel. Capabilities	-0.233 (0.324)	-1.167*** (0.374)	-0.128 (0.192)	0.479 (0.386)	-0.0507 (0.361)
Dyads	302	90	429	63	146
N	9103	1687	15746	1590	3912

Robust standard errors clustered by dyad are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

- Model 14 is equivalent to Model 9 (Page 93), but without imputed data. Listwise deletion thus results in far fewer observations. This combined with the infrequent occurrence of JDZ agreements, particularly when there is a dispute and no discovered oil, results in collinearity and the interaction term being omitted. This was avoided in this instance by dropping the degrees of freedom, namely by removing one control variable, joint UN voting. As with Model 9, the effect of oil remains positive on signing a JDZ agreement regardless of dispute status, though this relationship is not as strong, likely due to the reduced observations.

- Model 15 is equivalent to Model 11 (Page 93), but without imputed data. Like Model 11, it fails to find a statistical relationship between oil and signing a binding intermediation agreement, which should not be surprising given that Model 15 includes even fewer observations.

- Model 16 is referenced on Page 89 and Page 99. As noted there, the predicted probability of a new dispute onset when there is no oil is .0053, whereas with oil it increases to .0111 (p = .001). This shows that oil discovery correlates with the onset of new disputes.

- Model 17 is referenced on Page 91. It only treats observations following a dispute onset without oil discovery ("dispute-before-oil"). Unlike the main models for delimitation (e.g., Model 4), it does not include Dispute, which is a constant. As already reported, the predicted probability for a delimitation agreement when there is a dispute without discovery is .0204, while that for when discovery occurs following dispute onset is .0197, and these are not statistically different (p = .939). This is consistent with my key finding that oil does not help states resolve their pre-existing disputes.

- Model 18 is referenced on Page 91. It is similar to Model 17, except that it includes just observations where oil is discovered in the absence of a dispute ("oil-before-dispute"). As noted in Chapter Three, the predicted probability for signing a delimitation agreement following dispute onset is .0231, while the probability when there is no dispute is .0218. Combined with Model 17 results, this small yet statistically insignificant rise (p = .858) shows that if one tries to distill a distinct "dispute effect" from an "oil effect," they are not additive. Maritime neighbors with no pre-existing dispute that experience oil discovery are more likely to sign a delimitation agreement primarily because of the mechanisms associated with oil interests ("oil effect"). With the probability of delimitation then relatively high, the crystallization of a new dispute can have only a modest further effect. Nonetheless, this small rise in probability following dispute onset—despite lacking statistically significance here—is notable given: 1) the same was found for all three agreement types; 2) there is no similar rise when oil is discovered among dispute-before-oil cases; and 3) there are plausible reasons why new disputes spurred on by oil interests would be especially likely to lead to boundary-related agreements (See Page 115).

SELECTED BIBLIOGRAPHY

Acuff, A. Dewey. Letter to USGS Regional Oil & Gas Supervisors. "Outer Continental Shelf Operations," October 14, 1968. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, 1836 UNTS 3 § (1994). https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXI-6-a&chapter=21&clang=_en.

Allee, Todd L., and Paul K. Huth. "The Pursuit of Legal Settlements to Territorial Disputes." *Conflict Management and Peace Science* 23, no. 4 (September 1, 2006): 285–307. https://doi.org/10.1080/07388940600972644.

American Consulate Halifax. Letter to State Department. "Summary and Transcript of Prof. Flemming CBC Interview," March 13, 1970. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

American Embassy Ottawa. Letter to Secretary of State. "State Department Telegram: Canadian Sovereignty - Georges Bank," February 25, 1970. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

Anderson, D. H. "France-Spain: Report Number 9-2." In *International Maritime Boundaries*, edited by Jonathan I. Charney and Lewis M. Alexander, 1719–34. Boston: Martinus Nijhoff Publishers, 1993.

———. "Iceland-Norway (Jan Mayen): Report Number 9-4." In *International Maritime Boundaries*, edited by Jonathan I. Charney and Lewis M. Alexander, 1719–34. Boston: Martinus Nijhoff Publishers, 1993.

———. "Ireland-United Kingdom: Report Number 9-5." In *International Maritime Boundaries*, edited by J. I. Charney and L. M. Alexander, 1767–79. Boston: Martinus Nijhoff Publishers, 1993.

Anonymous U.S. Government official. Interview with the author, September 28, 2022.

Anonymous U.S. State Department. "Draft Internal Memo '1958 Geneva Convention on the Continental Shelf,'" 1966. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

Antunes, Nuno Marques, and Vasco Becker-Weinberg. "Entitlement to Maritime Zones and Their Delimitation: In the Doldrums of Uncertainty and Unpredictability." In *Maritime Boundary Delimitation: The Case Law: Is It Consistent and Predictable?*, edited by Alex G. Oude Elferink, Signe Veierud

Busch, and Tore Henriksen, 62–91. Cambridge: Cambridge University Press, 2018. https://doi.org/10.1017/9781108344302.004.
Arezki, Rabah, and Markus Bruckner. *Oil Rents, Corruption, and State Stability: Evidence from Panel Data Regressions*. IMF Working Paper, WP/09/267. Washington, D.C.: International Monetary Fund, 2009.
Ásgeirsdóttir, Áslaug. "Settling of the Maritime Boundaries of the United States: Cost of Settlement and the Benefits of Legal Certainty." *Marine Policy* 73 (November 2016): 187–95.
Ásgeirsdóttir, Áslaug, and Martin C. Steinwand. "Distributive Outcomes in Contested Maritime Areas: The Role of Inside Options in Settling Competing Claims." *Journal of Conflict Resolution* 62, no. 6 (2016): 1284–1313. https://doi.org/10.1177/0022002716677568.
Bailey, Michael A., Anton Strezhnev, and Erik Voeten. "Estimating Dynamic State Preferences from United Nations Voting Data." *Journal of Conflict Resolution* 61, no. 2 (February 2017): 430–56. https://doi.org/10.1177/0022002715595700.
Bastida, Ana, Adaeze Ifesi-Okoye, Mahmud Salim, James Ross, and Thomas Walde. "Cross-Border Unitization and Joint Development Agreements: An International Law Perspective." *Houston Journal of International Law* 29 (February 1, 2007): 355.
Bautista, John Mark. "Oil and Gas Exploration in The Philippines." *GEO ExPro*, July 21, 2020. http://www.geoexpro.com/articles/2020/07/oil-and-gas-exploration-in-the-philippines.
Baxter, Richard R., and Morton J. Horwitz. "Opinion in Support of the Sovereignty of the United States of America over Machias Seal Island and North Rock, Submitted to the Marine Resources Commission, State of Maine," March 1, 1975. https://lawguides.mainelaw.maine.edu/c.php?g=194716&p=8959862.
Bearce, David H., Katharine M. Floros, and Heather Elko McKibben. "The Shadow of the Future and International Bargaining: The Occurrence of Bargaining in a Three-Phase Cooperation Framework." *Journal of Politics* 71, no. 2 (April 2009): 719–32. https://doi.org/10.1017/S0022381609090562.
Bell, Andrew, Malcolm Fairbrother, and Kelvyn Jones. "Fixed and Random Effects Models: Making an Informed Choice." *Quality & Quantity* 53, no. 2 (March 2019): 1051–74. https://doi.org/10.1007/s11135-018-0802-x.
Bell, Andrew, and Kelvyn Jones. "Explaining Fixed Effects: Random Effects Modeling of Time-Series Cross-Sectional and Panel Data*." *Political Science Research and Methods* 3, no. 1 (January 2015): 133–53. https://doi.org/10.1017/psrm.2014.7.
Bloomberg. "Oil Companies Wonder If It's Worth Looking for Oil Anymore - News for the Energy Sector." *Energy Voice* (blog), August 17, 2020. https://www.energyvoice.com/oilandgas/259042/oil-exploration-falklands-africa-stranded.

Bourne, G. B., and D. M. McRae. “Maritime Jurisdiction in the Dixon Entrance: The Alaska Boundary Re-Examined.” *Canadian Yearbook of International Law* 14 (1976): 175–223. https://doi.org/10.1017/S006900580000093X.

Bouso, Ron. “BP’s Oil Exploration Team Swept aside in Climate Revolution.” *Reuters*, January 24, 2021. https://www.reuters.com/article/us-oil-exploration-bp-insight-idUSKBN29U00C.

Byers, Michael, and Andreas Østhagen. “Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?” *Canadian Yearbook of International Law/Annuaire Canadien de Droit International* 54 (October 2017): 1–62. https://doi.org/10.1017/cyl.2017.14.

Cameron, Peter. “The Design of Joint Development Zone Treaties and International Unitization Agreements.” In *International Taxation and the Extractive Industries*, edited by Philip Daniel, Michael Keen, Artur Świstak, and Victor Thuronyi. New York: Routledge, 2017.

Carnegie, A. Ralph. “The Law of the Sea in the Commonwealth Caribbean: The Domestic Law Context.” In *New Law of the Sea for the Caribbean*, 83–111. Berlin: Springer-Verlag, 1988.

Carter, David B., and Curtis S. Signorino. “Back to the Future: Modeling Time Dependence in Binary Data.” *Political Analysis* 18, no. 3 (June 2010): 271–92. https://doi.org/10.1093/pan/mpq013.

CBC News. “Canada, U.S. to Team up on Arctic Seabed Mapping Project,” June 30, 2008. https://www.cbc.ca/news/canada/north/canada-u-s-to-team-up-on-arctic-seabed-mapping-project-1.732578.

“Cession of Alaska.” Washington, 1867. https://www.loc.gov/law/help/us-treaties/bevans/b-su-ust000011-1216.pdf.

Chawalitthomrong, Kingkanok. “Disputes over Offshore Areas: Does Oil Determine the Escalation of Conflicts?” PhD diss., The Claremont Graduate University, 2007. https://www.proquest.com/nytimes/docview/304890767/abstract/8E92EF86AC9B4257PQ/5.

Choi, Sungchan, In-Chang Ryu, H.-J. Götze, and Y. Chae. “Spatial Distribution of Hydrocarbon Reservoirs in the West Korea Bay Basin in the Northern Part of the Yellow Sea, Estimated by 3-D Gravity Forward Modelling.” *Geophysical Journal International* 208, no. 1 (January 1, 2017): 75–85. https://doi.org/10.1093/gji/ggw369.

Churchill, R.R. “Fisheries Issues in Maritime Boundary Delimitation.” *Marine Policy* 17, no. 1 (January 1993): 44–57. https://doi.org/10.1016/0308-597X(93)90005-N.

Clingan, Thomas A. “US—Mexican Maritime Relations in the Aftermath of UNCLOS III.” *Political Geography Quarterly* 5, no. 1 (January 1, 1986): 57–62. https://doi.org/10.1016/0260-9827(86)90011-X.

Continental Shelf (Tunisia/Libyan Arab Jamahiriya) (International Court of Justice February 24, 1982).

Convention on the Continental Shelf, 499 UNTS 311 § (1958).
Convention on the Territorial Sea and the Contiguous Zone, 526 UNTS 205 § (1958).
Corbett, Jeremy. *Some Principles of Maritime Strategy*. London: Longmans, Green, and Co., 1918.
"Counter-Memorial of United States." Gulf of Maine Pleadings, Vol. 4, 1983. https://icj-cij.org/public/files/images/logo_xs.png.
Cramton, Peter. "How Best to Auction Oil Rights." In *Escaping the Resource Curse*, edited by Macartan Humphreys, Jeffrey D. Sachs, and Joseph E. Stiglitz, 114–52. Columbia University Press, 2007.
Cust, James, and Torfinn Harding. "Institutions and the Location of Oil Exploration." *Journal of the European Economic Association* 18, no. 3 (June 13, 2019): 1321–50. https://doi.org/10.1093/jeea/jvz028.
Dale, Norman. "Understanding the Effects of Offshore Oil and Gas on Queen Charlotte Basin Communities." Prince George, BC: The University of Northern British Columbia's Northern Land Use Institute, Northern Coastal Information and Research Program, February 2005. http://www.em.gov.bc.ca/DL/offshore/reports/norman_dale_report.pdf.
Daniel, Philip, Chandara Veung, and Alastair Watson. "Fiscal Schemes for Joint Development of Petroleum in Disputed Areas: A Primer and an Evaluation." In *International Taxation and the Extractive Industries*, edited by Philip Daniel, Michael Keen, Artur Świstak, and Victor Thuronyi. New York: Routledge, 2017.
Daniels, Kelly, and Sara McLaughlin Mitchell. "Bones of Democratic Contention: Maritime Disputes." *International Area Studies Review* 20, no. 4 (December 1, 2017): 293–310. https://doi.org/10.1177/2233865917740269.
De Santo, Elizabeth M. "Militarized Marine Protected Areas in Overseas Territories: Conserving Biodiversity, Geopolitical Positioning, and Securing Resources in the 21st Century." *Ocean & Coastal Management* 184 (February 1, 2020): 105006. https://doi.org/10.1016/j.ocecoaman.2019.105006.
Dispute Concerning Delimitation of the Maritime Boundary between Ghana and Côte d'Ivoire in the Atlantic Ocean (Ghana/Côte d'Ivoire), Provisional Measures (ITLOS April 25, 2015).
Downey, Arthur T. Letter to John C. Allen. "Letter: U.S. State Department Attorney to Union Oil of California," July 8, 1966. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.
Dundas, Carl W. "Barbados-Guyana: Report Number 2-27." In *International Maritime Boundaries*, edited by D. A. Colson and R. W. Smith, 3578–97. Boston: Martinus Nijhoff Publishers, 2005.
Dundua, Nugzar. "Delimitation of Maritime Boundaries between Adjacent States." United Nations, 2007. https://www.un.org/depts/los/nippon/unnff_programme_home/fellows_pages/fellows_papers/dundua_0607_georgia.pdf.

Earney, Fillmore C. F. *Marine Mineral Resources*. New York: Routledge, 1990.

———. "The United States Exclusive Economic Zone." In *Maritime Boundaries and Ocean Resources*, edited by Blake Gerald, 162–81. London and Sydney: Croom Helm, 1987.

Edmonds, Scott B., and Robert W. Smith. "Canada-United States (Gulf of Maine) Maritime Boundary Brief." Sovereign Limits: International Boundaries Database, 2018. https://sovereignlimits.com.

Eissler, Eric R., and Gözde Arasıl. "Maritime Boundary Delimitation in the Eastern Mediterranean." *The RUSI Journal* 159, no. 2 (March 4, 2014): 74–80. https://doi.org/10.1080/03071847.2014.912809.

Elferink, Alex Oude. "Arctic Maritime Delimitations: The Preponderance of Similarities with Other Regions." In *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction*, edited by Alex G. Oude Elferink and Donald Rothwell, Vol. 37. Publications on Ocean Development. The Hague: M. Nijhoff, 2001.

Evans, Malcolm. "Relevant Circumstances." In *Maritime Boundary Delimitation: The Case Law: Is It Consistent and Predictable?*, edited by Alex G. Oude Elferink, Tore Henriksen, and Signe Veierud Busch, 222–61. Cambridge: Cambridge University Press, 2018. https://doi.org/10.1017/9781108344302.

"FAQ: Analysis of Multiple Failure-Time Survival Data | Stata." Accessed January 5, 2022. https://www.stata.com/support/faqs/statistics/multiple-failure-time-data/.

Fearon, James D. "Domestic Political Audiences and the Escalation of International Disputes." *The American Political Science Review* 88, no. 3 (1994): 577–92. https://doi.org/10.2307/2944796.

———. "Rationalist Explanations for War." *International Organization* 49, no. 3 (1995): 379–414.

Flanders Marine Institute (VLIZ), Belgium. "Maritime Boundaries Geodatabase, Version 11." VLIZ, 2019. https://doi.org/10.14284/382.

Furlow, William. "US, Mexico about to Deal with Boundary 'Donut Hole.'" Offshore Magazine, July 1, 1997. https://www.offshore-mag.com/home/article/16760490/us-mexico-about-to-deal-with-boundary-donut-hole.

Garrett, James L. "The Beagle Channel Dispute: Confrontation and Negotiation in the Southern Cone." *Journal of Interamerican Studies and World Affairs* 27, no. 3 (1985): 81–109. https://doi.org/10.2307/165601.

Gary M. Edson, Donald L. Olson, and Andrew J. Petty. "Georges Bank Petroleum Exploration." Atlantic Outer Continental Shelf. New Orleans: U.S. Department of the Interior, May 2000. https://www.boem.gov/sites/default/files/boem-newsroom/Library/Publications/2000/2000-031.pdf.

Gent, Stephen E., and Mark J.C. Crescenzi. *Market Power Politics: War, Institutions, and Strategic Delay in World Politics*. Oxford University Press, 2021. https://doi.org/10.1093/oso/9780197529805.001.0001.
Gent, Stephen E., and Megan Shannon. “Decision Control and the Pursuit of Binding Conflict Management: Choosing the Ties That Bind.” *The Journal of Conflict Resolution* 55, no. 5 (2011): 710–34.
George, Jane. “Arctic Sovereignty Message Resonates in Prime Minister’s Visit to Western Nunavut.” CBC News, August 26, 2022. https://www.cbc.ca/news/canada/north/justin-trudeau-cambridge-bay-visit-1.6563331.
Goemans, H. E. “Bounded Communities: Territoriality, Territorial Attachment, and Conflict,” 2006. https://www.ebsco.com/terms-of-use.
Goti-Aralucea, Leyre, Mike Fitzpatrick, Ralf Döring, David Reid, John Mumford, and Anna Rindorf. “Overarching Sustainability Objectives Overcome Incompatible Directions in the Common Fisheries Policy.” *Marine Policy* 91 (May 1, 2018): 49–57. https://doi.org/10.1016/j.marpol.2018.02.006.
Green, Michael, Kathleen Hicks, Zack Cooper, John Schaus, and Jake Douglas. “Counter-Coercion Series: China-Vietnam Oil Rig Standoff.” Asia Maritime Transparency Initiative, June 12, 2017. https://amti.csis.org/counter-co-oil-rig-standoff.
Greenfield, Jeanette. *China’s Practice in the Law of the Sea*. Clarendon Press, 1992.
Griffith, John C. “Memorandum of Conversation between State Department and Standard Oil of California: U.S. Canada Continental Shelf Boundaries,” February 18, 1970. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.
———. Letter to Joseph W. Scott. “State Department Memorandum: Gulf of Maine,” January 12, 1970. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.
———. Letter to Bernard H. Oxman. “State Department Memorandum: Law of the Sea Discussion at Joint U.S.-Canadian Committee on Trade and Economic Affairs, June 25, 1969,” June 27, 1969. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.
Grossman, Nienke. “Solomonic Judgments and the International Court of Justice.” SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, February 24, 2017. https://doi.org/10.2139/ssrn.2923435.
Gulf of Maine Case (ICJ 1984).
Hayton, Bill. “After 25 Years, There’s Still No South China Sea Code of Conduct.” *Foreign Policy* (blog). Accessed September 3, 2021. https://foreignpolicy.com/2021/07/21/south-china-sea-code-of-conduct-asean.
The Economist. “Hearts and Minds: Japan Reviews History Textbooks for Its Schoolchildren, and Riles Its Neighbours,” April 10, 2015. https://www.economist.com/asia/2015/04/10/hearts-and-minds.

Hein, James R., Andrea Koschinsky, and Thomas Kuhn. “Deep-Ocean Polymetallic Nodules as a Resource for Critical Materials.” *Nature Reviews Earth & Environment* 1, no. 3 (March 2020): 158–69. https://doi.org/10.1038/s43017-020-0027-0.

Hensel, Paul R., and Sara Mc Laughlin Mitchell. “Issue Indivisibility and Territorial Claims,” 64:275–85, 2005. https://doi.org/10.1007/s10708-005-5803-3.

Hensel, Paul R., Sara Mc Laughlin Mitchell, Thomas E. Sowers, and Clayton L. Thyne. “Bones of Contention: Comparing Territorial, Maritime, and River Issues.” *Journal of Conflict Resolution* 52, no. 1 (February 2008): 117–43. https://doi.org/10.1177/0022002707310425.

Hjertonsson, Karin. *The New Law of the Sea. Influence of the Latin American States on Recent Developments of the Law of the Sea.* Leiden, 1973. http://hdl.handle.net/2027/uc1.31822012993929.

Hodgson, Robert D. “Continental Shelf Boundaries in the Gulf of Maine,” April 8, 1970. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

“How Belize Is Restoring Its Coral Reefs and Damaged Ocean.” Accessed September 13, 2021. https://www.nationalgeographic.com/science/article/belize-restores-coral-reefs-oil-drilling-ban-environment.

Hoyle, Brian. “U.S. Boundary Delimitation Problems and Practice.” In *The Continental Shelf: Resources, Boundaries, and Management*, edited by Thomas A. Grigalunas and Lynne Carter Hanson. Center for Ocean Management Studies, University of Rhode Island, 1986.

Hudec, Al, and Van Penick. “British Columbia Offshore Oil and Gas Law.” *Alberta Law Review* 41 (July 1, 2003): 101–57. https://doi.org/10.29173/alr496.

Huth, Paul, Sarah Croco, and Benjamin Appel. “Law and the Use of Force in World Politics: The Varied Effects of Law on the Exercise of Military Power in Territorial Disputes.” *International Studies Quarterly* 56, no. 1 (March 2012): 17–31. https://doi.org/10.1111/j.1468-2478.2011.00695.x.

Huth, Paul K., and Todd L. Allee. *The Democratic Peace and Territorial Conflict in the Twentieth Century*. Cambridge Studies in International Relations. Cambridge: Cambridge University Press, 2003. https://doi.org/10.1017/CBO9780511491405.

Huth, Paul K., Sarah E. Croco, and Benjamin J. Appel. “Does International Law Promote the Peaceful Settlement of International Disputes? Evidence from the Study of Territorial Conflicts since 1945.” *American Political Science Review* 105, no. 2 (May 2011): 415–36. https://doi.org/10.1017/S0003055411000062.

“Internal U.S. Position Paper: Delimitation of the Continental Shelf Boundaries Between the United States and Canada.” U.S. Department of State, circa 1969. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

International Boundary and Water Commission. “Delineation of Provisional Maritime Boundaries between the Exclusive Fishery Zones of the United States and

Mexico in the Gulf of Mexico and the Pacific Ocean." Minute 229. El Paso, Texas, January 4, 1968. https://www.ibwc.gov/Files/Minutes/Min229.pdf.

Al Jazeera. "Israel, Lebanon Sign US-Brokered Maritime Border Deal," October 27, 2022. https://www.aljazeera.com/news/2022/10/27/israel-lebanon-sign-us-brokered-maritime-border-deal.

Johnston, Douglas M. *The Theory and History of Ocean Boundary-Making*. McGill-Queen's University Press, 1988.

Johnston, Douglas M., and Mark J. Valencia. *Pacific Ocean Boundary Problems: Status and Solutions*. Martinus Nijhoff Publishers, 1991.

Kahneman, Daniel, and Amos Tversky. "Prospect Theory: An Analysis of Decision under Risk." *Econometrica* 47, no. 2 (1979): 263–91. https://doi.org/10.2307/1914185.

Karaman, Igor V. *Dispute Resolution in the Law of the Sea*. Publications on Ocean Development. Brill Nijhoff, 2012.

Kaye, Stuart B. *The Torres Strait*. International Straits of the World 12. The Hague; Boston: Cambridge, MA: M. Nijhoff Publishers; Sold and distributed in the U.S.A. and Canada by Kluwer Law International, 1997.

Kent, H. S. K. "The Historical Origins of the Three-Mile Limit." *The American Journal of International Law* 48, no. 4 (1954): 537–53. https://doi.org/10.2307/2195021.

Kim, Sun Pyo. *Maritime Delimitation and Interim Arrangements in North East Asia*. The Hague/London/New York: Martinus Nijhoff Publishers, 2012.

Kissinger, Henry. Letter to U.S. Embassy Ottawa. "Telegram: U.S.-Canada Maritime Boundaries," January 4, 1977. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

Kunjan, Balakrishnan. "Exploration Chance of Success Predictions — Statistical Concepts and Realities." *ASEG Extended Abstracts* 2016 (December 1, 2016): 1. https://doi.org/10.1071/ASEG2016ab150.

Lando, Massimo. "Delimiting the Continental Shelf Beyond 200 Nautical Miles at the International Court of Justice: The Nicaragua v. Colombia Cases." *Chinese Journal of International Law* 16, no. 2 (June 1, 2017): 137–73. https://doi.org/10.1093/chinesejil/jmx014.

Lathrop, Coalter G. "Why Litigate a Maritime Boundary? Some Contributing Factors." In *Litigating International Law Disputes: Weighing the Options*, edited by Natalie Klein, 230–59. Cambridge: Cambridge University Press, 2014. https://doi.org/10.1017/CBO9781139062008.015.

Leanza, Umberto, Luigi Sico, and Maria Clelio Ciciriello. *Mediterranean Continental Shelf: Delimitations and Regimes: International and National Legal Sources*. Vol. 2, Book IV. Oceana Publications, 1988.

Middle East Eye. "Lebanon's Hezbollah Launches Three Unarmed Drones towards Disputed Area with Israel." Accessed August 22, 2022. http://www.middleeasteye.net/news/lebanon-israel-hezbollah-three-unarmed-drones-disputed-area.

Lee, Keun-Gwan. “Recent Developments of Maritime Delimitation in Northwest Asia from an International Law Perspective.” In *Maritime Border Diplomacy*, edited by Myron H Nordquist and John Norton Moore. Leiden; Boston: Martinus Nijhoff Publishers, 2012. https://doi.org/10.1163/9789004230941.

Lefebvre, Jeffrey A. “Red Sea Security and the Geopolitical-Economy of the Hanish Islands Dispute.” *Middle East Journal* 52, no. 3 (1998): 367–85.

“Limits in the Sea No. 45.” U.S. Department of State, 1972. https://www.state.gov/wp-content/uploads/2019/10/LIS-45.pdf.

Lujala, Päivi, Jan Ketil Rød, and Nadja Thieme. “Fighting over Oil: Introducing a New Dataset.” *Conflict Management and Peace Science* 24, no. 3 (July 2007): 239–56. https://doi.org/10.1080/07388940701468526.

Magnússon, Bjarni Már. “Outer Continental Shelf Boundary Agreements.” *International and Comparative Law Quarterly* 62, no. 2 (April 2013): 345–72. https://doi.org/10.1017/S0020589313000067.

Manicom, James. “The Domestic Politics of Disputed Arctic Boundaries: The Canadian Case.” *Polar Record* 50, no. 2 (April 2014): 165–75. https://doi.org/10.1017/S0032247413000120.

Maritime Delimitation in the Black Sea (Romania v. Ukraine) (International Court of Justice February 3, 2009).

Markowitz, Jonathan N. *Perils of Plenty: Arctic Resource Competition and the Return of the Great Game*. New York: Oxford University Press, 2020. https://doi.org/10.1093/oso/9780190078249.001.0001.

Marshall, Monty G., Ted Robert Gurr, and Keith Jaggers. “Polity5 Project: Political Regime Characteristics and Transitions, 1800-2018.” *Center for Systemic Peace*, 2019. https://www.systemicpeace.org/polityproject.html.

McConnaughey, Janet, and Matthew Brown. “Biden Proposes Limited Drilling Leases off Gulf of Mexico and Alaska.” *Los Angeles Times*, July 1, 2022, sec. Politics. https://www.latimes.com/world-nation/story/2022-07-01/biden-offshore-drilling-proposal-would-allow-up-to-11-sales.

McDorman, Ted L. “Canadian Offshore Oil and Gas: Jurisdiction and Management Issues in the 1980s and Beyond.” In *Canadian Oceans Policy: National Strategies and the New Law of the Sea*, edited by Donald McRae and Gordon Munro, 39–68. Canada and International Relations, 0847-0510 2. Vancouver: University of British Columbia Press, 1989.

———. *Salt Water Neighbors: International Ocean Law Relations between the United States and Canada*. Oxford; Toronto: Oxford University Press, 2009.

Meierding, Emily. “Dismantling the Oil Wars Myth.” *Security Studies* 25, no. 2 (April 2016): 258–88. https://doi.org/10.1080/09636412.2016.1171968.

———. “Who Cares About Resources? Claimant States, Third Parties, and the Dynamics of International Territorial Disputes.” San Francisco, CA, 2008.

U.S. Department of State, Office of the Historian. “Memorandum by President Roosevelt to the Secretary of State,” June 9, 1943. https://history.state.gov/historicaldocuments/frus1945v02/d761.

Memorial of United States, Case Concerning Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada v. United States of America) (ICJ 1984).
Mercer, Jonathan. "Audience Costs Are Toys." *Security Studies* 21, no. 3 (2012): 398–404. https://doi.org/10.1080/09636412.2012.706488.
Meredith, Sam. "Turkey's Pursuit of Contested Oil and Gas Reserves Has Ramifications 'well beyond' the Region." CNBC, August 18, 2020. https://www.cnbc.com/2020/08/18/turkey-greece-clash-over-oil-and-gas-in-the-eastern-mediterranean.html.
Miller, Kathryn A., Kirsten F. Thompson, Paul Johnston, and David Santillo. "An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps." *Frontiers in Marine Science* 4 (2018): 418. https://doi.org/10.3389/fmars.2017.00418.
Mills, Walker D. "The Cod Wars and Today: Lessons from an Almost War." Center for International Maritime Security, July 28, 2020. https://cimsec.org/the-cod-wars-and-today-lessons-from-an-almost-war.
Mitsui Oil Exploration (MOECO). "Japan | Project." Accessed February 19, 2021. https://www.moeco.com/en/project/japan.html.
Moe, Arild, Daniel Fjærtoft, and Indra Øverland. "Space and Timing: Why Was the Barents Sea Delimitation Dispute Resolved in 2010?" *Polar Geography* 34, no. 3 (September 2011): 145–62. https://doi.org/10.1080/1088937X.2011.597887.
Muthoo, Abhinay. "A Non-Technical Introduction to Bargaining Theory." *World Economics* 1, no. 2 (2000): 145–66.
Nemeth, Stephen C., Sara Mc Laughlin Mitchell, Elizabeth A. Nyman, and Paul R. Hensel. "Ruling the Sea: Managing Maritime Conflicts through UNCLOS and Exclusive Economic Zones." *International Interactions* 40, no. 5 (October 2014): 711–36. https://doi.org/10.1080/03050629.2014.897233.
The Guardian. "New Zealand Bans All New Offshore Oil Exploration as Part of 'Carbon-Neutral Future,'" April 12, 2018. http://www.theguardian.com/world/2018/apr/12/new-zealand-bans-all-new-offshore-oil-exploration-as-part-of-carbon-neutral-future.
NOAA. "Bathymetric Data Viewer." Accessed February 19, 2021. https://maps.ngdc.noaa.gov/viewers/bathymetry/.
———. "Marine Cadastre National Viewer." Accessed February 21, 2021. https://marinecadastre.gov/nationalviewer/.
———. "The United States Is an Ocean Nation," 2011. https://www.gc.noaa.gov/documents/2011/012711_gcil_maritime_eez_map.pdf.
Noble, Ron, Philip Teas, John Decker, Tim McCullagh, Deddy Sebayang, and D Orange. "Kofiau and Cendrawasih Bay Frontier Basin Exploration: From Joint Studies to Post-Drill Assessment." Indonesian Petroleum Association, 2018.

Nordquist, Myron H, and John Norton Moore, eds. *Maritime Border Diplomacy*. Leiden; Boston: Martinus Nijhoff Publishers, 2012. https://doi.org/10.1163/9789004230941.

North Sea Continental Shelf (Federal Republic of Germany v. Netherlands) (International Court of Justice February 20, 1969).

France 24. "Norway to Halt €30 Million Amazon Subsidy, Saying Brazil 'broke Agreement' on Deforestation," August 16, 2019. https://www.france24.com/en/20190816-norway-stops-subsidy-brazil-amazon-broke-agreement-deforestation-bolsonaro.

Noussia, Kyriaki. "Albania Current Legal Developments." *International Journal of Marine and Coastal Law* 25, no. 4 (2010): 601–8.

Nyman, Elizabeth. "Offshore Oil Development and Maritime Conflict in the 20th Century: A Statistical Analysis of International Trends." *Energy Research & Social Science* 6 (March 2015): 1–7. https://doi.org/10.1016/j.erss.2014.10.006.

Odgaard, Liselotte. *Maritime Security between China and Southeast Asia: Conflict and Cooperation in the Making of Regional Order*. Aldershot, Hampshire, England ; Ashgate, 2002. http://catdir.loc.gov/catdir/toc/fy022/2001098851.html.

"Offshore at 60: Remembering the Creole Field." *Offshore*, April 9, 2014. https://www.offshore-mag.com/home/article/16757220/offshore-at-60-remembering-the-creole-field.

A Barrel Full. "Oil And Gas Field Database." Wiki. Accessed September 21, 2021. http://abarrelfull.wikidot.com/oil-and-gas-field-database.

Orttung, Robert W., and Andreas Wenger. "Explaining Cooperation and Conflict in Marine Boundary Disputes Involving Energy Deposits." *Region* 5, no. 1 (2016): 75–96.

Østhagen, Andreas. "Maritime Boundary Disputes: What Are They and Why Do They Matter?" *Marine Policy* 120 (October 2020). https://www-sciencedirect-com.proxy-um.researchport.umd.edu/science/article/pii/S0308597X20302426.

Owsiak, Andrew P., and Sara Mc Laughlin Mitchell. "Conflict Management in Land, River, and Maritime Claims." *Political Science Research and Methods* 7, no. 1 (January 2019): 43–61. https://doi.org/10.1017/psrm.2016.56.

Oxman, Bernard H. "International Maritime Boundaries: Political, Strategic, and Historical Considerations." *University of Miami Inter-American Law Review* 26, no. 2 (1995 1994): 243–96.

Park, Choon-ho. "Japan-South Korea: Report Number 5-12." In *International Maritime Boundaries*, edited by Jonathan I. Charney and Lewis M. Alexander, 1057–89. Boston: Martinus Nijhoff Publishers, 1993.

Park, Hee Kwon. *The Law of the Sea and Northeast Asia: A Challenge for Cooperation*. Boston: Kluwer Law International, 2000.

Park, Hon Choon-ho. "Judicial Settlement of International Maritime Disputes — An Overview of the Current System." *Stetson Law Review* 28 (1999): 1035–46.

Pawlak, Stanislaw. “Some Reflections on Factors Exerting Influence on Maritime Boundary Delimitation.” In *Coexistence, Cooperation and Solidarity*, 1:223–43. Brill Nijhoff, 2012. https://doi.org/10.1163/9789004214828_013.

The San Pedro Sun. “People’s Referendum: NO to Offshore Oil Drilling!,” March 1, 2012. https://www.sanpedrosun.com/environment/2012/03/01/peoples-referendum-no-to-offshore-oil-drilling/.

Pietrowski, R., Jr. “Bahrain-Saudi Arabia: Report Number 7-3.” In *International Maritime Boundaries*, edited by Jonathan I. Charney and Lewis M. Alexander, II:1489–97. Boston: Martinus Nijhoff Publishers, 1996.

Offshore. “PPX Farms into Palau License,” May 19, 2009. https://www.offshore-mag.com/home/article/16789963/ppx-farms-into-palau-license.

Prescott, J. R. V. *Political Frontiers and Boundaries*. London: Unwin Hyman, 1987.

“Projects Archive - Offshore Technology | Oil and Gas News and Market Analysis.” Accessed September 26, 2021. https://www.offshore-technology.com/projects.

Purser, Benjamin Swift, III. “Lines in the Water: Why Do Some Maritime Disputes Linger While Others Get Resolved?” Ph.D. thesis, University of Colorado at Boulder, 2015. https://scholar.colorado.edu/concern/graduate_thesis_or_dissertations/qn59q408f.

“Reply of United States.” Gulf of Maine Pleadings, Vol. 5, 1983. https://icj-cij.org/public/files/images/logo_xs.png.

“Rethinking the Top of the World: Arctic Security Public Opinion Survey.” Toronto: Ekos Research Associates, January 2011. https://www.ekospolitics.com/articles/2011-01-25ArcticSecurityReport.pdf.

Retzlaff, Rebecca, and Charlene LeBleu. “Marine Spatial Planning: Exploring the Role of Planning Practice and Research.” *Journal of Planning Literature* 33, no. 4 (November 1, 2018): 466–91. https://doi.org/10.1177/0885412218783462.

Richardson, Elliot. “United States-Canadian Continental Shelf Boundary Question: Notice of Reservation of Exploration and Exploitation Rights of United States and Its Nationals,” February 12, 1970. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

Roach, J. Ashley, and Robert W. Smith. *Excessive Maritime Claims: Third Edition*. 3rd ed. edition. Leiden; Boston: Brill - Nijhoff, 2012.

Ross, Michael. *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations*. Princeton, NJ: Princeton University Press, 2012.

Rovine, Arthur W. *Digest of United States Practice in International Law 1973*. Washington, D.C.: Department of State, 1974.

Sabaghi, Dario. “Explained: Renewed Israel-Lebanon Maritime Border Dispute.” Middle East Eye, June 11, 2022.

http://www.middleeasteye.net/news/explained-israel-lebanon-maritime-border-dispute-renewed.
Saganek, Przemysław. *Unilateral Acts of States in Public International Law*. Boston, MA: Brill Nijhoff, 2015.
Santo, Elizabeth M. De, Elizabeth Mendenhall, and Elizabeth Nyman. "A Rush Is on to Mine the Deep Seabed, with Effects on Ocean Life That Aren't Well Understood." The Conversation. Accessed August 20, 2021. http://theconversation.com/a-rush-is-on-to-mine-the-deep-seabed-with-effects-on-ocean-life-that-arent-well-understood-139833.
Schelling, Thomas C. *The Strategy of Conflict*. Cambridge, MA: Harvard University Press, 1960.
JPT. "Schlumberger Wins $480-Million Contract to Drill for Basra Oil and ExxonMobil in Iraq," March 24, 2021. https://jpt.spe.org/schlumberger-wins-480-million-contract-to-drill-for-basra-oil-and-exxonmobil-in-iraq.
Schmitt, Karl Michael. "The Problem of Maritime Boundaries in U.S.-Mexican Relations." *National Resources Journal* 22 (1982): 139–53.
Schofield, Clive. *No Panacea? Challenges in the Application of Provisional Arrangements of a Practical Nature*. Edited by M. H. Nordquist and J. N. Moore. Leiden, the Netherlands: Martinus Nijhoff, 2012.
Schultz, Kenneth A. "Looking for Audience Costs." *The Journal of Conflict Resolution* 45, no. 1 (2001): 32–60.
Scovazzi, Tullio, and Giampiero Francalanci. "Colombia-Jamaica: Report Number 2-18." In *International Maritime Boundaries*, edited by Jonathan I. Charney and Lewis M. Alexander, 2179–2204. Boston: Martinus Nijhoff Publishers, 1998.
———. "Libya-Malta: Report Number 8-8." In *International Maritime Boundaries*, edited by Jonathan I. Charney and Lewis M. Alexander, 1649–62. Boston: Martinus Nijhoff Publishers, 1985.
———. "Libya-Tunisia: Report Number 8-9." In *International Maritime Boundaries*, edited by Jonathan I. Charney and Lewis M. Alexander, 1663–80. Boston: Martinus Nijhoff Publishers, 1993.
Sharp, Gregor. "An Old Problem, a New Opportunity: A Case for Solving the Beaufort Sea Boundary Dispute." *The Arctic Institute* (blog), June 17, 2016. https://www.thearcticinstitute.org/an-old-problem-a-new-opportunity-a-case-for-solving-the-beaufort-sea-boundary-dispute/.
———. "Trudeau and Canada's Arctic Priorities: More of the Same." *The Arctic Institute* (blog), December 6, 2016. https://www.thearcticinstitute.org/trudeau-canadas-arctic-priorities/.
Shelef, Nadav G. "Unequal Ground: Homelands and Conflict." *International Organization* 70, no. 1 (June 2015): 33–63. https://doi.org/10.1017/S0020818315000193.
Sim, Christine. "Maritime Boundary Disputes and Article 298 of UNCLOS: A Safety Net of Peaceful Dispute Settlement Options." *Asia-Pacific Journal of Ocean Law and Policy* 3, no. 2 (2018): 232–73.

Simmons, Beth A. "Rules over Real Estate: Trade, Territorial Conflict, and International Borders as Institution." *Journal of Conflict Resolution* 49, no. 6 (December 1, 2005): 823–48. https://doi.org/10.1177/0022002705281349.

Singh, Gurdip. "The Philippines Targets $7.5 Billion Exploration Investment." *Offshore*, November 1, 2011. https://www.offshore-mag.com/business-briefs/company-news/article/16755017/the-philippines-targets-75-billion-exploration-investment.

Smith, Derek C., and Christopher Dolan. "Angola-Republic of Congo: Report Number 4-16." In *International Maritime Boundaries*, edited by D. A. Colson and R. W. Smith, 4281–95. Boston: Martinus Nijhoff Publishers, 2011.

Smith, Robert W., and David A. Colson. "Mexico-United States: Report Number 1-5." In *International Maritime Boundaries*, edited by Jonathan I. Charney and Lewis M. Alexander, 427–45. Boston: Martinus Nijhoff Publishers, 1993.

Sovereign Limits: International Boundaries Database. International Mapping. Accessed December 11, 2020. https://sovereignlimits.com.

Offshore. "Special Chamber Fixes Maritime Boundary between Ghana and Côte d'lvoire," January 2, 2018. https://www.offshore-mag.com/regional-reports/article/16755874/special-chamber-fixes-maritime-boundary-between-ghana-and-cte-dlvoire.

"Stata Multilevel Mixed-Effects Reference Manual, Release 17." College Station, Texas: StataCorp LLC, 2021. https://www.stata.com/manuals/me.pdf.

State Department. Letter to (National Security Advisor) Walt Rostow. "Draft Language for Memo to White House on Canadian Issues," May 5, 1966. General Records of the Department of State, Record Group 59. National Archives at College Park, College Park, MD.

Steinberg, Philip E. *The Social Construction of the Ocean*. Cambridge; New York: Cambridge University Press, 2001.

"Submission of the Province of British Colombia on West Coast Maritime Boundaries Between Canada and the United States," April 18, 1977. General Records of the Department of State, Record Group 59. On file with the author.

Szekely, Alberto. "A Commentary with the Mexican View on the Problem of Maritime Boundaries in U.S.-Mexican Relations." *Natural Resources Journal* 22, no. 1 (1982): 155–59.

———. *México y el Derecho Internacional del Mar*. México, D.F: Universidad Nacional Autónoma de México, 1978.

Thayer, Carl. "A Closer Look at the ASEAN-China Single Draft South China Sea Code of Conduct." Accessed September 3, 2021. https://thediplomat.com/2018/08/a-closer-look-at-the-asean-china-single-draft-south-china-sea-code-of-conduct.

The Guardian. "The New Cold War: Drilling for Oil and Gas in the Arctic," June 16, 2015. https://www.theguardian.com/environment/ng-interactive/2015/jun/16/drilling-oil-gas-arctic-alaska.

The Senate Committee on Foreign Relations. "U.S.-Mexico Treaty on Maritime Boundaries." 105th Cong., 1st sess., October 22, 1997. Exec. Rpt. No. 105-4.

"The United Nations Convention on the Law of the Sea," May 12, 2004. http://commdocs.house.gov/committees/intlrel/hfa93660.000/hfa93660_0f.htm.

United Nations. "Submissions to the CLCS." Accessed March 21, 2021. https://www.un.org/Depts/los/clcs_new/commission_submissions.htm.

"United Nations Convention on the Law of the Sea." *1833 UNTS 3*, December 10, 1982. https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

United Nations Treaty Collection. "United Nations Convention on the Law of the Sea, 'Declarations and Reservations.'" Accessed March 5, 2022. https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=_en#EndDec.

United States, ed. *Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling: Report to the President*. Washington, D.C.: National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling : For sale by the Supt. of Docs., U.S. G.P.O, 2011.

U.S. Embassy in Cuba. "United States, Cuba, and Mexico: Resolving Maritime Boundaries," July 7, 2016. https://cu.usembassy.gov/united-states-cuba-mexico-resolving-maritime-boundaries/.

Prime Minister of Canada. "United States-Canada Joint Arctic Leaders' Statement," December 20, 2016. https://pm.gc.ca/en/news/statements/2016/12/20/united-states-canada-joint-arctic-leaders-statement.

U.S. Department of State. "Frequently Asked Questions: U.S. Extended Continental Shelf Project." Accessed January 31, 2021. https://www.state.gov/frequently-asked-questions-u-s-extended-continental-shelf-project.

U.S. House Committee on Interior and Insular Affairs, Subcommittee on General Oversight and Investigations. "Proposed Oil and Gas Development on Georges Bank Area of the Outer Continental Shelf: Oversight Hearing." 100th Congress, 1st session, June 25, 1987.

U.S. Navy JAG Corps. "Maritime Claims Reference Manual." Accessed December 11, 2020. https://www.jag.navy.mil/organization/code_10_mcrm.htm.

U.S. Under Secretary of Defense for Policy. "DoD Annual Freedom of Navigation Reports." Accessed January 3, 2021. https://policy.defense.gov/ousdp-offices/fon/.

USGS. "World Petroleum Assessment." Accessed February 19, 2021. https://certmapper.cr.usgs.gov/data/apps/world-energy/?resource=conventional.

Oil & Gas Journal. "U.S.-Mexico Dispute Simmering in Gulf," April 22, 1996. https://www.ogj.com/home/article/17234576/usmexico-dispute-simmering-in-gulf.

Vargas, Jorge A. *Mexico and the Law of the Sea: Contributions and Compromises*. Brill, 2011.

———. "The Gulf of Mexico: A Binational Lake Shared by the United States and Mexico. A Proposal." *The Transnational Lawyer* 9 (1996): 459–82.

Vicuña, Francisco Orrego. "Regional Cooperation in Nonliving Resources: Joint Management Zones." Univted Nations University, 1994. https://archive.unu.edu/unupress/unupbooks/uu15oe/uu15oe0j.htm.

Voeten, Erik, Anton Strezhnev, and Michael Bailey. "United Nations General Assembly Voting Data, V28." Harvard Dataverse, 2009. https://doi.org/10.7910/DVN/LEJUQZ.

Walsh, Frank. "Leading to a 'Compromis d'Arbitrage.'" In *The Continental Shelf: Resources, Boundaries, and Management*, edited by Thomas A. Grigalunas and Lynne Carter. Kingston, R.I: Center for Ocean Management Studies, 1986.

Wang, E. B. "Canada-United States Fisheries and Maritime Boundary Negotiations: Diplomacy in Deep Water." *Behind the Headlines* 38, no. 6 (1981): 1–47.

Wang, Haijiang Henry. "The Perplexing Dispute over Oil." Vol. 23. Resources Policy, 1997.

Warren Heaton, S. "Mexico's Attempt to Extend Its Continental Shelf beyond 200 Nautical Miles Serves as a Model for the International Community." *Mexican Law Review* 5, no. 2 (January 1, 2013): 433–50. https://doi.org/10.1016/S1870-0578(16)30031-2.

Weeks, Jessica L. "Autocratic Audience Costs: Regime Type and Signaling Resolve." *International Organization* 62, no. 1 (2008): 35–64.

Whitson, Curtis. "International vs. National Oil Companies - What's the Difference?" *The Way Ahead* 05, no. 03 (October 1, 2009): 10–11. https://doi.org/10.2118/0309-010-TWA.

Wiktor, Christian L. *Treaties Submitted to the United States Senate: Legislative History, 1989-2004*. Martinus Nijhoff Publishers, 2006.

Rystad Energy. "Wildcat Safari Running Dry: Onshore Success Rate Dips to Lowest on Record, Falls for Fourth Year in a Row." Accessed February 19, 2022. https://www.rystadenergy.com/newsevents/news/press-releases/wildcat-safari-running-dry-onshore-success-rate-dips-to-lowest-on-record-falls-for-fourth-year-in-a-row/.

Wood, Marissa D., and Meghan K. Gilbert. "Cyprus-Israel Maritime Boundary Brief." Sovereign Limits: International Boundaries Database, 2018. https://sovereignlimits.com.

Xue, Song. "Why Joint Development Agreements Fail: Implications for the South China Sea Dispute." *Contemporary Southeast Asia* 41, no. 3 (2019): 418–46.

Yoshihara, Toshi. "China's Vision of Its Seascape: The First Island Chain and Chinese Seapower." *Asian Politics & Policy* 4, no. 3 (2012): 293–314. https://doi.org/10.1111/j.1943-0787.2012.01349.x.

Yüksel, Umut. “Bargaining Over Maritime Boundaries in Times of Legal Uncertainty.” PhD diss., Graduate Institute of International and Development Studies, 2019.

Zou, Keyuan. “China and Maritime Boundary Delimitation: Past, Present and Future.” In *Conflict Management and Dispute Settlement in East Asia*, edited by Ramses Amer and Keyuan Zou. Farnham, England; Burlington, Vt.: Ashgate Pub. Co., 2011.