## 1AC --- Harvard Westlake Round 1 Flight 1

### 1AC---Plan

#### The United States ought to become party to the United Nations Convention on the Law of the Sea

### 1AC—Integration

#### Contention 1: Integration

#### Russia and the US are engaged in a ‘chess game between nations’ over Ocean governance. Continued flipflopping over compliance with UNCLOS means Russia won’t play ball and leaves.

Jan Jakub Solski 1-16-**24**, Jan Jakub Solski is an associate professor at the Norwegian Centre for the Law of the Sea, UiT the Arctic University of Norway, Tromsø,"The US Arctic Gambit: Testing the Limits of UNCLOS”, The Arctic Institute, https://www.thearcticinstitute.org/us-arctic-gambit-testing-limits-unclos/

In recent weeks, the international community has witnessed two seemingly unrelated events that, upon closer examination, reveal a complex interplay of [geopolitics](https://www.thearcticinstitute.org/five-misconceptions-arctic-security-geopolitics/) and ocean governance.

On one side, there have been [discussions](https://iz.ru/1618509/2023-12-11/rossiia-mozhet-vyiti-iz-konventcii-oon-po-morskomu-pravu) within Russia about potentially withdrawing from the United Nations Convention on the Law of the Sea (UNCLOS), and on the other, the United States (US) has boldly [announced](https://www.state.gov/the-us-ecs/) the limits of the extended continental shelf in various regions, including in the Arctic. The US has not, however, presented a submission to the Commission on the Limits of the Continental Shelf (CLCS) as it is [typically done](https://www.un.org/depts/los/clcs_new/commission_submissions.htm) in similar situations.

These events shed light on the geopolitical chess game between nations, particularly Russia and the US, as they navigate the intricate waters of international law of the sea.

Russia’s view of the world through the prism of rivalry with the US has long influenced its stance on global agreements, and UNCLOS is no exception. There have been discussions in Russia over the last thirty years about the significance of the law of the sea convention in the Arctic. Some people in Russia believe that UNCLOS’ ratification and implementation in the Arctic have limited the country’s room for maneuvering unnecessarily.

Conversely, proponents highlight the Soviet Union’s strategic success within UNCLOS, securing unprecedented rights in ice-covered areas and the procedure to obtain recognition for sovereign rights over a sizeable continental shelf.

The outer continental shelf regime, often considered the primary ‘carrot’ of UNCLOS, has worked in Russia’s favor, exemplified by its status as the [first country to apply](https://www.un.org/depts/los/clcs_new/submissions_files/submission_rus.htm) to the CLCS. However, the recent decision by the US to bypass the CLCS in announcing extended continental shelf limits sends a clear message — participation in UNCLOS may be perceived as burdensome and unnecessary.

The law of the sea recognizes two distinct criteria for entitlement to a continental shelf: either a distance of 200 nautical miles or the outer edge of the continental margin. In cases where the entitlement is anchored in the latter criterion, the coastal State is required to provide scientific evidence to support the claim.

[U.S. Department of State](https://www.state.gov/the-us-ecs/) U.S. Extended Continental Shelf Regions as of December 2023

The complexity of the legal regime for establishing the limits for extended continental shelf underscores the necessity of the CLCS as a credible institution to evaluate the legitimacy of such claims. The rights to a continental shelf exist inherently as a matter of international customary law, making it challenging to demand that the US obtain CLCS recommendations for their assertion. However, by circumnavigating the CLCS, the US undermines the established international process, creating uncertainty about the credibility and acceptability of the US’s extended continental shelf limits.

The US announcement is consistent with international law to the extent that it informs the world about the extent of its continental shelf. However, without a CLCS submission, other states are left to evaluate the credibility of the US announcement. Unlike situations where maritime zones’ outer limits depend on distance, assessing the credibility of limits based on scientific criteria poses challenges for other states lacking the necessary resources. The response from other nations should be straightforward: submit your data to the CLCS, adhere to the established process, and await evaluation like everyone else.

Russia and China, both parties to UNCLOS, often accuse the US of cherry-picking arguments and stretching interpretations in a way that disrupts the internationally accepted order. While it remains uncertain whether Russia will [revoke its participation](https://www.wilsoncenter.org/article/us-makes-its-move-arctic-how-will-moscow-respond) in UNCLOS, the US’s practice may bolster arguments of nations claiming a higher moral ground in defending international law against perceived exploitation. A response from the international community urging the US to adhere to established norms would reaffirm the importance of institutions like the CLCS in maintaining order in the complex realm of ocean governance.

#### It’s causally connected to US absence. It’s a core talking point.

Belén Padrón Salinas 8-13-**24**, legal research manager at the European Land Force Commanders Organization (FINABEL), "Navigating Uncharted Waters: Russia’s Potential Exit from the Convention on the Law of the Sea”, The European Land Force Commanders Organization, https://finabel.org/navigating-uncharted-waters-russias-potential-exit-from-the-convention-on-the-law-of-the-sea/

The other possibility is that this threat of withdrawal is part of the current Russian narrative as antihegemonic power pursuing “great power prerogatives” (Wahden, 2024). On the one hand, Russia might be attempting to de-stabilize the current international rule-based system, which does not tolerate its infractions or interpretations of the law. This is a similar position to China’s, which has also manifested dissatisfaction with UNCLOS (The Diplomat, 2019). On the other hand, this might be another movement to counter Western hegemony and tip the balance towards multipolarity, one of Russia’s main Foreign Policy aims. The idea of multipolarity is popular in Russian foreign political discourse and proposes a multipolar world order that “does not limit the circle of global centres of power to Washington, Beijing, and/or Brussels” (Kragh & Umland, 2023). This concept allows Russia to be included as an ‘equal player’ of great power politics (Kragh & Umland, 2023).

By contrasting and comparing Russian actions to Western ones (such us the US declaration of new geographic coordinates defining the outer limits of the US’s continental shelf outside of the procedures of the CLCS (US Department of State, 2023), Russia is implying that the West, particularly the US applies international rules selectively (Wahden, 2024). They identify this ‘concession’ to selectively act outside of the law as a ‘great power status’ privilege that Russia wishes to enjoy as well (Wahden, 2024). Such strategy serves two purposes: On the one hand, legally, it undermines the validity of the current legal systems, which can be ‘exceptionally’ overlooked and neglected by certain powers without repercussions. This is a dangerous premise, as the law should be applied equally and impartially to retain legitimacy and validity, particularly IL. On the other, politically, and specifically for its domestic audience, this narrative strengthens President Putin’s message of a great, powerful Russia. Internationally, it confuses the international community about Russia’s intentions and next move, following Russia’s latest trend of acting unpredictably and against Western predictions.

#### Russian exit breaks the Law of the Sea Treaty framework, obliterating the dispute resolution process and China follows suit.

Caroline Tuckett and Dr. Kevin Rowlands 2-4-**24**, Caroline Tuckett is a Barrister, Associate Fellow at the Royal Navy Strategic Studies Centre and Visiting Research Fellow at the University of Plymouth, Dr Kevin Rowlands is the Head of the Royal Navy Strategic Studies Centre and Visiting Research Fellow at the University of Plymouth, "Drifting Away? Russia’s Dissatisfaction With the Law of the Sea”, Royal United Services Institute, https://www.rusi.org/explore-our-research/publications/commentary/drifting-away-russias-dissatisfaction-law-sea

No state has yet withdrawn from UNCLOS and, if Russia does, it will be a blow to the rules-based international order. UNCLOS is one of the most widely ratified treaties in existence, with substantial case law on its application, and as such it is viewed as reflective of customary international law. The US, as one of the most prominent non-signatories of UNCLOS, has accepted this view, and with some minor exceptions has declared that it accepts its provisions as binding. Therefore, even if Russia were to withdraw, it would arguably still be bound by its terms.

The effects of a Russian withdrawal from UNCLOS may therefore not be felt immediately. As a major maritime power, freedom of navigation is as important to Russia as it is to the UK and US. However, as time progresses, difficulties will lie in dispute resolution. If Russia is no longer a signatory to UNCLOS, it will no longer be bound by its dispute mechanisms, which include not only the Annex VII tribunals, but also the International Tribunal on the Law of the Sea (ITLOS). Russia does however remain a signatory to the UN Charter, and therefore by default the International Court of Justice (ICJ).

Russia sees itself being ostracised by the international community in areas previously assumed to be independent and impartial

It should not be assumed that the events and public statements in December are necessarily linked, or indeed part of a coordinated messaging campaign. Rather, they may instead be a reaction to external pressure and indicative of a growing dissatisfaction. Russia sees itself being ostracised by the international community in areas previously assumed to be independent and impartial. The declaration regarding the Sea of Azov is also undoubtedly part of Russia wider messaging regarding the ongoing war in Ukraine.

Further afield, [China has also indicated a wish to move away from its provisions](https://thediplomat.com/2019/05/might-china-withdraw-from-the-un-law-of-the-sea-treaty/), with public statements indicating that it does not view UNCLOS as the single authoritative source on the law of the sea, and [rejections of UNCLOS arbitration](https://committees.parliament.uk/writtenevidence/40814/html/) with respect to territorial disputes in the South China Sea.

Although at present unlikely, if Russian rhetoric turns to action and it withdraws from a treaty it believes is no longer fit for (its) purpose, and if China then follows (two very big ‘ifs’), it would spell the end of the current near-global consensus on the governance of the oceans. The world could enter an era of competing rules-based systems with consequent impact on territorial claims, safety and environmental regimes, resource exploitation, and the flow of trade. Crucially, this could also impact how new technologies such as uncrewed vessels are governed at sea.

#### Chinese withdrawal escalates territorial disputes in the South China Sea and undermines their integration into the international order.

Tara Davenport 3-24-**16**, Tara Davenport is a non-resident research fellow at the Centre for International Law at the National University of Singapore and is presently pursuing her doctorate at Yale Law School, "Why China Shouldn’t Denounce UNCLOS”, The Diplomat, https://thediplomat.com/2016/03/why-china-shouldnt-denounce-unclos/

Lastly, and perhaps most compellingly, China’s withdrawal from UNCLOS would undermine the already fragile belief in China’s commitment to a “peaceful rise” as a global superpower. UNCLOS establishes certain baseline expectations of how States should behave in the oceans and has hitherto provided a language through which the Claimants, even China, have communicated their positions and claims. As tensions in the South China Sea escalate on a daily basis, denouncing UNCLOS could irretrievably damage the trust and confidence of States in the region.  This would consequently derail any of China’s efforts to pursue its preferred course of action, namely a negotiated solution of the South China Sea disputes.

China’s potential non-compliance with the final award will inevitably harm its standing as a law-abiding member of the international community. To compound that with a knee-jerk denunciation of a long-standing and widely accepted legal regime could have far-reaching implications that are at odds with China’s long-term national interests. The non-ratification of UNCLOS by the United States is tolerated because the U.S. is perceived as faithfully complying with the UNCLOS regime. China’s denunciation after a tribunal has found its actions in the South China Sea contrary to UNCLOS will not be interpreted in the same light. There are many courses of action China can take after the Award is issued. Denouncing UNCLOS should not be one of them.

#### Now is key: conflicts escalate. The U.S. will get involved because of treaty commitments with the Philippines and Taiwan as well as shipping interests in the area.

Noi Mahoney 11-1-**24**, Noi Mahoney is a Texas-based journalist who covers cross-border trade, logistics and supply chains for FreightWaves. He graduated from the University of Texas at Austin with a degree in English in 1998, "Disputes in South China Sea could disrupt trade lanes, lead to war, experts say”, Freight Waves, https://www.freightwaves.com/news/disputes-in-south-china-sea-could-disrupt-trade-lanes-lead-to-war-experts-say

Territorial confrontations in the South China Sea pitting several Asian nations against China have entered a perilous phase that could possibly lead to a war involving the U.S., experts say.

China has claimed virtually all of the South China Sea for decades, but the country’s assertiveness in the region has steadily increased the past several years, resulting in heightened tensions with nations including the Philippines, Vietnam, Taiwan and Brunei.

Krista Wiegand, a professor at the University of Tennessee, said the U.S. has no direct claims of sovereignty or unique maritime rights in the South China Sea, but the waterway nevertheless is a place where war could break out between the U.S. and China.

Wiegand is the director of the Center for National Security and Foreign Affairs at the Howard J. Baker School of Public Policy and Public Affairs at the university. She is a specialist in territorial and maritime disputes, maritime law, and East Asian security.

“If the U.S. were to get involved in any kind of war with China, it would most likely be over Taiwan,” Wiegand told FreightWaves in an interview. “But at the same time, there is a possibility of an accident or some kind of crisis happening in the South China Sea. For example, if a U.S. vessel has a collision with a Chinese naval vessel or there’s a missile shot at a U.S. destroyer ship or frigate, that would certainly lead to some kind of crisis that might escalate. Nobody wants a war, obviously, including China, but they definitely want the South China Sea, and there’s a possibility that the war might happen.”

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The 1.3 million-square-mile sea in the Western Pacific Ocean contains some of the busiest trade routes in the world. The South China Sea stretches from Singapore and the Strait of Malacca in the southwest to the Strait of Taiwan in the northeast and sits between China, Taiwan, the Philippines, Indonesia, Vietnam, Thailand, Brunei, Cambodia and Malaysia. Researchers at Duke University calculated that total trade through both the South China Sea and the East China Sea — which lies between China, North and South Korea, and Japan, is worth [$7.4 trillion per year](https://www.sciencedirect.com/science/article/pii/S2772424722000336?via%3Dihub). About 24% of global maritime trade passed through the South China sea in 2023, according to the [United Nations’ 2024 review of maritime transport](https://unctad.org/system/files/official-document/rmt2024_en.pdf). The South China Sea’s share of global seaborne trade volume per commodity in 2023 included crude oil (45%), propane (42%), cars (26%) and dry bulk (23%). Exports from China to both the U.S. and Mexico have shown strong growth the past five years. The trade route for goods from China to North America passes either through the South China or the East China Sea. As of Thursday, twenty-foot equivalent units moving from China to the U.S. are about 10% lower year over year compared to 2023, but are more than 40% higher y/y compared to 2022, according to the SONAR Inbound Ocean TEUs Volume Index. SONAR’s Inbound Ocean TEUs Volume index (IOTI.CHNUSA shows container movements from China to North America have been rising steadily over the last several years. To learn more about FreightWaves SONAR, click [here](https://sonar.freightwaves.com/sonar-demo-request?utm_source=FreightWaves&utm_medium=Editorial&utm_campaign=SONAR). The South China Sea may also hold valuable undiscovered resources, such as oil and natural gas, according to the U.S. Energy Information Administration (EIA). In 2023, the [U.S. Geological Survey](https://www.eia.gov/international/analysis/regions-of-interest/South_China_Sea) reported the South China Sea may contain up to 9.2 billion barrels of untapped petroleum and other liquids, and up to 216 trillion cubic feet of natural gas, according to a recent EIA report. China’s disputes in the South China Sea include territories that fall within a country’s economic exclusion zones (EEZ), such as the Philippines. An EEZ is a maritime area where a coastal state has the right to explore, exploit, conserve and manage natural resources, according to the United Nations. In 2016, the Permanent Court of Arbitration at The Hague ruled in favor of the Philippines in a case opened in 2013 against China. The court of arbitration said China’s claims in the South China Sea [had no legal basis](https://pcacases.com/web/sendAttach/2086). Wiegand said the Permanent Court of Arbitration and other international organizations made it clear that China did not have any solid claims to owning all of the South China Sea. “There are some historic claims that may have legitimacy, but at the same time, the United Nations Convention of the Law of the Sea, which China signed and ratified, along with most other countries in the world, with the exception of the U.S. and a few others, is very clear about the maritime boundaries of countries,” Wiegand said. “China’s claims or maritime features about islands in the waters of countries like Vietnam and the Philippines that fall under their control … those are completely illegitimate.”

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Hasim Turker, an international security expert based in Istanbul, said if the U.S. gets drawn into the South China Sea conflict, it will most likely be through its treaty with the Philippines or to help Taiwan or other nations.

“The U.S. has substantial strategic interests in the South China Sea, centered around maintaining freedom of navigation and enforcing international maritime norms,” Turker told FreightWaves in an email. “This is not just about economic stakes, but also about reinforcing the rules-based international order. Regular Freedom of Navigation Operations (FONOPs) are a clear expression of Washington’s intention to challenge China’s expansive claims. These operations are designed to assert that the waters in question remain open to all nations, according to the United Nations Convention on the Law of the Sea (UNCLOS) — even though the U.S. itself has not formally ratified the treaty.”

In August 2023, ships belonging to China and the Philippines accused each other of causing collisions in a disputed area of the South China Sea.

Philippine authorities said a Chinese Coast Guard ship carried out “dangerous blocking maneuvers” that caused it to collide with a Philippine vessel carrying supplies to troops, according to a statement on [CNN](https://www.cnn.com/2023/10/22/asia/south-china-sea-philippines-collision-intl-hnk/index.html).

In June, China and the Philippines blamed each other for causing a collision in the South China Sea near the contested Second Thomas Shoal, with the Philippines saying its armed forces would resist Beijing’s actions in the disputed waters, according to [Reuters](https://www.reuters.com/world/asia-pacific/china-coast-guard-says-philippine-supply-ship-illegally-intruded-waters-second-2024-06-16/).

U.S. Ambassador to the Philippines MaryKay Carlson condemned China’s [“aggressive, dangerous”](https://x.com/USAmbPH/status/1802684168587141177?lang=en) maneuvers near the Second Thomas Shoal in a post on X in June.

In September, authorities in China and the Philippines agreed to a temporary deal after the countries had repeated collisions near the shoal. However, the Philippines said the deal might not be permanent.

About 24% of global maritime trade passed through the South China sea in 2023, including exports of crude oil, propane, cars and dry bulk. (Photo: Jim Allen/FreightWaves)

The U.S. and the Philippines have a long history of cooperation, officially starting in 1951 with the U.S.-Philippines Mutual Defense Treaty. The treaty requires both nations to support each other if another party attacks either country.

“The likelihood of armed conflict in the South China Sea remains significant due to ongoing tensions, frequent confrontations, and increased militarization,” Turker said. “Incidents like the August 2023 underscore the persistent risk of military escalation. These confrontations reflect a broader pattern of assertive behavior by China, involving the deployment of coast guard vessels, maritime militia, and military assets to enforce its claims over disputed waters.”

Turker, a former commander in the Turkish navy, is the author “European Security and Defense Policy” (2007) and “Towards the New Cold War: Rising China, the U.S., and NATO,” (2019). He was also the academic coordinator and senior researcher at the Bosphorus Center for Asian Studies, an independent think tank based in Ankara, Turkey.

“Frequent incidents … demonstrate how easily low-intensity confrontations can occur, especially given the dense presence of military, coast guard, and civilian vessels in contested waters, which increases the likelihood of accidental or deliberate escalation,” Turker said. “This risk is compounded by China’s militarization of artificial islands, where airstrips, missile systems, and surveillance infrastructure have been constructed. These moves have prompted other claimants to bolster their defenses, leading to a more volatile environment.”

Turker said U.S. involvement would significantly escalate the situation in the South China Sea, particularly if military assets are deployed.

“This would not only raise tensions in the region, but could also lead to direct military confrontation with China — a scenario neither side desires, given the stakes involved. A U.S.-China conflict would have global repercussions, impacting trade, regional alliances, and the geopolitical balance of power. The specter of a broader war looms if such an incident escalates beyond a controlled, localized response, especially if U.S. allies like Japan or Australia are drawn in to support collective security efforts in the Indo-Pacific,” Turker said.

#### Goes nuclear.

Dennis C. Blair 12-11-**18**, Chair of the Board, Sasakawa Peace Foundation USA; U.S. Director of National Intelligence, 2009–10; Commander of U.S. Pacific Command, 1999–2002, "Would China Go Nuclear?”, Foreign Affairs, https://www.foreignaffairs.com/articles/china/2018-12-11/would-china-go-nuclear

The real danger of escalation in these conflicts would be when a Chinese attempt to capture a disputed island—Taiwan, one of the Diaoyu/Senkaku Islands, or an island in the South China Sea—was failing. A failed attempt to regain territory that the Chinese government has claimed as its own would undermine the legitimacy of the Chinese Communist Party and could make Beijing desperate enough to threaten the use of nuclear weapons. Again, U.S. planners are aware of that danger and would seek to manage the end of a maritime conflict with China in a way that minimized the incentives for escalation.

### 1AC—Decarbonization

#### Contention 2: Decarbonization

#### Failure to ratify UNCLOS undermines access to essential resources for decarbonization and ensures environmental catastrophe, but ratification enables sustainable cooperation over mining.

Council on Foreign Relations CFR 7-3-**24**, Founded in 1921, CFR is a nonpartisan, independent national membership organization, think tank, educator, and publisher, including of Foreign Affairs, "Should the United States Ratify the Law of the Sea?”, Council on Foreign Relations, <https://education.cfr.org/teach/mini-simulation/should-united-states-ratify-law-sea>

The world's oceans are teeming with life and valuable resources. In 1982, the United Nations established UNCLOS to ensure fair and sustainable management of those vast shared waters. UNCLOS acts as a global rulebook. It governs safe ship passage, fair access to ocean resources, and the protection of marine environments.

Despite many nations becoming signatories to UNCLOS, the United States opted against joining. That decision was driven by concerns over certain clauses. These clauses required sharing mining technology and profits with other nations. This clashed with U.S. commitments to free-market principles and economic independence. Historically, the United States tends to prefer [bilateral](https://education.cfr.org/cfr_glossary/59) agreements, valuing its ability to navigate its affairs independently without being bound by overarching international frameworks.

By staying out of UNCLOS, the United States retains autonomy in its maritime policies, offering flexibility and control. Supporters argue that independence protects economic interests and allows strategic maneuvering on the global stage. However, not being part of UNCLOS limits the United States’ ability to shape international ocean regulations. Not joining could weaken the county’s influence on crucial security and economic issues. This is particularly risky as China [gains prominence](https://www.wilsoncenter.org/blog-post/no-30-strategic-competition-and-case-unclos) among signatories of the convention.

One key economic interest driving the ongoing debate is the United States’ pursuit of critical minerals. An abundant supply of minerals like lithium, cobalt, and nickel lies on the seabed. These minerals are essential for developing technologies such as solar panels, wind turbines, and electric vehicles. These technologies are crucial for advancing clean energy solutions. However, potential access to this mineral supply via deep-sea mining in [international waters](https://education.cfr.org/cfr_glossary/389) depends on regulations set by the International Seabed Authority. An international organization established under UNCLOS.

If international mining rules are implemented and companies can start extracting minerals commercially, the United States faces a significant roadblock as a non–UNCLOS member. American companies cannot directly obtain those licenses. They will require sponsorship from a UNCLOS member nation, creating a dependence on potential competitors. This is concerning because China, already a dominant player in the critical minerals market, [actively seeks further control.](https://www.cfr.org/blog/how-secure-critical-minerals-clean-energy-without-alienating-china?_gl=1*1xvkwla*_gcl_au*MTE2MzAyNzA2Ny4xNzMyOTg5ODE2*_ga*MjM4MjA2OTQ0LjE3MzI5ODk4MTY.*_ga_24W5E70YKH*MTczNDMwNDMwNS40LjAuMTczNDMwNDMwNi41OS4wLjA.) Reliance on foreign sources, especially China, raises national security anxieties. It limits the United States’ ability to control its own energy future.

The United States could technically mine the deep seabed without joining UNCLOS. Although, doing so could harm international cooperation. If the United States bypasses the Law of the Sea, other countries may follow suit. This would undermine the idea of working together in good faith. Without international accountability, it becomes difficult to manage global resources globally. This could have devastating environmental consequences, leading to chaos and competition.

Deep-sea mining holds promise for supporting clean energy technologies, yet it also carries significant environmental risks. Scientists caution that rushed mining activities could severely harm marine ecosystems. Mining the sea-bed could disrupt habitats, and release toxins, and pose long-term threats to ocean life. Many experts advocate for cautious approaches and augmented research before expanding mining operations. If the United States goes it alone, it could follow its own rules as it sees fit on the trade-offs of environmental protection and resource access. On the other hand, membership in UNCLOS would give the United States a voice in shaping responsible and sustainable resource extraction policies. This influence could help ensure the oceans’ long-term health while allowing access to valuable resources.

#### Now is key. We’ve already lost two of our four sites and delay risks losing the other two.

John Norton Moore 5-18-**23**, Walter L. Brown Professor of Law Emeritus, University of Virginia School of Law, "The Struggle for Law in the Oceans: How an Isolationist Narrative Betrays America”, Oxford University Press, <https://academic.oup.com/book/46154>

if the United States does not adhere to the Convention and obtain international licenses to these sites. With the passage of time and US inaction on the Convention, some country such as China or Russia, or even another of our NATO allies like Belgium with its licensing of “USA-3,” will seek an international license to these remaining United States sites. Indeed, “USA-1” and “USA-4” are becoming increasingly attractive for new claimant states as the best seabed sites are serially taken. The delay in United States adherence to the Convention has effectively cost the United States its original leadership in this new industry and has empowered our competitors and strategic adversaries such as China, Russia, and many other nations, all of whom have adhered to the Convention and licensed deep seabed mine sites. It has also cost the United States two of our “USA” designated mine sites, among the best in the world, and risks the loss of the other two “USA” sites, for a loss to date of approximately half a trillion dollars in value of the minerals within these sites, and an overall loss of a trillion dollars if we lose our remaining two sites.

#### UNCLOS is key. Otherwise, companies lack certainty to invest.

John Norton Moore 5-18-**23**, Walter L. Brown Professor of Law Emeritus, University of Virginia School of Law, "The Struggle for Law in the Oceans: How an Isolationist Narrative Betrays America”, Oxford University Press, <https://academic.oup.com/book/46154>

Opponents argue that the United States should simply mine the deep seabed outside the Convention.57 They assert, wrongly under current international law, that deep seabed mining is simply a high seas freedom.58 But even if it were a high seas freedom, such a “fishing approach,” to simply go out and grab the deep seabed minerals, could not provide the needed property rights for such an operation. A viable deep seabed mining operation for manganese nodules, with costs in the billions, must have secure, stable, and exclusive property rights to the resources in an identified area of the deep ocean floor approximately the size of the state of Rhode Island. Since neither the United States nor any other nation owns the deep seabed, such property rights simply cannot be provided absent international agreement on a site. Early in the LOS negotiations, American industry told the United States delegation to the UNCLOS negotiations that it could not mine manganese nodules or other minerals of the deep ocean floor through a “fishing approach,” because the substantial investment required for such an operation must have secure property rights to a particular area. A specified area is required for the industry to know the availability of the resource and to tailor the recovery and refining processes to the nature of the minerals and the circumstances of their location. American industry has never wavered from this assessment, and our industry is today unanimous in its support for the Law of the Sea Convention with its mechanism to provide property rights and assured access. Moreover, the delay in United States adherence to the Convention has already cost the United States two of its four deep seabed mine sites as Belgium acquired a license to what formerly was “USA-3,”59 and the United Kingdom/Singapore acquired licenses to what was formerly “USA-2.” And this delay has required Lockheed, which owns two remaining United States mine sites, “USA-1” and “USA-4,” to seek to mine “USA-2” through its United Kingdom subsidiary rather than exploit its own American-owned mine sites. Working through a foreign subsidiary changes the landscape for American jobs, technology dominance, and tax revenues, among other parameters of the national interest in seabed mining. Further, these remaining Lockheed sites are at risk

57 See, e.g., Steven Groves, “The U.S. Can Mine the Deep Seabed Without Joining the U.N. Convention on the Law of the Sea,” Heritage Foundation Backgrounder No. 2746 (Dec. 4, 2012). A major flaw running through the Groves analysis like a red skein is his citing of authorities from an earlier era in which the United States was keeping open an option to mine the deep seabed through a “reciprocating states” approach with other countries in the event that Part XI of the Convention on deep seabed mining could not be satisfactorily renegotiated. But Part XI was satisfactorily renegotiated and our “reciprocating states” agreements have been effectively superseded by the agreement of our partners to the Convention regime. Similarly, Groves quotation of the early position of United States negotiators holding open a “high seas” approach to deep seabed mining in the event of an inability to renegotiate Part XI is no longer the official view of the United States government following the renegotiation of Part XI with United States support. Thus, Groves cites no recent official statement that the approach he espouses is currently the view of the United States, particularly with respect to claims to a specific and exclusive seabed site as required by industry. Further, Groves’ reliance on the Restatement, Third, for his “high seas freedoms” approach fails to note that in the revision of the Restatement now underway this conclusion may well be one of the areas reexamined given the successful renegotiation of Part XI and widespread adherence to the Convention. This is in addition to the point, discussed subsequently in this section, that the Restatement only supports a “fishing approach” and never takes the position that the U.S. can claim an exclusive area of the deep seabed beyond national jurisdiction for its own miners. The world has moved on with respect to deep seabed mining, but to support his position, Groves dwells in the past.

#### Steps towards decarbonization now are key to mitigate global warming. We’re falling behind on climate goals now, but expanding low-carbon infrastructure which requires minerals is the vital missing piece.

Oktavia Catsaros 9-25-**24**, works for Research & Communications team at Bloomberg, "BloombergNEF: US Falling Behind on its Climate Goals; Faster Adoption of Low-Carbon Technologies Needed to Get it on Track”, BNEF, https://about.bnef.com/blog/bloombergnef-us-falling-behind-on-its-climate-goals-faster-adoption-of-low-carbon-technologies-needed-to-get-it-on-track/

The window for the US to get on track to hit its 2030 Nationally Determined Contribution (NDC) target is closing. The new report shows that getting there requires immediate action across multiple sectors. However, achieving that goal would position the US well to reach net zero by 2050 – and help keep global warming below 2C.

The US power sector has a critical role to play – not just in decarbonizing itself, but in scaling up to enable zero- or low-carbon electrification across transport, industry and buildings. This means more than quadrupling the US operational solar fleet and nearly tripling its wind fleet by 2030, according to BNEF’s Net Zero Scenario, while coal use in power generation rapidly shrinks to near zero. Gas plants continue to be used but are fitted with carbon capture equipment which ramps up as early as 2027.

“The US is running out of time and emissions budget to stay on a pathway that results in less than 2 degrees Celsius of global warming,” said Thomas Rowlands-Rees, head of BNEF’s North America research. “The heavy lifting needs to be done this decade, shifting to a clean power system based on wind, solar and storage. Cost-effectively reducing carbon emissions will need a rethink of how we consume energy, with electricity becoming the center of the energy economy, and clean power holding it all together.”

The report builds and expands on the results of BNEF’s flagship *New Energy Outlook 2024,* presenting two updated climate scenarios, the Net Zero Scenario (NZS) and a base-case Economic Transition Scenario (ETS), designed to inform public policymaking, country climate ambition and low-carbon transition strategies of corporations and financial institutions.

The NZS, which is consistent with a 67% chance of holding global warming to 1.75C, shows there is no room for any further carbon emissions growth in any sector if the US is to reach net zero by mid-century. In this scenario, the country’s emissions from the power, transport, industry and buildings sectors have already peaked, and must now begin rapidly falling.

#### Climate change is extinction, fast, and turns all other impacts.

Malm ’20 [Samuel; August 11; M.A. from Uppsala University, Disciplinary Domain of Humanities and Social Sciences, Faculty of Arts, Department of Philosophy; Digitala Vetenskapliga Arkivet, “Does Climate Change Justify a Global Epistocracy?” p. 44]

Climate change’s negative impact on humans is hardly something up for questioning. The World Health Organization believes that between 2030 and 2050 the effects of climate change will be an additional of 250 000 deaths every year; due to diarrhoea, malaria, heat stress and malnutrition.1 Accordingly, we can expect millions of deaths to occur, and the increased frequency of natural disasters will push the expected death toll even further. Additionally, the rising sea levels, and other environmental consequences, will cause an unprecedented flow of climate refugees towards areas that still are unaffected by the change. If we thought the impact was huge from the people fleeing the Syrian civil war, or the present corona pandemic, we should expect the climate disaster to be countless times larger. The pressure on societies and intergovernmental organisations will become tremendous, and we would be naïve if we did not expect this pressure to create additional suffering and death. What is then the cause of climate change? It is the result of anthropogenic acts, i.e., it is our current way of living that is causing the heating of the planet. Like a greenhouse, our planet is becoming hotter by the way that carbon dioxide traps more heat in the atmosphere, and by consequent increase the global average temperature. Additionally, it sets off other reactions that add positive feedback to the warming, e.g., creation of water vapour or the reduction of ice caps.

Now, this paper does not intend to demonstrate the truth of these claims, and if the reader is still sceptical about climate change, and its anthropogenic cause, numerous sources can justify and explain these facts better, for instance, rapports from IPCC. 2 Accordingly, I will assume these facts to be true, and that climate change will cause a state of affairs that contains a great deal of suffering and death; besides the possibility of civilisational destruction or human extinction. Thus, the circumstances are dire. So, let us summarise these detrimental effects into a single claim. Here it is:

State Of Affairs No Reduction: A state of affairs where climate change causes tens of millions of deaths, countless instances of additional human suffering, and the possibility of causing a collapse of human life as we know it.

This is what I will take as the effect of doing nothing to halt climate change. This then begs the question: If our current behaviour has such terrible consequences, why have we not implemented policies that prevent climate change?

1.2 What is the nature of the problem?

There are two ways to answer this question: we can give a historical description of how the issue has been misconstrued by interests that have a lot to gain from the status quo or, that we are dealing with a special type of problem that is particularly difficult for us to confront.3 In this paper I will only deal with the second dimension. Additionally, we can divide this dimension into two groups: first, we can describe how humans, by their very nature, are poorly endowed to deal with such problems as climate change, secondly, that the problem of climate change is what sociologists call a “wicked problem”. I will discuss the first aspect later on when describing psychological barriers. Now, I want to address characterising climate change as a wicked problem.

During the ozone depletion, discovered in the late seventies, the world’s states quickly came together and implemented the Wien protocol in 1985; a protocol that set down some policies for protecting the ozone layer. Subsequently, in 1987 the Montreal Protocol was implemented, that resulted in the complete removal of the chemical substances that created the ozone depletion.4 Why have we not seen the same collective action towards climate change? Well, first, we must clarify that in the case of the ozone depletion, the solution was much easier to implement; it took the removal of a few ozone-depleting substances. However, solving the problem of climate change is much more wicked (supposedly) and is said to fall under a specific type of problem posited by Horst Rittel in the late 1960s; wicked problems.5 These are deep problems that do not present you with a clear solution. Now, my initial definition of the problem seems to fly against this deepness, i.e., I have claimed there is a clear solution. However, those that see it as a wicked problem would contend that my definition is only one way to conceptualise the problem, and that there is a spectrum of definitions that seem more or less correct. What does this mean? Dale Jameison describes this well:

“There are many different ways of conceptualising the problem of climate change, each of which finds different resources relevant to its solution and counts different response as success and failures. If the problem is fundamentally one of global governance, then new agreements and institutions are what are needed. If the problem is market failure, then carbon taxes or a cap and trade system is what is required. If the problem is primarily a technological failure, then we need an Apollo program for clean energy or perhaps geoengineering. If climate change is just the latest way for the global rich to exploit the global poor, then the time has come for a global struggle for justice. This problem of multiple frames is characteristic of what are called “wicked problems.” And wicked problems are extremely difficult for political systems to address successfully.”6

I understand the appeal to find all these different ways to conceptualise the problem of climate change. However, I do believe we are doing ourselves a disfavour if we explain the lack of action in preventing climate change, and by consequent justify this inaction, by appealing to this problem of multiple frames. We should ask why it is of benefit to consider all these multiple frames when trying to stop climate change? I take it that the answer to this is our desire for finding the most accurate conceptualisation of the problem so that we can implement the most optimal solution. I believe this is wrong. At its core, we know the solution to the problem (reduce greenhouse gases) and we should accept the risk that we will implement a sub-optimal solution. Waiting around for the most accurate conceptualisation of the problem is counterintuitive, especially when we contemplate the risk it entails. The goal should not be too solve this problem of multiple frames by, for instance, taking steps to secure a unanimous acceptance of some particular framing of the problem, and by consequent enact the most optimal solution to climate change. Setting this as our aim is just to promote even more inaction; we need to accept a sub-optimal solution. I believe this desire to find the optimal solution which does not entail people having to accept a reduction in their current standard (no one gets elected by promising to reduce economic growth and causing other detrimental effects on their electorate) better explains our inaction then characterising climate change as a wicked problem. As Broome writes: “the economics and politics of climate change has concentrated on finding the best solution to the problem of climate change.”7 Meaning that we are looking for a solution without sacrifice — and by consequent choose business as usual.

Nevertheless, I believe we should not put too much importance on the wickedness of the problem. We know what it takes, and our technological achievements are well-equipped to deal with the problem (since it also has created the problem). Implementing some policies that reduce greenhouse gases is better, even if they are sub-optimal, then postponing taking any preventive measures.

Nevertheless, before closing this section, there is one more aspect of the problem of climate change that we ought to face; the need for immediate action. This aspect is of high importance, and we should not take it lightly; even though it fills a short space in this paper. Climate change has been going on for a long time, and year by year we increase the yearly outpour of greenhouse gases into the atmosphere, e.g., the last year (2019) we increase the outpour even more.8 Additionally, we are taking a risk when we do not know what positive feedback we are potentially setting off by not reducing the outpour. Accordingly, we need to accept the fact that the problem of climate change has the character of demanding our immediate action.

1.3 Clarifications

Before turning to the argumentation for this paper’s thesis, some clarifications are necessary. One of these is the role of “political authority”. When I argue that we have good reasons to prefer an epistocracy, I am arguing that we ought to accept the epistocratic method as the political authority and that this authority is legitimate, i.e., it has some moral justification for establishing a normative relation between it (political authority) and the subjects. There are several conceptual accounts of “political authority”, and I will use the right to rule account. This account portrays a more morally robust account of the relation between an authority and a subject. It essentially describes a kind of ideal political community where a deeper moral connection is present. 9 I believe this is what we think of when trying to evaluate the legitimacy that a political system, as in a state, have in coercing a population, and the subjects have a moral duty to obey the authority. This will be the conceptual definition of political authority. It has a moral right to rule and coerce people into obeying its political system of institutions that regulate the behaviour of its subjects and set out the course for where the political entity is heading, i.e., which state of affairs we realise in the future.

2. Introducing the Solution

In this section, I will demonstrate why we ought to accept The Solution as a true normative claim, i.e., why we ought to take political action to prevent State Of Affairs No Reduction from coming into existence.10 Here is the claim:

The Solution: Reduce the global outpour of greenhouse gases to a level that has an excellent chance of causing the avoidance of State Of Affairs No Reduction.

One helpful way to characterise the normativity of The Solution is as a navigational problem. Where do we want our global society to be heading? I believe we can characterise the possible directions as a binary choice between The Solution and Not-The Solution. The second option I describe as follows:

Not-The Solution: Continue the outpour of greenhouse gases with the consequences that State Of Affairs No Reduction has an excellent chance of being actualised.

Now, even though The Solution contains multiple ways to get implemented, they all share the same normative content of causing a reduction of greenhouse gases in the atmosphere.11 Accordingly, it is this goal, and how it dictates the changes needed in our global institutions that are of such vital importance. By contrast, Not-The Solution shares the same normative content of taking no action that will prevent State Of Affairs No Reduction. Given this binary choice, I believe our intuition tells us that we ought to choose The Solution. What could speak in favour of Not-The Solution? Is there some option of Not-The Solution that we have a better reason to prefer? Maybe someone would contend that the uncertainty that surrounds climate change gives us good reasons to postpone taking any action, or, that other goals are much more important. Now, before addressing these concerns, perhaps our intuition becomes stronger (that we ought to choose The Solution) if I provide some scenario that could work as an intuition pump. Here is such a scenario:

*The Bus Ride*: So, picture, if you will, a bus that is on a direct course towards a large tree that will cause a great deal of suffering and death upon impact. Inside, the people are busy doing whatever they see fit, spending their time to make the bus ride as comfortable and meaningful as possible. However, there is a group of scientists that have analysed and investigated the devastating effect of this course, and that they need to perform some necessary action to avoid the tree. Perhaps they all need to drop what they are doing and give up some of their time jolting the bus enough so that the bus will miss the tree.

Accordingly, the world is the bus, the people on the bus is the world’s population, and the jolting of the bus is The Solution.12 I believe our intuition tells us that we ought to perform the necessary actions in order to prevent the bus from hitting the tree. What could possibly be more pressing? Do we have good reasons to do something else? Is the uncertainty of how bad the impact will be, and when it will occur, good reasons to not start jolting the bus?

Weighing different values against each other is tricky, and there are many scenarios where it is contentious if we should promote, for instance, equality or liberty. Some could argue that we ought to increase economic prosperity since it will maximise well-being for all humans; others will argue that securing peace takes priority; social justice; or environmental concerns. However, whatever we see as the road to the common good the implementation of The Solution is superior in its importance, because it secures that there will be a ground to put the road on. We will certainly not have social harmony in a state of affairs where climate disaster is present; the economy will suffer the consequences of the climatic impact on everything from production to transfer, and we have good reasons to believe conflict and tension will arise when the situation gets worse.

Now, perhaps some could say that it is immoral to demand that people make sacrifices to reduce greenhouse gases. I believe this is wrong. The implementation of The Solution will not demand a tremendous amount of hardship for the effect world population.13 Like Peter Singer’s case where we should sacrifice our clothes in order to save a child from drowning in a pond, we ought to sacrifice some niceties in order to save ourselves, and future generation from State Of Affairs No Reduction.14 Accordingly, the sacrifices necessary do not entail some morally questionable acts, i.e., reduce the level of greenhouse gases by killing off a portion of humans. I am talking about, for example, having to reduce flying to a necessary minimum, or, pay more in taxes so we can develop, and build, the technology that reduces the outpour of greenhouse gases, e.g., solar panels. Furthermore, it is the affluent world that will have to bear the biggest load of these necessary sacrifices. Especially, since the cause of climate change comes from the increased material standard enjoyed by people in affluent countries. They should, by consequent, accept the moral responsibility to combat the harm this wealth is causing, and going to cause. Or, put differently, the economic prosperity that has created this wealth is the cause of the climatic change, and the cost of emitting greenhouse gases has been an externality unaccounted for by either the consumers or the producers (a Pareto sub-optimal state of affairs). Additionally, it is common-sensical that if one group have very few resources, and another group has an abundance of resources, we should not solve a common problem by removing the few resources from the first group. The harm created by the amount of resources in the prosperous group should yield a good reason for them, bearing the bigger load.

Additionally, we should also accept that since anthropogenic acts cause State Of Affairs No Reduction, it leaves us with an additional moral reason to implement The Solution (leaving aside just the badness of State Of Affairs No Reduction). We bear the responsibilities of our actions, and these actions will harm countless future human beings.15 Even if we do not bear the responsibility of stopping climate change individually, we should not prevent our institutions from being reshaped in a way that solves the problem of climate change. I would even contend, if we are living in a democracy, we have a moral duty to use our political power (vote), so we take the necessary steps to implement something like The Solution.16 (Perhaps, this could also be interpreted as a reason for restricting universal suffrage (the democratic process) and justify an global epistocracy.) Possibly, in a counterfactual world where a non-anthropogenic event will cause a similar type of harm (for instance an impact by a meteorite), it could be argued that we have no responsibility to prevent this event since we are not the actors that create this event. I believe this is a weak argument for not preventing the impact from the meteorite. However, in the case of climate change that argumentation is not available since we are responsible for it.

One final thing is that The Solution is hardly a discriminatory or biased policy. Certainly, different groups will be affected differentially by the policy, and, as have been said, the affluent part of the world should bear the biggest load. However, the policy itself places no higher importance on any person or group. Satisfying, what Vandamme calls, a quality of (substantive) impartiality: “understood in a moral and substantive sense, as a property of public policies and of a political order, can be simply defined as not favouring some groups or individuals over others for morally arbitrary reasons.”17

2.1 Uncertainty of Climate Change

What then about uncertainty and the effect it has on the normativity of The Solution? Perhaps, someone would argue that since there is still uncertainty in the range of negative impact that climate change will have, and the lack of knowledge when things will start to get truly harmful, we can delay making any decision until the facts are in. I believe this is wrong. As Broome writes: “If you can costlessly delay a decision till all the information is in, you should delay it. But when delay itself is risky, it is not a sensible remark.”18 Choosing Not-The Solution and thus gamble in the hope that it will not have the consequence of suffering and death in order to avoid making a sub-optimal decision, that in hindsight is evaluated as unnecessary is, I believe, immoral and irrational.19 Accordingly, in the same way that it is rational to invest in a fire extinguisher, in case a fire starts in your house, it is rational to invest in the removal of the possibility of a climate disaster in the future. Why is this? I believe that Expected Value Theory is a good guide to adopt when facing uncertainty. Broome summarises this theory nicely:

“When the quantitative outcome of some process is uncertain, the expectation of the outcome is calculated as follows. Take each of the possible values of the outcome and multiply each by the probability of its occurring. Add up all of these products. The sum is the expectation. It is just a weighted average outcome, where the weights are the probabilities.”20

Even if it is a very small probability that climate change will have civilisational ending results, the great badness that this state of affairs constitutes should warrant our immediate action to avoid this scenario. Perhaps, there could be a case for not implementing The Solution if it would demand a large number of sacrifices, and by delaying this implementation we could remove additional uncertainty. For instance, what if people in The Bus Ride had to kill fifty per cent of the passengers, by throwing them off the bus, in order to avoid the tree. Certainly, given this tremendous sacrifice an argument could be had why we should delay implementing necessary precautions. However, even though the aggregation, of the small sacrifices every individual has to make, could become large, it does not constitute this tremendous sacrifice in The Bus Ride. The small sacrifices everyone have to make is easily overshadowed by the badness of State Of Affairs No Reduction. Accordingly, I still take it that we have better reasons to prefer The Solution than Not-The Solution even though climate change will always be immersed in uncertainty. We only have one opportunity to run this experiment, so we should not gamble with the outcome.

Nevertheless, I will not try and persuade the reader more of the badness of State Of Affairs No Reduction and that we ought to implement the Solution. Possibly, the discussion of the next section will bear some support for the accuracy of The Solution.

3. The Answer

What we then must ask ourselves is: Which process for collective decision-making do we have reasons to believe will successfully implement The Solution? We could start with an unhelpful answer: The method that has the best chance to implement The Solution. Which method is this then? Here we get to the core of this paper’s thesis. I will call the answer to this question simply: The Answer. Here it is:

The Answer: Given that we ought to implement The Solution, and by consequent avoid State Of Affairs No Reduction, we have better reasons to prefer some form of global epistocracy, than a global democracy.

#### It’s a risk magnifier.

Kemp 23, Research Associate at Darwin College, Ph.D., International Relations, Australian National University (Luke Kemp, 2023, “7. Ecological Breakdown and Human Extinction,” in *The Era of Global Risk: An Introduction to Existential Risk Studies*, Cambridge University Open Book Publishers, University of Kansas Libraries, ILL)

Large amounts of warming and monumental Earth-engineering may not be needed to trigger catastrophe. Historically, minor climatic perturbations and droughts appear to have contributed to the dissolution of dozens of empires and kingdoms, ranging from the Bronze Age world system to the Khmer Empire, Western Roman Empire, and Assyrian Empire.45 Yet many proved resilient to similar stresses. For instance, the Mayan city-state of Caracol experienced two similar droughts during its lifespan, one of which it navigated with few signs of breakdown, and the other which coincided with a rapid and enduring crisis. The largest difference appears not to be the severity of the drought, but that Caracol was riven by warfare and inequality when it hit the second time.46

Risk cascades still largely exist under a fog of uncertainty. Studies currently suggest that climate change can worsen and trigger conflicts under conditions such as weak governance and ethnic divisions,47 although we do not know how this relationship could morph under higher temperatures. Similarly, temperature does seem to have an innate and often non-linear relationship with economic growth48 and even population spread and density. It has been suggested that humans, much like other species, have a fundamental climatic niche—that is, a specific climate envelope of approximately 13°C (mean annual average temperature) that the majority of human population and urban areas have developed within over millennia.49 Perhaps the best study to date on risk cascades and feedbacks used 41 studies to empirically sketch the links between climate change, food insecurity, and societal collapse (population loss through conflict, mortality, and emigration).50 Other researchers in global catastrophic risk have also begun putting forward frameworks for more complex risk assessments,51 including for climate change52 and international governance.53 For now, far greater attention and research is needed on these systemic effects, such as climate triggering conflict, political change, or even financial crises.

Indeed, understanding ‘societal fragility’ is a key part of the Climate Endgame research agenda, alongside exploring long-term extreme Earth System states, modelling mass mortality and morbidity, and undertaking integrated climate catastrophe assessments, which include climate change alongside a host of other catastrophic threats and vulnerabilities.30

An existential end? Could global environmental collapse cause human extinction?

This leads us to the central question: could combined ecological crises cause this to be humanity’s final century? Few have been bold enough to directly broach the question. There have been many prophesied warnings, especially within the collapse literature, but no truly comprehensive scientific assessments. Questions of catastrophe are not directly addressed by any relevant, international scientific institutions, such as the Intergovernmental Panel on Climate Change (IPCC) or Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES).

Many individual papers have mentioned the catastrophic potential of climate change. Peer-reviewed academic studies have referred to global warming as an “existential threat”,5 “beyond catastrophic” (for above 5°C),54 and “an indisputable global catastrophe” (for above 6°C).55 While the impacts of climate change alone seem capable of causing a global catastrophic risk, the authors never spell out how the world would fall from such impacts to mass mortality. Importantly, the gloomy terms are never defined, leaving it unknown as to whether the authors believe that certain levels of warming could plausibly lead to human extinction. These are no studies nor proofs of existential risks from climate change, but rather indications of a lack of shared terminology.

In lieu of sustained scientific attention, the most poignant examinations have come from popular books. Mark Lynas in Our Final Warning concludes, based on a large-scale review of the existing scientific literature, that 4°C could threaten a global collapse, and 5–6+°C could unravel into human extinction.56 David Wallace-Wells in The Uninhabitable Earth guesses that, in contrast to the title, the Earth will not become uninhabitable, and humans will survive foreseeable levels of warming.57 Toby Ord in The Precipice suggests a 1 in 1000 chance of climate change resulting in an existential catastrophe.58 William MacAskill in What We Owe the Future suggests that “it’s hard to see how even this could lead directly to civilizational collapse”.59

The assessments by existential risk scholars—Ord and MacAskill— have been the least convincing thus far. Ord uses an unworkable, ambiguous definition of existential risk.60 He defines an existential risk as one that “threatens the destruction of humanity’s long-term potential”. However, what our potential is depends on one’s values. Ord suggests that we minimise existential risks first and then determine “our potential” through a “Long Reflection”. This would essentially be a centuries-long worldwide philosophical conversation. This strategy creates a paradox: we are supposed to minimise risks to a concept that we cannot define until after we have reduced those risks. It is difficult—if not impossible— to assess climate change using this definition, as Ord doesn’t explicitly state his values, nor what “our potential” is. His analysis misses much of the most recent science and does not sufficiently consider ‘indirect’ impacts. Moreover, the chapter does not cogently answer the question of whether climate change will result in human extinction. Instead, after roughly estimating the direct impacts, Ord concludes that they will not make the entirety of Earth uninhabitable. This is an entirely different question to the likelihood of climate change causing human extinction. Ord’s use of a precise numerical figure is also largely baseless. As noted earlier, even groups of the best super-forecasters making predictions on clearly defined questions have little accuracy after 12 months.61

MacAskill’s analysis is also riddled with problems. Like Ord, he suffers from definitional problems. He defines ‘civilisational collapse’ as society losing the ability to create most industrial and post-industrial technologies.62 This has little relation to more common definitions of societal collapse. It also assumes that we know the full range of potential industrial and post-industrial technologies. Worse still, like with Ord’s analysis, it replaces the question of whether climate change will cause civilisational collapse with an easier one: will climate change make large-scale agriculture on Earth impossible? MacAskill concludes no. Once again, this is a different question. In short, the coverage of climate change by the most prominent existential risk scholars has been simplistic and disappointing.

While brave, the conclusions of Wallace-Wells and Lynas are ultimately individual guesses with multiple shortcomings. Wallace-Wells is unclear about how he reaches his conclusion. Lynas relies on geological studies and the analogous example of the End-Permian Extinction. His more pessimistic assessment appears the most compelling. It has the most thorough grounding in the literature and, in the face of deep uncertainty, relies on the most reliable and relevant geological precedents.

This is astute, given that studies suggest that mass extinction events work by a threshold effect for temperature or carbon that we look likely to exceed. One analysis from 2021 found that warming of 5.2°C would likely result in a mass extinction event, even without considering the other anthropogenic impacts on the Earth.63 Another study suggested that the threshold for carbon release to result in a mass extinction event would be crossed by most IPCC scenarios by the end of the century (assuming a 50% uncertainty range, we may have already crossed this precipice).64

Yet, these investigations suffer from the same problem, one that plagues the entire study of global catastrophe and human extinction: a lack of proven or reasonable tools and methods for discerning when a crisis could spiral into global calamity. Few attempts have been made, with the notable exception of the societal collapse and climate review conducted by Richards et al., which does attempt to cautiously trace out some pathways from impacts to conflict and mass mortality.65 Notably, these deal only with climate change and not the broader, reinforcing web of ecological crises, which has received less attention.

The short answer is that we do not know whether climate change or anthropogenic ecological disruption could spiral into human extinction. However, this is true for all the suspected causes of human extinction. Climate and ecological crises do appear to have one of the most concerning profiles, given their range of impacts, as well as their role in past mass-extinction events and periods of historical turmoil. There are enough reasons to take this question of human extinction from ecological breakdown seriously.

For now, while uncertainty remains, it seems improbable that human actions could extinguish the biosphere. Another mass-extinction event is plausible, but complete annihilation of the biological realm is likely not. Barring science fiction, the only semi-plausible direct route for human activities to terminate all biological life is the triggering of a runaway greenhouse effect. Lynas has suggested that such a scenario is possible, if there are hidden, extreme positive feedback loops in the climate system, an enormous, profligate use of fossil fuels, and increasing solar radiation.66 Some basic modelling of the climate system has suggested that a runaway greenhouse effect is plausible.67 This is further supported by recent modelling of potential cloud feedbacks leading to a moist greenhouse.68 However, these studies are based on high-level models with many assumptions.

The current scientific consensus is that any hellish mechanism— which could lead to a furnace Earth, complete with evaporated oceans— is highly unlikely. In 2009, the IPCC reported, in its 31st meeting, that a “runaway greenhouse effect” analogous to Venus appears to have virtually no chance of being induced by anthropogenic activities.69 Whether this view continues to hold, given the new modelling outcomes, is unclear. For now, while extinguishing the entire web of life seems far less likely than causing human extinction, it is an outcome that cannot be entirely ruled out.

If humans were to go extinct, it is likely that global ecological collapse would be one of a series of drivers. Imagine a world where, in 2075, we have reached 4°C of warming. The climate system was more sensitive than expected, and new energy-hungry machine learning algorithms led to higher-than-expected energy demand. After a category 6 hurricane hits New York City, NATO (led by the US) deploys a global stratospheric aerosol injection (SAI) system. This enflames international tensions and stokes domestic unrest in societies already awash with disinformation driven by deep-fakes and other high-level machine learning applications. A nuclear war breaks out and the ensuing nuclear winter knocks out the SAI system. The few billion survivors emerge from nuclear winter to be faced by soaring temperatures as the Earth warms by 4.5°C in the space of decades. Sources of sustenance beyond agriculture, such as marine fish stocks, have been significantly affected by transgressing other planetary boundaries such as ocean acidification, biosphere integrity, and biogeochemical flows. The rapid changes in temperature cause significant changes in wildlife distribution, triggering new zoonotic pandemics. Simultaneously, the unplanned emergency evacuation of one biosafety level 4 (BS4) facility just prior to the nuclear conflict led to the release of a modified version of the previously defeated smallpox virus. The survivors are ingenious and resilient but fail to recapture the right industrial technologies required to put an SAI system back online. Many have intentionally turned away from industrial technologies after the fall. Those that try are faced with the problem of energy return on investment: easily accessed fossil-fuel reserves have already been depleted and the leftovers are too costly to use at scale. After a long fight, the final sapien takes her last breath. She is a Māori woman, living on the outskirts of modern-day Dunedin (New Zealand). Her body, riddled with the scars of an altered smallpox strain and signs of malnourishment, finally gives out. Humanity is extinguished.