We Negate

Contention 1 is Arctic drilling

Accession to UNCLOS increases drilling for 2 reasons

1. Incentives

Without accession, companies don't have international backing to drill in the arctic, disincentivizing drilling. Houck 2015 explains "**If a US company wants to attempt to exploit minerals and natural resources** beyond 200 miles, **then it does so at some risk. It does so not knowing whether or not it has clear legal title to the** natural **resources** beyond 200 miles**"**[1] Accession gives them the legitimacy to drill for oil, boosting the industry. Ueno 2012 explains "**U.S. oil and gas companies are now ready, willing, and able to explore this area. But they have made it clear to us that they need the maximum level of international legal certainty before they will or could make the substantial investments"**[2], With legal protection, accession guarantees more resource exploitation.

2. Scramble for the Arctic

In the status quo, Russia controls much of the arctic but is unable to drill. Pritchin 2018 explains that "**Russia has vast oil and gas reserves in the Arctic, but is unable to exploit them due to sanctions, the technological shortcomings of state-owned companies** Gazprom and Rosneft, **and their unwillingness to cooperate with private Russian companies with the relevant experience"**[3] Problematically, by allowing the US to lay claim to vast arctic territory, UNCLOS forces Russia to invest in and expand drilling to remain competitive with the US. Jaffe 2017 explains that **The threat of rising U.S. oil and gas exports could be one factor encouraging increasingly risky Russian adventurism since doing nothing about it could neutralize a major tool of Russian foreign policy"**[4]

The impact is Food security

Massive amounts of methane are held in the arctic. Problematically, drilling releases that gas. Walsh 2012 explains that "**Methane** and black carbon**,** two potent greenhouses gases**, will likely be emitted in significant amounts if drilling in the Arctic proves as lucrative as many oil companies are hoping for"**[5] This increases global temperatures McKinnon 2015 finds that "In fact, the **only scenarios published in defense of Arctic oil exploration are consistent with at least 5 degrees Celsius of global warming – a level widely considered to be disastrous**"[6] This harms global food supplies, as Deutsch 2018 finds, regarding

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[1] **Houck 15** (James Houck, Distinguished Scholar in Residence, Penn State Law and the School of International Affairs Director, Center for Security Research and Education, April 27th 2015, Harvard International Review, "The Law of the Sea and the Arctic," http://hir.harvard.edu/article/?a=10903 DOA 6/24/18) CJV

[2] **Ueno 2012** (Hideshi Ueno, editorial staff of OPRF MARINT Monthly Report, "Discussion regarding accession to UNCLOS in the United States", *From the Oceans*, May 2012, https://www.spf.org/oceans/analysis_en/c1205.html. DOA: July 9th 2018) TG

[3] **Pritchin 2018** (Stanislav Pritchin, Academy Robert Bosch Fellow, Russia and Eurasia Programme, "Maintaining Peace in the South China Sea", *Chatham*, January 29th 2018, https://www.chathamhouse.org/expert/comment/russia-s-untapped-arctic-potential. DOA: July 9th 2018) TG

[4] **Jaffe 2017** (Amy Myers Jaffe David M. Rubenstein Senior Fellow for Energy and the Environment and Director of the Program on Energy Security and Climate Change, "Could a U.S.-Russia Oil Showdown be Coming?", *Council on Foreign Relations*, December 18th, 2017, https://www.cfr.org/blog/could-us-russia-oil-showdown-be-coming. DOA: July 18th 2018) TG

[5] **Walsh 12** (Bryan Walsh, senior writer for TIME magazine covering energy and the environment, 20 July 2012, "It's Not Just Spills—the Climate Risks of Arctic Drilling" http://science.time.com/2012/07/20/its-not-just-spills-the-climate-risks-of-arctic-drilling/ DOA 7/8/18)

[6] McKinnon et. al 2015 (Hannah McKinnon, M.Sc. from the London School of Economics and Political Science and a B.Sc. Hons. in Biochemistry from Mount Allison University, "Untouchable: The Climate Case Against Drilling", *Oil Change International*, August 2015, http://priceofoil.org/content/uploads/2015/08/OCI-Untouchable_Arctic_FINAL.pdf. DOA: September 6th 2018) TG

rice corn and wheat " **Global yield losses of these grains are projected to increase by 10 to 25% per degree of global mean surface warming"**[7] This directly harms the food supplies of billions of people, as Plumer 2018 finds, regarding rice, that "The researchers focused on rice because **more than 2 billion people worldwide rely on it as a primary food source"**[8]

Contention 2 is Deep Sea Mining

Acceding to UNCLOS will increase seabed mining through permitting.
The current permitting regime deters companies from even attempting mining, as Tong 2017 find that "**U.S. companies and their investors will not risk engaging in deep seabed mining operations without the insurance and stability provided by the ISA's developing mining regime**."[9]
Unfortunately, by acceding to UNCLOS, the US gains the power to offer permits, changing the current trajectory of the industry. Patrick 2012 Second, **accession to the treaty would allow the United States to sponsor its own national companies to engage in deep sea-bed mining.**[10]
This increase in seabed mining has 2 devastating impacts

1. Fish

Deep sea fisheries are vital, as Alexander 2014 writes that **"The deep ocean is very closely linked to the function of the surface of the earth**," he said. "**It is the area where the nutrients that fuel the most productive fisheries on the planet** come from and also acts as the major sink for carbon dioxide that we have released into the atmosphere**."**[11] Problematically, engaging in deep sea mining only releases waste that can impact these fish populations. Miller 2018 writes that **"The discharge of wastewater at the sea surface could impact marine ecosystems by causing turbidity clouds and affecting commercial fish species**, as well as, in some cases, causing algal blooms (Namibian Marine Phosphates, 2012)**"**[12] These effects are impossible to come back from, as Miller furthers that **The impact of marine mining may be more intensive than trawling because the removal of substrata will be complete. Such removal on a commercial scale accompanied by slow species recovery rates will likely lead to irreversible changes** in benthic (and possibly pelagic) community structure

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[7] **Deutsch et. al 2018** (Curtis A. Deutsch School of Oceanography, University of Washington, Joshua J. Tewksbury Department of Environmental Studies, University of Colorado, Boulder, Michelle Tigchelaar Department of Atmospheric Sciences, University of Washington , David S. Battisti, Department of Atmospheric Sciences, University of Washington , Scott C. Merrill, Department of Plant and Soil Science, University of Vermont , Raymond B. Huey, Department of Biology, University of Washington, Rosamond L. Naylor, Department of Earth System Science and the Center on Food Security and the Environment at Stanford, "Increase in crop losses to insect pests in a warming climate", *American Association for the Advancement of Science*, August 31st 2018, http://science.sciencemag.org/content/sci/361/6405/916.full.pdf. DOA: September 5th 2018) TG

[8] **Plumer 2018** (Brad Plumer is a reporter covering climate change, energy policy and other environmental issues for The New York Times's climate team, "How More Carbon Dioxide Can Make Food Less Nutritious", *The New York Times*, May 23, 2018, https://www.nytimes.com/2018/05/23/climate/rice-global-warming.html. DOA: September 5th 2018) TG

[9] Randy W. Tong, 2017 (Randy W. Tong, J.D. Candidate, University of the Pacific, McGeorge School of Law, to be conferred May 2017; B.S. Clinical Nutrition, University of California, Davis, 2008. 2017) AO

[10] Patrick 2012 (Stewart Patrick, senior fellow at the Council on Foreign Relations and Director of the Program on International Institutions and Global Governance, "(Almost) Everyone Agrees: The U.S. Should Ratify the Law of the Sea Treaty", *The Atlantic*, June 10th 2012, https://www.theatlantic.com/international/archive/2012/06/-almost-everyone-agrees-the-us-should-ratify-the-law-of-the-sea-treaty/258301/. DOA: June 27th 2018) TG

[11] William Alexander, 8-7-2014, 14, Mining the Bottom of the Ocean Is as Bad for the Environment as it Sounds, https://motherboard.vice.com/en_us/article/kbz79x/mining-the-bottom-of-the-ocean-is-as-bad-for-the-environment-as-it-sounds, 7-10-2018//ALP

[12] Miller 2018(Kathryn Miller, researcher at Greenpeace International, January 10th 2018, Frontiers in Maritime Science, "An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps," https://www.frontiersin.org/articles/10.3389/fmars.2017.00418/full DOA 9/10/18) CJV

on and around seamounts (Gollner et al., 2017)."[13] The impact of destroying fisheries is quantified by the World WIldlife Fund in 2018, who write that"**Approximately three billion people in the world rely on both wild-caught and farmed seafood as their primary source of protein."**[14]

2. Carbon Sink

The deep seabed acts as a critical climate regulator. Hunter 2018 finds that **"Recent scientific research, however, has revealed that the deep seabed, and hydrothermal vents in particular, make potentially critical contributions to both biodiversity and global climate regulation."**[15] Problematically, deep sea mining destroys this function. Hunter furthers that **DSM poses a grave threat to these vital seabed functions.** Extraction methods would involve the operation of large, remote vehicles on the seafloor to chemically leach or physically cut crust from substrate and/or use highly pressurized water to strip the crust."[16] This leads to a rise in global temperatures, as Miller 2018 finds that "I**f increasing quantities of methane hydrate is destabilized and released, atmospheric temperature may rise leading to a positive carbon-climate feedback"**[17]. Hunter terminalizes that In addition to their rich biodiversity, **hydrothermal vents and seeps** "constitute important . . . sinks,"[26] in which microorganisms specifically adapted to these environments **consume and sequester carbon and methane,[27] a greenhouse gas ("GHG") with roughly 25 to 50 times the potency of carbon dioxide**.[28] A 2016 study released by 14 universities and oceanographic institutions found carbon sequestration by hydrothermal vents and seeps to be even more "extensive in space and time than previously thought."[29] Indeed, **one study author cautioned that the release of sequestered methane could be "a doomsday climatic event.**[18]

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[13]Miller 2018(Kathryn Miller, researcher at Greenpeace International, January 10th 2018, Frontiers in Maritime Science, "An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps," https://www.frontiersin.org/articles/10.3389/fmars.2017.00418/full DOA 9/10/18) CJV

[14]**WWF 2018** (WWF, The World wildlife foundation is a non-profit organization concerning the environment. Before joining WWF, Bill Fox spent 31years with the National Oceanic & Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS)., 2018, "Oveview", *WWF*, https://www.worldwildlife.org/industries/sustainable-seafood, Accessed 07/11/2018) JJ

[15]**Hunter et al 18** (Julie Hunter, Pradeep Singh and Julian Aguon, of the Harvard Environmental Law Review, 16 April 2018, "Broadening Common Heritage: Addressing Gaps in the Deep Sea Mining Regulatory Regime" http://harvardelr.com/2018/04/16/broadening-common-heritage/ DOA 7/18/18) MDS

[16]**Hunter et al 18** (Julie Hunter, Pradeep Singh and Julian Aguon, of the Harvard Environmental Law Review, 16 April 2018, "Broadening Common Heritage: Addressing Gaps in the Deep Sea Mining Regulatory Regime" http://harvardelr.com/2018/04/16/broadening-common-heritage/ DOA 7/18/18) MDS

[17]Miller 2018(Kathryn Miller, researcher at Greenpeace International, January 10th 2018, Frontiers in Maritime Science, "An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps," https://www.frontiersin.org/articles/10.3389/fmars.2017.00418/full DOA 9/10/18) CJV

[18]**Hunter et al 18** (Julie Hunter, Pradeep Singh and Julian Aguon, of the Harvard Environmental Law Review, 16 April 2018, "Broadening Common Heritage: Addressing Gaps in the Deep Sea Mining Regulatory Regime" http://harvardelr.com/2018/04/16/broadening-common-heritage/ DOA 7/18/18) MDS

Not having this mechanism leads to a chilling effect in development, or the benefits going instead to another country

Houck 15 (James Houck, Distinguished Scholar in Residence, Penn State Law and the School of International Affairs Director, Center for Security Research and Education, April 27th 2015, Harvard International Review, "The Law of the Sea and the Arctic," http://hir.harvard.edu/article/?a=10903 DOA 6/24/18) CJV

The Law of the Sea Convention has set up a way to address a nation's rights to its extended continental shelf. There is a fairly elaborate system that has been set up. Basically, that system provides that nation a way to submit a claim to an international body, called the Commission on the Limits of the Continental Shelf. If that body endorses that claim, then that claim beyond 200 miles has international recognition. The United States cannot submit a claim or pursue it in that process, because we are not a member of the Law of the Sea Convention. So what does that mean? What it means is that all of the resources in the Arctic that the United States may enjoy beyond 200 miles, we don't have international recognition that they belong to us. If a US company wants to attempt to exploit minerals and natural resources beyond 200 miles, then it does so at some risk. It does so not knowing whether or not it has clear legal title to the natural resources beyond 200 miles. What that does to companies who will be required to invest millions, if not billions, of dollars in these projects, is that they're hesitant to do it. And they shy away from it, or else they join with a nation and submit themselves to the national jurisdiction of countries that have made the claim, and have recognized international title in these areas. There are some who oppose the treaty who say none of this matters, that the Law of the Sea Convention does nothing but create legal confusion and all the United States has to do is take what it wants. I think there are a variety of reasons why this would create undue risks. Those risks create a vicious circle of US companies not wanting to take the risk, therefore they don't do anything.

Companies want to drill, but accession is a prerequisite

Ueno 2012 (Hideshi Ueno, editorial staff of OPRF MARINT Monthly Report, “Discussion regarding accession to UNCLOS in the United States”, *From the Oceans*, May 2012, https://www.spf.org/oceans/analysis_en/c1205.html. DOA: July 9th 2018) TG

First, for years, American oil and gas companies were not technologically ready to take advantage of the convention’s provisions regarding the extended U.S. continental shelf. Now they are**.** *The convention allows countries to claim sovereignty over their continental shelf far out into the ocean, beyond 200 nautical miles from shore*. The relevant area for the United States is probably more than 1.5 times the size of Texas. *U.S. oil and gas companies are now ready, willing, and able to explore this area. But they have made it clear to us that they need the maximum level of international legal certainty before they will or could make the substantial investments*, and, we believe, create many jobs in doing so needed to extract these far-offshore resources. If the Unites States were a party to the convention, we would gain international recognition of our sovereign rights, and therefore be able to give our oil and gas companies this legal certainty. Staying outside the convention, we simply cannot.

Russia can't drill for oil in the Arctic

Pritchin 2018 (Stanislav Pritchin, Academy Robert Bosch Fellow, Russia and Eurasia Programme, "Maintaining Peace in the South China Sea", *Chatham*, January 29th 2018, https://www.chathamhouse.org/expert/comment/russia-s-untapped-arctic-potential. DOA: July 9th 2018) TG

Russia has vast oil and gas reserves in the Arctic, but is unable to exploit them due to sanctions, the technological shortcomings of state-owned companies Gazprom and Rosneft, *and their unwillingness to cooperate with private Russian companies with the relevant experience.* The current price of crude on international markets should make extraction from the bed of the Arctic Ocean profitable, but *sanctions are precluding Russia from engaging Western companies with the necessary technological capacity to explore Russia's Arctic resources.* However, *Russia has its own self-imposed restriction - private companies in Russia with specialist experience and technology are also unable to support the exploration of Russia's untapped Arctic reserves. Only Gazprom and Rosneft have access to Russia's Arctic shelf.*

Threats of US oil increase Russian oil investment

Jaffe 2017 (Amy Myers Jaffe David M. Rubenstein Senior Fellow for Energy and the Environment and Director of the Program on Energy Security and Climate Change, "Could a U.S.-Russia Oil Showdown be Coming?", *Council on Foreign Relations*, December 18th, 2017, https://www.cfr.org/blog/could-us-russia-oil-showdown-be-coming. DOA: July 18th 2018) TG

The possible conflict over market share is existential to Russian power. Washington's energy dominance tack, which recently included an announced gas export deal for Alaska during the Trump visit to Beijing, sounds as threatening to Russian ears as NATO expansion did a decade or more ago. Not only does Russia rely heavily on its energy exports for its statist budget and as a diplomatic lever, but the commanding heights of Putin's inner circle and his grip on power is intimately inter-linked with Russia's oil and gas elite. Russian influence and economic health has suffered in the past from orchestrated alliances between the United States, Saudi Arabia, and Qatar that targeted Russia's energy earnings. *The threat of rising U.S. oil and gas exports could be one factor encouraging increasingly risky Russian adventurism since doing nothing about it could neutralize a major tool of Russian foreign policy*

Arctic drilling causes release of natural gas

Walsh 12 (Bryan Walsh, senior writer for TIME magazine covering energy and the environment, 20 July 2012, "It's Not Just Spills—the Climate Risks of Arctic Drilling" http://science.time.com/2012/07/20/its-not-just-spills-the-climate-risks-of-arctic-drilling/ DOA 7/8/18) MDS

But a new report by the NGO Clean Air Task Force (CATF) shows that an oil spill isn't the only risk that Arctic drilling poses to the environment. **Methane and black carbon, two potent greenhouses gases, will likely be emitted in significant amounts if drilling in the Arctic proves as lucrative as many oil companies are hoping for.** Exactly how much additional greenhouse gas will be released by the production of Arctic oil isn't clear—and depends on whether drillers and regulators take steps to reduce the warming side effects of drilling. "It's ironic that climate change has led to the opening of the Arctic for drilling, but we aren't paying much attention to the climate change that drilling will help cause," says Jonathan Banks, senior climate policy advisor for CATF and the author of the report. **The main problem isn't the oil itself**—although, of course, if the 90 billion barrels of oil believed to be obtainable in the Arctic are burned in cars or trucks, the carbon released will help undoubtedly help intensify climate change.

Arctic drilling is inconsistent with climate goals

McKinnon et. al 2015 (Hannah McKinnon, M.Sc. from the London School of Economics and Political Science and a B.Sc. Hons. in Biochemistry from Mount Allison University , “To accede or not to accede: An analysis of the current US position related to the United Nations law of the sea”, *Oil Change International*, August 2015, http://priceofoil.org/content/uploads/2015/08/OCI-Untouchable_Arctic_FINAL.pdf. DOA: September 6th 2018) TG

Therefore this ‘climate test’ should be applied to all legislation, policy and permits related to infrastructure to extract, transport, or process fossil fuels. Drilling in the Arctic clearly fails this climate test, as there is no existing (or imaginable) 2 degrees C scenario in which Arctic drilling plays a role. In fact, the only scenarios published in defense of Arctic oil exploration are consistent with at least 5 degrees Celsius of global warming – a level widely considered to be disastrous. Adding Arctic oil to the existing pool of carbon “exacerbates the problem of carbon pollution” by adding carbon to our global reserves that by any measure must be considered unburnable in a safeclimate scenario. If the President is to be consistent in applying such a climate test beyond one project and to the nation’s energy policy overall, he must view Shell’s drilling for oil in the Arctic as a proposal that fails the climate test.

Crop yields could decline up to 25% per degree of global warming

Deutsch et. al 2018 (Curtis A. Deutsch School of Oceanography, University of Washington, Joshua J. Tewksbury Department of Environmental Studies, University of Colorado, Boulder, Michelle Tigchelaar Department of Atmospheric Sciences, University of Washington , David S. Battisti, Department of Atmospheric Sciences, University of Washington , Scott C. Merrill, Department of Plant and Soil Science, University of Vermont , Raymond B. Huey, Department of Biology, University of Washington, Rosamond L. Naylor, Department of Earth System Science and the Center on Food Security and the Environment at Stanford, "Increase in crop losses to insect pests in a warming climate", *American Association for the Advancement of Science*, August 31st 2018, http://science.sciencemag.org/content/sci/361/6405/916.full.pdf. DOA: September 5th 2018) TG

Insect pests substantially reduce yields of three staple grains—rice, maize, and wheat—but models assessing the agricultural impacts of global warming rarely consider crop losses to insects. We use established relationships between temperature and the population growth and metabolic rates of insects to estimate how and where climate warming will augment losses of rice, maize, and wheat to insects. *Global yield losses of these grains are projected to increase by 10 to 25% per degree of global mean surface warming. Crop losses will be most acute in areas where warming increases both population growth and metabolic rates of insects. These conditions are centered primarily in temperate regions, where most grain is produced.*

Billions of people rely on rice, and elevated CO2 levels decrease the nutrition value of crops

Plumer 2018 (Brad Plumer is a reporter covering climate change, energy policy and other environmental issues for The New York Times's climate team, “How More Carbon Dioxide Can Make Food Less Nutritious”, *The New York Times*, May 23, 2018, https://www.nytimes.com/2018/05/23/climate/rice-global-warming.html. DOA: September 5th 2018) TG

Most of the 18 varieties of rice that were grown and harvested contained significantly less protein, iron and zinc than rice that is grown today. All of the rice varieties saw dramatic declines in vitamins B1, B2, B5 and B9, though they contained higher levels of vitamin E. The researchers focused on rice because more than 2 billion people worldwide rely on it as a primary food source. For people in wealthy countries who enjoy a diverse, healthy diet, it may not matter much if rice becomes less nutritious in the years ahead. “But in a country like Bangladesh, rice provides 70 percent of the calories and there aren’t a lot of other opportunities to get those nutrients,” said Kristie L. Ebi, a professor of public health at the University of Washington and a co-author of the study. This newest paper builds on a major study published in Nature in 2014, finding that elevated levels of carbon dioxide reduced the amount of zinc and iron found in wheat, rice, field peas and soybeans. In both studies, researchers installed pipes that emitted carbon dioxide onto small open-air plots — rather than simply testing crops in enclosed greenhouses — to simulate future real-world conditions

U.S. companies go to UNCLOS members for mining because they do not feel secure in the U.S.'s mining system.

Randy W. Tong, 2017 (Randy W. Tong, J.D. Candidate, University of the Pacific, McGeorge School of Law, to be conferred May 2017; B.S. Clinical Nutrition, University of California, Davis, 2008. 2017) AO

"As time passes by, so too will opportunities for the U.S.220 The developing deep seabed mining industry is slowly being recognized internationally as a promising source for rare earths and minerals.221 **U.S. companies and their investors will not risk engaging in deep seabed mining operations without the insurance and stability provided by the ISA's developing mining regime.222 Regardless of the U.S.'s own deep seabed mining regime under DSHMRA, U.S. companies lack the confidence in the U.S.'s current mining regime and instead look to foreign UNCLOS Member States.223**"

UNCLOS gives the US special mining privileges

Patrick 2012 (Stewart Patrick, senior fellow at the Council on Foreign Relations and Director of the Program on International Institutions and Global Governance, "(Almost) Everyone Agrees: The U.S. Should Ratify the Law of the Sea Treaty", *The Atlantic*, June 10th 2012, https://www.theatlantic.com/international/archive/2012/06/-almost-everyone-agrees-the-us-should-ratify-the-law-of-the-sea-treaty/258301/. DOA: June 27th 2018) TG

If these security benefits were not enough, *the U.S. business community is unified in its support for the treaty for two reasons. First, UNCLOS would protect U.S. rights to sole commercial exploitation to all resources on and under its extended continental shelf (that is, beyond two hundred miles). This area--estimated to be twice the size of California--is rich in oil, gas, and other exploitable resources. Second, accession to the treaty would allow the United States to sponsor its own national companies to engage in deep sea-bed mining.* Last week, the chairman of Lockheed Martin sent a strongly worded letter to the Senate saying his company wanted to join the race for undersea riches, but could not assume investment risks until it was clear that it would have a clear legal title to its findings.This coming week, Senator Kerry will hold a second round of hearings on UNCLOS, featuring an array of military commanders, treaty champions like John Bellinger-former legal counselor to the State Department and National Security Council under the George W. Bush administration-and critics, like Steven Groves of the Heritage Foundation. The hearings offer a golden opportunity to put to rest the canards of treaty opponents. Securing a two-thirds Senate majority will not be easy. Opponents are pulling out all the stops, invoking the GOP's patron saint to scuttle its prospects. According to Edwin Meese, former attorney general for Ronald Reagan, the Gipper abandoned the treaty as "a direct threat to American sovereignty"--conveniently ignoring that the offending provisions were written out of the current treaty in a 1994 negotiation, precisely to alleviate U.S. concerns.

Deep sea mining destroys fisheries and wrecks the seafloor’s function as a carbon sink.

William Alexander, 8-7-2014, 14, Mining the Bottom of the Ocean Is as Bad for the Environment as it Sounds, https://motherboard.vice.com/en_us/article/kbz79x/mining-the-bottom-of-the-ocean-is-as-bad-for-the-environment-as-it-sounds, 7-10-2018//ALP

I asked Thurber if we'd be affected by deep sea mining on land. *"The deep ocean is very closely linked to the function of the surface of the earth*," he said. "*It is the area where the nutrients that fuel the most productive fisheries on the planet come from and also acts as the major sink for carbon dioxide that we have released into the atmosphere*." He added that, "Another aspect of this is the inherit biodiversity, which provides both excitement in exploration but also potential novel and powerful drugs. The deep sea is an active place where humans are searching out new cures for cancer with some potentially exciting leads."

Discharge of waste from sea mining can lead to smothering of native habitats and algal blooms

Miller 2018(Kathryn Miller, researcher at Greenpeace International, January 10th 2018, Frontiers in Maritime Science, “An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps,” https://www.frontiersin.org/articles/10.3389/fmars.2017.00418/full DOA 9/10/18) CJV

Making predictions of potential plume movements using models is a complex task in the absence of extensive data on plumes, upwelling, and oceanographic currents (Luick, 2012). Commercial seabed mining has not begun and therefore it is difficult to predict the impacts, but some terrestrial mining operations can help to predict potential consequences of mining operations. For example, tailings disposed of at sea from the terrestrial Lihir Gold mine in Papua New Guinea are estimated to have spread over an area of 60 km2 from the point of discharge because of subsurface currents (Shimmield et al., 2010). Even when plumes are restricted to deep waters, impact to benthic communities cannot be avoided considering that the overall topography of the seabed could be altered and organisms will endure some extent of smothering. Such smothering will impede gas exchange and feeding structures in sessile organisms and could cause a number of other as yet unquantified impacts as a result of exposure to heavy metals and acidic wastes (Van Dover, 2010). The presence of sediment plumes could delay or prevent recolonization of mined areas through altered larval dispersal, mortality of larvae and success of larval settlement (Gollner et al., 2017). Suggestions of technological modifications that could be employed to lessen the effect of plumes include reducing the size of the plumes and the toxicity of sediment particles, and by minimizing the accidental escape of suspended sediment during the cutting process (Boschen et al., 2013). The discharge of wastewater at the sea surface could impact marine ecosystems by causing turbidity clouds and affecting commercial fish species, as well as, in some cases, causing algal blooms (Namibian Marine Phosphates, 2012)

Mining cobalt on seamounts causes irreversible damage to deep sea fisheries

Miller 2018(Kathryn Miller, researcher at Greenpeace International, January 10th 2018, Frontiers in Maritime Science, “An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps,” https://www.frontiersin.org/articles/10.3389/fmars.2017.00418/full DOA 9/10/18) CJV

Mining CRC deposits on seamounts will cause direct mortality to sessile organisms. Levin et al. (2016) suggest that such mining may also cause benthic, mesopelagic (200–1,000 m) and bathypelagic (1,000–4,000 m) fish mortality. The extent of mining on seamounts will dictate the level of impact, but it is likely that intensive mining could disrupt pelagic species aggregations due to the removal of benthic fauna, the presence of machinery and disruption as a result of noise, light and suspended sediments in the water column. Gollner et al. (2017) discuss the potential impacts of mining in the context of what is known from activities such as fisheries, in particular trawling, that remove substrate and associated organisms from seamounts. Though there are few data on recovery of species after intensive periods of trawling, the negative impact of deep-sea fisheries on seamounts is well documented with noted declines in faunal biodiversity, cover, and abundance (Clark et al., 2016). Many seamount species, such as the sessile corals, are thought to be slow growing (from a few micrometers to ~1 mm per year), long-lived (up to millennia), and susceptible to physical disturbance and for these reasons it has been suggested that seamounts be globally managed as VMEs (Clark and Tittensor, 2010; Fallon et al., 2014; Watling and Auster, 2017). The impact of marine mining may be more intensive than trawling because the removal of substrata will be complete. Such removal on a commercial scale accompanied by slow species recovery rates will likely lead to irreversible changes in benthic (and possibly pelagic) community structure on and around seamounts (Gollner et al., 2017).

3 billion people need seafood

WWF 2018 (WWF, The World wildlife foundation is a non-profit organization concerning the environment. Before joining WWF, Bill Fox spent 31years with the National Oceanic & Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS)., 2018, "Oveview", *WWF*, https://www.worldwildlife.org/industries/sustainable-seafood, Accessed 07/11/2018) JJ

As the largest traded food commodity in the world, seafood provides sustenance to billions of people worldwide.

Approximately three billion people in the world rely on both wild-caught and farmed seafood as their primary source of protein.

Deep seabed mining disrupts hydrothermal vents which are critical to biodiversity and climate regulation

Hunter et al 18 (Julie Hunter, Pradeep Singh and Julian Aguon, of the Harvard Environmental Law Review, 16 April 2018, “Broadening Common Heritage: Addressing Gaps in the Deep Sea Mining Regulatory Regime” http://harvardelr.com/2018/04/16/broadening-common-heritage/ DOA 7/18/18) MDS

Today, **our knowledge of the deep seabed remains extremely limited.** The surface of the moon, Mars, and even Venus have all been mapped and studied in much greater detail,[17] leading marine scientists to commonly remark that, with respect to the deep sea, **“we don’t yet know what we need to know.”**[18] Recent scientific research, however, has revealed that **the deep seabed, and hydrothermal vents in particular, make potentially critical contributions to both biodiversity and global climate regulation.[**19] With respect to biodiversity, hydrothermal vent organisms (i.e. crustaceans, giant tubeworms, clams, slugs, anemones, fish, and many other species yet to be documented) are unlike any other life on Earth, able to thrive in temperatures up to 113°C (the highest temperature recorded at which an organism can live) and relying on chemosynthesis to survive.[20] Researchers have discovered over 300 new animal species around vents,[21] over 80% of which are endemic, making each individual vent ecosystem unique.[22] Vent species are also evolutionarily distinct[23] and extremely rare.[24] Many scientists now hypothesize that life itself may have begun at hydrothermal vents, or a similar environment.[25]

Even small scale deep sea mining irreparably destroys the seabed. Industrial scale mining will exacerbate these impacts

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It is becomingly increasingly clear that **DSM poses a grave threat to these vital seabed functions. Extraction methods** would involve the operation of large, remote vehicles on the seafloor to chemically leach or physically cut crust from substrate and/or use highly pressurized water to strip the crust.[32] All of these methods **would produce large sediment plumes and involve the discharge of waste and tailings back into the ocean, significantly disturbing seafloor environments.[**33**] Several studies[34] have assessed short- and long-term environmental impacts of small-scale experimental DSM,[35] uniformly finding immediate adverse impacts on ecosystem health, species abundance, and biodiversity**.[36] Most studies found little to no recovery of mined locations, even years after the experimental operations concluded.[37] **Industrial-scale operations are both more intense**—operating continuously for significant periods[38]—**and more extensive, "devastat[ing] much larger areas of seafloor,"** on the order of 10,000 to 100,000 square kilometers.[39**] They are anticipated to have far greater environmental impacts, including seabed ecosystem destruction and species extinction;**[40] disturbance of large marine animals;[41] **contamination of fish** and other larger pelagic animals from heavy metals and other toxic substances;[42] **potential oil spills and other surface accidents**;[43] **and** increased acidification and **destruction of coral reefs**.[44] Recent research suggests that **environmental damage caused by DSM activities would be largely irreversible.[45]**

Gas extraction can lead to accidental methane release, contributing to a positive climate change feedback loop

Miller 2018(Kathryn Miller, researcher at Greenpeace International, January 10th 2018, Frontiers in Maritime Science, "An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps," https://www.frontiersin.org/articles/10.3389/fmars.2017.00418/full DOA 9/10/18) CJV

Gas hydrates have attracted attention commercially as a potential future energy resource (Lee and Holder, 2001) but prospecting and any subsequent extraction of gas hydrates from seabed (or permafrost) reserves carries potentially considerable environmental risk. The greatest impact would be accidental leakage of methane during the dissociation process. Methane is a greenhouse gas that is 28 times more potent than carbon dioxide according to the assigned global warming potential over 100 years (IPCC, 2014). Other possible impacts of methane hydrate extraction include subsidence of the seafloor and submarine landslides, which could cause even greater instability in remaining hydrate deposits. Anthropogenic activity that leads to increased water temperature at seabed level could also destabilize and melt the hydrates. Dissociation of methane hydrates to form free methane could release large quantities of methane gas into the sea or atmosphere, adding to ocean acidification and/or global warming (Kretschmer et al., 2015). If increasing quantities of methane hydrate is destabilized and released, atmospheric temperature may rise leading to a positive carbon-climate feedback (Archer, 2007; Zhao et al., 2017). Concerns are also that mining could affect biota—chemosynthetic life and higher order organisms have been found on seafloor hydrate mounds. Fisher et al. (2000) noted a previously undescribed species of polycheate worm or "ice worm" (Hesiocaeca methanicola) that was able to burrow into sediment to reach the hydrate deposits.

Hydrothermal vents contain methane and their contribution to climate regulation is indispensable to human life

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In addition to their rich biodiversity, **hydrothermal vents and seeps** “constitute important . . . sinks,”[26] in which microorganisms specifically adapted to these environments **consume and sequester carbon and methane,[27] a greenhouse gas (“GHG”) with roughly 25 to 50 times the potency of carbon dioxide**.[28] A 2016 study released by 14 universities and oceanographic institutions found carbon sequestration by hydrothermal vents and seeps to be even more “extensive in space and time than previously thought.”[29] Indeed, **one study author cautioned that the release of sequestered methane could be “a doomsday climatic event.”**[30] Recent scientific breakthroughs have further revealed that most of the excess heat resulting from increased atmospheric GHG concentrations has been absorbed by the deep ocean, thereby significantly limiting climate change impacts on the ocean’s surface and on land.[31] These discoveries suggest that **the “common heritage” of the seabed extends beyond its mineral resources to include substantial contributions to biodiversity and climate regulation—contributions that may be less quantifiable in terms of projected revenue, but indispensable to human life.**