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# Outer Limits of the U.S. Extended Continental Shelf: Background and Issues for Congress

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## Outer Limits of the U.S. Extended Continental Shelf: Background and Issues for Congress

Areas of the ocean within U.S. jurisdiction encompass diverse marine ecosystems and contain natural resources of economic value and national security interest. The 1982 United Nations Convention on the Law of the Sea (UNCLOS), to which the United States is not a party, describes internationally recognized maritime zones. UNCLOS provides a coastal country with sovereign rights for the purpose of managing, conserving, exploring, and exploiting natural resources of the seabed and waters within 200 nautical miles (nmi) of its coastline. The United States generally aligns with the UNCLOS framework for establishing maritime boundaries. Some coastal countries may pursue research efforts to document and claim areas of the seabed beyond this 200-nmi limit, known as the *extended continental shelf* (ECS). An ECS would allow coastal countries to capitalize on potential resources of this part of the seabed (e.g., critical minerals, oil and gas) as entitled under UNCLOS.

Under Article 76 of UNCLOS, coastal countries can file a submission concerning the extent of their ECS to the Commission on the Limits of the Continental Shelf (CLCS), an independent entity created under UNCLOS. The CLCS considers a coastal country's submission of geological and geophysical data collected and analyzed to delineate the outer limits of the ECS. The CLCS does not approve or grant an ECS to a coastal country but makes recommendations on the outer limits of an ECS based on these data. The CLCS has no mandate to establish boundaries or resolve boundary conflicts between two coastal countries. Disputes over maritime boundaries must be resolved between the countries involved in the disagreement.

The U.S. Extended Continental Shelf Project is a federal initiative with an aim to establish the full extent of the U.S. ECS. The Department of State, the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Geological Survey (USGS) work together through the U.S. Extended Continental Shelf Project to collect geological and geophysical data in accordance with UNCLOS Article 76. The U.S. Extended Continental Shelf Project has analyzed data in each ocean region with potential U.S. ECS.

On December 19, 2023, the Department of State announced the outer limits of the U.S. ECS in seven ocean regions: the Arctic, Atlantic, Bering Sea, Eastern and Western Gulf of Mexico, Northern Mariana Islands, and Pacific. The declared U.S. ECS would be approximately 288,000 square nmi (987,700 square kilometers). According to the Department of State, the United States is ready to file its submission package with the CLCS upon U.S. accession to UNCLOS. The Department of State also said the United States is open to filing its submission to the CLCS as a non-party to UNCLOS.

The Senate Committee on Foreign Relations held hearings on UNCLOS during the 112<sup>th</sup> Congress. Given the Department of State's recent announcement about the establishment of the outer limits of the U.S. ECS, Congress may consider the advantages and disadvantages of U.S. accession to UNCLOS. Congress may choose to deliberate the extent to which U.S. accession might strengthen the U.S. ability to exercise sovereign rights over the natural resources in these areas and compare that advantage against potential disadvantages of U.S. accession to UNCLOS, such as limited economic benefits to U.S. companies and the United States from exploitation of seabed minerals under the authority of the International Seabed Authority. For example, USGS scientists report that high concentrations of critical minerals in certain seafloor deposits may serve national security interests. Several countries party to UNCLOS have shown interest in exploring areas of the Pacific and the Arctic for potential mineral resources through exploration mining contracts or by filing ECS submissions with U.N. entities established under UNCLOS. It remains unclear how the international community would respond to a U.S. submission to the CLCS as a non-party to UNCLOS.

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The U.S. *exclusive economic zone* (EEZ)<sup>1</sup>—ocean waters generally between 3 and 200 nautical miles (nmi) seaward from the U.S. coastline—is, according to the National Oceanic and Atmospheric Administration (NOAA), the largest in the world.<sup>2</sup> The U.S. EEZ and the seabed beneath it encompass diverse marine ecosystems and contain natural resources of economic value and national security interest. Areas of the seabed beyond the 200-nmi outer limit may contain additional natural resources of interest. Several federal departments and agencies map and characterize areas of the ocean both within the U.S. EEZ and beyond the 200-nmi limit to better understand potential U.S. sovereign rights to the resources in these areas, among other purposes.<sup>3</sup>

The United States is not a signatory to the 1982 United Nations (U.N.) Convention on the Law of the Sea (UNCLOS), which describes internationally recognized maritime zones (**Figure 1**). However, some members of the executive branch have stated that some (but not all) portions of UNCLOS reflect customary international law. For example, the Department of State reports, “The Convention generally reflects customary international law binding on all countries, including the provisions in Article 76 pertaining to delineating the outer limits of the continental shelf.”<sup>4</sup> In general, the United States follows the UNCLOS framework for establishing maritime zones. For example, presidential proclamations have established the U.S. EEZ;<sup>5</sup> the U.S. *territorial sea*, the area that extends 12 nmi seaward from the U.S. coastline;<sup>6</sup> and the U.S. *contiguous zone*, an area adjacent to and beyond the territorial sea that extends seaward up to 24 nmi from the U.S. coastline (**Figure 1**).<sup>7</sup>

UNCLOS establishes ocean sovereign rights for coastal countries for the purposes of exploring, exploiting, conserving, and managing natural resources of the seabed and waters within 200 nmi of the country’s *normal baseline* (i.e., low-water line along the coast).<sup>8</sup> UNCLOS refers to the seabed that extends 200 nmi from a coastal country’s baseline and lies beneath the EEZ as the *continental shelf*.<sup>9</sup> Natural resources that may occur on or in the sediments of the continental shelf include petroleum resources (e.g., oil, natural gas, methane hydrates), mineral deposits (e.g., polymetallic nodules, ferromanganese crusts, polymetallic sulfides),<sup>10</sup> and *sedentary organisms*

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<sup>1</sup> President of the United States, “Proclamation 5030 of March 10, 1983: Exclusive Economic Zone of the United States of America,” 48 *Federal Register* 10605, March 10, 1983.

<sup>2</sup> The U.S. exclusive economic zone (EEZ) contains 3.4 million square nautical miles. National Oceanic and Atmospheric Administration (NOAA), “The United States Is an Ocean Nation,” [https://www.gc.noaa.gov/documents/2011/012711\\_gcil\\_maritime\\_eez\\_map.pdf](https://www.gc.noaa.gov/documents/2011/012711_gcil_maritime_eez_map.pdf).

<sup>3</sup> United Nations (U.N.), *United Nations Convention on the Law of the Sea of 10 December 1982, Overview and Full Text*, [https://www.un.org/depts/los/convention\\_agreements/convention\\_overview\\_convention.htm](https://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm) (hereinafter referred to as UNCLOS).

<sup>4</sup> For example, Department of State, *The Outer Limits of the Extended Continental Shelf of the United States of America: Executive Summary*, December 19, 2023, p. 6 (hereinafter referred to as Department of State, *U.S. ECS Executive Summary*).

<sup>5</sup> UNCLOS, Article 57, describes the *EEZ*. See footnote 1.

<sup>6</sup> UNCLOS, Article 3, describes the *territorial sea*. President of the United States, “Proclamation 5928 of December 27, 1988: Territorial Sea of the United States of America,” 54 *Federal Register* 777, January 9, 1989.

<sup>7</sup> UNCLOS, Article 33, describes the *contiguous zone*. President of the United States, “Proclamation 7219 of September 2, 1999: Contiguous Zone of the United States,” 64 *Federal Register* 48701, September 8, 1999.

<sup>8</sup> UNCLOS, Article 5, describes a *normal baseline*.

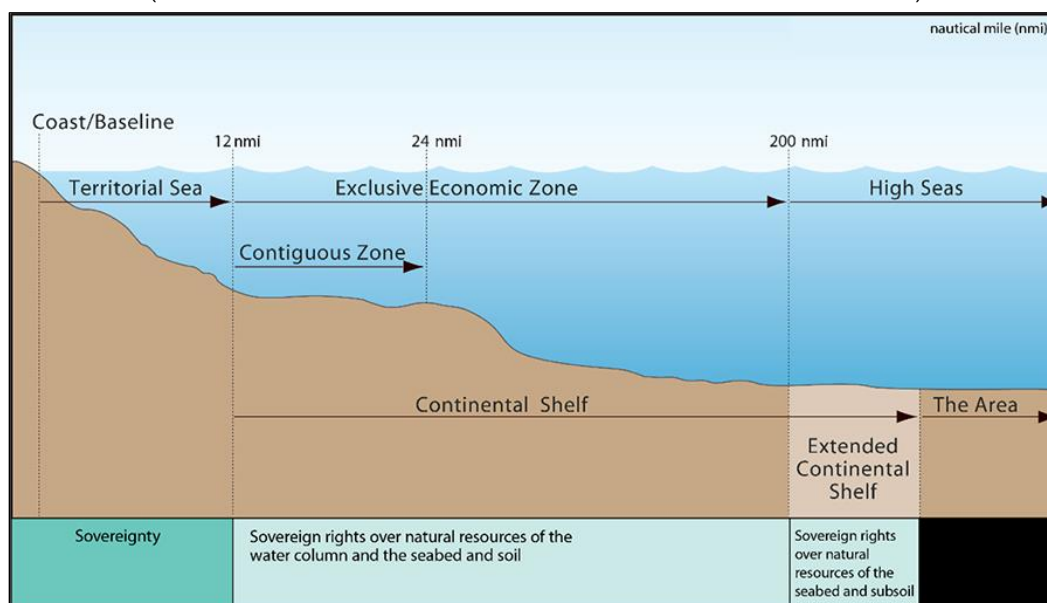
<sup>9</sup> UNCLOS, Article 76.

<sup>10</sup> For more information about seabed minerals, see CRS Report R47324, *Seabed Mining in Areas Beyond National Jurisdiction: Issues for Congress*, by Caitlin Keating-Bitonti.

(e.g., corals).<sup>11</sup> Some of these resources also may occur in areas beyond national jurisdiction—the seabed and subsoil beyond the 200-nmi continental shelf is referred to as the *Area* (**Figure 1**).<sup>12</sup> Under Article 76 of UNCLOS, a coastal country interested in expanding its national jurisdiction beyond the 200-nmi limit of the continental shelf may submit geological and geophysical evidence for an *extended continental shelf* (ECS) to a U.N. commission, particularly if the country sees opportunities to capitalize on potential resources of the seabed in this area (see “Commission on the Limits of the Continental Shelf,” below).<sup>13</sup> An ECS would allow countries to exercise sovereign rights over the natural resources of the seabed and subsoil beyond the 200-nmi limit.<sup>14</sup>

**Figure 1. Maritime Zones**

(consistent with the United Nations Convention on the Law of the Sea)



**Source:** Figure modified by the Congressional Research Service. Department of State, “Maritime Zones,” <https://www.state.gov/about-ecs/maritime-zones/>.

**Notes:** Although not a party to the 1982 United Nations Convention on the Law of the Sea (UNCLOS), the United States generally delineates maritime zones consistent with those established by UNCLOS.

Debate exists regarding whether the United States, as a non-party to UNCLOS, can establish an ECS. According to the Department of State, the United States does not need to be a party to UNCLOS to establish the outer limits of its ECS and exercise its sovereign rights and jurisdiction over this area as provided by UNCLOS Article 76.<sup>15</sup> According to the Department of State, the International Court of Justice concluded that UNCLOS Article 76 is part of *customary*

<sup>11</sup> *Sedentary species* are immobile organisms that live on the seabed or within the seabed sediments. For more information about a coastal country’s right to living marine resources under UNCLOS, see CRS Report R47744, *United Nations Convention on the Law of the Sea (UNCLOS): Living Resources Provisions*, by Caitlin Keating-Bitonti.

<sup>12</sup> UNCLOS, Article 1.

<sup>13</sup> For example, see *Island Times*, “Palau Names 63 Undersea Mounts, Extending Its Undersea Claim,” June 13, 2023, <https://islandtimes.org/palau-names-63-undersea-mounts-extending-its-undersea-claim/>.

<sup>14</sup> UNCLOS, Article 77. See NOAA, “NOAA’s Participation in the U.S. Extended Continental Shelf Project,” <https://oceanexplorer.noaa.gov/oceanos/explorations/ex1810/ecs/welcome.html>.

<sup>15</sup> Department of State, “U.S. Extended Continental Shelf Project: Frequently Asked Questions,” <https://www.state.gov/faq-us-ecs-project/>.

*international law*, meaning both party and non-party coastal countries have rights and obligations relating to their continental shelves.<sup>16</sup> Other stakeholders also contend that the United States might be able to establish an ECS without acceding to UNCLOS.<sup>17</sup> However, several witnesses who appeared before the Senate Committee on Foreign Relations during prior hearings on consideration of UNCLOS have stated that U.S. accession to UNCLOS is necessary for the U.S. ECS to be internationally recognized.<sup>18</sup> To date, the Senate has not given advice and consent to accession to UNCLOS.

For more than a century, Congress has shown interest in ocean mapping activities.<sup>19</sup> Congress has directed and funded certain federal departments and agencies to collect relevant data and information about the seafloor beneath and adjacent to U.S. ocean waters because “mapping, exploration, and characterization of the ocean provides basic, essential information to protect and restore the marine environment, stimulate economic activity, and provide security for the United States.”<sup>20</sup> This report focuses on the mapping activities of the U.S. Extended Continental Shelf Project, a federal initiative that analyzes data to determine the extent of the U.S. ECS. According to the Department of State, the project’s work constitutes the largest civilian offshore mapping effort ever conducted by the United States.<sup>21</sup> The U.S. ECS would be approximately 288,000 nmi<sup>2</sup> (987,700 square kilometers [km<sup>2</sup>]),<sup>22</sup> or roughly 8% of the total seafloor area beneath the U.S. EEZ. Based on the size of the U.S. ECS, the U.S. Geological Survey (USGS) estimates the energy, mineral, and living resources anticipated to be recovered there may be worth billions to trillions of dollars.<sup>23</sup>

The U.S. Extended Continental Shelf Project has analyzed data from areas of the Arctic, Atlantic, Bering Sea, Eastern and Western Gulf of Mexico, Northern Mariana Islands, and Pacific. This report focuses on U.S. ECS areas in the Arctic Ocean, in the Bering Sea, and in the Pacific Ocean offshore the Commonwealth of the Northern Mariana Islands, for several reasons.<sup>24</sup> First, projections of shrinking Arctic sea ice cover would presumably increase access to natural resources located on or in the sediments of the seabed.<sup>25</sup> Second, both Arctic and non-Arctic

<sup>16</sup> Ibid.

<sup>17</sup> For example, Mead Treadwell, “Arctic Horizons: A Primer and Critical Questions on Extending U.S. Territory in the Arctic Ocean,” Wilson Center, December 19, 2023, <https://www.wilsoncenter.org/article/arctic-horizons-primer-and-critical-questions-extending-us-territory-arctic-ocean> (hereinafter, Treadwell, “Arctic Horizons”).

<sup>18</sup> For example, see the prepared statements by Don Kraus, Executive Vice President, Citizens for Global Solutions; John D. Negroponte, Deputy Secretary, Department of State; and Bernard H. Oxman, Professor of Law, University of Miami School of Law, in U.S. Congress, Senate Committee on Foreign Relations, *United Nation’s Convention on the Law of the Sea (Treaty Doc. 103-39)*, 110<sup>th</sup> Cong., 1<sup>st</sup> sess., September 27 and October 4, 2007, S.Hrg. 110-592 (Washington, DC: GPO 2008); and see the prepared statement of Ambassador John D. Negroponte, Department of State, in U.S. Congress, Senate Committee on Foreign Relations, *The Law of the Sea Convention (Treaty Doc. 103-39)*, 112<sup>th</sup> Cong., 2<sup>nd</sup> sess., May 23, June 14, and June 28, 2012, S.Hrg. 112-654 (Washington, DC: GPO 2013).

<sup>19</sup> For an overview of U.S. ocean and coastal mapping activities, see CRS Report R47623, *Frequently Asked Questions: Mapping of U.S. Ocean and Coastal Waters*, coordinated by Caitlin Keating-Bitonti.

<sup>20</sup> James M. Inhofe National Defense Authorization Act for Fiscal Year 2023 (P.L. 117-263), Division J, Title CIII, §10301(6).

<sup>21</sup> Department of State, “Announcement of U.S. Extended Continental Shelf Outer Limits: Fact Sheet,” December 19, 2023, <https://www.state.gov/announcement-of-u-s-extended-continental-shelf-outer-limits-2/>.

<sup>22</sup> Department of State, *U.S. ECS Executive Summary*, p. 9.

<sup>23</sup> U.S. Geological Survey (USGS), “USGS Law of the Sea,” September 23, 2022, <https://www.usgs.gov/centers/whcmsg/science/usgs-law-sea>; and NOAA, “ECS Project,” <https://oceanexplorer.noaa.gov/about/what-we-do/media/ecs-project.pdf>.

<sup>24</sup> Department of State, “U.S. Extended Continental Shelf Project: The U.S. ECS,” <https://www.state.gov/the-us-ecs/>.

<sup>25</sup> For example, see Intergovernmental Panel on Climate Change, “Regional Fact Sheet—Polar Regions,” in the *Sixth* (continued...)

countries show increased interest in exploring and developing potential Arctic resources, including in establishing ECS areas or investing in Arctic infrastructure.<sup>26</sup> Third, certain areas of the Pacific and Arctic oceans may include natural resources (e.g., critical minerals) that would serve U.S. national security interests.

## Determining the Extent of the Continental Shelf

Determining a coastal country's ECS requires knowledge of the geophysical characteristics of the seabed and subsoil.<sup>27</sup> The topographic (shape) profile of the seafloor is known as *bathymetry*. Formulas set forth in UNCLOS to calculate the extent of the continental shelf beyond the 200-nmi limit require precise knowledge of the position of the *foot of the continental slope*—the point of maximum change in the bathymetric gradient, generally found at the base of the continental slope.<sup>28</sup> The position of the foot of the continental slope is coupled with either (1) the thickness of sediments on the seafloor or (2) a fixed distance of 60 nmi from the foot of the continental slope to determine the outer limits of the ECS.<sup>29</sup> Different types of data are needed to determine the position of the foot of the continental slope and these two conditions

- *Seismic data* provide information about the thickness of sediments beneath the seafloor and other characteristics of seafloor sediments.<sup>30</sup>
- *Bathymetric data* provide information about the depth of water and profile information about the seafloor to determine the position of the foot of the continental slope.<sup>31</sup>

A coastal country can use one of two formulas described in Article 76 of UNCLOS (or a combination thereof) to maximize the outer limits of its ECS (**Figure 2**). The first formula is based on the thickness of sediment on the seafloor. To determine the outer limits of the ECS based on this formula, the thickness of the sediment at an outermost fixed point (delineated by a straight line) is at least 1% of the shortest distance from such point to the foot of the continental slope.<sup>32</sup> For example, if this formula is applied to a point 100 nmi from the foot of the continental

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*Assessment Report*, Working Group I: The Physical Science Basis, 2021, p. 2, [https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC\\_AR6\\_WGI\\_Regional\\_Fact\\_Sheet\\_Polar\\_regions.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGI_Regional_Fact_Sheet_Polar_regions.pdf). For more information about the changing Arctic, see CRS Report R41153, *Changes in the Arctic: Background and Issues for Congress*, coordinated by Ronald O'Rourke.

<sup>26</sup> For example, Treadwell, "Arctic Horizons"; RAND Cooperation, "What Does China's Arctic Presence Mean to the United States?," December 29, 2022, <https://www.rand.org/pubs/articles/2022/what-does-chinas-arctic-presence-mean-to-the-us.html>; *Modern Diplomacy*, "U.S. Military May Not Be Ready for Arctic Competition," December 28, 2023, <https://moderndiplomacy.eu/2023/12/28/u-s-military-may-not-be-ready-for-arctic-competition/>; and U.N., "Submissions, Through the Secretary-General of the United Nations, to the Commission on the Limits of the Continental Shelf, Pursuant to Article 76, Paragraph 8, of the United Nations Convention on the Law of the Sea of 10 December 1982," [https://www.un.org/depts/los/clcs\\_new/commission\\_submissions.htm](https://www.un.org/depts/los/clcs_new/commission_submissions.htm).

<sup>27</sup> Department of State, "U.S. Extended Continental Shelf Project: About the U.S. ECS Project," <https://www.state.gov/about-the-us-ecs-project/>.

<sup>28</sup> UNCLOS, Article 76, paragraph 4(b) and see Ziyin Wu et al., "A New Method to Identify the Foot of the Continental Slope Based on an Integrated Profile Analysis," *Marine Geophysical Research*, vol. 38 (2017), pp. 199-207.

<sup>29</sup> UNCLOS, Article 76, paragraph 4(a).

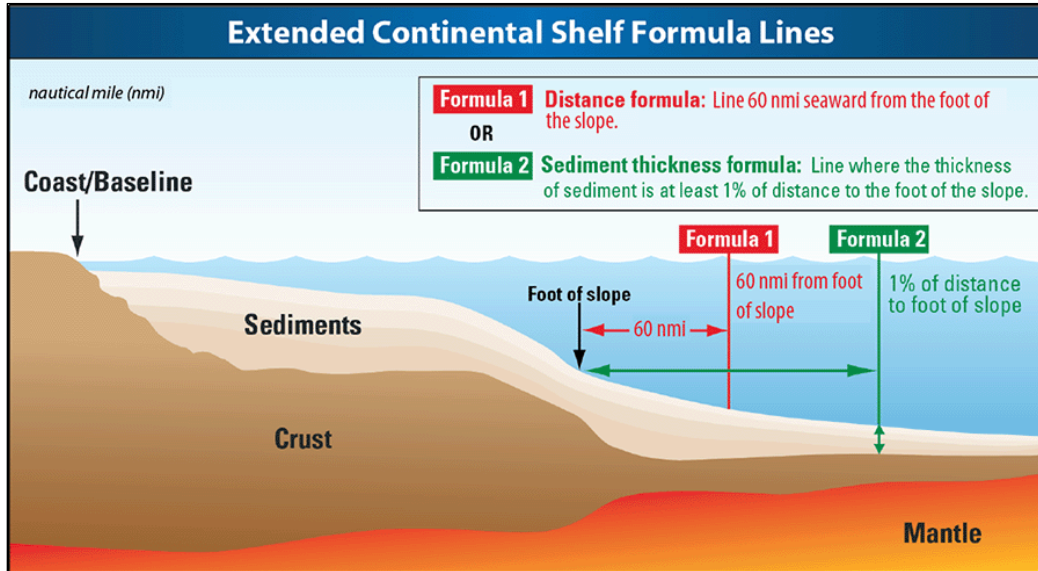
<sup>30</sup> Bureau of Ocean Energy Management (BOEM), "Fact Sheet: Geological and Geophysical (G&G) Surveys," <https://www.boem.gov/sites/default/files/about-boem/BOEM-Regions/Atlantic-Region/GandG-Overview.pdf>.

<sup>31</sup> For more information about using bathymetric data to map the seafloor, see CRS Report R47623, *Frequently Asked Questions: Mapping of U.S. Ocean and Coastal Waters*, coordinated by Caitlin Keating-Bitonti.

<sup>32</sup> UNCLOS, Article 76, paragraph 4(a)(i).

slope, the extent of the ECS could coincide with the point at which the sediment thickness is 1 nmi thick.<sup>33</sup> The second formula is based on distance. It states that the lines delineating the outer limits of the ECS are not to exceed 60 nmi from the foot of the continental slope.<sup>34</sup> In the example depicted in **Figure 2**, the formula based on sediment thickness would maximize the ECS compared with the formula based on the 60 nmi distance. There may be cases where the formula based on distance would maximize the ECS compared to the formula using sediment thickness.

**Figure 2. Formulas to Determine the Extended Continental Shelf**  
(according to Article 76 of the United Nations Convention on the Law of the Sea)



**Source:** Figure modified by the Congressional Research Service. Department of State, "U.S. Extended Continental Shelf Project: About ECS," <https://www.state.gov/about-ecs/>.

**Notes:** The schematic provides a visual for how the extended continental shelf (ECS) is calculated. The foot of the continental slope is the starting line to determine the ECS. The ECS can be calculated using one of two formulas. Formula 1 (shown in red) extends the continental shelf up to 60 nautical miles seaward of the foot of the continental slope. Formula 2 (shown in green) extends the continental shelf up to a seaward distance where the thickness of the seafloor sediment is at least 1% of the distance to the foot of the continental slope. A coastal country may use either formula (or a combination thereof) to maximize the outer limits of its ECS.

UNCLOS Article 76 provides two constraints for ECS determinations (**Figure 3**). The first constraint is based on distance. It states that the ECS shall not exceed 350 nmi from the baseline.<sup>35</sup> The second constraint is based on water depth. It states that the ECS shall not exceed 100 nmi seaward from the 2,500-meter isobath on the continental shelf.<sup>36</sup> If the outer edge of the continental shelf extends past both constraints, a coastal country can use either line to maximize its ECS.

<sup>33</sup> Sharveen Persand, "A Practical Overview of Article 76 of the United Nations Convention on the Law of the Sea," 2005, [https://www.un.org/depts/los/nippon/unncff\\_programme\\_home/fellows\\_pages/fellows\\_papers/persand\\_0506\\_mauritius.pdf](https://www.un.org/depts/los/nippon/unncff_programme_home/fellows_pages/fellows_papers/persand_0506_mauritius.pdf).

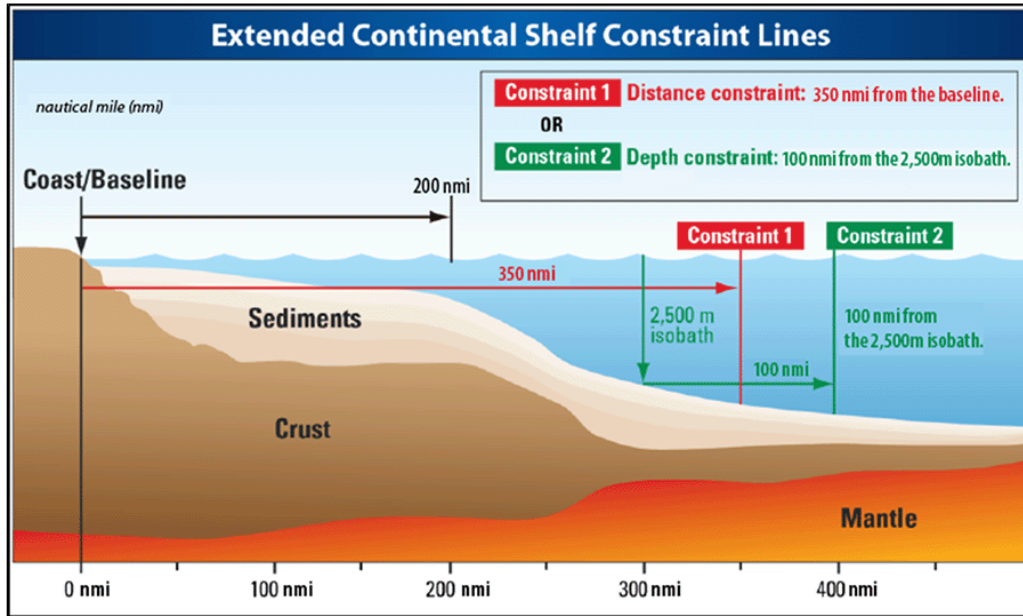
<sup>34</sup> UNCLOS, Article 76, paragraph 4(a)(ii).

<sup>35</sup> UNCLOS, Article 76, paragraph 5.

<sup>36</sup> *Ibid.* *Isobath* means a line drawn on a map connecting all points of equal depth below the surface of the water.



**Figure 3. Constraints on the Extent of the Extended Continental Shelf**  
(according to Article 76 of the United Nations Convention on the Law of the Sea)



**Source:** Figure modified by the Congressional Research Service. Department of State, “U.S. Extended Continental Shelf Project: About ECS,” <https://www.state.gov/about-ecs/>.

**Notes:** m = meters, in reference to water depth. The schematic provides a visual for the two constraints on the extended continental shelf (ECS). A coastal country can use either of the constraint lines to maximize its ECS. Constraint 1 (shown in red) limits the ECS to 350 nautical miles (nmi) from the *baseline* (i.e., low-water line along the coast). Constraint 2 (shown in green) states that the ECS shall not exceed 100 nmi from the 2,500-m water depth line on the continental shelf (i.e., the *isobath*).

According to UNCLOS Article 78, a coastal country’s rights over its ECS “do not affect the legal status of the superjacent waters,”<sup>37</sup> meaning that claiming an ECS does not afford a country control over the waters above it.<sup>38</sup>

## Commission on the Limits of the Continental Shelf

Some coastal countries, including the United States, have pursued efforts to map their ECSs. Under Article 76 of UNCLOS, countries can make a submission to the Commission on the Limits of the Continental Shelf (CLCS) concerning the extent of their continental shelves.<sup>39</sup> The CLCS is an independent entity created under UNCLOS that consists of 21 members who are experts in geology, geophysics, or hydrography.<sup>40</sup> The CLCS does not approve or grant an ECS to coastal countries but makes recommendations to countries on the location of their ECS limits. The limits of the ECS established by a coastal country on the basis of the CLCS recommendations are “final

<sup>37</sup> UNCLOS, Article 78.

<sup>38</sup> See Department of State, “U.S. Extended Continental Shelf Project: About ECS,” <https://www.state.gov/about-ecs/>.

<sup>39</sup> Annex II of UNCLOS addresses the Commission on the Limits of the Continental Shelf (CLCS).

<sup>40</sup> The 21 members of the CLCS serve in a personal capacity. For a list of members and their nationalities, see U.N., “Commission on the Limits of the Continental Shelf (CLCS): Members of the Commissions,” [https://www.un.org/depts/los/clcs\\_new/commission\\_members.htm](https://www.un.org/depts/los/clcs_new/commission_members.htm).

and binding.”<sup>41</sup> As of February 2024, more than 60 countries have made submissions to the CLCS.<sup>42</sup>

Mapping projects are underway by individual countries and through cooperative government studies to support submissions to the CLCS.<sup>43</sup> These submissions involve complex scientific investigations, and the CLCS bases its recommendations in part on the provided scientific data and technical analysis. For example, in 2002, the CLCS recommended that Russia provide additional scientific data and information to accompany its 2001 submission with respect to the Arctic Ocean.<sup>44</sup> In 2015, Russia presented a revised submission to the CLCS.<sup>45</sup> In June 2023, the CLCS “concluded that it was in a position to efficiently conduct the consideration of [Russia’s] submission.”<sup>46</sup>

## U.S. Extended Continental Shelf Project

Since 2003, the United States has gathered and analyzed geological and geophysical data to determine the extent of its continental shelf through a federal initiative called the U.S. Extended Continental Shelf Project. The project’s mission is to “establish the full extent of the U.S. continental shelf, consistent with international law.”<sup>47</sup>

The work to determine the outer limits of the U.S. ECS is coordinated by the ECS Task Force, an interagency body of the U.S. government.<sup>48</sup> The ECS Task Force is chaired by the Department of State, with co-vice chairs from the Department of the Interior (DOI) and NOAA. The Department of State, NOAA, and USGS conduct the majority of work on the project.<sup>49</sup> According to USGS, these three agencies are “mapping the features of the seafloor and determining sediment thickness to delineate the outer limits of the U.S. ECS using rules set forth in Article 76 of [UNCLOS].”<sup>50</sup> NOAA leads the U.S. effort to collect bathymetric data and has mapped more than 874,700 nmi<sup>2</sup>

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<sup>41</sup> UNCLOS, Article 76, paragraph 8.

<sup>42</sup> For a list of countries party to UNCLOS that have made submissions to the CLCS, see U.N., “Submissions, Through the Secretary-General of the United Nations, to the Commission on the Limits of the Continental Shelf, Pursuant to Article 76, Paragraph 8, of the United Nations Convention on the Law of the Sea of 10 December 1982,” [https://www.un.org/depts/los/clcs\\_new/commission\\_submissions.htm](https://www.un.org/depts/los/clcs_new/commission_submissions.htm).

<sup>43</sup> Ibid.

<sup>44</sup> U.N., CLCS, “Submissions to the Commission: Submission by the Russian Federation,” [https://www.un.org/depts/los/clcs\\_new/submissions\\_files/submission\\_rus.htm](https://www.un.org/depts/los/clcs_new/submissions_files/submission_rus.htm).

<sup>45</sup> U.N., CLCS, “Partial Revised Submission of the Russian Federation to the Commission on the Limits of the Continental Shelf in Respect of the Continental Shelf of the Russian Federation in the Arctic Ocean,” 2015, [http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/rus01\\_rev15/2015\\_08\\_03\\_Exec\\_Summary\\_English.pdf](http://www.un.org/Depts/los/clcs_new/submissions_files/rus01_rev15/2015_08_03_Exec_Summary_English.pdf).

<sup>46</sup> U.N., CLCS, “Progress of Work in the Commission on the Limits of the Continental Shelf,” Statement by the Chair, CLCS/58/2, September 8, 2023.

<sup>47</sup> Department of State, “U.S. Extended Continental Shelf Project: About the U.S. ECS Project,” <https://www.state.gov/about-the-us-ecs-project/>.

<sup>48</sup> Eleven other government agencies or offices, in addition to the Department of State, NOAA, and the USGS, are part of the Extended Continental Shelf Task Force. Department of State, “U.S. Extended Continental Shelf Project: About the U.S. ECS Project,” <https://www.state.gov/about-the-us-ecs-project/>.

<sup>49</sup> The U.S. Extended Continental Shelf Project also relies on preexisting bathymetric data in the public domain and seismic data obtained from academic institutions and BOEM (Department of State, *U.S. ECS Executive Summary*, p. 12). U.S. government mapping outside the U.S. EEZ is primarily undertaken by U.S. Navy assets (email correspondence with NOAA, Congressional Affairs Specialist, Office of Legislative and Intergovernmental Affairs (OLIA), December 19, 2023).

<sup>50</sup> USGS, “Delineating the U.S. Extended Continental Shelf,” September 23, 2022, <https://www.usgs.gov/programs/cmhrp/science/delineating-us-extended-continental-shelf>.

(3 million km<sup>2</sup>) of the seafloor in support of the U.S. Extended Continental Shelf Project.<sup>51</sup> USGS leads the collection of seismic data for the project.<sup>52</sup> NOAA's National Centers for Environmental Information (NCEI) stores and makes publicly available all data relevant to the U.S. Extended Continental Shelf Project, including bathymetric, seismic, and geologic sample data.<sup>53</sup> Other coastal countries also may access data relevant to the delineation of their ECSs through NCEI's public repository for global bathymetric and seismic data.<sup>54</sup>

On December 19, 2023, the Department of State announced the outer limits of the U.S. ECS as determined by the U.S. Extended Continental Shelf Project.<sup>55</sup> This announcement accompanied the geographic coordinates defining the outer limits of the U.S. ECS in areas of the Arctic, Atlantic, Bering Sea, Eastern and Western Gulf of Mexico, Northern Mariana Islands, and Pacific (**Figure 4**),<sup>56</sup> which went into effect on December 21, 2023.<sup>57</sup> Both current and former members of the CLCS provided assistance to the United States relating to the analysis and documentation of the U.S. ECS.<sup>58</sup> According to the Department of State, the United States plans to submit this package to the CLCS upon U.S. accession to UNCLOS but also may consider filing its submission with the CLCS as a non-party to UNCLOS.<sup>59</sup> If the United States were to file its submission with the CLCS, a review of the U.S. ECS would take place at some future date given the length of the submission queue, which the CLCS reviews in order of receipt.<sup>60</sup>

The following sections of the report examine data collected in support of the U.S. Extended Continental Shelf Project in areas offshore U.S.-affiliated Pacific islands (Guam and the Commonwealth of the Northern Mariana Islands), as well as in areas offshore Alaska in the Arctic and Bering Sea.

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<sup>51</sup> Department of State, *U.S. ECS Executive Summary*, p. 11.

<sup>52</sup> *Ibid.*

<sup>53</sup> See NOAA, National Centers for Environmental Information (NCEI), "U.S. Extended Continental Shelf Data," December 6, 2023, <https://www.ncei.noaa.gov/products/us-extended-continental-shelf-data> (hereinafter referred to as NOAA, NCEI, "U.S. Continental Shelf Data").

<sup>54</sup> See NOAA, NCEI, "Bathymetric Data Viewer," <https://www.ncei.noaa.gov/maps/bathymetry/>.

<sup>55</sup> Department of State, "Announcement of U.S. Extended Continental Shelf Outer Limits: Fact Sheet," December 19, 2023, <https://www.state.gov/announcement-of-u-s-extended-continental-shelf-outer-limits-2/>.

<sup>56</sup> See Department of State, *U.S. ECS Executive Summary*, pp. 1-100.

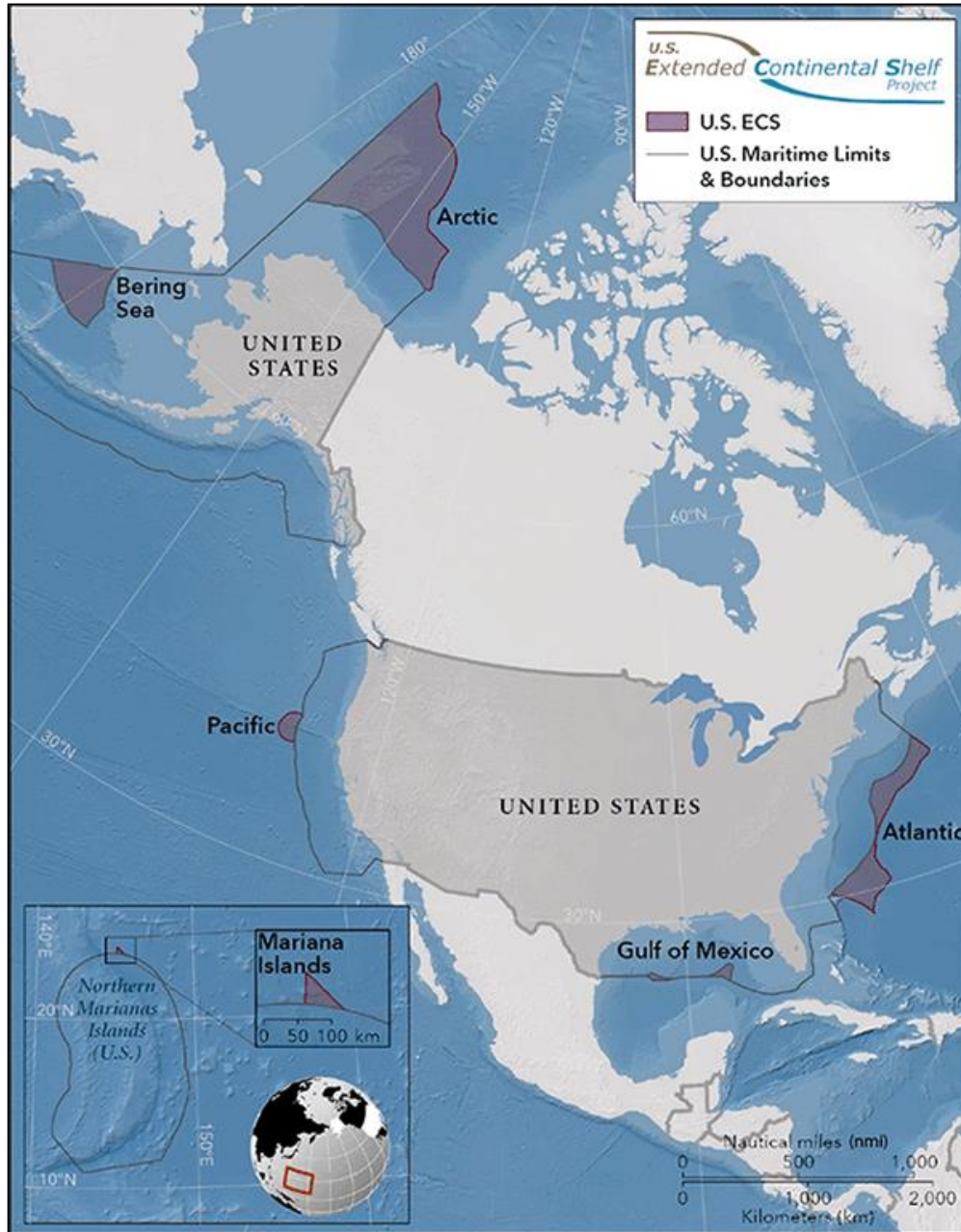
<sup>57</sup> Department of State, "Continental Shelf and Maritime Boundaries; Notice of Limits," 88 *Federal Register* 88470, December 21, 2023.

<sup>58</sup> Current and former members from the CLCS who provided assistance to the United States are from Australia, Canada, Chile, Denmark, Germany, Japan, Malaysia, Mexico, Mozambique, Netherlands, Norway, Portugal, Trinidad and Tobago, and the United Kingdom. Department of State, *U.S. ECS Executive Summary*, p. 13.

<sup>59</sup> Department of State, *U.S. ECS Executive Summary*, p. 6.

<sup>60</sup> See footnote 41 and footnote 42.

**Figure 4. Seven Regions of the U.S. Extended Continental Shelf**  
(as determined by the U.S. Extended Continental Shelf Project)



**Source:** Map modified by the Congressional Research Service. Department of State, “The U.S. ECS,” December 19, 2023, <https://www.state.gov/the-us-ecs/>.

**Notes:** Areas of the U.S. extended continental shelf (ECS) identified by the U.S. Extended Continental Shelf Project, a federal initiative that aims to establish the full extent of the U.S. ECS according to international law (i.e., in alignment with Article 76 of the United Nations Convention on the Law of the Sea). Red lines represent the outer limits of the U.S. ECS, and red shaded areas delineate the U.S. ECS beyond the 200 nautical mile (nmi) limit of the continental shelf (thin dark lines), representing 288,000 square nmi (987,700 square kilometers). Portions of the U.S. ECS are bounded by previously established maritime boundaries with neighboring countries (i.e., Cuba, Mexico, and Russia). Other portions may overlap with ECS areas of other neighboring countries (i.e., the Bahamas, Canada, and Japan).

## U.S. Extended Continental Shelf Project Activities Offshore U.S.-Affiliated Pacific Islands

The U.S. Extended Continental Shelf Project identified 379 nmi<sup>2</sup> (1,300 km<sup>2</sup>) of the U.S. ECS located northeast of the Northern Mariana Islands that it claims to be a prolongation of the U.S. land masses of the island system (**Figure 4**).<sup>61</sup> This area was delineated using the 60 nmi distance formula and the distance constraint (see “Determining the Extent of the Continental Shelf,” above).<sup>62</sup> In addition, a portion of the U.S. ECS is bounded by Japan to the north.<sup>63</sup> According to the Department of State, “the United States and Japan have not concluded a boundary treaty delimiting the continental shelf in this region.”<sup>64</sup>

## U.S. Extended Continental Shelf Project Activities in the Arctic

A strategic objective of the 2022 *National Strategy for the Arctic Region* is for the United States to “delineate the outer limits of the U.S. continental shelf in accordance with international law.”<sup>65</sup> The U.S. Extended Continental Shelf Project identified 151,700 nmi<sup>2</sup> (520,400 km<sup>2</sup>) of the U.S. ECS in the Arctic that it claims to be a prolongation of the land mass of Alaska (**Figure 4**).<sup>66</sup> The U.S. ECS in the Arctic represents 53% of the total U.S. ECS. The U.S. Extended Continental Shelf Project used a combination of the sediment thickness and 60 nmi formulas and both the distance and depth constraints to delineate the outer limits of the U.S. ECS in this region (see “Determining the Extent of the Continental Shelf,” above).<sup>67</sup> In addition, portions of the U.S. ECS are bounded by Canada to the east and Russia to the west.<sup>68</sup> The United States and Canada do not have a maritime boundary agreement in the Arctic. However, according to the Department of State, “Canada has advised the United States that it would not object to the consideration of a U.S. submission by the [CLCS], without prejudice both to the delineation of the outer limits of its own continental shelf and to the matters relating to the delimitation of boundaries in this region between the United States and Canada.”<sup>69</sup> In 1990, Russia (then the Soviet Union) and the United States agreed to a maritime boundary to address overlapping ECS areas in the Arctic.<sup>70</sup> To date, Russia has not asserted ECS claims in any areas that might be considered part of the U.S. ECS.<sup>71</sup>

<sup>61</sup> Department of State, *U.S. ECS Executive Summary*, pp. 9 and 43.

<sup>62</sup> *Ibid.*, p. 11.

<sup>63</sup> *Ibid.*, p. 43.

<sup>64</sup> *Ibid.*, p. 46.

<sup>65</sup> See Strategic Objective 4.2 in White House, *National Strategy for the Arctic Region*, October 2022, p. 14.

<sup>66</sup> Department of State, *U.S. ECS Executive Summary*, pp. 9 and 15.

<sup>67</sup> *Ibid.*, p. 11.

<sup>68</sup> *Ibid.*, p. 15.

<sup>69</sup> *Ibid.*, p. 19; and Canadian Broadcasting Corporation, “Canada Pledges to Work with U.S. Over Competing Claims to Arctic Sea Floor,” January 3, 2024, <https://www.cbc.ca/news/canada/north/canada-work-with-us-artic-sea-floor-claims-1.7073547>.

<sup>70</sup> The Senate gave advice and consent to ratify the maritime boundary agreement in 1991. U.S. Congress, Senate, *The Agreement Between the United States of America and the Union of Soviet Socialist Republics on the Maritime Boundary, with Annex, Signed at Washington, June 1, 1990*, 101<sup>st</sup> Cong., 2<sup>nd</sup> sess., September 26, 1990, Treaty Doc. 101-22.

<sup>71</sup> The Russian Duma has not approved the maritime boundary agreement. Both countries appear to continue to provisionally apply the boundary agreement. See Lawfare, “An Off-the-Shelf Guide to Extended Continental Shelves and the Arctic,” April 21, 2021, <https://www.lawfaremedia.org/article/shelf-guide-extended-continental-shelves-and-arctic>.

The U.S. Extended Continental Shelf Project also identified 51,400 nmi<sup>2</sup> (176,300 km<sup>2</sup>) of the U.S. ECS located in the Bering Sea that it claims to be a prolongation of the land mass of Alaska and the Aleutian Islands (**Figure 4**).<sup>72</sup> The U.S. Extended Continental Shelf Project used a combination of the sediment thickness and 60 nmi formulas and the distance constraint to delineate the outer limits of the U.S. ECS in this region.<sup>73</sup> In addition, the northwest portion of the U.S. ECS in this area is bounded by the 1990 U.S.-Russia maritime boundary.<sup>74</sup> The U.S. Extended Continental Shelf Project further reports that the U.S. ECS, based on the sediment thickness and 60 nmi distance formulas, extends beyond the previously agreed-upon maritime boundary between the United States and Russia.<sup>75</sup>

## Issues for Congress

Knowledge of the limits of a coastal country's continental shelf allows the country to declare to other countries the exact extent of its ECS and the sovereign rights it is entitled to exercise within that area.<sup>76</sup> Some stakeholders contend that the U.S. ability to exercise sovereign rights over its ECS is key to ensuring U.S. economic prosperity and national security.<sup>77</sup>

Efforts by the United States to map its potential ECS may serve at least two purposes. First, ECS data may help identify likely "resource-rich realms,"<sup>78</sup> thereby providing federal agencies with the opportunity to manage, conserve, explore, and exploit the resources of the seabed and subsoil contained within these areas.<sup>79</sup> Second, ECS data may elucidate maritime boundaries between the United States and a neighboring country. Established maritime boundaries with neighboring countries may be necessary to exercise sovereign rights over the U.S. ECS.

In the 112<sup>th</sup> Congress, the Senate Committee on Foreign Relations (Committee) held three hearings on UNCLOS and took no further action.<sup>80</sup> UNCLOS has since remained with the committee. The U.S. Extended Continental Shelf Project's work to document the seven regions with U.S. ECS provides new information for the committee and other Members of Congress to consider in their deliberation of UNCLOS.

## U.S. Accession to UNCLOS

One common argument for U.S. accession to UNCLOS is that, as a party to the convention, the United States could access the CLCS's procedures for according international recognition and

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<sup>72</sup> Department of State, *U.S. ECS Executive Summary*, pp. 9 and 27.

<sup>73</sup> *Ibid.*, p. 11.

<sup>74</sup> *Ibid.*, p. 27.

<sup>75</sup> *Ibid.*

<sup>76</sup> UNCLOS, Article 77.

<sup>77</sup> For example, see James Kraska, "Strategic Implication of the U.S. Extended Continental Shelf," Wilson Center, December 19, 2023, <https://www.wilsoncenter.org/article/strategic-implication-us-extended-continental-shelf> (hereinafter referred to as Kraska, "Strategic Implication of U.S. ECS").

<sup>78</sup> NOAA, "NOAA's Participation in the U.S. Extended Continental Shelf Project," <https://oceanexplorer.noaa.gov/oceanos/explorations/ex1810/ecs/welcome.html>.

<sup>79</sup> USGS, "Delineating the U.S. Extended Continental Shelf," September 23, 2022, <https://www.usgs.gov/programs/cmhrp/science/delineating-us-extended-continental-shelf>.

<sup>80</sup> U.S. Congress, Senate Committee on Foreign Relations, *The Law of the Sea Convention (Treaty Doc. 103-39)*, 112<sup>th</sup> Cong., 2<sup>nd</sup> sess., May 23, June 14, and June 28, 2012, S.Hrg. 112-654 (Washington, DC: GPO 2013), pp. 1-318.

legal weight to the U.S. ECS.<sup>81</sup> A recommendation from the CLCS on the U.S. ECS would be final and binding.<sup>82</sup> In the 118<sup>th</sup> Congress, S.Res. 466 identifies that “lack of full-party membership to UNCLOS limits the access and influence of the United States to critical territorial dispute management, including matters involving pursuit and competition of extended outer continental shelf submissions” and relying on customary international norms is “not sufficient.”

According to the Department of State, the United States is “open to filing its submission with the Commission as a non-party” to UNCLOS.<sup>83</sup> It remains unclear if the CLCS would consider a U.S. submission in these circumstances.<sup>84</sup> Further, it remains unclear how the international community would respond to such a U.S. submission. One source reports objections from Russia, with a member of the Russian Federation Council quoted as saying, “the Americans act without any international legal basis at all, which means the international community has every right not to recognize new borders.”<sup>85</sup> A second source quoted the Chair of Russia’s Ministry for the Development of the Russian Far East and Arctic as saying, “the unilateral expansion of borders in the Arctic is unacceptable and can only lead to increased tensions,” in reference to the U.S. ECS announcement.<sup>86</sup>

In some instances, the United States has exercised sovereign rights over natural resources in areas of its ECS without being a party to UNCLOS. For example, DOI has offered the westernmost ECS area of the Gulf of Mexico, commonly known as the Western Gap, for oil and gas development (see **Figure 4**).<sup>87</sup> Some stakeholders reference DOI’s leases in the Western Gap as examples to refute the claim that U.S. accession to UNCLOS is necessary for the United States to exercise sovereign rights over the natural resources of the seabed and subsoil.<sup>88</sup> The United States has exercised sovereign rights over the natural resources in the Western Gap without objection from the international community; however, the United States has not exercised sovereign rights over the natural resources located in areas of the U.S. ECS without agreed-upon maritime boundary with a neighboring country (see “Delimitation of and Disputes over Maritime Boundaries,” below). Similarly, the United States has not exercised sovereign rights in an area of the U.S. ECS adjacent to the *Area* (i.e., areas beyond national jurisdiction).<sup>89</sup>

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<sup>81</sup> For example, see the prepared statement by John D. Negroponte, Deputy Secretary, Department of State, in U.S. Congress, Senate Committee on Foreign Relations, *United Nation’s Convention on the Law of the Sea (Treaty Doc. 103-39)*, 110<sup>th</sup> Cong., 1<sup>st</sup> sess., September 27 and October 4, 2007, S.Hrg. 110-592 (Washington, DC: GPO 2008), p. 12.

<sup>82</sup> See footnote 41.

<sup>83</sup> Department of State, *U.S. ECS Executive Summary*, pp. 49-52.

<sup>84</sup> For example, see Kraska, “Strategic Implication of U.S. ECS.”

<sup>85</sup> James Brooke, “Echoing Trump’s Offer to Buy Greenland, America Quietly Doubles Its Claim to Arctic Seabed,” *New York Sun*, January 4, 2024, <https://www.nysun.com/article/echoing-trumps-offer-to-buy-greenland-america-quietly-doubles-its-claim-to-arctic-seabed>.

<sup>86</sup> Mike Eckel et al., “Under Sea, Under Stone: How the U.S. Claimed Vast New Arctic Territory—In an Unusual Way,” *Radio Free Europe/Radio Liberty*, <https://www.rferl.org/a/arctic-sea-claims-interactive-map/32793427.html>.

<sup>87</sup> For example, BOEM, “Western Gulf of Mexico Lease Sale 180 Information,” <https://www.boem.gov/oil-gas-energy/leasing/western-gulf-mexico-lease-sale-180-information>.

<sup>88</sup> For example, see the prepared statement of Steven Groves, Bernard and Barbara Lomas Fellow, Heritage Foundation, in U.S. Congress, Senate Committee on Foreign Relations, *The Law of the Sea Convention (Treaty Doc. 103-39)*, 112<sup>th</sup> Cong., 2<sup>nd</sup> sess., May 23, June 14, and June 28, 2012, S.Hrg. 112-654 (Washington, DC: GPO 2013).

<sup>89</sup> The U.S. Extended Continental Shelf Project identified an area of the U.S. ECS offshore California, along the Mendocino Ridge, that does not overlap with or extend to any neighboring country’s ECS (Department of State, *U.S. ECS Executive Summary*, p. 6).

## U.S. Extended Continental Shelf Areas with Potential Resources

The extent of scientific evidence has been a factor underpinning ECS claims. Countries have contested ECS claims, citing insufficient scientific data as the reason for their objection.<sup>90</sup> Congress may consider providing resources to U.S. agencies (e.g., the Department of State, NOAA, USGS) for additional research and data collection to counter other countries' objections on these grounds.<sup>91</sup> The U.S. Extended Continental Shelf Project reports that 37 separate cruises collected bathymetric data for the project, totaling nearly 2.5 years of sea time.<sup>92</sup> According to NOAA, while research cruises were collecting bathymetric data for the U.S. Extended Continental Shelf Project, the agency spent approximately \$52 million (in non-inflation adjusted funding) on these cruises and their staffing support and to fund the project office.<sup>93</sup> Since 2018, NOAA has spent approximately \$800,000 per year on management and analysis of these bathymetric data.<sup>94</sup>

The ECS delineated by the U.S. Extended Continental Shelf Project may protect future U.S. economic opportunities.<sup>95</sup> Because an ECS falls under national jurisdiction, activities such as seabed mining of hardrock minerals on the ECS would be subject to domestic regulations. The International Seabed Authority (ISA), an autonomous organization established by UNCLOS, regulates all seabed mining activities taking place under the high seas, including the approval of exploration and exploitation contracts to public and private mining enterprises, provided they are sponsored by a country party to UNCLOS.<sup>96</sup> An established ECS would prohibit foreign countries from pursuing exploration or exploitation contracts through the ISA for areas located within another country's ECS. In addition, an extension of the outer limits of the U.S. ECS to include mineral-rich areas would be a potential strategy to access mineral resources under sole U.S. authority, rather than under the authority of the ISA. Available technology, among other factors, currently limits the exploitation of seabed resources; however, some countries show increasing interest in the exploration of seabed minerals.<sup>97</sup>

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<sup>90</sup> For example, some countries challenged Russia's 2001 submission for its ECS in the Arctic due to a lack of sufficient scientific evidence (see "Reaction of States to the Submission Made by the Russia Federation to the Commission on the Limits of the Continental Shelf" at U.N., "Submission to the Commission: Submission by the Russia Federation," updated on June 30, 2009, [https://www.un.org/depts/los/clcs\\_new/submissions\\_files/submission\\_rus.htm](https://www.un.org/depts/los/clcs_new/submissions_files/submission_rus.htm)).

<sup>91</sup> U.S. Extended Continental Shelf Project data acquisition and analysis efforts are funded through NOAA National Ocean Service's Navigation, Observations, and Positioning Activity (email correspondence between CRS and NOAA OLIA, December 19, 2023).

<sup>92</sup> Department of State, *U.S. ECS Executive Summary*, p. 9.

<sup>93</sup> According to the Department of State, cruises collected bathymetric data for the project between 2003 and 2018 (Department of State, "U.S. Extended Continental Shelf Project: Data Collection," <https://www.state.gov/data-collection-us-ecs-project/>). Email correspondence with NOAA, Congressional Affairs Specialist, OLIA, January 25, 2024.

<sup>94</sup> *Ibid.*

<sup>95</sup> Bloom, "Five Takeaways."

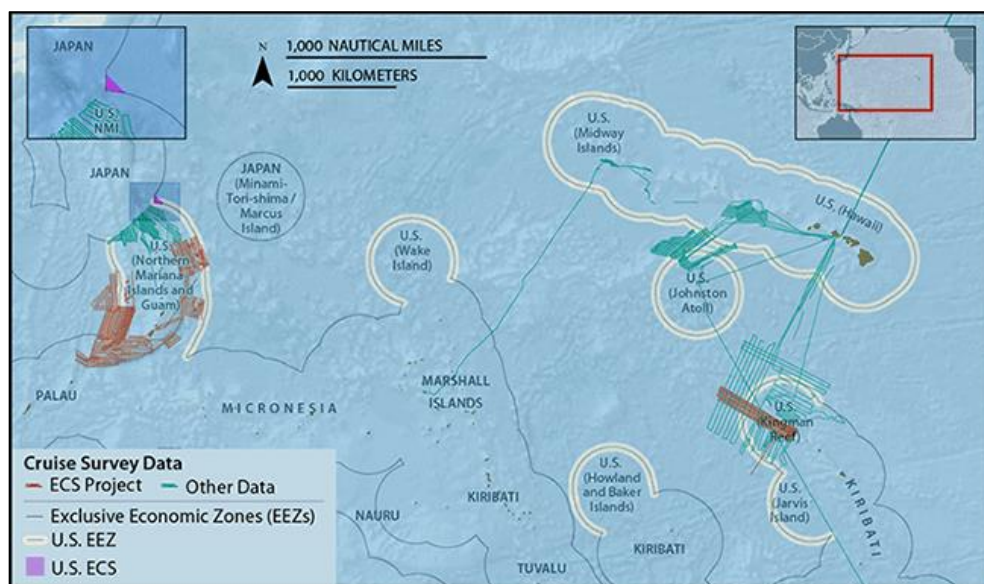
<sup>96</sup> A primary reason the United States did not sign UNCLOS relates to U.S. objections to the International Seabed Authority (ISA). Some stakeholders contend U.S. accession to UNCLOS would limit economic benefits to U.S. companies and the United States from exploitation of seabed minerals under the authority of the ISA. For more information about the ISA and the U.S. position on seabed mining in areas beyond national jurisdiction, see CRS Report R47324, *Seabed Mining in Areas Beyond National Jurisdiction: Issues for Congress*, by Caitlin Keating-Bitonti.

<sup>97</sup> For example, see ISA, "Exploration Contracts," <https://www.isa.org.jm/exploration-contracts/>. The Cook Islands and Japan are both exploring seabed mining opportunities within their exclusive economic zones. James R. Hein et al., "Critical Metals in Manganese Nodules From the Cook Islands EEZ, Abundances and Distributions," *Ore Geology* (continued...)



A secure domestic supply of seabed minerals of national strategic importance (i.e., critical minerals) located in areas of the U.S. ECS could reduce U.S. dependence on foreign countries, in particular China, for these resources.<sup>98</sup> For example, certain areas of the central and northwest Pacific Ocean have mineral deposits (polymetallic nodules) or crusts that are rich in cobalt, manganese, and other critical minerals.<sup>99</sup> The U.S. ECS located northeast of the Northern Mariana Islands represents 0.01% of the total U.S. EEZ.<sup>100</sup> Congress may be interested in whether any of the data collected by the U.S. Extended Continental Shelf Project in areas offshore Hawaii and U.S. island territories in the Pacific may support additional U.S. ECS areas, particularly areas that may contain abundant mineral resources (Figure 5).

**Figure 5. Selected Cruise Surveys That Collected Extended Continental Shelf Data Offshore Hawaii and U.S.-Affiliated Pacific Islands**



**Source:** Congressional Research Service (CRS), using cruise survey data provided to CRS by the National Oceanic and Atmospheric Administration’s (NOAA’s) National Centers for Environmental Information (NCEI) on August 3, 2023, and U.S. extended continental shelf (ECS) boundaries published by the Department of State (see “U.S. Extended Continental Shelf,” <https://www.state.gov/the-us-ecs/>). The exclusive economic zone (EEZ) boundaries were derived from the Sovereign Limits database ([sovereignlimits.com](https://sovereignlimits.com)).

**Notes:** The map shows four of the five cruise surveys that collected data used for the U.S. Extended Continental Shelf Project (orange) and seven of the nine cruise surveys that NOAA considers possibly relevant to the U.S. ECS (green; NOAA, NCEI, “U.S. Extended Continental Shelf Data,” <https://www.ncei.noaa.gov/products/us-extended-continental-shelf-data>). Thin blue lines denote the 200-nautical mile EEZ of coastal

Reviews, vol. 68 (2015), pp. 97-116; Ocean Minerals LLC, “The Cook Islands,” <https://www.omluc.com/ocean-minerals-llc-cook-islands/>; Odyssey Marine Exploration, “Cook Islands Polymetallic Nodule Exploration Program,” <https://www.odysseymarine.com/cookislands/>; and Asia Times, “Japan Dives into Rare Earth Mining Under the Sea,” January 10, 2023, <https://asiatimes.com/2023/01/japan-dives-into-rare-earth-mining-under-the-sea/> (hereinafter referred to as Asia Times, “Japan Mining Under the Sea”).

<sup>98</sup> Kraska, “Strategic Implication of U.S. ECS.” China holds 31 exploration contracts from the ISA (ISA, “Exploration Contracts,” <https://www.isa.org.jm/exploration-contracts/>).

<sup>99</sup> USGS, “Global Marine Mineral Resources,” June 15, 2022, <https://www.usgs.gov/centers/pcomsc/science/global-marine-mineral-resources/>; and ISA, “Exploration Areas,” <https://www.isa.org.jm/exploration-contracts/exploration-areas/>.

<sup>100</sup> Department of State, *U.S. ECS Executive Summary*, p. 9.

countries. CRS was unable to obtain data for three cruises; CRS requested these files from NCEI on December 6, 2023.

The establishment of the U.S. ECS in the Arctic and the ECS of other Arctic coastal countries could signal to non-Arctic countries (e.g., China<sup>101</sup>) that existing and potential Arctic resources are under the legal jurisdiction of the five Arctic coastal nations.<sup>102</sup> In the Arctic Ocean, USGS scientists have estimated undiscovered conventional oil and gas resources,<sup>103</sup> and have identified high concentrations of critical minerals in seafloor deposits sampled more than 300 nmi north of Alaska.<sup>104</sup> USGS scientists also are studying ECS data to better understand the distribution of gas hydrates, a potentially valuable energy resource, in the Bering Sea.<sup>105</sup> The U.S. ECS in the Arctic and Bering Sea combined represents 6% of the U.S. EEZ.<sup>106</sup> Canada, Denmark (for Greenland), Norway, and Russia have each made at least one submission to the CLCS.<sup>107</sup> The majority of the Arctic seabed is under the national jurisdictions of the five Arctic coastal countries.<sup>108</sup> In August 2023, the CLCS provided Russia with recommendations relating to its 2001 (and 2015 revised) ECS submission related to the Arctic Ocean.<sup>109</sup> These recommendations may help secure Russia's legal rights to resources across a portion of the Arctic's seafloor.<sup>110</sup>

Resources identified in portions of the U.S. ECS could add to current resources of U.S. supplies of critical minerals and other commodities. Should the United States wish to exercise sovereign rights over the natural resources located on the U.S. ECS, Congress may consider several potential issues. An ECS in the seven regions identified by the U.S. Extended Continental Shelf Project would increase the area of continental shelf under U.S. jurisdiction by approximately 288,000 nmi<sup>2</sup> (987,700 km<sup>2</sup>), roughly 8% of the total seafloor area beneath the U.S. EEZ.<sup>111</sup> This

<sup>101</sup> In 2018, China released its national Arctic policy. In the national Arctic policy, China stated, "China is an important stakeholder in Arctic affairs" and declared China a "near-Arctic State." The People's Republic of China, *China's Arctic Policy*, January 2018, [https://english.www.gov.cn/archive/white\\_paper/2018/01/26/content\\_281476026660336.htm](https://english.www.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm). In recent years, China's polar icebreakers have collected geological and geophysical data in the Arctic Ocean, and China has invested in several infrastructure projects in the region (e.g., RAND Cooperation, "What Does China's Arctic Presence Mean to the United States?," December 29, 2022, <https://www.rand.org/pubs/articles/2022/what-does-chinas-arctic-presence-mean-to-the-us.html>; and *Modern Diplomacy*, "U.S. Military May Not Be Ready for Arctic Competition," December 28, 2023, <https://moderndiplomacy.eu/2023/12/28/u-s-military-may-not-be-ready-for-arctic-competition/>).

<sup>102</sup> For example, Abbie Tingstad, "The U.S. Is Taking an Important, But Imperfect Step in Initiating Extended Continental Shelf Claims – What Are the Implications for the Arctic?," Wilson Center, December 19, 2023, <https://www.wilsoncenter.org/article/us-taking-important-imperfect-step-initiating-extended-continental-shelf-claims-what-are>. The five Arctic coastal countries (i.e., countries with mainland coasts that front onto the waters of the Arctic Circle) are Canada, Denmark (by virtue of Greenland), Norway, Russia, and the United States.

<sup>103</sup> Kenneth J. Bird et al., *Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle*, USGS Fact Sheet 2008-3039, 2008, p. 4.

<sup>104</sup> USGS, "Delineating the U.S. Extended Continental Shelf," September 23, 2022, <https://www.usgs.gov/programs/cmhrp/science/delineating-us-extended-continental-shelf>; and USGA, "Critical Minerals in the EEZ," June 5, 2020, <https://www.usgs.gov/news/featured-story/critical-minerals-eez>.

<sup>105</sup> *Ibid.*

<sup>106</sup> Department of State, *U.S. ECS Executive Summary*, p. 9.

<sup>107</sup> For more information about Arctic coastal country submissions to the CLCS, see CRS Report R41153, *Changes in the Arctic: Background and Issues for Congress*, coordinated by Ronald O'Rourke; and see footnote 42.

<sup>108</sup> Only a small portion of the Arctic seabed would be under the jurisdiction of the ISA. Bloom, "Five Takeaways."

<sup>109</sup> U.N., "Submissions to the Commission: Partial Revised Submission by the Russian Federation," updated August 17, 2023, [https://www.un.org/depts/los/clcs\\_new/submissions\\_files/submission\\_rus\\_rev2.htm](https://www.un.org/depts/los/clcs_new/submissions_files/submission_rus_rev2.htm).

<sup>110</sup> Some estimate that Russia's ECS claim in the Arctic encompasses almost 70% of the Arctic Ocean's seafloor (e.g., The Maritime Executive, "Russia Insists on an Expanded Boundary in the Arctic Ocean," December 10, 2023, <https://maritime-executive.com/article/russia-insists-on-an-expanded-boundary-in-the-arctic-ocean>).

<sup>111</sup> Department of State, *U.S. ECS Executive Summary*, p. 9.

increase in submerged land may necessitate additional resources for the DOI, which has jurisdiction over the submerged lands of the U.S. outer continental shelf (OCS) for energy development,<sup>112</sup> and for NOAA's National Marine Fisheries Service, which has authority over the management of bottom-dwelling marine organisms living on or in the sediments of the U.S. OCS.<sup>113</sup> In addition, the exploitation of resources from U.S. ECS areas could increase federal revenues. For example, the exploitation of oil, gas, hydrogen, or seabed minerals on the U.S. ECS could generate revenues flowing to the federal government from lease sales, royalties on production, and rental fees.<sup>114</sup> Congress may consider this possibility when evaluating federal revenue and royalty policies, which could also affect federal policies for sharing these potentially new sources of federal revenues with coastal states.<sup>115</sup>

## Delimitation of and Disputes over Maritime Boundaries

Only a country with rights and standing can challenge an ECS backed by geological and geophysical data, as required by Article 76 of UNCLOS. Disputes over maritime boundaries must be resolved between the countries involved in the disagreement. Although the CLCS can work to delineate ECS areas, it has no mechanism for resolving international disputes.<sup>116</sup>

The United States has agreed to maritime boundaries that include areas of the U.S. ECS in bilateral agreements with Cuba, Mexico, and Russia,<sup>117</sup> (the 1990 U.S.-Russia maritime boundary is discussed in “U.S. Extended Continental Shelf Project Activities in the Arctic,” above). In 2000, the United States and Mexico signed a treaty (commonly known as the Western Gap Treaty) delimiting the areas of their ECS in the Gulf of Mexico.<sup>118</sup> Following the Senate's consent to ratification of this treaty, the United States has exercised sovereign rights over the natural resources in its ECS in the Western Gap.<sup>119</sup>

On December 18, 2023, President Biden transmitted two bilateral maritime treaties—one for Mexico and one for Cuba—to the Senate for advice and consent.<sup>120</sup> Both of these bilateral treaties delineate maritime boundaries of an area of the ECS in the Eastern Gulf of Mexico, commonly known as the Eastern Gap.<sup>121</sup> The two U.S. ECS areas in the Gulf of Mexico established by the

<sup>112</sup> The Outer Continental Shelf Lands Act defines *outer continental shelf* to mean areas for which “the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control or within the exclusive economic zone of the United States” (43 U.S.C. §1331(a)(1)).

<sup>113</sup> 16 U.S.C. §§1801 et seq.

<sup>114</sup> BOEM, “Revenue Sharing,” <https://www.boem.gov/oil-gas-energy/energy-economics/revenue-sharing>.

<sup>115</sup> Treadwell, “Arctic Horizons.”

<sup>116</sup> Department of State, “U.S. Extended Continental Shelf Project: Frequently Asked Questions,” <https://www.state.gov/faq-us-ecs-project/>.

<sup>117</sup> For a list of countries with which the United States has entered into maritime boundary agreements, see Department of State, “U.S. Maritime Boundaries: Agreements and Treaties,” <https://www.state.gov/u-s-maritime-boundaries-agreements-and-treaties/>.

<sup>118</sup> U.S. Congress, Senate, *Treaty Between the Government of the United States of America and the Government of the United Mexican States on the Delimitation of the Continental Shelf in the Western Gulf of Mexico Beyond 200 Nautical Miles, Signed at Washington on June 9, 2000*, 106<sup>th</sup> Cong., 2<sup>nd</sup> sess., July 27, 2000, Treaty Doc. 106-39.

<sup>119</sup> *Ibid.*

<sup>120</sup> White House, “Message to the Senate Transmitting Two Maritime Treaties,” December 18, 2023, <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/12/18/message-to-the-senate-transmitting-two-maritime-treaties/>.

<sup>121</sup> *Treaty Between the Government of the United States of America and the Government of the United Mexican States on the Delimitation of the Maritime Boundary in the Eastern Gulf of Mexico*, signed January 18, 2017, <https://www.state.gov/u-s-maritime-boundaries-agreements-and-treaties/>; and *Treaty Between the Government of the* (continued...)

U.S. Extended Continental Shelf Project are bounded by maritime boundaries described in the bilateral treaties.<sup>122</sup>

Some areas of the U.S. ECS have unresolved maritime boundaries with neighboring countries. To resolve them, the United States and a neighboring country must first agree to a maritime boundary, after which the President would transmit that agreement to the Senate for its advice and consent. For example, in the Arctic, the U.S. ECS overlaps with ECS areas of Canada.<sup>123</sup> Both countries worked cooperatively to collect data needed to delineate the ECS in a two-ship operation involving the U.S. Coast Guard Cutter *Healy* and the Canadian Coast Guard ship *Louis S. Saint Laurent*.<sup>124</sup> According to the Department of State, this type of scientific and diplomatic cooperation has “saved millions of dollars for both countries, provided data both countries need, ensured that data are collected only once in the same area, and increased scientific and diplomatic cooperation.”<sup>125</sup>

The United States and Canada also have unresolved ECS boundaries in the Atlantic.<sup>126</sup> The United States and the Bahamas have unresolved ECS boundaries in the Atlantic, as well.<sup>127</sup>

In the Pacific, the United States has unresolved maritime boundaries with Japan. The U.S. ECS (by way of the Northern Mariana Islands) overlaps with ECS areas of Japan in its Ogasawara Plateau Region,<sup>128</sup> an area Japan reportedly may be exploring for potential resources.<sup>129</sup>

According to the Department of State, the United States and Japan have consulted on overlapping areas of the ECS in this region of the Pacific.<sup>130</sup>

## Implications for UNCLOS

The U.S. Extended Continental Shelf Project provides Congress with a new information to weigh in its potential deliberation of U.S. accession to UNCLOS. A month prior to the Department of State’s December 19, 2023, announcement of the U.S. ECS, Senators introduced S.Res. 466, which “urge[d] the United States Senate to give its advice and consent to the ratification of the UNCLOS.” Other Members of Congress considering seabed mining options wrote a letter to Secretary of Defense Lloyd Austin on December 7, 2023, calling on the Department to “explore every avenue to strengthen our rare earth and critical minerals supply chains.”<sup>131</sup> The letter

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*United States of America and the Republic of Cuba on the Delimitation of the Continental Shelf in the Eastern Gulf of Mexico Beyond 200 Nautical Miles*, signed January 18, 2017, <https://www.state.gov/u-s-maritime-boundaries-agreements-and-treaties/>.

<sup>122</sup> Department of State, *U.S. ECS Executive Summary*, pp. 35-37, 39-41.

<sup>123</sup> *Ibid.*, p. 19.

<sup>124</sup> Department of State, “U.S. Extended Continental Shelf Project: Data Collection,” <https://www.state.gov/data-collection-us-ecs-project/>.

<sup>125</sup> Department of State, “U.S. Extended Continental Shelf Project: International Cooperation,” <https://www.state.gov/international-cooperation-us-ecs-project/>.

<sup>126</sup> Department of State, *U.S. ECS Executive Summary*, p. 21.

<sup>127</sup> *Ibid.*

<sup>128</sup> *Ibid.*, p. 46.

<sup>129</sup> Asia Times, “Japan Mining Under the Sea.”

<sup>130</sup> *Ibid.*

<sup>131</sup> Letter from 31 Members of Congress to Lloyd Austin, Secretary of Defense, December 7, 2023, [https://wittman.house.gov/uploadedfiles/20231207\\_-\\_wittmanstefanik\\_-\\_national\\_security\\_impacts\\_of\\_seabed\\_mining\\_-\\_signed.pdf](https://wittman.house.gov/uploadedfiles/20231207_-_wittmanstefanik_-_national_security_impacts_of_seabed_mining_-_signed.pdf).

invokes the participation of the United States as an observer state in the ISA, but does not explicitly mention the option of U.S. accession to UNCLOS.<sup>132</sup>

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<sup>132</sup> Ibid.