

OIL, GAS, AND MINERAL RESOURCES OF THE EXTENDED CONTINENTAL SHELF

ENVIRONMENTAL LAW INSTITUTE, WASHINGTON DC

APRIL 20, 2009

SEMINAR SUMMARY

The Environmental Law Institute and the DC Bar's Environment, Energy, and Natural Resources Section co-sponsored a seminar exploring the oil, gas, and mineral resources of the U.S. extended continental shelf. In particular, the panelists discussed the U.S. Extended Continental Shelf Project, the potential extent and recoverability of extended continental shelf resources, and the implications of commercial recovery for the ocean environment.

Moderators

- Jordan Diamond, Law Fellow, Environmental Law Institute
- Peter H. Oppenheimer, Senior Counselor for International Law, National Oceanic & Atmospheric Administration (NOAA)

Speakers

- Margaret F. Hayes, Director of the Office of Oceans Affairs, Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State
- Larry A. Mayer, Professor and Director, Center for Coastal and Ocean Mapping/NOAA-UNH Joint Hydrographic Center, University of New Hampshire
- Brian T. Petty, Senior Vice President, Government Affairs, International Association of Drilling Contractors
- Harlan Cohen, Advisor on Ocean Governance and International Institutions, IUCN USA & Caribbean Multilateral Office

Mr. Peter Oppenheimer and Ms. Jordan Diamond introduced the seminar topic and the panelists. Mr. Oppenheimer briefly described international law related to a coastal State's extended continental shelf (ECS) and its natural resources. He stated that the ECS is that portion of the continental shelf that extends beyond 200 nautical miles from shore, and the U.N. Convention on the Law of the Sea (UNCLOS) specifies how a coastal State may determine the outer limits of its ECS. Mr. Oppenheimer noted that while the United States is not yet a Party to UNCLOS, it is engaged in gathering and analyzing the data necessary to delineate the outer limits of the U.S. ECS. In accordance with UNCLOS, a coastal State has sovereign rights over the natural resources of its ECS, including exploration for and exploitation of oil, gas, and other minerals. Mr. Oppenheimer also put ECS development in context of the current global economic downturn. He remarked that although the global economic downturn has generally depressed markets for these commodities, it is likely they exist in significant quantities in our ECS, and that eventually demand for ECS resources will increase sufficiently to justify investing the capital necessary to recover them. Such exploration triggers both economic and environmental considerations.

Ms. Margaret Hayes expanded upon Mr. Oppenheimer's introductory comments to explain the UNCLOS provisions in further detail, discuss the importance of ECS research and its resources, and describe the U.S. ECS Task Force. Ms. Hayes reiterated that under UNCLOS, the ECS is the portion of the geological

continental shelf that extends beyond 200 nautical miles from coastal baselines. She expanded upon this comment, stating that the ECS is not an extension of the EEZ, but rather is delineated according to specific UNCLOS continental shelf provisions that relate to resources on or under the seabed. Ms. Hayes briefly described the process for determining the outer limits of a coastal State's ECS: Article 76 of UNCLOS identifies the outer limits data and formulae applicable to delineating the natural prolongation of the continental landmass. A coastal State ultimately submits ECS data with respect to the outer limits of its ECS to the Commission on the Limits of the Continental Shelf (Commission), which makes a recommendation as to whether that outer limit is supported by the data submitted. If the coastal State then adopts ECS limits "on the basis" of that recommendation, it becomes "final and binding" under UNCLOS.

Ms. Hayes noted that until the U.S. becomes a party to UNCLOS, however, it will not necessarily be able to maximize international recognition of any determination it may make of the outer limits of its ECS. She also noted that there has been an increase in submissions to the Commission recently, not necessarily because of a race for seabed resources or because of climate change, but because UNCLOS sets forth a ten-year time frame from the date a State becomes a party within which it must submit to the Commission data regarding the outer limits of its ECS. For many coastal States, that ten-year time frame ends on May 13, 2009.

Ms. Hayes explained that since 2001 the U.S. has been gathering data to determine the limits of its ECS. Ms. Hayes noted that the U.S. ECS is among the largest on the planet, containing high value resources and unique ecosystems. She explained that ECS research is important, because the U.S. has an inherent interest in knowing and declaring sovereign rights on and below the seabed, and because such knowledge is necessary to develop and conserve the resources.

Ms. Hayes stated that in 2007, the U.S. expanded its ECS research efforts with the establishment of the U.S. ECS Task Force. She went on to describe research to date and its collaborative research approach: thus far, the U.S. ECS Task Force has been gathering bathymetric data (3-D map of the seafloor) and seismic data (cross-sectional profile of what is beneath the seafloor). The Task Force involves experts from many disciplines, such as industry, science, and technology. It also works with other countries, for example, Canada in the Arctic in 2008—the U.S. Coast Guard Cutter *Healy* collected bathymetric data and broke ice, while the Canadian Icebreaker *Louis S. St. Laurent* collected seismic data and traded off leading with the U.S. *Healy*. The Task Force expects to issue a project plan for remaining research by June 2009.

Dr. Larry Mayer provided additional insight into the legal definition of the continental shelf and the scientific approach to determining the boundaries of the ECS. Dr. Mayer remarked that with UNCLOS Article 76, lawyers took a known geologic term, the "continental shelf," and redefined it in a way that changed its meaning and created ambiguity. He noted that under UNCLOS, to establish an ECS, the coastal State must demonstrate the natural prolongation of coastal territories and mass. To do this, specific data are required by Article 76: the formulas require data on the depth and shape of the seafloor, the thickness of underlying sediments, and the distance from the territorial seabed baselines (the foot of the slope plus 60 nautical miles, or the point at which the underlying sediment is 1% of the distance from the EEZ boundary).

Dr. Mayer briefly described the history of scientific methods to map seabed bathymetry, beginning with the use of ropes with weights attached to the current approach of using multi-beam sonar to develop detailed seabed maps. He noted that since 2003, over 1,000,000 square kilometers have been mapped, and each time an area has been mapped, researchers have found natural prolongation possibilities (geologic, sedimentary, etc.). Dr. Mayer gave examples of likely natural prolongations discovered in the Bering Sea and the Gulf of Alaska. He also noted that the Arctic basin is a particular focus area, because 52% of it is geologic continental shelf and it contains significant potential oil and gas resources.

Mr. Brian Petty described the potential to extract oil and gas resources in the U.S. Arctic ECS, and noted the rapid expansion of oil and gas recovery activities by other Arctic countries. Mr. Petty also noted the need for the U.S. to accede to UNCLOS and how efforts to do so may progress in the near future.

Mr. Petty explained that oil and gas companies are excited by the possibility of the U.S. becoming a party to UNCLOS because of the enormous exploration and extraction possibilities in the ECS. He noted the recent \$2.6 billion bid that was submitted for a MMS lease in the Chukchi Sea—a signal of the high interest and estimated potential in the Arctic region. Mr. Petty stated that the U.S. has the ability to invest and develop, but oil companies will not commit the large amounts of capital necessary to do so unless they are sure of the legal regime and can guarantee the safety of their investments. He went on to note that Russia may not be as hesitant to develop its resources. As an example, the Norwegians are already aggressively developing platforms and producing in far northern waters, in an environmentally sound manner, and their operating program has them expanding continually further out towards Greenland. Mr. Petty remarked that there are approximately 16.8 billion barrels of oil in the Beaufort Sea, and an estimated 47.1 billion barrels in the Arctic basins. In the Mackenzie delta, off Canada, the U.S. Geological Survey estimated that there are approximately 9.7 billion barrels of oil and 79.6 trillion cubic feet of gas. However, there has not been a proper survey done, due to sovereignty disputes.

Mr. Petty briefly described efforts to encourage U.S. accession to UNCLOS. He noted that all industrial sectors are strongly in favor of accession and that the battle is strictly political. Mr. Petty informed the audience that the Council of Foreign Relations will soon release a treatise on UNCLOS, which he hopes will provide momentum and push-back against right-wing opposition that argues that acceding to UNCLOS is tantamount to giving up sovereign rights, which, according to Mr. Petty, is not the case.

Mr. Harlan Cohen concluded the panel presentations with a discussion of the need to research ECS resources, the need for the U.S. to accede to UNCLOS, and the need to develop an ecosystem-based management approach and resources procurement guidelines to properly conserve and protect ECS ecosystems.

Mr. Cohen described potential ECS benefits that could be realized with U.S. accession to UNCLOS, noting that if the U.S. does not ratify UNCLOS, there is no real way to make known its sovereign rights to the ECS and lay claim to its economically beneficial resources. In addition to the significant oil and gas resources of the ECS, Mr. Cohen also noted the potential other seabed resources, such as sedentary organisms, and non-economic benefits. While not all non-economic benefits depend on exclusive jurisdiction, these include the opportunity to learn about the continental shelf and the interactions of seabed and water column species.

Mr. Cohen also discussed the lack of information related to seabed resources and the role that UNCLOS accession could play in encouraging additional research. Specifically, he stated that the continental shelf is neither well known nor well studied—the surface of Mars has been better explored. He noted that UNCLOS creates conservation and management obligations, and although the parameters of mandatory marine scientific research are complex, they generally create an obligation to, among other things, research, map, and gather data. Mr. Cohen believes that the U.S. needs to study the continental shelf before allowing resource extraction. One area of needed research, for example, is the effects of changing turbidity and/or water chemistry on fish and related ecosystems. Mr. Cohen also commented that climate change is already altering water chemistry and causing pole-ward migrations.

Mr. Cohen connected research to management needs, calling for an ecosystem-based management approach, based on an understanding of the ecosystems involved. He noted the need to have baseline information with which to conduct impact assessments and make informed management decisions. Mr. Cohen also called for the development of resource procurement guidelines that are environmentally friendly (e.g., the 1993 oil and gas extraction environmental protection guidelines drafted by the Arctic

Council). Finally, Mr. Cohen noted that the U.S. is attempting to drastically reduce its greenhouse gas emissions over the coming decades and stated that it therefore it may be sensible to leave ECS resources undisturbed in order to transition to a non-carbon economy.

Summary of Questions & Answers

Following the presentations, thirty minutes was allotted for audience questions. The following is a summary of the questions asked and the panelists' responses.

How long will it take to complete the ECS mapping?

Ms. Hayes noted that the timeframe will be revealed in the project plan that will be released in the next few months. Generally, the data collection will likely take a few more years, but then there will be further work to analyze it. The U.S. will have 10 years after accession to UNCLOS to put in a submission to the Commission. The timeframe is a moving target as new discoveries are made.

Is the technology we use the same that is used by other countries?

Dr. Mayer stated that most nations use multi-beam sonar, but not necessarily in the same way.

Where exactly are the potential U.S. ECS areas in the Pacific Islands?

Ms. Hayes commented that the initial study showed that morphologically there may be ECS around the Marianas Islands. In the future, the answer will depend on interpretation—it will be affected by Japan's submission, and what recommendation the Commission makes on it. One of the advantages of being behind other coastal States in this process is that we get to observe and learn from what others do.

Is proprietary data used by the U.S. ECS Task Force protected?

Ms. Hayes explained that a coastal State's submissions are protected, and that it is only required to publish an executive summary. Furthermore, most existing private data is within the EEZ, thus not useful to the Task Force.

Mr. Petty expanded upon this point, commenting that the only data relevant to determining the limits of the ECS is geographic data, not resource data of the type that oil and gas companies submit to MMS.

Mr. Cohen raised a related point, that UNCLOS contains a provision on marine scientific research that creates an obligation to share the results of such efforts.

Could the international community (e.g., an NGO or private party) challenge the activities of a State party to UNCLOS if they think the State's ECS activities affect the water column?

Ms. Hayes explained that under UNCLOS, only State parties to the agreement may invoke its dispute resolution mechanisms.

Mr. Cohen described the various options for States to express displeasures with another's behavior. The first option is diplomacy. For example, the U.S. and Canada held informal bilateral consultations regarding the Beaufort Sea. Then there are the UNCLOS dispute resolution mechanisms. There is also an informal consultative process within the U.N., which offers a possibility for consensus movement.

In the project plan that the U.S. ECS Task Force is preparing, has there been any cost-benefit analysis about how much scientific data should be pursued before we go ahead and make a submission to the Commission?

Ms. Hayes stated that the Task Force feels that they have the necessary technology right now, and it's been more about how much money they can get and how fast they can get to it. The project plan is more about determining where more research is needed, where it's most efficient to explore, and where has not yet explored.

How would domestic environmental laws apply in the ECS? For example, would NEPA apply, and is data being collected with an eye towards establishing the baseline information necessary to complete environmental assessments?

Ms. Hayes commented that the Department of the Interior, as the administrator of the Outer Continental Shelf Lands Act, is the Federal agency best positioned to answer questions about applicable domestic law on the continental shelf, but the current understanding is that the same domestic legal regime that applies to the continental shelf within the EEZ will apply to the ECS. Regarding baseline information for environmental assessments, the goal of the U.S. ECS Task Force is primarily to gather the data necessary to establish the outer limits of the ECS, although it is also open to projects that can be completed incidentally if they do not detract from the primary mission. Ms. Hayes stated that MMS will not offer ECS areas for lease before all standards currently in place for areas within the EEZ are satisfied.

Dr. Mayer expanded upon the question of what data is being gathered, explaining that UNCLOS really envisioned that the ECS submissions would be based on single-beam sonar. He noted that when the original desktop study of the ECS was completed, there was enough single-beam sonar data available for the U.S. to make a submission for most areas of the ECS, although the sparse data would have made it less credible. Therefore a decision was made to conduct multi-beam sonar surveys, which provide a geospatial framework that can be used in future environmental studies. Information on back-scatter is also collected, which enables people to outline areas of different material type on the seafloor. It would have been useful to also have video, but it would have increased the project costs at least ten-fold.

Ms. Hayes added that, in contrast, Japan decided to conduct all possible studies simultaneously. The total cost came to over \$100 million annually, which she stated the U.S. does not have available for these assessments.

Mr. Cohen noted the importance of ensuring that management decisions are based on a complete picture, including environmental assessments that encompass not just the seafloor but the water column as well. States have an obligation to cooperate in ecosystem management—e.g., highly migratory stocks—which requires taking into consideration impacts on the water column, regardless of the lack of a sovereign right to its resources.