FOURTH BIENNIAL SCIENTIFIC CONFERENCE OF ABLOS–
"MARINE SCIENTIFIC RESEARCH AND THE LAW OF THE SEA"

International Hydrographic Bureau, Monaco, 10-12 October 2005

FROM ARCTIC OCEAN RESEARCH TO UNCLOS, ARTICLE 76, AND BACK

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INTRODUCTION

This is a tale about an advancement in Arctic research under a program that was fully operational over a six-year period. It is the tale of a project that whetted the appetite of the research community so dramatically that a new justification was sought to renew or continue it. This justification, as yet unfulfilled, was uncovered in the text of the Law of the Sea and advanced to the White House and the U.S. Senate. What was learned was that the Arctic Ocean presents great opportunities for the United States if, and when, the country becomes a States Party to UNCLOS. At the same time, there are significant emergent research needs that come with this accession, particularly when coupled with the anticipated, less restricted access to the ocean caused by ongoing climate change. This paper describes some of the marine scientific research needs that were identified.

HISTORY

The Arctic Ocean has for decades, even centuries, been a scientific unknown. Data sets were sparse because the area was so scientifically challenging, remote and dangerous. What little data that existed was generally collected by the military during World War II and the Cold War, and was inaccessible because it was classified.

Those circumstances changed significantly with the winding down and, ultimately, the end of the Cold War. There were underused military assets in a world of fewer military objectives and little conflict. Assets like nuclear submarines, long eyed by the research community as attractive platforms for data collection under the Arctic Ocean sea ice, became the subject of great interest by Arctic scientists. In the late 1980s, an active

dialogue commenced between the science community, the U.S. Arctic Research Commission and the U.S. Navy concerning the possibility of the Navy providing a nuclear submarine (SSN) to serve as a data collection platform dedicated to, and directed by, science.

A cooperative program emerged in 1991 called the Arctic Science Submarining Program. It was the result of an agreement between four civilian science agencies in the U.S. government and the Navy. Six cruises were conducted during 1992-1999 called Science Ice Exercises (SCICEXs). The Navy provided the submarine and crew. The science community directed the track of the submarine (within limits in safety). The torpedo room was adapted as a laboratory. As many as six civilian scientists were aboard for each cruise.

At the conclusion of each cruise, the data collected was declassified and released to the community.

Each cruise was limited to areas outside the exclusive economic zones (EEZs) of all Arctic Ocean littoral countries. During the six dedicated cruises, data was collected over 95,000 km of track during 211 days. Science participants came from several nations including Canada, the United Kingdom, Russia and the U.S.

The SCICEX program was a huge success. Arctic science experts conservatively estimated that the volume of data collected more than doubled the quantity of available data previously collected from the Arctic Ocean and made available to the science community. That estimate says a great deal:

- Science gained considerable data from the SCICEX cruises.
- There was not much data to start with.

It is an understatement to say that the program as a huge success.

The data collected ranged from the physical and biological properties of the ocean to 3-D bathymetry and data on the composition and structure of the ocean subbottom.

Unfortunately, the SCICEX program of dedicated cruises essentially ended because the numbers of available submarines rapidly declined after the Cold War.

Currently, there remains a limited SCICEX program, where for short periods during a submarine's military deployment to the Arctic, some data and water samples may be collected for science. There are no civilian scientists aboard. The collection periods are short. The data take is small. The science community, its interest stimulated by the synoptic, co-registered data collection capabilities of a nuclear submarine, desired a restart of the SCICEX program as it was originally conceived.

Among the most desired data was the collection of swath bathymetry and subbottom profiles. These data were vital to both the anticipated U.S. accession to UNCLOS and the future exploitation of the ocean subbottom resources. Most critically, the data requirements for the assembly and submission of a claim to extend the outer limits of the U.S. continental shelf in the Arctic Ocean dictated that the preeminent data collection platform is clearly the nuclear submarine.

ENTER UNCLOS IN THE ARCTIC OCEAN

If a submarine is the platform of choice in the Arctic for Article 76 data, then why not collect other ocean data as the bathymetry is being collected? This arrangement would closely resemble the dedicated SCICEX cruises. The Navy was approached with the idea in early 2001.

However, the size of the U.S. submarine force had continued declined dramatically. The Navy's response to the suggestion was that they had insufficient resources to support a return to the old times. Their stance was, "too few submarines for too many missions." But, they added that if a higher authority made date collection for UNCLOS, Article 76, a "National Priority," they would be most willing to support the requirement.

How does one create a “National Priority?” In the U.S., one attempts to bring the matter before the White House.

The U.S. Arctic Research Commission briefed senior staff in the White House and at the Assistant Secretary level in the State Department. In each case, the effort to generate a “National Priority” met with understanding, but insufficient enthusiasm to get the ball rolling. For several individuals briefed, the unique nature of the Arctic Ocean with respect to UNCLOS was a revelation. The need for more research in the Arctic Ocean, in general, was not appreciated.

Frustrated, the next attempt was made at a meeting with the staff of the U.S. Senate Foreign Relations Committee. The response was positive. The staff understood UNCLOS, gained a quick appreciation of the Arctic and, most importantly, understood the critical need for more scientific research in that ocean. One staff member’s comment, made at the conclusion of the briefing, was that for the first time, someone had offered positive, concrete reasons and new statistics to support a rationale for the U.S. accession to UNCLOS.

The Committee staff told the Commission that the briefing encouraged them to hold hearings as the first step in the Senate’s role to provide the President advice and consent with respect to international treaties. Following October (2003) hearings, the Committee voted unanimously in February 2004 to send the UNCLOS treaty to the full Senate where further action has been stalled by a vocal minority.

In the meantime, the Arctic Research Commission examined the impact on the U.S. Arctic in the face of UNCLOS ratification—particularly in light of the steady progression of climate change—the warming trends that were emphasized in the “Arctic Climate Impact Assessment.” The results of this Assessment were formally released to the public in November 2004. The Commission found not only compelling reasons for ratification, but significant rational for marine scientific research in the timely anticipation of that action.

MARINE SCIENTIFIC RESEARCH IN THE U.S. ARCTIC

As climate change makes easier access to the Arctic Ocean, national and international interest in the area will grow. However, change will be slow and though there may be more open water in the summer, there will always be a total ice cover in the winter. The effort to exploit the advantages and opportunities will center on what man can understand about the Arctic Ocean and what Mother Nature will allow.

The complications of ice cover and sparse data will continue to beg for a submarine as the Arctic Ocean data collection platform of choice. It is estimated that 78 percent of the sea bottom area that would be included in a U.S. claim under Article 76, lies in the Arctic Ocean and the Bering Sea. Not only are bathymetry, subbottom profiles and seismic data essential for an Article 76 claim, these data are also vital to understanding the Arctic Ocean, its formation, its oceanographic behavior, and its resource potential.

Collecting data from the Arctic Ocean for an Article 76 claim will also bring forth opportunities and identify emerging national research needs in four broad areas:

- Commerce
- Economic Development
- Security
- Sovereignty

COMMERCE

As environmental change continues in the Arctic, greater accessibility will allow a longer shipping season. Most maritime commerce is expected to originate or end at Arctic ports, rather than intercontinental sites, as the northern continents develop.

However, the advantages of less time, shorter distance and greater security for intercontinental voyages are significant when compared to using either the Suez or Panama canals. It is interesting to note that U.S. Navy has recently (2004) used the Arctic Ocean as a route to move submarines between the Atlantic and Pacific oceans. The route

is shorter, takes less time, and consumes less nuclear fuel; thus it costs less. The reduced cost is enhanced by the fact that the Panama Canal is bypassed and the very high security that is now required for a nuclear vessel transiting the Canal (post 9/11) is avoided.

In order to properly exploit this commercial opportunity, considerable research is required. Topping the list is continuing marine research to confirm the observed climate trend. (Getting the right answer as to its cause is worth billions of dollars!)

Other needs include research on how to build and maintain a robust, sustainable infrastructure, such as buoys, lights, navigational aids and charts; development of new technologies in ice-capable research to improve ship design (conforming to the various Polar Codes), and ship resistance to cold weather.

U.S. ARCTIC ECONOMIC DEVELOPMENT

The area of prime U.S. interest, when it comes to extending the outer limits of the U.S. continental shelf under Article 76, is the Chukchi Rise north and east of the Bering Strait. The area contains real prospects for oil and gas exploration and recovery. Some might say the weather will never allow year-round resource recovery from the Arctic Ocean subbottom. However, operating wells exist in the Gulf of Mexico in over 7200 feet of water and loading platforms are as far as 200 nm from the well head. The points is that if the oil industry wants to work there badly enough, they will.

Another area of economic development is fishing in the Arctic. As areas of the Ocean are ice free for longer period, there will be a migration of fish stocks to the north.

The combined prospects of fossil fuel recovery and fishing, plus increased maritime commerce in general, will require that open water, temperate ocean, transshipment ports be built to allow transfer of cargo from ice-strengthened carriers to traditional (warm water) cargo ships.

These advances in the Arctic must be preceded by research:

- Marine scientific research to fulfill data requirements for the Article 76 claim
- Research on subbottom recovery and transport in a dynamic environment, at times in the presence of ice
- Continuing and expanded ocean research to understand and effectively manage fishing in the far north
- Applied research to plan and build cost-effective, cold weather compatible transshipment ports.

SECURITY

Given the increasing Arctic Ocean accessibility, the U.S. will have a 1700 km coastline more exposed. Its full length has very few inhabitants and no infrastructure to support either transient commerce or economic development. Similarly, there is but marginal knowledge of the U.S. territorial sea and EEZ in the Arctic. But of an even greater concern is the fact that apart from three U.S. Coast Guard icebreakers and Navy's submarine force, there is no ability to enforce maritime regulations or to protect the sea lanes.

Clearly, research is needed to understand the near-shore ocean better, as well as to exploit what the ocean and super-adjacent airspace will allow.

SOVEREIGNTY

When the U.S. becomes a States Party to UNCLOS and receives approval of its Article 76 claim, the Nation will gain sovereignty over the ocean bottom and subbottom resources in an area of approximately 749,000 sqkm. That area represents a 12.2 percent increase in sovereign ocean bottom territory—and 78 percent of that is in the Arctic Ocean/Bering Sea. This latter area is the equivalent to an area 1.5 times that of the state of California.

While the need for UNCLOS accession is of prime interest, the marine scientific research needed to take advantage of the rights accorded coastal states in the treaty is of critical importance, particularly as Arctic access improves.

THE ARCTIC OCEAN IN AN INTERNATIONAL CONTEXT

The Arctic will become more important to all nations in the years ahead. Its importance to the world's climate is now appreciated, but its commercial and economic impact is a bit further down the road. The advantages of time, distance, cost and security (over the canal routes) will become increasingly evident.

It is interesting to note that the Arctic Ocean is but three percent of the world's ocean surface, yet it receives 10 percent of the world's fresh water run-off and contains 25 percent (correct) of the world's continental shelf area.

It is in the Arctic where great interest is being shown by all littoral nations in UNCLOS, Article 76. If one projects a reasonable estimate of what those claims might eventually be, there is very little, truly international, high seas area left.

CONCLUSION

The marine scientific research path is now identified in the Arctic. That path is circular. The United States has barely started to follow that path. A submarine research program, that was so beneficial to science and so strongly encouraged by the research community, has defined the importance to the Nation of becoming a States Party to UNCLOS.

That motivation has, in turn, made those who look ahead aware that even more marine research must be done in order to exploit fully the opportunities offered by the Law of the Sea.

Indeed, we must go full circle.