COMMENT

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My remarks will be confined to Part XIII of the Draft Convention, "Marine Scientific Research."[1] My goal here is to give an estimate of what the post-UNCLOS III environment will be for the conduct of marine research, with special emphasis on the situation in the United States since we are one of the major players in the conduct of worldwide marine research.

My background and, hence, my approach to the topic is somewhat different from that of the other speakers. They have all been through the UNCLOS III experience and have gathered here to express their views about the future. In contrast, I represent some of those who must live in that future. I am the inheritor of what you have done, and I will have to live with these conditions for the rest of my professional career in marine research. Thus, my comments are a nascent attempt to forecast a future which is not yet completely formed and to represent a bridge between your primary interests in the law for ocean space and the initial reaction of one who will have to work there.

Let us first consider the background. This whole process that we have talked about is, essentially, one of sea uses and rights to exercise those uses. We are really talking about the use of ocean space as a resource place. Indeed, marine transportation, national defense, marine recreation, and living and non-living resource development are all ocean resource uses. We are, therefore, really talking about a code of conduct for the peaceful, harmonious, and effective use of ocean space. Accordingly, let me give you a personal perspective on the uses of the sea.

My perspective has four divisions. The first of these is ocean science. The product of ocean science is only one thing—predictive information. Examples of predictive information are: biological knowledge of fish that might have commercial value; identification of subseafloor geological structures that might suggest gas and oil; and the knowledge of sea conditions and marine weather that affect maritime commerce. The second category is marine techology or ocean engineering.

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The author would like to acknowledge and thank the many members of the United States marine science community who devoted days and months of their time to assist the United States delegations to UNCLOS III over the past decade. Working mainly under the Freedom of Science Task Group (FOSTG) of the Ocean Policy Committee of the National Research Council, members of this group acted as a link between the United States ocean science community and the UNCLOS III proceedings. Their advice helped shape the negotiating positions taken by our government in this area. In preparing these remarks, I have borrowed freely from the papers and reports received while I was a member of FOSTG. I accept full responsibility, however, for any errors or omissions of fact that have resulted from my review and interpretation of these materials.

1. Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, U.N. Doc. A/CONF. 62/122 (1982), arts. 238-65 [hereinafter cited as Convention], *reprinted in* 21 I.L.M. 1261 (1982).

This simply gives us the ability to apply the engineering arts to build machines that can work in ocean space.

The third division is economic usefulness. You are not going to accomplish resource development in ocean space except where it can become the basis of a profitable business. One can develop a unique resource characteristic of ocean space, such as fish, and sell that product, or you can develop other resources, which will compete in the market with terrestrial resources of the same sort. A corollary to the economic test is policies of government. A developing country might decide that a national fishing industry is a productive use of the sea. It will capitalize and develop that industry, which eventually may become productive. In a less pacific case, navies are determined by their governments to be a nationally important use of the sea.

Finally, the fourth category is what I call "manmade constraints on uses of the sea." This is policy, politics, and law. The other three areas—science, technology, and economics—essentially flow from the various scientific disciplines, and there are certain natural laws and formulations that help us develop those areas. The fourth area is more uncertain and difficult. My thesis is this: we know more about how to do things to the sea, in a scientific and technical way, than we know how to manage and govern these activities. The Law of the Sea Conference is an excellent model of the accommodation required between the people charged with the responsibility of rule-making and legal codification of activities and the people who know how to use and exploit the marine environment. (I use the term "exploit" in a non-pejorative sense.)

Marine science is the place where we begin, the essential first step to effective uses of the sea. This brings us to an interesting paradox. Marine science, throughout the history of the law of the sea negotiations, has been regarded by the developing nations as a type of colonial franchise. I overdraw the term, and I mean to do that. It has always struck me as strange that as the developing coastal states (over eighty percent of the world's coastal states are developing nations) evolved and became more sophisticated, they did not develop some active curiosity about their adjacent coastal waters. They need to know how to assess what might be there, its potential value, and then, how to develop and exploit it. Should they lease it out to foreign companies or develop their own exploitative mechanisms? This requires marine scientific research. Yet, there has been a theme, or at least a faint perception, through all of the negotiations, that there was some dichotomy between the states that have the ability to do this research (it is a very expensive sort of business) and the states off whose coastlines we might work. Now, there are certainly some reasons for this suspicion on the part of some developing states. However, defining the issue in perhaps muted shades of black and white blurs the distinction between the national capability of those states that have ships, trained scientists, laboratories, and the ability to do things, and the national interests of the coastal states.

There have been unfortunate incidents in which other activities have been hidden under the guise of marine scientific research. The basic problem is a cultural question. I like to characterize this as the "missionary-merchant relation-

ship," in which in the days of the age of great exploration the man of God came down the trail, met the natives and told them, "Put on clothes—that's the way God would have it." Just down the trail out of sight was the merchant who happened to have a supply of "Mother Hubbards" that could do this.

Today, if, as a coastal developing country, we look out and see the great, white, foreign research ship, with flags fluttering, we wonder whether or not there is an oil platform owner just over the horizon who is going to be a little smarter than we are in negotiating a deal to exploit our seafloor resources. That is, perhaps, the modern version of the missionary-merchant relationship.

Admittedly, I am overdrawing this picture to make the point, but most developing coastal states have little or no marine research capability. This is not going to be solved by sending money to them or by saying, "give me six of your best men and we'll take them to Scripps and make them Ph.D.'s." There is, in fact, a whole array of events and requirements that come in between the two polar points of doing nothing and fretting about "economic colonialism," or trying to find out what is contained in your 200-mile economic zone.

We must work together. The developing coastal states need to work with capable developed states for mutual benefits. Playing "hard ball" and making access difficult or impossible is indeed cutting off your nose to spite your face. Such diplomatic incorrigibility will make compromise impossible and the cooperative development of oceanic resources an unobtainable dream.

The 1958 Geneva Convention on the Continental Shelf,[2] resulting from the first U.N. Law of the Sea Conference, contained the first concrete mention of regulation of marine research in international law. It was, essentially, a consent regime. It seemed to be rather benign, although it was a major change for those of us in marine research to be required to ask for permission; to invite people from the adjacent state to participate in the cruises; to make data available to them; and to ensure that open publication was done in an expeditious manner. But since those years, we have seen what has been termed "creeping jurisdiction," as many states unilaterally declared more space, more sovereignty, more control over research, and so on. The development of different kinds of rules made the future of distant water research rather bleak. In fact, a study of a five-year period in the middle 1970's showed that about twenty-five percent of all requests for research cruises were either turned down or delayed inordinately. For those of us who operate ships, it is a very tight scheduling process. You schedule your ship a year in advance. The big ships used in distant waters may cost twelve thousand dollars a day to operate—twelve thousand dollars a day every day of the year, including Christmas, New Year's, Easter, Saturday and Sunday. Those of us who have a responsibility for an asset that costs our institution twelve thousand dollars a day have to program it a year in advance. You have to be sure your customers are out there to keep the vessel supported and not break the continuity of funded support. As a consequence, if you are applying for a cruise a year in advance and later you cannot get your clearance, you end up with a big gap in your schedule. Often, you

2. 15 U.S.T. 471, T.I.A.S. No. 5578, 499 U.S.T. 311.

cannot reprogram another scientist in the open space. We have had cases with my ship where we headed for foreign waters, stopping just outside the 200-mile line to await our clearance, and even though we had put in our request in accordance with U.S. State Department regulations in plenty of time, we did not get the clearance until we came back to Los Angeles. In these cases, we have simply worked outside 200 miles; but this is a poor way to conduct scientific research. It is a situation that requires significant improvement.

With respect to marine scientific research, the Third U.N. Law of the Sea Conference is something of a blessing. It sets up rules for all states to follow. The rules are not mutually beloved by the ocean research community, but at least there is a "standard" set of rules that we can all see and understand. Now we should only have to face one set of rules and regulations. While they are not optimal, they are about the best we can do. During the UNCLOS III negotiations, the United States was nearly alone in its "passion" of promoting as few rules as possible. Largely, this was because more restrictions meant increased planning time; this translated to added cost and uncertainties in schedules for ship time. These concerns are strictly outside ocean politics. This is a practical matter of managing a vessel, equipment, and people that are costing a lot of money to operate. The more efficient and uncomplicated this management can be, the more productive is our marine research. But at least now we do have the rules.

These rules will apply to an area that will cover nearly forty percent of ocean space; that is, forty percent of ocean space is governed by a set of rules regulating the conduct of marine research from the shoreline out to beyond the economic zone and the end of the continental shelf. It is certainly an improvement over the prior practice, and thus we should look at it in a positive way.

Additionally, it is fair to say that the general framework of the consent regime presently exists in international law. We have a fairly good understanding of the procedures governing consent, open publication, and the invitation to foreign scientists.

Why was the United States somewhat alone in its desire to keep the negotiations on marine scientific research going after the other states had lost interest? There are probably only five major seagoing distant-water research nations in the world—the United States, the Soviet Union, France, Japan, and the United Kingdom. You will find other foreign research ships in distant waters, but usually they are invited, such as a Scandinavian fishing research ship brought into Sri Lanka to work with the local government on fishing studies. More specifically, I am referring to a foreign state which actually deploys its assets over long distances for large-scale fundamental marine research. There were simply not many of these players in UNCLOS III. In the Conference, our interests were supported somewhat by the Soviets (until about 1976), by the Federal Republic of Germany, by the Netherlands, and sometimes by Japan. We did not have a lot of support. Marine research is a terribly expensive business, and therefore it does not have a large community of participants.

Let us look at the post-UNCLOS III environment and my predictions for the same. The treaty is in; the United States is out. How will this affect the conduct

of marine research in the United States? Frankly, I do not see significant problems if the coastal states do not retaliate against the United States because we are not a signatory. Such retaliation would be extremely myopic insofar as there is the potential for a mutually beneficial relationship here. Furthermore, Part XIII of the Convention guarantees mutual benefit for the coastal states.[3] Of course, Part XIII has so many loopholes anyway that a "mail-order lawyer" can take his client right out of the action if the client wishes. They are good words, but in many cases, they are not mandates. Probably, the sort of elasticity provided in Part XIII is useful. It makes it more of a living document, one in which all parties must behave and act in good faith. This might not be as onerous as many people would think. It is elastic, dynamic, and it is a significant improvement over the prior situation.

We can also look towards bilateral, multilateral, and regional research arrangements. The United States presently has few bilateral arrangements. They tend to be with the major maritime powers: Japan, the Soviet Union, and France. Nevertheless, we do know how to establish these kinds of scientific arrangements. It would seem likely that the Intergovernmental Oceanographic Commisssion (IOC) will become a major factor in helping to facilitate international cooperative research. Reflecting upon the International Indian Ocean Expedition, it is clear that we have gained experience with regional programs. This might be an alternative way to go in the case of the United States. In addition, bilateral arrangements are a very nice way of simplifying business. If you can find a partner with mutual research interests, you can simplify many of the bureaucratic requirements that show up in the Convention by working out a treaty, agreement, memorandum of understanding, or an exchange of diplomatic notes. It is a short form. If both partners are of a like mind and they want to work together, then a bilateral arrangement might be a good and convenient way to conduct a prolonged type of program.

What are some of the problems that I see in the existing situation? First of all, marine phenomena do not follow political boundaries. If you are following some large scale circulation phenomenon in the ocean, such as migration of certain fish stocks, it can move in and out of various coastal zones. You have to track these developments to gain a full understanding. This is a problem that leads you where the phenomena go; nature is the driver.

The straits are troublesome. The straits are particularly interesting research places for an oceanographer. For straits that connect two or three different states, such as in the Straits of Malacca connecting Singapore, Indonesia, and Malaysia all in the same area, Part XIII of the Convention is not especially helpful in the development of a research regime.

As previously mentioned, the consent business is filled with loopholes. For example, one very real concern is that publication of results could be restricted. In other words, the *coastal state* alone can make a determination that the research

3. *See* Convention, *supra* note 1, arts. 242-44.

results are skewed towards "exploration and exploitation of natural resources,"[4] and hence request that the results be withheld. It could be a judgment strictly in the eye of the beholder. That process flies in the face of the freedom of scientific inquiry, and especially since the developing state may not have the sophistication and competence to judge marine research, except in a very narrow way, this could be a significant problem.

There will also be a new time constant in planning marine research. In the United States, research budgets through federal agencies are planned a year or two in advance. But now we, the scientists, have to give at least six months notice to a coastal state if we want to work off its coast. That means we have to book ship time perhaps two years in advance to push both budget and clearances through our own government system before it gets into the international system. Future marine scientists are going to have to load a lot more "paperwork time" on the front end of their programs before conducting their research. This is no small burden to add to scientific research. Of course, the alternative is simply to say "too bad" and confine our work to U.S. waters. But then, who is the real loser in a world of unknown 200-mile zones?

Another question concerns the Review Conference that can be called fifteen years from now to consider the operation of the deep sea mining regime.[5] Could it perhaps lead to new, additional restrictions in marine scientific research in the sixty percent of the oceans that constitute the high seas? That is a future event worth considering.

A related but domestic problem today is the amount of money that the United States is budgeting for the support of marine research. This funding has continued to decline since 1968 in real purchasing power. In 1983 we are facing the problem of perhaps reducing the academic research fleet from twenty-five to fifteen ships. All of this commotion about international marine research may be for naught simply because we just cannot afford to get there.

What are some of the opportunities? We have rules that we can all understand; I have said that already. The coastal states have economic zones that will need to be researched, studied, assessed, and evaluated. That means they need outside help if they are going to enjoy the resources of these zones. It is as simple as that. Generally, they do not have the money to go out and buy the services of a large, commercial planning company. They are going to have to work with other governments to develop cooperative programs of mutual interest.

This offers a unique chance for the large governments, the five I spoke of, that have these capabilities to do the best kind of foreign aid. As you will recall, in Part XIII of the Convention there is a requirement that, if you are requested by the coastal state, you not only must deliver the data, but you must help them interpret it and use it for their own purposes.[6] You may have taken the data for some very esoteric piece of marine research—but your obligation to that host country may be

4. *Id.* art. 146(5)(a).
5. *See id.* art. 155.
6. *Id.* art. 249(1)(c)-(d).

to show them how they might apply that same data for problems that they encounter. That is at their request. This could be turned into a form of foreign aid. We could develop a scheme whereby we might not use our principal investigator, because he would go back to his institution. Instead, we could use a corps of marine scientists who have just completed their graduate degrees to go over and work in various coastal states in the world, helping them adapt these sets of data to their own particular problems. It would not be very costly at all.

We should not tax existing, ongoing research with these extra overhead costs because marine science is getting very costly all by itself. For example, almost half of the cost to operate a ship today is fuel. New support should be channelled to the scientific community through the foreign aid apparatus. Just as we buy trucks and tractors and send the Peace Corps out to do their work overseas, we should think about a program, an aggressive positive program, that will, in fact, tend to lower the international noise level and make people understand that we do have mutual interests.

Past bilateral marine science agreements have been largely political in origin. I do not mean the U.N. Law of the Sea Conference. Rather, my remarks are aimed at the bilateral and regional arrangements that we have had in the United States which seem to involve scientists at the eleventh hour. It is analogous to the situation where you go to a restaurant to join a group of people, coming in as they are having dessert, and you get the check! We think the scientists should be involved at the beginning of these programs.

Satellites could help avoid some of the problems that I have cited in this presentation. Satellite technology is such that the earth-resource-sensing satellites can help us study large-scale ocean processes. While satellites can only look at the upper skin of the ocean, there is nevertheless a lot of information that can be inferred from this kind of technology. (The Japanese and the French are both putting up marine-oriented satellites.)

This has been a quick tour of the issues as seen by one who will now live with the consequences of what you have done in over a decade of UNCLOS III negotiations. We shall do our best to make it work, but the achievement of real freedom for inquiry into the unknowns of the oceans will require the goodwill and enlightened self-interest of *all* coastal states.