

**Marine Scientific Research:
U.S. Perspective on Jurisdiction and International Cooperation**

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Introduction

Many U.S. marine scientists and administrators in the late 1970s and early 1980s were skeptical about continued research access to foreign waters. Their uncertainties were heightened with the signing of the U.N. Convention on the Law of the Sea in 1982 and with the U.S. decision not to participate in this signing. The treaty clearly defined coastal State jurisdiction over marine scientific research (MSR) in States' coastal waters. What the treaty's impact would be on marine scientific research access was not obvious. Some thought that the treaty would ease research clearance problems and promote international cooperative research; others thought that the clearance situation would be further complicated and international cooperation would diminish.¹ The answer is still not obvious.

Certainly from the mid-1970s, with the increase in national claims out to 200 nautical miles, oceanographic research projects could not be planned as easily as they previously had been and the legal consciousness of many marine scientists was involuntarily raised. *Figure 1* charts the trend of 200-n.m. zone claims and coastal State jurisdiction over MSR from 1947. By the end of 1987, 105 coastal nations (from a total of 139) have claimed jurisdiction over 200-n.m. zones and 78 have some form of jurisdiction over research in their coastal waters. Scientists and planners now must consider various national claims on maritime areas in which they wish to do research (including some areas that are disputed). This means that projects must be planned well in advance in order to be processed through the U.S. Department of State's Research Vessel Clearance Office and then passed on to coastal States for approval.

This paper assesses the impact of increased coastal State jurisdiction on the U.S. MSR effort, discusses factors that may determine geographic choices by U.S. marine scientists for their sea-going research, and offers some speculation from the U.S. perspective on the future for access and international cooperation in marine scientific research.

Coastal State Jurisdiction and the U.S. Marine Scientist

Our analysis considers only those U.S. clearance requests passed through the Department of State on to coastal States from 1979-86. This assessment expands upon earlier studies by Knauss and Katsouros,² and like their work, shows an increase in the number of clearance requests. This increase is occurring simply because clearance requests are now required by at least 78 countries and are highly recommended for all other maritime countries. The increase itself is not proof of more international research.

FIGURE 1

Claims of 200-n.m. Zones and
Marine Scientific Research Jurisdiction
1947-1987

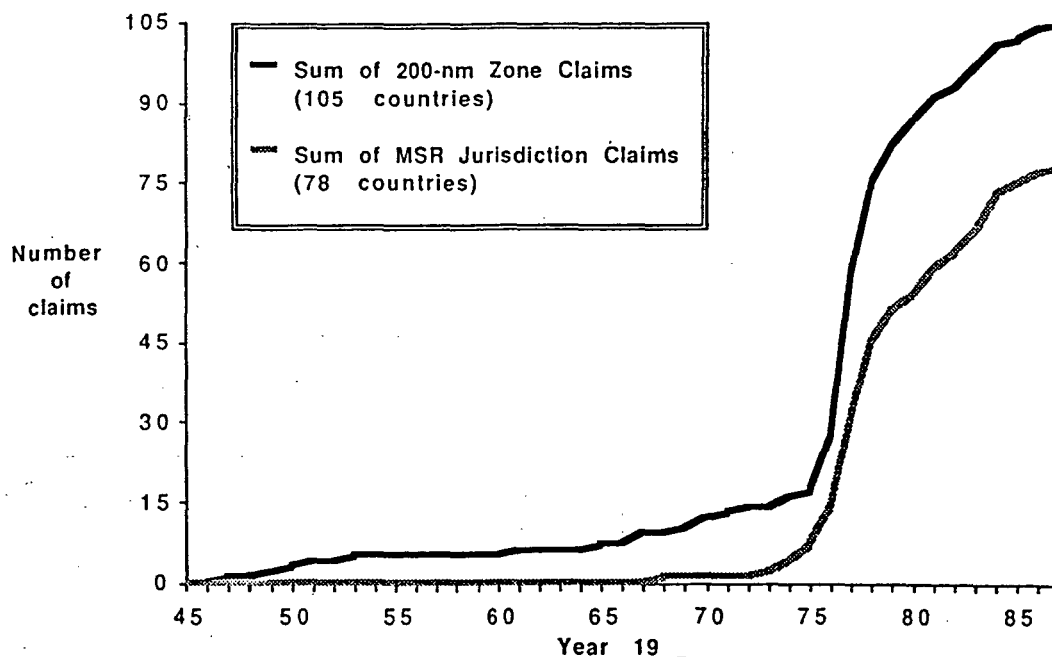


Table 1 shows all U.S. research clearance requests (passed through the U.S. Department of State) and denials by country from 1979-86. In this eight-year period there were 1,124 requests made to 76 countries. The summary of these activities (Table 2) also shows clearance denials and problems as a percent of the total requests. We have distinguished outright denials from clearance requests problems and segmented problems by their source. Where the coastal State was the source of problems, such problems may include late approvals resulting in delay or cancellation of research, approval withheld since the U.S. did not meet the 6-month lead time requirement, no response to the request, or conditions imposed by the coastal State (often unacceptable conditions). Where the U.S. was the source of problems, such problems may include cancellation or delay of research due to funding, equipment or scheduling problems, or where approval was granted even though the U.S. was late in submitting the request within required lead-time.

TABLE 1

U.S. Department of State Clearance Request Activity
1979-1986

	1979	1980	1981	1982	1983	1984	1985	1986	Total Requests	Total Denials
ALGERIA	0	0	0	0	0	0	0	2	2	
ANTIGUA & BARBUDA	0	0	0	0	1	1	8	4	14	
ARGENTINA	1	0	3	0	0	3	1	2	10	
AUSTRALIA	2	0	0	0	0	1	2	2	7	
BAHAMAS	3	4	5	4	5	7	10	11	49	
BAHRAIN	0	0	0	0	1	0	0	0	1	
BARBADOS	1	1	3	1	5	5	8	5	29	
BELIZE	0	0	1	0	0	1	3	1	6	
BRAZIL	4	0	0	5	3	4	7	4	27	3
CANADA	14	22	14	16	27	35	36	39	203	
CAPE VERDE	0	0	0	0	0	0	1	1	2	
CHILE	4	1	2	2	5	6	1	3	24	
CHINA (PRC)	0	1	0	0	0	0	1	1	3	
COLOMBIA	0	0	0	0	1	0	2	6	9	
COSTA RICA	1	1	1	1	0	1	2	4	11	
CUBA	3	1	0	0	0	0	0	0	4	3
DENMARK	0	0	1	0	3	1	2	1	8	
DOMINICA	2	0	1	0	0	2	8	5	18	
DOMINICAN REPUBLIC	2	4	0	1	0	6	7	2	22	
ECUADOR	0	0	0	3	3	4	6	4	20	
EGYPT	0	0	0	0	1	1	0	0	2	
EL SALVADOR	0	0	0	0	0	0	0	1	1	
FIJI	0	0	0	1	0	2	2	1	6	
FRANCE	2	2	1	3	5	6	15	14	48	1
GRENADA	1	0	0	0	0	2	8	6	17	
GUATEMALA	0	0	2	0	0	1	2	1	6	
GUINEA-BISSAU	0	0	0	0	0	0	1	0	1	
GUYANA	1	0	0	0	0	1	5	0	7	
HAITI	1	1	2	2	2	5	8	4	25	
HONDURAS	0	0	1	1	1	3	6	6	18	
ICELAND	0	0	0	0	3	0	2	0	5	
INDONESIA	1	1	0	0	0	0	1	1	4	
ITALY	0	0	0	0	0	0	1	0	1	
IVORY COAST	0	0	0	0	1	0	0	0	1	
JAMAICA	1	1	1	1	3	1	3	4	15	
JAPAN	0	0	0	0	0	3	2	2	7	
KIRIBATI	0	0	0	0	0	1	4	6	11	
KOREA, S.	0	0	0	0	0	0	1	1	2	
LIBERIA	0	0	0	0	0	0	1	0	1	
MAURITANIA	0	0	0	0	0	0	1	1	2	
MEXICO	33	19	26	12	11	13	20	29	163	16
MOROCCO	1	0	1	1	2	0	3	4	12	
NAURU	0	0	0	0	0	0	0	1	1	
NETHERLANDS, THE	1	0	0	1	1	1	2	4	10	
NEW ZEALAND	1	0	0	0	1	1	3	4	10	
NICARAGUA	1	0	1	0	0	0	0	1	3	
NORWAY	0	0	0	0	5	3	0	1	9	
OMAN	0	0	0	0	0	0	3	0	3	1
PANAMA	2	0	0	0	2	3	1	5	13	
PAPUA NEW GUINEA	1	0	0	0	0	2	3	2	8	
PERU	1	1	2	4	4	3	3	5	23	
PHILIPPINES	2	2	0	0	0	0	1	0	5	
PORTUGAL	0	0	0	0	0	1	1	1	3	1
ROMANIA	0	0	0	0	0	1	0	0	1	
SAINT KITTS & NEVIS	0	0	0	0	0	0	4	4	8	
SAINT LUCIA	2	1	2	2	0	3	8	6	24	
SAINT VINCENT/GRENADINES	1	1	2	1	0	4	9	6	24	
SAUDI ARABIA	0	0	0	0	2	0	0	0	2	1
SOLOMON ISLANDS	0	0	0	2	0	1	2	2	7	

TABLE 1 (cont'd)

SOMALIA	1	0	1	0	0	1	0	1	4	
SOUTH AFRICA	0	0	0	0	1	1	0	0	2	
SOVIET UNION	2	0	0	0	0	3	0	2	7	5
SPAIN	0	0	2	2	2	2	3	8	19	2
SRI LANKA	0	0	0	0	0	0	0	1	1	
SURINAME	1	0	0	0	0	1	2	0	4	
TONGA	0	0	0	1	0	1	3	0	5	
TRINIDAD & TOBAGO	1	0	0	0	0	1	6	2	10	1
TURKEY	0	0	0	0	0	1	0	0	1	
TUVALU	0	0	0	0	0	0	1	1	2	
UNITED ARAB EMIRATES	0	0	0	0	1	0	0	0	1	
UNITED KINGDOM	3	3	2	3	5	10	18	12	56	
UNITED STATES*	0	0	0	0	0	0	2	1	3	
URUGUAY	0	0	0	0	0	2	0	0	2	
VANUATU	0	0	0	1	0	1	2	2	6	
VENEZUELA	2	1	1	1	2	2	6	4	19	4
WESTERN SAMOA	0	0	0	0	0	0	2	2	4	

No. of requests 100 68 78 72 109 165 276 256 1,124 38

No. of coastal states 34 19 24 25 30 49 58 57 76 11

* U.S. requests for 1985 and 1986 represent CRs submitted to Palau, Fed. States of Micronesia, and Marshall Islands.

Data Source: Yearly summaries of clearance requests prepared by Office of Marine Science and Polar Affairs, Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State.

As the totals for each year indicate, the high of 100 requests in 1979 was not reached again until 1983, reflecting the leap in the late 1970s of countries legislating jurisdiction over MSR. Of the 78 countries that have done so, 51 placed restraints on research between 1968 and 1979, with 31 of those just in the two year period of 1977-78. The balance has been evenly sprinkled from 1980-87, averaging three per year.

The following caveats on these statistics must be mentioned at this point:

Caveat 1 -- These research requests represent only those accepted and forwarded by the Department of State. Prior to 1983 the U.S. did not recognize coastal States' rights to exercise jurisdiction over research on a country's continental shelf or beyond a 3-mile territorial sea. So research requests by U.S. scientists for work off the coasts of countries with extended claims were not forwarded (unless they were amended to include some coastal research that would take the cruise inside the U.S.-recognized 3-mile territorial sea limit). Research requests are still not forwarded if the work is to take place in waters which the State Department considers a disputed area.

Caveat 2 -- These statistics reflect only those U.S. marine science projects that entailed going to sea on a U.S. vessel and should not be considered a full picture of the state of international MSR involving U.S. marine scientists. U.S. oceanographic research and many international marine cooperative programs may not entail going to sea, may involve work outside coastal State jurisdiction, or may utilize local vessels in coastal waters.

TABLE 2

Summary of U.S. Department of State Research
Clearance Request Activity 1979-1986

	1979	1980	1981	1982	1983	1984	1985	1986	TOTALS
<u>Denials</u>	5	1	4	2	2	8	4	12	38 11 States
% Denials of Requests	5%	1%	5%	3%	2%	5%	1%	5%	3%
<u>Problems</u>									
Coastal state as source (CSP)*	15	9	5	3	9	14	34	28	117 42 States
% CSP of Requests	15%	13%	6%	4%	8%	8%	12%	11%	10%
U.S. as source(USP)**	6	16	6	9	8	22	25	17	109 33 States
% USP of Requests	6%	24%	8%	13%	7%	13%	9%	7%	10%
<u>Requests</u>	100	68	78	72	109	165	276	256	1,124
<u>Coastal States</u>	34	19	24	25	30	49	58	57	76

* Coastal State Problems (CSP) = e.g., late approvals resulting in delay or cancellation of research, approval withheld since U.S. did not meet specified lead-time requirement, no response to request, conditions or fees imposed by coastal state.

** U.S. Problems (USP) = e.g., cancellation or delay due to funding problems or equipment problems; approval received but U.S. late within required lead-time for submitting request.

Data source: Yearly summaries of clearance requests prepared by Office of Marine Science and Polar Affairs, Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State.

Geographic Choices for Marine Scientific Research by U.S. Scientists

What drives the choice of location by U.S. scientists for marine research? We cannot prove that increased jurisdiction over access for marine science and occasional denials by coastal States have clearly influenced geographic choices. There are a whole spectrum of factors that influence research locality. These include: 1) proximity of foreign waters to the United States; 2) history of clearance activity with particular countries and the ease or difficulty of obtaining approvals; and 3) political hot spots. In addition, there exists the unquantifiable and most elusive factor -- the substance of research itself. We hope that this is the main factor driving the choice for location, especially

as Global Change programs evolve to include so many parts of the ocean and politically fragmented waters.

The current international situation concerning research jurisdiction in foreign waters is a maze of rules and regulations. Scientists and administrators must be able to find their way in and out of this maze when planning and expediting research cruises. The U.S. Department of State's Research Vessel Clearance Officer (presently Tom Cocke) does an admirable job of keeping up with the increasing flow of requests. But U.S. scientists, like scientists elsewhere, are mainly working hard to develop and implement programs and often do not know about legal aspects concerning their research cruises. The value of easy sources of information and anecdotes on working with foreign countries is incalculable.

In considering the first factor that influences choice of research locality, research in foreign waters close to home is easily targeted. Vessel and staff logistical problems and economic issues most certainly weigh in to this factor. Seventy-four percent of all U.S. clearance activity for the eight-year period under scrutiny was for research conducted in coastal waters of the Western Hemisphere: 18 percent in Canadian waters, 15 percent in Mexican waters (despite recurring clearance request problems), 28 percent in Central American and Caribbean waters, and 13 percent in South American waters. In addition, almost all of the requests made of the United Kingdom, France, and the Netherlands were for their Western Atlantic territories or dependencies (an additional 10 percent of total clearance activity).

In order to consider the second factor on the historical ease or difficulty of obtaining clearances, we refer to *Table 1* showing those countries of which the United States has requested clearances and the total number of denials resulting from those requests. No requests have been made of Cuba since 1980, and after three successive denials (1978) and no response to one request (1980), the difficulty of obtaining Cuban approvals may have kept scientists from pursuing further clearance through official channels. The opposite picture to *Table 1* is represented in *Table 3*, which shows those 63 countries with no U.S. clearance request activity for 1979-86. The MSR jurisdiction status and date of MSR claim of these recently untapped countries is indicated in the third and fourth columns. Less than half of these countries have legislated jurisdiction over MSR in their coastal waters. We cannot assume, therefore, that these areas are being ignored because of restrictions imposed by the Law of the Sea treaty.

The third factor of political hot spots is illuminated by the experience of one of the authors. Ross recounts that prior to 1977 he entered what are now the waters of ten Middle East countries listed in *Table 3*. At that time permission was requested of three of those countries. To date only two (South Yemen and Djibouti) have legislated jurisdiction over MSR, but all ten have seen no U.S. activity in the past eight years. The lack of clearance requests for the marine areas of the Middle East may well reflect its recent spate of political and military activities.

Relative to these last two factors, most scientists think about their future work in terms of solvable problems. If an area is out of bounds and not readily available for study, one puts it out of mind in the same way that one does not spend time designing research programs where the tools are unavailable (Knauss, 1985, personal communication).

TABLE 3
No U.S. Clearance Request Activity
1979-1986

	Marine Area (000s sq nm)	MSR Jurisdiction Claimed?		EEZ Rank
		Yes/No	Date	
ALBANIA	3.6	N	-	-
ANGOLA	176.6	N	-	-
BANGLADESH	22.4	Y	1974	61
BELGIUM	.8	N	-	-
BENIN	7.9	N	-	-
BRUNEI	7.1	N	-	-
BULGARIA	9.6	Y	1987	66
BURMA	148.6	Y	1977	32
CAMBODIA	16.2	Y	1982	65
CAMEROON	4.5	N	-	-
COMOROS	72.6	Y	1976	40
CONGO	7.2	N	-	-
CYPRUS	29.0	N	-	-
DJIBOUTI	1.8	Y	1979	74
EQUATORIAL GUINEA	82.6	Y	1984	36
ETHIOPIA	22.1	N	-	-
FINLAND	28.6	N	-	-
GABON	62.3	Y	1984	43
GAMBIA, THE	5.7	N	-	-
GERMAN DEM. REP.	2.8	Y	1978	-
GERMANY, FED. REP. OF	11.9	N	-	-
GHANA	63.6	Y	1986	42
GREECE	147.3	N	-	-
GUINEA	20.7	N	-	63
INDIA	587.6	Y	1977	10
IRAN	45.4	N	-	-
IRAQ	0.0	N	-	-
IRELAND	110.9	N	-	-
ISRAEL	6.8	N	-	-
JORDAN	0.0	N	-	-
KENYA	34.5	Y	1979	55
KOREA, N.	37.8	Y	1977	53
KUWAIT	3.5	N	-	-
LEBANON	6.6	N	-	-
LIBYA	98.6	N	-	-
MADAGASCAR	376.8	Y	1985	16
MALAYSIA	138.7	Y	1984	-
MALDIVES	279.7	Y	1976	20
MALTA	19.3	N	-	-
MAURITIUS	344.5	Y	1977	18
MONACO	0.0	N	-	-
MOZAMBIQUE	163.9	N	-	27
NIGERIA	61.5	Y	1978/88	44
PAKISTAN	92.9	Y	1976	35
POLAND	8.3	N	-	-
QATAR	7.0	Y	1974	70
SAO TOME & PRINCIPE	37.4	Y	1978	54
SENEGAL	60.0	N	-	45
SEYCHELLES	393.4	Y	1977	15
SIERRA LEONE	45.4	N	-	-
SINGAPORE	.1	N	-	-
SUDAN	26.7	N	-	-
SWEDEN	45.3	N	-	-
SYRIA	3.0	N	-	-
TANZANIA	65.1	Y	1973	-
THAILAND	27.6	Y	1981	60
TOGO	.6	N	-	75
TUNISIA	25.0	N	-	-
VIETNAM	210.6	Y	1977	24
YEMEN, N.	9.9	N	-	-

TABLE 3 (cont'd)

YEMEN, S.	160.5	Y	1978	29
YUGOSLAVIA	15.3	N	-	-
ZAIRE	0.0	N	-	-

63 Countries

Source for marine areas: R.W. Smith, EXCLUSIVE ECONOMIC ZONE CLAIMS. (Dordrecht, Netherlands: Martinus Nijhoff, 1986), pp. 13-16.

The Future for Access and International Cooperation in MSR

Five years ago a poll was taken of U.S. marine scientists to assess early perceptions on the impact of the Law of the Sea treaty on MSR.³ This poll covered 266 different research efforts in foreign coastal waters during the 1970s and early 1980s by 67 scientists. Seventy-five percent of those scientists felt that the Law of the Sea treaty would affect their research operations by complicating planning and clearance requests, raising costs, and dictating the geographical location of their work. No successive studies of individual scientists have been made since 1983, but a quick survey of national and international institutional arrangements may provide a look at the future of this issue.

International organizations that deal with MSR are having financial problems. UNESCO and its core oceanographic group, the Intergovernmental Oceanographic Commission (IOC), have seen reduced commitment and funding from the United States. The U.S. Department of State office that deals with clearances has been considered in a departmental realignment that, if it occurs, would appear to reduce the importance of marine scientific research in that agency.

Fora in the United States on the issue of MSR and the Law of the Sea are dissipating. The National Academy of Sciences did have an Ocean Policy Committee and a Freedom of Ocean Science Task Group (FOSTG) which were disbanded for about five years. These fora have been replaced by one smaller group, International Ocean Science Policy Group, within the present NAS Ocean Studies Board. The University National Oceanographic Laboratory System (UNOLS) disbanded its Committee on International Restrictions to Ocean Science a few years ago. In addition, the U.S. fleet of distant-water research vessels has decreased in number and satellites are collecting more and more oceanographic data.

The International Marine Science Cooperation Program established at the Woods Hole Oceanographic Institution is attempting to fill some of this void. The office, through its publications and databases, is an information source for scientists on the issues of MSR jurisdiction and international cooperative projects. One goal of the program has been to maintain a database of MSR jurisdictional claims and to distribute the information from this database freely to the international marine science community. We have already produced a map and monograph inventorying various national maritime claims in relation to MSR.⁴

In addition to the map and monograph, we are preparing a funding guide for marine scientists interested in international work, as well as developing a clearinghouse to share information on marine research with developing countries (this is on a prototype level working initially with just one or two countries). We will soon be publishing a portion of

our database on MSR jurisdiction (see *Figure 2*) showing international treaty status, marine jurisdiction zones, formal maritime boundaries, research jurisdiction status, and U.S. research clearance history from 1972 to the present for 140 coastal states. The International Marine Science Cooperation Program is presently funded by the National Sea Grant Program.

FIGURE 2

Sample MSR Jurisdiction / Country Profile

TRINIDAD & TOBAGO

MSR Jurisdiction Claimed? Y MSR Regs. other than Jurisdiction? N (See below.)

TREATY STATUS

1958 GENEVA CONVENTION: party 9-10-64 (TS), 7-11-68 (CS)
 1982 UNCLOS III: signed 12-10-82, ratified 4-25-86

MARINE JURISDICTIONAL ZONES

Marine area: 22.4 (000s sq. nm)

TERRITORIAL SEA: 12 nm	Claimed: 1969
FISHERIES ZONE: not declared	Claimed:
CONTINENTAL SHELF: 200 m or to depth of exploitation	Claimed: 1969
EXCL. ECONOMIC ZONE: 200 nm	Claimed: 1983

MARITIME BOUNDARIES (Formal boundary agreements)

Venezuela

RESEARCH JURISDICTION

Statement by the Minister of External Affairs, 27 May 1983: Jurisdiction over marine scientific research in EEZ. "Guidelines for the Conduct of Marine Scientific Research in Marine Areas under the Jurisdiction of Trinidad and Tobago"-Note from Ministry of External Affairs 30 April 1985: consent necessary for scientific research in any areas under national jurisdiction. Archipelagic Waters and Exclusive Economic Zone Act, 1986: Jurisdiction over marine scientific research in EEZ.

U.S. RESEARCH CLEARANCE HISTORY

U.S. State Dept. "Notices to Research Vessel Operators" on this country:

1976 (#26-Clearance request problems)
 1977 (#38-Publication restriction of research data)
 1978 (#50-Embassy report)

U.S. Clearance Requests per year:

[CR=Clearance Requests; DN=Denials; CSP=Coastal State Problems; USP=U.S. Problems]

72 CR 0	73 CR 0	74 CR 1	75 CR 0	76 CR 3	77 CR 2
72 DN 0	73 DN 0	74 DN 0	75 DN 0	76 DN 1	77 DN 1
72CSP 0	73CSP 0	74CSP 0	75CSP 0	76CSP 1	77CSP 1
72USP 0	73USP 0	74USP 0	75USP 0	76USP 0	77USP 0
78 CR 1	79 CR 1	80 CR 0	81 CR 0	82 CR 0	83 CR 0
78 DN 1	79 DN 0	80 DN 0	81 DN 0	82 DN 0	83 DN 0
78CSP 0	79CSP 1	80CSP 0	81CSP 0	82CSP 0	83CSP 0
78USP 0	79USP 0	80USP 0	81USP 0	82USP 0	83USP 0
84 CR 1	85 CR 6	86 CR 2	87 CR 1	TOTAL CR 18	
84 DN 0	85 DN 0	86 DN 1	87 DN 0	TOTAL DN 4	
84CSP 0	85CSP 2	86CSP 1	87CSP 0	TOTAL CSP 6	
84USP 0	85USP 0	86USP 0	87USP 0	TOTAL USP 0	

Comments:

1979: 1 CSP=cancellation due to restrictions on publication of data results.
 1984: first approval obtained since 1977 w/out publication restriction on marine science reports.
 1985: 2 CSP=1 CR not approved due to pre-publication approval requirement; 1 CR with problems not specified.
 1986: 1 DN=no reason given; 1 CSP=conditions for approval unacceptable.

Conclusion

Marine scientific research will continue to take place in the international arena. Access for U.S. scientists to foreign waters will become more critical as concerns for global change issues escalate and as global research programs evolve. We see little progress, however, in making access more easily obtainable from a U.S. or an international perspective. The proposed IOC and U.N. Secretariat-sponsored workshop in 1989 focussing on state practice and experience in MSR jurisdiction should be very helpful. We anticipate that scientists will be invited and involved in this effort and that its product will be widely distributed.

In addition, having data on MSR clearance experiences from other countries, such as Alfred Soons has collected (see article, this volume), is valuable and should be promulgated worldwide. But perhaps most important of all, we must remember that legal aspects and rules concerning MSR have to be translatable into scientific opportunities. If not, restraints or rules governing marine scientific research become a legal exercise with damaging effects on the international marine science community.

Acknowledgments

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NOTES

1. Ocean Policy Committee, "The marine scientific research issue in the Law of the Sea negotiations," *Science* 197 (July 1977): 230-33; W.S. Wooster, "Ocean research under foreign jurisdiction," *Science* 212 (May 1981): 754-55; D.A. Ross, "Marine science and the Law of the Sea," *EOS* 62, no. 35 (Sept. 1981): 650-52; D.A. Ross and J.A. Knauss, "How the Law of the Sea treaty will affect U.S. marine science," *Science* 217 (Sept. 1982): 1003-8; W.T. Burke, E.L. Miles, W.S. Wooster, "Ocean Research in Hot Water," *Science* 218 (Nov. 1982): 523; A.H.A. Soons, *Marine Scientific Research and the Law of the Sea* (Deventer, Netherlands: Kluwer Publishers, 1982), 383 pp.
2. J.A. Knauss and M.H. Katsouros, "The effect of the Law of the Sea on marine scientific research in the United States: Recent trends," in *The U.N. Convention on the Law of the Sea: Impact and Implementation*, Proceedings of the Nineteenth Annual Conference of the Law of the Sea Institute. (Honolulu, HI: Law of the Sea Institute, 1986), pp. 373-382; J.A. Knauss and M.H. Katsouros, "Recent experiences of the United States in conducting marine scientific research in coastal state Exclusive Economic Zones," in Proceedings of the Twentieth Annual Conference of the Law of the Sea Institute (Honolulu, HI: Law of the Sea Institute, 1987).
3. D.A. Ross, R.C. Ladner, and J.A. Early, *The Impact of the Law of the Sea Conference on U.S. Marine Scientific Research: Report on*

a Questionnaire. (Woods Hole, Mass.: Woods Hole Oceanographic Institution, Technical Report 83-15, 1983), 36 pp.

4. D.A. Ross and T.A. Landry, map, Marine scientific research boundaries. (Woods Hole, Mass.: Woods Hole Oceanographic Institution, 1986); D.A. Ross and T.A. Landry, *Marine Scientific Research Boundaries and the Law of the Sea: Discussion and Inventory of National Claims.* (Woods Hole, Mass.: Woods Hole Oceanographic Institution, 1987), 173 pp.

DISCUSSION

Danny Elder: While these articles were being negotiated in the Law of the Sea Convention, there was much concern that a lot of research never actually benefitted the country in which the research was taking place. Part of the motivation was that scientists who do research should make some sort of effort to pass the information that was gathered on back to the country. I just wondered whether there's been an effort to try to do this and if a few speakers might comment on what progress has been made.

David Ross: From the United States' viewpoint we *have* to supply these reports, we have to make the data available, and we have to invite scientists to participate. As an individual scientist, speaking for myself, I did this before you had to do it, and always enjoyed having foreign scientists involved. You are indeed correct in saying that there have been examples where data has been collected from countries' waters and the information never got back to the country. I think what you've underlined is one of the very positive benefits of the articles concerning marine scientific research in the treaty. This should be done, and probably is not being done perfectly, but it is being done, at least from the United States' viewpoint.

Alfred Soons: Perhaps I could add to that. While I think the situation with respect to the EEC Member States is roughly similar to the U.S. situation, it struck me that, when you look at the history of clearance requests by studying the files, there were many cases where there was a very intensive, active cooperation, and often participation by the developing coastal States involved. Although there was a lot of paperwork, the major research projects went very well and the development cooperation character of several research projects undertaken by Western European States made it much easier to conduct them.

In this respect I think I should mention, for instance, that there has been a major cooperative project of the Netherlands and Indonesia which involved a 15-month cruise of a Dutch research vessel in Indonesian archipelagic waters. Several other States have had some difficulties with obtaining consent from Indonesia to do research in the Indonesian EEZ, but this was one major success. There was also a lot of money involved, for the purpose of training and education of Indonesian scientists.

Howard Strauss: I think that question raises one area in which perhaps scientists could go on to help themselves. I know in the Canadian context results frequently come in very slowly and too often they're very brief summaries of what was done. I think that will cause a backlash in due course. If a country, particularly a developing country, is sensitive, or does not feel that it is getting full information from the work done in its waters, then it may take full advantage of international law and even more, international practice, and start to deny research requests.

David Ross: We need a little more enlightenment in the United States' funding agencies. It's very rare that you can get any financial support to prepare the document as you suggest. You're right, it often can come

near the end of the project so that not as much attention can be put into as it deserves.

Dale Krause: These papers have been interesting and the compilations are important. Can either one of the speakers give any indication of where they think the problems tend to lie, whether they are denials, are they in the bureaucratic machinery, are they in the scientific community, is it because there hasn't been enough feedback process either in the country or between the two countries involved?

David Ross: As one gentleman said to me two days ago, to ask the question is to answer it. I think you can put your finger on many of the different reasons. Dale, you're a scientist, you've had a lot of experience, you know what scientists will do: Oh, it's his fault if it didn't work. I think scientists have been guilty, there have been bureaucratic problems, there have been honest misunderstandings, there's been mischief, I think all these things can exist. As we enter the next decade and things like global change become important, we have to keep these things at a minimum. We have to educate the scientific community, and we have to educate the bureaucrats to see the importance of this.

I think what is often the sad thing, is that the areas that are left out, for whatever reasons, are often the ones that could probably most use the information. If you look at some of the countries where research is not done by U.S. scientists, these are often areas where the research would be most beneficial.

Alfred Soons: I fully agree. David referred specifically to *denials*. I think the *conditions* imposed by coastal States are sometimes more worrisome, more important than outright denials. Outright denials are relatively few. When you regard the cases of proposed research as lost opportunities, you could divide them into outright denials and cases where the research was not carried out because the scientists found that the conditions imposed by the coastal State were unacceptable. I think that is the most important problem area. When you look at the coastal States involved in some cases it is clear that the military in that coastal State was mainly responsible for either the denial, or imposing certain conditions which were unacceptable; in other cases it was scientists working for the government.

Jack Botzum: In the remote sensing community, the parallel between open skies and freedom of marine research seems obvious to me. Does the marine community have an issue here that it should be looking at? Is there any denial of access that we know of yet to satellite data or is that denial forthcoming? I am not considering military satellites, of course.

David Ross: I'm unaware of any.

Richard McLaughlin: I was wondering if we could get Fred Soons to clarify a couple of points that he made. One is that hydrographic research activities, especially hydrographic surveys, are not governed by the LOS Treaty and are instead governed by a separate legal regime. And the second is, why you believe that acoustic military sonar activity is not considered marine scientific research.

Alfred Soons: With respect to hydrographic surveying, I deliberately used the word hydrographic *survey*, not hydrographic *research* because one should be careful what terms one uses. The term hydrographic research is sometimes used as a synonym for oceanographic research, or marine scientific research. Hydrographic surveying, however, exclusively covers the collection of data for the purpose of safety and efficiency of navigation, for making navigation charts, sailing directions and the like. When you look at the Law of the Sea Convention you see that in Articles 19, 21 and 40, dealing with the territorial sea, in particular with innocent passage and transit passage, there is a separate mention of survey activities next to marine scientific research. I think that the hydrographic surveying activities in real hydrographic surveying are one of the activities that is still governed by the freedom of navigation beyond the territorial sea. In the exclusive economic zone it can be regarded as an internationally lawful use of the sea associated with the operation of ships in accordance with Article 58 of the Convention, and can, therefore, be conducted freely.

About acoustic military research: it depends on what you are doing. If you collect data about the marine environment in a specific area, then you are doing marine scientific research; but if you are only testing instruments which you could also do somewhere else, when the particular environment where you are doing it is irrelevant, I don't think you should qualify that as marine scientific research. That, in my view at least, would be governed by the freedom of navigation when it's conducted in the EEZ of course. We're not talking about the territorial sea but about the EEZ.

John Craven: I want to remind people who participated in this process that we tried for a long period of time to define marine scientific research in the treaty in such a manner that it did not cover the activities that were not intimately tied to classic scientific research. I can recall Elliott Richardson's admonition on many occasions that "scientific research is not the mere collection of data." We therefore sought a definition that would widen the "mere collection of data" category to as wide a spectrum of ocean information collection systems as possible.

John Knauss: That's a Jesuit argument if I've ever heard one.
[Laughter.]

Having made some efforts to get a clear record of what the problems have been in clearances in the United States, I very much appreciate the effort of Fred Soons to gather similar information in western Europe. It would be useful, I believe, if we could find somebody in each of the major researching nations in this world who would make some effort to gather the data that would give some kind of an historical record of the evolving marine scientific research clearance problem. Sometimes we speak in ignorance on these matters. I hope that some of you in this audience who come from countries outside the United States or the Netherlands would take that as a challenge and gather that kind of information in your own country.