

**MARITIME AWARDS SOCIETY OF CANADA**

REPORT

“Revisiting the Law of the Sea”

*Report based on discussions at Meeting of Experts organized by MASC and held at Dunsmuir Lodge, near Victoria, B.C., Canada, on March 21-22, 2003.*

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## 1. Background

The Maritime Awards Society of Canada (MASC) was established in 1987 as a fund-raising initiative of the Naval Officers' Association of Vancouver Island (NOAVI). The Society's objective was to inaugurate a number of scholarships for graduate studies in the broad field of ocean studies. The first MASC scholarship was made available at the University of Victoria and this was followed in the 1990's with similar scholarships for Master's degree candidates at three other universities: Memorial in Newfoundland/Labrador (St. John's), Dalhousie in Nova Scotia (Halifax) and Calgary in Alberta. By the fall of 2002 MASC had funded scholarships with a total value of almost \$250,000 and endowment funds at the universities totaling another \$250,000. The Society is a registered charitable organization in British Columbia, but over the years it has evolved into a nation-wide network of citizens and specialists with close interests in maritime affairs. During this period of expansion beyond its primary function, MASC has undertaken a number of program activities, both public and private, with a view to enhancing public awareness of the importance of maritime affairs to the economic and social well being of all Canadians. Since 1995 MASC has earned a reputation as a disinterested group of individuals able and willing to donate their services in the public interest to both fund-raising and program responsibilities of the Society.

A new phase of MASC's evolution began in 2000, when it organized a private workshop on the possible development of offshore hydrocarbon resources off the coast of northern British Columbia. Over forty federal and provincial officials, scientists and other experts attended this workshop in the Dunsmuir Lodge outside Sidney. A report based on these discussions (BC Offshore Hydrocarbon Development: Issues and Prospects) was circulated to interested agencies and other institutions and made available on MASC's web-site <http://www.maritimeawards.ca/pdf/Dunsmuir2000.pdf>

When the Liberal government of BC was elected to office in May 2001, it re-affirmed its intention to re-examine the moratorium policy on offshore exploration, which has been in place since the 1970's. As part of its preliminary investigations of this issue, the BC Ministry of Energy and Mines appointed a Scientific Review Panel chaired by Dr. David Strong (former President of the University of Victoria and a member of the MASC Board of Governors), and MASC was invited to provide secretariat services to the Panel. The final report of the Panel, written with the assistance of MASC associates, was submitted to the Ministry in January 2000, and later made available on the BC government's web-site <http://www.gov.bc.ca/em>.

In May 2002, MASC organized a second meeting of offshore specialists, officials and members of the MASC Board of Governors, also held at the Dunsmuir Lodge, to discuss some of the questions that seemed paramount in the aftermath of the consultations initiated by the new provincial government. The result of this symposium is available on MASC's web-site <http://www.maritimeawards.ca/pdfs/Dunsmuir2002.pdf>, and hard copies may be obtained from the MASC office (PO Box 5328, Station B, Victoria, BC, V8R 6S4).

MASC's interest in offshore developments and issues has been reflected also in the annual symposia held in Halifax, Nova Scotia, since October 2001 in collaboration with the Maritime Affairs Program at Dalhousie University. These meetings have been attended by over 60 participants, including many of the officials, industry representatives, and other experts, scholars

and observers most closely associated with offshore hydrocarbon operations off the coast of Nova Scotia.

MASC has also begun activities in St. John's. In February 2003 MASC joined with the Sustainable Research Node of the Ocean Management Research Network (OMRN) and the Nature Heritage Society of Newfoundland and Labrador to inaugurate a series of annual meetings on the campus of Memorial University. The first meeting featured a panel of visiting speakers on offshore oil and gas, fishery management, law of the sea, and related topics. The Society is also planning a start-up of program activities in Calgary. The first MASC workshop being planned at the University of Calgary will focus on the prospects of regular, commercial, summer-season navigation through the Northwest Passage and relevant issues.

As part of its program development, MASC undertook its first international initiative in March 2003, when it invited over 30 specialists in the law of the sea (and cognate sectors of ocean policy and management) to attend a two-day Meeting of Experts to revisit law-of-the-sea issues. Particular emphasis was placed on those issues that have emerged, or acquired new saliency, since the end of negotiations at the Third UN Conference on the Law of the Sea (UNCLOS III), which concluded in December 1982 with the adoption of the United Nations Convention on the Law of the Sea. Once again, Dunsmuir Lodge was used as the site of this MASC event.

The outbreak of hostilities in Iraq and other difficulties prevented a few key invitees from attending at short notice, but those who did participate represented all relevant areas of expertise. It is believed that this Report reflects the range of inputs made available for this special occasion.

## **2. Purposes of the Dunsmuir Meeting of Experts**

This MASC initiative was taken to achieve six principal purposes:

- to convene leading representatives of the North American research community in the law-of-the-sea field (and related sectors) to discuss current issues and recent changes;
- to establish initial links with ocean law and policy scholars in other regions;
- to review the prospects of ratification of the 1982 UN Convention on the Law of the Sea on the part of the Canadian and United States governments;
- to seek a consensus on relevant research priorities for the 2003-2006 period;
- to discuss the possibility of a major international research program designed around the participants' consensus on priority concerns; and
- to begin consideration of the roles that might be played within such a program by MASC and other institutions represented by the participants.

## **3. REPORT**

### **A. Ratification: Prospects and Issues**

On the urging of Ambassador Arvid Pardo of Malta, the UN General Assembly in 1967 called upon the world community to undertake the massive task of restructuring the law

of the sea. This area of international law had been codified and developed by the International Law Commission in the 1950's. In the form of four conventions, the Commission's draft articles were adopted at the first UN Conference on the Law of the Sea (UNCLOS I), which was held at Geneva in 1958. An effort to complete this work at another conference (UNCLOS II) in 1960 had been unsuccessful. By the mid-1960's it was clear that a totally different, reformist, approach had to be taken to legal development in this crucial, truly global, context, where the interests and concerns of over 140 coastal or island states converged.

This 1968 decision by the General Assembly brought into existence the longest, largest and perhaps most important law-making initiative in diplomatic history. After 15 years of intensive effort by the entire world community of nation-states, a huge legal instrument was adopted and opened for signature: the 1982 UN Convention on the Law of the Sea. Many historians, lawyers and diplomats today regard this famous outcome of UNCLOS III as the greatest single achievement of the UN system.

The 1982 Convention (the "LOS Convention") encompassed virtually all non-military uses of the ocean existing in the 1970's and anticipated the start-up of a world industry in deep ocean mining, which it was expected would concentrate on the manganese nodules available on the seabed in deep areas of the Central Pacific Ocean. Most of the issues of ocean use, regulation and management were addressed at UNCLOS III: some sketchily in general, intentionally generic, language; others in specific, precisely worded provisions. Several new jurisdictional regimes were introduced, representing startling innovations in a domain famous for its inheritance from the distant past. Issues of political and strategic sensitivity were finessed with impressive skill. Despite the constraints of the Cold War era, the United States and the Soviet Union were centrally involved in the entire process from start to finish.

However, early in 1980, shortly after the installation of the Reagan Administration, the new US government made known the extent of its dissatisfaction with certain provisions of the text emerging out of the global process of compromise diplomacy. Some adjustments were made to meet US objections, but the time and energy for further negotiations ran out, and the final Convention secured initial approval through voting in December 1982. Only the United States and three other nations voted against adoption. On the other hand, 130 states voted in favor of adoption. On the first day after adoption, no less than 119 delegations appended their signatures, and later many other states followed suit, including most of the 17 that abstained from the initial vote on adoption.

The dissatisfaction of the United States focussed chiefly on Part XI ("The Area"), which dealt with the resources of the "seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction": that is, "all solid, liquid, or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules". Other parts of the Convention were described by the US government as "the best available evidence" of the existing customary international law of the sea. However, it was made clear that the Convention had no chance of US acceptance, through ratification by the United States Senate, as long as it contained the language of Part XI negotiated at UNCLOS III.

Eight years later the Convention had still not come into force through the necessary number of 60 ratifications. Important changes had occurred that affected the attitudes of many countries to the deep seabed mining regime. Prospects for the commercial mining of seabed minerals outside national limits had receded into the first, or even second, decade of the 21<sup>st</sup> century. The general economic climate had been transformed: there was a discernible shift towards a more market-oriented world economy. With a view to achieving wider participation in the Convention, especially on the part of the major industrialized states that had not yet ratified, informal discussions were held between 1990 and 1994 with a view to reaching consensus on a replacement regime for deep ocean mining. The result was a revised text for Part XI of the LOS Convention, described as an “implementation agreement”, which was adopted by resolution of the UN General Assembly in July 1994.

With the revision of the Part XI provisions to which the United States had objected, the Clinton Administration felt the time had come to accede to the LOS Convention. Accordingly, both the original 1982 instrument and the 1994 “implementation agreement” were submitted to the U.S. Senate for the necessary “advice and consent”. However, the Senate has yet to take up the question of ratification. But American participants at Dunsmuir noted that now, for the first time, there is a realistic possibility of Senate approval with the appointment of Senator Lugar as the new chairman of the Senate Foreign Relations Committee, who is considered more open-minded than his predecessor. The political problem in Washington, DC is apathy rather than hostility.

Ratification of the 1982 Convention, now revised to meet US conditions, will still have to compete for priority attention in the Senate. Even if that hurdle is cleared it is by no means certain whether the White House position is the same as under the Clinton Administration. The criticisms of the original Part XI on the part of the private sector have now been met. Ratification would not require any substantial change in US law. Opposition to US ratification has always been largely ideological. It is unclear how many Senators on the right wing of the American political system would vote against it on the ground that UNCLOS III is perceived to have pandered to the New International Economic Order, which is now discredited in the United States and largely abandoned as a Third World imperative. It is difficult to predict whether ideological sentiment will prevail over national interest; or, if not, whether the pragmatists will see ratification of the LOS Convention as a relatively easy, low-cost response to international criticisms of US avoidance of multilateral treaty commitments. Despite these uncertainties, ratification prospects in the United States have certainly improved.

Canada, on the other hand, is a signatory to the LOS Convention, and the Canadian participants at Dunsmuir were optimistic that the Canadian government is close to considering ratification. There is little evidence of major blockage in the political system. Most of the reasons for delaying Canadian ratification over the last two decades have fallen away. Certain sectors of the fishing industry, especially in Newfoundland and Labrador, may need reassurance that the current “interventionist” high seas provisions of the Coastal Fisheries Protection Act will not be repealed in the event of ratification. Moreover, since exploration permits have been issued for areas beyond Canada’s 200-nm EEZ limits in the Northwest Atlantic, the Canadian oil and gas industry may soon have to address the issue of “payments and contributions” that will be owing after the first five

years of production under Article 82. It is believed, however, that the federal government is sufficiently determined to override these concerns, and that Canadian ratification may be announced before the end of 2003.

In short, most of the participants agreed that the chief benefit of party status for both governments would be the acquisition of a “place at the table” in a number of arenas that would provide the opportunity to determine the direction and tempo of change in various sectors of the law of the sea, and to ensure that the purposes and principles of the LOS Convention would be preserved. Only one or two American participants felt that the case for ratification had still not been made with sufficient cogency.

## **B. Review and Revision: The Case for “RUNCLOS”**

There are many reasons for revisiting the law of the sea. The prospect of Canadian ratification and the possibility of ratification by the US Senate suggest that the time is appropriate for the North American law-of-the-sea research community to engage in a large-scale, systematic review of the current state of this area of international law and treaty-making.

In leading discussion at the opening session at the Dunsmuir meeting, Douglas Johnston pointed out that formal amendment of the LOS Convention will soon become possible under Article 312. In the fall of 2004, ten years from the date of entry into force, proposals for amendment of the Convention, other than those relating to the Area under Part XI, can be submitted to the UN Secretary-General and a conference for that purpose convened. Other amendment procedures are set out in Article 313 and 314. Moreover, “external” techniques exist for treaty revision, as demonstrated by the process of informal consultations in the early 1990’s that resulted in the adoption, through UN General Assembly resolution, of the 1994 Agreement Related to the Implementation of Part XI of the LOS Convention. Shortly thereafter, in December 1995, another important external development or addition to the Convention was carried out through the opening for signature of the Agreement for the Implementation of Provisions Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (hereafter “UNFA”). So, in a sense, the process of “review and revision” of the LOS Convention (“RUNCLOS”) is already under way. The applicability of Article 312 will simply “internalize” the process.

Whether by amendment or otherwise, revision of the LOS Convention – or, more broadly, of the entire corpus of the law of the sea – can be justified by reference to a variety of factors. New scientific discoveries have given rise to the possibility of new uses of the ocean in the coming years. New technologies raise the prospect of enhanced benefits from the harnessing or extraction of certain ocean resources. Concerns about the unsustainability of the world’s fish stocks at present levels of exploitation continue to mount. Modern principles of international environmental law, whether “hard law” or “soft law”, are clearly referable to marine environment. Recent, post-UNCLOS, perceptions of marine pollution hazards and other threats to the ocean environment suggest that the pollution-oriented language of Part XII (“Protection and Preservation of the Marine Environment”) may not be sufficiently inclusive. Priority attention should now be given to the largely neglected issues and problems associated with prospective

uses of the Arctic Ocean, given the dramatic changes in the climate of the region and the medium-term feasibility of international, summer-season navigation through the Northwest Passage for the transportation of commercial cargoes. Above all, security concerns created by the widening resort to terrorism have led to significant changes in state practice, tolerating a pattern of interdiction of commercial vessels everywhere, including the high seas.

Most of the participants in the first session at Dunsmuir felt that a compelling case can be made for an international research program designed to address these issues. Studies undertaken within such a framework need not assume that all re-thinking would necessarily involve a re-working of the text. Nor, it was felt, should such an initiative be seen as dependent on Canada and US government decisions to ratify.

One of the major arguments in favor of review and revision of the law of the sea is that the last two decades, since the conclusion of UNCLOS III, have been a period of fragmentation. Unavoidably, the immensely difficult and complex work of implementation after the conference has been allocated to numerous inter-state organizations at regional as well as global levels. In most sectors of ocean affairs, moreover, non-state institutions have also become significant players in monitoring, evaluation, and advocacy functions, and sometimes even in the negotiation and administration of follow-up, post-UNCLOS arrangements, especially in contexts of relevance to the evolving norms of the environmental law of the sea. We are living in the age of regime-building. The case can be made, therefore, that it is timely for the research community to move out in front of the diplomatic community, as it has done in the past, in the interest of coherence, even in the absence of a crisis of global magnitude.

Most members of the international law community regard the LOS Convention as one of the most basic of all foundational or constitutive instruments: even as the “constitution” of the oceans. However, those prepared to confer such a special status on the 1982 Convention differ among themselves on the merits of the case for review and possible revision. Some resort to organic metaphor, likening the famous instrument to a living tree that needs to be nourished periodically into a condition of greater sturdiness. Neglect, however benign, might be harmful. Others, of the “sacred text” school, discourage all thoughts of tampering of the text through any process of “constitutional amendment”, a process that would be subject to political influences. The temper of the Dunsmuir meeting seemed to be entirely secular, accepting the propriety of revision if a sufficiently compelling case could be made on its own merits.

The preliminary consensus seemed to be in favor of a research program along the lines discussed, chiefly with a view to enabling the North American law-of-the-sea specialists to offer, once again, a leadership role in the field at a time when important new challenges have to be taken up. The Oceans Commission in the United States, designed along the lines of the Stratton Commission in the 1960’s, will be bringing down its report at the end of 2003, but this document is expected to be domestic in focus.

In summary, despite some variance of opinion on the priority attached to the ratification of the LOS Convention, there appears to be general support for a major, international research program involving the best-qualified specialists in the law of the sea. The

research community of the United States and Canada might be expected to take the lead with the support of colleagues in other countries. Detailed questions about the start-up of such a program, its optimum scale, design, and range of participants, were left to later discussion, and will be described in the final section of this Report.

### **C. New Science and Technology**

One of the highlights of the Dunsmuir meeting was a series of presentations by local scientists designed to illustrate the variety and scale of contemporary ocean science, especially in the coastal and offshore waters of the Northwest Pacific Ocean. Despite occasional criticisms of overdependence on the “best available scientific evidence”, which can be difficult and expensive to obtain, those charged with management responsibilities in the ocean have an obligation to work as rationally as possible within the expanding limits of scientific knowledge. Especially in North America, most law-of-the-sea and ocean policy specialists have worked closely over the years with the scientific community.

Vaughn Barrie's presentation covered a wide range of geoscientific investigations in the Georgia Basin and adjacent waters off the coast of British Columbia. The current program “Geoscience for Oceans Management”, administered by the Pacific Geoscience Centre of Natural Resources Canada, participates in a variety of multidisciplinary research activities, both global and local. Its objectives are to understand both past and present geological processes so as to provide more reliable information as the basis of economic planning, policy-making, and ocean management.

For example, by learning about deep ocean vents we know more about the heat flow of the earth and about associated mineral deposits. Through knowledge about the thermal structure of the earth we have a better understanding of the processes of plate subduction and improved ability to assess the likelihood of a subduction earthquake. More accurate information on the structure of the sediment layers beneath the seafloor assists in the location of resource deposits such as petroleum and gas hydrates. Research on sediment transport enhances our understanding of erosion processes and of the best means to mitigate loss of property, and improves our knowledge of the transport paths for marine pollutants. Through studies of the sea-level history of a region we can move closer to an accurate projection of sea-level change in the coming decades, and prepare effective coastal zone responses. Knowledge of seafloor composition leads to knowledge of the types of fish likely to inhabit a region.

Geoscience in the Georgia Basin has a direct effect on ocean policy, law and management over a wide spectrum: minerals, oil and gas, construction aggregates, fishing and fishery management, protection of sponge reefs, and geohazards. New techniques of data collection and mapping mean that the seabed is no longer invisible. New knowledge about the benefits that may be extracted from the ocean is essential to equitable bargaining over entitlement and allocation issues affecting First Nations claimants and other coastal communities. Allied with physical oceanography, marine geoscience has a key role to play in the debate over windfarms and alternative offshore energy policy proposals. In short, geoscience is crucial to public policy formation in numerous sectors of inshore, offshore, and ocean law and management.

One of the most interesting areas of new ocean science is “bioprospecting”: that is, the collection of biological material for screening for commercially exploitable, biologically active compounds or attributes, including genetic information. Screening of certain marine plants, animals, and microbes may reveal novel chemical compounds, which in turn might prove effective in producing pharmaceuticals, such as anti-cancer and anti-inflammatory drugs, industrial enzymes, environmental remediation agents for oil or chemical spills, sunscreens, and cosmetics. The current commercial value of marine genetic resources has been estimated, conservatively, between \$1 billion and \$3 billion per year.

Legal, political and environmental problems are complicated by the fact that the marine areas of greatest interest to bioprospectors are generally around the fragile coral reefs of developing nations and the even more fragile deep seabed vents outside the limits of national jurisdiction. Legal issues arise from two characteristics of genetic materials that separate them from other kinds of living resources. First, genetic resources are valued not for their physical properties as commodities but because of the information they contain. Once an intellectual property right is obtained as a result of manipulating that information, it is no longer available to other potential users, creating a different set of regulatory concerns than applies to traditional marine living resources. Second, the two principal conventions concerned with the regulation of ocean activities do not address the need for conservation and sustainable uses of these materials. Neither the LOS Convention nor the Convention on Biological Diversity (CBD) deals with the management of genetic resources.

Craig Allen reviewed some of the many ocean policy and law-of-the-sea issues arising from areas of current scientific investigation such as the exploration of deep-sea hydrothermal vents, plate tectonics, and the discharge of superheated water, minerals and microbes. Vent sites, for example, are sensitive because of their high percentage of endemic species and the unique nature of many of the species found there. Many shallow-water sites are “hot spots” of species biodiversity, and should be preserved as areas from which recolonization of other sites in the coastal one can occur. Ideally, the management of “threats” to hydrothermal vents should invoke the concept of “sustainable use” through which the components of the ecosystem are utilized in ways and at rates that do not lead to long-term declines in diversity.

However, it is an unrealistic goal, he argued, to establish management systems for all the many marine hydrothermal vents in the world. Instead criteria should be developed for identifying those hydrothermal vent sites of critical importance and those that are particularly sensitive to disturbances because of their scientific value or significance for species survival. The LOS Convention does contain general language committing parties to preservation of the marine environment, but only a few provisions that can be characterized as ecological in orientation. For more specific obligations to protect rare or fragile ecosystems, to conserve biological diversity and to use its components sustainably, we must depend chiefly on the more recent CBD. Regulatory arrangements to minimize adverse impacts on vent biodiversity could be negotiated among parties to the LOS Convention, but the CBD framework, he suggested, may lend itself better to this purpose.

At this point, and at several other points in the Dunsmuir meeting, discussion focussed on the co-existence of these two frameworks for further legal development and regime-building. Contemporary law-of-the-sea specialists who were associated with UNCLOS III – as negotiators, observers or commentators – in the 1970’s and thereafter, may tend to regard the LOS Convention as the appropriate framework for the treatment of new issues such as those related to hydrothermal vents and genetic ocean resources generally. Within that framework fundamental questions arise regarding the scope of the International Seabed Authority (ISA) under Part XI. The definition of the “resources” of the Area (beyond limits of national jurisdiction) in Article 133 limits the reference to “minerals”. Moreover, the 1994 Agreement intended to “implement” Part XI does not provide any new language that prescribes or implies an extension of ISA’s mandate to encompass “genetic” resources. Those most anxious to preserve the “common heritage” status of the Area, as first enunciated in Article 136 of the LOS Convention, might also have reason to bring these non-mineral resources under the ISA through negotiation of an UNCLOS-related protocol or alternative instrument.

Theoretically at least, there is a choice-of-arena issue for the international community in deciding how to approach post-UNCLOS, issues such as these. Environmentalists associated with the Rio Summit of 1992 and follow-up diplomacy – as negotiators, observers, or commentators – may prefer regime-building negotiations within the CBD framework. The 1992 Convention is certainly more ecologically sophisticated. It is also more specifically focussed on the problems of biodiversity conservation and related legal issues of intellectual property.

The choice between these two arenas is a choice between two international secretariats: the United Nations (DOALOS) Secretariat for UNCLOS-related issues and the CBD Secretariat for biodiversity conservation, but not specifically ocean-related purposes. The parties to these two conventions are not identical: the Canadian government, for example, is a party to the CBD, but not to the LOS Convention. Arguably, these two diplomatic circuits have their own distinctive, not entirely compatible, “mind-sets”. In the case of the larger governments, the bureaucratic composition of the delegations sent to these two circuits might be significantly different. If a global approach to these new issues were to be taken, a certain degree of competition might be experienced. One way to resolve such tensions could be to circumvent global diplomacy and resort instead to regional, sub-regional, or even transboundary arrangements negotiated between interested neighboring countries such as Canada and the United States.

A sub-global initiative along any of these lines might be regarded as provocative, if the common heritage status of the Area is assumed to extend beyond the mineral resources of the Area. On the other hand, a sub-global arrangement between (or among) like-minded states might be ideally poised between the two global frameworks, reflecting the complementarity between the inter-state jurisdictional entitlements and marine environmental responsibilities arising from one and the ecological concerns and non-state intellectual property entitlements associated with the other. Arguably an eclectic, complementary approach might be preferable, but the matter is complex from a rational, problem-solving perspective. A detailed study by the research communities of the United States, Canada and other interested countries would seem to be timely.

The linkage between ocean industry, law and science was brought out even more clearly in the presentation by Derek Ellis on the Code for Environmental Management of Marine Mining, which he had drafted for the International Marine Minerals Society. Under this code, which was adopted by the Society in November 2001, member companies have committed themselves to six principles:

- To observe the policies, and respect the aspirations, of sovereign governments and their regional sub-divisions, and of relevant international agencies, as appropriate to underwater mineral developments;
- To apply best practical procedures for environmental and resource protection, with consideration for future developments within the area which might be affected;
- To consider environmental implications through all stages, from exploration through development and operations to eventual closure;
- To facilitate community partnerships on environmental matters;
- To maintain an environmental quality review program; and
- To report publicly on environmental performance and implementation of the Code.

These goals are followed in the Code by more specific Operating Guidelines that spell out corporate responsibilities under eleven heads: sustainable development; environmentally responsible company ethic; community partnership; environmental risk management; integrated environmental management; company environmental performance targets; environmental improvement and upgrading; rehabilitation and decommissioning; reporting and documentation; archiving; and performance reviews.

This initiative is of special interest for a number of reasons. First, the mining industry is notorious for its past disregard of environmental constraints. In earlier times miners on land had virtually a free hand, especially in economies heavily dependent on mineral and non-mineral extraction industries. Even today the mining industry attracts much of the fury of environmental critics. But since it belongs to the most volatile of all sectors of the world economy, highly restrictive regulations are often considered politically or economically inappropriate.

Second, the ravages of environmentally irresponsible mining are more visible on land than in offshore waters. Given the industry's environmental record, it might seem that the offshore division is particularly difficult to bring under reasonable constraint. But the Code was developed by an environmental scientist with many years of practical research experience in offshore marine biology under a variety of physical conditions in regions as different as the Arctic and the South Pacific. The architect of the Code probably brought more credibility to the task than most government regulators could muster.

Third, the effectiveness of a voluntary instrument such as this remains to be seen in the coming years. Most environmental lawyers are ideologically committed to the virtue of a strict regulatory regime designed to protect the environment from an inherently destructive process such as mining. Others are prepared, more pragmatically, to compare

the records of voluntary and mandatory systems in comparable situations to assess the case for self-regulation. In recent years target industries such as mining in certain countries have shown a willingness, under growing environmentalist and political pressures, to operate their own system of standards and sanctions in order to show the weakness of the case, as they see it, for strict, mandatory, externally imposed, controls and coercive sanctioning.

At the Dunsmuir meeting several references were made to the novelty and importance of this challenge to the offshore mining industry. Several speakers were prepared to confess to bias, as lawyers, in favor of mandatory regulations and coercive sanctioning. Some questioned the likelihood of uniform compliance with the Code given the highly heterogeneous character of the mining industry, or even of its offshore branch. But others drew the analogy with the recent global concept and code of “responsible fishing” for a world-wide industry of even greater heterogeneity.

In any event, it was agreed that regulatory issues of this kind underlined the environmental limitations of inter-state instruments such as the LOS Convention and other global treaties of the category to which the CBD belongs. From a law-of-the-sea perspective, problems of this nature fall solely within the national jurisdiction of the coastal state, except in waters straddling the boundary between adjacent or opposite states. Typically, therefore, the regulatory philosophy applied to marine mining depends upon the relationship “negotiated” between the government and companies operating in the national area.

The final presentation, by Christopher Barnes, described the new frontier of coastal oceanography. Preliminary funding has been provided for an ambitious and innovative US-Canadian project known as NEPTUNE: the North-East Time-series Undersea Networked Experiment. The goal of NEPTUNE is to establish a submarine network of interactive observations for long-term, “real-time” ocean studies. The network envisaged will cover the entire Juan de Fuca tectonic plate, an area of 200,000 square kilometers in the Northeast Pacific Ocean. When complete, the system will consist of 30 undersea laboratories connected by a network of 3000 kilometers of powered, fiber-optic cable.

Already operational is a smaller, Canadian NEPTUNE-related project known as VENUS: the Victoria Experimental Network Under the Sea. The pilot project VENUS is also designed to establish a seafloor network of instruments, but, unlike NEPTUNE, it is restricted to narrowly defined local areas within the Straits of Georgia and Juan de Fuca, mostly between Victoria and Vancouver. Like the larger project, VENUS represents an interdisciplinary integration of geoscience, biology, chemistry, and physics. Each instrument will receive and send data, accessible by way of the Internet, through the Data Management and Archive Centre. In this way, scientists will be able to observe important oceanic phenomena to respond to events, and schedule additional observations, all in real-time.

This impressive vision of the new oceanography gave rise to a number of questions. For example, some Dunsmuir participants wondered how this vast flow of data could be made usable as an appropriately selective knowledge base for policy-makers and ocean managers. Would the heavy investment in data production under NEPTUNE be matched

by comparable investment in the training of persons responsible for processing such detailed information flow? Is it possible that this new ocean science and technology will widen the gap between “have” and “have-not” coastal states, adding to the cost and complexity of capacity-building for ocean management purposes around the world? How should global regimes committed to “integrated ocean management” such as CBD and UNFA respond to these future capacities within the scientific community?

#### **D. High Seas Fishery Management and Conservation**

The accumulation of masses of new data may have little, if any, effect on the problems of managing ocean fisheries. The problems lie elsewhere – in the economics, politics and sociology of the industry. Despite the saliency of fishing and fishery management issues at UNCLOS III, and the enormous gains in coastal state jurisdiction largely for fishery-related purposes, the world fishing industry is in a chronically serious condition. Numerous major commercial fisheries around the world are overexploited; many are under stress or even in decline; and some have collapsed entirely. It might be feared that the future of fish capture at sea is in question, but since 90% or more of existing fisheries are within the limits of national jurisdiction, only part of the problem of irresponsible fishing is within the domain of international law and diplomacy.

On the other hand, there are many stocks of demersal and pelagic species that are located partly or wholly in the high seas, beyond the 200 nm limits of the exclusive economic zone (EEZ). Some of these stocks were seen at UNCLOS III to be trouble-bound. For example, stocks that straddle the boundary between two or more EEZs, or between an EEZ and the high seas area beyond, were dealt with in Article 63 of the LOS Convention; and highly migratory species received independent treatment under Article 64. It was understood that these stocks and species would generate problems that would have to be addressed by regional or sub-regional fishery management organizations. But virtually no thought was expended on future management arrangements for discrete high seas stocks.

In leading discussion on the problem of high seas fisheries, Gordon Munro reminded participants of the highly unsatisfactory provisions on fishery management in Part VII (“High Seas”). Contrary to some expectations in the 1970’s, high seas fishing has become contentious, attracting fleets of harvesters from both “adjacent” coastal states and distant-fishing countries. Many of these vessels are guilty of unlawful or irresponsible operations, threatening efforts to establish effective management controls in these areas and within the adjacent EEZ’s.

Part of the legal difficulty lies in Article 87 of the LOS Convention, which protects the ancient principle of freedom of fishing in the high seas, albeit subject to the conditions laid down in Section 2 of Part VII. In that section of the text, Article 116 contains language that spells out the right to fish on the high seas, but qualified in several ways. Since the end of UNCLOS III many writers on the international law of fisheries – including several of the Dunsmuir participants - have warned of the dangers of non-cooperation inherent in underregulated high seas fisheries. Most of these commentators have taken the position that there no longer exists an unfettered right to fish on the high seas under international law, despite the largely permissive language of Article 87. Some

argue further that the nearest adjacent coastal (EEZ) state has acquired special entitlements under Article 116.

Fortunately the matter is not left entirely to the process of treaty interpretation. The impasse was eased in December 1995 with the conclusion of a break-through agreement: the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish and Highly Migratory Fish Stocks (UNFA). This instrument enunciates new principles of fishery management drawn down from emergent (or recently established) principles of international environmental law, and it provides much stricter procedures with a view to facilitating a higher level of compliance with conservation measures adopted by regional or subregional fishery management organizations (RFMOs). UNFA came into force in 2001 and has been ratified by 34 states, including Canada and the United States, with the expectation that the EU and its member states will be ratifying soon, perhaps in 2003.

Numerous questions now need to be addressed in the wake of UNFA. For example, is this Agreement “binding” only on states that choose to become a party to it through signature and ratification, or is it “politically binding” on all, or even legally binding on all as an “objective regime” under the law of treaties? In imposing a duty to cooperate with the existing RFMO in a given high seas area, does UNFA automatically render unlawful all high seas fishery operations by non-party states that do not have the authorization of the organization in the region? Do non-member states with a “real interest” in such fisheries have a right to membership in the relevant RFMO? If so, do they have a right of equitable participation in the quota allocation system of the organization regardless of the status of the stocks, even if no unallocated surplus exists? Should the initial members of the RFMO be regarded as holders of “property rights” in the stocks that cannot be displaced by newcomers? What bargaining powers would the newcomers have? And so on.

UNFA could be regarded as creating as many problems as it solves. The FAO’s Committee on Fisheries (COFI) has been reluctant to deal directly with UNFA, believing that time must be allowed for ratifications to accumulate before it becomes clear whether the Agreement has the general support of the international community. Implementation will be, at best, a difficult and protracted process. Perhaps the true test will be how the various RFMO’s around the world respond to UNFA through incorporation of its principles, as set out in Part II, and adoption of various procedures elaborated elsewhere in the text. If they respond somewhat variously, because of the differences in the problems actually experienced at the regional level, high seas fishery law may become regionalized. In the meantime, it would appear to be extremely timely for an international research program to include a component that focusses on these difficult issues and help to bring some of the RFMO’s together to review the new challenges to them.

The discussion at Dunsmuir brought out additional ideas that might be reflected in the design of a major research program. For example, boycotts and other trade sanctions under World Trade Organization (WTO) and port access denial are tactics that might be employable against vessels suspected of illegal, unreported and unregulated (IUU) fishing. But there is still a “disconnect” between the trade and fish sectors of the

diplomatic community. Recent Plans of Action may or may not prove to be effective in improving the behavior of culprit vessels and rogue states. Blacklisting systems need to be extended and made more enforceable.

Whether elaborate global treaties like UNFA are the best approach to fishery management concerns may be questioned. They take many years to negotiate and much longer to implement up to the level of reasonable expectation. Other approaches can be much more expeditious, but the North American research community is divided over the virtue and merit of the strategy on large-scale driftnetting, which ended with an across-the-board prohibition endorsed by a politicized, but rather poorly informed, General Assembly.

Another theme that emerged at Dunsmuir was dissatisfaction with the way that the mandatory dispute settlement system under the LOS Convention is evolving, especially within the fisheries context. Many critics in North America, and perhaps elsewhere, are disappointed with the narrow approach adopted by the International Tribunal on the Law of the Sea in some of its decisions: for example, in its treatment of the “prompt release” requirements under Article 292. Judicial conservatism does little to discipline negligent flag states, which are the source of many problems of non-compliance with international fishery conservation measures. Several participants felt that the coastal state, as the principal victim of irresponsible fishing on the high seas, must be allowed to deal firmly with suspects sheltering behind outmoded “flag-and sovereignty” thinking in the law of the sea.

Reference was also made to the anomalous status of Taiwan in international law, which denies it the right to sign and ratify multilateral agreements, including important fishery treaties such as UNFA. The same problem prevents Taiwan from joining, or at least becoming a full participant in, RFMOs such as NAFO in the Northwest Atlantic. In some regions, admittedly, the RFMOs are moving rapidly to closed-club status, but the exclusion of Taiwan, a major commercial fishing state, simply aggravates existing problems of non-cooperative fishing on the high seas. In East Asia, of course, there is a special need to create a cooperative fishery management regime.

The discussion ended with the argument that the fishery management principles such as maximum sustainable yield (MSY), enunciated in the LOS Convention and replicated even in UNFA, are fundamentally flawed. But the MSY component in these formulations has been so heavily qualified at UNCLOS III and subsequent treaty-making exercises that its practical significance has been diminished. Whether alternative approaches, such as ecosystem-based fishery management, are feasible and affordable is debatable. As far as high seas fisheries are concerned, RFMO’s should be encouraged to experiment with new approaches and to consult with one another. A project designed to accomplish this might be an appropriate theme for an international research program.

## **E. Greening of the Law of the Sea**

One of the most conspicuous developments of the law of the sea since the end of UNCLOS III in 1982 is the emergence of principles of international environmental law that can be applied to the marine environment. Most of these principles have their origin in a variety of instruments, both binding and non-binding, reflecting hard law and soft law, expressing at least the political commitment of the world community to the overarching goal of sustainable use of resources, as enunciated by the Brundtland Commission.

In various instruments since 1982 the parties have accepted such norms as the ecosystem approach to the management of renewable resources, including those of the ocean. This approach includes the prevention or control of marine pollution (i.e. the reduction of inputs which was the principal focus of Part XII of the LOS Convention). But it also includes the prevention of disturbances to the ocean environment through activities such as environmentally irresponsible fishing that ignores conservation goals and measures. Other cognate principles are the concept of inter-generational equity and the precautionary approach. The development of “precautionary reference points” in UNFA is a recent example of the “greening” of the law of the sea in the fishery management context. The concept of biodiversity has also become familiar. It is evident, however, that the law-of-the-sea research community, especially in North America, is divided on the legal status of some of these guiding norms, especially the so-called “precautionary principle” as sometimes formulated.

In introducing discussion on the greening phenomenon, Christopher Stone distinguished the “top-down” approach, which begins with general abstract principles and proceeds to examine how they apply, from the “bottom-up” approach, which begins instead with identifying the concrete problems that demand solutions and proceeds to examine, revise and augment principles in light of their ability to resolve the real dilemmas. We need, too, to reexamine in this light institutional lines that have developed. For example, if retaining “biodiversity” is a goal, it will not do for fisheries managers to focus exclusively on commercial target species, as though “non-market” aspects of the marine environment can be separated out as a distinct problem. On the other hand, insofar as rare and endangered marine species are regarded as a specific problem area, their protection may require focus and emphasis separate from the sustainability of ocean biomass in general. Sometimes generic regimes such as the Convention on International Trade in Endangered Species and Fauna (CITES) generate issues that touch the law of the sea, but mostly they are really independent of the LOS Convention and spin-off instruments such as UNFA. Some “linkages” might warrant examination.

Two problems in particular were identified as troublesome in the field of the environmental law of the sea, where the concept of biodiversity is now often invoked. The first is the difficulty of measuring biodiversity, making problem-definition elusive. The second is knowing what marginal benefits can be gained from “enhanced biodiversity”. Some loss of biodiversity may not matter, or might even be a gain if it works to the advantage of a more “valuable” species. Since we know so little about the

“linkages” inherent in an ecosystem, the concept of biodiversity is a tool of limited utility in the analysis of environmental problems.

In the eye of the skeptic, who leans to problem rather than principle (at least in the first stage of analysis), it is more important to have conceptual/normative frameworks that are beneficial in the sense of facilitating the choice of the most appropriate strategy for the fixing of the problem. So it is useful for that purpose to compare such frameworks as the LOS Convention, the CBD, UNFA, and the UNEP Regional Seas conventions and protocols for the treatment of marine conservation issues. As pointed out in the discussion on bioprospecting, the choice of “arena” may determine the outcome.

These comments gave rise to a lively discussion of this relatively new intellectual dilemma: how to choose among several “competing” arenas or “mind-sets” with a view to finding the most effective approach to solving a problem associated with the protection of the marine environment? What tactics are best to stabilize a potentially valuable environmental regime? Sometimes the most effective solution to illegal, unreported and unregulated (IUU) harvesting, for example, may be the simple decision of a major consumer such as Japan to boycott IUU catches.

Another participant made a similar point that the growth of principles in the environmental law of the sea does not necessarily result in a strengthening of environmental safeguards unless accompanied by a commensurate growth of institutions authorized to develop them in a practical manner and capable of enforcing them to the point of substantial compliance. Marine protected areas 200 miles out are not really crucial to the health of the marine environment as long as the basic problems of managing the coastal environment are largely neglected. In most regions of the world, the most difficult problem is getting the key governmental institutions of the EEZ state seriously involved.

The participants debated the question whether biodiversity is measurable at the cellular, genetic, species or other levels. It seemed to be agreed that biodiversity is less difficult to define in theoretical terms than in operational terms. Sometimes a management regime does nothing because of the definitional problem.

The need for genuine ecological knowledge, rather than opinion or theory, was illustrated by recent revelations about the migratory patterns of the elephant seal through tagging. It is now known that the males and females after mating migrate in opposite directions! Researchers have been astonished to learn how deep they dive to obtain food before surfacing to breathe. Ironically, the blanket moratorium on large-scale pelagic drift-netting has deprived scientists of their chief source of information about the life-patterns of many species brought up in these nets.

The commentaries on the greening of the law of the sea reflected to some extent the ambivalence of the North American law-of-the-sea community toward the succession of global normative developments since UNCLOS III and their relevance to the problems of protecting the marine environment. Some participants were skeptical that the global arena was necessarily the most useful place for further normative development in the coming years. Many of the new norms are still vague in formulation, leaving it highly uncertain

what role they might be expected to play in specific environmental problem-solving situations. Most of these principles are as much ethical as legal in nature, often couched and reiterated in instruments that create political commitment rather than legal obligation.

Because of the variety of interpretations they usually attract, these new norms of the environmental law of the sea may evolve in a non-uniform manner at different regional, sub-regional and transboundary levels of international cooperation, and indeed at the national level. The emphasis on compliance issues in the academic literature, especially in North America, seems to reflect the acceptance of what are perceived to be “grey zones”, in which norms that purport to carry the weight of legal obligations are treated operationally as “emergent” rather than “established”, designed at present to guide rather than govern the actions of states.

It might even be argued that at least some of these norms that are still controversial among national governments at the global level are reflectors of the transnational ethical community, or civil society, rather than of the world system of sovereign states. To some law-of-the-sea specialists, the distinction is not crucial because of the steadily progressing overlap between the two sectors of “governance”. To others, however, the strength of the law-of-the-sea research community resides in its capacity for contributing technical precision to institutional decision-making and problem-solving, so that the norms should be weighted differentially in each operational context that presents itself, in light of the various interests, values, and factors involved.

## **F. Pollution Control**

At the same time that new environmental challenges are being addressed at the “periphery” of the LOS Convention, as it were, more familiar UNCLOS-type problems of marine pollution control and prevention continue to attract attention. Despite the critical focus on these problems over so many years, it is still true that substantial progress in these matters seems to require the jolt of a new disaster.

In his introductory presentation, Ted McDorman drew attention to the latest major oil spill off the coast of Galicia (Spain) in November 2002, when the tanker “Prestige” foundered in relatively stormy seas. This single-hulled vessel, flying the Bahamian flag, was owned by a Liberian company, chartered by a Russian company with a Swiss connection, and operated by a crew with Greek officers. It had loaded in a Latvian port, and was destined for Singapore. At the time of the accident it was heading for Gibraltar.

The Spanish government has reacted strongly. Along with the French and Portuguese governments, it is seeking a stronger European Union policy on tanker controls. In the meantime, Spain has introduced a new law banning single-hulled vessels, but the ban is limited to vessels seeking entry into Spanish ports. This action is not a violation of existing international law, which permits states wide latitude in setting conditions on the privilege of port entry. The ban does not extend to all tankers in transit through Spain’s EEZ, as misreported by the media.

These events occurred during a period in which efforts are being made to phase out single-hulled tankers under MARPOL (the 1973 International Convention for the

Prevention of Pollution from Ships and the 1978 amending Protocol). In the aftermath of the “Prestige” spill, the EU is said to be pressing more aggressively for membership in IMO. Recently the European Commission (EC) has called for criminal sanctions in cases of major oil spillages due to gross negligence.

In a recent statement, the EC suggests the need to revise the law of the sea, so as to permit coastal states to defend their coasts from ecological disaster. The EC statement does not necessarily mean amendment of the LOS Convention, which would almost certainly be controversial. It is left uncertain what other kind of instrument might be negotiable to achieve the same revisionist purpose. IMO is known to be a flag-state-friendly organization. It is unlikely to favor the establishment of “particularly sensitive” marine areas around the world’s commercial shipping lanes.

Another possible approach to the problem of tanker control might be a system of designated “places of refuge” for stricken tankers and other vessels. Recourse to the nearest available “sanctuary” in emergency circumstances would certainly be in accordance with the precautionary principle or approach. But it seems as difficult to attract offers of places of refuge as it is to get agreement on areas that should be “off limits” to vessels carrying ultra-hazardous wastes.

The insurance industry seems crucial to all of this, but insurance arrangements do not prevent such accidents. The “Prestige” was properly insured. The captain was held prisoner for a short period before being released. Proposals for criminal sanctioning pertain, of course, to the culpable company – owner or charterer – not the individual captain of the vessel. Criminalization sounds more effective than it really is, and the availability of civil damages may not be much more effective within an industry consisting of numerous, mostly thinly-capitalized, units.

The general discussion that followed focussed on several of these issues. For example, it was noted that the idea of “places of refuge” has come up recently in IMO, which is trying to develop an appropriate policy. Some IMO observers characterize the problem as a “life-versus-cargo” issue, others as a “life-versus-environment” issue, in a “flag-state club” setting that should be balancing all three sets of values or interests.

Realists point out that, in any event, there are not enough double-hulled tankers in the world to come close to meeting the world-wide demand for oil, which is rising constantly. Players include the International Seafarers Union, which, of course, is concerned generally with the welfare and safety of seafarers, and protested against the holding of the captain of the “Prestige”. In some countries, including the United States, such imprisonment has been ruled out by the courts, except within the territorial sea. Yet all these ideas are being exchanged at a time of increasing resort to port state control initiatives in the field of ship-generated marine pollution. Under the Paris Memorandum of Understanding (MOU) on Port State Control – the “parent” of the family of regional MOU’s – reasonable progress is being made with wider sharing of commercial data-bases on the internet. Within these new coalitions of willing port states, sub-standard vessels are subject to increasingly frequent and diligent inspections. The analogy between aviation and shipping control is becoming less artificial.

One of the participants emphasized that international tribunals have an important role to play on the remedial side of the problem of ship-generated marine pollution. However, he expressed disappointment with some recent judicial decisions. The choice of tribunals available in such situations tends to weaken the unified development of the law of the sea. He suggested there is not as much jurisprudence evolving as the negotiators of the UNCLOS III system of dispute settlement had hoped for. If Spain brought a case against the Bahamas over the “Prestige” spill, it would probably be successful.

## **G. Environmental Protection**

Environmental issues were put on the agenda for UNCLOS III early in the preparatory period (1968-1973). The agenda design process was organized under the aegis of the International Seabed Committee, which had been set up by the UN General Assembly. The emphasis on environmental concerns was an appropriate decision, because the world community was just beginning to recognize the dangers to marine organisms. It was also an important part of Arvid Pardo’s vision of the future ocean world order. Oil spills had been found to be “telegenic”, but it was becoming obvious that marine pollution from other sources, especially land-based activities, was even more serious, though less visible.

In the mid-1970’s the ocean, for the first time, became a priority for the world’s foremost environmental network: the International Union for Conservation of Nature and Natural Resources (IUCN), now known as the World Conservation Union. Created by the celebrated biologist Julian Huxley, at the beginning of his tenure as the first Director-General of UNESCO, IUCN had been almost entirely consumed in its first 25 years with nature conservation concerns on land, especially the protection of threatened species, ecosystems, and critical habitat areas. However, the growing evidence of fishery management failures and marine pollution threats convinced IUCN to initiate a legal project on the “environmental law of the sea”. A Canadian specialist was invited to direct a study based on the UNCLOS III negotiations and to serve as the Union’s observer at the conference. A group of prominent law-of-the-sea specialists was invited to participate in the project, mostly Europeans and North Americans.

In the late 1970’s a critique prepared by the IUCN group was circulated to all delegations at the UN Conference. The document focussed chiefly on the ecological shortcomings of those parts of the Informal Negotiating Draft related to fishery management and conservation, marine pollution, and the threat of seabed disturbance posed by future deep-ocean mining activities. The IUCN argument, in short, was that the delegates’ work on marine pollution in the Third Committees was too narrowly conceived. The US delegation was the only delegation to respond to the critique. As a result of US support of the critique, ecological provisions were added to the draft articles at a late stage of the negotiations – slipped in at the 11<sup>th</sup> hour because they were seen to be uncontroversial by the rapidly tiring delegates. The ecological language suggested by IUCN found its way into five provisions of the LOS Convention: Articles 61, 63, 119, 145, and 196. Thanks to the IUCN and the US delegation (headed by Elliott Richardson), the LOS Convention became the legal foundation of the new ecological law of the sea.

Today we look back at a remarkable rise in the status of ecology as an intellectual input into the emerging and widening field of international law. Since the end of UNCLOS III there has been a steady succession of environmental instruments forged in the arena of global and regional diplomacy. Europe and North America continue to have a strong, if not predominant, influence on the development of international environmental law, both at delegation-driven conferences and in the less visible processes initiated by the secretariats of inter-state organizations such as FAO, IMO, UNEP, ILO, and WHO, “eclectic” international institutions such as IUCN, and of course numerous NGOs.

At the Dunsmuir meeting, Moira McConnell led discussion on less familiar ship-generated threats to the marine environment by focussing on two recently perceived problems: invasive species and anti-fouling paints. Both are examples of relatively new problems that do not fit neatly into the general, pollution-oriented framework of Part XII of the LOS Convention, but the threat of invasive species was perceived by IUCN in the 1970’s and secured separate treatment in Article 196. Both are matters now taken up by IMO, but also of interest to other international organizations.

In particular, the invasive species problem is an example of a new generation of issues that reflect an ecosystem conception of harm and represent a convergence of diverse concerns. The problem of harmful aquatic organisms and pathogens can be classified as a ship-source marine pollution problem, a land-based marine pollution problem, a fishery management issue, a public health concern, a biodiversity challenge, and a biosecurity threat. In which arena, then, should such an issue be placed on the law-making or policy-development agenda? Can a coalition of interested agencies combine their special concerns and develop a treaty or strategy that offers an effective solution to a multi-faceted problem of this kind?

The threat to the marine environment posed by invasive or “alien” species has been characterized recently as one of the four major threats to the oceans of the world. The other three are: land-based sources of marine pollution (e.g. sewage, air pollution, persistent organic pollutants, and eutrophication); overexploitation of living marine resources; and the physical destruction or alteration of habitat.

The principal “vector” of invasive species and pathogens is the ballast water taken on by vessels after the discharge of heavy cargo. It is estimated that 12 billion tonnes of ballast water is transferred every year: transferred from the area where it is taken on to the area, often far distant, where it is discharged. One ballast water tank may carry as many as 4,500 species of microbes, plants and animals at any one time. The phenomenon contributes to the destruction of fisheries and the degradation of aquacultural projects, the reduction of biodiversity, the spread of cholera and toxic algae, the overloading of regulatory and response systems, and the exacerbation of coastal use conflicts.

The history of negotiations at UNCLOS III, the text itself, and subsequent debate all reflect uncertainty whether the world-wide problem, which is serious and getting worse, should be treated as a kind of marine pollution (such as dumping); and, if so, what sector or regime should be entrusted with the task of amelioration. Arguably states already have an obligation under international law to address the danger of alien species transfer to the extent it occurs within their jurisdiction or because of an activity under their control, but

much remains to be done. In 1997 IMO adopted guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens, but the establishment of clear state obligation will depend on the entry into force and effective implementation of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, which is now in draft form.

The second problem of anti-fouling paints arises from the use of paints designed effectively to stop the attachment of marine organisms to the hull and other parts of vessels. Its main ingredient (TBT) has been found to have a harmful effect on sea snails, and thus on the food chain. Accordingly, TBT has recently been banned by IMO, and will be phased out. But what should be done with the existing paints, how should the disposal of hull scraping be managed, and what new paints that are certifiably problem-free should be introduced?

The anti-fouling paint problem is more complicated than it appears. Several countries, such as Japan, already ban TBT-based paint under national legislation, but this in itself is not a real solution. It merely reverts to the problem of invasive species. All the mollusks and other organisms will again attach themselves to hulls and travel from place to place, unless another, equally effective, paint is found – one that does not prove to be harmful in other ways. Moreover, if a hull is fouled, the ship sails more slowly and burns more fuel. So one kind of “pollution” (i.e. invasive species or persistent organic pollutants) turns into another.

This complex of issues has been identified under the CBD as a “gap” in the regulatory system. No convention deals with this vector. Is this kind of “biological pollution” an example of “marine pollution” under the LOS Convention? Is so, does the flag state have exclusive jurisdiction, or can responsibility be extended to coastal and port states? Should the issue be placed on the CBD agenda, or is it essentially a quarantine or public health concern under the WHO's mandate? Is it worthwhile to attempt the construction of a liability/compensation system? Could it become a weapon of bioterrorism? Is so, what step could be taken by states to protect themselves from an attack of this kind? Is it inherently a law-of-the-sea issue, or would it be dealt with more effectively under a specialized regime (like the problem of nuclear materials)?

During the discussion that followed it was argued by one participant that the ballast water problem should not be seen as a law-of-the-sea issue, at least in the United States where it could be dealt with domestically as a difficult technical challenge under the Clean Water Act, amenable perhaps to a sanitization procedure. Reference was made to relevant experience in North American ports such as Seattle and Vancouver. San Francisco Bay is considered to be at serious risk to this kind of water contamination problem. Perhaps the matter should be treated not as an international law-of-the-sea issue, but left as a problem that can be regulated through technical standards by the port state as a condition for entry into port.

It is not clear how effective an international convention can be in addressing a technical, port-related problem of this kind. Admittedly a “technical standards” approach within a global treaty framework such as MARPOL has proved feasible in other contexts, but it would be too expensive to run a regime that requires every vessel arriving in port to be

boarded and inspected. As the relevant technologies keep changing, so also do the relevant “epistemic communities”.

There is some merit in the IMO/shipping industry philosophy of international uniformity. Others questioned the suggested “national legislation” approach as the only solution. Trading nations cannot, in practice, refuse to accept foreign vessels that fail to comply with very high technical standards imposed by the port state. Preference might be given rather to an “international certificate”, treaty-based approach, even though a system of this kind would not be inexpensive. It might be timely to initiate a major study of the effectiveness of MARPOL standards in terms of global compliance within the world shipping industry.

## **H. Arctic Ocean Issues**

The Arctic Ocean is the least traveled and least exploited of all marine regions. Most of the region, most of the year, is virtually ice-bound, and almost impenetrable by means of conventional surface navigation. Even icebreakers and ice-strengthened vessels have difficulty coping with the pack ice of the Far North except in the short summer season. Because of the infrequency of use, the probability of environmental injury to Arctic waters is low. But a collision or grounding could have a devastating effect on a region that might pose insuperable challenges to even the most sophisticated clean-up response effort.

In leading discussion of current Arctic Ocean issues, Rob Huebert began by reminding the Dunsmuir roundtable that the region during the Cold War was one of the major theatres of military transit. Indeed the Arctic remained so strategically sensitive during the UNCLOS III years that the LOS Convention has only one provision devoted specifically to it: Article 234, the so-called “Canadian exception”. This article on “ice-covered areas” grants to the coastal states – chiefly Canada and Russia – special rights both to adopt and enforce non-discriminatory laws and regulations for the prevention and control of ship-generated marine pollution within their EEZ. The rationale for this exceptional treatment is that “particularly severe climatic conditions and the presence of ice covering such areas most of the year create obstructions or exceptional hazards to shipping, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance”.

Today, however, the Arctic Ocean is a much more complicated place than it seemed to be in the 1970’s. First, of course, the circumpolar North is experiencing particularly rapid climatic change. Over the next century the polar regions will probably witness an average rise in temperature of 5-7 degrees celsius, and conceivably higher. In 20 years much of the Arctic Ocean may be ice-free in the summer season. Parts of the Eastern Arctic are admittedly cooling rather than warming at present, but this is likely to be reversed in 2-3 years. The effect of such a dramatic change is to raise the credibility of the scenario of regular, commercial, summer transit through the least unfriendly sea-lanes: the Northwest and Northeast Passages. Such transit through the former would enable a saving of 2,000-4,000 kilometers for vessels navigating between the Atlantic and Pacific Oceans, and make a route available to very large ships of over 120,000 tons that cannot pass through the Panama Canal.

Reference was also made to other aspects of the Arctic Ocean: the prospect of significant offshore oil and gas development; the continuing importance of the region from a military security perspective; the political priority of aboriginal and Northern participation in all decision-making affecting Arctic communities; and the appearance of eco-tourism cruises. New uses of the Arctic Ocean raise the priority of ice-related technology and the relevance of the ice-breaking services agreement between Canada and the United States.

Over the past 50 years the governments in Ottawa and Moscow have maintained legal claims, policies and strategies designed to reinforce their sovereignty status throughout adjacent Arctic waters. The emergence of the 200 nm EEZ regime in the 1970's contributed further to the sense of special coastal state prerogative in a region of particular vulnerability. However, the concept of state sovereignty in international law is changing, and there may be an important role for international cooperative arrangements even in the Arctic, where pride-of-sovereignty sentiment reigned for so many years. The most obvious arena for the negotiation of such arrangements is the Arctic Council, which was formed in the early 1990's by eight Arctic states and now includes also seven indigenous peoples' organizations. The problem is that this organization has very limited powers and an embarrassingly modest budget. Its recommendations are based on norms that have nothing more than a "regional soft law" status. Budgetary allocations for some Arctic governments have been reduced, even for the Canadian government, which has always been one of the chief promoters of the organization. Accordingly, the Working Groups of the Council concentrate on a better understanding of the region's problems rather than on their solution.

Since the Arctic Council seems an unsuitable forum for treaty-making, some other way may have to be found to establish an effective regime for the management of future commercial transit through the Northwest Passage. Since the United States is certain to be one of the principal users of such a route and, of course, has its own Arctic presence in the Beaufort Sea, a preliminary bi-national (Canada-US) study of the need for a transit management regime in these waters may be timely. The involvement of aboriginal and Northern representatives at all stages of any planning process is certainly necessary. Indeed the new Nunavut Territory government has already begun to develop a transportation policy. It would seem that a comprehensive study of Northwest Passage issues and prospects should be a component of the suggested international research program.

A major research effort is also needed to explore the legal and policy implications of the other developments now occurring in and around the Arctic Ocean. For some of these purposes it would be useful, even necessary, for the North American law-of-the-sea research community to obtain the collaboration of specialists in Arctic policy and management issues in other Arctic countries, possible in association with the Arctic Council.

In general discussion it was suggested that it may be timely to re-consider the relevance of sovereignty in the Far North, where almost any new development seems to depend, directly or indirectly, on inter-state and inter-people cooperation. The latter is already

well established through the Inuit Circumpolar Conference (ICC). The US government's concern over certain Canadian Arctic sovereignty claims and its own counter-claim that the Northwest Passage has the status of a "strait used for international navigation", under Part III of the LOS Convention, arise from its anxiety that the Canadian position should not acquire a precedential significance in other archipelagic regions where the United States has a vital national interest in maintaining the right of transit.

It was reaffirmed that, despite the formulation of sovereignty-related claims, the enactment of the 1970 Canadian Arctic Waters Pollution Prevention Act, and the drawing of archipelagic baselines in 1985, the Canadian government has always supported the legitimacy of international commercial shipping through the Northwest Passage, if it can be brought within an appropriate regulatory regime. The present regime under the Act is voluntary. The design and establishment of a proper, mandatory system of regulatory controls may now be a high priority for the Canadian government. International navigation, it was suggested, is inevitable. It would not be too soon to begin preliminary studies. The Canadian position on the legal status of its Arctic waters is unlikely to change, but national sovereignty should not be a barrier to the design of an internationally acceptable transit management system.

Reference was made to the special ecology of the Arctic Ocean, where species preservation should also be a matter of priority. Its fragility will become even more evident under the stress of climate change. The disappearance of the walrus may be impossible to prevent. Some scientists fear that the polar bear may be extinct in 20 years, or at least gone from certain areas of the Arctic.

Questions were raised about the implications of the northward shift of certain species that is now taking place along the Pacific coast of North America. Apparently there may soon be a foundation for commercial fishing in certain areas of the Arctic Ocean, and the issue of future international fishing in the region has been raised.

Discussion then focussed on Article 234. Given the prospect of international commercial shipping through Arctic waters in the relatively near future, should the article be re-visited and possibly revised? If so, should this issue be re-opened as part of a global exercise, along UNCLOS-type lines, or should the special role of the coastal states of the Arctic Ocean be reviewed at a regional or sub-regional level? The current effort to develop a special Arctic Code under IMO auspices might suggest the merit of restricting this kind of diplomacy to a group of interested states with Arctic shipping and related expertise.

One of the Dunsmuir participants underlined the problem-solving deficiencies of the Arctic Council. In the United States especially, the meetings of the Council are not given a great deal of credence. There are only a few US State Department officials with Arctic experience, and it appears that their special knowledge is not utilized in a very useful way. It was suggested that the US government should now give a higher priority to the solutions of several important Canada-US Arctic problems, such as the maritime boundary issue in the Beaufort Sea. Moreover, it should be recognized that one of the most important reasons for the United States to ratify the LOS Convention is to secure a seat on the Commission on the Limits of the Continental Shelf set up under Annex II.

This body is in the process of considering a submission by Russia on its shelf boundary claims in the Arctic, and this is a matter of some importance to the United States as well as Canada.

There was also general agreement on the rising importance of the Northern Command that is being installed to serve US security needs in the Arctic. This is likely to become a priority matter for Canada too. There is some evidence that the Arctic could become a throughway for terrorists. It may be that almost every development project in the remote territories of the North should now be seen to have a security dimension.

## **I Security Concerns**

Whatever weight might be given to the problems and issues reviewed above, none makes a stronger challenge to the existing system of the law of the sea than the new problem of world security posed by the threat and reality of international terrorism. Few are likely to dispute that the ocean in general, and coastlines and ports in particular, must now be regarded as media of potentially catastrophic assaults on national security.

Discussion of the new ocean-related security concerns, not least in North America, was led by Eric Lerhe. Traditional security concerns arose from “high-end” warfare between states, piracy on the high seas, and threats to the sovereignty and resource management authority of the coastal state in its territorial sea and EEZ. Now, however, the priority of ocean security has risen higher than ever before because of the widely shared fear that almost any ocean-going vessel might be a carrier of radiological, biological or chemical material designed for use on arrival at the port of a target state. Like outer space and airspace, the ocean has become the medium for delivery - albeit slow delivery - of deadly weapons. These threats are much more difficult to deal with than the fastest of ballistic missiles. Any effort to “operationalize” an effective strategy of deterrence against these new threats involves, unavoidably, interference with commercial shipping, and may have an adverse impact on the movement of goods overseas.

Even before the events of 9/11, the United States had instituted port protection controls at a higher level than elsewhere, but now, at a time of growing instability, a still higher standard of port security has become imperative. It appears that the world of shipping has no choice but to accept a world-wide regime of unprecedented restrictions both in port and at sea.

The campaign against terrorism is blurring the distinction between distant (“blue-water”) maritime areas and “homeland” (“territorial”) waters. Until recently it might have made sense for navies to invest in the latest high technology mostly for blue-water purposes, and to apply mostly “basic” technology to home-water fleets. In the United States, the huge difference between Navy and Coast Guard budgets reflects an outdated attitude that the security responsibilities of the two ocean services are poles apart.

In the “war” against terrorism and related threats from the ocean, the most important weapon is information. More than ever before, the effectiveness of the world trade system depends on the continuous deployment of appropriate information technology within the intelligence-and-enforcement community, applied to the world shipping

industry. These interventionist operations will have to be coordinated closely among virtually all navies and coast guard services, since almost any coastal state might become the target of terrorist attack from one quarter or another.

For many years, of course, progress in such coordination has been achieved for a variety of purposes. Terrorism is not entirely a new concern. The sharing of data-bases for conventional military, piracy, rescue, customs, drug control and other criminal investigation purposes has been expanding, but the new priority of counter-terrorism creates a different perception of necessity far above the level of routine administrative convenience based on mutual interest. So far these data-sharing and other coordinative arrangements have not been extended to the naval security community, which is now becoming responsible for the daily interdiction of commercial vessels that might be the carriers of threats to national security, much less to the coast guard community assigned to the traditional roles of coastal protection.

Some analogies do, however, come to mind. In the context of narcotics control, for example, a warship has the right to approach a suspect merchant vessel on the high seas and, if not satisfied, to board and investigate. The 1958 Convention on the High Seas is already out of date as a guarantee of freedom of navigation. The lawyers who are the guardians of that principle are frequently by-passed by policy experts, who essentially control developments in other domains such as that of the “rules of engagement” for navies and of UN Security Council sanctions that include the establishment of international security zones in the ocean as well as in airspace and on land.

In general discussion, it was suggested that it now becomes important throughout the world to create a system of ship detection, monitoring and reporting comparable in precision to that operating effectively in the aviation industry. Canada clearly is also a potential target for terrorist attacks from the sea, and Canadian ports may also be used as a throughway to American targets. So continental cooperation for security of North America seems essential.

Some of the discussion focussed on the costs and benefits of intensive search. Port state controls for marine pollution reduction purposes are gradually becoming more stringent, but Canada is still far from the goal of a 25% inspection rate for visiting vessels. In a more comprehensive system of ship inspection, what level would have to be reached in order to attain an acceptable degree of protection from terrorist attack, and yet still be economically feasible? How much detail of information is crucial? New challenges to risk assessment strategy in the age of counter-terrorism might be an important component of an international research program of the kind envisaged.

At the back of these concerns is the fundamental question whether the international community is ready to re-assess the ancient principle of the freedom of the high seas. Reference was made again to the contrast between the operational realities of modern aviation and the virtually invisible world of marine transportation. Regardless of cargoes and the risks they might create, shipping movements are known only to the companies until arrival in port. Merchant shipping still has a “free ride” in a world that has “lost its innocence”.

The Dunsmuir roundtable spent some time on the special problems of risk management associated with counter-terrorism. Because terrorist events are still relatively rare events, the risks are almost impossible to quantify. The “marginal risk” of such attacks cannot yet be analyzed by existing techniques. Perhaps only one container out of one million is the carrier of threat. Arguably it is best to concentrate on the source of threat rather than the transmission system used. Huge systems are almost impenetrable analytically.

The law of the sea is the world community’s official system of jurisdictional entitlements and management responsibilities for all of the oceans. It is decentralized to the point of even the smallest coastal or island state. Yet for drug control purposes everyone is cooperating, at least throughout the Western hemisphere. Surely the same level of cooperation can be achieved to combat terrorism, which is certainly no less a common threat to civilization. It is not necessary to gather absolutely complete information to make this possible, merely to achieve optimal utilization of existing data-producing capacity.

On the other hand, even the most determined efforts to bring effective security to the oceans may be defeated by the “politics of the high seas”. Powerful economic interests are served by maintaining the ancient Grotian principle of free navigation. Given the cost of security-related technology, would radical change increase the gap between developed and developing countries?

Some suggested that a new ocean security system can be realized on a consensual basis. After all, the doctrine of hot pursuit is not controversial. On the other hand, it is impossible to board and inspect every vessel that enters every port. In most port states, the goal of “total search” is unattainable. To this, optimists may argue that there is no need to delay and search a vessel that has already gone through a strong inspection system at the previous port of call. Selection criteria would have to be factored in. At some ports, within a world-wide selective search system, the “suspicion factor” may require an 80% rate of inspection for certain vessels, but perhaps only a 2% rate for others.

Optimists and pessimists seem to agree at least that national security now cuts across the existing law-of-the-sea system. To allay reasonable suspicion it may be necessary at least to grant the right to ask questions at sea. At a time of maximum threat a law-enforcement approach to ocean use may be justifiable. Since the concept of a “terrorist” may not be definable, the right to detain and search at sea may have to extend to all vessels, like vehicles subject to spot checks on the highway.

## **J. Conclusions**

In introducing the final session on the case for a RUNCLOS-type research program, Moritaka Hayashi summarized the law-of-the-sea issue contexts that had been discussed. The ten contexts were: (i) environmental protection; (ii) new scientific knowledge; (iii) shipping safety and navigation; (iv) fisheries; (v) dispute settlement; (vi) the scope of the International Seabed Authority (ISA); (vii) security and enforcement; (viii) the Arctic Ocean; (ix) the outer limits of the continental shelf; and (x) the relationship between the UN Convention on the Law of the Sea and the Convention on Biological Diversity.

Numerous specific issues could be addressed under these headings: for example, the emergence of new principles of international environmental law, the special difficulties associated with land-based marine pollution, ice-covered areas revisited in the age of climate change (Article 234), the prospect of a transit management regime for the Northwest Passage, the legal framework for bioprospecting, the future of freedom of fishing, the general problems of high seas fishery management within the UNFA framework, the scope of special coastal rights vis-à-vis straddling stocks, the legal status of Taiwan as a fishing country, the status of newcomers under UNFA, the legal implications of new scientific research and data collection, the prospects of common heritage, the scope of “sedentary species”, the safety and welfare of seafarers, new roles for the ISA, the jurisprudence of the International Tribunal on the Law of the Sea (ITLOS), the mandate and operations of the Commission on the Outer Limits of the Continental Shelf revisited, the interdiction of merchant vessels on the high seas, the laws of belligerency revisited, review of Part XII of the LOS Convention in light of the emerging ecological law of the sea, and the special problems of invasive species and anti-fouling paints. Obviously more could be added to that lengthy list – topics that had not been included in the Dunsmuir program.

It was suggested that the law-of-the-sea research communities of the United States and Canada might take the lead as “core members” of the program initiative over the 3-year period envisaged, but that institutions and individuals from other countries would be invited to participate in some or most of the studies. The final purpose of the program would be to provide the foundation for recommendations addressed to the intergovernmental arena in 2006 or thereafter, when it would be appropriate to consider revision to the law of the sea both within as well as outside the framework of the LOS Convention.

An initiative along these lines would not depend upon ratification of the LOS Convention by the US and Canadian governments. However, the prospect of ratification might provide an additional motivation for the research communities of these two countries.

Most attending the workshop seemed to favor a broad approach that would not be confined to the text of the LOS Convention. Indeed, it was argued, one of the fundamental questions to be addressed is whether the law-of-the-sea system is becoming incoherent and needs to be unified within a single “constitutional” framework or is best left to evolve in different arenas. Perhaps a “restatement” approach might be preferable to the “constitutional revision” approach. It was suggested, once again, that North Americans might naturally gravitate to a program designed around specific problems.

In response to a number of questions about the RUNCLOS model, Douglas Johnston suggested that the initial steps might be taken by a partnership between US and Canadian institutions such as the Law of the Sea Institute at Berkeley and the Marine and Environmental Law Programme at Dalhousie, with a special organizational role for the Maritime Awards Society of Canada. In the second stage, contacts should be made with institutions and key individuals in Japan, Europe, and other interested countries. The more “multilateral” the program, the more expensive and complicated it would be. Perhaps the ideal system of collaboration would be somewhere between the Trilateral

Commission model and the International Law Association (ILA) model. Eventually the program might evolve into a framework consisting of projects of diverse types and sizes. Some study teams might be uni-national, but most would presumably consist of specialists from two, three, or even more countries, and a few, with appropriate funding, might be drawn from the larger international research community.

In addition to special monographs, the program should be designed also to produce a major synthesis document that might represent a major conceptual contribution to the field. Also, it was suggested, certain kinds of disputes might be anticipated and become the focus of “scenario-writing” projects intended to offer solutions to real problems as they arise.

The general sentiment in the closing session was that time has left the LOS Convention behind. The energy has gone off in other directions, often under the impetus of the NGO community. The non-Americans present emphasized the importance of having the US research community at the heart of this initiative. The true post-Cold War era is just beginning. Many of the new challenges require re-thinking of the adequacy of the LOS Convention and its relationship to numerous other instruments negotiated since 1982 and the norms they contain. Perhaps the program design should reflect a balance between problem-solving and the “new idealism” generated by environmental ethos. To the extent that so many Americans – including American scholars - are losing confidence in “global multilateralism”, it might be wise to start with a form of “regional multilateralism” that depends on the input of interested countries and committed research institutions.

The meeting was adjourned in the spirit of congeniality that marked the discussions throughout the two days, and with the understanding that efforts should now be made to establish a consensus on the kind of collaborative program that would serve the most useful purpose in the coming years.

*Prepared May 2003  
By Douglas M. Johnston  
Victoria, B.C.  
Canada*

# MARITIME AWARDS SOCIETY OF CANADA

## Meeting of Experts

### “Revisiting the Law of the Sea”

**Place:** Dunsmuir Lodge, near Victoria, British Columbia, Canada

**Time:** March 21-22, 2003

## Programme

### Thursday, March 20<sup>th</sup>

Evening: Informal Reception (8:00-9:30 p.m.)

### Friday, March 21<sup>st</sup>

8:00 a.m. Registration

9:00 a.m. Welcome (James Boutilier)  
Introductions

9:15 a.m. Morning Session  
Moderator: Ted McDorman

#### **Topic A: The Case For Ratification/Review/Revision of the UNCLOS Convention (RUNCLOS): Opportunities, Purposes and Concerns**

Lead Speaker: Douglas Johnston (15 minutes)  
General Discussion

10:15 a.m. Break

10:30 a.m. **Topic B: The Greening of the Law of the Sea**

1. Emergent Principles of International Environmental Law

Lead Speaker: Christopher Stone (15 minutes)

2. High Seas Fisheries Issues

Lead Speaker: Gordon Munro (15 minutes)  
General Discussion

12:15 Lunch

1:45 p.m. Afternoon Session  
Moderator: Rod Dobell

**Topic C: New Uses of the Ocean**

1. Geoscience for Ocean Management

Presenter: Vaughn Barrie (20 minutes)  
General Discussion

2. Law-and-Policy Aspects of New Ocean Science

Lead Speaker: Craig Allen (15 minutes)  
General Discussion

3. Environmental Regulation of Offshore Mining

Presenter: Derek Ellis (15 minutes)  
General Discussion

4:00 p.m. Break

4:15 p.m. 4. The Venus and Neptune Projects

Presenter: Christopher Barnes (20 minutes)  
General Discussion

5:30 p.m. Adjournment

6:15 p.m. Reception

7:00 p.m. Dinner  
Guest Speaker: Dr. Richard Beamish

**Saturday, March 22<sup>nd</sup>**

8:45 a.m. Morning Session  
Moderator: Russell Moore

**Topic D: Security and Enforcement**

Lead Speaker: Eric Lerhe (25 minutes)  
General Discussion

10:00 a.m. Break

10:15 a.m. **Topic E: The Arctic Ocean: Climate Change and the Northwest Passage**

Lead Speaker: Rob Huebert (20 minutes)  
General Discussion

11:30 a.m. **Topic F: New Ship-generated Concerns**

1. Oil Tanker Prohibitions

Lead Speaker: Ted McDorman (10minutes)  
General Discussion

2. Invasive Species and Anti-fouling Points

Lead Speaker: Moira McConnell (10 minutes)  
General Discussion

1:00 p.m. Lunch

2:30 p.m. Afternoon Session  
Moderators: Ted McDorman and Douglas Johnston

**Topic G: RUNCLOS Revisited**

Lead Speaker: Moritaka Hayashi (20 minutes)  
General Discussion

4:00 p.m. Final Adjournment

**MARITIME AWARDS SOCIETY OF CANADA**

**Meeting of Experts**

**“Revisiting the Law of the Sea”**

**March 21-22, 2003**

**Dunsmuir Lodge, Victoria, British Columbia, Canada**

**PARTICIPANTS**

1. Addison, Richard  
R. F. Addison Environmental Consulting Ltd.  
former Senior Scientist, Institute of Ocean Sciences  
Sidney, B.C.  
[rfaddison@saltspring.com](mailto:rfaddison@saltspring.com)
2. Allen, Craig  
Professor of Law,  
University of Washington,  
Seattle, Washington  
[challen@u.washington.edu](mailto:challen@u.washington.edu)
3. Barnes, Christopher  
Professor, and Director, Neptune Project,  
University of Victoria,  
Victoria, B.C.  
[crbarnes@uvic.ca](mailto:crbarnes@uvic.ca)
4. Barrie, Vaughn  
Director, GeoScience for Ocean Management  
Project,  
Institute of Ocean Sciences,  
Sidney, B.C.  
[barrie@pgc-gsc.nrcan.gc.ca](mailto:barrie@pgc-gsc.nrcan.gc.ca)
5. Beamish, Dick  
Senior Scientist  
Pacific Biological Centre,  
Fisheries and Oceans Canada  
Nanaimo, B.C.  
[beamishr@pac.dfo-mpo.gc.ca](mailto:beamishr@pac.dfo-mpo.gc.ca)
6. Boutilier, James  
Senior Policy Adviser to MARPAC,  
Canadian Navy, and  
President, MASC  
Esquimalt, B.C.

[jamesboutilier@shaw.ca](mailto:jamesboutilier@shaw.ca)

7. Briscoe, John  
Attorney,  
Washburn, Briscoe and McCarthy,  
San Francisco, California  
[jbriscoe@stoel.com](mailto:jbriscoe@stoel.com)
8. Burke, William T.  
Emeritus Professor of Law  
University of Washington,  
Seattle, Washington  
[burke@u.washington.edu](mailto:burke@u.washington.edu)
9. Caron, David  
Professor of Law, and Co-Director of  
Law of the Sea Institute,  
University of California at Berkeley,  
Berkeley, California  
[ddcaron@law.berkeley.edu](mailto:ddcaron@law.berkeley.edu)
10. Chance, Peter  
Commander (Retired)  
Canadian Navy, and  
Founding President, MASC  
Sidney, B. C.  
[pchance@shaw.ca](mailto:pchance@shaw.ca)
11. Colson, David  
Attorney, Washington, D.C.  
former Ambassador, US Department of State,  
Washington, D.C.  
[dacolson@llgm.com](mailto:dacolson@llgm.com)
12. Dobell, Rod  
Emeritus Professor of Public Policy and  
Administration,  
University of Victoria,  
Immediate Past President, MASC  
Victoria, B.C.  
[rdobell@uvic.ca](mailto:rdobell@uvic.ca)
13. Ellis, Derek V.  
Emeritus Professor of Biology,  
University of Victoria,  
Victoria, B.C.  
[dvellis@uvic.ca](mailto:dvellis@uvic.ca)
14. Hage, Robert  
Director General, Legal Affairs Bureau,  
Department of Foreign Affairs and  
International Trade,  
Ottawa, Ontario  
[robert.hage@dfait-maeci.gc.ca](mailto:robert.hage@dfait-maeci.gc.ca)

15. Hayashi, Moritaka  
Professor of Law, Waseda University  
formerly with U.N. Secretariat  
Tokyo, Japan  
[hayashim@waseda.jp](mailto:hayashim@waseda.jp)
16. Huebert, Rob  
Associate Professor of Political Science,  
Associate Director, Centre of Military and Security  
Studies,  
University of Calgary  
Governor, MASC,  
Calgary, Alberta  
[rhuebert@ucalgary.ca](mailto:rhuebert@ucalgary.ca)
17. Johnston, Douglas M.  
Emeritus Professor of Law,  
University of Victoria,  
Governor, MASC,  
Victoria, B.C.  
[dmjejohn@island.net](mailto:dmjejohn@island.net)
18. Lerhe, Eric  
Commodore,  
Canadian Navy,  
Esquimalt, B.C.  
[lerhe.ej2@forces.ca](mailto:lerhe.ej2@forces.ca)
19. McConnell, Moira  
Professor of Law, and  
Director (designate), Marine and  
Environmental Law Programme,  
Dalhousie University,  
Halifax, Nova Scotia  
[moira.mcconnell@dal.ca](mailto:moira.mcconnell@dal.ca)
20. McDorman, Ted L.  
Professor of Law,  
University of Victoria,  
Editor, Ocean Development and International Law  
Victoria, B.C.  
(on secondment to the Department of Foreign  
Affairs and International Trade,  
Ottawa, Ontario)  
[ted.mcdorman@dfait-maeci.gc.ca](mailto:ted.mcdorman@dfait-maeci.gc.ca)
21. Moore, Russell  
Rear-Admiral (retired),  
former Commander, MARPAC,  
Canadian Navy,  
Governor, MASC,  
Victoria, B.C.  
[russellmoore@shaw.ca](mailto:russellmoore@shaw.ca)

24. Munro, Gordon  
Emeritus Professor of Economics,  
University of British Columbia,  
Vancouver, B.C.  
[gmunro@interchange.ubc.ca](mailto:gmunro@interchange.ubc.ca)
25. Round, Adrian  
Captain (retired),  
Canadian Navy,  
Governor, MASC, and  
Project Manager of Venus,  
University of Victoria,  
Victoria, B.C.  
[adrian-round@telus.net](mailto:adrian-round@telus.net)
26. Saunders, Phillip  
Associate Professor of Law,  
Dalhousie University  
Halifax, Nova Scotia  
[p.saunders@dal.ca](mailto:p.saunders@dal.ca)
27. Stone, Christopher  
Professor of Law,  
University of Southern California,  
Los Angeles, California  
[cstone@law.usc.edu](mailto:cstone@law.usc.edu)
28. Walls, Andrew  
Ocean/Marine Sector Development Officer  
Science Council of B.C.  
Governor, MASC  
Vancouver, B.C.  
[andreww@lynx.bc.ca](mailto:andreww@lynx.bc.ca)
29. Zou Keyuan  
Senior Research Fellow,  
East Asian Institute,  
National University of Singapore,  
Singapore  
[eaizouky@nus.edu.sg](mailto:eaizouky@nus.edu.sg)

## **OBSERVERS**

1. Chance, Peter  
Commander (Retired),  
Canadian Navy, and  
Founding President, MASC  
Sidney, B.C.
2. Ellis, Kathryn  
Victoria, B.C.
3. Greer, Galen  
Senior Analyst,  
Information Science and Technology  
Agency,  
Victoria, B.C.
4. Reichart, James  
President and CEO,  
Science Council of British Columbia,  
Vancouver, B.C.
5. Spencer, Susan  
Berkeley, California
6. Walls, Andrew  
Ocean/Marine Sector Development Officer,  
Science Council of B.C.  
Governor, MASC,  
Vancouver, B.C.

## **SECRETARIAT**

1. Chance, Peter
2. Johnston, Judith

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