



Association of Canada Lands Surveyors
Association des Arpenteurs des Terres du Canada

SECOND OFFSHORE ISSUES CONSULTATION WORKSHOP

WORKSHOP REPORT

**CALGARY, ALBERTA
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Association des Arpenteurs des Terres du Canada

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*ACLS SECOND OFFSHORE CONSULTATION WORKSHOP
Workshop Report*

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FOREWORD

Since Halifax 2001

The Association of Canada Lands Surveyors (ACLS) advocates that a Marine Cadastre should be an integral part of an effective and integrated ocean resource management strategy. Since the Halifax Consultation Workshop the ACLS has been proactive on a number of fronts. The ACLS has sent letters of support for the SEAMAP seabed-mapping project to several pertinent Federal Government Ministers. SEAMAP was approved by the Government but did not yet secure the necessary funding.

The ACLS has secured a seat on the GeoConnections Marine Advisory Committee (MAC) to assist in its mandate to ensure that the full functionality of the Canadian Geospatial Data Infrastructure (CGDI) being implemented under the GeoConnections Program extends to, and serves the interests of, all marine stakeholders. The ACLS objective is to promote the Marine Cadastre concept within CGDI.

The ACLS and Legal Surveys Division (LSD) of NRCan have started an investigation into offshore property rights infrastructures. In addition, the ACLS, in partnership with the Canadian Hydrographic Association (CHA) and the Canadian Hydrographic Service (CHS) of Fisheries and Oceans Canada, just launched the second edition of the book entitled *Canadian Offshore Property Rights*. The first edition was entitled *Offshore Management* and was published in 1989. The offshore environment is so dynamic that the ACLS is already considering publishing a third edition.

The ACLS has gathered support from the following: the Canadian Association of Petroleum Producers (CAPP), telecommunications companies, and the insurance industry. The Legal Surveys Division of Natural Resources Canada (NRCan), the Canadian Hydrographic Service and the Canadian Hydrographic Association have been strong partners in this endeavour. Finally, the ACLS was invited to testify on offshore issues at a meeting of the House of Commons Standing Committee on Fisheries and Oceans.

The Marine Cadastre file is moving forward. Although the ACLS has limited resources, it will continue to act on most of the Halifax recommendations.



Jean-Claude Tétreault, CLS, a.-g., P. Eng., MBA
Executive Director
Association of Canada Lands Surveyors

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INTRODUCTION

In March 2001 the Offshore Issues Committee of the Association of Canada Lands Surveyors (ACLS) organized a special one-day workshop in conjunction with the ACLS Annual General Meeting in Halifax. Nearly 60 invited stakeholders from oil and gas development companies to provincial coastal land administration agencies participated. A copy of the proceedings is available at: www.acls-aatc.ca/english/offshore/offshore.htm.

The ACLS is committed to heightening awareness of the responsibilities and concerns of respective stakeholders in offshore Canada Lands, and to finding a common strategy that will benefit all the stakeholders. As a result, the ACLS organized a Second Offshore Issues Consultation Workshop. The workshop took place as part of the Canadian Institute of Geomatics (CIG) Geomatics 2003 conference held in Calgary between the 16th and 18th of October, 2003. The aim of this workshop was to access the opinions of high-level decision-makers within private companies, Government and Non-Governmental Organization (NGO) with respect to coastal, near shore and offshore issues. There were 44 attendees at the workshop.

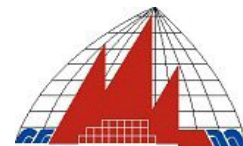
The Second Offshore Issues Consultation Workshop continued the policy discussions that began at the Halifax workshop. The various recommendations from the Halifax workshop were also examined and measured against the status quo in order to determine the progress made since the recommendations were made.

Building upon the work of the Halifax Workshop, the Second Offshore Issues Consultation Workshop accommodated

specific session dedicated to presentations, opinions and discussions, from a Canadian perspective, that are relevant to:

- The United Nations Convention on the Law of the Sea
- Coastal Zone Management and the Marine Cadastre
- Protection of Offshore Property Rights & Interests
- First Nations and the Offshore
- Offshore Data Information Management
- Oil and Gas Data Information Management and an Industry Perspective
- Hydrographic and offshore surveyor competency

This report will outline and summarize the results of the presentations and discussions that took place at this second workshop.



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OPENING REMARKS

Opening Remarks

**Carl Friesen, President of
ACLS**

"The ACLS continued commitment to heightening awareness in and of offshore Canada Lands"

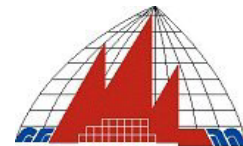
The ACLS has been a self-regulating organization since 1999. Canada lands surveyors are the only professionals authorized to perform cadastral surveys on Canada Lands, which includes the portion of the offshore that are not under provincial jurisdiction. The ACLS held its first conference in March 2001 in Halifax, Nova Scotia. The aim of that conference was to address offshore property rights issues, recommend standard practices for the acquisition of, and access to marine information, and to contemplate best practices regarding marine information systems. Nearly 60 invitees from Canadian private industry and various levels of government attended the Workshop. The primary objective of the Calgary 2003 Offshore Consultant Workshop is to further develop a framework that outlines the primary issues, along with recommended practices and approaches that will enable a cohesive implementation of initiatives in relation to the effective and efficient management of Canada's offshore resources and associated offshore property rights.

Facilitator's Comments George Schlagintweit, Canadian Hydrographic Association and Canadian Hydrographic Service

Participants at the workshop were welcomed. Many thanks were extended to the sponsors, which included:

- ACLS-AATC
- Natural Resources Canada - Ressources Naturelles Canada
- Canada Hydrographic Service - Service Hydrographique du Canada
- Canadian Hydrographic Association - Association Canadienne d'Hydrographie
- Royal Institution of Chartered Surveyors
- Fédération Internationale des Géomètres
- The Canadian Institute of Geomatics - Association Canadienne des Sciences Géomatiques

The format of the workshop would follow the format of Vision 2020, where a series of speakers would make presentations that are followed by a breakout session. In the breakout sessions each table would discuss a number of pre-defined questions related to the presentations. The results of each table's deliberations would then be reviewed at the conclusion of the workshop. The goal of the breakout sessions was to bring together the broad range of views of the participants.



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PRESENTATION SUMMARIES



**Sue Nichols, University of
New Brunswick, Canada**

**"Comments on recommendations
and results from the ACLS Halifax
workshop in March 2001"**

Presented by Michael Sutherland

Several recommendations were made in the report from the ACLS workshop in Halifax in March 2001. Each recommendation was examined and comments made with regard to actions taken (or not taken) in relation to the recommendations. The report, along with the recommendations, may be viewed at [www.acls-](http://www.acls-aatc.ca/english/offshore/offshore.htm)

[aatc.ca/english/offshore/offshore.htm](http://www.acls-aatc.ca/english/offshore/offshore.htm).

An examination of actions taken with regard to the recommendations raised further questions.

The first set of recommendations relates to identifying all groups of stakeholders with interest in Canadian offshore issues, and getting their participation. An assessment should be made of the second workshop's participants in order to assess whether those recommendations were acted upon. Invitations were not enough and other means of engaging stakeholders should be investigated. Although the ACLS had taken steps to engage stakeholders by organizing workshops there were questions regarding the future efforts and plans of the ACLS.

The second set of recommendations relates to the promotion of cooperation, data sharing and improved data access. The ACLS and LSD did no investigation on offshore property rights infrastructure and related structures. Does this lack of action relate to a lack of funds? Can Geoconnections' Marine Geospatial Data Infrastructure (MGDI) initiative be approached for support? Who should make the approach to Geoconnections? These are questions to ponder.

The third set of recommendations relates to standards for offshore surveys, datums, and the collection, management, and dissemination of offshore spatial data, as well as standards for education relating to coastal and offshore surveys. There was also a recommendation for the ACLS, LSD and Canadian Hydrographic Service (CHS) to update the 3rd edition of Surveying Offshore Canada Lands for Mineral Resource Development [1982], including in the document references to coastal surveys and easements for cables and pipelines. There were also recommendations relating to the development of relationships with surveyors that are not Canada Lands Surveyors (CLS). There was no knowledge [to the presenter] of the status of actions taken with regard to any of the foregoing.

The fourth set of recommendations relates to ocean mapping. The recommendations relating to actions to be taken by Canada federal government are considered beyond the mandate of the ACLS. However, is it possible for the ACLS to effect lobbies to urge government action? Also, could initiatives in relation to the development of information strategies by the CHS and ACLS to communicate the need for an expanded ocean mapping program be stymied by government cutbacks? Recommendations for government to develop initiatives leading to "ocean

transparency” are geared towards capturing the imagination of the public and politicians in a manner similar to the NASA space program.

The fifth set of recommendations relates to the United Nations Conventions on the Law of the Sea (UNCLOS), exhorting the ACLS to encourage government to ratify the convention. Some of the related issues were discussed in a letter that was sent to the Standing Parliamentary Committee on Fisheries and Oceans.

The sixth set of recommendations relates to inter-governmental coastal and offshore jurisdiction and administration from the perspective of the ACLS. It is clear that the ACLS’ understanding of the issues and problems is improving but provincial issues need more attention.

The seventh set of recommendations relates to the concept of a marine cadastre. The ACLS is actively promoting the concept.

Although the recommendations were [mostly] ambitious they were a good place to start. A lack of research funding prevents the commencement of necessary research that would focus on vertical datums, the positions of Canada’s offshore boundaries, and relevant political issues.



Dave Monahan, Canadian Hydrographic Service

"Implications for Canada of ratifying the Law of the Sea"

The United Nations Convention on the Law of the Sea (UNCLOS) is one of the most important treaties in history. It is a “constitution of the oceans”. It was written between 1973 and 1982, by consensus of all nations. UNCLOS regulates all activities in the world’s oceans through 330 Articles. Twenty-five of the articles apply to Geomatics.

Canada was an active participant at the 3rd UN conference on Law of the Sea in 1973 and signed the convention in 1982 with the intention of becoming a full partner. In 1993 UNCLOS was ratified by a minimum number of States and it came into force in 1994. In 1995 Cabinet instructed the CHS and the Geological Survey of Canada (GSC) to assemble all existing data that applied to a Continental Shelf claim, and prepare a plan for further data collection. In 1996 the UN Commission on the Limits of the Continental Shelf (CLCS) was elected and the Canada Oceans Act was enacted. By 1999 the CLCS had completed their guidelines for data required to support delineation of the continental shelf. The ten-year period for claiming the Continental Shelf was restarted in 2000. In 2001 the UN Fisheries Agreement was ratified and Russia made the first claim to a Continental Shelf under UNCLOS, which was protested by Canada, USA and Denmark. The claim was subsequently sent

back. 2002 saw the election of the second CLCS membership. Canada ratified UNCLOS on November 06, 2003.

UNCLOS impacts upon geomatics in five broad areas:

- Imposes general responsibilities on Coastal States to take mapping actions
- Defines zones in the sea that must be mapped
- Allows declaration of a Juridical Continental Shelf
- Establishes norms for seafloor mapping through CLCS Guidelines
- Defines an additional area over which a Coastal State has jurisdiction and to which it may want to apply a Cadastre.

Mapping actions include determination of Baselines from which the breadth of the Territorial Sea is measured, the outer limits of the Exclusive Economic Zone (EEZ), the Contiguous Zone (CZ), and the outer limits of its juridical continental shelf. Any hazards to navigation within the Territorial sea must be publicized, as must the extent of safety zones around artificial islands. Beyond the outer limits of the juridical continental shelf is defined as the “Area”, which is administered by the UN.

UNCLOS defines all the rights associated with all defined zones. Prior to UNCLOS there was only one marine boundary. Outside that boundary, freedom of the high seas was absolute. Within the boundary, the coastal state’s sovereignty was absolute. With ratification of UNCLOS, freedom of the high seas is now restricted by the environmental and common heritage of mankind principles. Sovereign rights are phased out through several zones.

With regard to shorelines there are vertical and horizontal uncertainties due to the level of the water being in constant change, and the sinuosity of the shoreline.

Depending on the shape of the shoreline this may vary from 0 mm to several kilometers. Land based mapping uses mean sea level (MSL). Navigation charts often show two lines: the highest level the sea normally reaches and the low water line. The IHO has standardized the low water line as that reached by the Lowest Astronomical Tide (LAT). To resolve the boundary between the sea and the land UNCLOS has adopted the use of either the normal baseline, which is the low water line as shown on navigation charts or straight baselines that join points on the mainland, on islands, on certain rocks and on tidal elevations. Waters landward of a baseline are internal waters of the Coastal State.

Broad-margin States wanted an extensive Continental Shelf in opposition to narrow-margin states who wanted the UN-controlled Area to be as large as possible. Article 76 (definition of the Continental Shelf) settled on a principal that would see “the natural prolongation” of the continent available to the coastal State, with the true oceanic floor being included in the Area. According to prevalent knowledge, this granted hydrocarbons to the coastal State and minerals like “manganese nodules” to the International Seabed Authority.

Options for defining the outer limit include a measurement of 60 nautical miles from the Foot of the Slope, or the point where the thickness of the sedimentary rocks is at least 1% of the shortest distance to the Foot of the Slope. However disadvantaged States forced the inclusion of a finite outer constraint. The Continental Shelf cannot extend beyond 350nm from coastal Baselines, or a line 100nm seaward of the 2,500m isobath. The Outer Constraint is restricted to 350nm over “submarine ridges”.

In order to make a claim for the Continental Shelf, Baselines must be established for the breadth of the Territorial Sea, the 2,500m isobath must be mapped, along with the Foot of the Slope and sediment thickness along the edge of the Continental Shelf. The geological nature of isolated elevations must be determined, and in some cases "evidence to the contrary" will have to be invoked to delineate the Foot of the Slope. Lines at 60nm, 100nm, 200nm and 350nm must be determined, followed by the preparation of charts maps and diagrams for submission to the CLCS.

The difficulty with determining the Continental Shelf is a result of the complex definition of the foot of the continental slope, involving both geophysical and hydrographic interpretations of the physical shelf. There is large scope for judgment. Difficulties also arise due to the lack of appropriate data at the level of resolution required to "interpret" this limit with any degree of certainty. This is compounded by the cost, and time required to obtain new data.

The CLCS has established a set of recommendations for the data needed to establish a Continental Shelf. The unstated role of the CLCS is to ensure that no State gets too greedy and to lend legitimacy to a States claim. Every five years 21 members are elected who are experts from the field of geology, geophysics, and hydrography. These guidelines will strongly influence the type, quantity, and quality of marine data collected over the next ten years.

UNCLOS defines an additional area over which coastal states have jurisdiction. Within this area they may wish to create a cadastre. Although there is no evidence that this has happened yet, some States are reportedly working on creating marine cadastres. According to Nichols and

Monahan (1999) a marine cadastre should:

- Deal with multiple types of interests
- Have participation from many stakeholders and from many levels of Government
- Be based on an Information Custodian Model and will need a champion
- Not wait until all marine claims/issues are settled
- Be a central part of any Marine Geospatial Infrastructure
- Be built on "good base data" and use visualization tools
- Be rights-driven rather than boundary-driven.

The message is that UNCLOS is here and now. UNCLOS divides ocean space into zones that must be managed. The marine cadastre is one tool that can be used to manage the zones. Since coastal States no longer end at the outer limit of the Territorial Sea, should the marine cadastre be separate from the land cadastre?



Michael Sutherland, Vice-Chair, Commission 4, International Federation of Surveyors

"Outcomes of the UNB-FIG Meeting on Marine Cadastre Issues in Fredericton in September 2003"

In September of 2003 the University of New Brunswick (UNB) and the International Federation of Surveyors (FIG) organized a meeting on marine cadastre

issues in Fredericton, Canada. The growing importance of the concept of the marine cadastre to the international geomatics community is evidenced by the attendance of delegates from Canada, the United States of America, the Netherlands, Malaysia, Australia, and Trinidad and Tobago. The proceedings of the meeting can be accessed at http://gge.unb.ca/Research/LandStudies/MarineCadastre/marine_cadastre_2003.htm. The meeting was sponsored by UNB, FIG, the Royal Institution of Chartered Surveyors, Terradigm, the Canadian Institute of Geomatics, the Association of New Brunswick Land Surveyors, and the Canadian Hydrographic Association.

There are many and overlapping rights and interests that exist in relation to marine spaces. In order to efficiently and effectively manage these rights and interests there is the need to have access to many different types of relevant information including information on the rights and interests, the owners of the rights and interests, and the spatial extents to which the rights and interests apply. A marine cadastre is envisioned to be able to provide this range of information.

Modeling data in a marine cadastre involves capturing the inherent 3-dimensional nature of marine space (with rights to the surface, water column, seabed, and subsurface). The 4-dimensional nature of the person-space relationship must also be captured (rights and interests within a legal framework that changes over time).

There is an inherent relationship between the marine cadastre and any spatial data infrastructure that references marine spaces. Examples of these are the Marine Geospatial Data Infrastructure (MGDI) in

Canada and the Australia Spatial Data Infrastructure (ASDI).

There are a number of priorities that must be addressed in establishing a marine cadastre. The activities listed below were identified as priorities by the attendees:

- Developing appropriate data models to support the marine cadastre
- Identifying organizations that have a mandate to manage needed datasets
- Obtaining the cooperation of stakeholders and creating partnerships to facilitate the sharing of high quality data
- Obtaining high quality metadata, including having access to a metadata repository
- Overcoming issues of overlapping jurisdiction, administration, rights and interests
- Identifying champions with clout to push the implementation of the marine cadastre.
- Overcoming laws and regulations that promote conflicts
- Ensuring that there is a good legal framework
- Defining unambiguous terminology
- Obtaining the input of all stakeholders
- Producing discussion papers
- Obtaining adequate financial support for academic research into issues related to the marine cadastre
- Obtaining funding for the implementation of a marine cadastre.

There is a lot of confusion with regard to the term “cadastre.” Depending on the jurisdiction the term may refer to a map, a record of legal interests, or a tax record. The term has however experienced evolution with clearer clarification in terms of the function of the cadastre (i.e. *juridical, fiscal, or multipurpose*). The multipurpose cadastre concept is that most envisioned by proponents of the concept of

a marine cadastre. However, property rights along with the subject and object of property rights are the primary data to be managed and administered.



Jean Gagnon, Legal Surveys Division, Natural Resources Canada

"Property rights systems and how they could contribute to the protection of property rights and interests in Canada's offshore area"

Land has conflicting features. Land is at one time a property asset and plays an important role in economic development. At the same time, land is a scarce resource and must be protected and managed effectively to support sustainable development. People tend to think globally but act locally. Cadastral systems provide a legal framework within which rights can be administered and provides a local reference system as a foundation to relate activities locally. A property rights system has been society's answer to enabling private and public access to land. It consists of three components:

- A management system that allocates and regulates the rights in land
- A registration system that records the rights
- A survey system that defines the spatial extent to which the rights are associated

A property rights system consists of the policies, processes, standards and

information relating to land. Cadastral reform is a major activity around the world today. Undeveloped Countries are starting to establish property rights systems and in developed Countries, the reform tends to be towards systems integration

There is an existing legislative base for the management and registration of petroleum rights in Canada's marine areas: Canada Petroleum Resources Act applies on Frontier Lands except for Newfoundland and Labrador, and Nova Scotia. The Canada - Newfoundland and Labrador Atlantic Accord Implementation Act covers the offshore Area of Newfoundland and Labrador, and the Canada - Nova Scotia Offshore Petroleum Resources Act covers the offshore Area of Nova Scotia; the Oil and Gas Act (Yukon) covers the Yukon Oil and Gas Lands and the internal waters of Phillips Bay and Shoalwater Bay.

There are also a large number of Acts that make provisions for surveys within Canada Lands. These include:

- The Canada Lands Surveys Act that prescribe standards for surveys on Canada Lands
- The Canada Oil and Gas Land Regulations that describe requirements for surveys of wells and boundaries - caution needs to be applied if land is part of a Gwich'in land claims parcel or it falls under Section 16 - fixed grid boundaries
- Drilling Regulations under the various oil and gas operations legislation which describe well location surveys

The Territorial Lands Act describes surveys for surface rights of Onshore Frontier Lands, except in the Yukon. However, there are no provisions for the survey of surface rights for Offshore Frontier Lands.

The management of rights within frontier lands is distributed among a number of organizations. The limit of each jurisdiction is described in Schedule VI – Canada Oil and Gas Lands Regulations (Territorial Lands Act). Indian and Northern Affairs Canada (INAC) and the Northern Oil and Gas Directorate manage the North. The Government of Yukon and the Department of Energy, Mines and Resources manage the Yukon Territories. The Canada-Newfoundland Offshore Petroleum Board (CNOPB) manages the petroleum resources in the Newfoundland offshore. The Governments of Canada and Nova Scotia Offshore Petroleum Board (CNSOPB) are responsible for the regulation of petroleum resources in the offshore area of Nova Scotia. NRCan and its Frontier Lands Management Division are responsible for managing hydrocarbons in the Northwest Territories, Sable Island, and those submarine areas not within a province but adjacent to the coast of Canada.

The area along The Grand Banks and Flemish Cap Area – Hibernia is managed by CNOPB. Under this regime, three types of licenses are available:

- Exploratory Licenses for a nine-year term
- Significant Discovery Licenses that last as long it takes to determine the extent of a discovery
- Production Licenses, which give the right to drill, produce oil/gas, pay royalties to the Government of Canada, etc.

Oil and Gas rights are only one type of right that may exist. There may also be private and/or public rights relating to leases for exclusive use, fishing rights, aquaculture leases, aboriginal rights, marine conservation areas, migratory bird sanctuaries, etc. These rights can all be managed in a marine cadastre supported

by a geospatial data infrastructure. This raises a number of challenges and opportunities. Do we develop a cadastral system built on a narrow paradigm centered on land development, but lacking integration of all rights that may affect a parcel/object/space? If our objective is sustainable development then we need to consider a more integrated rights-and information system that has a land information focus, rather than a land development focus. There is currently no existing integrated system for marine rights. Our aim should be to develop such a system. Jurisdictional authority is currently unclear. There is a need for more effective governance structures and clearer roles of responsibility.

How do you fit in the equation? From a resource and rights stewardship point of view, from an Industry point of view, from a Rights holder/claimant point of view, or from an Integrated ocean management perspective?

**Diana Ginn, Faculty of Law,
Dalhousie University, Nova
Scotia, Canada**
"Aboriginal rights and the
offshore"

Section 35(1) of the Constitution Act, 1982 states: "Existing treaty and aboriginal rights are hereby recognized and affirmed".

According to the courts, Aboriginal title has the following characteristics:

- It is *sui generis* (that is, unique)
- It exists in conjunction with underlying Crown title
- It can only be alienated to the federal Crown

- It is an inherent right, flowing from:
 - Historic use and occupation of the land, and
 - The relationship between the common law and pre-existing aboriginal systems of law
- It "must be understood by reference to both common law and aboriginal perspective"; (Supreme Court of Canada (SCC) in *Delgamuukw*)
- It is held communally
- It is an exclusive form of title
- It confers the right to use land for a variety of activities but these "must not be irreconcilable with the nature of the attachment to the land which forms the basis of the particular group's aboriginal title"; (SCC, *Delgamuukw*)
- It can be extinguished by the federal Crown (only bilateral extinguishment post-1982).

Could aboriginal title apply to the offshore?

At this point, there is no Canadian case law that answers this question. In order to speculate on how the courts might respond to an aboriginal title claim to the seabed, we must consider the characteristics of aboriginal title. It is described as flowing from historic use and occupation and from the relationship between aboriginal systems of law and the common law. There is nothing in this that automatically precludes a claim of aboriginal title.

Aboriginal title also exists in conjunction with Crown title. This would not seem to create a problem, since Section 8(1) of Canada's Oceans Act states that "in any area of the sea not within a province, the seabed and subsoil below the internal waters of Canada and the territorial sea of Canada are vested in Her Majesty in right of Canada".

Does the international law right of innocent passage preclude an aboriginal title claim in the seabed, given that aboriginal title has been described by the Supreme Court of Canada as an exclusive form of title? Arguably where the exclusivity of the underlying Crown title is curtailed by international law, the aboriginal title would be similarly curtailed; however, since the right of innocent passage does not negate the existence of the Crown title, nor should it be seen as negating the possible existence of aboriginal title.

Do common law rights of public navigation and fishing make it impossible for a First Nation to claim aboriginal title in the seabed? Again, if Crown title can coexist with these public rights, so too could aboriginal title.

Implications for Policy Development

- Could a First Nation with aboriginal title to an offshore area engage in resource development in that area? And if so, would the First Nation have to adhere to relevant federal or provincial legislation?
- Could a First Nation with aboriginal title to an offshore area exclude others from that area?
- Could the First Nation allow others to participate in activities in the aboriginal title area, but require that they meet requirements set by the First Nation, whether instead of or in addition to federal or provincial requirements?

Arguably, the answer to all of these questions is yes, unless:

- a. The relevant (provincial or federal) government passed legislation limiting the exercise of these rights and and
- b. In the view of the court, the legislation met the tests that have been

established for justifiably limiting aboriginal rights.

To justify such legislation, the Crown would have to show:

- The legislation was "enacted according to a valid objective"
- Infringement of the aboriginal right can be justified in terms of the "honour of the Crown"; Thus, the Crown may have to show that it accommodated the participation of aboriginal peoples in resource development, or that the aboriginal peoples were involved in decision-making regarding their lands. The court has held that there will always be a duty to consult; since aboriginal title "has an inescapably economic aspect" and that "fair compensation would ordinarily be required when aboriginal title is infringed"

Conclusion re aboriginal title

Since there is no case law on point, at this stage we can only speculate as to how a court would respond to an aboriginal title claim to a portion of the seabed. Arguably, however, there is nothing about the doctrine of aboriginal title itself that would preclude it from being applied to the seabed. Even if that is the case, however, it is impossible to predict how successful such claims might be, since there is still the extremely difficult question of what kinds of evidence the courts would require of historic use and occupation of the seabed.

Aboriginal Rights other than Aboriginal Title

A First Nation might also make claims relating to the offshore based on rights such as fishing or hunting rights, rather than based on aboriginal title. If such a claim were made, the issues would be:

- Did the right exist?

- Does it still exist or has it been extinguished?
- If it still exists
 - What would the right empower the First Nation to do?
 - Would certain government activities or the application of certain legislation infringe the right?
 - If so, can that infringement be justified?

Treaty Rights

It is also possible that some treaties might include provisions relevant to the offshore. "Treaty" encompasses both historic treaties and modern-day land claims agreements. It is difficult to make any generalizations regarding treaty rights in the offshore, because the answer will always depend on the wording of the individual treaty and how a court would interpret that wording.



Henry Kucera, Swiftsure Spatial Systems, Inc.

"Creating the Enabling Technical Infrastructure (MGDI): Understanding the Business, Leveraging Standards, Modeling the Process, Delivering Technology Partnerships"

COINPacific is a community of practice consisting of a collection of like-minded individuals/groups that are in the process creating an integrated marine based information infrastructure. The founding partners of COINPacific were the Ministry

of Sustainable Resource Management (BC), the Department of Fisheries and Oceans (BC), and the Canadian Centre for Marine Communication. Their goal is to create a recognized community that provides expertise, services, products, methods and processes for effective marine resource management. They would like to improve the current infrastructure and make collaboration part of the culture in a way that increases prosperity and expansion. They also wish to facilitate the development of a technical architecture for a marine information infrastructure.

COINPacific is attempting to unite both the demand and supply components of the marine community through a network Hub. Participants in COINPacific come from government, academia and industry. The concept of the Hub is a non-partisan 3rd party whose role is to build a Community of Practice (COP) through:

- Communication
- Facilitation
- Negotiation
- Leveraging
- Marketing etc.

Upon studying the supply and demand activities it was clear that a number of organizations belonged to both activities. The supply side of the Hub will provide applications, data, technology, methods, tools, instrumentation and mentoring to the marine community, while the demand component of the Hub will provide information, knowledge, decisions, sustainability, profitability and exportable products to the wider community.

COINPacific is governed by a Steering Committee for leadership and direction. The Steering Committee relies on a 16 member Network Forum for discussion of issues, discovery of solutions and identification of partners. The Network

Forum was established based on a balance of people with influence on business drivers, expertise in marine systems, standards, policies and information management. The Network Hub coordinates the development of projects that COINPacific wish to undertake. The Hub develops partnerships, provides management and works with members of the network and partners to market Canadian technology and expertise worldwide.

COINPacific is currently in Phase 2 of its development strategy. Phase 2 has three key deliverables:

- The completion of a working Pilot Cooperative Ocean Information Infrastructure that will link users of ocean information to the sources
- A completed Business plan for COINPacific and a fully operational Hub
- An evaluation of the opportunities for a management group to take over the operation of the network on behalf of the partners during Phase 3

One of the goals of the Pilot will be to deliver early capability to the partners and provide a platform for demonstrating commercial capability to outside markets. The Pilot is to cover the Central coast of BC, and then will be expanded to include the Georgia Basin. It has been developed so that it can be scaled to include the whole of the Pacific region.

COINPacific builds on the Department of Fisheries and Oceans (DFO) GeoPortal. GeoPortal is an Open GIS Consortium compliant web map service that provides:

- A data catalog service
- A web mapping service, using the CARIS Cascading Map Server and CARIS Spatial Fusion
- A web feature service using the CARIS Web Feature Server

- A translation and download service, using Safe Software's Spatial Direct

COINPacific operates on a typical 3-tier architecture in which Tier 1 provides metadata, data and Structured Query Language (SQL) query services. Tier 2 is the application environment that provides translation and spatial analysis type services. Tier 3 provides the interface to the user. Because the software complies with industry standards, any client application supporting standard protocols can perform data cleansing, topology validation, quality assurance, etc., operations via the Web (using SpatialDirect).

COINPacific will be constructed based on internationally recognized standards and specifications such as the International Organization for Standards (ISO), the International Hydrographic Organization (IHO) and Open GIS Consortium (OGC). It will take advantage of existing information systems to deliver enhanced access. It will also deliver a sustainable piece of infrastructure that will provide the basis for ongoing service delivery and development. Additionally, it will provide the private sector with the opportunity to access the international marine information service and technology market. The infrastructure will be compatible with standard OGC implementations. COINPacific will also integrate with the provincial Land Information BC initiative.

COINPacific offers the potential to be providers of information, not just takers, which could result in the overall improvement of the network product. It is also helping to develop funding sources to be used for joint benefit of the partners. There are also opportunities to use COINPacific as a test bed for new applications. The organizational structure

provides COINPacific with leadership, validation of requirements and a champion for further projects. The concept is ultimately bigger than just the west coast. It can be linked to National initiatives – perhaps a COINCanada will emerge?



**Steve Thomas, Chairman,
Surveying and Mapping, CAPP**
"Experience Onshore and Offshore
with the Management, Archiving and
Distribution of Similar Streams of
Multi-layered Data Related to the Oil
and Gas Industry"

Within the oil and gas industry there is a wide range of data that is currently being maintained. Primary data sources include:

- Survey data (control systems, DEM, bathometric, etc.)
- Remote Sensing data (Satellite, Aerial, Sonar, Lidar)
- Land and property rights (International, Canada Lands, Provincial, Oil and Gas, Subsurface)
- Environmental data relating to Fisheries and wildlife, hunting, trapping and fishing, livestock, aquaculture, Fauna considerations, Hydro consideration and archeological considerations
- Geophysical data (seismic data, their metadata and interpretations)
- High-resolution seismic data such as Bathymetry and Sonar, etc.
- Gravity data

- Geological data (outcrop studies, core samples, petrophysical data, stratigraphy, etc.)
- Engineering data (drilling, well path planning, access routes, construction data, leases, etc.)
- Data acquisition information (Standards, Datum issues, specifications and project management data)

The primary concerns from the Oil and Gas perspective are issues relating to public versus private data, i.e., the need to understand the difference, access to, and integrity of the data regardless of whether it is corporate or project data. There are also concerns regarding database issues relating to data structures, interfaces to data, and security.

With regards to data and information access there is a wide range of GIS products available on the market that are being used. However, a new trend in the Oil and Gas industry is towards web based GIS tools to access their information. If a company employs both a web and desktop GIS strategy, it was estimated that between 70% and 80% of their users need for data could be handled by Web based GIS systems. The primary reason for this is that desktop applications tend to require more training/support and the added capabilities are only really used by the remaining 20% to 30% of Oil and Gas users. The most popular systems are the AutoDesk and ESRI products. ESRI also appears to be increasing its market share because of its web access capabilities, its architecture and its integrated spatial database. Systems such as these allow an organization to leverage its investment in both hardware and software. They allow the implementation of one corporate standard, that allows the creation of one clean and

valid data set that can be used company wide.

Other concerns that the Oil and Gas industry are facing is the need to define:

- Who has access to which data
- What data is actually available
- Where the data is located
- How the data can be accessed.

Experience indicates that in order for an Oil and Gas information system to work effectively it must use databases that are able to manage large amounts of data. Data integrity must also be built into the system, and the data systems must be hidden from the user.



Andrew Leyzack, Canadian Hydrographic Association
"Hydrographic and Offshore Surveyor Competency"

Offshore, seismic, and offshore construction surveys are a specialization within the discipline of Hydrographic Surveying. Hydrography is the science of measuring and depicting the nature and configuration of the seabed. As a specialist, the offshore surveyor conducts surveys in support of exploration of natural resources.

While Canada has one of the most extensive inland, coastal and offshore areas it does not have an accredited training program for hydrographic surveyors. As of 1992 the International

Hydrographic Organization (IHO) recognized nine Canadian training courses, of which 2, offered by the Canadian Hydrographic Service (CHS), were fully accredited in Category A. Category A provides for comprehensive training in all aspects of Hydrography. Category B courses provide a practical comprehension of Hydrographic surveying, while unclassified courses typically provided training to support personnel employed in hydrographic operations.

The construction of offshore platforms in Canadian waters peaked around 1985. These developments lead to a high demand for offshore surveyors up until 1992. Since then demand has steadily decreased. By 1994 the CHS had allowed its accreditation with the IHO to lapse, preferring to use a “just in time” in-house approach to training. With a slowdown in the domestic offshore private industry, a government monopoly on traditional hydrographic surveys, hiring of non-surveying personnel by the CHS, a federal government hiring freeze, etc. institutions were faced with increasing challenges in maintaining enrolment in these highly specialized courses. As a result, by 2002, of the 41 courses recognized by the IHO worldwide, none were in Canada.

During the last Canadian Hydrographic Conference, CHC2002, a panel Discussion identified the need for accreditation of individuals executing surveys to ensure that hydrographic surveys meet recognized standards. Certification can provide recognition and career satisfaction, as well as improve performance and increase customer satisfaction. Most certification programs also require some form of continuing education to ensure participants remain current in their field.

In contrast to Canada, the US, under federal supervision, contracts out its hydrographic surveys to the private sector. This has contributed to building capacity in hydrographic and offshore (industrial) surveys in the private sector. As a prerequisite, contractors must be certified Hydrographic Surveyors by the American Congress on Surveying and Mapping (ACSM). In addition the ACSM Hydrographer Certificate is sought by tendering agencies when evaluating technical proposals. Certification with the ACSM requires at least 5 years experience in hydrographic surveying; a 1,000-word essay on the fundamentals of hydrographic surveying; submission of references and the successful completion of a 3-hour exam. Examination topics include depth measurement, vessel positioning, horizontal and vertical control, tides and water levels, survey planning, nautical science and general marine science.

It is proposed that in the absence of accredited training facilities within Canada that the CLS take up the role of certification of Hydrographic surveyors in Canada. While there are a number of CLS subjects that may not be relevant to the Hydrographic surveyor, when compared with the IHO/FIG Standards of Competence for Hydrographic Surveyors, there are only 3 subjects that are missing from the CLS Syllabus: Physics, Nautical Science, and Environmental Science. Is it possible for the CLS to create a distinct certificate for Hydrographic surveyors? A more focused CLS syllabus for hydrographic surveyors may encourage more hydrographic surveyors to participate in a CLS certification program.

Following its recent certification under ISO 9001:2000, the CHS published a statement entitled “Future Directions”, which affirms its role as “the official

provider of national hydrographic information”. It also identified 3 points of interest to the private sector:

- Increased reliance on external data capture, product development and dissemination
- The development by CHS of an external qualified Canadian hydrographic community to meet domestic needs
- The support and promotion by CHS of innovation, partner and leverage research, and develop requirements to meet domestic needs.

The statement also suggests the possibility of significant opportunities for the private sector once UNCLOS is ratified.

The CLS commission could serve both the private and public sector as a national certification program; as a recognized part of career development; as a standard for which individuals from varied backgrounds could be brought on par academically; as a standard to which in-house training courses could be measured; and as partial fulfillment of certification of competency for professional Hydrographers.

The scope of hydrography is international. Until such time as our educational facilities obtain international accreditation, the geomatics profession has an opportunity to play a role in the certification of hydrographic surveyors. By focusing the syllabus towards a hydrographic specialization and by incorporating the use of an experience log, an internationally recognized certification program might be realized.



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SUMMARY OF THE BREAKOUT SESSIONS

MARINE CADASTRE

Funding

It is not realistic to find funding for a Canadian marine cadastre in today's economic environment and political uncertainty reduces the possibility of finding funding in the near future. To increase the possibility of obtaining funding:

- An influential and credible champion for the cause must be identified
- A vision of the economic, social, political, and environmental benefits of a marine cadastre must be articulated and communicated to potential sources of funds
- The concept may be linked to efforts to delimit a juridical continental shelf, as well as to Aboriginal issues
- Public-private initiatives could be considered
- Royalties from licensing fees could be used

Funding for fundamental research on marine cadastre issues may not find immediate support. However, funding for research from a needs analysis perspective. There is also the need for the building of a viable data model and business plan. Credible research entities need to be identified and supported. An existing research program should be supported and given credibility by a reputable professional association.

Knowledge of Offshore rights

It is critical for some organizations to know all the rights that may affect their offshore operations. For other organizations is it useful to know but not

critical. It is however critical for Canada to know and manage all the potentially conflicting and overlapping rights in the offshore in order to meet its economic, social, political, and environmental objectives. It is critical particularly with respect to First Nations input/consideration. There is need to develop an infrastructure for integrated management of offshore rights and interests. Easy access to a geospatial database is crucial for management, and to level the playing field.

Vision for an Infrastructure to Manage Rights

Government should enact appropriate legislation and regulations, as well as maintain a database referenced to a common spatial system that is supported by appropriate standards. The database(s) should be at least 4-dimensional and object-oriented. Academe should conduct the necessary research, but government is to take the lead. The private sector should contribute data and financial resources. There should be a multi-disciplinary and multi-stakeholder initiative to bring the vision to reality. However, there is immediate need for those organizations that manage offshore data to increase the efficiency of their operations.

Strategies to move the Agenda Forward

There are a number of strategies that could be adopted to move forward the agenda of implementing a marine cadastre and the necessary supporting spatial data infrastructure. These include:

- Obtaining consensus and defining/redefining the concepts
- Communication of objectives/goals
- Determining beneficiaries
- Determining critical principles
- Identifying credible champion(s)
- Settle land claims

- Developing lobbying and funding strategies
- Creating a pilot project
- Creating technical working groups to simplify the message and give it broader appeal
- Providing an umbrella organization to coordinate and focus all activities, and to steer all players toward a common scope
- Leveraging existing programs to fulfill goals and objectives

- Consultation with the relevant potential claimants is legally required in order to establish plan in “good faith”
- Compensation negotiations with government for any possible/actual loss if affected by an aboriginal claim
- Teambuilding and partnering with the First Nations along with the provision of training and profit-sharing
- Ensure that a marine cadastre is in effect to provide the necessary information to support decision-making

FIRST NATIONS AND THE OFFSHORE

The Relevance of Non-Canadian Legal Cases

There is a lack of precedent in Canadian cases related to aboriginal title claims to the seabed. Cases resolved in the courts of other national jurisdictions (e.g. Australia and New Zealand) could provide guidance but may not be binding.

The Potential Impact of Aboriginal Title and Land Claims on the system of Marine Resource Rights

First Nations could always claim rights in the offshore. However, the nature of those rights and their potential impacts on non-Aboriginal rights in the offshore would have to be determined. In order to minimize negative effects, any Aboriginal title determined could be limited by caveats. It is prudent therefore to consult the First Nations as potential stakeholders. Aboriginal title could be one layer of information in a marine cadastre.

Industry Offshore Use-Strategies in Areas of Potential Aboriginal Title Claims

There are a number of strategies that could be adopted in areas where there is the potential for Aboriginal claims:

However, industry is not the Courts. The best strategy might be to keep good lawyers and political lobbyists on retainer.

DATA AND INFORMATION MANAGEMENT

Marine Cadastre and Sub-Sea-floor Data

Although some proponents might have reservations, a marine cadastre should include sub-sea-floor data especially since rights may differ from site to site. What is good for a terrestrial cadastre is also good for a marine cadastre. There will however have to be rules on what data is made public and what remains confidential. This will depend also on identity of the user of the data.

Oil and Gas companies and the Maintenance of Marine Cadastre Data

There is the over-whelming perception that oil and gas companies should not manage marine cadastre data. This is of course excepting their contributory data to the marine cadastre. Some proponents suggest that it might make for “an interesting exercise” with government setting the necessary standards and industry hiring qualified and reputable

surveyors and other personnel to maintain the data.

Marine Cadastre and Data Format Compatibility

In terms of data format compatibility when building a marine cadastre, one should consider OGC, the Open GIS Consortium.

HYDROGRAPHIC AND OFFSHORE SURVEYOR COMPETENCY

National Standards of Competence in Hydrographic Surveys

A country endeavouring to maintain its capacity to conduct hydrographic surveys should strive to maintain and recognize standards of competence for the certification of hydrographic surveyors.

UNCLOS is not purely a hydrographic issue. However credibility to make a claim based on data (evidence) collected by certified (competent) hydrographic surveyors could otherwise be compromised if those individuals were not qualified according to internationally accepted standards. Furthermore, international opportunities for Canadian industry could be compromised.

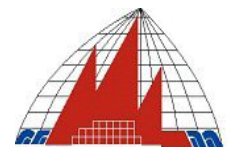
The Role of the Surveying Profession in the Certification of Hydrographic Surveyors

In Canada, the federal government and private industry set standards for conducting hydrographic and offshore surveys. Many federal and private sector hydrographers are already members of the ACLS, and the ACLS could take responsibility for maintaining standards of competence for hydrographic/offshore surveyors. The profession could therefore certify hydrographers, nationally. The profession could work with universities and

colleges to help establish and maintain courses that meet or exceed international standards of competence but there has to be employment opportunities for graduates at home as well as abroad. The profession could also provide in-house training and assure "stop-gap" competency, until internationally accredited certification program can be attained.

Canada and the National Certification of Hydrographic Surveyors

Canada should strive to maintain certification of hydrographic surveyors in accordance with international or national guidelines and specifications for experience and training. This is especially true in light of the fact that a Canada Lands Surveyor (CLS) cannot be certain of the correct execution of an offshore survey without being properly trained and certified as a hydrographic and/or offshore surveyor.



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PHOTOGRAPHS



PHOTOGRAPHS

