

On a flood tide: Classification societies and Canada's marine industry in 2020

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Abstract: *Classification societies are acquiring significant responsibilities in the Canadian marine industry. Several trends account for this, suggesting a central role for class societies by 2020, including changing government regulation, the increased complexity of marine engineering plants, the globalization of marine construction and safety standards, and the sophistication of class societies themselves. Such trends are reviewed together with the unique coordinating role of the International Maritime Organization, the coming-of-age of universal construction and operating standards for commercial fleets, and the ability of class societies to enter new markets. The role of the International Association of Classification Societies is explored, together with policy and legal constraints earlier limiting a comprehensive role for class societies. The Canadian context for class societies is assessed in light of expected petroleum development on the west coast and in the Arctic, changes to foreign flag shipping fleets that serve the country, and domestic shipbuilding. Observations are made about the development of the role of class societies over the next decade.*

There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune.**

CLASSIFICATION SOCIETIES are global corporations for the Twenty-First Century. That is the result of their worldwide reach, the compass of a relatively few number them over most commercial vessels on the high seas, their truly transnational status, and an increasingly central and coordinate role in the regulation and management of commercial and government fleets alike. Marine commerce, domestic and international, has moved from a basic regulatory dependency on classification societies to that of a wide-ranging commercial and fleet management. The auspices for their greater role in shipbuilding and operation are evident.

The global trends for Canada's marine industry both reflect and are a part of the leading role played by classification societies as the enterprises most capable of decision-making and technical oversight of commercially trading vessels. Global marine commerce - organized as such for two and a half centuries, and regulated by flag states for the past 150 years - is now achieving

the status of being regulated comprehensively by enterprise, and no longer by the nation-state. That development should hold promise for Canada's marine industry, including shipbuilders, designers, suppliers and operators, as local peculiarities fall away and a uniform worldwide regulatory environment in which to compete and receive competition at a national level is realized.¹

Classification societies are organizations like no other. Their dual roles - of assessing and commenting on the condition of newly built and in-service commercial vessels for the purposes of insurance coverage, and of offering advice to the shipowner - are unique. "[The] original classification societies were quite successful in the latter part of the nineteenth century, as they brought measurable economic benefits to marine underwriters ... [the] method of risk management was based on rating each ship individually (i.e., classifying)."²

The commercial ascendancy of classification societies has not resulted from chance. Their historical development would always make them an important actor in marine commerce, particularly its technical regulation. Understanding that history, and the relationship between classification societies, fleet operators, flag states (also known as "national administrations"), the IMO, and between the societies themselves explains this evolution, and points to the future place of classification societies. We begin with an historical survey.

London rules the waves: From Lloyd's Coffee House to Plimsoll's Parliament

It was Edward Lloyd's coffee house on Lombard Street in London where, after 1690, the captains of maritime trade would meet to confer on maritime trade and the extent to which it would be backed, or underwritten. To know that a ship proceeding on a voyage of many months was seaworthy and was likely to return was a necessary assessment of risk, an exercise that would justify putting one's

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** William Shakespeare, *Julius Caesar*, Act 4, Scene iii, 218-19.

¹ This trend of national regulatory complementarity to global standards can be seen most in the adoption of the 1995 *Standards of Training, Certification and Watchkeeping Convention* (the STCW Convention) (in force 1 February 1997) following the work of the International Maritime Organization (the IMO) to revise the 1978 version. On the background of the STCW Convention, see the IMO website at: www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Standards-of-Training-Certification-and-Watchkeeping-for-Seafarers-%28STCW%29.aspx The 2010 "Manila Amendments" to the Convention (in force 1 January 2012) include training standards for vessel crews operating in polar areas. See also the Transport Canada website: www.tc.gc.ca/eng/marinesafety/mpsp-training-examination-certification-stcw-menu-2065.htm

² Edgar Gold *et al*, *Maritime Law* (Toronto, Irwin Law, 2003) at 231.

money behind the trade venture.³ Out of this was born Lloyd's Register of Shipping, charged with the independent or arm's-length assessment and reporting to insurers and owners about the sound construction and through-life seaworthiness of merchant ships. Lloyd's Insurance and the still-daily published *Lloyd's List* also resulted from this initial beginning of commerce.⁴ In the early days, ships were merely assessed as to their soundness for a single, if lengthy, voyage. And few complexities needed to be considered, for vessels were powered by sail, their construction straightforward and naval architecture as a science remained in its infancy. This exercise of "classification", made available in standard form and widely available after 1834 through Lloyd's Register of Shipping, was during most of the Nineteenth Century the determinant of safe, reliable shipping before the era of government regulation (and, after World War II, the transnational regulation of shipping through the International Maritime Organization). Lloyd's Insurance grew in step with the increase in ocean trade after the Napoleonic Wars, together with advances in marine technology (notably the advent of iron hulled ships and steam propulsion), as well as the market economy created in Europe during the Industrial Revolution. Reliable marine underwriting demanded good intelligence about the suitability of ships for an intended trade, and the increasingly organized result was classification.⁵

It was inevitable, given the national origin of shipbuilding and maritime trade, and the insularity among European states during the Nineteenth Century that other classification societies would be created. France's Bureau Veritas, incorporated at Brussels in 1828 as a response to the need to reform insurance coverage after the disastrous North Sea storms of 1821, moved its head office to Paris in 1833, where it has remained since. Bureau Veritas established itself as an early business innovator being delegated by the government of France in 1922, for example, the power to issue airworthiness certificates for new aircraft.⁶ The American Bureau of Shipping, created by charter in New York in 1862 as a

³ Edgar Gold, *Maritime Transport: The Evolution of International Marine Policy and Shipping Law* (Toronto: Lexington Books, 1981) at 120. "By the late 1800s, Lloyd's ... was undoubtedly the very centre of the world's marine-insurance market" (footnote omitted).

⁴ The "Society of Lloyd's" was incorporated in 1871, and does not itself insure, but rather serves as an exchange between interests requiring underwriting and syndicates offering coverage, in other words, a brokerage market. See *Lloyd's List* at: <www.lloydslist.com/II/> The *Lloyd's Law Reports*, the leading maritime, aviation and insurance law case reports, are also a manifestation of the early coffee house business. See: <www.i-law.com/ilaw/browse_lawreports.htm?name=Lloyd's%20Law%20Reports>

⁵ See "Insuring for the future?" *The Economist*, 16 September 2004. And see Godfrey Hodgson, *Lloyd's of London* (New York: Viking Adult Books, 1984).

⁶ "BV" is a consortium reporting a 2009 gross revenue of €2.65B. See its website at: Bureau Veritas: <www.bureauveritas.com/wps/wcm/connect/bv_com/Group/Home/About-Us/Our-History/>. Of its "core business" of "conformity, assessment and certification" 12% of revenue is derived from marine, including classification, services.

non-profit organization for the certification of ship's captains, offers a useful comparison to European developments. For ABS would continue in the business of technical standards, and be largely unrelated to marine risk assessment and insurance.⁷ It took early steps to create "Rules of Survey and Classing", now the *ABS Rules of Building and Classing Steel Vessels*.⁸

By 1900, five classification societies were in business, with Germany's Germanischer Lloyd, Norway's Det Norske Veritas and Italy's Registro Italiano Navale being created between 1861 and 1867. The early origins of a sixth, and the only other non-European classification society for several decades, Japan's "ClassNK" (Nippon Kaiji Kyokai, the Japan Marine Association), can be traced to 1899 although it effectively did not carry out business until it began issuing classification certificates in 1920 and achieved overseas commercial recognition in 1926, consistent with the rise of Japan's modern sea trade.⁹

The revolution in marine technology, demonstrated by the SS *Great Eastern* in 1859, and the increase in European seagoing trade - notably after the 1884 Berlin Conference apportioned colonial interests in Africa - made the requirements for technically credible and widely available vessel building and through-life condition surveys a necessity.¹⁰ But there were two limits to classification society standards for vessels. The first was that the watchkeeping operation (the "working") of a vessel, and maintenance, were not considered in the drafting of construction standards. The second was that trade and technology outstripped the ability (and commercial interest) of the societies for a period of time.

A third development came into the mix as a consequence of steam propulsion: the widespread carriage of ocean-going passengers over voyages now a fraction of their duration under sail.¹¹ Passengers were not so certain a quantity for insurance purposes, and mishaps to them while at sea attracted the attention

⁷ ABS remains a non-share capital company within the ABS Group of Companies. Of any national classification society, ABS is arguably closest to its national maritime administration, except perhaps the China Classification Society, discussed below. See: <www.eagle.org>

⁸ See the ABS 2011 Steel Vessel Rules at: <www.eagle.org> Rules for the construction of non-icebreaking polar vessels were most recently updated in 2008.

⁹ ClassNK remains a not-for-profit organization after its 1 April 2011 corporate reorganization. See: <www.classnk.or.jp/hp/en/about/history/index.html>

¹⁰ See Muriel E. Chamberlain, *The Scramble for Africa* (London: Longman, 1974).

¹¹ It was arguably the triple expansion engine that was the "prime mover of globalization" in the Nineteenth Century. See Vaclav Smil, "The two prime movers of globalization: history and impact of diesel engines and gas turbines," (2007) 2 *Journal of Global History* 373.

of politicians (and civil society) ashore. Moreover, the governments of the developed world were beginning to experience success in regulating the worst effects of the Industrial Revolution and urbanization from the move of rural populations to cities.

Samuel Plimsoll, the English member of Parliament for Derby from 1868 until 1800 recognized and acted in response to losses of life at sea: about 1,000 every year around the shores of the British Isles in the mid-1860s. It was significantly through his efforts and the popular support he gained in espousing safety of life at sea that legislation to regulate unclassified ships was enacted, widespread surveys of merchant shipping established, and measures to prevent the overloading of ships were adopted.¹²

The remedy he proposed was a compulsory survey of unclassified ships. He insisted, on the imperative necessity of having ships that had run out all their various grades of classification properly surveyed before they were allowed to go to sea with valuable lives on board, and also of putting some restraint on the homicidal cupidity of those who overloaded ships.¹³

The present Load Line Convention traces its origins to Plimsoll's long campaign to amend the *British Merchant Shipping Act*.¹⁴ In the face of a Parliament having a substantial number of shipowning members, he was initially unsuccessful. But popular sentiment sustained pressure on the Disraeli government, and in 1876 the Act was amended to require load markings on ships. In several respects the measures were the new Dominion of Canada's first maritime safety legislation, the United Kingdom Act then applying through the

¹² See Nicolette Jones, *The Plimsoll Sensation: The Great Campaign to Save Lives at Sea* (Little, Brown, 1996). Lloyd's Register, for its part, prohibited ships from overloading by maintaining minimum freeboard height. Ships had been required to be registered in Great Britain since 1786. Arguably, the problem of overloading ships was the result of tonnage taxation, which standards changed in 1854.

¹³ *Hansard*, House of Commons Debates, February 1871, cc. 668-69. Samuel Plimsoll's speech upon Second Reading of the Merchant Shipping Survey Bill.

¹⁴ *The International Convention on Load Lines*, 1966 (in force 21 July 1968). The Convention was first adopted in 1930. See also the 1988 Protocol, to harmonize the Convention with SOLAS and MARPOL, and the 2003 technical amendments. Load lines are assigned on the basis of reserve buoyancy calculations, an advance over stipulating the freeboard of a vessel at sea. On US flag policy and regulation of loadlines, see the US Coast Guard website: <www.uscg.mil/hq/cg5/cg5212/loadlines.asp>

British Empire.¹⁵ (The *Canada Shipping Act*, to regulate the coasting trade, was first enacted in 1906.¹⁶)

Government puts out to sea: State regulation comes of age

Over the next 35 years, government regulation of maritime safety shaped a constant if slow course. Machinery regulations, crewing requirements, and construction standards were seen as the responsibility of shipowners and their insurers. In general, Britain led such advances because of the great volume of seaborne trade under its flag. The *Merchant Shipping Acts* of 1894 and 1906 were typical: with few technical standards (and no “subordinate” legislation in the form of modern-day regulations), ensuring commerce was the concern, including registration of vessels, mortgages and sales, “distressed sailors”, compulsory pilotage and the operation of “emigrant and passenger ships”. Fishing vessels were also regulated for the first time.¹⁷

The loss of the RMS *Titanic* in 1912 resulted in a further evolution of classification societies, in two ways. First, the imperative for extensive and technically detailed government regulation of the industry was assured. Second, common standards for the safety of life at sea began to be adopted among the leading developed nations of the time. London in 1914 was host to the Safety of Life at Sea (SOLAS) Convention. From that meeting of 13 states, common standards for construction, navigation and life-saving equipment were arrived at, although the first SOLAS convention did not enter into force because of the First World War. It was not until after the 1929 second SOLAS convention that a treaty-based regime for shipping regulation among maritime states became binding, in 1933.¹⁸

A review of classification society rules in the years between the First and Second World Wars reveals a progressive sophistication in survey practices, record keeping requirements for ship owners, and construction and machinery

¹⁵ See the Load Line Regulations, SOR/2007-99 of the *Canada Shipping Act, 2001*, available at: <<http://laws-lois.justice.gc.ca/eng/regulations/SOR%2D2007%2D99/>>

¹⁶ On the history of the *Canada Shipping Act*, see Thomas E. Appleton, *Usque Ad Mare: A History of the Canadian Coast Guard and Marine Services* (Ottawa: Department of Transport, 1968), available at: <www.ccg-gcc.gc.ca/eng/CCG/USQUE_Table_Contents>

¹⁷ *The Merchant Shipping Act, 1894*, 57 & 58 Vic., c. 60, is available at: <www.legislation.gov.uk/ukpga/1894/60/pdfs/ukpga_18940060_en.pdf> Sections 418-463 detailed safety requirements, including provision for sailors to call for a survey of unseaworthy ships by the Board of Trade. David Lloyd George introduced the 1906 amendments in an effort to improve passenger accommodation aboard ships.

¹⁸ Uniform Collision Regulations were a significant feature of the 1929 Convention. See now *SOLAS Consolidated Edition 2009* (London: IMO, 2009).

standards. Little of this “industry risk regulation” conflicted with domestic shipping laws of the leading maritime states, although some overlap between the two was experienced. This was most apparent in the conduct of condition surveys. Class construction standards kept pace with technological innovations, including welded construction, watertube and high pressure boilers, and diesel engines.

In the United States, the Merchant Marine Act of 1920 mandated government agencies to recognize the American Bureau of Shipping (ABS), and the 1936 successor Act, creating the US Maritime Commission, stimulated domestic shipbuilding.¹⁹ It was the ABS which likely undertook the first classification society exchange of technical standards and surveying exchanges, when it concluded a 1917 agreement with the British Corporation for the Register and Survey of Shipping, a less well-known competitor to Lloyd's Register.²⁰ The agreement included the borrowing of load line standards, which were not legislated in the United States until 1920.

By the end of the Second World War, classification societies had been in the business of specifying construction standards and surveying ocean-going ships in trade for a century. The routine work of “standards and survey”, limited to national fleets, was about to experience a revolution. Several factors combined in the two decades after 1945: post-war replacement of commercial tonnage (vessels), a massive growth in bulk cargo and oil tanker traffic, trade liberalization coupled with newly independent states entering into commercial shipping, advances in shipbuilding, the phenomenon of open registries, and the coordinating role of the United Nations in creating the IMO's predecessor, the Inter-Governmental Maritime Consultative Organization.^{21 22}

¹⁹ See *The History of the American Bureau of Shipping, 1862-2005* (Houston: ABS, 2006). Shipbuilding stimulus came earlier through section 27 of the 1920 U.S. *Merchant Marine Act*, sponsored by Senator Wesley L. Jones, which required ships operating between American ports to be both nationally flagged and built. See now 46 U.S.C. § 551 (Coastwise Trade): At least 75% of a vessel's crew must be U.S. citizens, and no more than 10% of the weight of steel used in the repair of hulls and superstructures of American vessels must originate from U.S. steel mills.

²⁰ Little is known about the British Corporation, apparently in existence from 1890 until 1920. Its archives and registers are apparently preserved in Glasgow. On the agreement with ABS, see *ibid*. On the parallel development of Det Norske Veritas (and its relocation from Norway to England during the Second World War) see Håkon W. Andersen & John P. Collett, *Anchor and balance: Det Norske Veritas, 1864-1989* (Oslo: Cappelen, 1989).

²¹ IMCO was created by a treaty, the *IMCO Convention*, in 1948. A governing Council was provided for as well as a standing Maritime Safety Committee. Six of 16 Council members were to be representatives of the states having the largest “interest in providing international shipping services”, namely Greece, Norway, United Kingdom, Netherlands, Sweden and the United States. IMCO's role included providing a “machinery for co-operation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade, and to

The expanding business of classification societies can be seen in several events. First, new national societies were created in post-colonial countries, notably India and China. Second, the traditional nexus between maritime companies and their flag state registries began to erode (in part due to open registries, as well as changing patterns of building and chartering). Third, classification societies began to pursue business beyond “standards and survey” and to offer in-depth technical services. Fourth, the 1968 creation of the International Association of Classification Societies (IACS) together with its relationship with the IMCO/IMO established the credibility of the then seven leading societies, now 11.²³

Enter the Orient: The China Classification Society

The growth and reputation of the China Classification Society (CCS) reflects these developments. China's status as the new hegemon of global trade owes much to its capacity to trade by sea.²⁴ This success has been achieved through the construction and effective operation of an ocean-going fleet of merchant vessels, including container ships.²⁵ When the CCS was created, first as China's national shipping register in 1956, the country's merchant fleet was practically non-existent. By 1961, China was emerging on the world stage and trading

encourage the general adoption of the highest practicable standards in matters concerning maritime safety and efficiency of navigation ...” IMCO began operations in 1958 and member states first met in 1959.

²² Vaclav Smil discusses the post-war growth in oil tanker use and vessel size above note 11 at pp. 381-82. In the fifteen years to 1966, tankers went from 50,000 DWT capacity to 200,000 DWT. Smil notes that, of the world's tanker fleet in 2005 of 4,800 ships, 40% were VLCCs in the 240,000-250,000 DWT range.

²³ The creation of IACS resulted in a two-tier market in classification society services. IACS notes that its 11 members serve 90% of the world's commercial tonnage: *Classification Societies – What, Why and How* (London: IACS, March 2011) at 4. The current members are: ABS, Bureau Veritas (BV), China Classification Society (CCS), DNV, Germanischer Lloyd (GL), Indian Register of Shipping (IRS), Korean Register (KR), LR, ClassNK, RINA and Russian Maritime Register of Shipping (RS). See the IACS website at: <www.iacs.co.uk> Some 50 other organizations of varying capacities and experience account for the remaining tonnage, for example the Panama Bureau of Shipping and the International Register of Shipping (IRS). The IRS had a notably poor port state control record for its ships in the 1990s: Elizabeth R. DeSombre, *Flagging Standards: Globalization, Environmental and Safety Regulations at Sea* (Boston: MIT Press, 2006) at 113. The implications of port state control for continuing this two-tier regime are discussed below.

²⁴ Keith Bradsher, “China Trade Is Roaring Back: Stimulus and Export Aid Spur the Job Market,” *The New York Times*, September 18, 2009, 1. And see “Economic and financial indicators: Trade, exchange rates, budget balances and interest rates,” *The Economist*, September 19, 2009, 110. See *China Classification Society 2007 Annual Report*. Available at: <www.ccs.org.cn/en/CCS_Brief/CCS_Brief5.htm

²⁵ Irwin Heine traces the modern development of China's shipping and shipbuilding industries in *China's rise to commercial maritime power* (New York: Greenwood Press, 1989). See, notably, the table “Growth of China's Merchant Marine, 1960-1986” at 146.

increasingly with Communist bloc nations. The Chinese government had also concluded a program of shipbuilding was needed, in a manner common to industrial development and national prestige in western states. China's diplomatic isolation and the barring of her national-flagged vessels from many western ports necessitated the creation of shipping companies flagged in other jurisdictions, notably Hong Kong.

The result was an increase in the deepwater tonnage for which the CCS was responsible: from 150 ships of 760,000 DWT in 1961 (of which only 20 traded internationally) to 1,076 vessels of 16.4 million DWT at the end of 1986, an *annual* growth of 13.3 per cent.²⁶ Only the "open" or flag of convenience registries in Panama and Liberia have registered more vessels than China.²⁷ Of states with national classification societies, China now stands first in the number of vessels so classified under its national flag, with 1,600 vessels greater than 10,000 DWT in 2006 (when Hong Kong registered vessels are accounted for) considerably more than the next largest flag state with its own classification society, Greece.²⁸ The massive trade carried by China's merchant fleet reflects this, with more than one-third of the 28 million TEU containers imported to the United States in 2008 having originated from Chinese ports.²⁹ Finally, lest the role of the CCS be perceived as confined to operational shipping, what is taking place in Chinese shipyards under its aegis is also compelling. By 2006, China was the third largest builder, in overall tonnage, for the world's then existing fleet of some 17,000 vessels greater than 10,000 DWT, after South Korea and Japan.³⁰

Class in session: IACS

The creation of IACS in 1968 was a milestone in classification society business. Some cooperation had occurred between the leading, European societies in part

²⁶ *Ibid.*, at note 2.

²⁷ *World Oceangoing Merchant Fleet, by Top 25 Flag and Type, 2006: Vessels 10,000 Deadweight Tons or Greater*. Available at the US MARAD website: <www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm>

²⁸ *Ibid.*

²⁹ *U.S. Waterborne Foreign Container Trade by Trading Partner*. Available from the U.S. MARAD website, *ibid.* Marc Levinson, in his book *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger* (Princeton: Princeton University Press, 2006) notes at 269 that "[c]ontainer shipping thrives on volume: the more containers moving through a port or traveling on a ship or train, the lower the cost per box." The world's four largest container ports in 2003 were, respectively and by numbers of containers handled: Hong Kong, Singapore, Shanghai and Shenzhen. *Ibid.* at 273.

³⁰ *World Oceangoing Merchant Fleet, by Top 25 Flag and Type, 2006: Vessels 10,000 Deadweight Tons or Greater*, above note 27.

from efforts to coordinate national regulation of safe loading and stability of ships under the 1930 International Convention on Load Lines and shared approaches to construction standards in the 1950s.³¹ Classification societies now had a common basis to develop construction standards and to further their business, especially after obtaining IMCO observer status in 1969. The technical advances in response to major oil tanker casualties, ro-ro vessel losses, environmental protection requirements, and port state control outpaced the capacity of national maritime administrations to develop and enforce individual national regulations.³² While the core business of classification societies, to “grade ships into classes, and thereby to provide an authentic record of the details of the building of ship in relation to its reliability while operating on the high seas” continues, the emerging culture of safety management has permanently changed the business.³³

The synthesis of maritime safety: SOLAS

Three developments particularly contributed to and reflect the rise in marine safety management, namely SOLAS 1974, the International Safety Management Code (ISM Code) and delegation - more properly the *further* delegation - of flag state vessel inspections and certifications by national administrations to classification societies.³⁴ SOLAS has had a profound effect on the maritime industry, affecting the design, crewing and operation of cargo and passenger

³¹ Above note 14. The 1930 Convention was arguably the first maritime safety treaty, pre-dating the coming into force of the second SOLAS convention. The 1930 Convention also set the stage for maritime states to delegate the issue of load line certificates by classification societies under the 1966 Convention (see Articles 13 and 16). Classification societies met in 1939 as a result of 1930 Convention, but inconclusively.

³² Notably the 1967 *Torrey Canyon* and 1978 *Amoco Cadiz* incidents. Classification society liability from the 2002 *Prestige* sinking is discussed below. The 1987 and 1994 losses, respectively, of the *Herald of Free Enterprise* and the *Estonia* are also notable. The IMO's maritime pollution prevention (MARPOL) standards are a further example.

³³ *Maritime Law*, above note 2 at 63. “Their principal purpose is to protect the ship as a piece of property.” *Ibid.* at 230.

³⁴ Arguably, port state control, noted above, has been a fourth discrete development. “PSC” had an immediate salutary effect at a trading level on the safe operation and maintenance of vessels. Almost 30 years after the 1982 Paris MOU, a total of nine regional memoranda of agreement for port state regulation of foreign flag shipping are in place. Canada is a state signatory to the Paris MOU and the Tokyo MOU. See the IMO's website at: <www5.imo.org/SharePoint/mainframe.asp?topic_id=159> On port state control in Canada, see the Federal Court of Appeal's decision in *Canada v. Berhad (The “Lantau Peak”)* 2005 FCA 267 at para. 25: “The MOU is a non-binding mutual agreement which was concluded in Tokyo on December 1, 1993 by the maritime authorities of various Asia-Pacific states, including Canada. It attempts to harmonize and coordinate the process of Port State Control and the role of flag states, port states, shipowners and classification societies in ensuring compliance with international obligations such as those under SOLAS.”

vessels alike.³⁵ Arguably without SOLAS 1974, the other advances in modern maritime safety could not have been achieved or at least integrated into the organic whole that is now safety management. SOLAS made possible a consistent flag state regulation of the entire scope of technical and operating aspects of commercial vessels: from construction and navigation, to cargo handling and life-saving appliances.³⁶ It should be noted that the High Speed Craft Code, the ISM Code and the International Ship and Port Security Code (ISPS Code) are part of SOLAS. As a treaty-based regime SOLAS is made effective by the “tacit acceptance” procedure, whereby amendments become binding on states unless rejected by one-third of states or those having more than 50% of the world’s commercial vessel tonnage.³⁷ SOLAS Chapter II (“Construction”) specifically binds maritime states to the role of classification societies:

In addition to the requirements contained elsewhere in [SOLAS], ships shall be designed, constructed and maintained in compliance with the structural, mechanical and electrical requirements of a classification society which is recognized by [a national] Administration ...³⁸

It is the ISM Code (Chapter IX of SOLAS, 1974) that has secured the advances in safe shipping steadily acquired through regulation. The Code originates from an 1993 IMO resolution which, in part through the participation

³⁵ *International Convention for the Safety of Life at Sea*, 1974, 118 UNTS 2 (in force 25 May 1980). “[W]hile it may be correct to say that Canada has not implemented SOLAS in its entirety, it has incorporated much of the treaty into domestic law through the [Canada Shipping] Act.”

³⁶ While it is SOLAS 1974 that remains most cited, a comprehensive treaty regime for safe commercial shipping dates to SOLAS 1960, which became effective in 1965. It should be noted that SOLAS Chapter V, Safety of Navigation, applies to all vessels, commercial and private, as well as yachts at sea.

³⁷ Article VIII(b)(vi) SOLAS Convention 1974, above note 35. The IMO reports that, as of March 31, 2011, there are 159 states signatory to SOLAS 1974, representing 99.04% of world tonnage. See:

<www.imo.org/About/Conventions/StatusOfConventions/Pages/Default.aspx>

³⁸ SOLAS Convention 1974, *ibid.*, Chapter II-1, Part A-1, Regulation 3-1. In Canada, classification societies may carry out inspections and issue documents under the *Canada Shipping Act, 2001*. However, the Classed Ships Inspections Regulations, 1988, SOR/89-225, designates only ABS, LR and BV for purposes of tug and inland waters cargo vessel inspections. Transport Canada notes that: “Where existing regulations under the *Canada Shipping Act 2001* refer to specific ship classification societies being authorized to carry out certain statutory functions that are now addressed in these delegation agreements, it is intended that these regulations will be revoked or amended in future to acknowledge the authorizations granted under ... formal agreements.” See:

<www.tc.gc.ca/eng/marinesafety/tp-tp13585-intro-text-menu-851.htm>

of national administrations, is intended “to provide an international standard for the safe management and operation of ships and for pollution prevention.”³⁹ For the first time, there was a treaty-based system of assessing compliance with all maritime construction and safety standards, a process to ensure continuing adherence, one that was directed to vessel operations and shore based management alike. “The cornerstone of good safety management is commitment from the top. In matters of safety and pollution it is prevention, it is the commitment, competence, attitudes, and motivation of individuals at all levels that determines the result.”⁴⁰ The shipowner’s goal is to ensure a current ISM “Document of Compliance” resulting from an audit by a flag state “or other organization authorized by it” (*i.e.* a classification society). In Canada, the Safety Management Regulations of the *Canada Shipping Act, 2001* make the ISM Code applicable to Canadian flag vessels ships required to comply with SOLAS.⁴¹

The ISM Code, now entering its tenth year of application, initially met with some resistance, perceived in the industry as overly formalistic and an external imposition on marine culture.⁴² A comprehensive Finnish study in 2010 concluded that the Code was having a demonstrable effect on maritime safety:

The literature reviewed showed us that the ISM Code has brought a significant contribution to the progress of maritime safety in recent years. Shipping companies and crews are more environmentally friendly and more safety-oriented than they were 12 years ago ... Nevertheless, the direct effects and influence of the ISM Code on maritime safety could not be specified very well.⁴³

Although not well studied, the role of classification societies in the success of the ISM Code has been instrumental. This is due to several reasons, including the central risk assessment-insurability role played by the societies, together with

³⁹ IMO Resolution A.741(18) (4 November 1993.) The ISM Code came into force 1 July 1998. For the most part, commercial shipping companies had until 1 July 2002 to implement the Code.

⁴⁰ ISM Code, Preamble, para. 6.

⁴¹ SOR/98-348. The Regulations contain no express provision for the Minister of Transport to delegate to a classification society the issue of a corporate Document of Compliance or a single-ship Safety Management Certificate. See the discussion about delegation below.

⁴² See *e.g.* Max Meija, “Performance Criteria for the International Safety Management (ISM) Code” (Proceedings of the 2nd General Assembly of IAMU) (October 2001), available at: <www.ismcode.net/research_projects/Performance_Criteria.pdf>

⁴³ Juha Heijari and Ulla Tapaninen, eds., “Efficiency of the ISM Code in Finnish Shipping Companies” (University of Turku, Centre for Maritime Studies, 2010), at page 12. Available at: <www.merikotka.fi/julkaisut/Heijari_Tapaninen_2010_Efficiency_of_the_ISM_Code_in_Finnish_shipping_companies_high.pdf>

the perception of them by mariners and shipowners as being technically proficient and free from the biases of national regulation.⁴⁴ DNV, for example, is the “Recognized Organization” for ISM Code compliance by more than 3,750 ships and 500 maritime companies.⁴⁵ IACS has served a useful coordinating role between its 11 member societies, notably on standards and training for class inspectors to carry out audit-inspections.⁴⁶ It has also coordinated changes to the Code through the IMO, gathering industry suggestions in a way that neither the IMO nor its member states can obtain.

Standards, surveys and delegation

The “delegation” of national administration inspections and ship safety audits to classification societies is the most far reaching of changes to the core business of “standards and surveys” in the past two decades. From an historical perspective, the development was hardly novel. Flag states had never “regulated” the entirety of commercial shipping, leaving the task to commercial interests concerned with risk. SOLAS 1974 is hardly surprising in this regard: “The [national] Administration may, however, entrust the inspections and surveys either to surveyors nominated for the purpose or to organizations recognized by it.”⁴⁷

In Canada, five classification societies have the status as Recognized Organizations under formal agreements with Transport Canada to conduct “most of the surveys and certification required under the Canada Shipping Act, 2001” for new construction, Canadian registered vessels and vessels transferring to the national registry.⁴⁸ The five societies are: ABS, BV, DNV, GL and LR.⁴⁹ For ship

⁴⁴ IMO Resolution A.739(18) "Guidelines for the Authorisation of Recognised Organisations acting on behalf of the Administrations" (mandatory under Chapter XI of SOLAS) and Resolution A.996(25) "Code for the implementation of Mandatory IMO Instruments 2007" secured for classification societies the ability to conduct ISM Code compliance audits and approvals upon being recognized by national administrations.

⁴⁵ DNV website: “International Safety Management”: www.dnv.com/industry/maritime/servicessolutions/statutoryservices/ism/ > BV claims 2,500 ships and 900 companies.

⁴⁶ See IACS “Procedural Requirements for ISM Code Certification” (January 2010) at: <www.iacs.org.uk/document/public/Publications/Procedural_requirements/PDF/PR_09_pdf95.pdf>

⁴⁷ SOLAS Chapter I, Regulation 6. Canada has legislatively enabled such delegation through sections 12 ff of the *Canada Shipping Act, 2001*.

⁴⁸ See: <www.tc.gc.ca/eng/marinesafety/tp-tp13585-intro-text-menu-851.htm> the “delegation agreements” also permit statutory conduct of treaty required inspections and certification, for example the issue of load line certificates under the 1966 Convention.

⁴⁹ The agreements were announced in 1999 in direct response to the perceived requirement to delegate ISM Code audits and Document of Compliance issue under Canada's Safety Management Regulations, and entered into 2000-2003. ClassNK is likely to be the next classification society to obtain delegated statutory inspections.

owners, the Delegated Statutory Inspection Program (DSIP) is voluntary. The economic incentive of having single source classification and regulatory services for vessel owning companies is evident, and is thought to have been sufficient incentive for enrolment. Moreover, government policy recognizes that “[t]he delegation of these functions to ROs provides vessel owners a worldwide range of resources to enhance the efficiency and effectiveness of vessel inspections.”⁵⁰

It is important to note that the delegation of statutory inspections of Canadian vessels (as in other states) is done individually, there being no regime for a whole-of-shipowner-enterprise approach. At present, 179 Canadian vessels have been delegated to classification societies for statutory regulation.⁵¹ (In past years, partial delegation, that is, referral of inspection of particular ships’ systems had been done.⁵² Procedures for enrolment into the DSIP have been recently clarified, notably the document review, vessel inspection and approvals steps, and are detailed in a 2010 publication, “Marine Safety Management System Tier II Procedure.”⁵³ Transport Canada retains the authority under agreements with the five classification societies (and as a matter of statute with shipowners) to conduct monitoring inspections in vessels.

Confirming the entry of classification societies onto the centre stage of Canadian government regulation have been the recent initiatives of the Canadian Coast Guard to procure delegated inspection services of vessels in its fleet and the Canadian Navy to obtain warship design technical support.⁵⁴ What remains is the evaluation of classification societies in supplanting direct government regulation of shipping and maritime safety. The IMO has recognized this in proposing a “Code for Recognised Organizations” to ensure coordination among classification societies (and others) of conventions and issues pertaining to the

⁵⁰ See “Marine Safety Management System Tier II Procedure” (in force March 15, 2010), para. 4.2, at: <www.tc.gc.ca/media/documents/marinesafety/dsip-monitoring-E.pdf>

⁵¹ See Transport Canada “List of Delegated Vessels” (March 18, 2011) at: <www.tc.gc.ca/media/documents/marinesafety/dsip_b.pdf>

⁵² Transport Canada has declared that partial delegation will be phased out. See National CMAC, “Report of the Working Group on Domestic Vessel Regulatory Oversight” (November 2010) at: <www.tc.gc.ca/media/images/marinesafety/Domestic_Vessel_Regulatory_Oversight_Working_Group-English.pdf>

⁵³ Above note 50.

⁵⁴ See, respectively, Public Works and Government Services Canada, “Letter of Interest Delegation of Inspection Services for the Canadian Coast Guard Fleet” (October 19, 2010) and “Solicitation of Interest and qualification for Classification Society Technical Support (Navy Surface Combatant Project) (October 27, 2010). No agreement with a classification society has yet resulted from either initiative. The CCGS *Leonard J. Cowley* is the single government of Canada vessel under a DSIP agreement.

SOLAS (and ISM Code) regime.⁵⁵ A decade on, there has apparently been no research on the benefits of the ISM Code and delegation of statutory inspections in the Canadian industry. A 2009 European study concluded that:

[W]hile the maritime safety system seems to be successful in eliminating substandard vessels, the system could be made more effective by combining data sources on inspections and to use them respectively to improve risk profiling and to shift inspection efforts to the ships and regions of the world where they are needed most. This would imply to overcome the various political barriers in the shipping industry and would call for more cooperation between regulators and the industry.⁵⁶

In summary, current trends strongly suggest a more central and regulating role for classification societies in the marine industry. The requirements for cost efficiency (driven by improved labour standards together with increasing fuel and capital costs), for complex regulation and safety management development better suited to classification societies than government, and the authoritative status of the 11 leading (IACS member) classification societies underpin this. The trends are such that predictions can be ventured about the changing and expanding role of classification societies.

Every vessel is an ark: The future roles of classification societies

To begin with, classification societies will increasingly replace all forms of government marine regulation, both commercial and of government vessels themselves. This trend is already evident in Canada; of government vessels most acutely by the present exploration of possible delegated inspections and in warship design. The availability of naval construction standards from the leading

⁵⁵ Canada is a member of the IMO Sub-Committee on Flag State Implementation. The RO Code is presently being drafted following a meeting of the Committee in February 2011. "In fully respecting the sovereign rights of [IMO] Member States, there should be no issue ... with respect to mutual recognition concerning how these codes require flag States to instruct, regulate, control and monitor their ROs and the work they provide on ships flying their flag." IMO, Sub-Committee on Flag State Implementation, "Report to the Maritime Safety Committee and the Marine Environmental Protection Committee" 4 March 2011 at para. 13.7.

⁵⁶ Sabine Knapp and Philip H. Fransis, "Comprehensive Review of the Maritime Safety Regimes: Present status and recommendations on improvement" (Rotterdam: University of Rotterdam, 2009) at p. 18, available at: <<http://repub.eur.nl/res/pub/10097/EI%20Working%20Paper%202007-19.pdf>>

classification societies is itself a major advance.⁵⁷ The role of transportation regulation in maritime states can therefore be predicted to change to one of policy-making. The change may be substantial, with government having only an oversight role, effectively ceding the field of statutory approvals and inspection to the commercial sector, namely the “Recognized Organizations” that are for the present classification societies. Even in government policy-making classification societies will play a direct role, in influencing national administrations as well as indirectly through the participation of IACS in the IMO.

A second prediction can also be ventured. There will be little market growth for “second tier” non-IACS member classification societies. A number of them can be expected to cease doing business, as insurers in particular demand better regulatory compliance of the vessels they underwrite, and so a transfer to more competent classification societies. Port state control will play a leading role in identifying sub-standard ships and therefore limiting (if not diminishing) the reputations of second tier societies. The ability of these classification societies to oversee new construction and to apply IMO standards will present an increasing challenge. There will continue to be a market need for second tier classification societies due to specific national requirements or historical interests, the open flag registration of ships and the willingness of the marine underwriting market to accept the certain risks. What can be said is that such classification societies will have very little influence on technical developments and little market presence in advanced maritime states.

Third, the business lines of classification societies - already diverse - will continue to expand across technical standards, safety systems and management consulting generally. Naval and government construction, noted above, is one example, where classification societies will be involved increasingly in concept design and construction oversight.⁵⁸ Another area of business development will be in the implementation of the IMO's Polar Code.⁵⁹ The Code is proposed to

⁵⁷ See e.g. DNV's “Rules for Classification of High Speed, Light Craft and Naval Surface Craft” (January 2011) available at:
<<http://exchange.dnv.com/publishing/RulesHSLC/RulesHSLC.asp>>

⁵⁸ “[T]he [Canadian Forces'] body of design standards and specifications had fallen into disrepair through disuse ... it is appropriate to design the [Joint Support Ship] through Classification Society Rules ...” David Morris and Andrew Carran, “Canadian Forces Joint Support Ship System Requirements Definition and Validation” (November 2007), available at: <media.bmt.org/bmt_media/resources/98/CanadianForcesJointSupportShip-SystemRequirementsDefinitionandValidation-AndyCarran-Nov2007.pdf>

⁵⁹ “The International Code of Safety for ships operating in polar waters.” See the IMO's February 2011 update, available at:
<www.imo.org/MediaCentre/MeetingSummaries/DE/Pages/DE-53rd-Session.aspx>

“cover the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters surrounding the two poles.”⁶⁰ Another area of development will be in management systems and casualty loss investigation. An example is DNV's just-completed forensic study of the seabed petroleum blow-out preventer that failed on April 20, 2010 causing the loss of 11 lives and the Gulf of Mexico sinking of the drilling platform *Deepwater Horizon*.⁶¹ Another is Bureau Veritas' environmental site and remediation assessment services offered in North America, an activity entirely separate from the marine industry.⁶² A further area of business growth will be in marine environmental protection, with classification societies engaged in assisting shipowners to meet MARPOL requirements.⁶³

A fourth development to be faced by classification societies will be an increased exposure to legal liability. In both civil and common law jurisdictions alike, the risk of liability in contract or tort for an improper or incomplete survey was low. The threshold to establish a fault has been similar to government regulatory failings: generally rare or at least infrequent. Inaccuracies in surveys themselves are rarely the cause of marine accidents. The relatively recent case of “The Nicholas H” decided by the House of Lords (now the United Kingdom Supreme Court) is typical of the policy protection accorded to classification societies by national courts. A cargo owner alleged a careless survey. The House of Lords rejected there was a duty of care owed to third parties interested in a vessel, on the basis that it “would be unfair, unjust and unreasonable ... notably because they act for the collective welfare and unlike shipowners they would not have the benefit of any limitation provision.”⁶⁴ Some years earlier, the United States Federal Court came to the same conclusion in denying classification society liability resulting from a Canadian maritime casualty, the 1984 *Sundancer*

⁶⁰ *Ibid.* IMO Assembly Resolution A.1024(26) of 2009 refers. Reconciliation of ice rating standards and the geographic areas of mandatory Code application are two threshold issues.

⁶¹ “Final Report for U.S. Department of the Interior – Forensic Examination of Deepwater Horizon Blowout Preventer (20 March 2011), available at: <www.scribd.com/doc/51393006/2011-Dnv-Bop-Report-Ep030842-for-Boemre-Volume-i>

⁶² See BV's website for these services: <www.us.bureauveritas.com/wps/wcm/connect/BV_USNew/Local/Home/Our-Services/Health_Safety_Environmental/Environmental_Risk_Management/HSE_Phase_II_Site_Investigations>

⁶³ All IACS member classification societies, for example, have programs to assist shipowners prepare tanker VOC Management Plans under Article 15.6 of MARPOL 73/78 Annex VI. Consider also the *International Convention on the Control of Harmful Anti-fouling Systems on Ships*, in force since September 2008.

⁶⁴ *Marc Rich & Co. AG v. Bishop Rock Marine Co. (The “Nicholas H”)*, [1995] 2 Lloyd's Law Reports 299 at para. 75.

sinking at Vancouver Island.⁶⁵ The Court concluded that “the shipowner, not ABS, is ultimately responsible for and in control of the activities aboard ship. This ongoing responsibility for the vessel is supplemented by the maritime-law requirement that the shipowner has a non-delegable duty to furnish a seaworthy vessel.”⁶⁶ Arguably, the *Sundancer* case is from a different era, before the full extent of delegated statutory inspections and application of the ISM Code made intimate classification society guidance in the maintenance and operation of commercial shipping.

It may be the losses of the tanker *Prestige* off Spain and the Egyptian ferry *Al Salam Boccaccio 98* that, in Europe at least, prompts re-evaluation of classification society liability. The Egyptian ferry, in class under RINA, was stricken in February 2006 after a fire. 1,068 people lost their lives in the Red Sea accident. A civil lawsuit filed in July 2010 alleged that RINA had been negligent in inspecting the ship during its 1970 construction and issuing a current Document of Compliance to the shipowner, El Salam Maritime Co.⁶⁷ The *Prestige* case was an epic of litigation against the vessel's classification society, ABS, with the US Federal Court deciding in 2010 that liability for a failure to correct structural corrosion remained with the shipowner, thus denying the government of Spain's \$700M claim.⁶⁸ Classification societies will take care to insulate themselves from liability by contractual limitations, especially in design and technical consulting work, and to a certain extent in conducting surveys and statutory delegated inspections. This will include risk shifting to vessel owners. Ideally, the implications of increased exposure to legal risk on the part of classification societies will be accounted for by maritime operators in the continuing improvement of a culture of safety.

A fifth development, important for vessel owners, will be increased competition among classification societies, particularly those working in national markets without a domestically or historically based society. The opening-up of Canada's domestic market is an example, as can be seen in Transport Canada's

⁶⁵ *Sundance Cruises Corporation v. The American Bureau of Shipping*, 7 F.3d 1077 (2d. Cir.). The case should not be confused with the negligent classification of a yacht, the *Sundancer*, in the Queensland Supreme Court, [2001] QSC 348.

⁶⁶ *Ibid.* at para. 51.

⁶⁷ See “Rina hit with \$128m Al Salam Boccaccio 98 claim,” *Lloyd's List* (21 July 2010), available at: <www.lloydslist.com/ll/sector/ship-operations/article174108.ece> “The success of the 541-page civil suit rests on the lawyers' argument that Rina as the class society that issued the vessel's ISM Code, should have detected what Italian lawyer Stefano Bertone ... describes as a ‘total lack of safety culture’ at the Egyptian company ...” A useful reference is Nicolai Lagoni's *The Liability of Classification Societies* (Berlin: Springer, 2007).

⁶⁸ See “ABS handed Prestige victory” *Lloyd's List* (3 August 2010) at: <www.lloydslist.com/ll/sector/regulation/article341829.ece>

approval of five European originating societies to conduct delegated statutory and ISM Code work. Classification societies will need to establish distinctive “product lines” for example in specialty areas such as naval and polar construction, and provide responsive, cost-competitive services in local markets. It can also be predicted that the ability of shipowners to change (transfer vessels between) classification societies will become easier in response to market selection.⁶⁹

The broad trend of truly global marine technical standards and industry regulation is now well underway in Canada. That has meant a change in substantive regulation under the *Canada Shipping Act, 2001* and, for many shipowners and industry professionals, a change in regulator. Both are exogenous influences for which the Canadian industry had been suitably prepared because of sound government regulation and the assistance of classification societies in the second half of the Twentieth Century. To successfully navigate the growing role of classification societies, it must be recognized that they now play three distinct roles, and therefore the necessity of avoiding confusion and conflict between such roles: (i) the establishment and continuing improvement of technical standards and inspections, the latter no longer exclusively for marine underwriting; (ii) consultative advice to shipowners and operators; and (iii) most recently, an increasing role in primary government (*i.e.* delegated) vessel approvals, inspections and certifications. In some areas of the Canadian marine industry, these roles will be near-exclusive, being the “entirety” of regulating the condition and status of vessels. Offshore petroleum development and shipping in the Arctic will be two such areas. As has been discussed above, classification societies will have an increasing role over construction in Canadian shipyards and in the design and building of new government fleets. The role of classification societies in supporting foreign flag vessels, notably for the export of Canadian natural resources and commodities, together with Port State Control regulation is less obvious, but it seems likely the government and industry will defer to such work.

The role of classification societies - setting the standards for ships, assessing their condition, and reporting on such matters to seafarers, shipowners and insurers - has always been about efficient marine commerce. National governments and, later, the IMO, have been much concerned in the past century with maritime safety and environmental protection. The emerging and primary governing-regulatory role of classification societies, in tandem with the

⁶⁹ See the IACS document PR1A, “Procedures for Transfer of Class” (July 2009), at: <www.iacs.org.uk/document/public/Publications/Procedural_requirements/PDF/PR_01A_pdf87.pdf> Some relaxation of hull and machinery class survey requirements, or at least harmonization of them, will be necessary.

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coordinating work of the IMO, will mark a retreat of government from the marine industry. The challenge in Canada will be to recognize that phenomenon and adapt to it.

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