

LIGHTHOUSE

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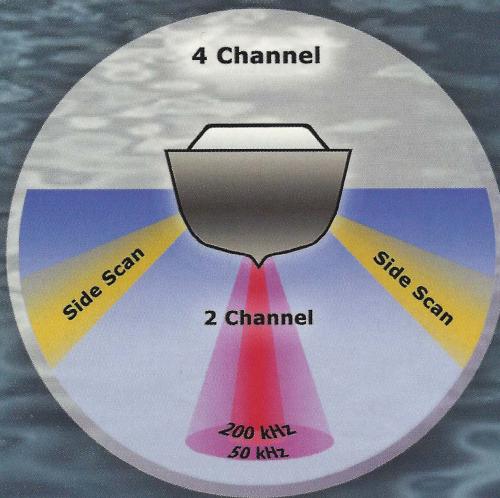


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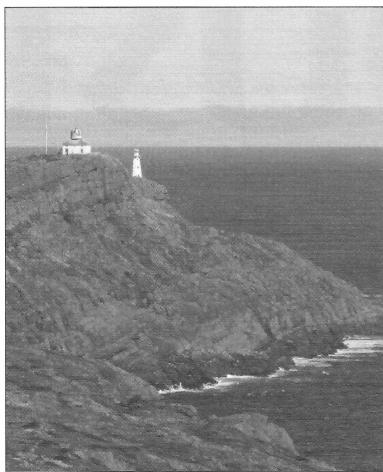
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Cape Spear

Cape Spear Lighthouse

Cape Spear, Newfoundland's oldest surviving lighthouse, has served as the chief approach light for St. John's harbour since 1836. Constructed by local builders Nicholas Croke and William Parker, it consists of a stone tower surrounded by a frame residence, a common lighthouse design on Canada's east coast. The light mechanism in use in the 19th century came from Inchkeith lighthouse in Scotland. Modern equipment was installed in 1912 and remains in use in the concrete tower built nearby in 1955. Much altered during the 19th century, the old lighthouse has been restored to its original appearance. (Taken from Historic Sites and Monuments Board of Canada plaque at Cape Spear)

Cape Spear is the most easterly point in North America.

List of Lights: 507

Position: 47 31 16.20N 52 37 20.30W

Characteristics: Fl 15s 40m 20M, Fogsig 20s

(Sources: Canadian Coast Guard SIPA Database)

Photograph credit: Jim Weedon, Canadian Hydrographic Service - Central & Arctic Region

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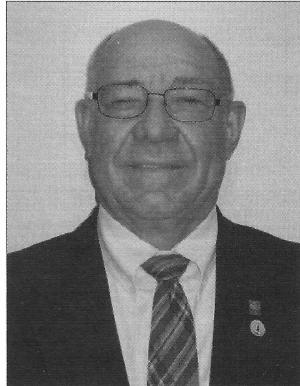
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Message from the National President

Mot du Président national



Finally, here we are!!!

Where do I begin?

Firstly, let me sincerely apologize for the protracted delay in the production of this issue of Lighthouse. Let me assure you it was not due to a lack of effort or inattention, but rather to the unfortunate unavailability of our hard working and esteemed editor, due to personal circumstances. Craig, we thank you for your past efforts and wish you all the very best for 2012. Secondly, we wish to thank our layout Editor, Jim, for stepping into the breach to produce this issue! Lastly, but by no means least, we wish to thank our advertisers, subscribers and loyal readers for their patience, which is very much appreciated.

As we embark into the New Year, we have much to be grateful for and to look forward to. We wish for all a Happy, Healthy, Peaceful and Productive 2012. Planning is well underway for our International Hydrographic Conference CHC2012 by our Conference Chair, Roger and his very capable team. We look forward to meeting many of you in Niagara Falls May 15-17, as the organizing committee has vowed to make this the best CHC Conference ever!

We wish to congratulate Pat Sanders of HYPACK, Inc. as he takes over the helm of our sister organization THSOA (The Hydrographic Society of America). We thank THSOA for their warm hospitality, accommodation and support as we attended US Hydro 2011 in Tampa, Florida and their agreement to a unified North American approach to membership in IFHS.

We look forward to attending the 120th Annual General Meeting of the Association of Ontario Land Surveyors in Ottawa (February 22-24), the 8th National Surveyors Conference of the Association of Canada Lands Surveyors in Regina Saskatchewan (June 6-8) and the FIG working week 2012 (May 6-10 in Rome, Italy) and congratulate FIG on organizing the first Young Surveyors Conference immediately before the Working Week.

We would like to congratulate Brad Eisan, the winner of the 2011 National Student award, and wish him continued success in his studies. Congratulations and best wishes also go to Marc-André Barbeau, the winner in 2010, who was officially presented his award by Bernard, our Vice-President of the Quebec Branch, at a special ceremony hosted by Laval University in March in 2011.

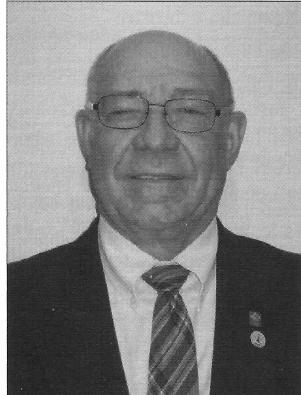
In closing, I would personally like to thank the CHA National Board of Directors, our National Secretary, National Treasurer, our Auditors, all our Committee Members and our FIG Commission Chair, for their dedication and hard work during the past year promoting Hydrography Nationally and Internationally. Challenges lie ahead as we adapt to the legislative changes occasioned by the passage of the new Not-for-Profit Corporations Act. We will of course succeed!

See you in Niagara Falls!

George McFarlane, National President

Message from the National President

Mot du Président national



Enfin, nous voici!!!

Où dois-je commencer?

Tout d'abord, permettez-moi de m'excuser sincèrement pour le retard dans la production de ce numéro du Lighthouse. Soyez assurés que ce n'était pas dû à un manque d'effort ou d'attention, mais plutôt à l'indisponibilité de notre rédacteur en chef estimé, en raison de circonstances personnelles. Craig, nous vous remercions pour vos efforts passés et je vous souhaite le meilleur pour 2012. Deuxièmement, nous tenons à remercier notre rédacteur Jim pour avoir comblé la brèche et fait la mise en page de cette édition! Enfin, mais non le moindre, nous tenons à remercier nos annonceurs, les abonnés et les lecteurs fidèles pour leur patience, laquelle est très appréciée.

Alors que nous entrons dans la nouvelle année, nous devons être pleins de reconnaissance et d'espoir. Nous souhaitons à tous une année 2012 heureuse, saine, paisible et productive. La planification de la Conférence hydrographique du Canada (CHC) 2012 va bon train grâce à notre Président de la Conférence, Roger et à son équipe. Nous nous réjouissons de vous accueillir nombreux à Niagara Falls du 15 au 17 mai et le comité organisateur a promis de faire de cette CHC la meilleure qui soit!

Nous tenons à féliciter Pat Sanders de HYPACK, Inc qui prend la direction de la THSOA (The Hydrographic Society of America), le pendant américain de notre Association. Nous remercions la THSOA pour son hospitalité, l'accueil chaleureux et le soutien pendant notre séjour au US Hydro 2011 à Tampa, en Floride et son accord à une approche unifiée nord-américaine d'adhésion à IFHS.

Nous sommes impatients d'assister à la 120^e assemblée générale annuelle de l'Association des arpenteurs-géomètres de l'Ontario à Ottawa (22 au 24 février), la 8^e Conférence nationale des arpenteurs de l'Association des arpenteurs des terres du Canada à Régina, en Saskatchewan (6 au 8 juin) et à la semaine de travail de la FIG (6 au 10 mai à Rome, Italie) et à les féliciter pour l'organisation de la première Conférence des Jeunes arpenteurs juste avant la semaine de travail.

Nous tenons à féliciter Brad Eisan, le gagnant de la bourse nationale des étudiants 2011, et nous lui souhaitons beaucoup de succès dans ses études. Nos félicitations et nos souhaits vont aussi à Marc-André Barbeau, le gagnant en 2010; notre vice-président de la section du Québec, Bernard, lui a remis officiellement la bourse lors d'une cérémonie spéciale organisée par l'Université Laval en mars 2011.

En terminant, je tiens personnellement à remercier le Conseil d'administration national de l'ACH, le secrétaire national, le trésorier national, les vérificateurs, tous les membres des comités et le président de la Commission FIG pour leur dévouement et leur travail acharné au cours de la dernière année à promouvoir l'hydrographie au niveau national et international. Nous devrons aussi nous adapter et relever les défis occasionnés par les changements législatifs apportés à la nouvelle loi sur les organisations sans but lucratif. Nous allons bien sûr réussir!

Rendez-vous à Niagara Falls!

George McFarlane, président national



The 37th Canadian Hydrographic Conference will be held in Niagara Falls, Ontario from May 15-17, 2012. The event is being organized by the Canadian Hydrographic Association with the Canadian Hydrographic Service (Fisheries and Oceans Canada). The conference theme is "The Arctic: Old Challenges, New Approaches". The conference will focus on the latest advances in hydrography, marine cartography and electronic navigation highlighting applications useful in the harsh Arctic marine environment.

This conference gives attendees a first look at recent scientific and technological innovations in the hydrographic field through a comprehensive programme comprised of presentations, training workshops, poster sessions and demonstrations aboard hydrographic vessels. To add to the interactive experience, there will also be an entertaining social program.

There is always a lot to do in Niagara Falls!

Workshops

On Monday, May 14th free full and half-day training workshops will be offered.

ESRI, HYPACK Inc. and IXBlue will be offering full-day workshops. Half-day workshops will be offered by Caris, Chesapeake Technology Inc., Triton Imaging Inc., and Fugro Pelagos Inc. Check the website and sign up soon as the workshops are space-limited.

For the less faint-of-heart, on Monday the Niagara River Exploration Tour will feature a jet boat ride up to and into the worldfamous Niagara River Whirlpool Rapids followed by a visit to the bottom of the falls on the Maid-of-the-Mist.

Technical Program

The technical sessions will deal with Arctic issues, such as the increased ice-free shipping season, new and emerging technologies, vertical reference frame and datum issues, marine spatial data infrastructure and management, nautical cartography among others and all the politics that go along with those issues. The debates are sure to be lively!

Exhibition

A show featuring displays by some 50 commercial exhibitors and international institutions will also be held throughout the conference. This will give conference attendees and interested members of the general public the opportunity to learn about the latest technologies used in the field of hydrography.

Social Activities

In addition to the opening and closing ceremonies, the organizing committee has put together a social programme that promises an amusing and captivating tone for the conference. Delegates will flock to the Icebreaker reception held in the R5 Lounge at Fallsview Casino where they can meet new friends and greet old ones. Tuesday, May 15th will feature the Exhibitors' Evening, an event held in the relaxed atmosphere of the exhibits area at the conference centre. This gives attendees the opportunity to gather, converse, catch up and network.

The semi-formal Conference dinner, held Wednesday, May 16th at Elements on the Falls, has a view, second to none, overlooking the Canadian Horseshoe Falls as well as the American Falls, which are lit up in a light show which will leave attendees spellbound!

The conference centre has an onsite concierge who can arrange self-guided or guided tours of the many attractions of Niagara Falls, Niagara-on-the-Lake, including many of the local wineries, some of which produce award winning wines, notably world-famous ice wines.

The Canadian Hydrographic Association, in collaboration with Canadian Hydrographic Service (Fisheries and Oceans Canada) encourages anyone with an interest in hydrography to attend the Canadian Hydrographic Conference 2012.

Further Information

For more information about the conference, please visit the event Web site at www.chc2012.ca or on Twitter @ CHC2012 or 'like' the page on Facebook at CHC2012.

THSOA 2011

USHYDRO 2011

In April of this year, The Hydrographic Society of America held its 13th Biennial U.S. Hydrographic Conference in Tampa, Florida. USHYDRO 2011 was the continuation of a series of international hydrographic conferences, workshops and exhibitions that alternate annually between the United States and Canada. The Canadian Hydrographic Service (CHS) and the Canadian Hydrographic Association (CHA) are Honorary Conference Sponsors. Because of the close social and professional relationship between THSOA and CHA, the membership conference registration rate of THSOA is extended to members of CHA. All our Conference Proceedings and a wealth of other information and reference materials can be down loaded at (THSOA.org).

The Conference was well attended, the Exhibit Space sold out, and the Marriott Waterside Hotel was a well located and beautiful setting for the conference. You could take a few steps from the Conference Hall and be at the vessel demonstration site; this was a distinct advantage. Canadians were an integral part of the Conference with Rob Hare, CHS, being a part of the Technical Program Committee and the strong technical participation from Canada. George McFarlane and Roger Cameron gave a warm invitation to the delegates to attend the CHC 2012 Conference in Niagra Falls.

One of more satisfying parts of USHYDRO 2011 was the continued expansion of the Student Outreach Program. The Student Outreach Program of THSOA began as an idea at the THSOA 2002 Annual General Meeting at CHC in Toronto. THSOA developed the Program in 2003 to introduce the field of hydrography and associated education and employment opportunities to undergraduate students. The first Student Outreach Program took place at USHYDRO 2003 in Biloxi, Mississippi with three students attending. The program has grown and developed since then with 25 students representing 16 schools attending USHYDRO 2011. This year was the first year that we extended the program to Canadian Students. Camille

Pagniello, of Dalhousie University and Rowan Fox, of the University of Victoria were able to attend though the financial assistance of our Corporate Members and THSOA.

The THOSA National Scholarship Program was introduced this year. We were pleased to award six Students Scholarships and match the scholarship fund of our Houston Chapter for a total of \$12,500. We expect to continue and expand our activities in the field of Education next year.

Certified Hydrographer Acronym

The American Congress of Surveying and Mapping/The Hydrographic Society of American ACMS/THSOA Hydrographic Certification Board (HCB) is authorizing those who successfully completed the hydrographic certification examination and are currently active in the hydrographic community to place "C.H." (Certified Hydrographer) after their name. Common certification acronyms include L.S.I.T. (Land Surveyor in training) and C.P. (Certified Photogrammetrist). While these certifications do not legally license the owners to practice their skills, they do convey to their peers and clients the individuals' relative depth of knowledge in their disciplines. The attainment of certifications is a means for individuals to indicate to the general public, co-workers, employers and others that the ACSM/THSOA has determined that they are qualified to perform hydrographic services by virtue of their technical knowledge and expertise.

A list of active Certified Hydrographers can be found on the website of the National Society of Professional Surveyors (www.nspsmo.org). There is no national resident requirement for application for Certification by the Hydrographic Certification Board. Additional information can be found on the NSPS or THSOA website.

Karl Wm. Kieninger
President, THSOA

Reaching Out - Introducing Students to the Field of Hydrography

By: Jana DaSilva Lage, Chair, THSOA Student Outreach Program

As we all know, hydrography is a fulfilling career. There are opportunities to chart the uncharted; to produce maps that define safe passageways for mariners; to discover new habitats and old shipwrecks. Most students don't realize that our field is an option to them as they decide which career path to follow. I believe it is our responsibility to share our passion for the sea and the work that we do with the next generation. The Hydrographic Society of America (THSOA) has successfully done this through our Student Outreach Program.

In 2004, I gave a presentation at the CHC in Ottawa about the Hydrographic Society of America's new Student Outreach Program, which consisted of three students who attended the US Hydro Conference in Biloxi, Mississippi in 2003. Since that time, the program has developed and grown substantially as a result of participant feedback and support from THSOA and the hydrographic community.

This year, for the first time, the Student Outreach Program reached beyond US borders to provide educational opportunities to two Canadian Students who attended the US Hydro Conference in Tampa, Florida April 24-28, 2011. The two students, Camille Pagniello, a first year student at Dalhousie University and Rowan Fox, a student graduating from the University of Victoria, joined 23 American students from 14 different colleges and universities in four full days, immersed in the field of hydrography.

To ensure that everyone understood the basics, the day before the conference started, the students participated in an "Intro to Hydro" workshop that consisted of classroom presentations covering topics including: geodesy, data acquisition, processing, and cartography. They spoke with representatives from the U.S. Army Corps of Engineers (USACE), the National Oceanic and Atmospheric

Administration (NOAA), and the Naval Oceanographic Office (NAVO) at an informal lunch prior to embarking on survey vessels for on-the-water demonstrations. To complete their day, the students were introduced to volunteer mentors who helped them network at the Conference Icebreaker.

On Tuesday, the students gathered for a more formal lunch where they heard about employment and educational opportunities in the field of hydrography. They shared tables with representatives from NOAA, NAVO, USACE, the University of New Hampshire, University of Southern Mississippi, University of New Brunswick, and companies supporting the program.

For the remainder of the conference, the students participated in workshops and additional on-the-water demonstrations. They attended presentations and social events. They used their networking skills to search for jobs and internship opportunities as they visited with vendors in the Exhibition Hall. At least two of the students, who attended the Tampa conference, are now employed in the field and many more are interested.

Camille and Rowan were fortunate to have the opportunity to learn a little about hydrography in Canada by speaking with John Hughes Clarke, George McFarlane, David Wells, and Roger Cameron. However, I am sure there are many more Canadian students who could find themselves in love with the field if provided the opportunity to discover it. George McFarlane was invited to many of the student activities after expressing interest in possibly starting a student outreach program at the Canadian Hydrographic Conference. I, for one, hope that Canadian hydrographers rally around this and bring a few students to the upcoming CHC in Niagara Falls. It would change their lives. 



Association of Canada Lands Surveyors

News from the ACLS



GeoEd

GeoEd is a collaborative program that seeks to include all provincial and federal surveying associations in Canada to promote accessible continuing professional development. The initiative was conceived and developed by the ACLS (Association of Canada Lands Surveyors) when it recognized the need of a national forum for CPD. ACLS continues to maintain the portal in what will hopefully become a cooperative effort to share resources and expertise.

Part of this initiative is a forum where anyone can register. Here you can search by jurisdiction to find seminars that are happening near you, as well as post upcoming ones for others to find. You can chat to surveyors across Canada about seminars you have attended and what sort of seminars you would like to see in the future. As well, GeoEd is currently constructing an online system for course delivery! This means that there will be full courses on a variety of topics that will be available at your fingertips.

Currently available through GeoEd is a 30 minute course that focuses on How to do Business with the Federal Government. It will talk you through how best to use the online system MERX and SELECT, as well as how to bid on proposals and make sure your bid is considered. Some upcoming courses are: Field Notes, Expert Witness, and Introduction to GNSS.

GeoEd exists to help surveyors succeed, but it will need surveyors from across the country to participate if it is to become a truly national resource. Join a discussion in the forum! Talk about an amazing course you've been on! Take an online course to advance your continuing professional development credit!

Our hope is that GeoEd will be the tool for surveyors across Canada will use to make educational opportunities as easy and accessible as possible. Please visit GeoEd at: www.geoed.pro

Mandatory CPD and Tracking System

Since announcing that Continuing Professional Development had become mandatory for all ACLS license holders starting January 1, 2011, ACLS has been working to make keeping track of hours easier.

Now ACLS has launched a CPD Tracking System that allows members to easily keep a record of all CPD hours that they have accumulated through the ACLS website.

Online Exam System

The ACLS has a new on-line, on-demand Web based exam system to allow those candidates who have a provincial surveying commission to earn a Commission as a Canada Lands Surveyor. All candidates are required to write a 4 hour professional exam incorporating the following subjects:

- Acts, Regulations and General Instructions for Surveys
- Property Rights on-shore
- Property Rights offshore
- Aboriginal Government Issues



Association of Canada Lands Surveyors

Candidates who do not meet the hydrographic education requirement will also have to successfully complete the new on-line hydrographic surveying examination.

For complete descriptions of the exams, recommended study materials and detailed explanation of the on-line examination procedures, please download the Candidate Information Handbook (PDF) at <https://www.acls-aatc.ca/files/english/exams/Candidate%20Labour%20Mobility.pdf>

Celebrating excellence in the field of geomatics, this awards program is open to all commissioned surveyors who are members of a Canadian surveying association. Projects that have been completed within the last three years may be submitted. The categories are:

- Innovation in Geomatics
- Contribution to Society
- Unusual Applications in Geomatics

The deadline for submissions for next year's awards is March 31st, 2012.

For details on the David Thompson National Geomatics Awards, please visit: <http://www.acls-aatc.ca/en/node/27>

National Surveyors' Conference 2012

The upcoming National Surveyors' Conference will be held from June 6th to 9th 2012 at Hotel Saskatchewan Radisson Plaza in Regina, Saskatchewan in conjunction with the Saskatchewan Land Surveyors Association AGM. Preliminary program includes seminars on topics such as Risk Management and Getting it Right (second module).

Details will be posted on the Web site as soon as they are confirmed. Go to: <http://www.acls-aatc.ca/en/node/69>

Jean-Claude Tétreault, CLS, a.-g., P. Eng., MBA
Executive Director



David Thompson Awards

The fifth annual David Thompson National Geomatics Awards will be presented at the Gala Dinner at the end of the National Surveyors' Conference on June 8th, 2012 in Regina, Saskatchewan.



L'Association des Arpenteurs des Terres du Canada

Nouvelles de l'A.A.T.C.



GeoEd

GeoEd est un programme coopératif qui vise à inclure toutes les associations d'arpentage provinciales et fédérales du Canada afin de promouvoir l'accessibilité au perfectionnement professionnel continu. L'initiative a été conçue et développée par l'AATC (Association des arpenteurs des terres du Canada) lorsque celle-ci a reconnu la nécessité d'un forum national pour le PPC. L'AATC continue de maintenir le portail de ce qui, nous l'espérons, deviendra un effort coopératif de partage des ressources et de l'expertise.

Une des composantes de cette initiative est un forum auquel tous peuvent s'inscrire. Vous pouvez ici y effectuer des recherches par juridiction afin de trouver des séminaires qui se déroulent près de chez vous et aussi y inscrire des séminaires qui pourraient être utiles à vos collègues. Vous pouvez discuter avec les arpenteurs-géomètres à travers le Canada des séminaires auxquels vous avez participé et des genres de séminaires auxquels vous aimeriez participer à l'avenir. De plus, GeoEd construit actuellement un système de distribution de cours en ligne. Ceci signifie que vous aurez accès du bout des doigts à des cours complets portant sur une panoplie de sujets.

GeoEd offre actuellement un cours de 30 minutes qui porte sur la manière de faire affaires avec le gouvernement fédéral. Il vous enseigne la meilleure façon d'utiliser les

systèmes en ligne MERX et SELECT, ainsi que la façon de soumissionner afin de vous assurer que votre soumission soit examinée. Voici quelques cours à venir : notes d'arpentage, témoin expert et initiation au GNSS.

La raison d'être de GeoEd est évidemment d'aider les arpenteurs-géomètres à réussir. Pour ce faire, il aura besoin de la participation d'arpenteurs-géomètres de partout au pays s'il doit devenir une ressource véritablement nationale. Participez à une discussion dans le forum ! Discutez d'un cours exceptionnel que vous avez suivi ! Suivez un cours en ligne pour étoffer votre banque de crédits de perfectionnement professionnel continu !

Nous espérons que GeoEd deviendra l'outil privilégié des arpenteurs-géomètres qui désirent se prévaloir d'un accès facile aux occasions de perfectionnement professionnel continu. Veuillez consulter le site GeoEd à : www.geoed.pro

PPC et système de suivi en ligne

Depuis que le perfectionnement professionnel continu est devenu obligatoire l'Association a travaillé pour mettre au point un outil pour faciliter la tâche aux membres pour faire le suivi de leurs heures de PPC.

Le nouveau système de suivi en ligne des activités de PPC est maintenant disponible pour tous les membres de l'A.A.T.C. sur le site Web de l'A.A.T.C.

Système d'examens en ligne

L'Association a maintenant un nouveau système qui dispense des examens professionnels en ligne, sur demande, disponible pour les candidats qui détiennent un brevet d'arpenteurs-géomètre dans une province



L'Association des Arpenteurs des Terres du Canada

canadienne. Tous les candidats devront passer l'examen professionnel de 4 heures qui traite des sujets suivants:

- Lois, règlements et instructions générales pour l'arpentage
- Régimes des droits fonciers — sur terre
- Régimes des droits fonciers — extracôtiers
- Questions concernant les gouvernements autochtones

Les candidats qui n'ont pas une formation académique en hydrographie devront subir avec succès l'examen d'hydrographie qui est aussi en ligne et sur demande

Pour des informations complètes sur les examens, le matériel didactique recommandé et une description de la procédure à suivre, S.V.P. télécharger le manuel du candidat (PDF) à : <http://www.acls-aatc.ca/files/francais/Candidat%20Mobilite.pdf>



Prix David Thompson

La cinquième remise des prix a eu lieu lors de soirée gala lors de la prochaine Conférence national des arpenteurs-

géomètres à Régina, Saskatchewan le 8 juin, 2012.

Tout arpenteur-géomètre breveté, membre d'une association (ou ordre) professionnelle d'arpentage canadien, et qui présente un projet qui a été complété cours des trois (3) dernières années sera considéré admissible. Des prix seront décernés dans les catégories suivantes:

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La prochaine conférence aura lieu à Régina, Saskatchewan du 6 au 9 juin, 2012 à l'hôtel Saskatchewan Radisson Plaza conjointement avec l'assemblée générale de la Saskatchewan Land Surveyors Association. Le programme technique préliminaire comprend des sujets comme la gestion du risque et « Getting it Right » (second module).

Les détails seront affichés sur le site Web aussi tôt que disponible à: <http://www.acls-aatc.ca/fr/node/100>

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Go **F.I.G.**ure

This regular feature provides information and current news from the International Federation of Surveyors (FIG) with emphasis on FIG Commission 4 (Hydrography).

International Federation of Surveyors, Commission 4 Newsletter

September 29, 2011

Dr. Michael Sutherland, Ph. D.
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Commission 4 continues in its 1st year of the 2011-2014 term, pursuing significant contributions to hydrography and hydrography-related activities at the international level. The Commission's Work Plan is now available online¹. In 2011, Commission 4 members and associates have, and will, contribute to a number of conferences and meetings and other initiatives.

FIG Working Week 2011, Marrakech, Morocco

In May 2011 (18th – 22nd) FIG held its Working Week in Marrakech, Morocco. A report on FIG Working Week 2011 is to be found online². Notwithstanding some no-shows, Commission 4 technical sessions comprised approximately 26 papers and covered general themes such as:

- Hydrography-Assisted Monitoring;
- Hydrography in Practice;
- Hydrography and the Environment; and
- Marine\Coastal Modelling and Technology.

The technical sessions were well attended, and attendees made significant contributions through questions, comments, and commitments. Of significance was the

participation and "Young Hydrographers" as part of FIG's Young Surveyors' Network.

11th South East Asian Survey Congress, Kuala Lumpur, Malaysia

The 11th South East Asian Survey Congress was held in Kuala Lumpur, Malaysia during the period June 22nd to 24th 2011. The Chair of FIG Commission 4 was invited as a special guest speaker to address a plenary session on the topic of implementing a marine cadastre. The concept of the marine cadastre maintains importance to jurisdictions in South East Asia, and hydrography plays an important role in developmental strategies.

Hydrography Awareness in Nigeria

A meeting to enhance awareness of the importance of hydrography is being organized in Nigeria for October 2011. The plan is to have policy makers, all of Nigeria's 36 States' Surveyor Generals, and other hydrography stakeholders convene to have discussions on the topic. Commission 4 will be represented by its Chair, the Chair of Working Group 4.5 (Hydrography in Africa), Ms. Angela Etuonovbe, and some of its Nigerian membership.

FIG Working Week 2012

Commission 4 is getting ready to participate in FIG Working Week 2012³ to be held in Rome, Italy between May 6th and 11th. The next Commission 4 meeting will be held at this event. Commission 4 themes include:

- Hydrographic surveying and mapping
- Hydrographic standards and guidelines
- Hydrographic education, training, and professional development
- New and emerging science and technologies for hydrography (e.g., sensors, systems, AUVs, electromagnetic wave propagation etc.)
- Maritime and marine spatial information management (including data processing and management of hydrographic data, data structures, marine spatial data infrastructures, marine information systems)
- e-Navigation
- Hydrography and society (Offshore surveying in support of energy, environment, submarine telecommunications, ports and harbours, economies, national and international political objectives)

Commission Officers Sought

Commission 4 is seeking nominations for the following positions:

- Chair-Elect (2012-2014). This person has to be nominated by an FIG member association. It is desirable to have nominations presented at FIG 2012 in Rome;

- Chair, Working Group 4.2, Standards and Guidelines for Hydrography, to eventually take over from the current Chair; and
- Chair, Working Group 4.4, Maritime and Marine Spatial Information Management, to eventually take over from the current Chair.

Please check Commission 4's appropriate website⁴ for contact information to make nominations.

Publications

Check out Commission 4's main website⁵ for information on, and access to, the following publications:

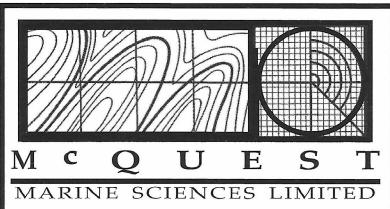
- FIG Publication No. 57 - Report on the Economic Benefits of Hydrography; and
- FIG Publication No. 56 - Guidelines for the Planning, Execution and Management of Hydrographic Surveys in Ports and Harbours.

David Neale

In June 2011, Dr. David Neale, former Commission 4 Vice-Chair Administration and Communication, lost his battle with cancer. He is very much missed.

Web References

1. http://www.fig.net/admin/ga/2011/agenda/app_04_wp_comm_04_2011_2014.pdf
2. <http://www.fig.net/news/fig2011/>
3. FIG 2012, Rome:
 - a. Call for papers: http://fig.net/fig2012/fig_2012_call_for_papers.pdf
 - b. Submit your abstract here: <http://fig.net/abstractdb/submit.asp?id=14>
 - c. Important deadlines: http://fig.net/fig2012/deadlines_papers.pdf
 - d. FIG Working Week 2012 web site: www.fig.net/fig2012
4. <http://www.fig.net/commission4/contactus/contactus.htm>
5. <http://www.fig.net/commission4/>



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**We invite you to the Friends of Hydrography Web Site
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The Friends of Hydrography are a small group of both retired and current Canadian Hydrographic Service (CHS) employees who believe there is a need to record and preserve the historical highlights of Canadian hydrography.

Please browse the many pages of the site to get a sense of the history of Canadian hydrography and the Canadian Hydrographic Service (CHS). If you ever worked with the CHS, or had friends who did, search the site for their names. If you don't find the name please contact us. Also, if you have photographs of ships or launches, used at any time by the CHS we would be grateful if you would share them with us.

The site is the primary distribution vehicle for Friends of Hydrography and is a work in progress. The site has grown nicely since its inception in 1998 and new information is added on an opportunity basis.

Please feel free to contact us at (CANFOH@cogeco.ca) We would be delighted to hear from you. Your questions, comments, corrections and/or contributions to the site are welcomed.

Supported by and in collaboration with the Canadian Hydrographic Association and the Canadian Hydrographic Service

Survey of Mulberry B

By: Chris Howlett, Head of Seabed Data Centre, UK Hydrographic Office

[Publication Note: *This article was first published in the Ontario Professional Surveyor, Volume 55, No. 1, Winter 2012 and is reprinted with permission.*

Between September 24 and October 8 an international team, led by the UK Hydrographic Office, conducted a detailed bathymetric survey of Mulberry B located off shore near Arromanches in Normandy, France.

Background

When the allies started to plan the invasion to liberate Europe during World War II, it was clear that to ensure that the necessarily massive quantities of stores and reinforcements could always be landed, a port was essential. Unfortunately the Germans also knew this and a major part of their defensive strategy was to turn all ports into fortresses that were capable of holding out until the allied invasion force exhausted its supplies and ground to a halt. The wisdom of this strategy had been confirmed when, on 19 August 1942, the Allies attempted to temporarily capture the small French port of Dieppe. Although not defended as well as the major ports, the defenders easily beat off the attack and forced the attacking force to withdraw after only 6 hours without achieving any of its major objectives. This debacle convinced the allied planners that to attempt to take a fortified port with a sea borne force would be disastrous and an alternative method had to be found.

The alternative method eventually selected was as spectacular as it was technically difficult to achieve. Instead of capturing a French port, the allied invasion force would take one with them. In fact, the allies took two ports with them, each the area of the port of Dover and composed of hundreds of prefabricated segments. They were built in Britain and then towed the 100 miles across the English Channel to Normandy where they were put together like a giant jigsaw puzzle to form the harbours. The two ports were code named Mulberry A, built off Omaha beach for use by the Americans and Mulberry B (though nicknamed Port Winston), built off Arromanches for use by the British and Canadians and, when fully operational, each was able to handle 7,000 tons of stores per day.

Both ports consisted of an outer screen of floating breakwaters called Bombardons. Fourteen of these 200ft long cruciform-shaped steel structures were moored end

to end to provide a one mile long breakwater. Inshore of these was a more permanent breakwater made from giant concrete caissons, which was termed Phoenix. Various sizes of caissons were used to suit the expected water depths, the largest being 200ft long by 60ft wide and 60ft tall and weighing 6000 tons. To extend the breakwaters, block ships (code named Corncobs) were also used with about 12 ships being incorporated into each Mulberry harbour. Within the sheltered water formed by the breakwaters, steel pier heads were built connected to the land by floating roadways. Collectively the pier heads and their roads were code named Whale.

Although the American harbour (Mulberry A) was largely destroyed during the great storm of 19 – 22 June and all the Bombardons were smashed, the British harbour (Mulberry B) was repaired and operated until late November contributing greatly to the smooth supply of reinforcements and stores to the troops at the front. After November, with sufficient permanent ports captured and back in service, Mulberry B was abandoned. The metal components were largely removed for scrap or reuse while the block ships and giant concrete caissons remained as silent sentinels to their previous activity.

Regardless of whether you consider the Mulberry harbours to have been worthwhile or not, as a war time civil engineering project they are probably unsurpassed. The concept was audacious and to have designed and built sufficient prefabricated components to make two harbours, each the size of the port of Dover, in a mere nine months and then tow these 100 miles across the English Channel before constructing them in a couple of weeks on a previously empty shore, is little short of miraculous. Their existence gave the allied planners the confidence to mount the invasion and, in one fell swoop, they negated the German policy of stymieing any invasion by fortifying all significant ports.

Over time the weather took its toll and the once numerous caissons began to crumble beneath the waves. In the 1960s and 70s the French government decided that the debris from the D-Day invasion needed to be cleared and numerous salvage contracts were let. These saw many of the block ships raised or scrapped in situ, the metal

feeding the smelters in Caen. Although most of the metal vanished, numerous smaller artefacts were preserved and can be viewed in the Musée des Epaves located near Port en Bessin.

In spite of the weather and the attentions of the scrap men, much of the harbour still remains and can easily be seen from the beach and cliffs near Arromanches where their presence attracts many thousands of visitors each year. Despite this, no systematic survey of the remains had ever been undertaken. SHOM, the French Hydrographic Office, conducted a survey of Mulberry B in late 1993 prior to the 50th anniversary celebrations but, although this was systematic, it was carried out using single beam echo sounders with the aim of ensuring safe passage for the ships, including *HMY Britannia*, which were due to enter the harbour during the celebrations and did not attempt to discover all that remained or its state of preservation. In 2001 the US Navy Historical Centre led a survey of the remains of Mulberry A and other US wreckage and this survey showed what modern systems (now multibeam echo sounders) were capable of. The 2011 survey of Mulberry B, led by a team from the UK Hydrographic Office, sought to map the remains of the British harbour while also providing a platform to test new survey methods and techniques.

The Survey

The survey began on Saturday 24 September when the various parties deployed to Port en Bessin, the port chosen to berth the survey boat "*Xplorer*". The weather was glorious, no wind and clear sunny skies and, even more encouragingly, this was set to remain for the whole first week at least.

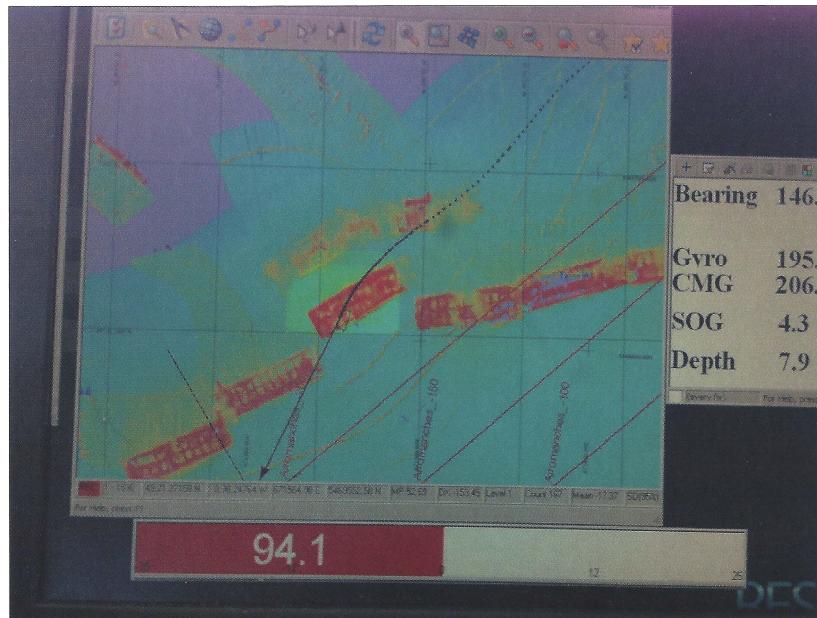
Sunday was spent mobilising the boat – fitting the multibeam echo sounder (Reson 7125), GPS, motion sensor (Applanix POS MV) and other equipment needed to run a modern bathymetric survey. Although this went fairly well, not all was working before gathering darkness forced the team to stop work. It had been hoped to complete the mobilisation during the day and then exit the harbour during the afternoon high tide (the ports on the Normandy coast can only be entered or exited at high water) to conduct the calibration. Unfortunately the uncooperative equipment prevented this and saw the team arrive at the boat at dawn on Monday to try and get everything working for the morning tide.

Alas, Monday's morning tide came and went with the equipment still not working, which meant that Monday's survey work had to be abandoned which left all frustrated as the perfect weather was wasted. Fortunately, by mid afternoon all was working well and the boat left port on the evening tide to conduct the calibration, returning home at about 21:30 ready for a full day's survey on Tuesday.

Tuesday saw the boat depart as soon as the lock gates opened and transiting to Mulberry B, where survey operations commenced. With the expectation that debris would be lying around the caissons, the first sounding line was run some 200m seaward from the caissons at the western breakwater. The multibeam maps a swath of seafloor below and either side of the vessel. This swath is approximately four times as wide as the water is deep which, in the depths found, allowed it to map the seafloor about 30 metres either side of the boat. This allowed the boat to reverse its course and run back, keeping just in the previously mapped swath and so it could advance towards the line of caissons at about 25m steps in safety. This cautious approach was quickly found to be justified as huge amounts of debris soon began to appear in the multibeam images. This debris was identified as collapsed caissons; the jagged walls of which posed a real danger to the vessel as they rose vertically, giving no warning of their presence. As the skipper tried to follow the edge of the previous swath the surveyor kept up a commentary on what was visible in the real time display "debris appearing to port; moving nearer ship's centre line; least depth 3m. Debris across full swath, least depth 5m. Vertical wall to port 8m from boat." Although encouraging having confirmation of what was below, this was the picture under the transducer, mounted near the boat's middle and hence, if a danger existed, the bow would hit it before the multi beam ever knew! As another safeguard two people were posted to the bow to keep a lookout, although the dark waters offered little opportunity to see submerged concrete walls. This kept progress slow. However, eventually the boat was manoeuvred to within about 10m of the visible caissons allowing the multibeam to sample their vertical walls.

With the tide falling and having got as close as possible to the seaward side of the western breakwater, the boat withdrew into deeper and safer water. By now jagged concrete blocks were emerging from the falling sea which made the area a very unpleasant place to be in a boat! Off shore the survey covered the locations of the wrecks of the Bombardons before meandering back home across a number of charted wrecks enabling it to enter Port en Bessin when the gates were open that evening, some 14 or so hours after having left that morning.

Wednesday saw the boat again exit Port en Bessin as soon as the gates opened before making a rapid run to Mulberry B, where the multibeam head was deployed. Work continued on the landward side of the western breakwater - not much debris on the sea floor - and the western shore arm - masses of debris, one piece of which was only avoided when the bow lookout shouted "STOP!" causing the skipper to rapidly reverse the engines and back away (this manoeuvre resulted in a rebuke from the surveyor who, being unaware of the near grounding, chastised the skipper for "messing up his survey line!"). As



An image of the real-time navigation display. Colour coding is by depth (red is shallow, blue is deep) and the submerged remains of several Phoenix caissons are clearly visible (red).

the tide fell the boat moved away from the dangers of the caissons to survey an area around where the Whale pier heads and floating roadways would have been. This was to ensure that the area was clear of obstructions allowing a magnetometer to be towed later on in an attempt to locate any remaining kite anchors, which were used to moor the floating roadways, lying below the sand. As a precaution for future forays into the caissons, at low water, the boat's dinghy was launched allowing two people to move into the exposed caissons and map out areas of potential danger. With no portable survey equipment available, the



Some of the dangers that remained submerged at high tide but became exposed at low water. The vertical concrete structures and extruding rebar constituted a very real danger for the survey boat.

mapping was done with a navigation 'app' on the Skipper's iPad. When darkness fell the dinghy was recovered and the boat left the harbour to continue surveying in the deeper water offshore.

Thursday saw the boat again encroach on the caissons of the eastern breakwater and extend the coverage of the western shore arm before filling in more of the area where the roadways would have been.

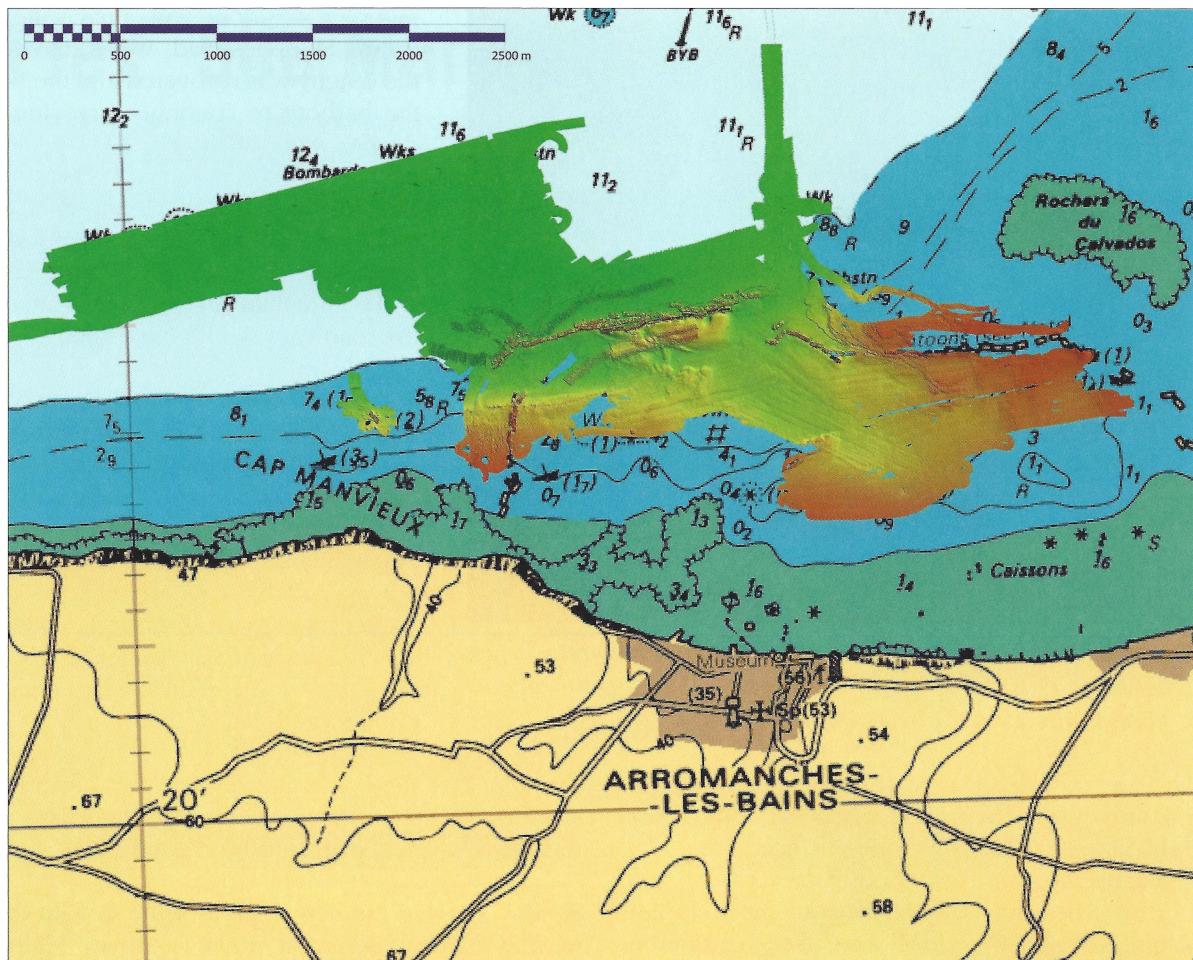
Friday was a disappointing day with a data logging problem forcing the survey to be abandoned after only 3 hours of surveying. It was decided to return home and get this fixed rather than spend time gathering potentially unusable data. The 3 hours did however allow a large wreck in the harbour to be covered (this turned out to be a concrete intermediate buffer pontoon) and the seaward side of the eastern breakwater to be started.

Saturday was a crew change day and also saw the arrival of a laser scanner which was fitted to the vessel to scan the above water remains of the caissons.

Sunday allowed the new team to settle in with the boat leaving Port en Bessin at noon to survey Mulberry B with the laser. Due to an equipment failure (one of the motion sensors stopped working) the boat could not run the multibeam and laser at the same time. Hence no multibeam work was done. Upon returning to Port en Bessin the laser was used to survey the inner harbour.

Monday saw the boat leave Port en Bessin at 04:00 to catch the morning tide for a full day's survey in Mulberry B. While transiting, the laser was used to scan the coastline before additional scans were gathered over the caissons. With the laser work complete, the multibeam was deployed and work carried out at the entrance channel as well as towards the eastern end of the harbour. Rougher seas prevented any close in work to the caissons.

Tuesday was again fully utilised, although by now the excellent weather experienced during week one was failing with the increasingly rougher seas making work hard and too dangerous to approach the main caisson walls. The magnetometer was deployed around where the roadways would have been to look for possible locations for the anchors, and the multibeam was run to gather data over wrecks outside



Coverage diagram showing extent of the multi-beam survey overlaid on a UKHO chart. The colours denote depth (red is shallow, green is deep) and the various caissons are clearly visible. This is raw data and still has much noise to be removed but shows the area covered. The large green section to the top left is the area within which the wrecks of the Bombardons lie.

the confines of the harbour. With the weather worsening, it was decided to stop the survey early and release the boat to return home, so upon return to Port en Bessin the boat was de-mobbed allowing it to return home on the Wednesday. Although it was disappointing that the survey was ended early, the weather had become quite rough and the decision to allow the boat to leave early proved justified as it took the crew three days to return home to Falmouth. The outward journey had been accomplished in a single passage.

The data is currently being processed and it is expected that final images of the submerged debris will be available early in the New Year.

Progress was slower than originally expected due to the area being far more challenging. However, a large portion of Mulberry B was mapped to a modern standard providing a base line for the state of preservation of the remains. [u]

About the Author...

Chris Howlett is the Head of the Seabed Data Centre at the UK Hydrographic Office (UKHO). While working at UKHO he has held various posts in the Geodesy section, IT, Defence, Technical Development and Marketing before Heading up the Seabed Data Centre which confirms that all bathymetric survey data that arrives at UKHO is fit for purpose and hence suitable for use within the navigational charts. The Mulberry survey was a training event to enhance the Seabed Data Centre's expertise and to test new data processing methods. More information can be found at the following website: www.mulberrysurvey.co.uk.

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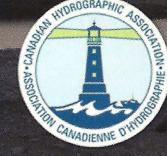


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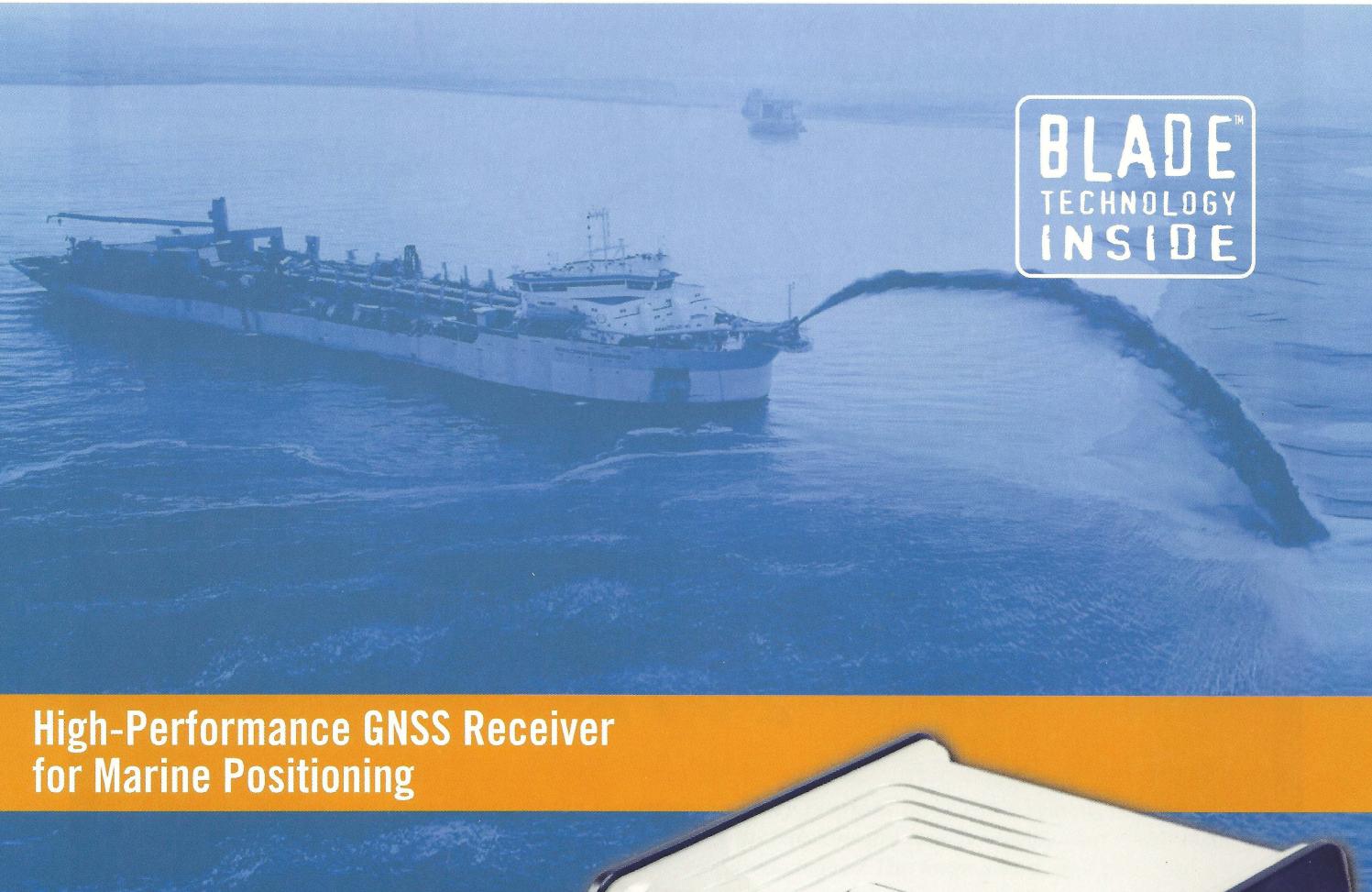
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The Canadian Hydrographic Association Award - Letter From 2011 Recipient - Brad Eisan

Dear CHA Student Award Committee,

My name is Brad Eisan, I am a fourth year Geodesy and Geomatics Engineering student at the University of New Brunswick. In the fall of 2011, I was awarded the Canadian Hydrographic Association Award. I would like to take this opportunity to sincerely thank you for your contribution towards Geomatics education and more specifically for helping me on my way to completing my undergraduate degree.

I am originally from Gander, Newfoundland and started my engineering degree in Calgary at Mount Royal University before transferring to UNB. I worked as a land surveyor in Calgary, AB in 2008, have spent two summers working for an aerial survey firm in Fredericton, NB and most recently worked with UNB's Ocean Mapping Group, conducting hydrographic surveys in BC and the Canadian Arctic. This is the last year of my degree and I'm looking forward to starting a full time career in Geomatics in April 2012.

Achieving a high academic standing in my program has always been a priority for me, and my efforts have been rewarded thanks to your generous contribution. For young Canadians, finding the funds necessary to complete a postsecondary program can be challenging. Without your support, achieving this would have been much more difficult.

I would like to again say thank you to the CHA Student Award Committee and your Association as a whole. I have a genuine interest in engineering and the profession of surveying. Your contribution has not only been an investment in my education but also an investment in the future of the surveying profession in Canada.

Sincerely,
Brad Eisan

See page 27 for Award information



Brad out on the ice in the Arctic with the Canadian Research Icebreaker CCGS *Admunsden* in the background. Brad's story about his summer work in the Canadian Arctic is at the UNB website:

<http://gge.unb.ca/News/2011/2011.html#Arctic>

Check out the Canadian Research Icebreaker CCGC *Admunsden*:

<http://www.amundsen.ulaval.ca/>

CALENDAR OF EVENTS

- 120th Annual General Meeting of the Ontario Land Surveyors Association, Ottawa, Ontario, February 22-24, 2012
- XVIII International Hydrographic Conference, Monaco, April 21-27, 2012 (www.ihc.int/english/home/)
- First F.I.G. Young Surveyors Conference, Rome, Italy, May 4-5, 2012 (www.fig.net/fig2012/youngsurveyors.htm)
- F.I.G. Working Week and General Assembly, Rome, Italy, May 6-10, 2012 (www.fig.net/fig2012/)
- Canadian Hydrographic Conference (CHC) 2012, Niagara Falls, Ontario, May 15-17, 2012 (www.chch2012.ca)
- ACLS 8th National Surveyors Conference, Regina, Saskatchewan, June 6-8, 2012 (www.acls-aatc.ca/en/node/69)



Celebrate...

World Hydrography Day - June 21st

The United Nations, in its General Assembly Resolution A/60/30 of 29 November 2005, "Welcomes the adoption by the International Hydrographic Organization of the "World Hydrography Day", to be celebrated annually on June 21st, with the aim of giving suitable publicity to its work at all levels and of increasing the coverage of hydrographic information on a global basis, and urges all States to work with that organization to promote safe navigation, especially in the areas of international navigation, ports and and where there are vulnerable or protected marine areas."

THE CANADIAN HYDROGRAPHIC ASSOCIATION AWARD LA BOURSE DE L'ASSOCIATION CANADIENNE D'HYDROGRAPHIE

(Established. 1992 / Établie en 1992)

Deserving Student \$2,000 / 2000\$ Pour un étudiant méritant

Application Criteria

1. The applicant must be a full time student in an accredited post secondary program in the field of Geomatics (the program must have a Hydrographic Survey or Ocean Science component) in a university or technological college anywhere in Canada. Other programs may be deemed eligible at the discretion of the Manager of this award.
2. The award will be available to undergraduate students in a degree or diploma program that conforms to the basic subject topic. The applicant will be required to submit a transcript of his/her most recent post secondary marks at the time of application. The marks must indicate an upper level standing in the class and under no condition less than 70%.
3. The award will be presented to an applicant who can demonstrate a bona fide financial need, coupled with an above average academic performance as stated above.
4. The applicant will be required to write a short paragraph explaining his/her financial need in a clear, concise manner on the application form or, if necessary, attached piece of paper. The importance of this aspect of the application is emphasized.
5. The award application will be submitted to the Canadian Hydrographic Association by June 30 each year and to the address in item 11 below.
6. The value of the award is \$2,000. There is one award only each calendar year. Only the winner will be notified.
7. The successful applicant will be issued with a special Hydrographic Association Certificate, duly framed, at the time the award is made. He/she will also receive a medallion with the Hydrographic Association Crest and have his/her name mounted on a perpetual winner's plaque. A picture of the plaque, duly inscribed will be mailed to the winner along with the \$2,000 cheque during the second week of July.
8. The applicant must submit one letter of reference from an official of the university or college where the applicant spent the previous year. This letter of reference must include the address and phone number of this official.
9. An individual student may receive the award once only.
10. The successful applicant's letter of appreciation will be published in the next issue of our professional journal "Lighthouse".
11. Application will be made on the form supplied or preferably down loaded from the official CHA web site at www.hydrography.ca and sent to:

Critères d'admissibilité:

1. Le candidat ou la candidate doit être inscrit à plein temps à un programme reconnu en sciences géomatiques (ce programme doit inclure l'hydrographie ou un contenu en sciences de la mer) par une université ou un collège situé au Canada. D'autres programmes peuvent être jugés éligibles à la discréption de l'administrateur de cette bourse.
2. La bourse s'adresse aux étudiants et étudiantes inscrits dans un programme menant à un diplôme collégial ou de premier cycle universitaire conforme aux disciplines de base. Le candidat doit soumettre une copie de son dernier relevé de notes post-secondaire avec sa demande. Les notes doivent être au-dessus de la moyenne de sa classe et être obligatoirement supérieures à 70 %.
3. La bourse sera remise au candidat ou à la candidate qui, de bonne foi, peut démontrer ses besoins financiers et qui respecte les exigences académiques mentionnées ci-haut.
4. Le candidat ou à la candidate devra écrire un court texte clair et concis, démontrant ses besoins financiers sur le formulaire de la demande ou, si nécessaire, sur une lettre jointe. Une grande importance est accordée à cet aspect de la demande.
5. La demande doit être soumise à l'Association canadienne d'hydrographie au plus tard le 30 juin de chaque année à l'adresse mentionnée à l'article 11 ci-bas.
6. La valeur de la bourse est de 2000 \$. Il n'y a qu'une seule bourse remise par année civile. Il n'y aura que le gagnant qui sera avisé.
7. Le récipiendaire recevra un certificat spécial de l'Association canadienne d'hydrographie, dûment encadré. Il ou elle recevra aussi un médaillon à l'effigie de l'Association canadienne d'hydrographie et verra son nom ajouté sur la plaque des gagnants. Une photo de la plaque, dûment gravée sera postée au gagnant avec un chèque de 2000 \$ au cours de la deuxième semaine de juillet.
8. Le candidat ou la candidate doit soumettre une lettre de référence d'un représentant de l'université ou du collège où il a suivi son cours l'année précédente. Cette lettre de référence doit inclure l'adresse et le numéro de téléphone de ce représentant
9. Un étudiant ne peut recevoir la bourse qu'une seule fois.
10. Une lettre d'appréciation du récipiendaire sera publiée dans l'édition suivante de notre revue professionnelle « Lighthouse ».
11. La demande devra être faite en se servant du formulaire prescrit ou préférablement téléchargée à partir du site internet officiel de l'ACH « www.hydrography.ca » et envoyée à :

Manager / Administrateur

Canadian Hydrographic Association Award Program / Bourse de l'Association canadienne d'hydrographie
6420 Edenwood Drive, Mississauga, ON L5N 3H3
geomac66@sympatico.ca www.hydrography.ca

Corporate Members

Membres corporatifs

We invite your organization to become a corporate member in our association. Consider the following benefits:

- ***Receive three copies of each issue of Lighthouse (published twice annually).***
- ***An invitation to participate in CHA seminars.***
- ***Listing and recognition in every edition of Lighthouse.***
- ***An annual 250 word description of your organization in Lighthouse.***
- ***10% off advertising rates in Lighthouse.***
- ***10% off exhibitor fees at CHA sponsored events.***
- ***Listing and link to your home page on each CHA Branch Web site.***
- ***News from corporate members in every edition of Lighthouse.***

The CHA, through *Lighthouse*, is active in promoting the strength and diversity of organizations and companies that support the hydrographic and related communities. Get onboard with us as a corporate member and we will help you reach potential customers throughout our worldwide distribution.

To join, please contact one of the Directors as listed on page 2. International applicants please remit to Central Branch. To obtain an application visit us at www.hydrography.ca

Annual dues for CHA Corporate Membership is \$150.00 (CDN).

ASI Group Ltd

ASI Group provides a complete range of hydrographic, geophysical and visual inspection techniques to conduct underwater investigations. Lake bottom surface features and targets are located, measured and mapped with precision accuracy in real-time using a combination of geophysical mapping and charting tools. In-house cartographers and graphic specialists interpret geophysical data to produce quality technical reports in hardcopy and GIS compatible formats.

ASI's survey vessels are trailerable and equipped with a wide variety of survey equipment packages. In addition to surface vessels, ASI owns and operates a fleet of purpose-built remotely operated vehicles (ROVs) to deploy sonar and video imaging in open water, tunnels and pipelines.

ASI provides greater efficiency and accuracy in mapping rivers, estuaries, channels, lakes or harbour bottom surfaces for:

- Geological investigations
- Habitat mapping and archaeological surveys
- Underwater search, survey and recovery
- Dredging surveys and volumetric determination
- Sonar profiling/imaging surveys
- Remotely operated vehicle inspections
- Integrated navigation and positioning services
- Cable and pipeline inspections.

For further information please contact:

ASI Group Ltd

Tel: (905) 641-0941 E-mail: dkeyes@asi-group.com Website: www.asi-group.com

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

The ACLS is a national self-regulating professional association. It has 560 members located across Canada (and the world), who have expertise in surveying, photogrammetry, remote sensing, geodesy, hydrography and land information systems.

The ACLS is committed to raising awareness of the responsibilities and concerns of respective stakeholders in offshore Canada lands, and to find a common strategy to move this industry sector forward for the betterment of all. The following is a short list of the current main thrusts:

- Promotion of a Marine Cadastre for Canada
- Promotion of the ACLS national certification program for hydrographers
- Publication and promotion of the new book entitled "Canada's Offshore: Jurisdiction, Rights, and Management". Copies can be purchased from: www.acls-aatc.ca or www.trafford.com

L'A.A.T.C. est une association professionnelle de juridiction fédérale. Elle est composée de 560 membres répartis aux quatre coins du Canada (et du monde) qui ont une expertise en arpantage, en photogrammétrie, en télédétection, en géodésie, en hydrographie et en systèmes d'information foncière à référence spatiale.

L'A.A.T.C. est engagée à l'amélioration de la sensibilisation aux responsabilités et aux préoccupations des intervenants respectifs des terres extracotières du Canada et de l'adoption d'une stratégie commune pour faire progresser ce secteur de l'industrie en vue de la plus-value pour tous. Voici la liste des activités principales en cours :

- Promotion d'un cadastre marin pour le Canada.
- Promotion du programme national de certification des hydrographes de l'AATC.
- La publication et la promotion du nouveau livre : *Zone extracotière canadienne : juridiction, droits et gestion*. La version française sera disponible en novembre 2007. Vous pouvez faire l'acquisition de copies en visitant : www.acls-aatc.ca ou www.trafford.com

For further information please contact:

Association of Canada Lands Surveyors
Tel: (613) 723-9200 FAX: (613) 723-5558 E-mail: admin@acls-aatc.ca
Website: www.acls-aatc.ca

Blodgett-Hall Polar Presence LLC

The Blodgett-Hall Polar Presence LLC is a US registered non-profit non-commercial entity set up to promote geomarine research in the Arctic Ocean by combining modern technology with the advantages of working on the drifting sea ice cover. It has built and tested a research hovercraft, the R/H *SABVABA*, which is based at UNIS, the University in Longyearbyen, Svalbard. The hovercraft, whose Inuit name means "flows swiftly over it", is equipped for work in marine geophysics, marine geology, and oceanography in the most inaccessible parts of the high Arctic. The program intends to put "boots on the ice" for extended periods, using a relatively inexpensive, very habitable platform with a minimum crew of two or three. Whether in motion along leads, or drifting on floes, it can carry out deep and shallow reflection and wide angle

seismics, and home in on geological targets for direct coring, dredging, and bottom photography. Oceanographic instrumentation consists of electromagnetic ice thickness measurements every 2sec, CTD casts to 500m, and Acoustic Doppler Current Profiling. The hovercraft was especially designed to investigate the Alpha Ridge, in areas of thick multiyear ice presently inaccessible to icebreakers north of Ellesmere Island and Greenland. In preparation for this the hovercraft has undergone three summers of testing over the Yermak Plateau. More than 10,000nm of travel have been recorded, while dredging, making CTD casts, seismic profiles, and testing autonomous drifting buoys for unattended seismic profiling, echo-sounding, and shallow CHIRP.

For further information please contact:

Website at www.polarhovercraft.no

Corporate Members

Membres corporatifs

C & C Technologies

C & C Technologies, Inc. is a privately-owned international surveying and mapping company specializing in deepwater services. Our cutting-edge technologies, inspiring workplace and "can do" attitude endear our clients and attract the industry's leading innovators. C & C services

include autonomous underwater vehicle surveys, C-Nav® globally corrected GNSS, marine construction surveys, geophysical surveys, geosciences services, government services, land and coastal surveys, a free GoM GIS viewer, and geotechnical services.

For more information regarding C & C Technologies services please contact:

Thomas Chance, CEO
at (337) 261-0000 email to marketing@cctech.us or
visit C & C's Website at www.cctech.us

Fugro GeoSurveys Inc.

Fugro GeoSurveys Inc. (FGI) is Canadian-based and staffed, with offices in St. John's, NL and in Dartmouth, NS and has a large, locally based, inventory of hydrographic, geophysical, geotechnical and positioning equipment. With approximately 75 employees, FGI has established an impressive track record in Canada and on the international stage.

FGI has provided seabed mapping and construction support services for all of Eastern Canada's offshore oil and gas developments and is also actively involved in marine based non-oil and gas projects such as Canada's UNCLOS mapping, hydrographic charting in Canada's North, large area habitat mapping, pipeline and cable route surveys, ice scour studies, wharf investigations and a broad range of engineering and construction support surveys.

FGI's Hydrographic Group operates a wide range of multibeam equipment including Reson 8101, 8111 and 8125 systems. These systems are routinely mobilized by FGI on ocean going vessels, as well as our customized

26 foot inshore survey launch. Systems have also been mobilized on ROVs for detailed oil and gas related infield mapping projects.

Multibeam data are processed in the field and at bases in St. John's and Dartmouth using CARIS HIPS/SIPS, IVS' Fledermaus visualization tools, and Fugro's own Starfix software suite. The resultant multibeam data are commonly integrated with seabed sampling, underwater imagery, geotechnical, seismic, sidescan and sub-bottom profiler data to deliver superior data products for use in seafloor and sub-seafloor assessments.

Throughout each project, FGI is committed to the health and safety of its employees, partners and clients, and to the protection of the environment. This is accomplished through the company's comprehensive HSE policy and Safety Management System which is OHSAS 18001 certified.

If you would like to receive further information about Fugro GeoSurveys Inc. please contact:

Fugro GeoSurveys Inc.
Tel: (709) 726-4252 FAX: (709) 726-5007 E-mail: todd.ralph@fugro.com
Website: www.fugro.com

Jeppesen Norway AS

Jeppesen is a leading provider of solutions that support decision-making in commercial maritime operations. Today we contribute to the smooth operation of thousands of commercial ships and shipping companies around the world.

As a natural extension of our commercial products, we have supported production of charts and publications at national hydrographic offices worldwide for over a decade. Jeppesen dKart Office technology organizes the production and maintenance of traditional paper charts and survey sheets, electronic charts such as ENCs, lists of lights, Notices to Mariners, sailing directions and print-on-demand products.

Our commercial clients rely on us for electronic charts, weather and met-ocean data, weather routing and voyage optimization. We were one of the first companies in the world to offer digital chart data to commercial shipping,

and we are fast becoming one of the world's leading suppliers of official chart data (ENCs). In addition, we have developed a vast array of solutions that meet the operational needs of the shipping industry.

Both our national and commercial customers recognize our ability to meet their business needs, for quality assurance, rapid updating, user-friendly operation, flexible procurement, business integration and compatibility.

Recent major projects for national hydrographic offices include one recently concluded with Croatia, and another just underway for the Sultanate of Oman. For each, Jeppesen has been commissioned to supply the countries with its dKart Office suites, including tools, processes and training services. Production and maintenance of ENCs and paper charts and NtM processing have been key. Finally, Jeppesen is finalizing a print-on-demand extension for the Norwegian Hydrographic Service.

For further information please contact:

Egil O. Åarstad
Tel: +47 51 464960 FAX: +47 51 464701 E-mail: dkart@jeppesen.com
Website: www.jeppesenmarine.com/National-Hydrographic-Services/

Knudsen Engineering Limited (KEL)

Knudsen, a long-standing corporate member and familiar face to the Canadian hydrographic world, is recognized worldwide for its innovative high performance singlebeam echosounders used in numerous commercial/defence applications including survey, navigation, dredging, sub bottom profiling, and ocean research.

Known for advanced underwater acoustics technology, Knudsen introduced the first 'all-digital' echosounder with its 320M echosounder and followed with the industry's first "blackbox" echosounder, the 320BP. Product innovation has continued and today, a common set of technology components - embedded Digital Signal Processing firmware, Windows application software, and modular hardware design - are bases of the Sounder and Chirp Series of Echosounders that provide leading edge solutions for the world of today and into the future. Digital signal

processing is again the key to the performance of these new product lines. Both Sounder and Chirp series systems digitize the entire incoming signal over an exceptionally wide bandwidth and extract the frequency of interest entirely with digital signal processing software. Knudsen Sounder and Chirp echosounders provide stability and selectivity simply not achievable with analog components and offer sufficient processing power to recover the signal from even the noisiest environments.

Knudsen, an ISO certified manufacturer, located in Perth, Ontario Canada, has a current customer base that spans more than 60 countries. Knudsen cornerstones - 'Meeting customer needs through ongoing product innovation and unparalleled customer support' - continue to identify Knudsen products as the established benchmark for performance and accuracy.

For additional information please contact:

Judith Knudsen
Tel: (613) 267-1165 FAX: (613) 267-7085 E-mail: judith@knudsenengineering.com
Website: www.knudsenengineering.com

Corporate Members

Membres corporatifs

Kongsberg Maritime

Kongsberg Maritime, a company in the Kongsberg Group, is a leading supplier of advanced multibeam and single beam echosounders and instrumentation systems.

With its strong application knowledge and trend-setting quality products, Kongsberg Maritime is able to offer unique and complete solutions for ROVs, AUVs, positioning systems and sea bed surveying and mapping.

Kongsberg Maritime has about 980 employees with subsidiaries world wide. Canadian operations include a sales office in Halifax and a factory in Port Coquitlam, British Columbia. The headquarters are located in Kongsberg, Norway. Kongsberg Maritime exports its products to all of the world's major markets.

For more information regarding Kongsberg Maritime please contact:

Mr. John Gillis
Survey & Underwater Vehicle Instrumentation
Tel: (902) 468-2268 FAX: (902) 468-2217 E-mail: john.gillis@kongsberg.com
or visit Offshore: www.km.kongsberg.com and Marine: www.simrad.no

Rolls-Royce Naval Undersea Systems (ODIM Brooke Ocean)

ODIM Brooke Ocean, Dartmouth, Nova Scotia, is a world leader in the development and supply of sensor platforms for moored and underway use. The company provides hardware, engineering, repair and overhaul, life cycle support and R&D services to the hydrographic and oceanographic communities as well as to the naval and oil & gas sectors. Products include advanced data collection platforms, instrumentation, cable-handling hardware and launch/recovery systems.

ODIM Brooke Ocean's Moving Vessel Profiler™ (MVP) collects real-time free fall data profiles from ships underway at speeds of up to 12 knots. In addition, the ODIM Free Fall Cone Penetrometer (FFCPT) was developed to collect geotechnical and geophysical data during route location surveys for seabed cable and pipeline installations, bottom classification and acoustic groundtruthing, mine countermeasures and geo-environmental studies.

The ODIM FFCPT can be used either on-station or from a vessel underway at speeds up to 6 knots, using an ODIM MVP. Deployment of the ODIM FFCPT from an ODIM MVP offers a rapid and reliable method for characterizing the seafloor sediment, as well as the sound velocity of the water column.

Another of ODIM Brooke Ocean's primary areas of specialization is in the development of shipboard Launch And Recovery Systems (LARS) to deploy and recover various payloads from a ship at sea. These payloads include Autonomous Underwater Vehicles (AUVs), Unmanned Surface Vehicles (USVs), offboard sensors, oceanographic equipment, and manned submersibles.

If you would like to receive further information about ODIM Brooke Ocean and its services please contact:

Arnold Furlong
Tel: (902) 468-2928 FAX: (902) 468-1388 E-mail: sales@brooke-ocean.com
Website: www.brooke-ocean.com

SANI-INTERNATIONAL TECHNOLOGY ADVISORS INC. (SANI-ITA)

SANI-INTERNATIONAL TECHNOLOGY ADVISORS INC. (SANI-ITA), an Ontario Corporation, provides services and consulting in geographic information systems, remote sensing, softcopy photogrammetry and hydrography. The Corporation is a Distributor for GeoEye (50 centimetre imagery) LizardTech (MrSID and LiDAR data compressors), Nuvision and TRUE3Di (softcopy photogrammetry hardware) and is also the Authorised Training Centre for the complete suite of ERDAS IMAGINE software products. SANI-ITA is a sister company to Spatial Geo-Link Limited, the sole distributor in for ERDAS softcopy photogrammetry, geographic imaging and enterprise solutions in Canada.

SANI-ITA committed to providing services that meet or exceed approved designs, specifications and accepted industry practices. Our Corporation is technology driven and provides innovative solutions, high quality services and timely deliveries in the field of geomatics. The Corporation is ISO 9001:2008 registered.

Services offered by SANI-ITA include:

- Project Consulting
- Project Management
- Management of airborne and spaceborne data acquisitions missions
- Control surveys in support of geodetic or photogrammetric projects
- Hydrographic surveys
- Aerial triangulation of airborne and satellite data
- Digital Elevation/Terrain collection – automatic or static mode
- Orthoimagery
- Digital topographic mapping
- Digital map revision
- GIS data structuring
- Map conversion and data translation services
- Image compression services - MrSID, ECW and JPEG2000
- Quality assurance services
- Third party audits of mapping and imagery
- 3D Visualisations

For additional information on the Corporation, please visit our website at:

www.sani-ita.com

or contact us at

Tel: (905) 943-7774 FAX: (905) 943-7775

Shark Marine Technologies Inc.

Shark Marine Technologies Inc. was founded in 1984 with a mandate to offer products and services that are innovative, high quality, dependable and cost effective.

Over the years, we have gained global respect for our developments in undersea technology, and the expertise we bring to on-site operations. As a manufacturer we have made significant advancements in underwater imaging equipment, remotely operated vehicles and other survey systems. In our services we have provided consultation, software development, custom manufacture, hydrostatic testing, equipment rentals and location operations.

Shark Marine Technologies Inc. is also a world leader in the development and manufacture of new technologies for maritime security and SAR organizations. Products such as diver detection and deterrent systems, remotely operated inspection and intercept vehicles; diver-held imaging sonar units and ship hull inspection devices, highlight our focus on security. Along with our own manufactured products we are also proud to be the North American representatives for Systems Engineering

and Assessment (SEA) Ltd. of the U.K., for their line of SWATHplus bathymetric survey systems.

Our customer base has grown over the years to include gas and oil exploration, commercial diving, various governments, fisheries and undersea research facilities, search and rescue organizations, and survey firms. Our location services have taken us from warm waters to the frozen Arctic, where we have gained international recognition. These include pipeline surveys, locating of sunken vessels and other objects, search and recovery, as well as magnetic and sonar mapping.

Our manufacturing and global sales facilities are located in St.Catharines, Ontario, Canada, with associated sales offices in North Liberty, Iowa, USA and Grenoble, France as well as various sales representatives throughout the world.

Our experience in the diverse aspects of this field allows us the ability to create innovative solutions to often difficult or costly tasks.

For further information about please contact Shark Marine Technologies Inc.:

Jim Garrington

Tel: (905) 687-6672 FAX: (905) 687-9742 E-mail: jim@sharkmarine.com
Website: www.sharkmarine.com

Corporate Members

Membres corporatifs

Technopole maritime du Québec

La mission de Technopole Maritime du Québec est de promouvoir et accélérer le développement du créneau des sciences, technologies et biotechnologies marines du Québec en assurant son rayonnement sur les scènes nationale et internationale, en offrant des services à valeur ajoutée aux membres du créneau et en soutenant l'avancement des projets prioritaires à long terme. De plus, Technopole Maritime du Québec a pour objectif de positionner son réseau comme leader au niveau québécois et canadien dans les secteurs d'excellence des sciences marines, des biotechnologies marines et des technologies maritimes afin d'y accélérer la création de richesse par la croissance et les nouveaux investissements dans les entreprises, institutions et organismes. Les actions de Technopole maritime s'inscrivent dans une volonté de mobiliser les forces vives du créneau des sciences et technologies marines, à savoir les institutions d'enseignement, les organismes de transfert, les installations et les laboratoires de recherche et, surtout, bon nombre d'entreprises qui vivent à l'heure de l'innovation technologique.

- Par ses actions de maillage et de réseautage, TMQ est l'animateur par excellence du domaine des sciences de la mer dans la région;
- Par ses actions de représentation, TMQ contribue au développement de liens d'affaires solides entre les acteurs de l'industrie des sciences de la mer au Québec et au Canada;
- Par ses actions de communication et de promotion, TMQ contribue au rayonnement et à la reconnaissance du domaine des sciences de la mer dans la région et à l'extérieur de celle-ci;
- Par son leadership, TMQ est à même d'identifier et de piloter des projets d'envergure qui sont rassembleurs pour la communauté des sciences de la mer de la région.

The mission of the Technopole Maritime du Québec (TMQ) is to promote and advance the development of marine sciences, technology and biotechnology in Quebec by increasing their visibility on both the Canadian and international stages, providing value-added services to the members of this niche sector, and supporting the progress of priority projects over the long term. Furthermore, the goal of the Technopole Maritime du Québec is to position its member network as the provincial and national leader in the marine sciences, biotechnology and technology sectors. Doing so will enhance wealth creation and attract new investments to the sector's industries, institutions and organizations. The Technopole's actions are driven by the will to mobilise the dynamic strength of the marine sciences and technology sector, namely the educational institutions, technology transfer organizations, research laboratories and facilities, and the numerous companies that are currently thriving through technological innovation.

- Through its communication and promotional strategies, TMQ contributes to the reach and recognition of marine sciences in the region, in Canada and around the world ;
- Through its representation work, TMQ contributes to the development of successful business relationships between actors in the marine science industry in Quebec and Canada ;
- Through its networking strategies, TMQ is an outstanding coordinator for the marine sciences sector in the region ;
- Through its leadership, TMQ is well-placed to identify and spearhead major projects that promote joint action in the regional marine sciences community.

For more information regarding technopol maritime du Québec please contact:

Laurent Bellavance
Tel: (418) 724-9616 / FAX: (418) 721-6127 E-mail: lbellavance@tmq.ca
Website: www.tmq.ca

Terra Remote Sensing Inc. (TRSI)

Terra Remote Sensing Inc. (TRSI) is a spatial data organization offering world-class expertise and technology for clients requiring fast, accurate, detailed and cost effective surveys. Our teams specialize in the acquisition and positioning of remotely sensed data in terrestrial and marine environments, and in the transformation of that data into a wide array of products to meet our client's needs.

TRSI was established in 1983 in Sidney, British Columbia as the West Coast subsidiary of Terra Surveys Ltd, based in Ottawa Canada. The company began by providing consulting, engineering, training and technical services in coastal and land-based resource studies, hydrography, marine geophysics and remote sensing. TRSI, a 100% employee-owned venture, was launched in 1999 to allow the company to further develop its technology and processes. Our new sensor technologies and associated applications are testaments to our innovation approach.

TRSI has over 50 dedicated full-time professionals that work on both national and international projects. Senior management is comprised of a core group of professional engineers and business specialists.

A highly qualified permanent staff of Geomatic Engineers, GIS Specialists, Mapping Technicians, Computer Programmers, Electronic Engineers, Hydrographers, Geophysicists and Surveyors comprise TRSI's multi-disciplinary team.

TRSI established a wholly owned subsidiary in Chile in late 2008. The Chile operation maintains a commercial office in Santiago and an operational office located in Carauma near Valpariso, in order to provide access to qualified staff.

Our wholly-owned US entity was established in 2009 as a sales office to provide a US base for our clients. Their focus is the Pacific Northwest region, which is a natural extension from our Sidney head office.

For more information regarding Terra Remote Sensing please contact:

Dave Neufeldt

Tel: (250) 656-0931 / (800) 814-4212 FAX: (250) 656-4604 E-mail: dave.neufeldt@terraremote.com
Website: www.terraremote.com



www.hydrography.ca

OTTAWA HEADQUARTERS

Technical Advisor Geomatics

I am pleased to announce the appointment of Serge Levesque to the position of Technical Advisor Geomatics, to the National Hydrography Division of the Canadian Hydrographic Service, in November 2011.



Dr. Kian Fadaie (left) and Serge Levesque.

Serge is joining us from CARIS where he spent almost 13 years providing technical support and training on digital chart production, bathymetric and sidescan sonar processing and on the law of the sea. As product manager for CARIS LOTS, he saw to the maintenance of the geodetic tools used for calculations of maritime limits and boundaries as well as for the extension of the continental shelf under Article 76 of the law of the sea.

Please join us in congratulating Serge on his appointment and in welcoming him to the National Capital Region.

Thank You,
Dr. Kian Fadaie, National Director of Hydrography,
Canadian Hydrographic Service.

ARCTIC PILOT PROJECT

In 2011 a multi-departmental project consisting of Fisheries and Oceans Canada (the Canadian Hydrographic Service), the Parks Canada Agency (Underwater Archaeology Service), the Canadian Space Agency, the Department of National Defence and Environment Canada (Wildlife & Landscape Science, eSpace program) was established to collaborate in the search for the lost Franklin ships

and to survey, map and chart the search area. Through Parks Canada Agency, the collaboration further included the Government of Nunavut, Department of Culture, Language, Elders and Youth and the University of Victoria, Ocean Technology Lab.

The Parks Canada Agency's primary interest was in searching for the wrecks of HMS *Erebus* and HMS *Terror* of the lost Franklin expedition, while the Canadian Hydrographic Service's principle interest was in piloting a multi-platform collaborative approach to hydrographic data collection and charting. The search area in Victoria and Alexandra Straits as a high priority area for the Canadian Hydrographic Service related to the goal of improving marine safety and ultimately contributing to economic prosperity in the North.

The survey was a six-day dedicated effort conducted from the icebreaker CCGS *Sir Wilfrid Laurier*. The technologies deployed included side-scan sonar, two hydrographic survey launches equipped with state-of-the-art multibeam echo sounders, and an airborne LiDAR system provided by National Defence. Environment Canada specialists conducted helicopter-based shoreline video surveys to develop a description of the coastal zone area for emergency preparedness, and an archaeologist from the Government of Nunavut searched the shoreline for traces of archaeological remains related to the Franklin expedition. RadarSat data and related services were provided by Canadian Space Agency to update the coastal, near-shore topography and enhance hydrographic datasets over the region of interest. The Canadian Space Agency also provided high-bandwidth telecommunications links between the area of operations and facilities in southern Canada.

The project ultimately demonstrated the value of collaboration among organizations with compatible interests as a way to maximize results in remote and difficult environments. And while the wrecks of the Franklin expedition were not found, valuable experience was gained in the application of technology and new data was collected over several hundred square kilometers of ocean and near-shore area. The use of the different types of data acquisition methods and the data obtained will be assessed against each other to improve future survey results.

CENTRAL REGION

UNCLOS 2011 Survey

As in the past five years of this program the CHS component was conducted in conjunction with the NRCan seismic operations. The program again was very successful. The program involved two icebreakers: the CCGS *Louis S St Laurent* (Canada) and USCGC *Healy* (USA). The escort duties of each ship depended on the science that was being collected.

During seismic operations *Healy* was lead and during hydrographic operations *Louis S St Laurent* was lead. This was done to utilize the best tools of each ship. The bathymetry collected on this program will augment and refine the historical information to establish and support Canada's UNCLOS submission.

The Canadian Hydrographic Service team consisted of Jon Biggar, Jim Weedon and Andrew Forbes (Central and Arctic Region). Dave Street (Newfoundland Region) was the CHS representative onboard the USCGC *Healy* again this year.

As in the past, two single beam sounding techniques were employed: conventional ship configuration and helicopter spot soundings. The ship navigated along predetermined transects and the helicopter was deployed to collect spot sounding data between the survey lines. The ship logged over 6823 line kilometers and the helicopter collected 75 spot soundings. The program started August 18th and ended September 29th. The USCGC *Healy* joined the program on August 23rd and departed September 22nd, during which time additional hydrographic data was collected including deep water multibeam and additional 3.5kHz single beam by USCGC *Healy*.

As part of the program conducted aboard the Canadian Coast Guard icebreaker *Louis S. St. Laurent* (LSSL), an autonomous underwater vehicle (AUV) was utilized to acquire multibeam bathymetric data under the ice. The objectives of the AUV program were to provide proof-of-concept of under ice AUV operations from an ice breaker and to survey base-of-slope. The program was cut short by 5 days because of mechanic problems with *Louis S St Laurent* propulsion system.

The success of this year's program can be contributed to the dedication and hard work of the captains and crew of the CCGS *Louis S St Laurent* and the USCGC *Healy* and the all the support staff.

PACIFIC REGION

Data Acquisition and Technical Services Division

2011 Summary

Surveys

Surveys were conducted aboard the CCGS *Vector* (EM710), the CCGL *Otter Bay* (EM3002) and the *Shoal Seeker* (Sonic 2022). *Vector* surveys consisted of 100% surveys of opportunity – i.e. those surveys where other programs have the vessel and CHS personnel ride along to collect multibeam data as their program allows. The *Otter Bay* spent time in Haida Gwaii working within the Gwaii Haanas NMCA, in the approaches to Kitimat, and in aquaculture areas north of Campbell River. In addition, the *Otter Bay* spent 6 weeks on the south coast testing and EM2040 for the US Naval Oceanographic Office. The *Shoal Seeker* completed more than 40 small craft harbour surveys and a resurvey of Sooke Basin.

Technical Support

The Technical Support group, which provides electronics and computer support for the rest of CHS, continued to support field surveys, tides, desktops, networks and databases. In addition, they provided significant support to the NAVO sonar testing project in the summer. In the fall, George Schlagintweit left CHS Pacific for a Manager position in C&A.

Tides

PWLN upgrades continue, including a recently-developed dry-counterweight system that will improve the accuracy of readings over the full scale of tides at our permanent stations. The GPS campaign continues to provide WGS-84 ellipsoid reference information in support of our development of a seamless datum separation model. Anne Ballantyne has moved from our Technical Support group to Tides to focus on tidal data analysis.

Tidal group played a key role in the response to the Japan tsunami. Neil and Denny were at Langara Island when the wave arrived on our shores. In addition, several field gauges that had been installed for a survey of Victoria Harbour observed the wave. This has furthered our understanding of wave propagation in this populated area.

Validation and BDB loading

The validation group continued to reduce the backlog of legacy data sets and multibeam projects. In 2011, CHS-Pacific moved more of the responsibility for new data validation to the field survey teams. This has resulted in a downward trend in our outstanding backlogs. 80% of Pacific sources have been loaded into BDB.

2012 plans**Surveys, Validation and backlog reduction**

For 2012, a reduced focus will be placed on new survey data collection, and an increased focus will be placed on validation and backlog reduction. The *Vector* and *Otter Bay* will go to Kitimat and approaches this summer to tidy up the last of the data collection needed to support a new suite of charts and ENCs that will support supertanker traffic in the Kitimat Gateway in the coming years. CHS-Pacific will not be supporting surveys of opportunity to the same levels that they had in past years.

Technical Support

The Technical Support group will continue to support surveys, tides and office requirements.

Tides

Tidal group will continue to maintain the PWLN, Tsunami response gauges and support field survey requirements. Further developments on the seamless vertical datum separation model and GPS observations to support separation values will continue. Some involvement with the Vancouver Port Authority to support e-Navigation initiatives seems likely at this point.

Validation, BDB loading and legacy project cleanup

Validation Group will continue to focus on bringing our validation backlogs under control and to get the BDB fully loaded. In addition, members of the validation group are supporting the development of the national survey prioritizing tool.

PACIFIC BRANCH

This has been a busy year for CHA members – what with both Field Survey operations and chart/ENC in full production mode.

The branch sponsored a World Hydrography Day celebration with a cake and coffee. This celebration was also tied in with the CHS presentation of the new crest.

During the 2011 year three of our long time CHA members retired; Carol Nowak with the CHS Data Acquisition and Technical Services group, who had been a member since 1982; Michael Jennings and Brian Wingerter with CHS Navigational Products and Services.

This year the British Columbia Institute of Technology CHA Pacific Branch Endowment award was awarded to Darko Ognjanov.

ATLANTIC BRANCH

The Atlantic Branch of CHA continued as a going concern for 2011. With an early-year membership drive commencing in January of 2011, once again CHA Atlantic approached numbers from previous years. On June 23, the Atlantic branch hosted a BBQ in celebration of World Hydrography day at the Owl's Club, in Dartmouth, Nova Scotia. Prior to this, Dr. David Wells gave a well-received keynote speech for World Hydrography Day at the Bedford Institute of Oceanography in Dartmouth. The remainder of the year was quiet, with 2011 culminating in an on-time Annual General meeting, held December 13, 2011.

SECTION DU QUÉBEC

Lors de sa dernière assemblée générale annuelle (AGA), Bernard Labrecque, Jean Laflamme et Robert Dorais ont été reconduits dans leur mandat de vice-président et de directeurs pour la Section du Québec. Quant à Pierre Pagé, il préparera les états financiers de la Section. Les membres présents à l'AGA en ont profité pour indiquer au conseil d'administration nouvellement élu quelques dossiers qui mériteraient une attention particulière pour l'année à venir.

La Section du Québec continue sa collaboration avec la revue « Québec Yachting » en écrivant une chronique à chacune des parutions du magazine. Les derniers sujets traités portaient sur 1) les marées exceptionnelles au Bas-Saint-Laurent et en Gaspésie en décembre 2010, 2) la vigilance sur l'eau, 3) l'hydrographie appliquée dans des domaines non traditionnels et 4) l'évolution des moyens pour représenter les fonds marin plus précisément. La dernière chronique a été réalisé par madame Maude Audet-Morin du CIDCO. Nous avons aussi fourni un article spécial sur les niveaux d'eau pour le Guide des Marinas 2011 et qui sera repris en 2012.

La Section du Québec a publié son Carnet de Bord malgré que l'entente avec le Regroupement des Plaisanciers n'a pas été renouvelée. La distribution se fait toujours en majorité dans les écoles de voiles et dans des points de vente au Québec et dans l'Est de l'Ontario. La Section est toujours dépositaire officiel des cartes et publications du Service hydrographique du Canada en plus de la vente de cartes topographiques.

Le Section du Québec a pris une part active dans l'organisation du colloque organisé par le CIDCO les 21 et 21 juin 2011 à Rimouski sur « l'hydrographie appliquée ». Ce colloque a été des plus intéressants parce qu'il a permis de réunir et de faire des échanges entre plusieurs intervenants qui utilisent l'acoustique marine dans des domaines non traditionnels aux levés hydrographiques et à la cartographie marine. Il reste à concrétiser et à consolider le réseau d'échange avec ces nouveaux intervenants et démontrant les avantages à devenir membre de notre Association.

La Section Champlain de l'Association canadienne des sciences géomatiques et le Collège de Limoilou ont organisé la 4^e édition du concours cartographique à l'intention des élèves du premier cycle du secondaire. La

Section du Québec et le Service hydrographique du Canada de la région du Québec ont contribué à ce concours en permettant une visite sur un navire hydrographique. On vous invite à visiter le site www.acsg-champlain.ca pour une information plus détaillée et des photos.

En terminant, il faut souligner le prix de distinction remis par le Cercle des ambassadeurs, organisme voué à la promotion du tourisme d'affaires de la ville de Québec, à la CHC 2010 pour la qualité de son organisation et des participants provenant de 16 pays. Robert Dorais a accepté le prix au nom de la CHC 2010 dont les honneurs rejoignent sur le Service hydrographique du Canada et l'Association canadienne d'hydrographie.

CENTRAL BRANCH

Dale Nicholson, Director of Hydrography, Canadian Hydrographic Service (CHS) Central and Arctic Region, left in July to take a position with Fisheries and Oceans Canada. Mike Hecimovich, formerly with the Canadian Coast Guard, was appointed Director, Hydrography, Central and Arctic Region.

Keith Weaver, long time CHA member and Manager of Data Acquisition at CHS, Central and Arctic Region, retired in October after 30 years of service. A luncheon was held in his honour at the Mandarin restaurant in Burlington. The event was well attended by colleagues and many retirees from CHS. George Schlaginweit, formerly of CHS Pacific Region, was appointed Manager of Data Acquisition.

Central Branch VP Roger Cameron has been busy in his position as Chair of the 2012 Canadian Hydrographic Conference (CHC 2012). A conference committee and an event planning company are assisting Roger with CHC 2012.

The upcoming conference was promoted at the following conferences in 2011:

- US Hydro 2011 in Tampa, Florida
- CIDCO (Centre Interdisciplinaire de Développement en Cartographie des Océans) Conference in Rimouski, Quebec
- Geomatique 2011 Conference in Montreal, Quebec
- RESON User Conference in Jersey City, New Jersey

CHC 2012 is also being promoted on numerous websites and is posted on Facebook, Twitter and LinkedIn. The conference will soon be advertised in several trade journals. Please visit the conference website www.CHC2012.ca

Congratulations to former VP Fred Oliff on his recent appointment as Sailing Directions Officer at CHS Central and Arctic Region. Fred has been on assignment in Lake Ontario and Georgian Bay and also represented CHS at the various boat shows throughout the year.

National President and Central Branch member George McFarlane represented CHA at the following events in 2011.

- AOLS (Association of Ontario Land Surveyors) AGM in London, Ontario
- US Hydro 2011 in Tampa Florida,
- FIG Working Week 2011 in Marrakesh, Morocco where he represented CIG and CHA,
- 7th National Surveyors Conference and ACLS AGM 2011 in Yellowknife, NWT,
- Geomatique 2011 in Montreal, Quebec, organized by the Canadian Institute of Geomatics (CIG) Montréal Branch.

Andrew Leyzack led a team in the Victoria Strait Pilot Project aboard the CCGS *Sir Wilfrid Laurier* in the Western Arctic. The survey was a joint effort which included participation from the University of Victoria, the Canadian Space Agency, Environment Canada, National Defense, the Government of Nunavut and Parks Canada.

Parks Canada continued their search for the lost ships of the 1845 Arctic Expedition led by Sir John Franklin.

Tim Janzen led the Waterways surveys and acted as Manager of Data Acquisition after Keith Weavers retirement until the position was filled.

Seminars

In 2011 Central Branch held seven General Meetings and three Executive Meetings. No meetings were held in June, July and August as the branch is on hiatus for the summer.

- January: Executive meeting
- February: Walt Irie of the Canadian Harvard Aircraft Association (CHAA) gave a presentation on the organization. The CHAA is dedicated to acquiring and maintaining WWII Harvard training aircraft in flying condition. They also survey the waters of the Great Lakes for wreckage of Harvard and other WWII aircraft. Executive meeting.
- March: V.P. Roger Cameron Chair of CHC 2012 and Andrew Leyzack Chair of the Technical Program Committee for CHC 2012 gave an update on the progress of the upcoming conference. Branch business was also discussed.
- April: Scott Youngblut of the Canadian Hydrographic Service gave a presentation on the R2 sonic 2200 multi beam echo sounders recently acquired by the CHS.
- May: Andrew Leyzack of the Canadian Hydrographic Service gave a presentation on the upcoming Victoria Strait Pilot Project in the Western Arctic scheduled to begin in August.
- September: V.P. Roger Cameron Chair of CHC 2012 gave an update on the progress of the upcoming conference.
- October: Branch business was discussed.
- November: Constable Gary Gibson of the Toronto Police Marine Unit gave a presentation on the unit and its use of side scan sonar during investigations. Executive meeting
- December: Central Branch Annual General Meeting

Membership

Branch

The Central Branch membership stands at 66. The branch is pleased to welcome new member Cathy Eden. Corporate members are listed in each edition of *Lighthouse*.

Central Branch is honoured to include several special people in its membership: Earl Brown, Tom McCulloch, Ab Rogers and Sam Weller - Life Members; George Macdonald - Honorary Member and Rear Admiral Steve Ritchie - International Life Member.

The membership committee would like to thank all of its members for their continued support.

International

Central Branch of the CHA administers the International Members on behalf of the National Office. This committee helps to maintain contact with the CHA's ten International members and ensures they have an opportunity to voice opinions and take part in CHA activities. CHA welcomes two new international members Florence Babalola-Smith and Udochukwu Nwachukwu, both from Nigeria.

We encourage communication between our members abroad and are delighted when we receive news from them.

Admiralty Launch Surveyor

In July, Admiralty Launch *Surveyor* participated in a movie shoot portraying a lifeboat in the sinking of the *Mariposa Bell* a fictional steamship from the book Sunshine sketches of a little town by Stephen Leacock. *Surveyor* was inactive for most of the year and spent some time at Gill Bibbys boat shop before being moved to winter storage at the Canada Centre for Inland Waters in Burlington.

Social Events

The 40th annual CHA Curling Bonspiel was held at the Grimsby Curling Club on Saturday February 19, 2011. The Bonspiel had a full roster of participants and was very successful. Medals commemorating the 40th Bonspiel were awarded to all participants in recognition of this significant milestone.

The Annual summer BBQ was held on Saturday September 17, 2011 at the Cameron residence in Welland. Sunny weather prevailed and a good time was had by all. Thanks to Brian Power who supplied an additional BBQ and assisted in cooking up the culinary delights.

US Hydro 2011

US Hydro 2011 hosted by the Hydrographic Society of America took place at the Marriott Waterside Hotel in Tampa, Florida April 25 - 28. Central Branch members, George McFarlane, Christine Delbridge, and Roger Cameron attended the conference. During the closing ceremonies Roger extended an invitation to the audience to attend CHC 2012 in May of 2012.



From Left to Right: CHA President George McFarlane, Treasurer Christine Delbridge and Central Branch VP Roger Cameron in the CHA booth at US Hydro 2011.

Website

The CHA maintains a website that covers National and Branch information. The site is updated throughout the year for Branch activities as information becomes available. Please direct your browser to <http://www.hydrography.ca>.

40th Annual Canadian Hydrographic Association H2O Bonspiel

February 19, 2011 marked a major milestone for the Central Branch, CHA. The 40th Annual Canadian Hydrographic Association H2O Curling Bonspiel took place at the Grimsby Curling Club. The organizing committee wanted to do something special to mark the occasion, so a special commemorative medallion was created and presented to each of the sixty-four curlers. The medallion seen around the necks of the winning team below, shows three curling stones inside the curling rings and inscribed on the back "40th Annual H2O Bonspiel February 19, 2011".

A note of interest to fans of curling the Town of Grimsby and their curling club members hosted the Ontario Men's Tanker the following week. The winning team will go onto represent Ontario at the Canadian Men's Championship, the "Tim Hortons Brier".

For forty years Central Branch of the CHA has been bringing both experienced and first time curlers, friends and family together to participate in a friendly game of curling. As in past years the curlers make a point of telling the committee how much they look forward to this annual event, and each year a new bit of information comes to light, this year was no exception. Mike Mawhinney a long time curler, curled in the very first CHA H2O Bonspiel back in 1971, how time flies by, congratulations to Mike.

As in so many sports today we cannot succeed without volunteers and outside support. The 2011 Bonspiel Committee of Earl Brown and Brian Power would like to thank the curlers and friends, who helped out during the day's festivities. Earl and Brian extend a sincere thank you to the many companies, who have supported us over the past years.

The 2011 CHA Bonspiel committee would like to acknowledge those companies who made donations to this year's prize table.

Canadian Hydrographic Association
Central Branch

Canadian Hydrographic Service
Central & Arctic Region

Atek Hydrographic Surveys
Powell River, British Columbia

CARIS
Fredericton, New Brunswick

Dr. Danielle Marr, Chiropractor

Dynamic Training and Rehabilitation
Burlington, Ontario

Fugro GeoSurveys Inc.
St. John's, Newfoundland

Kongsberg Maritime
Dartmouth, Nova Scotia

Knudsen Engineering Ltd.
Perth, Ontario

Legends Landscape Supply
Burlington, Ontario

Performance Brush Team
Trois - Rivieres, Quebec

RESON Inc.
Goleta, California

Seaway Marine Transport
St. Catharines, Ontario



40th H2O Bonspiel Winners

From Left to Right: Marvin Medelko (second), Janet Medelko (lead), Rick Storey (skip) and Peter Floyd (vice).



40th H2O Bonspiel Runners-Up

From Left to Right: Dave Smith (second), Mike Mawhinney (vice), Paul Winslow (skip), missing is Paul Mawhinney (lead).



Grimsby Curling Club

OTTAWA BRANCH

2011 CHA Central Branch Executive:

Vice-President	Kian Fadaie
Treasurer	Daria Bradbury
Secretary	Sheila Acheson
Executive Members	Daniel Pelletier Genevieve Marquis Nancy Akerley

Membership to date

Regular: 27
Industry: 2 (These are non-corporate memberships and are included in the total of 27 members.)

Seminars and Social Events

Seminars:

The Branch continues to support a varied speakers program throughout the year. To date this year the Branch has hosted six Pizza and Presentation Luncheons:

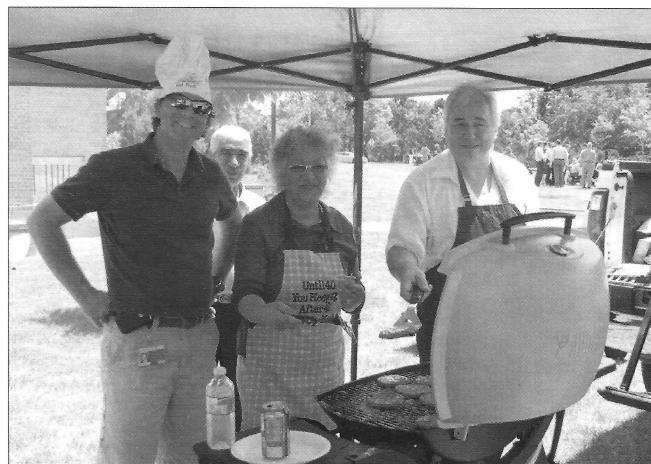
- "The Role of the Association of Canada Lands Surveyors in the Surveying and Mapping Profession in Canada, with Special Reference to Hydrography," by Jean-Claude Tétreault, Executive Director of the Association of Canada Lands Surveyors, February 17, 2011.
- "A Seamless Bathymetric Database for Science," by Herman Varma, Cartographic Specialist, CHS Atlantic Region, March 18, 2011.
- "Inuit Place Names and Trails in the Canadian Arctic," by Dr. Claudio Aporto, Associate Professor of Carleton University's Geomatics and Cartographic Research Centre and Principal Investigator for the Inuit Sea Ice Use and Occupancy Project, April 12, 2011.
- "Canada Centre for Remote Sensing- where have we been and where are we going. Reflections on the first 40 years of excellence," by Doug Bancroft, Director General of Canada Centre for Remote Sensing, June 1, 2011.
- "Canada's Height Modernization," by Marc Véronneau, Natural Resources Canada, on September 14, 2011.
- "Pilotage in Canadian Waters," by Captain Simon Pelletier, President of the Canadian Marine Pilots' Association, October 4, 2011.

World Hydrography Day

CHA Ottawa Branch co-sponsored a very successful World Hydrography Day BBQ and Quiz Show at 615 Booth St. Fifty guests attended to celebrate the contribution of Human Resources – The important element to the success of hydrography.



World Hydrography Day CHA - CHS cake



World Hydrography Day BBQ burgers

News

Ottawa Branch has renewed the Friends of Hydrography website and domain name for another year (2011). Stacey Kirkpatrick has updated the opening page to reflect CHA's sponsorship of the site. She will be adding the CHA logo as well.

Rates / Tarifs

POSITIONING / EMPLACEMENTS

The acceptance and positioning of advertising material is under the sole jurisdiction of the publisher.

L'approbation et l'emplacement de l'annonce sont à la discrétion de l'éditeur.

DIGITAL REQUIREMENTS EXIGENCES NUMÉRIQUES

Advertising material must be supplied by the closing dates as digital Tiff 600dpi files. Proofs should be furnished with all ads.

Single-page inserts will be charged at a full-page body rate. Material must be supplied by the client. Page size must conform to the single page insert trim size (below).

L'annonce publicitaire doit être fournie aux dates de tombée. Les épreuves devraient être fournies avec tous les suppléments.

Les insertions d'une page seront chargées au tarif d'une pleine page. Le matériel devra être fourni par le client.

PUBLICATION SIZE DIMENSIONS DE LA PUBLICITÉ

Publication Trim Size/ Dimension de la revue: 8.5" x 11.0"

Live Copy Area/ Encart libre: 7.0" x 10.0"

Bleed Size/ Publicité à fond perdu: 8.75" x 11.5"

Single Page Insert Trim Size/ Insertion d'une page 8.25" x 10.75"

Standard Ad Sizes/ Grandeur standards des suppléments:

Full Page/ Pleine page: 7.0" x 10.0"

1/2 Page/ Demie-page: 6.875" x 4.75"

or/ ou: 3.375" x 9.75"

PRINTING / IMPRESSION

Offset screened at 133 lines per inch.

Internégatif tramé à 133 lignes au pouce.

CLOSING DATES / DATES DE TOMBÉE

LIGHTHOUSE is published twice yearly, in Spring and Fall. The closing dates are March 15th and September 15th respectively.

LIGHTHOUSE est publiée deux fois par année, au printemps et à l'automne. Les dates de tombée sont le 15 mars et le 15 septembre respectivement.

RATES / TARIFS

All rates are quoted in Canadian Funds. Corporate Members receive a 10% discount.

Tous les tarifs sont en devises canadiennes. Les membres corporatifs ont droit à un rabais de 10%.

	B & W/ N & B	Colour/Couleur Four/Quatre
Outside Back Cover <i>Couverture arrière</i>	NA/SO	\$1,025
Inside Cover <i>Couverture intérieure</i>	NA/SO	\$825
Body, Full Page <i>Pleine page</i>	\$475	\$675
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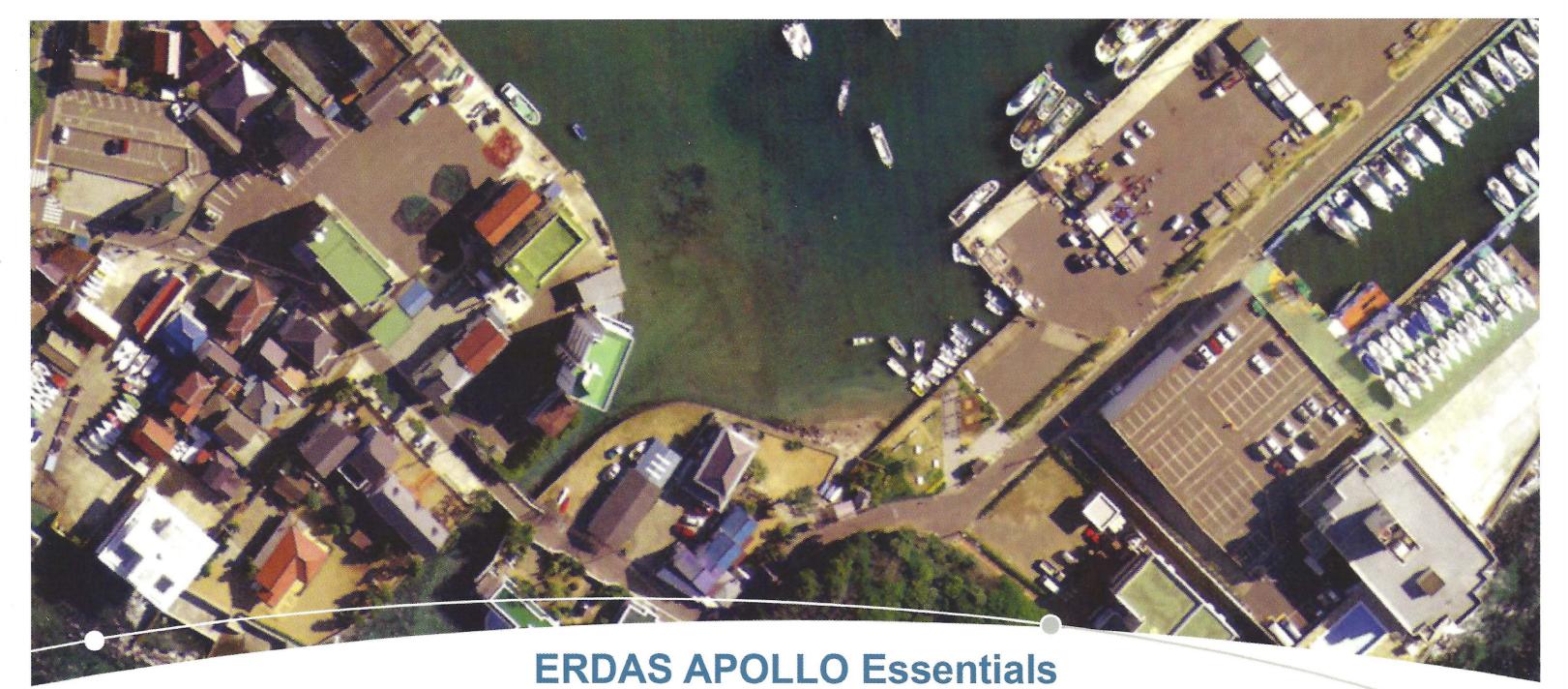
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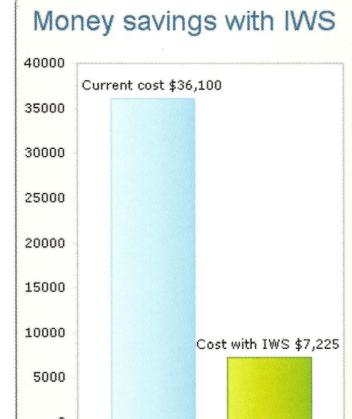
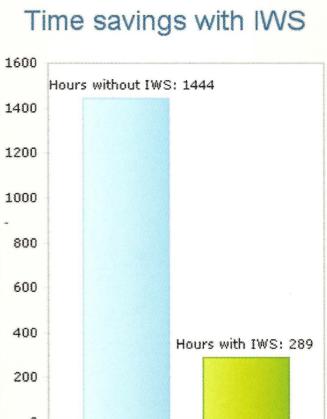
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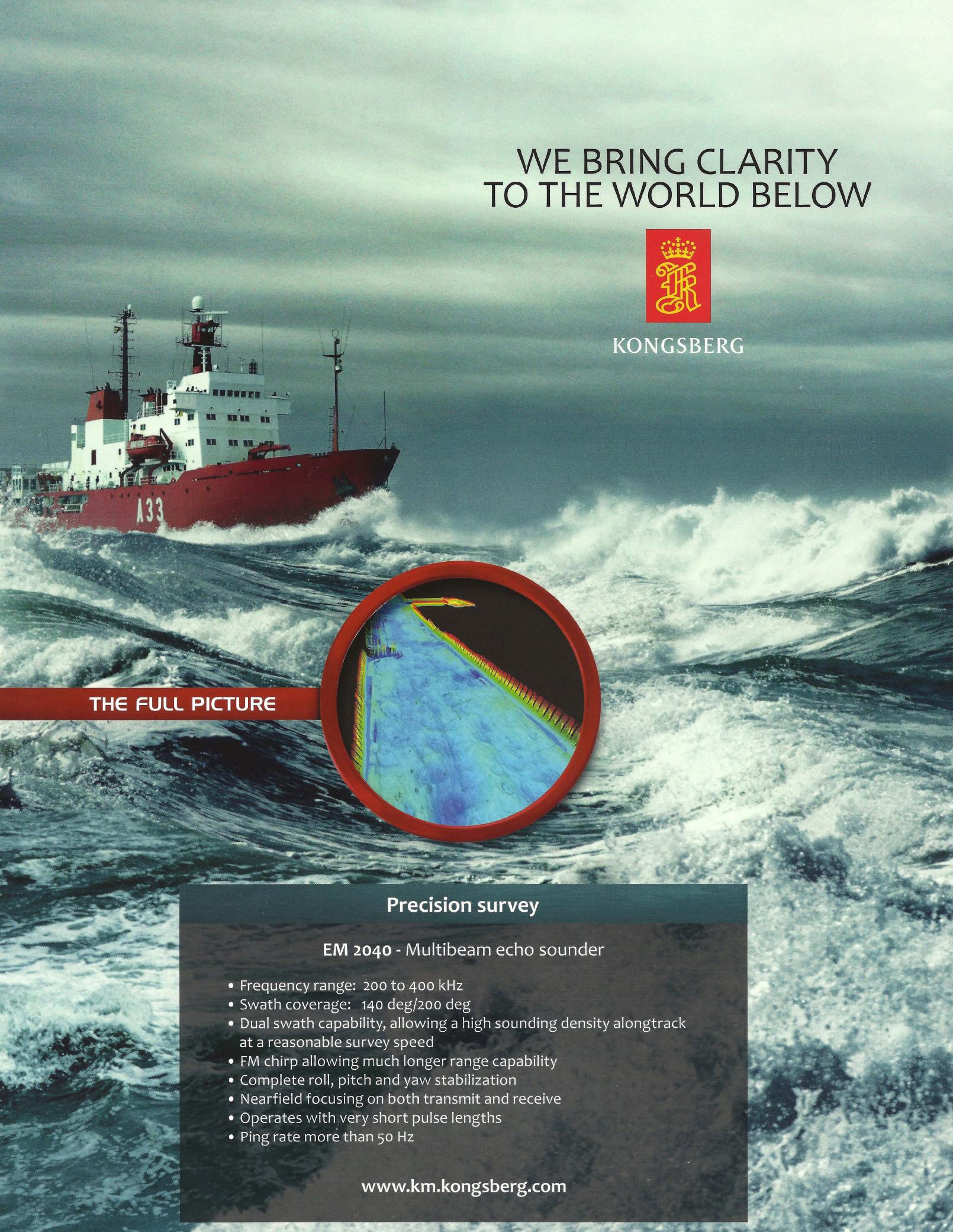
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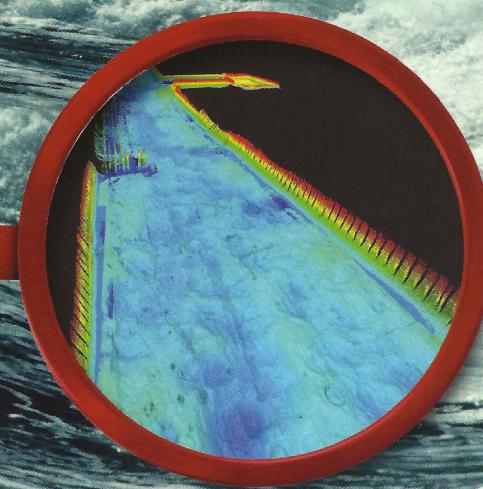


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