

# THE JOURNAL OF OCEAN TECHNOLOGY

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The Journal of Ocean Technology is an independent quarterly periodical published by the Fisheries and Marine Institute of Memorial University of Newfoundland. It is designed specifically to cater to all segments of the world's ocean community. Its mission is to expand global knowledge and understanding of ocean technologies and to serve as the medium for publishing world-leading research and innovation that contributes to responsible ocean utilization and management.

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### Our Photo Contest

Got a great picture? Share it with us and you may be featured on the cover of the next issue of The Journal of Ocean Technology, which will be seen around the world. Check out the themes for our forthcoming issues to help guide your entries. For more information, get the details online at [www.journalofoceantechnology.com](http://www.journalofoceantechnology.com). If your photo is selected, you will win a one-year subscription to the JOT.

### Student Essay Contest

Whether you are in high school or a post-secondary institution, we want to hear about your oceans related interests. If you or someone you know is up to the challenge, contact our editorial staff today. For more information, go to [www.journalofoceantechnology.com](http://www.journalofoceantechnology.com).

### Letters to the Editor

At JOT, we welcome your input. Why not write us to tell us what you think of our publication, what you like, what you don't and your thoughts on ways to improve it. Simply e-mail us at [publisher@journalofoceantechnology.com](mailto:publisher@journalofoceantechnology.com). We look forward to your input.

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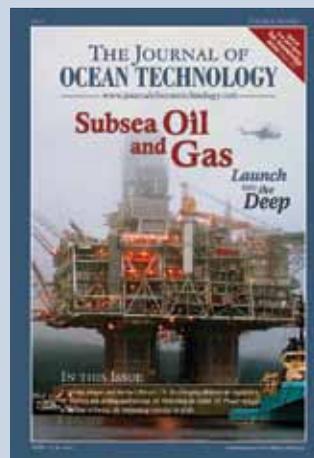
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## On The Cover

In this image from June 1997, the completed Hibernia gravity-based structure (GBS) is being prepared for towing to the Hibernia oil field off Canada's east coast and positioned on the ocean floor; production of oil began in November of the same year. The platform has three separate components: topsides, gravity base, and offshore loading system. It stands 224 metres high in 80 metres of water and is uniquely designed to resist the impact of sea ice and icebergs.

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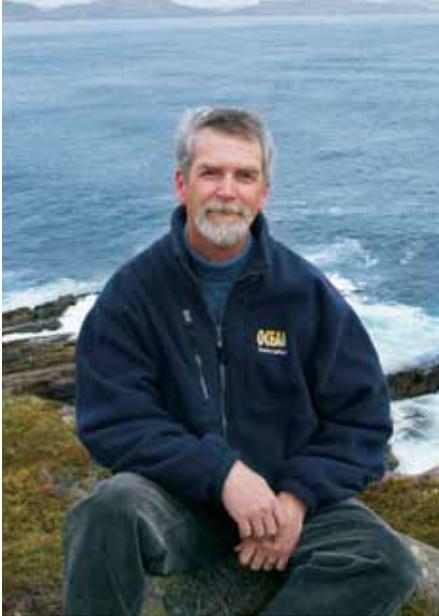




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## From the Publisher

Greetings from the observation deck. From where I sit, it has been an exciting voyage so far, with the odd storm along the way, and beautiful sunrises every now and then to make it all worthwhile. We are now entering the sixth year of our voyage. Those of you who are paying attention will notice that there have been a few changes in the crew roster over the past year. Most notably, Dawn Roche now sits in the big chair as “Managing Editor,” a title that more accurately reflects her role as captain of the ship. Those of you who are actively involved will no doubt agree that Dawn has done a masterful job of keeping things ship shape and inspiring the rest of us to pull our weight.

The highlights of our voyage this past year include the launch of our new and improved web site in October. We believe that the new format will allow for greater flexibility in delivering content that is relevant to the JOT community. In November we undertook an intensive strategic planning exercise where we engaged a broad cross-section of our readership and received some insightful suggestions, many of which we will be implementing over the coming year. And in December, we launched an important new series dubbed ‘Tec-knowledgey’ where we explore why ocean technology matters – to business, to the science community and to those who set ocean policy. We would, of course, welcome your feedback on this and anything else you read between the covers of the JOT. Your suggestions help to guide us from waypoint to waypoint.

In the upcoming season, our planned ports of call include Southampton, UK, for Ocean Business in April; Newport, Rhode Island, for Ocean Tech Expo in May; Kona, Hawaii, for Oceans’11 in September; and last but certainly not least, Iqaluit, Nunavut, for the Ocean Innovation conference in October. Please look for us if you happen to be in town for any of these important gatherings of the oceans community.

I would be remiss if I did not, in closing, offer my heartfelt thanks to the JOT production team for doing yeoman’s service, as usual. Also, thank you to our Editorial Board and all of our contributors and reviewers for their hard work and dedication over the past year. I would particularly like to acknowledge Glenn Blackwood, Executive Director of the Marine Institute, for his continued support and inspiration.

**Randy Gillespie**  
Publisher



## From the Editor

The global offshore oil and gas industry has a relatively short history yet with significant milestones. In 1896 the first submerged wells were drilled off the coast of California. The first oil drilled out of sight of land occurred in 1947. During 2003, drilling began off Canada's east coast in the deepest water depth to date (over 3,000 metres). Offshore drilling has evolved farther offshore and into deeper waters. We have observed the advancement of drilling platforms and methods as well as the development of new technologies to support this lucrative industry. And we have witnessed a positive shift towards increasing safety of personnel and protecting of the environment.

Inside this issue of the JOT, we take a look at the advances in the industry starting with Pittman and Keating's essay on the transformation of the industry from a very basic single-well land rig concept to the latest high specification deepwater drilling rigs. Ruelokke of the Canada-Newfoundland and Labrador Offshore Petroleum Board discusses the role of regulators in ensuring safe operations and protecting the environment while balancing regulatory enforcement of the industry. Murphy Rustad describes One Ocean, a unique model that promotes effective communication among the fishing and petroleum industries, while Short focuses on the use and importance of oil slick detection systems.

The peer-reviewed technical papers in this issue are fascinating. Sanders points out the engineering challenges associated with the seasonal presence of ice that will need to be resolved before tidal energy can be accessed year-round from the Minas Basin in Nova Scotia. Chow, Clark and Huisson address the inability of an AUV to turn at an arbitrary rate when attempting to sample target points that are close together in the presence of a constant ocean current.

In *Spindrift*, we profile Paul Leonard, President of the Hibernia Management and Development Company Limited; highlight several companies that provide specialized technologies for the offshore oil and gas industry; and illustrate how a blowout preventer works. Finally, in Part 2 of our four-part series entitled *Tec-knowledge*, we discuss the role of ocean technology in society today.

As always, comments on the content of this issue or on the JOT in general are most welcome. Enjoy!

**Dawn Roche**  
Editor