



The BioSonics Newsletter - November 2008

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November 2008

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### [WELCOME TO THE AUTUMN ISSUE OF SOUNDINGS](#)

November 05, 2008

Welcome to *Soundings*, the BioSonics newsletter. As the leaves outside begin to change, the weather becomes cooler, and the rivers and lakes begin to freeze here in the northern hemisphere, we come to the close of another busy field season full of innovative hydroacoustic projects here in the US and abroad.

It has truly been an exciting year for our users! As you will find in the following articles, the wave of possibilities and advancements in hydrokinetic energy is rapidly expanding, and hydroacoustics is playing an increasingly crucial role in the monitoring and assessment of marine and aquatic resources and habitats at both potential and pilot project kinetic hydropower sites. BioSonics is proud to work with some of the leaders in alternative energy development, and we are quickly developing and implementing new applications for our technology that we couldn't have imagined at our inception 30 years ago.

Judging by the consistently overwhelming demand for our biannual Hydroacoustic Assessment Workshops, and the outstanding wealth of knowledge and interest within our participants, it is clear that we have only just scratched the surface of the many potential applications for hydroacoustics. We would love to hear about your own projects and ideas, and stand ready to work with you in supplying the best

solutions for your aquatic monitoring and assessment needs.

As we celebrate the successful end of our 30th year in business, we wish to thank all of our new and long-time users – some of whom have grown with us since our very first echosounder! We are truly looking forward to the next 30 years in hydroacoustic technology and applications, and invite you to stay tuned, and join in on the excitement!

Tim Acker, President and CEO  
BioSonics, Inc.

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## **HYDROACOUSTICS FUELS RENEWABLE ENERGY PROJECT IN ALASKA**

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**Eagle, Alaska** - Now well established as an important technology for monitoring abundance and behavior of fish in all aquatic environments, hydroacoustics is being implemented in both the preliminary and project operations phases of new alternative energy projects, such as The Yukon River Hydrokinetic Turbine Project in Eagle, Alaska.

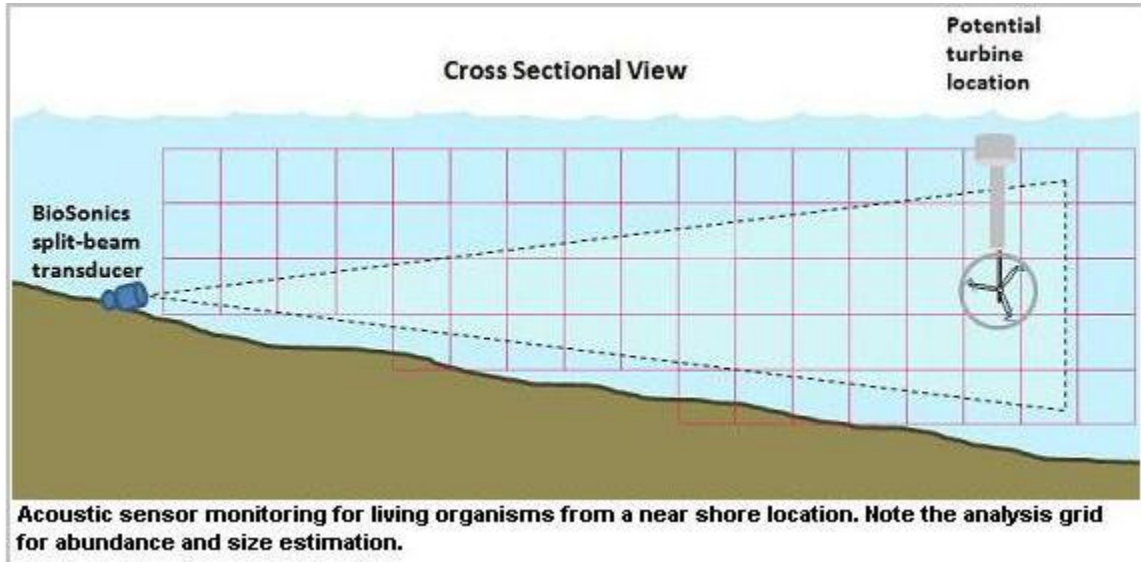
The Alaska Power and Telephone Company (AP&T) was awarded grant funds in 2007 to assist in the development of a hydrokinetic turbine system in the Yukon River, which will be the first of its kind in the state of Alaska. The electric power generated by the turbines is expected to replace up to 57,000 gallons of diesel fuel used for electrical generation each year for the residents of The City of Eagle and Eagle Village.

As with all kinetic hydropower projects, the need arose to assess fish populations and behavior at the proposed turbine site, to better understand any potential interaction of project operation with the fish. BioSonics joined AP&T on The Yukon River Hydrokinetic Turbine Project in Spring 2008 and deployed a custom, fixed-position hydroacoustic system to collect baseline data on fish passage in the proposed in-stream turbine location.



**A worker watches as the transducer and housing are lowered to the bank of the Yukon River.**

The automated data collection project ran continuously, for nearly five months, and collected nearly 3,000 hours of acoustic data. It is currently being analyzed and will provide information on the number of fish detected, their horizontal and vertical location in the river, direction of travel, and relative size. If all goes according to plan, the turbines will be deployed in 2009, using the results of this study to guide placement and operation to result in minimal negative impacts on the fish in the area.



To learn more:

[\[Yukon River Hydrokinetic Turbine Project\]](#)

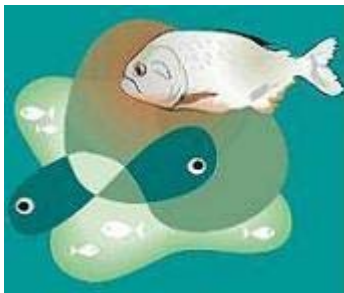
[\[BioSonics Tidal Energy Monitoring in Eagle, AK\]](#)

[\[Alaska Power & Telephone Company\]](#)

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## USER NEWS

November 05, 2008



### HYDROACOUSTICS AT WORK IN MINAS GERAIS, BRAZIL

**Brazil** – Dr. Ricardo Motta Pinto Coelho, of the Universidade Federal de Minas Gerais, has applied hydroacoustic tools to many areas of his work. From physical descriptions of aquatic environments to stock assessment of both native and cultured fishes, he and his colleagues have been using their recently acquired BioSonics DT-X system with a 200 kHz split-beam transducer to great advantage.

Lake D. Helvécio, Rio Doce Valley, Minas Gerais, Brazil, the deepest natural lake in Brazil.



In 2008, Dr. Coelho's team used their DT-X to identify aquatic vegetation, as well as submerged forest or savanna formations (or *paliteiros*) in reservoirs:

*"The project has the central objective to implement the use of hydroacoustic techniques for the monitoring of fishery resources and evaluation, identification and quantitative measurement of biomass of meso and macroplankton, and submerged macrophytes in lakes and reservoirs of the state of Minas Gerais (Brazil). We evaluate, test and apply the potential of the BioSonics DT-X hydroacoustic system for the accomplishment of bathymetric studies in different lacustrine systems of the state."*

Dr. Coelho's team is currently studying the *Chaoborus* (a type of transparent midge larva also called *Glassworm*), and the effect it has on the tropical ecosystems in Brazil:



**Hydroacoustic data from several tropical freshwater systems suggest that *Chaoborus* larvae play a central role for the whole lake metabolism.**

*"We are extremely excited with the data about *Chaoborus* we got [from] the Rio Doce Valley Lakes and we are just formatting a new series of additional publications. We hope they will be ready in November/December. The data we got using the DT-X system revealed how important these organisms are for the whole ecosystem functioning in a series of tropical lakes and reservoirs. Probably the ecological role of chaoboridae in tropical lakes and reservoirs is much more important than what we knew previously."*

In September 2008, Dr. Coelho presented a key lecture on his work at the German Society of Limnology's Conference held in Konstanz, Germany. For details, results, and publications, please visit his web site: [Hidroacústica em Lagos e reservatórios de Minas Gerais](#)

To Learn More:

[Complete FAPEMIG Final Report: [A New Tool in the Management of Reservoirs in Minas Gerais: Evaluation – In Real Time of the Availability of Fish Resources Through the Use of Hydroacoustic Techniques](#)]

[[Dr. Ricardo Motta Pinto Coelho](#)]

[[Universidade Federal de Minas Gerais](#)]

[[2008 German Society of Limnology Conference in Konstanz, Germany](#)]

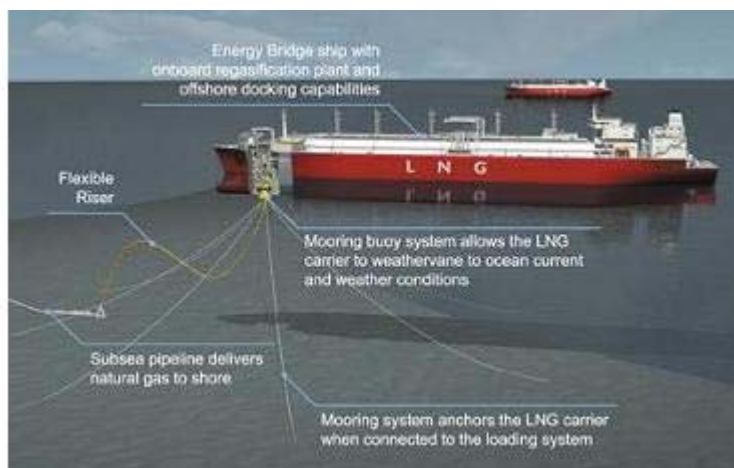
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## NEW ENGLAND AQUARIUM STUDIES EFFECTS OF OFFSHORE LNG RECEIVING FACILITY

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**Massachusetts Bay** - A team of researchers at the New England Aquarium, led by John Mandelman, has been tasked with monitoring the behavior distribution and abundance of fish in the 1000 meter exclusion zone surrounding the new buoy-based offshore Liquefied Natural Gas (LNG) receiving facility and associated anchoring system. Northeast Gateway Deepwater Port (Northeast Gateway) is Excelerate Energy's second offshore receiving facility for LNG, located in Massachusetts Bay approximately 13 miles from shore, and provides access to the northeastern U.S. energy markets.



To accomplish this research, the aquarium staff will conduct a series of hydroacoustic surveys of the area using a BioSonics 120 kHz split beam transducer with integrated heading pitch and roll sensor. In addition to traditional survey techniques, the transducer will also be aimed diagonally towards the buoy to help quantify the fish utilizing the underside of the buoy as refuge.



**BioSonics' Mike Burger instructs the New England Aquarium team on the use of the DT-X echosounder & analysis software.**

BioSonics personnel traveled to Boston earlier this year to assist the research team in the initial phases of the project, and provided classroom and field-based instruction on the operation of the hydroacoustic system, survey design and acoustic data analysis.

In addition to assessing fish populations surrounding the LNG buoy, New England Aquarium is teaming with the Gulf of Maine Research Institute to utilize the hydroacoustic system to quantify and map the distribution of zooplankton, the primary food resource of the endangered North Atlantic Right Whale.

To Learn More:

[\[Excelerate Energy's Northeast Gateway Deepwater Port\]](#)

[\[New England Aquarium\]](#)

[\[BioSonics Echosounders\]](#)

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## NEW ONLINE FORUM HOSTED BY AFS

November 05, 2008

In a past issue of Soundings, we reported that an online users group had been formed by Angie Grier

(Indiana Department of Natural Resources) and hosted by The Kansas Biological Survey. Due to unfortunate technical issues, the original site has been disabled. We are now pleased to report that The American Fisheries Society has begun hosting a new forum for hydroacoustics users, where you may share information, questions, recent projects, and other relevant communication. Click the link below to log in and join the discussion!

[\[Online Hydroacoustics Users Forum\]](#)



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## FALL 2008 HYDROACOUSTIC WORKSHOPS

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BioSonics would like to thank the participants of our October, 2008 Hydroacoustic Assessment Workshop, which took place October 20 – 22. It was a pleasure to host the following professionals, and we look forward to working with each of them in the near future:

- *Christopher Longhenry (South Dakota Game, Fish and Parks)*
- *Darcy Wildermuth (Washington Department of Fish and Wildlife)*
- *Herb Vandermeulen (Fisheries and Oceans Canada)*
- *Joshua A. Idjadi (New England Aquarium)*
- *Kirsten Simonsen (Louisiana State University)*
- *Kris Edwards (South Dakota Game, Fish and Parks)*
- *Philip Tschersich (Alaska Department of Fish and Game)*
- *Rick Ferguson (Fisheries and Oceans Canada)*

Due to overwhelming demand for our October Workshop, we added a second class to our Fall Workshop schedule. This class is set to take place November 17-19, and we are pleased to welcome a new group of participants from varying backgrounds.

If you or your colleagues are interested in learning more about the history, theory and application of hydroacoustics (including hands-on practice with an echosounder system and data analysis instruction), we invite you to visit our Training webpage, and sign up for our next Hydroacoustic Workshop held at our office in Seattle, Washington on January 26-28, 2009. Space is very limited, so act quickly!

[\[BioSonics Hydroacoustic Assessment Workshop and Training Opportunities\]](#)  
[\[Sign Me Up!\]](#)

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## 2008: A GREAT YEAR OF CONFERENCES & MEETINGS

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We are quickly nearing the end of another great year of conferences and meetings, hosted by some of the leading aquatic, marine and hydro-energy organizations, including The American Fisheries Society, The International Council for the Exploration of the Sea (ICES), HCI Publications, and The North American Lake Management Society (NALMS), among others.

BioSonic participated in the ICES Working Group on Fisheries Acoustic Science & Technology (WGFAST) meeting in Bergen, where the world of marine fisheries acoustics gathers to discuss results and ideas.

At the biennial HydroVision Conference in July, more than 2,500 hydropower and dam-related professionals from more than 65 countries convened in Sacramento, California, and BioSonic was proud to present the following three discussions based on our unique experience and insight into the exciting and ever-changing world of hydroacoustics. Please contact us to learn more about these topics:

***Experience and Insights in "Biologically Triggered Fish Passage" -or- Letting the Fish Optimize Operation of Your Generation and Passage Facilities***

***Hydrokinetic Energy Projects—Hydroacoustic Assessment and Monitoring Before and After Project Initiation***

***Environmental Effects of New Water Power Technologies: What We Know; What We are Learning***

At the annual American Fisheries Society Conference in Ottawa, Canada, BioSonic presented "Tidal and Wave Energy Projects – Assessment and Monitoring of the Biological and Physical Environment" using advanced hydroacoustics at ocean energy project sites, in the Habitat and Water Quality Symposium.

In November, we will be travelling to beautiful Lake Louise, Alberta, Canada to attend the North American Lake Management Society's 2008 Symposium, focused on Lake Management in a Changing Environment. We hope to see you there – stop by **Booth #20** for a chat - and be sure to check our Meetings, Workshops & Conferences Calendar to learn more about the conferences and meetings we will attend in 2009!

Links:

[\[North Pacific International Chapter AFS Annual Meeting 2009\]](#)

[\[Oregon Division AFS Calendar of Events\]](#)

[\[Western Division AFS Annual Meeting 2009\]](#)

[\[ICES 2009 Calendar\]](#)

[\[ICES WGFAST\]](#)

[\[HydroVision 2008 / Waterpower XVI 2009\]](#)

[AFS National Conference: [2008](#) / [2009](#)]  
[[North American Lake Management Society Meeting 2008](#)]  
[Ocean Renewable Energy Group: [2008 Fall Symposium](#) / [Future Events Calendar](#)]  
[[Contact BioSonics](#)]

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## RECENT PUBLICATIONS BY BIOSONICS USERS

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[Simulating the Effects of Side-Aspect Fish Orientation on Acoustic Biomass Estimates](#) Kevin M. Boswell, Brian M. Roth, and James H. Cowan, Jr.

[Utilizing Acoustic Data in Establishing Reef Fish Recruit Abundance](#) Victor Ticzon, Badi Samaniego, Greg Foster, Sonia Bejerano-Chavarro, Eileen Penaflor, Shiela Marcos, Joseph Dominic Palermo, Peter Mumby, Laura David.

[Statistical Comparison Of Single-Beam Acoustic Backscatter \(38 And 418 Khz\) With Lidar-Derived Coral Reef Benthic Habitat Class And Topographic Complexity](#) Greg Foster, Brian Walker, Bernhard Riegl.

[Quantifying Gas Ebullition With Echosounder: The Role of Methane Transport by Bubbles in a Medium-Sized Lake](#) I. Ostrovsky, D. F. McGinnis, L. Lapidus and W. Eckert.

[Hydroacoustic Surveys of Otsego Lake, 2007](#) Thomas E. Brooking and Mark D. Cornwell.

[Browse other recent publications by BioSonics users!](#)

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## MEETINGS, WORKSHOPS & CONFERENCES OF INTEREST TO HYDROACOUSTICS USERS

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Please let us know if you will be participating in these, or other workshops and conferences; we would be pleased to list them here.

***BioSonics will be attending the conferences designated with this symbol: "✳"***

Please stop by and visit our booth at the Exhibition!

**2008**



**November 3 - 5** [Canadian Hydropower Association Forum on Hydropower](#) Ottawa, Ontario, Canada.

✦ **November 11 - 14** [North American Lake Management Society Annual Conference](#) Lake Louise, Alberta, Canada. **Booth #20!**

✦ **November 17 - 19** [BioSonics Hydroacoustic Assessment Workshop](#) Seattle, Washington, USA.

**December 14 - 17** [69th Midwest Fish & Wildlife Conference](#) Columbus, Ohio, USA.

## 2009

**January 25 - 30** [American Society of Limnology and Oceanography Aquatic Sciences Meeting](#) Nice, France.

✦ **January 26 - 28** [BioSonics Hydroacoustic Assessment Workshop](#) Seattle, Washington, USA.

**February 25 - 27** [American Fisheries Society Oregon Division Annual Meeting](#) Bend, Oregon, USA.

**March 18 - 20** [Wisconsin Lakes Convention](#) Green Bay, Wisconsin, USA.

**April 1 - 4** [American Fisheries Society California Nevada Chapter Annual Meeting](#) Santa Rosa, California, USA.

**May 3 - 7** [American Fisheries Society Western Division Annual Meeting](#) Albuquerque, New Mexico, USA.

**May 3 - 7** [The Aquatic Plant Management Society, Inc. 49th Annual Meeting](#) Milwaukee, Wisconsin, USA.

✦ **July 27 - 30** [Waterpower XVI](#) Spokane, Washington, USA. **Booth #4014!**

✦ **August 30 - September 3** [American Fisheries Society Annual Meeting](#) Nashville, Tennessee, USA.

**October 26 - 29** [Oceans 2009](#) Biloxi, Mississippi, USA.

**November 1 - 5** [Coastal and Estuarine Research Federation Conference](#) Portland, Oregon, USA.

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**GSA PRICING FOR FEDERAL USERS**

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BioSonics (Contract # GS-24F-0034M) has been a GSA contractor since 2002. GSA Advantage is the US government's central online shopping superstore. GSA Advantage

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### Newsletter Information

**BioSonics, Inc., Leading the way in Advanced Scientific Digital Hydroacoustics**, and providing the aquatic and marine resource community with scientific grade instrumentation and software, consulting, and support since 1978. BioSonics is the trusted name in hydroacoustics, known for the quality of our products and the depth of our client support.

BioSonics is ready to serve you by providing equipment, software, support, and consulting services for underwater assessment and monitoring. We continue to provide innovative products and services for research and management of the aquatic environment, based on sound science and input from our users.



**We look forward to working with you on your next hydroacoustic application.**

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