For more information, contact

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Overview

- Motivation
- 3-D Forward-looking Sonar
- Review of Past Results
- Market Analysis
- Benefits to Marine Industry
Problem: Whale Shipstrike

- Shipstrike is the leading cause of death of the northern right whale.

On March 12, 1991, a dead right whale was found along the coast of Amelia Island, Florida near Fernandina Beach. This whale, named Buoy Boy, had been struck by a ship.
Bad for everyone: the whale, the ship captain/owner, and the port
Solutions

- Shut down or move shipping lanes
- Passive acoustic monitoring
- Airborne monitoring
- 3-D Forward Looking Sonar
Solutions

- Shut down or move shipping lanes: $$$
- Passive acoustic monitoring: $$$
- Airborne monitoring: $$$
- **3-D Forward Looking Sonar**
  - Saves money
  - Help prevent groundings
  - Insurance savings
  - Routing efficiencies
  - Port security
History

- **1997-2000**: Funding from URI Ocean Technology Center
- **2000-2001**: ONR funding for whale observations during tests (Mediterranean and N. Atlantic)
- **2000-2002**: NMFS purchased beta prototype system
- **Sept. 2002**: FS200 product launched
The Team

- **Cheryl M. Zimmerman, Chief Executive Officer**
  - MS, Mechanical Engineering, Tufts
  - Experienced Entrepreneur
    - M&A, Business Development and Operations
    - Business & Finance Leadership

- **James H. Miller, Chairman and Chief Scientist**
  - Professor: URI Ocean Engineering
  - Doctorate, Underwater Acoustics, MIT / WHOI
  - Core Technology Leadership

- **Matt Zimmerman, V.P. Engineering**
  - BS, Ocean Engineering, URI
    - International Engineering Program Graduate
  - Engineering & Development Leadership
FarSounder 3-D Forward-Looking Sonar

Top View
Shallow
Deep

Side view

FarSounder Proprietary
Humpback whale on Beta 1 sonar

Depth (meters)

Range (meters)

Seafloor

Side View
FarSounder 3-D Forward-Looking Sonar

Top View

Shallow

Deep

Side view

Top View

Shallow
Humpback whale detection
Measured right whale sonar returns

Right whale
Are we doing any harm?

- We are concerned with the effects of man-made sound on marine mammals.
- Everything we know about the hearing of mysticetes tells us they cannot sense the high frequency (>30 kHz) sound signals.
- Precautions were taken and no effects of any kind have been observed.
Beta 5 Demonstration System
Narragansett Bay, 8/22/02
Narragansett Bay, 8/22/02
User Interface Concept

Chart Overlay

Whale

Ship’s track
FS200 Product For Sale Now

14"

8.5"
Installation

- Easily installed in conformal hull package
- Sonar head encased in impact-resistant polyurethane
- System runs in Windows XP
- Small rack-mountable power module
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Benefits to Marine Industry

- Collision Avoidance
- Insurance Savings
- Routing Efficiencies
- Safety
- Decreased time in dry dock for repairs
- Reduced environmental impact

Saves money and whales
Conclusions

- Whale shipstrike avoidable using 3-D forward-looking sonar
- Beta 5 system tested and proven on seafloor and obstacles
- Whales detectable at navigationally relevant ranges
- FS200 product available for order now
- Longer range systems in the pipeline