

The following application was submitted to the MARGINS Office:

Name:

Vicki Lynn Ferrini

Category: Graduate Student

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Statement of interest:

High-resolution geophysical mapping provides the opportunity to rapidly acquire data that reveal many of the intricacies of sedimentary systems that might otherwise go unnoticed. A single 'snap-shot' view of the seabed can be used to identify large-scale morphologic patterns and small-scale textural details that are created by active processes. Repeat surveys permit the assessment of bathymetric and textural change and help us understand the evolution of the stratigraphic record.

My dissertation research has focused on using high-resolution multibeam sonar to investigate nearshore sedimentary environments. In particular I have focused on characterizing the seabed morphology and texture of inner shelf environments, with an emphasis on remote seabed classification. During the past four years, I have had the opportunity to acquire and analyze multibeam data from many environments including the Hudson River, the Eel River Margin (STRATAFORM), the Gulf of Mexico (SAX99), areas surrounding Long Island, and the inner shelf near Grays Harbor, Washington. The variety of environments that I have worked in has allowed me to identify and understand features of local and non-local significance. Through my research I have employed the use of spatial statistical methods and digital analysis to help improve the interpretation of multibeam data as it relates to surface sediment distribution and transport pathways.

The nature of the Waipaoa Dispersal System alone makes it an exciting place to consider investigating with multibeam sonar and other geophysical instruments.

Moreover, participation in the MARGINS Source-to-Sink research initiative is an ideal continuation of my research since it provides the opportunity to link high-resolution geophysical investigation and monitoring with studies of the modern processes that shape the seabed. Understanding the signature of these processes improves our understanding of the modern environment and our interpretation of the stratigraphic record.

Short resume:  
VICKI LYNN FERRINI

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#### EDUCATION

State University of New York, Stony Brook, New York  
Coastal Oceanography (Geological Oceanography)  
Ph.D. (expected Dec. 2003)

State University of New York, Stony Brook, New York  
Marine Environmental Sciences (Geological Oceanography)  
M. S. May 1998

Colby College, Waterville, Maine  
Geology-Biology and Biology  
B. A. May 1995

#### WORK AND RESEARCH EXPERIENCE

State University of New York, Stony Brook, New York  
Dissertation Research  
January 1999 &#8211; present  
Analyzing multibeam sonar data (Simrad EM 3000 and EM 3000D) collected from a variety of environments as a tool for remote sediment classification. Focusing on the effects of seabed surface roughness and textural analysis of sonar data. Research includes participation in STRATAFORM, SAX99, and the Hudson River Benthic Mapping Program.

State University of New York, Stony Brook, New York  
Research Assistant  
January 1999 &#8211; present

Routinely function as multibeam sonar data manager for research cruises.

#### SELECTED PUBLICATIONS AND PUBLISHED ABSTRACTS

Ferrini, V.L. and R.D. Flood, 2002. Multibeam Sonar on the Inner Shelf of the Eel Margin: Nearshore gravel-floored troughs. Eos Trans. AGU,83 (47), Fall Meet. Suppl., Abstract OS71C-0297, 2002.

Ferrini, V.L., Flood R.D., 2002. Multibeam imagery and surface sediment distribution of the dynamic inner shelf of the Eel margin, northern California. Eos Trans. AGU,83 (4), Ocean Sciences Meet. Suppl., Abstract OS12S-03, 2002.

Ladd, J.W., R. E. Bell; E.A. Blair, H. Bokuniewicz, S. Carbotte, R. M. Cerrato, S. Chillrud, V. L. Ferrini, R. D. Flood, N. P. Maher, C. M. G. McHugh, F. O. Nitsche, W. B. F. Ryan, D. L. Strayer, J. Thissen, R. Versteeg, 2002. Mapping the Hudson Estuary's submerged landslearwaters, Spring 2002 &#8212; Vol. 32: 1, pp 5-7.

Ferrini V.L. and R.D. Flood, 2001. Sedimentary Characteristics and Acoustic Detectability of Ship-derived Deposits in Western Lake Ontario. J. Great Lakes Res., 27:210-219.

Ferrini, V.L. and R.D. Flood, 2001. High-Resolution Multibeam Surveys of Dynamic Inner Shelves: Southwest Washington and Northern California. Shallow Survey 2001 Conference, Portsmouth, NH, September 2001.

Flood, R. D., V. L. Ferrini, Y. Guan, and L. Zaleski, 2001. Bathymetry and backscatter variability in the coastal ocean from high-resolution multibeam data. Shallow Survey 2001 Conference, Portsmouth, NH, September 2001.

Ferrini, V.L., and R.D. Flood, 2001. High-Resolution Bathymetry and Backscatter of the Inner Shelf of the Eel River Margin: Modern Distribution and Recent Evolution. AGU Chapman Conference on the Formation of Sedimentary Strata on Continental Margins, Ponce, PR

Bell, R.I., R.D. Flood, S.M. Carbotte, W.B.F. Ryan, C. McHugh, M. Cormier, R. Versteeg, D. Chayes, H. Bokuniewicz, V. Ferrini, and J. Thissen, 2000. Hudson River Estuary Program Benthic Mapping Project-Final Report. New York Department of Environmental Conservation.

Ferrini, V. L., R.D. Flood, Y. Guan, L. Giosan, M. Jump, 2000. Multibeam Sonar on the Inner Shelf of the Eel River Margin. AGU Fall Meeting, Abstracts and Programs, San Francisco, CA.

Flood, R.D., V.L. Ferrini, and L. Mayer, 2000. Multibeam Bathymetry and Backscatter at 300 kHz in the SAX99 Study Area, West Florida Shelf. AGU Fall Meeting, Abstracts and Programs, San Francisco, CA.

Ferrini, V.L., and R.D. Flood, 2000. Results from a multibeam sonar survey on the inner shelf off Grays Harbor: Relevance to the Southwest Washington Coastal Erosion Study. Southwest Washington Coastal Erosion Workshop Report 2000.

Flood, R.D., V.L. Ferrini, L. Giosan, L. Zaleski, 1999. Preliminary Results of a Multibeam Bathymetry and Backscatter Survey. Southwest Washington Coastal Erosion Workshop Report 1999.

Ferrini, V. L., R. D. Flood, J. Thissen, and H. Bokuniewicz, 2000. Benthic Morphology of the Hudson River as Revealed by Multibeam Sonar. 2000 Geology of Long Island and Metropolitan New York Abstracts with Programs.

V. L. Ferrini, J. Thissen, R. D. Flood, 1999. Characterization of surface sediments in the Hudson River with the use of multibeam sonar and sediment analysis. 1999 Geology of Long Island and Metropolitan New York Abstracts with Programs.

Flood, R. D., and V. L. Ferrini, 1998. Analysis of seismic profiles and side-scan sonar records from Lower New York Harbor: a progress report. 1998 Geology of Long Island and Metropolitan New York Abstracts with Programs.

Ferrini, V. L., and R. D. Flood, 1997. Acoustic identification of ship-derived debris beneath shipping lanes: examples from Lake Ontario. 1997 Geology of Long Island and Metropolitan New York Abstracts with Programs.

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ABSTRACT

Title:

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Abstract:

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