

WOODS HOLE OCEANOGRAPHIC INSTITUTION

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**UNOLS Research Vessel Operators' Committee  
23-25 October 2001**



**“Next Generation Wire: Establishing Science Mission Requirements”**

**Presentation by Jon Alberts**



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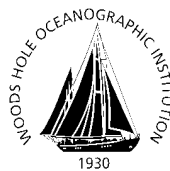
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## Historical Perspective

*“ With a goal toward standardizing wire cable usage and achieving economy through bulk purchases, the UNOLS ship scheduling groups compiled a survey of wire requirements for 1982-83. CTD cables represented the greatest diversity of wire in use. Eleven different cables were found in use amongst 13 laboratories.”*

Memo written by Robertson P. Dinsmore  
19 February 1982

23 October 2001



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### **Recent Events**

**1999**

**Winch & Wire Symposium and Report**

**30 November to 1 December, New Orleans, LA**

**Early 2001**

**Safe Working Load Group**

**T. Althouse/SIO, T. Moniz/WHOI, R. Findley/RSMAS,  
M. Willis/OSU**

**Goals/Objectives: Tom Althouse to give report**

**Mid 2001**

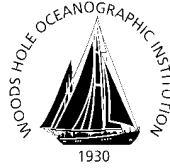
**Wire Science Mission Requirements & Specifications  
Group- SMR**

**M. Prince/UNOLS, S. Rabalais/LUMCON, T. Althouse/SIO,  
D. Chayes/LDEO & J. Alberts/WHOI**

**Goals/Objectives:**

- **Identify the scientific requirements for current and future wire capabilities**
- **Provide the necessary information to define future wire specifications.**

23 October 2001



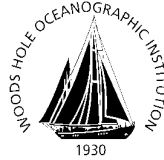
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## **Driving Force**

**To meet growing scientific demands and to assist in design, construction, and acquisition of future winches and over the side handling equipment and the structural design & layout of new research vessels.**

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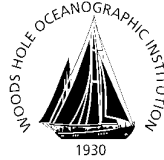


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## Goals

- Identify the scientific uses for current UNOLS wire/cables and develop Science Mission Requirements for a new generation of wire & cables.
- Create specifications for UNOLS Standard wires and cables to meet these requirements.
- Develop recommendations for introducing new standard wires and cables into the UNOLS fleet.



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### Objectives

- Continue work toward development of safe working load standards and procedures that are compatible with typical operations on UNOLS vessels.
- Define, based on broad community input, the types of activities and equipment that will be used in the future and in particular those that will stress the capabilities of existing wires and cables
- Quantify the resulting physical loads, dynamic stresses, power transmission requirements and data transmission requirements.
- Identify those requirements that are met or could be met by current Standard UNOLS wires and cables with the goal of justifying the retention of those Standard wires and cables that will continue to be useful for the foreseeable future.
- Identify capabilities that cannot be met by current Standard UNOLS wires and cables and recommend which of those capabilities should be met by new Standard wires or cable designs if possible.



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### Objectives

- Determine if some capabilities can be met by engineering changes to the sampling or survey equipment or by changing procedures given the high cost of providing new Standard Wires.
- Determine what information wire manufacturers will need in order to specify and/or design the appropriate wires and cables.
- Provide the necessary information to define future wire specifications and obtain vendor proposals for wires to meet new requirements.
- Agree on and choose specifications for any new Standard UNOLS wires or cables.



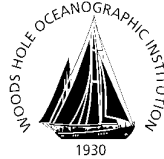
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### *Letter to ask for input*

- *Oceanographic wires and cables are a component of the scientific infrastructure on board research vessels that are often taken for granted, until they fail or prove to be inadequate. They are absolutely essential to a variety of scientific operations. Many factors go into defining the capabilities of these wires and cables and once defined, the resulting characteristics affect many other components of a research vessel, such as winch size and power, A-frame structure and strength, deck and internal space utilization, and the structural components of the vessel itself. Most importantly the vessel's capacity to accommodate the developing needs of science is determined by the availability of appropriate wires /cables and their matched handling components.*





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- The cost of a spool of wire can approach \$250,000 and the cost of developing new wires and adapting (or building new) winches to handle those wires are not insignificant. For these reasons it is absolutely imperative that the development of any new Standard wires and cables to be used in the UNOLS fleet be accomplished based on well defined scientific requirements resulting from broad community input. We will also need to examine ways to use new technology and engineering advancements to better utilize existing wires and cables whenever possible. The Standard UNOLS cables that we have all used over the past twenty plus years have served the community well and any changes to that suite of wires and cables should be designed to further improve the overall capabilities of the Academic Research Fleet. These changes can not be made lightly. As a result we are asking for your help in this endeavor.*



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## Feedback Mechanism

### UNOLS Web Sites:

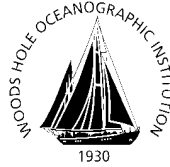
➤ **Goals & Objectives**

<http://www.unols.org/wire/wirespec.html>

➤ **Form for Input by Science Community**

<http://www.unols.org/wire/wireform.html>

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### **Progress to Date**

- 1. Partial response from the UNOLS community to request for information on cables in use and where they are heading.**
- 2. Request has gone out for technical volunteers to assist in process.**
- 3. Web site in place for community feedback and information.**
- 4. Began process to collate data across UNOLS Fleet.**
- 5. Rochester and Wire Rope Corporation are aware of the project and will be brought in along with other manufacturers soon.**
- 6. Examining fiber optic cable in the .322" size range.**

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### Members of working group on Wire Specifications

- Jon Alberts
- Steve Rabalais
- Dale Chayes
- Mike Prince
- Tom Althouse
- Fred Spiess
- Craig Lee
- Jim Broda
- Dan Fornari
- Andy Bowen
- Sandy Williams
- Roy Wilkens
- Stewart Lamerdin
- Rich Findley
- Mark Willis
- Theo Moniz