

# New Wire SWL Standards

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Matthew J. Hawkins  
University of Delaware

# “Procedural” Solution... ...to a Complex Issue

- Modeled after UK standard
- Greatly expanded
- More operational flexibility
- Allows Lower FS
- How do we do it?

# “Procedural” Solution

- Operator **CHOOSES** desired Factor of Safety (FS) to use.
- Based on:
  - Existing monitoring equipment and handling system design
  - Operational/Science requirements for ship
  - Capabilities of ship and personnel
- The lower the FS you choose – the more you **NEED**, and the more you have to **DO**.

# “Procedural” Solution

- **Section 3.0 (FS 5.0)** – Small vessels, lightly loaded cables, MINIMAL requirements.
- **Section 4.0 (FS 4.9 –2.5)** – Regionals and Intermediates, Moderately loaded systems, REASONABLE requirements (3 Hz monitoring).
- **Section 5.0 (FS < 2.5)** – Ocean and Globals, Highly loaded systems, STRINGENT requirements (10 Hz monitoring).

# UNOLS Winch and Wire Manual

- Primary Reference – GREAT!!
- But – doesn't REQUIRE anything!
- Doesn't give guidance on wire/cable SWL any more than "Sub-U".
- Left up to the RVSS (you and me) to decide.
- New "Appendix A"

## “Appendix A” is the only document in the RVSS that REQUIRES...

- Minimum sheave diameters and grooving details.
- Capable/fast monitoring systems (capable of capturing dynamic load).
- Winch operator training & safety procedures (even for non-ISM vessels).
- Routine cable testing.
- What’s the “good news”?

# Good News

- Most of us are doing 90% of it already!
- Simply codifying what we already do.

# Final Community Review

- Both Marine Sups and Techs
- UNOLS and “others”
- Many productive comments received and changes/additions made.
- Next > UK and Dennis Nixon for review.



# Final Community Review

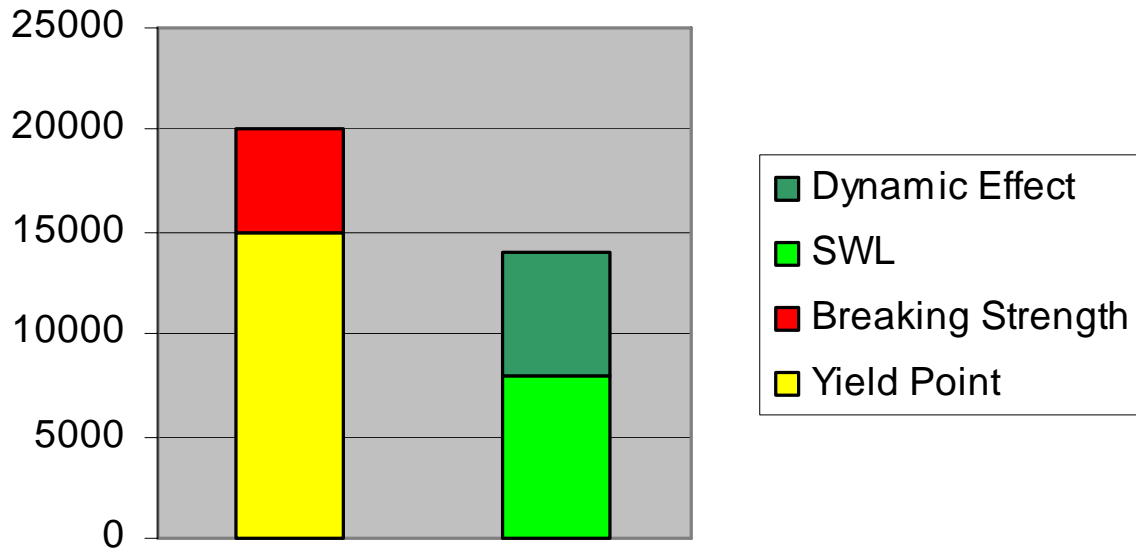
[TABLE]

## Why FS 2.5 and 3 Hz? (Cut-off for Section 3.0)

- See “Background Info” – below yield over rolling sheaves, including dynamic effect.
- Most of us already have required monitoring systems.
- Other requirements readily achievable.
- Lowest FS allowed by UK model.

# Why FS 2.5 and 3 Hz?

(Cut-Off for Section 3.0)



## Dynamic or “Rapidly Applied” Loads

Mechanical engineers tell us that the stresses induced in structures for “rapidly applied loads” approach 2.0 times the static load. A lot depends on how quickly the stresses are relieved through strain (deflection) of the materials.

This is essentially where the ABS factors of 1.75 and 2.0 come from for dynamic loading.

**Result** = Nice, simple way of estimating dynamic load.

# Dynamic Load Test (R/V *SHARP* – MTNW Monitory System)



# SWL Table – SHARP Example

System Description	Rope/Cable	NBL (lbs)	ABL (lbs)	Test Date	Minimum Sheave DIA	Monitoring Freq.	FS	SWL (lbs)	Comments
DYNACON Starboard Trawl Winch	0.5" DIA, 3 x 19	25,700	<b>20,950</b>	9/19/2007	28"	3.0 Hz	2.5	8380	ABL test failed at termination
Port Trawl Winch	<b>[TBD]</b>				28"				
Caley CTD Handling System	0.322 DIA	<b>10,000</b>	13,920	4/4/2007	16"	<b>?</b>	<b>2.5</b>	4000	Matches "Auto-Render" setting for winch. Sheave DIA below manufacturer's recommendations.
DYNACON Deck Winch	0.480" DIA (A301301)	20,000	<b>[TBD]</b>		<b>14"</b>	3.0 Hz	5.0	4000	
DEME "Hydro" Winch	0.25" DIA, 3 x 19	6750	<b>[TBD]</b>		10"	None	5.0	1350	
DEME "Clean" Winch	0.25 Kevlar								<b>NOT YET ADDRESSED IN STANDARDS</b>
Mooring Recovery Winch	Various								SWL winch = 8000 lbs

Why did we do all this?

Standardization across the fleet.

Benefit to agencies, ship operators, and science.