UNOLS East Coast Winch Pool

Woods Hole Oceanographic Institution
Who We Are

Brian Guest
Manager

Jamie Haley
System Maintenance

Josh Eaton
Engineering

Woods Hole Oceanographic Institution
What We Do

In Simple Terms

- Provide portable overboarding systems to vessels and the scientific community.
- Maintain these systems in proper working order.
- Handle the logistics (shipping) to get them where they are needed.
- Provide engineering solutions for unique needs.
ECWP Winch Assets

- 2 ea. MacArtney MASH2K (one with MRU)
- 2 ea MacArtney MASH4K (one with MRU)
- 2 ea Dynacon 10030 Light duty winches
- 1 ea Hawboldt Medium duty
- 1 ea Dynacon Medium duty (GEOTRACES)
- 1 ea Rapp Hydema Heavy duty (Jason)
- 1 ea TSE mooring spooler
- 1 ea Sea-Mac 1300 lb SWT
ECWP Winch Assets

- **MacArtney MASH2K**
  - Load: ~3000 lb

- **MASH4K**
  - Load: ~6000 lb

- **Dynacon**
  - Load: ~3500 lb

- **TSE**
  - Max pull: ~7000 lb

- **SeaMac**
  - Load: ~1200 lb

Woods Hole Oceanographic Institution
ECWP Tensioning System

Pine Hill - ~5000 lb tension

TSE - ~3000 lb tension
Heave Compensation
Heave Compensation
# Heave Compensation

## Kongsberg MRU type H

<table>
<thead>
<tr>
<th>Model</th>
<th>Roll/Pitch</th>
<th>Acceleration</th>
<th>Heave</th>
<th>Pfree Heave*</th>
<th>Period</th>
<th>Pfree Period*</th>
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<tr>
<td>MRU H</td>
<td>0.05°</td>
<td>0.01 m/s²</td>
<td>5 cm</td>
<td>3 cm</td>
<td>25 s</td>
<td>50 s</td>
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*PFreeHeave® is a delayed heave output where phase errors are removed. The delay is 132 sec.*
## Schedule

### Woods Hole Oceanographic Institution

#### UNOLS East Coast Winch Pool

**UNOLS Winch Pool Schedule**

- **Inventory**: MASH1K-1, MASH1K-2, MD-1, MD-3, LD-1, LD-2, MASH2K-1, MASH2K-2, MS-1, ULD-1, ULD-2, Pne, TSE, HD-2, Large Turn Table, Small Turn Table 2, Turn Table, 16" Metering Block, Metering

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<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
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Shipping

Shipping is a large portion of our budget so we work hard to cut cost. A few ways we do this are:

• Have systems ready as early as possible to take advantage of LTL shipping.
• Combine shipments with science gear and cost share.
• Request quotes from multiple companies.
Shipping
Winch Pool Shop

The shop was designed specifically for the winch pool with the purpose of maintaining, testing and storing winch systems.
Winch Pool Shop

- We have the ability to handle large winch systems
- Two 20 ft side opening containers for storage
- Large outside area will accommodate spooling and loading of trucks.
- Three pallet racks for inside storage
- Enough square footage to accommodate up to 10 winches for inside storage and repair.
- Carpenter shop, warehouse, stockroom and shipping department within 100 yards
Winch Pool Shop

Features include 5 Ton overhead hoist
Winch Pool Shop

Two foot on center bolt down pad allows us to secure winches while spooling tension members and conducting pull test.
Besides providing overboading equipment, the winch pool staff is involved in numerous projects that will benefit users of the pool and the pool itself.

• New Winch – Currently under construction with testing scheduled for this summer. Unique and innovative design for mooring and synthetic uses.

• Lost Coast Heave Sensor – Testing to begin very soon. Intended to be a simple replacement for the expensive Kronsberg system where improved heave response is desired but not to a high level of precision.

• Portable Winch/OHS Test System – To allow on site testing of OHS for generating MCD. Provides dynamic testing ability.
More Than Just Winch Rental

- Performed analysis and writing MCD’s for R/V Blue Heron, using Solid Works Finite Element Analysis (FEA) to analyze existing equipment.

- Upgrade one of our Dynacon winches to include tension and payout information which is displayed via a LCi90.

- Provided consulting services to SKIO and U Miami for winch purchase review.
More Than Just Winch Rental

- Worked with U Miami, SKIO and URI to devise App B testing plan.

- Worked with U of Delaware to develop an RFQ to purchase a new multipurpose winch that will be part of the ECWP but tailored to and for use primarily aboard the R/V Sharp.

- Developed hydrostatic wire cutter that may be commercially licensed.
East Coast Winch Pool

Overall, utilizing the various resources at WHOI and our winch pool staff, we are able to provide the scientific community and UNOLS vessels with overboard handling systems in excellent condition, expert wire winding, engineering support, training and advice as well as the logistics to get these systems delivered anywhere in the world that they are needed.

Winchpool.whoi.edu