Introduction to Small ROVs

An Operations Primer

© 1993-2004 Don Barthelmess
Objectives

- Identify Factors Affecting Umbilicals
- Common Umbilical Problems
- Operating Configurations
- Pointers on Flying
The Umbilical is usually the weakest link in a system
Effects of Current & Water on Cable

(FIG. 5.1(a))
Effects of Cable Weight & Tension

The tether must be properly tended in currents
Methods of Attaching Floats & Weights

Floats & weights attached to the tether will aid in some operations

1) Small weights or floats <2kg:

2) Larger weights or floats >2kg.

© 1993-2004 Don Barthelmess
Davit Launch & Recovery

The use of a davit & quick release hook can make launch & recovery easier
Handling System

*Tether Management Systems are useful for deep work*

*The vehicle becomes de-coupled from ship’s movement*
Turns in the Umbilical

*Turns can cause kinks and damage conductors*

*Turns must be taken out before recovery*
Coiling the Umbilical

Coil The Umbilical in a Figure 8

Tie the center and ends, fold for transport
Shallow Water Deployment (Fixed Position)

Floats keep tether from fouling on obstructions
Shallow Water Deployment (Moving Vessel)

Vessel holds station on marker buoy

Vehicle tracked by either a marker buoy or tracking system
Deepwater Deployment

*Tether is attached to a "shot line"

A flying leader or "leash" is left for operating

This technique is also effective for use in currents
Pointers on Flying

- Don’t oversteer
- Make sure your umbilical is properly tended
- Give the vehicle time to respond
- Know where your camera is aimed
- Keep vehicle **slightly** positive
- Use your compass
- Practice!!
Operational Considerations

- Adequate crew- (2 persons min.)
- Communication with all crew
- Pre & Post Dive checks are essential
- Launch & Recovery
- Keep Logs
- Get a weather forecast
Some Key Points

- The Umbilical is the weakest link in any ROV system
- Good tether management is important from both an operations and maintenance standpoint
- Avoid operating in marginal weather conditions
- Problems are more likely to occur as a result of launch & Recovery