Healy Science Modifications, Infrastructure, and Equipment

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Seawater Systems

- Develop clear definition of the needs? $
  - Incubators, TSGs, sinks, samples
- Include adequate water “aft”
  - Sinks, samples, wash down, sample wash, ?
- Add TSG “forward” $
- Improved plumbing going aft $$

Drain as appropriate
Diff Pres.

Watch Standers Work Station

- Prototype was used during 2005
- Some enhancements likely in ‘06
  - Improved display software
  - Upgraded displays
  - Improved mounting


U.S.
2 SURVEYOR
1 SKIMMER

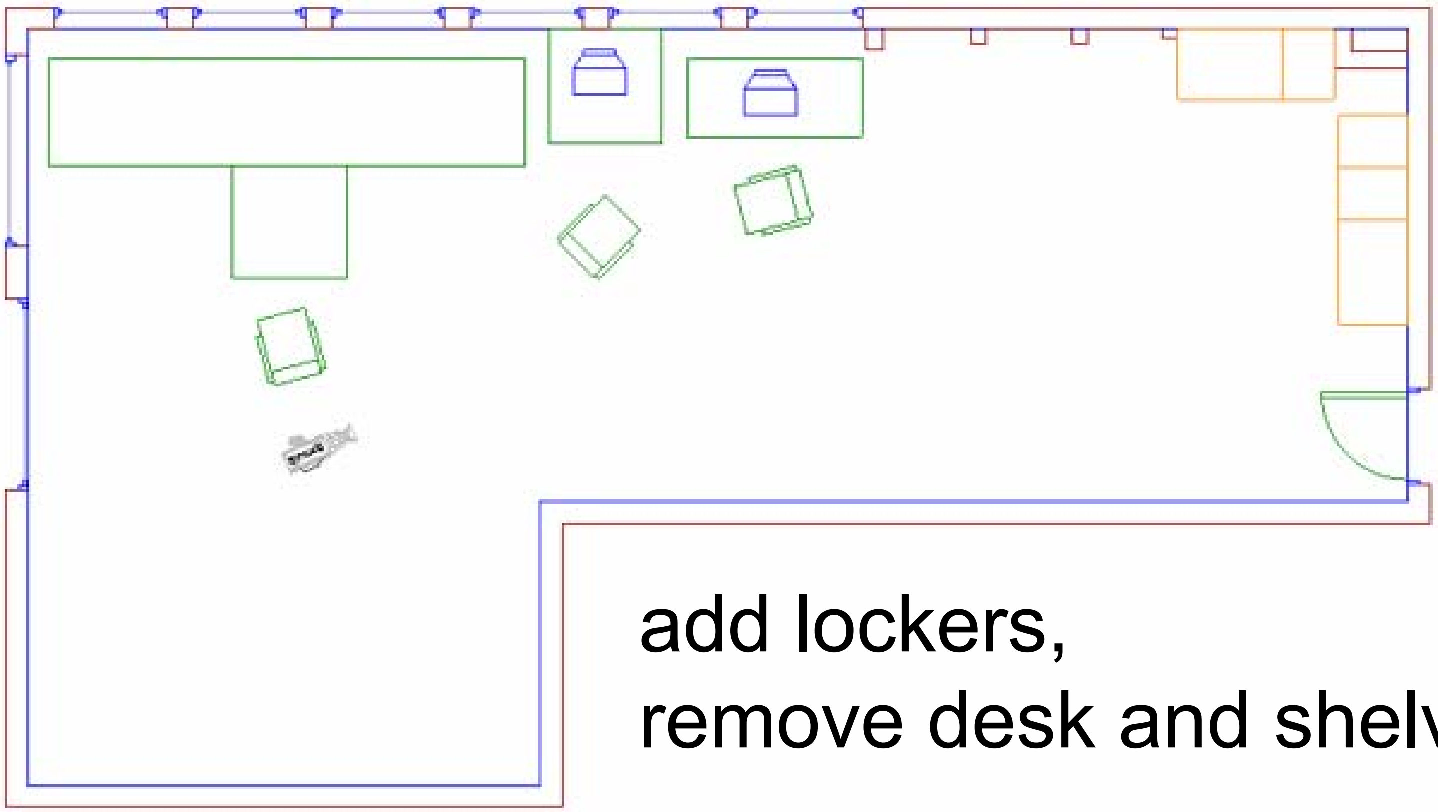
Walk-in chambers (2 “controlled”, 2 “cold”)

- They perform as specified in the SOR
- That does not seem to be good enough
- We need better definition(s) $
- Then we can design $
- And propose changes [$ | $$ | $$$]
- Remember that they are used for other things too.

Lab Space Improvements

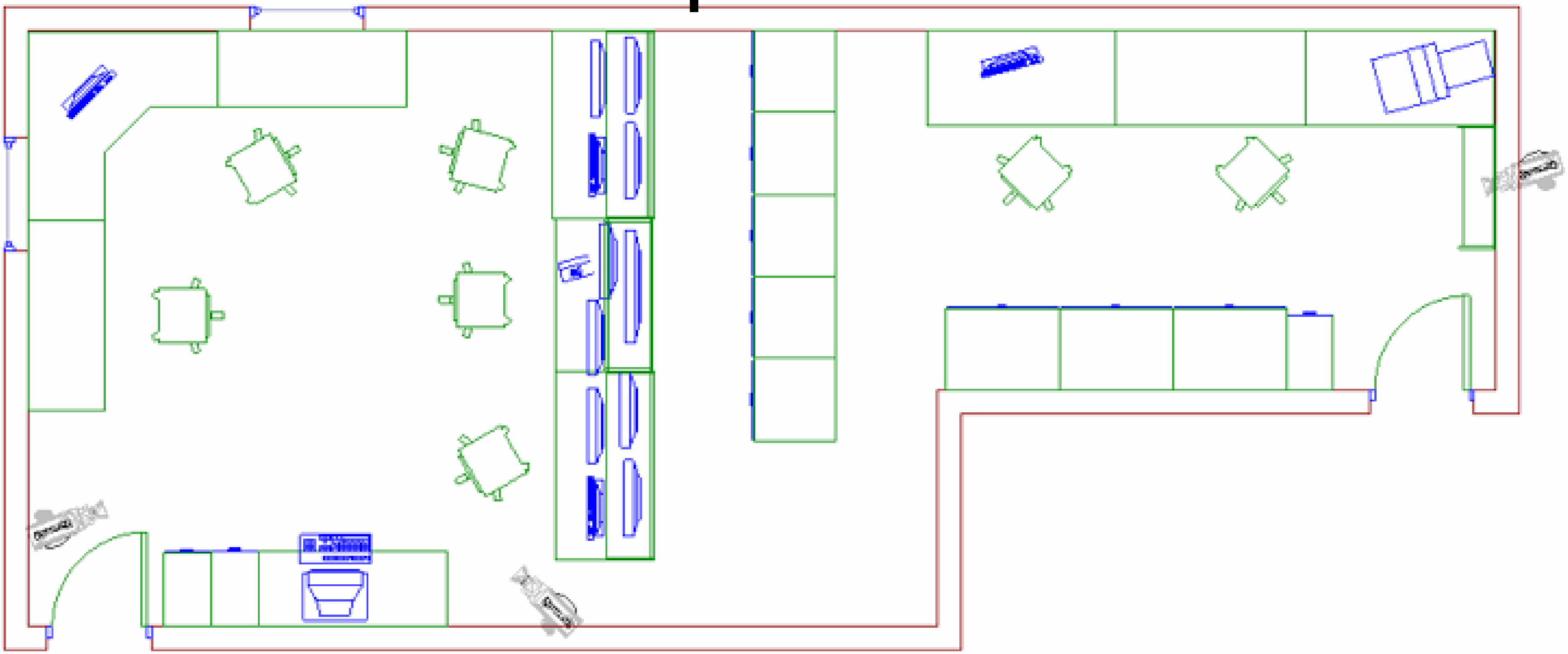
- Computer Lab ($$)
  - Might be possible in 07 off season
- Future Lab ($)
- Met Lab ($)
- Aft Con
  - Lockers, access… $
  - Improved visibility $$
- 02 Copier Room $
- Aft Staging $

Aft Con

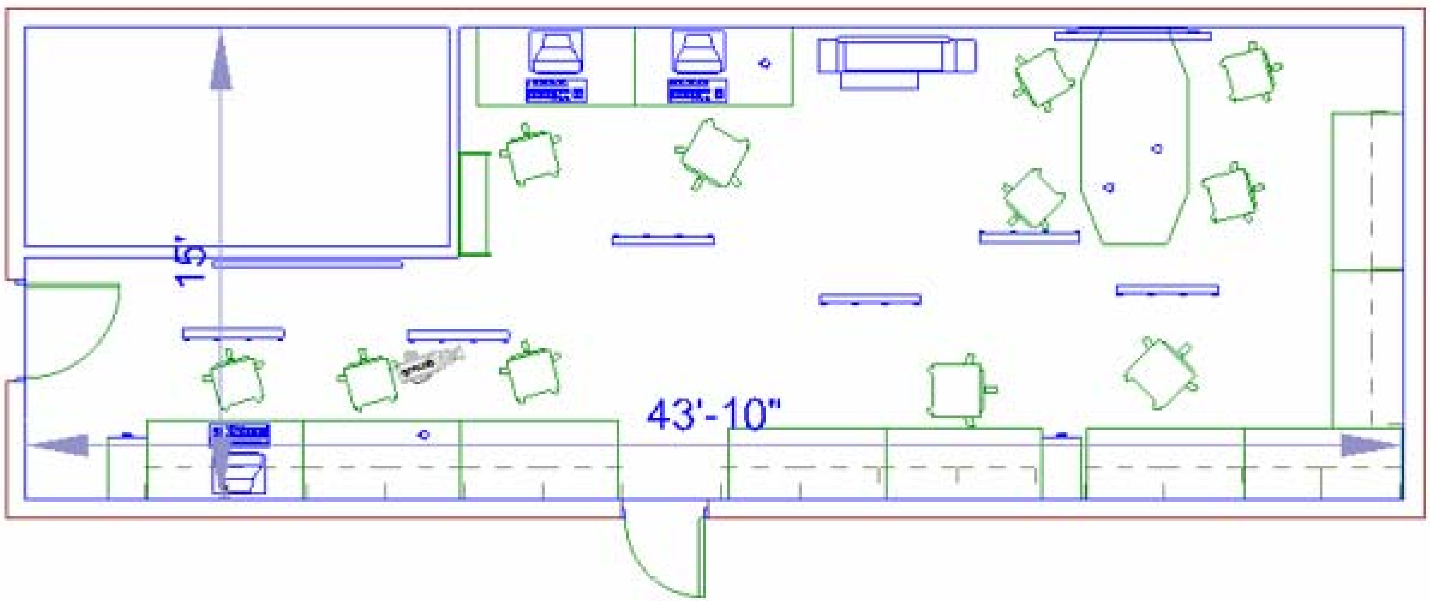


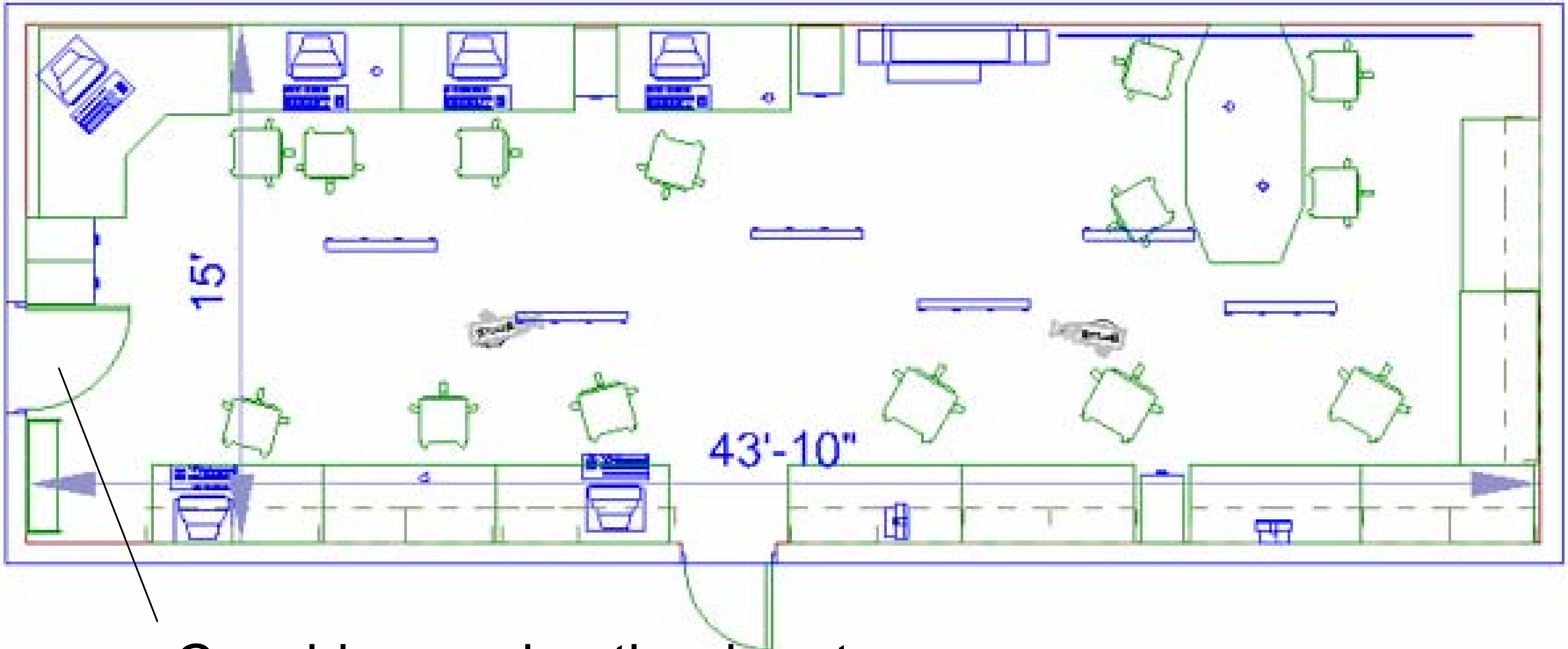
add lockers,
remove desk and shelves

Computer Lab



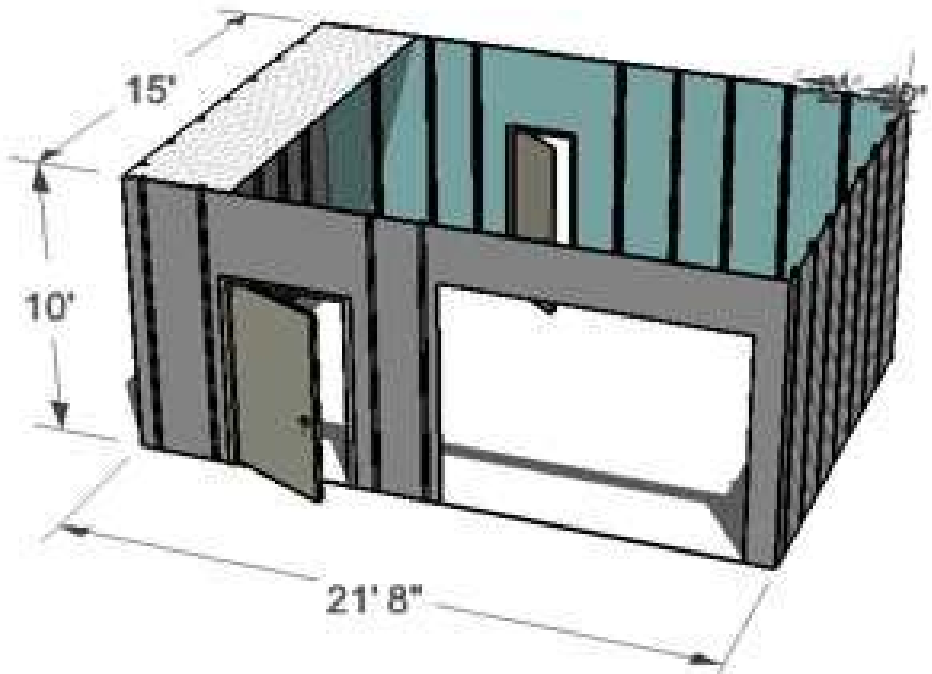
Future Lab w/ darkroom





Consider moving the door to improve flow

USCG Healy
Aft Staging
Main Deck Level
Unistrut on 2' Centers



Multibeam

- There are significant support issues now (O & M ‘til 2010 $$)
- Substantial performance & operational improvements are possible
- Review the science needs $
- Under hull ship check in DD07 $
- Earliest realistic change is 2010 $$-$$$

Subbottom Profiler

- Healy had two very different systems (Bathy 2000 and Knudsen 320BR)
  - Significant cost for training and maintenance
- Autopilot ($$) was going "upgrade" the Bathy
  - Adjusted the plan at the last minute (PSEA & STAR?)
- Knudsen is more stable and supportable
- Spent less to have two 320BRs & retire the Bathy 2000

Terascan

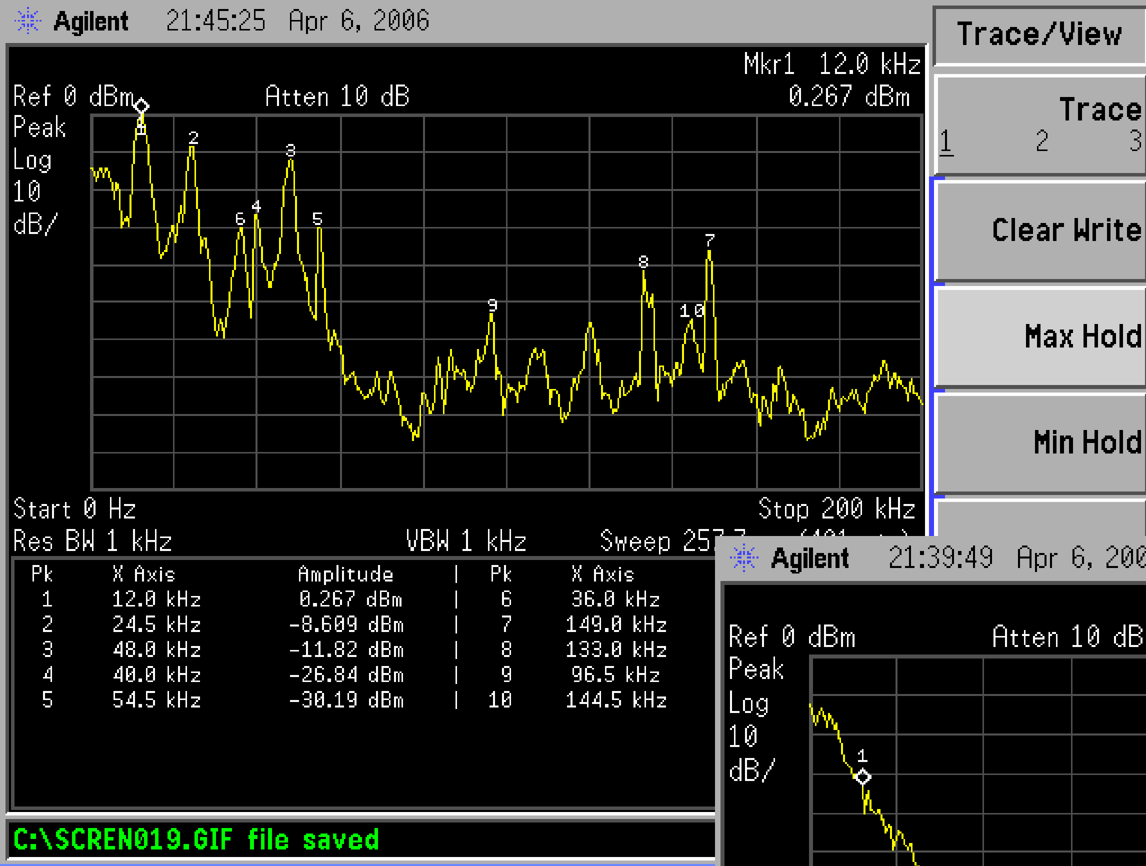
- Upgrade from 1m to 1.5 m antenna ($$)
  - Didn't quite make it last year
  - Happening now
  - Test and accept during HLY06TD
  - Add alternate choices for heading input
- Borrow Terascan license from Star for HLY06 to allow image processing independent of the WDS

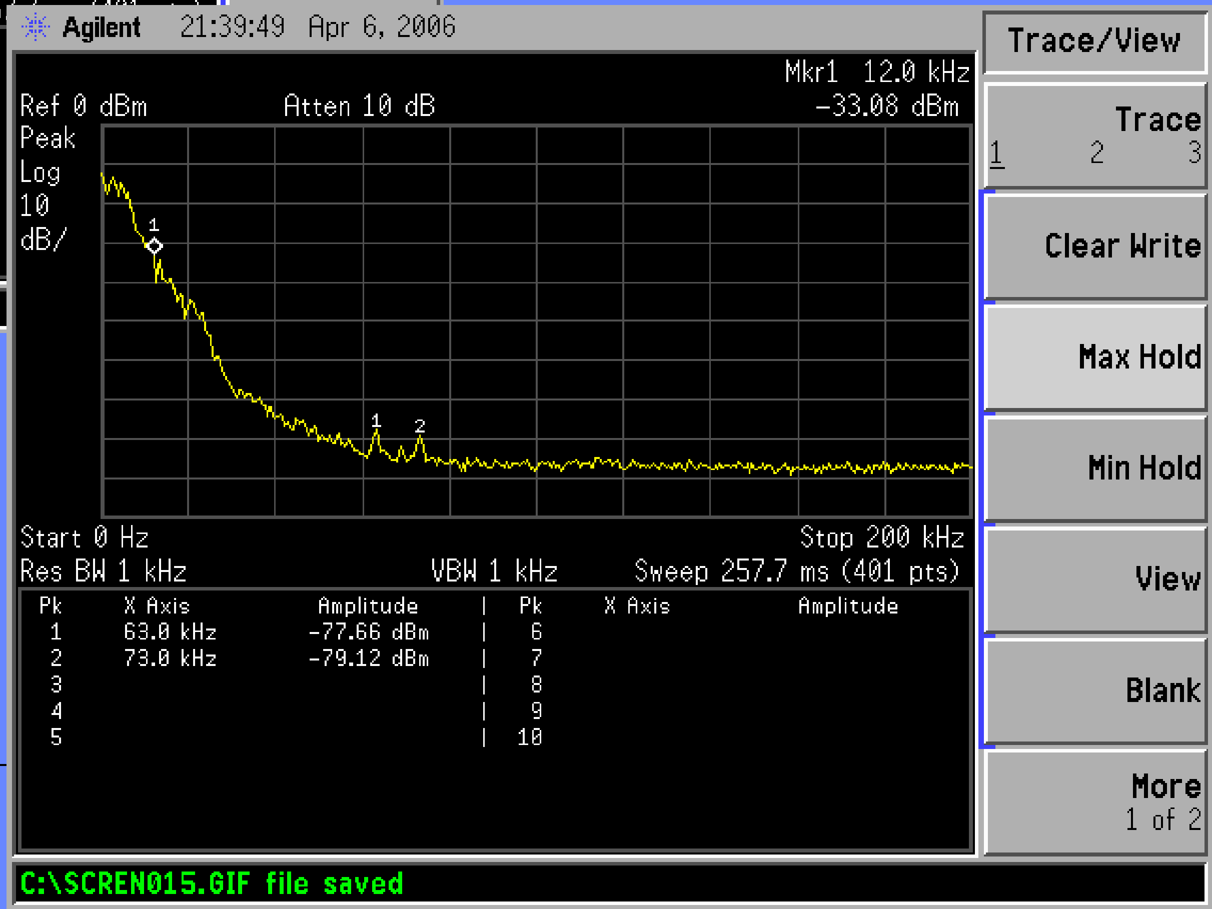
Broad band hydrophone

- Healy was delivered with a DT-513c that has been re-discovered and (mildly) tested in the ADCP performance which hunt.
- Add suitable acquisition and display capability ($)

Observed spectra

(HLY06TC)





Improved MapServer

- Steve Roberts is working on the code
- Add a higher performance, dedicated processor for the MapServer and it’s supporting processing ($)
- Add daylight readable displays in Aloft Conn and Aft Conn ($)

Equipment Purchases (2006)

- Spares & Repairs:
  - SB2112 circuit boards
  - LDEO logging and displays
  - Sheave spares
  - ADCP spares
  - Continued troubleshooting of ADCPs

Concerns and issues

- Shipboard power

  http://ilab.ldeo.columbia.edu/Members/dale/how-to/shipboard-power-systems-are-different/

- Improved Internet access for science on Healy
- Access to the pool of icebreaker science gear:

  Historically the collection of science gear has been treated as a pool. Star's new status appears to have changed that.

Fiberoptic 0.68” tow cable

- Did a temporary installation for 2005 ($$)
- Will do a temporary installation for 2006 ($$)
- Gakkle in 2007 requires one ($$)
- Temporary installs are:
  - Expensive (logistics, ship time, equipment, etc.)
  - A compromise at best
  - Consume substantial deck space
- Options:
  - FO cable on existing winch ($)
  - New Winch ($$-$$$)

Inmarsat Upgrade

- CG is exploring upping the theoretical bit rate from 64kbps to 128 kbps
  - Actual throughput is less and unknown to me
- We have proposed to “share” this bandwidth in a secure and rate-controllable manner.
- Neither will happen for ‘06

Plans/needs for 2007

- Drydock upgrades
- Need to know the science
- Need input from AICC

Long Term Plans

Serious mid-life planning starts “now” for 2015

- High latitude communications
  - Improved Iridium
  - Vsat
  - TDRS (continue to explore)
- High latitude navigation
  - Globally Corrected Differential GPS
  - ?