

# Jason Operations

## Response to Bill Chadwick's Open Letter

- **Bill Chadwick's letter addressed 9 key issues:**
  - ? Long Baseline Navigation
  - ? Video Imaging
  - ? Digital Still Imaging
  - ? Audio Recording
  - ? Suction Sampling
  - ? Virtual Van
  - ? Payload
  - ? *Medea* Maneuverability
  - ? Control Van Layout/Ergonomics
- **DESSC endorsement & prioritization solicited**
- **This will help guide WHOI's 2007 NDSF proposal**



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### Long Baseline Navigation – Outdated Hardware

- Already recognized to be a problem before 2006
- Progress to date:
  - ? Hardware selection made
  - ? Prototype tested on Tivey (PNG) cruise
- Latest iteration testing by Howland/Bowen, Nov '06
- System goal: to be compatible with *Jason*, *Alvin*, *ABE*
- New acoustic processor enters service in 2007



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### Video Imaging

- **Four key issues:**
  - ? Improve quality from 3-chip science camera
  - ? Improve view/positioning of 3-chip science camera
  - ? Auto-iris function; complexity in achieving best results
  - ? Poor quality display in the Control Van
- **Remedial actions taken/proposed:**
  - ? Science 3-chip now records “component” mode as default
  - ? **Implement hydraulic “ram” for pan & tilt**
  - ? **Identify lead imaging specialist for NDSF & each cruise**
  - ? New flat screen monitor installed pre-Fisher cruise



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### Digital Still Camera (DSC) Imaging

- **Issues**
  - ? Controls/operability & on-board data storage
  - ? Fixed positioning: often wrong orientation for science ops
  - ? Laser pointers needed for scale
- **Proposed actions**
  - ? Identify lead “imaging engineer” to take lead (as for 3-chip)
  - ? **Implement ethernet connection to DSC (as for Isis)**
  - ? **Select new DSC with high dynamic range (as for ABE)**
  - ? Move DSC to new 3-chip pan & tilt
  - ? **Add scaling lasers & science-operated on/off switch**
  - ? **Implement down-looking DSC & strobes (for photo-mosaics)**  
(this will need to be removable - 25kg payload!)



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### Audio Recording

- Recording to DVD allows two from these three:
  - ? SMPTE time stamp
  - ? Ancillary digital data (as used to create overlays)
  - ? Voice recordings from within Control Van
- WHOI/NDSF Archive DVD records:
  - ? SMPTE time stamp
  - ? Ancillary digital data
  - ? NDSF Policy: no overlays on master video recording
- **NDSF recommendation (if audio is required):**
  - ? **SMPTE time stamp**
  - ? **Control Van voice recording**
  - ? **Use overlay for additional digital data**



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### Suction Sampler (new in 2006)

- **Bill found that this did not work well**
  - ? Operated in some form on 69% of dives
  - ? Collected samples on 66% of dives
  - ? Clearly not good enough - teething problems!
- **Feedback from Fisher cruise (October)**
  - ? Now operating very well with all chambers
  - ? Many animal types collected in Lau, including large snails
- **Final issues to be resolved:**
  - ? Clogging on coarsest setting
  - ? Housing of hose between "slurping" operations



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### Virtual Van

- **Issues**
  - ? Parse data by lowering, not whole cruise
  - ? Improve editing and exporting of EVT files
  - ? Improve search function
- **Improvements - see NDSF Data Manager Report**
- **Recap of Highlights**
  - ? Event data now available by lowering (as for *Alvin*, *ABE*)
  - ? Re-nav files can be imported into Virtual Van
  - ? Future look: interface with 3-D visualization



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### As *Jason* grows, 300 lb payload has been eroded

- **Compromises**
  - ? New hydraulic function pan & tilt extension boom
  - ? Adding under-sled, down-looking DSC & strobes (~25 kg)
  - ? Suction sampler
  - ? Bio boxes
  - ? SM2000
- **Suggested options**
  - ? **Replace syntactic with HROV ceramic spheres**
  - ? **Reduce air weight: bio-boxes, suction sampler insulation**
  - ? **Redesign J-box; move transformers to Medea; lighter sled?**
  - ? **Acquire larger handling crane (also > Sea State 4 ops)**





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### Medea Maneuverability

- **New thrusters on *Medea***
  - ? Embley cruise - not much improvement evidently
  - ? Tivey cruise - not effective; thruster removed for *Jason*
  - ? Fisher cruise - maneuvering not an issue at ISS target sites
  - ? *Isis* TMS problems still not resolved
- **What's the alternative?**
  - ? Move to a longer fixed tether to improve maneuverability
  - ? 80m tether will be tested with *Jason-Medea* in 2007



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### Control Van Layout

- **Van not science-friendly**
  - ? Scientists relegated to rear?
- **NDSF recommendations/policy:**
  - ? Science loggers are stationed to rear of van, but...
  - ? Moveable chairs & space for 1 or 2 watch leaders
  - ? Allows flexibility for more than 1 scientist to interact
- **New control vans**
  - ? Empty shells awaiting fit-out
  - ? **DESSC involvement in planning layout?**
  - ? **4 fixed positions vs. 3 fixed & 1-2 flexible for science?**

