The Future of NDSF Multibeam
• Jason currently has an “ROV version” Reson 7125 – it is used < 1 time per year
• Alvin currently has an “AUV 1” Reson 7125 – it is very rarely used
• Sentry currently has an “AUV 3” and an “AUV 1” Reson 7125. The AUV 3 is used nearly every cruise and the AUV 1 is the spare which is used rarely.
• AUV 1 and ROV version systems ca. 2008. AUV 3 system ca. 2013.
• Reson service and support has become untenable
  • Failure rates are very high
  • All US field offices closed
  • Equipment sent for repair has come back with new defects 3 out of last 4 times
  • Extended warranties have not been honored
  • In one case we were told “Normal Life” was ~3 years.
• Only Sentry has enough use to ensure adequate staff training
• Three Possible Configurations:
  • Sentry has the only system
  • Each vehicle has a system
  • Sentry has a system and there is a “Fly-Away System”
    • Would be a basket payload that could be incorporated in any large HOV/ROV
    • Independent navigation system, computing, timing, and sound velocity
    • Just add power and add network pass through for operator
    • Could be tied into flight controls on a vehicle by vehicle basis.
March 2018 – WHOI conducted a Multibeam Market Survey
- Four vendors contacted (Kongsberg, Norbit, Blueview, R2Sonics)
- Kongsberg and R2Sonics responded
- Tradeoff is essentially installed base and proven operation vs slightly higher resolution.
- Customer service tradeoffs are thought to both be good but more investigation is warranted. Kongsberg has a good reputation, R2 is more unknown.

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<thead>
<tr>
<th></th>
<th>Kongsberg</th>
<th>R2Sonics</th>
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<tbody>
<tr>
<td>Max Coverage</td>
<td>~450m wide @ 2m</td>
<td>Similar but no plots provided</td>
</tr>
<tr>
<td>Max Resolution</td>
<td>140m wide @ 0.3m</td>
<td>Insufficient data provided</td>
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<tr>
<td>Frequencies</td>
<td>200,300,400 kHz</td>
<td>170-450,700 kHz</td>
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• We recommend the Sentry system and the fly-away option
• Based on current user requests, we get more requests for higher coverage than for higher resolution – can DeSSC please weigh in to confirm or refute this perception?
• We need to proceed relatively quickly as obtaining new spares for the existing Reson units is expensive and difficult and we are consuming our existing inventory.