

Workshop Summary Notes

This document provides a summary of the discussions that have taken place during the National Multibeam Guidelines Workshop held in Canberra on 31 May and 1 June, 2017. The document is divided into Points of commonality vs difference, useful tools and software and future work. It also includes highlights of the workshop participation survey and an attendee's list.

1. Commonalities vs Differences

Points of commonality

- A **Guideline**, with the modifier that it should not be too prescriptive nor too loose. The guideline should encourage better standards to be met without provoking the feeling of being unachievable and thus refusal to use it.
- A **Survey register** and **multibeam coverage map** in Australia to facilitate planning. This is being developed under another forum "the National Plan for Bathymetry Acquisition"
- A **Survey planning tool** would be ideal allowing different input parameters and how these can be changed to meet standards or costs requirements (meets both survey planning and management planning objectives)
- Establish a **test-beds database** for calibration and verification on independent set-ups.
- **Data capture**: satellite (UTC date and time) and as a minimum:
 - what was used at the time/geodetic model used on survey,
 - sounding reduction variables: tide (sum of relative measures)/sum of squat, settlement and time,
 - platform relative measures vs. earth external
- **Templates** to streamline the survey recording and reporting process (Logs, Metadata, Reports, etc)
- Provide general **Timeframe** necessary to execute some of the tasks (e.g. mobilisation and calibration, patch test). It is often misunderstood by many how time consuming some of these tasks can be in order to achieve a good outcome.
- The **highest resolution** possible should be acquired. However, this comes down to time, equipment, and cost.
- Ideally, **ellipsoid** should be used to measure sea-level height (GPS measurement with GPS height (i.e. X, Y, and Z)). However, until the ellipsoid model is accurate for all of the Australian shelf areas so that the desired specifications (e.g. IHO Order 1a) can be achieved, specific **tidal measurements** may be necessary.
- All **Uncertainties** (TPU) should be described and **Human error** should be quantified in the derived products.
- **Metadata required**
 - For raw data and metadata for product description
 - All additional data (extra samples, video, processing steps) be recorded in metadata
 - Level of standard (to be recorded)
- **Backscatter and water column data** should include minimum criteria each:
 - Backscatter: quality (different), tick box to collect as it is easy to do (depending on the bathymetry, system-dependant, record beam time series (if interested in seafloor), sidescan (seafloor and water column).
- Continuous **Ship logging**
- **Data backup**
- Each survey should be tied to an **ORGID (organisation or individual level)**

Points of difference

- **Guideline vs Specification** for the document title.
- **Patch test** details (whether it is needed or not, calibration amount, defined levels of what 'calibration' is, covers and the time it should take.
- **SVP frequencies** – differing views on how often done
- **Crosslines.** Needed for charting, not for science. However, science could do them opportunistically
- **Backscatter:** compensation versus calibration
- **Water Column** data acquisition should be ensured. Agreed in principle, but not assured where storage is limited.
- **Metadata required**
 - For raw data and metadata for product description
 - All additional data (extra samples, video, processing steps) be recorded in metadata
 - Level of standard (to be recorded)
- **Standards** – Not sure if and when they should be established in the guideline process. Suggestion to establish a table that qualify independently many survey variables, such as vertical and horizontal accuracies, resolution, footprint. This way would offer more flexibility to describe the data than common hydrographic standards, such as IHO or LINZ standards.
- Shipboard **processing** and QA/QC level
- **Tides:** measurements and procedures.
- **Turns and Transit** data
- Surveyors should survey and scientists should (do) “science”. Data quality should be the focus - not necessarily the qualifications of the person in charge.

2. Useful tools, software, and others

| Item | Description |
|---------------------------------|--|
| POGO | surveys register used in Europe that may be able to be used in Australia |
| SeaCom | QA/QC process that may be able to be used in Australia |
| Survey planning tool | Fugro ArcGIS extension; IXSurvey application |
| SSDM – Seabed Survey Data Model | Industry standard for how seabed survey data is stored and managed by oil and gas companies. Developed by the International Association of Oil & Gas Producers |
| Blender | An open source software converting a DEM to html (to improve accessibility) |

3. Future work

Guideline-related

- Document sharing will done via Google Shared Drive
- Inclusion of AUV-related guidelines (Vanessa Lucieer, Kam Austine, Paul Kennedy)
- Outreach plan for the guideline and MBES working group:
 - World Hydrography Day (21 June)
 - Australian Marine Science Association (AMSA) conference, Darwin (July, 2017)
 - Proposed sessions with forum for discussion: Various events, such as Acoustic Society, Hydrographic Conference 2018, etc.
- Development of glossary of terms to accompany the Guidelines.

Data delivery and discoverability:

- Discoverability is equally important as acquisition to all “collect once, use many times”
- AHO is undertaking work on a point-delivery system under their 2064 project
- In point clouds, store accuracy per point cloud/ per cell (uncertainty attached) (patch data is meaningful based on uncertainty and understand what they mean

MBES Workshop Participation Survey - Response highlights

How was this workshop relevant to your work?

“Excellent at bringing together so many different disciplines to consider a holistic solution.”

“Very relevant. We produce scientific multibeam surveys, but would love some minimum standards to work to.”

“Very relevant. It is always nice to hear from other types of users and know their applications and criteria for MBES surveying.”

Are you taking any message(s) home from this workshop? If so, which one(s)?

“Yes. To raise the awareness of such a guideline through my industry and colleagues.”

“Collective view: We should determine appropriate standards and stick to them.”

“(That) There is a nationally-co-ordinated group of multibeam experts aiming to publish a best practice guide to improve multibeam datasets for the national benefit.”

What did we do well?

“Allowing people to voice opinions, yet keep us focussed on the outcomes.”

“Covering other peoples’ standards and trying to take the best bits without re-inventing the wheel.”

“Very well organised and enjoyed workshop format. I really appreciated the way groups were mixed-up for maximum personal communication.”

What could we improve or change for the next workshop?

“Nothing. Workshop was great!”

“Use case scenario. Go through the planning & acquisition workflow.”

“Next (workshop), should now focus on the review of a draft document.”

“Send a draft of the guideline to be peer-reviewed, even to people not able to participate in the next event.”

Workshop attendees

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