# Appendix B: Recommended Post-Survey Report Template for sampling in Australian marine parks

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| <insert organisation. |
| **AUSTRALIAN MARINE PARK BASELINE**  **AND MONITORING SURVEY**  **POST SURVEY REPORT** |
| **<insert Marine Park name>**  **<month year>**  **<insert image(s)>** |

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| Przeslawski Rachel  [Pick the date] |

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**EXECUTIVE SUMMARY**

**Guidance note:** Provide a short summary of the post survey report, including:

* survey name and ID, vessel, survey location and dates of survey;
* participating agencies and institutions;
* brief description of AMP and study area, including regional context;
* high-level survey objectives that link to Parks Australia research priorities and information needs (e.g. “…to build the baseline inventory of seabed habitats in xxxx marine park....”);
* specific survey objectives, including science questions and/or hypotheses being addressed/tested;
* key results including summary statistics for data types acquired (e.g. km2 seabed bathymetry and backscatter coverage; line km of towed video/AUV; number of hours of baited underwater video deployment; number of physical seabed samples etc)
* preliminary interpretations of survey results – at high level and in terms of habitats, biodiversity, trends, responses to pressures, etc
* highlights of new science discoveries (new species, seabed features previously unknown, etc)

**INTRODUCTION**

**Background and Rationale for Survey**

**Guidance note:** Narrative that provides the context and drivers for the survey interms of scientific questions/issues being addressed and links to the research priorities and information needs of key stakeholders. Briefly introduce the marine park that the survey was conducted within.

**Australian Marine Park Context**

**Guidance note:** Overview of management plan that applies to the particular marine park that was covered by the survey, including identification of conservation values (physical, biological, oceanographic), pressures, key ecological features and biologically important areas that intersect the survey area. Include relevant maps, and reference monitoring plan and objectives if one exists.

**Aims and Objectives**

**Guidance note:** List of overarching aims of survey and specific objectives, including scientific questions and/or hypotheses being addressed

**SURVEY AREA**

**Location & Description**

**Guidance note:** Description of the survey area in terms of general physiographic, oceanographic and biogeographic setting. Identify the marine planning region and the marine park the survey was undertaken within. Provide a description of the seabed characteristics, oceanography and biological communities, as they are known and/or understood for the particular marine park, including previous studies (referenced). Identify knowledge gaps for the particular marine park.

**Survey Grids**

**Guidance note:** Identify the specific areas within the marine park where data acquisition was undertaken. This could be presented as grids, transects and points; or a combination of these. Include relevant maps.

**SURVEY DESIGN AND SCHEDULE**

**General Information**

**Guidance note:** Describe the approach to survey design as linked to survey objectives and research questions. For example, the survey may have applied a spatially balanced randomised method for pre-selection of sampling sites; or a survey that is weighted towards sampling at certain depth intervals (transects), or across particular habitats.

**Survey Design**

**Guidance note:** Present details of areas targeted for mapping, sampling stations/transects.

**Survey Timetable**

**Guidance note:** Tabulated schedule of events as they occurred during the survey. Optional (could go in Appendix).

**METHODS AND DATA COLLECTED**

**Seabed mapping (m**ultibeam sonar bathymetry and backscatter; s**ub-bottom profiles; side-scan sonar)**

**Guidance note:** Brief description of instruments used to undertake seabed mapping (e.g. XYZ 300 kHz dual-head multibeam sonar) and statistics for the area mapped. Statistics should include km2, linekilometres, bathymetric range and acoustic reflectance (backscatter) range for multibeam sonar and depths of penetration for sub-bottom profiles. Include summary tables and maps that show navigation tracks and spatial coverage in the context of the marine park boundary and zones. Also include summary of basic processing steps completed for multibeam, backscatter, sub-bottom and side-scan data)

**Seabed sampling (grab samples, cores, other)**

**Guidance note:** Brief description of sampling instrument(s) used and seabed samples collected, including number and bathymetric range. Include a summary table that lists samples collected per site (station), and maps showing sample locations. Include a summary of planned analytical methods (e.g. identification of infauna by expert taxonomist) and lodgement of samples (e.g. sediment samples lodged at GA, infauna lodged at Museum of Victoria).

**Seabed observations (towed video, AUV, BRUV)**

**Guidance note:** Brief description of imagery systems used for seabed observations and number, duration and bathymetric range. Supported by a summary table that lists data collected (line km), and maps showing navigation tracks. Include a summary of planned image processing (e.g. Simultaneous Location Algorithm Mapping to develop photomosaics) and annotation (e.g. point count using CATAMI classification in Squidle+) methods.

**Pelagic observations (BRUV, visual sightings)**

**Guidance note:** Description of pelagic observations, including number and duration. Include a summary table and maps showing sample locations. Include a summary of planned annotation methods (e.g. use EventMeasure to extract size and MaxN data from video).

**Oceanographic measurements (underway, moorings, glider)**

**Guidance note:** Description of oceanographic observations, including number and duration. Include a summary table that lists samples collected per site (station), and maps showing sample locations and navigation tracks. Include a summary of planned post-processing and analysis methods.

**RESULTS AND PRELIMINARY INTERPRETATIONS**

**Seabed Features**

***Geomorphic features***

***Sub-seabed structure***

**Guidance note:** Description of seabed geomorphic features as identified from processed multibeam sonar and backscatter data. Features should be classified using standardised terms (e.g. Geoscience Australia glossary of seabed features, in prep.). Include summary statistic on these features (e.g. depth range, area, slope gradients, acoustic reflectance range) as preliminary measurements/assessments. If sub-bottom profiles were collected, include a description of representative transects that illustrate sub-seabed structure of key habitats (e.g. sediment veneer over reef; evidence for sedimentary infilling of depressions/scours; evidence for active bedform migration). Include representative examples of bathymetry grids produced from multibeam data. Relate new findings to previous research if possible. Specify where metadata and data can be accessed.

**Seabed Biological Communities**

***Epifaunal Communities***

***Infaunal Communities***

**Guidance note:** Description of seabed biological communities as determined by direct sampling and/or imagery. Present in the context of seabed bathymetry and backscatter by overlay onto survey maps. Include summary statistics as recorded during the survey (e.g. depth range, percent cover, area, linear distance) as preliminary measurements/assessments. If specimens were collected, include summary statistics of number of specimens collected, general lifeforms and preliminary identifications. Include example imagery if acquired during the survey. Relate new findings to previous research if possible. Specify where metadata and data can be accessed including DOIs if available.

**Pelagic Fauna**

**Guidance note:** Description of pelagic biological communities as mapped by direct sampling and/or imagery. Present in the context of seabed bathymetry and backscatter by overlay onto survey maps. Include example imagery, summary statistics as recorded during the survey (e.g. depth range of observed individuals/schools, number of individuals observed), and preliminary identifications. Relate new findings to previous research if possible. Specify where metadata and data can be accessed, including DOIs if available.

**Oceanographic Data**

**Guidance note:** Description of oceanographic data collected. Include general spatial patterns in currents/temperature/salinity/turbidity and summary statistics as recorded during the survey (e.g. trends in CTD profiles, presence of stratified layers, ADCP current patterns). Relate new findings to previous research if possible. Specify where metadata and data can be accessed including DOIs if available.

**New Discoveries**

**Guidance note:** Identify and highlight any new discoveries from the survey that serve to add to the knowledge base of the marine park. For example, first-time mapping of particular seabed features; detection of change in habitat and/or biological communities; new marine fauna and flora discovered etc. Specify where metadata and data can be accessed including DOIs if available.

**FUTURE WORK**

**Guidance note:** Description of planned, proposed or potential analyses (including future surveys) that will maximise the value of the datasets collected, and contribute to the evidence base to support monitoring and performance assessments of the particular marine park.

Identify science products that can be used to promote the awareness and public interest in this particular marine park, and in marine science in general.

**REFERENCES**

As appropriate

**ATTACHMENT 1 – DAILY LOG OF SURVEY ACTIVITIES**

**Guidance note:** Narrative of daily activities, including key events, decisions and progressive description of survey progress against aims and objectives.

**ATTACHMENT 2 – PERSONNEL ON BOARD**

**Guidance note:** Personnel list, including roles performed during the survey (e.g. Survey Leader/Chief Scientist; Multibeam sonar acquisition/processing; Towed-video operator…etc)

***Scientific Personnel***

***Ship Crew***

**ATTACHMENT 3 – SAMPLES LIST**

**Guidance note:** Tabulated list(s) of all physical samples collected and any descriptions recorded during the survey (following Standard Operating Procedures for various data types). As a minimum, sample lists to include:

* Sample ID (following a standard naming convention);
* Sample type (e.g. sediment, biological
* Gear type (grab, core, sled, towvid etc)
* Sample location (latitude, longitude, decimal degrees to 6 d.p)
  + Recorded as one set of co-ordinates for point observations/samples
  + Recorded as start-of-line (sol) and end-of-line (eol) co-ordinates for transects
* Date of collection (yyyymmdd)
* Date of collection (Julian Day)
* Time of collection (UTC)
  + Recorded as an ‘event time’ for point observations/samples
  + Recorded as start-of-line (sol) and end-of-line (eol) time for transects
  + Recorded as start-of-deployment and end-of-deployment for instrument/mooring deployments (e.g. BUVs)
* Water depth (m, to 2 d.p)
  + Recorded as an single depth for point observations/samples
  + Recorded as water depth at start-of-line and at end-of-line for transects
* Repository where sample has been lodged
* Comments/Descriptions

**ATTACHMENT 4 – LICENCES AND PERMITS**

**Guidance note**: Copies of Permits obtained to undertake work in the particular marine park, including one or both of the following:

***Permit to Undertake Research in a Commonwealth Marine Park***

***Permit to Access Biological Resources in a Commonwealth Marine Area***