

2 METHODOLOGY

2.1 Study Process

The study process involved the following four key stages:

- Stage 1 – Identification of Study Objectives and Information Needs
- Stage 2 – Data Collation and Collection
- Stage 3 – Data Analysis
- Stage 4 – Priority Assessment

The relationship between each of these stages and associated sub-tasks are shown in Figure 2-1.

2.2 Stage 1 – Identification of Study Objectives & Needs

A preliminary methodology and program was developed on the basis of DEW's study objectives outlined in the study brief, as outlined in the proposal submission (BMT WBM 2007). The study needs and objectives, and associated study process, were refined on the basis of discussions with DEW. Key considerations identified included:

- The reasons for the study including the requirement by the Senate for DEW to undertake a review of the status and management of Australian Ramsar sites;
- The role of the Wetlands and Waterbirds Taskforce (WWTF) including the importance for their input in all stages of the review (e.g. database development, questionnaire development, questionnaire implementation and reporting);
- The need to determine whether DEW had the most up-to-date Ramsar wetland management information and data; and
- The need to incorporate elements outlined in the Draft Guidelines for the Development of Ramsar Wetland Ecological Character Description.

A list of database fields was also developed, in conjunction with DEW (and the Department of Agriculture Fisheries and Forestry (DAFF) for the financial information component), in order to target data collation and collection activities outlined in Stage 2. A list of fields used in the database is provided in Appendix B.

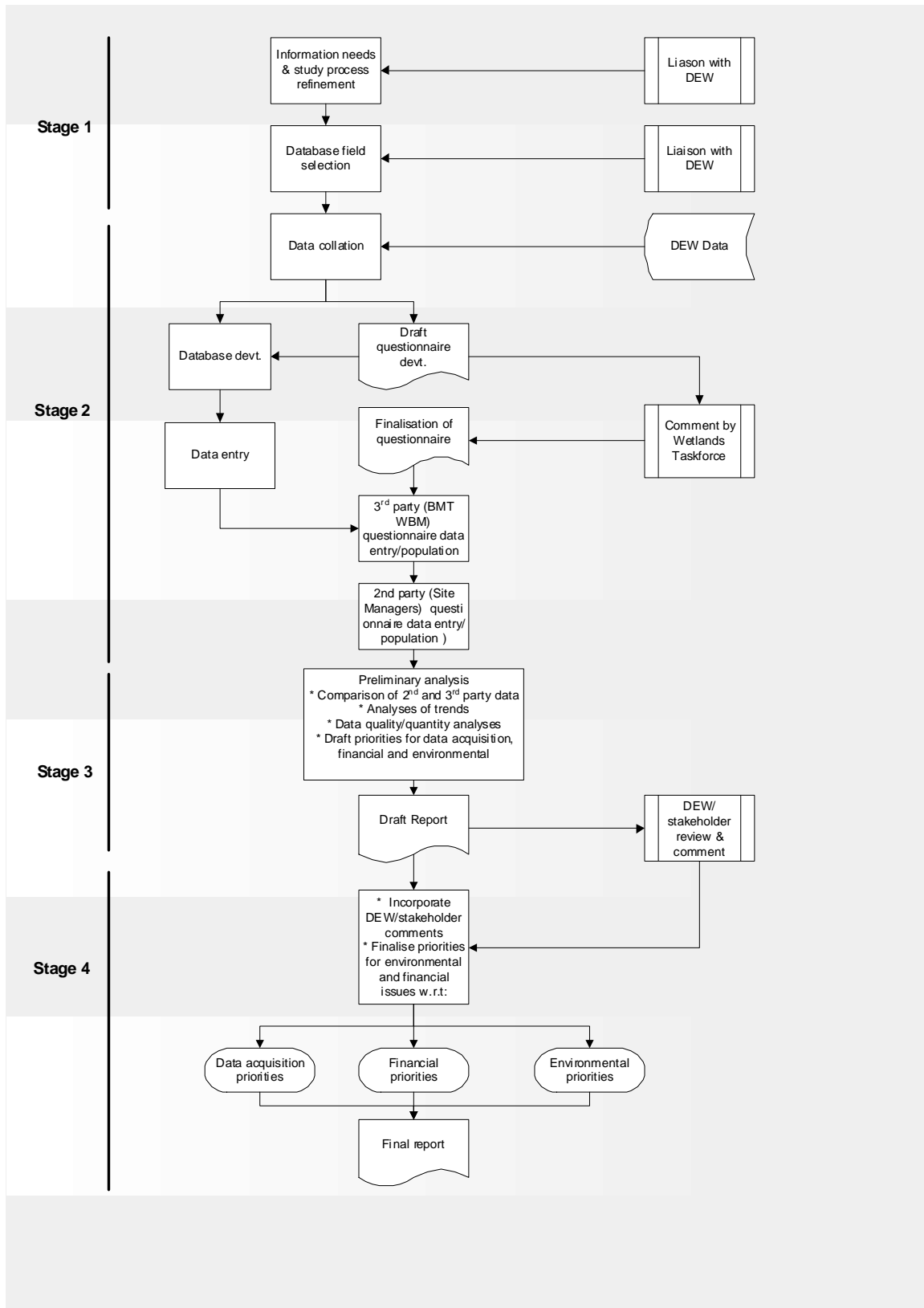


Figure 2-1 Refined study process

2.3 Stage 2 – Data Collection and Collation

2.3.1 General Considerations

An important aspect of the study was to collect and consider all available data, to validate their accuracy and to identify data/information gaps. Several key information sources were identified and different strategies were required to extract data from these information sources, as outlined below.

2.3.2 Collation of Australian Government Held Data

DEW supplied an initial list of relevant information held by the Australian Government. This list was used as the basis for the collation of information held at the offices of DEW. Meetings were also held with relevant Australian Government (e.g. DAFF, DEW) personnel for discussion of available data and processes for accessing information.

In total, approximately 6 staff days were spent at the offices of DEW to ensure all relevant information was sourced. The collated information was then entered into the BMT WBM Ramsar Wetland database (see Section 2.3.3). This information was also used in the development of the site manager questionnaire (see Section 2.3.5).

2.3.3 Database Development and Implementation

Existing data were compiled and integrated into a database (MS Access 2000) with provision for the existing data, and also for data entry from the questionnaire responses and results. The database was designed to store and retrieve relevant information for the present study, and ongoing use post-study completion (*viz.* environmental management and financial investment decisions for managing Ramsar wetlands). The relational structure of the database was needed for the comparison of Ramsar sites for the identification of Level 1 (administrative) and Level 2 (data quality) gaps.

An initial database structure was supplied to DEW and WWTF for review, and amendments were made based on feedback provided (final list of fields provided in Appendix B). The database formed the basis for the questionnaire.

2.3.4 Database Management During the Study

Information was sent by WWTF members and site managers approved by DEW *via* the email address for integration into the database, after checking by BMT WBM and/or DEW. All data were automatically backed up on a daily basis. Regular internal checks on the data were performed to ensure that data were not corrupted.

2.3.5 Questionnaire Development and Implementation

An initial draft questionnaire was developed that would address the information requirements required to populate the initial database fields (see Section 2.3.3). Following a review of the draft questionnaire by DEW and WWTF, the questionnaire was amended to take account of the types of information available to on-site managers, including the population of site-specific information into the questionnaire to seek verification of information.

The questionnaires were finalised and created as locked documents with editable sections for provision of information by questionnaire respondents (refer Appendix C for an example of a questionnaire). The questionnaires and other site management documents were loaded onto a Ramsar page on the BMT WBM website (refer Appendix D) and the website link was sent to selected stakeholders (mainly site managers).

Generally, one questionnaire was completed for each Ramsar site. However, where there were multiple land tenures or managers for one site, sites were divided into sub-sites and a questionnaire was completed for each sub-site. Where multiple responses were provided for a single site (i.e. from different sub-sites), a representative from the relevant state in which the site was located compiled these responses and provided BMT WBM with a single questionnaire for the site. This process generally worked effectively across the jurisdictions (through difficulties were experienced with this approach in one State) to ensure input from site managers could be reviewed and verified by the State representative.

All questionnaire data were entered into the database upon receipt (refer Appendix E for terms used).

2.4 Stage 3 – Data Analysis

2.4.1 Key Trends and Threats

The data fields within the database and questionnaire were designed to serve as a type of indicator for management status, pressures (threats and impacts) and extent of Ramsar wetlands in Australia (Table 2-1). Most of the indicators focus on the management status and arrangements for Ramsar-listed wetlands, which primarily represent 'management response' type indicators. Specific pressure and status indicators were included in the assessment, although it should be noted that fine scale assessments of condition and pressures on specific wetland sites was outside the scope of this national scale assessment process.

Where there was more than one sub-site within a Ramsar site, these were treated as one site for the purpose of analysis. Descriptive statistics were generated for each indicator (i.e. number or proportion of sites). The database provides an effective means of manipulating and grouping data to identify these key trends and gaps (e.g. grouping results by wetland type, location). Data were cross-tabulated to explore patterns at one or more of the following scales of spatial resolution:

- Total/National scale
- State
- Drainage Division
- IMCRA/IBRA Bioregions
- Wetland types

Data were tabulated and where relevant presented in graphical format, and considered the following:

- The status of Ramsar wetland management documents (i.e. Ecological Character Description, RIS);

- The status of Ramsar wetland management documents and information held by DEW. This involved a comparison of questionnaire data derived from 2nd and 3rd party sources; and
- Identification of trends in: (i) expenditure to Ramsar wetland management; and (ii) the status of threats and impacts to Ramsar wetlands.

Table 2-1 Wetland indicators and data sources

Indicator	Data source*
Status	
No. of Ramsar wetlands	DB
Extent of Ramsar wetlands	DB
No. wetlands with another form of tenure	Q2
No. of sites with a private land component	Q9
Pressures	
Top 5 ranked threats; Number of sites where each threat occurs.	Q35
Top 5 ranked impacts; Number of sites where each impact occurs.	Q36
Responses	
<i>Management Plans</i>	
No. of up-to-date management plans held by DEW	Q13
No. Ramsar wetlands with implemented management plans (proportion by status, i.e. in preparation, draft, final)	Q15
No. of Plans that are: (i) Ramsar Management Plan (whole of site); (ii) A management plan that considers, among other things; Ramsar values or (iii) sub-site only	Q16
With respect to the requirements of the Commonwealth <i>EPBC Act</i> and its Regulations, in relation to the Plan being consistent with the Australian Ramsar Management Principles, the no. of Plans that meet (i) all requirements; (ii) 50-99% of requirements, (iii) 1-49% of requirements and (iii) none of the requirements. Also, number of Plans that meet each requirement of the Management Principles.	Q17
<i>Ramsar Information Sheets (RIS)</i>	
No. of up-to-date RIS held by DEW (i.e. <6 years)	Q18
No. Ramsar wetlands with updated RIS (proportion by status, i.e. in prep, draft not submitted, draft submitted)	Q20
<i>Ecological Character Description (ECD)</i>	
No. of up-to-date ECDs held by DEW	Q22
No. Ramsar wetland sites with ECD (proportion by status, i.e. none, in prep, draft, final)	Q21

Indicator	Data source*
No. of Ramsar wetlands where there has been a formal assessment of change in baseline condition since listing by: (i) wetlands with ECD; and (ii) wetlands without ECD	Q23, Q24
<i>Maps/boundary data</i>	
No. sites with (i) hard copy only; (ii) hard copy & electronic; (iii) electronic only	Q25
No. sites with maps that meet minimum data requirements	Q27
No. of sites with up-to-date boundary data held by DEW	Q28
No. site managers with access to GIS facilities to examine electronic boundary data	Q31
<i>Water Requirements</i>	
No. of sites where water requirements are: (i) well known; (ii) partly known; and (iii) not known	Q32
<i>Investment in Wetlands</i>	
No. sites receiving funding from (i) NHT, (ii) NAP; (iii) Aust. Govt.; (iv) State Govt.; (v) Local Govt. (vi) Private; (vii) owner contributions; (viii) corporate contributions; (ix) other sources	Q37
Total investment (by source) in 2006/07	Q38

* DB = database; Q is question number in questionnaire.

2.4.2 Information/Management Control Gap Analysis

For the purposes of this assessment, several types of information gaps were identified:

- 1 DEW administrative control gap (Level 1). This analysis was done by comparing the data/information held by DEW with questionnaire responses derived from site managers.
- 2 Overall Administrative document gap (Level 2). Key gaps in administrative requirements were determined on the basis of questionnaire responses. In particular, the status of the Ramsar Information Sheet, Management Plans, maps (and electronic boundary data) and Ecological Character Descriptions was determined.
- 3 Data quality gap (Level 3). A number of data quality 'indicators' were assessed within each discipline (i.e. hydrology, environmental management/administration etc.). This included a definition of data type (i.e. quantitative, semi-quantitative and qualitative data), and data quality (i.e. data age, spatial resolution, temporal resolution, etc).

2.5 Stage 4 – Priority Analysis

Following compilation of the data gathered in the questionnaire stage and interpretation of data for gaps and trends, analysis of key pressures likely to impact on the future management of the Ramsar estate and strategic approaches for their management was undertaken. Two key pressures were assessed: environmental and financial. Fields in the table were set up to reflect questionnaire results,

namely the above two pressure categories. A third field was flagged for data incompleteness. This information was used to prioritise those wetlands in need of additional data, especially those where a decision could not be made on environmental and financial priorities.¹

¹ Note that site summary reports were produced as a final output of the study. Refer Appendix F for an example.