Stage 1 Report Appendix C

EWKR STAKEHOLDER ENGAGEMENT REPORT: SURVEY RESULTS AND SENTIMENT ANALYSIS OF INTERVIEW RESPONSES

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Contents

1   INTRODUCTION

This report presents the results from engagement with three stakeholder groups (client, service providers and end users) as part of an independent scientific program evaluation of the outcomes from the Murray-Darling Basin Environmental Water Knowledge and Research (EWKR) project. The outcome evaluation of the EWKR project is focused on:

- How well the project achieved its objectives, demonstrated environmental outcomes, and communicated findings to all stakeholders,

- The extent to which the project was fit for purpose in terms of design and supporting legislative requirements, and

- How the CEWO can improve its future monitoring, evaluation, and research activities.

The engagement included an online survey and interviews with stakeholders during May to June 2020. The main purpose of the engagement was to provide lines of evidence specific to key evaluative questions (KEQs), contributing to a mixed method approach to evaluating the effectiveness, appropriateness, efficiency, and impact of the EWKR project (see Butcher and Schreiber 2020 for more details on the evaluation approach). This report summarises the survey responses and provides a sentiment analysis of the interview responses that will complement the main outcome evaluation report. Evaluative judgements are not made in this report, it simply summarises the results of the sentiment analysis.

Survey and interview questions were designed in consultation with the CEWO (see Appendix 1) and relate to a subset of the full suite of KEQs. In total 35 questions were included across the surveys and interviews. Discussion of the structured survey results mostly describes the responses broken down by the three stakeholder groups, while the sentiment analysis looks to interrogate the free form interview responses to gain additional insights. The purpose and methods used to do this are provided in Section 4.1 and 4.2.

2   SURVEY DEMOGRAPHICS

Three stakeholder groups were engaged in the evaluation of the EWKR project. The main emphasis was to capture end user perspectives on the EWKR project, and this was the largest group in the survey with 21 respondents. The survey was sent to a total of 78 stakeholders: client n=5 (Group 1), service providers n=29 (Group 2) and end users n=45 (Group 3) (Figure 1). Responses were 100%, 41% and 47%, respectively. The end users represented a range of jurisdictions and organisations (Figure 2) with stakeholders from Murray-Darling Basin Authority (MDBA), NSW and Victoria providing the most responses.
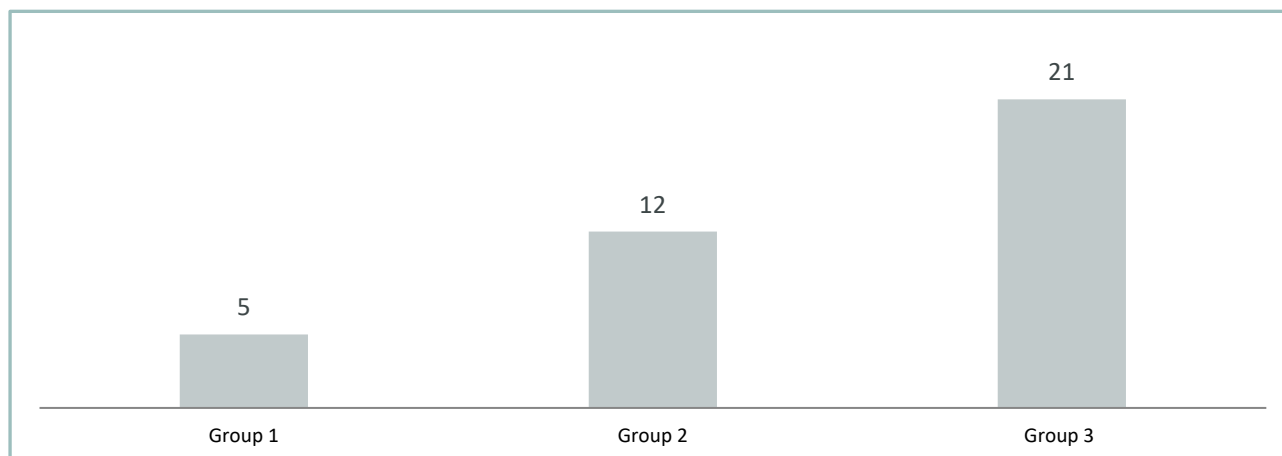
Figure 1 Number of respondents for each stakeholder Group of the EWKR survey (Group 1, 2 and 3 | n = 38).

Note: Some respondents skipped questions throughout the survey. For this reason, each graphic will be captioned with the number of respondents to each question.
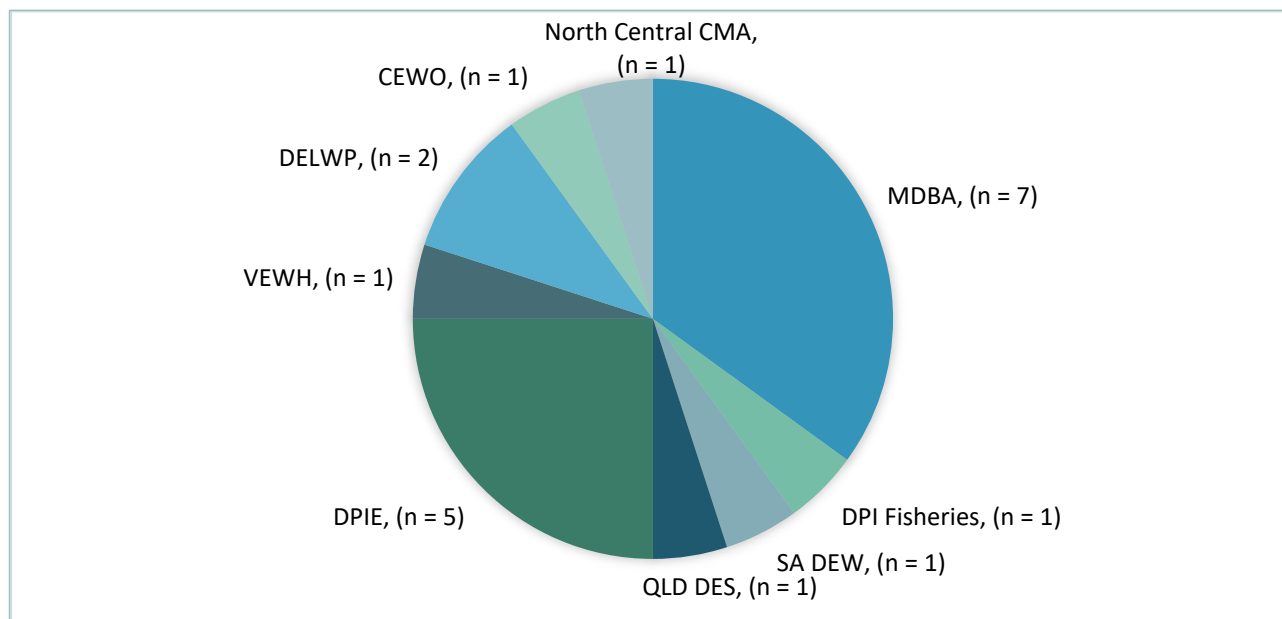
Figure 2 Proportion of respondents by organisation for the Group 3 respondents

The most prevalent work roles of respondents were researchers in group 2, and environmental water monitoring and evaluation practitioners, mostly in group 3 (see Figure 3 to Figure 6). In group 2, one respondent selected 'other' and indicated that their role in environmental water is a 'Stakeholder engagement and communications specialist'.
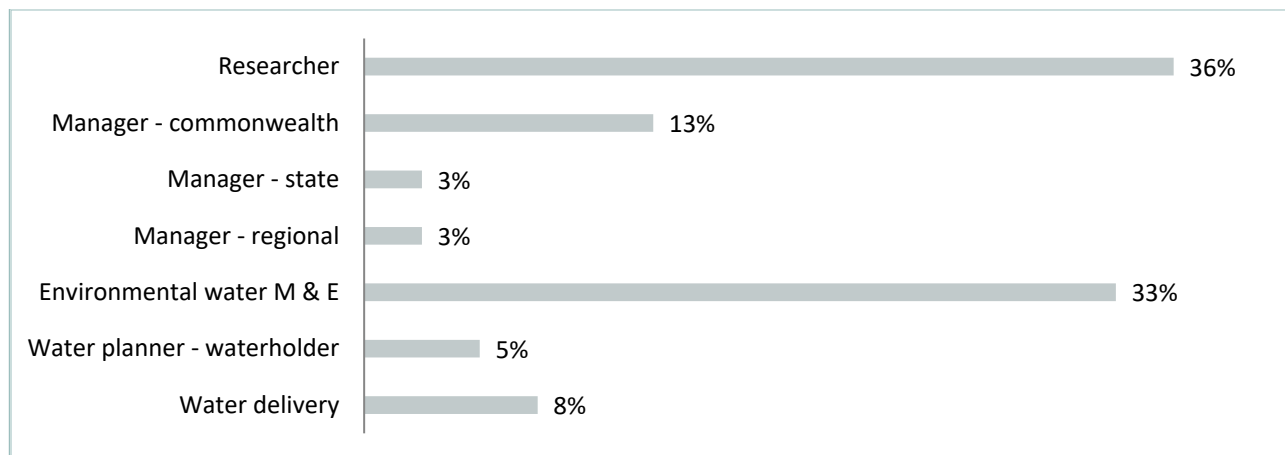
Figure 3 Respondents' role in environmental water - combined (all groups | n = 38).
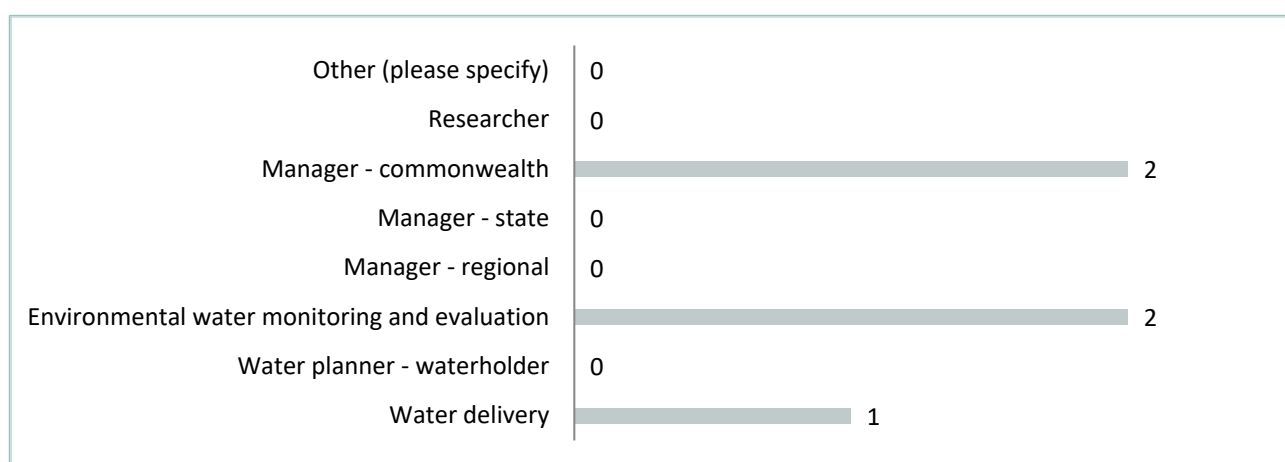
Figure 4 Respondents role in environmental water (Group 1 | n = 5).
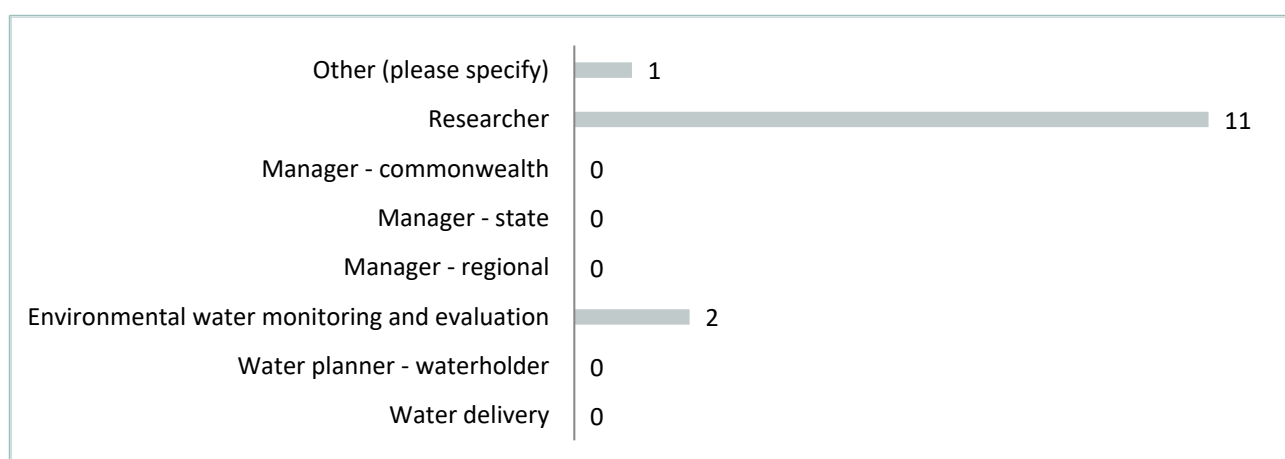
Figure 5 Respondents role in environmental water (Group 2 | n = 12).
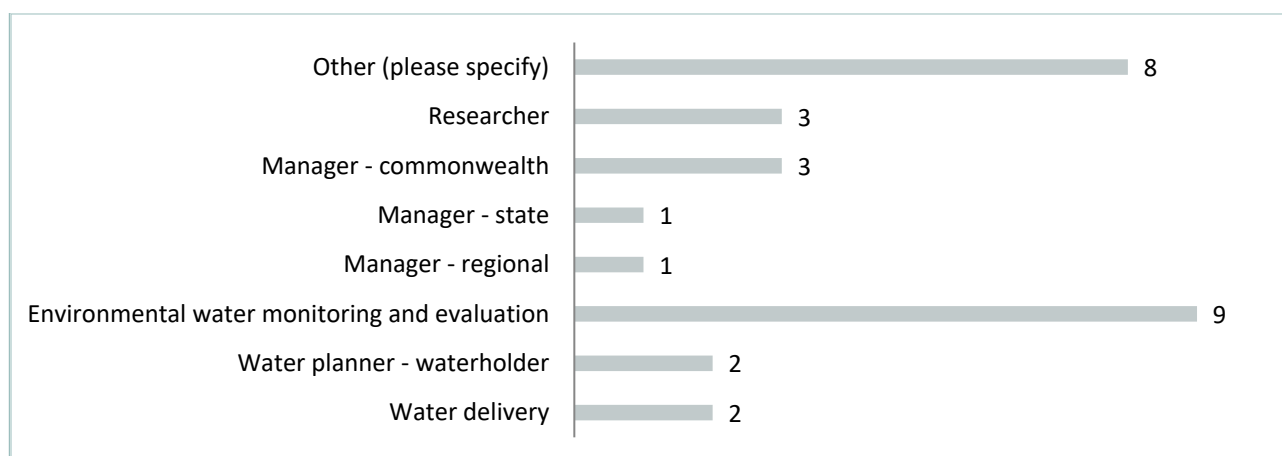
Figure 6 Responses to question 3 of the EWKR survey (Group 3 | n = 21).

In the group 3 responses, 8 respondents indicated that their role was not included in the list provided, and specified their role as:
- On behalf of the Basin governments, coordinate the Living Murray program and southern connected basin environmental watering committee;
- Project officer MDBA;
- Manager of Scientists;
- managed construction and commissioning of Living Murray Works;
- Basin Plan implementation;
- Commonwealth policy;
- Comms and engagement;
- Local Engagement Office.

Most respondents have more than five years' experience in the environmental water management field (Figure 7).
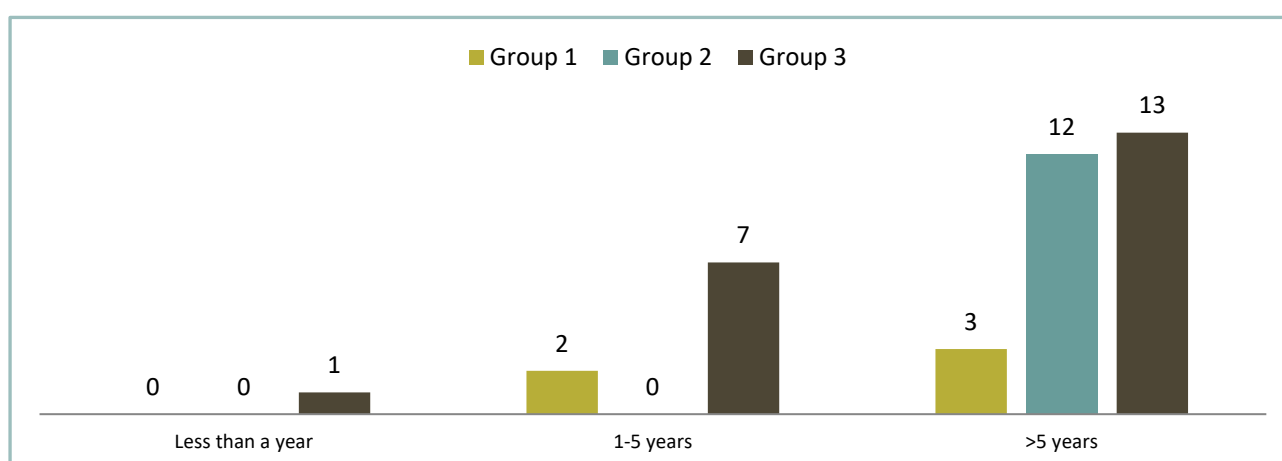
Figure 7 Years of experience in environmental water of respondents (Group 1, 2 and 3 | n = 38).

Roles within the EWKR project are indicated in Figure 8 to Figure 10. In the group 1 survey, one respondent indicated that their role was not included in the list provided, responding that they were part of the CEWO's project management team, and now in water delivery (Figure 8). In the group 2 survey (Figure 9), four respondents indicated that their role was not included in the list provided, but were:
- Part of fish theme since the beginning but did not receive funding for research,

- A EWKR theme researcher and Project leader,
- In the EWKR theme group and LTIM SA group,
- A website and social media contractor to EWKR.
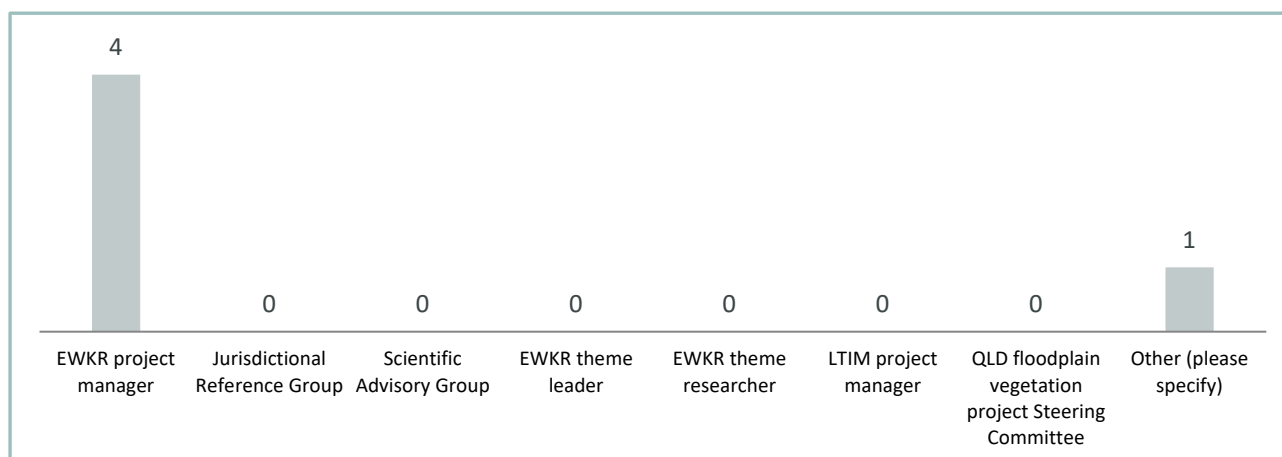
Figure 8 Respondent roles within the EWKR project (Group 1 | n = 5).
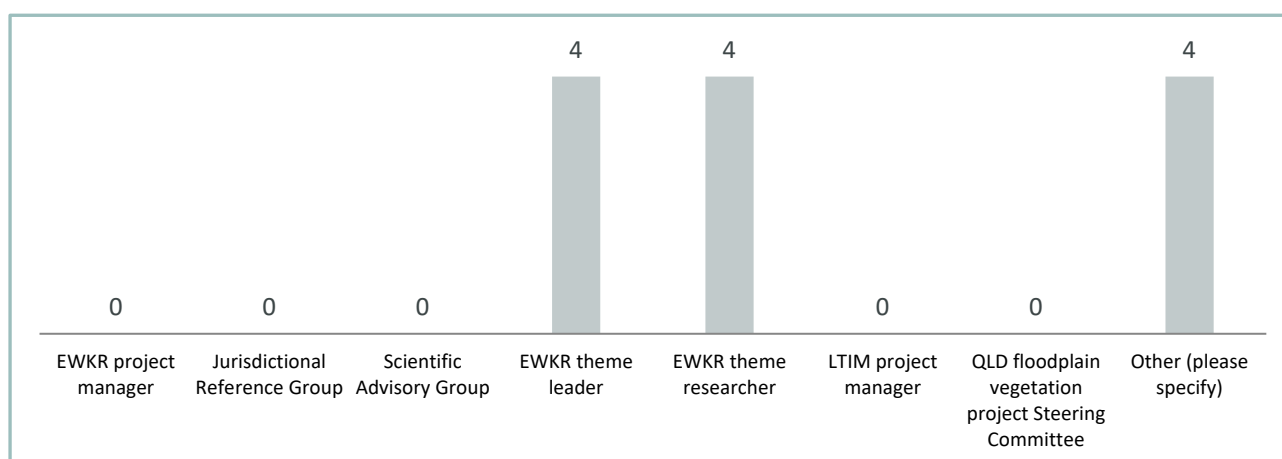
Figure 9 Respondent roles within the EWKR project (Group 2 | n = 12).

In the group 3 survey (Figure 10), 14 respondents indicated that their role was not included in the list provided, but included :

- An interested stakeholder in terms of learnings for more effective water for the environment delivery.
- An interested observer supervising scientist in their team who participated directly.
- No direct role, but with EWKR outcomes supporting the individual's role and responsibilities.
- A project coordinator for the QLD floodplain vegetation project.
- Director, Riverine Ecology, MDBA. Previously LTIM Commonwealth manager.
- EWKR steering committee member (in early years).
- Interested user of EWKR outcomes.
- EWKR vegetation theme team member (previous science research role).
- No formal role, use the information for work.
- Sat on stakeholder group when planning was occurring, and end user of information generated.
- Information recipient.
- Three respondents with no specific role cited.

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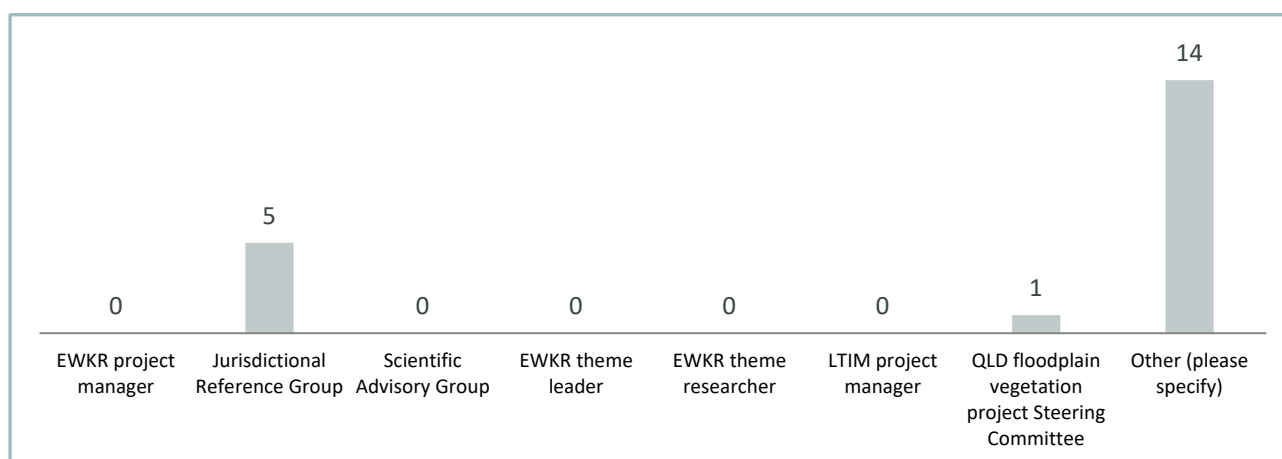
Figure 10 Respondent roles within the EWKR project (Group 3 | n = 20).

3   SURVEY RESULTS

3.1   KEY EVALUATION QUESTIONS

The 35 questions included across the surveys and interviews related to nine high-level KEQ Table 1 (see also Appendix 1 to 4).

Table 1 High- level KEQs addressed by the survey and interview questions

Evaluative criteria		High level KEQ
Effectiveness	KEQ1	How well has EWKR achieved its objectives?
	KEQ2	How well has EWKR communicated findings to all stakeholders?
	KEQ3	To what extent has the EWKR project improved understanding of how management or delivery of environmental flow influences environmental outcomes achieved over time?
Appropriateness	KEQ4	How well has the EWKR project supported CEWO in meeting their legislative requirements?
	KEQ5	To what extent is the EWKR project design fit for purpose?
Efficiency	KEQ6	How efficiently has EWKR achieved its objectives and outcomes?
	KEQ8	How efficient was the EWKR project in managing and sharing data?
	KEQ9	How efficient was the collaborative process within the EWKR project?
Impact	KEQ7	How impactful has EWKR been in supporting adaptive management in the basin?

3.2   EFFECTIVENESS - ACHIEVED OBJECTIVES

See Appendix 2, Questions 6 to 9 for graphic presentation of results.

Overall, survey responses indicated there was a moderate to high level of familiarity with the EWKR project objectives across the stakeholder groups. The survey responses indicated a belief that the objectives of the EWKR project were met to some degree, but not completely. Some end users indicated that they thought the objectives had not been met at all, but this was a small number of respondents. In terms of meeting one of the primary objectives of the EWRK project – *to improve water manager's understanding of how environmental water management influences ecosystem function and*

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therefore biodiversity – the client and service provider groups felt the project had only been somewhat effective. Some service providers indicated that they did not believe that this primary objective was met. This may have been due to the objective being modified over time.

3.3 EFFECTIVENESS - COMMUNICATED KEY FINDINGS

See Appendix 2, Questions 11-15 for graphic presentation of results.

Most of the end users (n=19) were aware of the theme reports, the EWKR story space and fact sheets, with these products being well received and, in general, being considered targeted to appropriate audiences. Service providers (group 2, n=10) indicated that the EWKR project had enabled sharing of resources, knowledge and lessons learnt across each of the themes, with each theme scoring above 60% across the two top categories. In the fish theme, 20% of respondents indicated that sharing of resources and close collaboration failed to occur.

3.4 EFFECTIVENESS - IMPROVED UNDERSTANDING OF HOW E-FLOWS INFLUENCE ENVIRONMENTAL OUTCOMES OVER TIME

See Appendix 2, Question 10 for graphic presentation of results.

At the theme level (i.e. waterbirds, fish, vegetation, food webs) about a third of all respondents (n=38) replied 'don't know' to this question. Most of the service providers who responded (n=11) indicated that the EWKR project had improved understanding a moderate amount in each theme. However, somewhat surprisingly, 40% of the service providers who responded indicated 'don't know' for the vegetation theme. A very telling outcome was 85% of the end-users who responded (n=19) indicated they 'didn't know' if the EWKR project had achieved improvements, and the remaining 15% indicated that the EWKR project had not improved understanding at all.

Several respondents indicated that the timeframe of the EWKR project was too short to make findings 'over time' and that the 'base level of understanding varied across areas' in which work was undertaken. Others mentioned the need to improve the 'connection between the research and management'.

3.5 APPROPRIATENESS – STRATEGIC RELEVANCE

See Appendix 2 Questions 16-18 for graphic presentation of results.

Whilst the EWKR project was not designed to directly contribute to Basin Plan objectives, the information collected was considered to be of limited to moderate strategic relevance by most survey respondents. Line of sight to the Basin Plan including the Basin wide Environmental Watering Strategy (BWS) was in most cases considered appropriate particularly as the themes largely reflected those in the BWS (gleaned from interviews). Respondents varied in their knowledge of the extent to which the EWKR team considered other projects related to Basin Plan implementation, with end users less certain about this aspect of the project. Of the nine service providers who responded one or two suggested consideration of other relevant projects was not undertaken. However, the rest of the service providers indicated that a moderate to high level of consideration given to other relevant projects and as such was appropriate.

3.6 APPROPRIATENESS – FIT FOR PURPOSE

See Appendix 2, Questions 19-23 for graphic presentation of results.

The combined response of the client and service provider groups to the question of appropriateness of the EWKR project design to supporting water managers manage environmental water providing interesting results. One third of respondents(n=16) indicated that the design was only moderately appropriate for the food web, vegetation, and fish themes. The waterbird theme was considered more relevant to water managers' needs, with half of the respondents indicating the design was appropriate (combined 'a lot' and 'a great deal'). One third of the end user group 'didn't know' if the design was appropriate and some felt it was inappropriate or of limited relevance.

The client and end user groups both had a considerable proportion of respondents not able to comment on the Stage 1 planning phase, which suggests either they were not directly involved or didn't know the specifics of the process. This suggests a lack of transparency in the process and potentially a lack of engagement. The lack of engagement of managers in a process intended to improve management outcomes was reported by a number of participants in the interviews, which supports this finding in the survey. Among the service provider group, a small number of respondents indicated that planning process failed to represent managers' needs, most notably in the fish theme. Whilst most service providers indicated they thought the final research questions did reflect managers' needs, this was from a small number of responses (n=10). For the themes, most end users felt there was a little to moderate level of alignment between the research questions and managers' needs, but nearly half (n=15) indicated they 'didn't know' if the research addressed managers' needs.

Amongst the service providers, there was a very high level of confidence in the relevance and quality of the science undertaken within the context of a framework of adaptive water management in the Murray-Darling Basin (MDB). The end user group, however, had a different perspective, with some indicating a lack of confidence of relevance across asset to Commonwealth scale. Confidence was low in the science being relevant at the Commonwealth level, and the main response (46%) was 'don't know'. At the jurisdictional level, end users were 'somewhat' to 'very confident' in the science and its relevance, with the 60% being somewhat confident for relevance at the asset scale.

In terms of building capacity of water managers to set more realist objectives, most respondents across all groups answered the project design was only somewhat appropriate. In response to being asked to what extent the design of the EWKR project was integrated with complementary projects, service providers suggested only a 'moderate amount' (44%). The vegetation theme did relatively well, with a third of respondents indicating 'a moderate amount' or 'a lot' of consideration of other projects occurred during the design phase.

3.7 EFFICIENCY

See Appendix 2, Questions 24-28 for graphic presentation of results.

Five questions were posed to relating to the efficiency in meeting objectives, collaborating, and sharing resources, and conveying lessons learnt. Respondents were asked if they thought the overall expenditure was worthwhile and if funding allocated to communications was adequate. Most of the service providers felt that the themes were 'somewhat' to 'very efficient' in meeting the objectives, with only two responding 'not at all efficient'.

Overall, nearly 70% indicated the expenditure on the EWKR project was worthwhile, again with only a couple of the service provider group responding negative or 'don't know' responses. Efficiency in conveying lessons was mostly considered 'somewhat efficient', the exception being the food webs theme, which was considered 'not so efficient' by a third of respondents (n=29). The end user group were less sure about efficiency in general, particularly at the theme level, with over half responding 'don't know', and the remaining responses being more towards the 'somewhat efficient' to 'not so efficient' end of the scale. Combined responses across all three groups suggested most were somewhat confident that adequate funding was directed to communicating findings to appropriate audiences, but this varied by individual groups. The client group were 'somewhat confident' (75%), the service providers were mostly 'not so confident' (40%), and approximately two thirds of the end users responded 'not at all confident' to 'somewhat confident' with the remainder in the 'don't know' category.

3.8 IMPACT

See Appendix 2, Questions 29-34 for graphic presentation of results.

The combined stakeholder response (n=22) was the EWKR project had a moderate (64%) impact in providing new knowledge for water managers to better inform achievement of environmental outcomes from the use of environmental water. Results varied by theme, with the waterbird and fish theme having considerable impact, while the vegetation and food web themes were considered only moderately impactful. Service providers had the same pattern of responses – waterbirds and fish were thought to have contributed 'a lot' of new knowledge, whereas food webs and the vegetation themes were felt to have contributed 'a moderate amount' of new knowledge.

The end users were not as convinced, with 62% indicating the EWKR project only contributed 'a little' new information. Also at least one responder (n=9) felt that there was no new knowledge contributed at all in each of the themes. Whilst the number of respondents to this question was low, the outcome from the survey results was reflected in the interview

responses, where many end users indicated that little new knowledge was generated, but rather there was confirmation of understanding for several of the themes. Many acknowledged that confirmation of the knowledge base was good to have, but that it didn't necessarily break new ground.

Question 30 was based on an original objective of the EWKR project that subsequently got dropped as a major research line of investigation. The intent was to improve water managers' understanding of how medium- and long-term changes in ecological condition are influenced by threats and may prevent or reduce the outcomes expected with watering. This question was kept in the survey as a line of evidence but has subsequently been attributed as 'not attempted' (therefore not evaluated) by the expert evaluators.

Most of stakeholder group 1 and 3 (n=19) felt that the EWKR project findings would be 'likely' (37%) or 'very likely' (16%) to influence their future water management practices, with one respondents in the end user group indicating 'very unlikely' and three indicating they were 'not applicable' to their current roles. A very positive outcome from this project, and others such as LTIM, has been the increased collaboration between researchers, agencies and managers, with 70% of service providers (n=10) indicating this has increased 'a lot' to a great deal'. This aspect was also a positive noted in the interview results.

Another objective of the EWKR project was to improve the capacity of water managers to predict outcomes from environmental flow allocations and management over 1-5 years. Whilst the service provider group (n=10) felt this had been achieved 'a moderate amount' (40%) to 'a lot' (40%), end users did not agree. A third of end user respondents (n=15) indicated the outcomes from the project had 'not at all' improved their predictive ability.

3.9   POTENTIAL IMPROVEMENTS

The free text responses from the surveys are presented in Appendix 4. With regards to governance, comments suggested considering new governance structures with transparent, continued funding arrangements. While governance is not covered directly in this evaluation, many governance processes cannot be truly separated from evaluation of the outcomes. Future evaluations must include comprehensive process evaluation.

Planning engagement processes and collaboration models were mentioned by all respondents, with a strong emphasis on improving engagement and involvement of managers in the research. The need for greater and/or improved integration between and within themes was a clear message from respondents, as was increased line of sight to Basin Plan requirements.

The need for improved objective setting was echoed across all three stakeholder groups, as was improved communication of findings. Adaptive management is mentioned not as an outcome of the EWKR project but rather to be considered in future programs.

4   SENTIMENT ANALYSIS OF EWKR INTERVIEW RESPONSES

4.1   PURPOSE

4.1.1   INTERVIEW SENTIMENT ANALYSIS

Sentiment analysis is the interpretation and classification of attitudes (i.e. positive, neutral, and negative) within textual data using pre-determined classification principles and subjective judgement. Sentiment analysis is often used to analyse structured and semi-structured interview transcripts, where respondents may provide a dichotomous response (i.e. "yes" or "no"), or a subjective scaled response (i.e. "somewhat", "strongly agree") in addition to an open-ended response, depending on the question(s) asked. There may also be instances where a definitive indication (e.g. "strongly agree", "absolutely not", "yes") are not provided, rather praise, criticism or general opinions are provided, some of which may be conflicting. Combining these different response data provides a general indication of a group's attitudes. Sentiment analysis of the EWKR interview transcripts was conducted to provide insight into stakeholder attitudes not captured within the scope of the KEQs.

The approach adopted for the EWKR evaluation was to classify participants' responses and general discussion into positive, neutral or negative sentiments based upon a combination of a) the degree to which that response converged or diverged from the 'desired' response to an interview question and b) the general attitude towards that element (basis of

an interview question) of the project. These classifications were made in accordance with pre-developed classification principles. Summary statistics provide an overall summary of the relative proportions of stakeholder sentiment between focal areas and between stakeholder groups (i.e. end-users, service providers).

4.2 METHOD

Forty-three stakeholders were interviewed for the evaluation of the EWKR project. All transcripts were imported into NVivo and the collective responses to each interview question were coded to individual nodes relating to focal areas (e.g. achieved objectives, communicated findings etc.).

4.2.1 CODING PROTOCOL

4.2.1.1 PRELIMINARY SENTIMENT AUTO-CODE

The 'auto-code function' in NVivo (QSR International) was used as a starting point for classifying the text into positive and negative sentiment. The auto-code function has built-in lexicons for positive, neutral, and negative sentiments, as well as word modifiers like "very", "more" or "somewhat", which can change the class of that emotion. These lexicons and modifiers are used to automatically classify data. However, as NVivo cannot recognise the context of the responses, as well as sarcasm, double negatives, slang, dialect variations, idioms, or ambiguity, the results of the auto-coded sentiment analysis of the EWKR interview transcripts required further manual coding.

4.2.1.2 MANUAL CODING

Coding classification principles were developed and then followed as general guidelines for classifying participants responses. As manual sentiment analysis is inherently subjective, the coding classification principles (listed in Table 2) enhanced consistency in coding across the substantive collection of data.

Table 2 Sentiment classification principles.

Sentiment	Description	Modifiers (examples)
Positive	*Positive sentiment:* • Participant indicates positive agreement/attitude to the basis of the question. • Examples provided by the participant of where the EWKR project resulted in positive outcomes.	*Negative Modifier:* • "I think the project mostly met it's objectives, however the objectives were not all relevant and the project did not achieve what we thought it would".
Neutral	*Neutral sentiment:* • Participant indicates mixed agreement/attitude to the basis of the question. • General statements about the components, processes etc. of the EWKR project, if not used to directly support a statement relevant to the evaluation question or the focal area, are coded as neutral.	*Positive Modifier:* • "The degree to which the project met its objectives varied, although I think the waterbird theme did an amazing job" *Negative Modifier:* • "The degree to which the project met its objectives varied, although I think the fish theme really dropped the ball"
Negative	*Negative sentiment:* • Participant indicates negative response/attitude to the basis of the question. • Examples provided by the participant of where the EWKR project resulted in negative outcomes.	*Positive Modifier:* • "The project did not meet it's objectives at all, however, I think overall I think the EWKR project was highly valuable as a vehicle to foster relationships within the industry".

The unit of analysis (i.e. blocks of text to be classified as positive, neutral, negative) varied with the complexity of participant responses to a question. The smallest unit of analysis used to classify sentiment was individual statements (sentences), whereas the largest unit of analysis was the full response to a question by a participant. A participant's complete response to a question could be classified as one sentiment, if the sentiment of the response were clear and all statements related to a single opinion. In instances when a direct response to the basis of the question was provided and supplementary statements were also given, the classification of these individual responses were promoted or relegated based on sentiment of the supplementary statements ("Modifiers" - see Table 1).

Further, if the participant responses to a question consisted of a number of conflicting statements that did not necessarily conclude to one overall opinion relative to that question, the complete response was split into discrete statements, which are then subsequently classified as positive, neutral or negative sentiment. However, this was only done provided that the participant's responses to a question were distinct statements that could be clearly delineated from one another.

4.2.2   SUMMARY STATISTICS

Sentiment was calculated by addition of all the positive, neutral, and negative coding references across each question, and each focal area, to produce relative proportions of each sentiment. As the unit of analysis varied between transcripts, interviews and questions, the total sample size for each question varied, thus reporting on relative statistics was considered more appropriate than direct counts of positive, neutral and negative statements.

4.3   INTERVIEW SENTIMENT ANALYSIS RESULTS

A total of 1117 units of textual data (hereafter "statements") was compiled across all primary interview questions, from the Group 2 (service providers) and Group 3 (end-users) interview transcripts. These where classified into positive, neutral or negative sentiment across the focal areas: Effectiveness - Achieved objectives (n=210), Effectiveness - Supported outcomes (n=102), Effectiveness - Communicated findings (n=157), Appropriateness - Strategic relevance (n=118), Appropriateness - Fit for purpose (n=270), Efficiency (n=122) and Impact (n=138).

Overall, 39% of statements were classified as positive, 28% of statements were classified as neutral, and 32% were classified as negative. Five out of the seven focal areas had more positive sentiment than negative sentiment, the exceptions being 'Achieved objectives' and 'Communicated findings' which were more negative. The relative proportions of each sentiment across each focal area are illustrated in Figure 11.
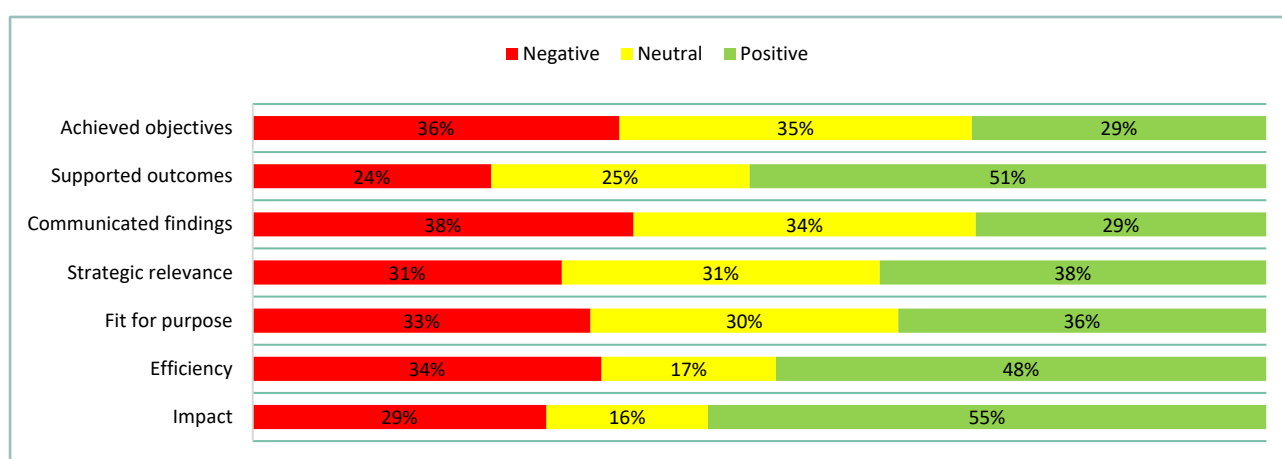
Figure 11 Relative proportions of positive, neutral, and negative sentiment across the focal areas (Group 2 and 3)

The sentiment between service providers and end-users had noticeable differences. Out of all the statements analysed, approximately 70% of all neutral responses were given by end users. This was largely due to unfamiliarity of the outcomes

supported by EWKR, the strategic relevance of the project and the extent to that it was fit for purpose, and its efficiency. Whilst positive sentiment was quite similar for these aspects of the project between groups, service providers had more direct involvement in the project and tended to be more critical or were more certain of their response, which is reflected in the higher relative proportion of negative sentiment. Service providers were more negative (63%) regarding the extent to which the EWKR project communicated findings compared to end users (29%) (Figure 12 and Figure 13).
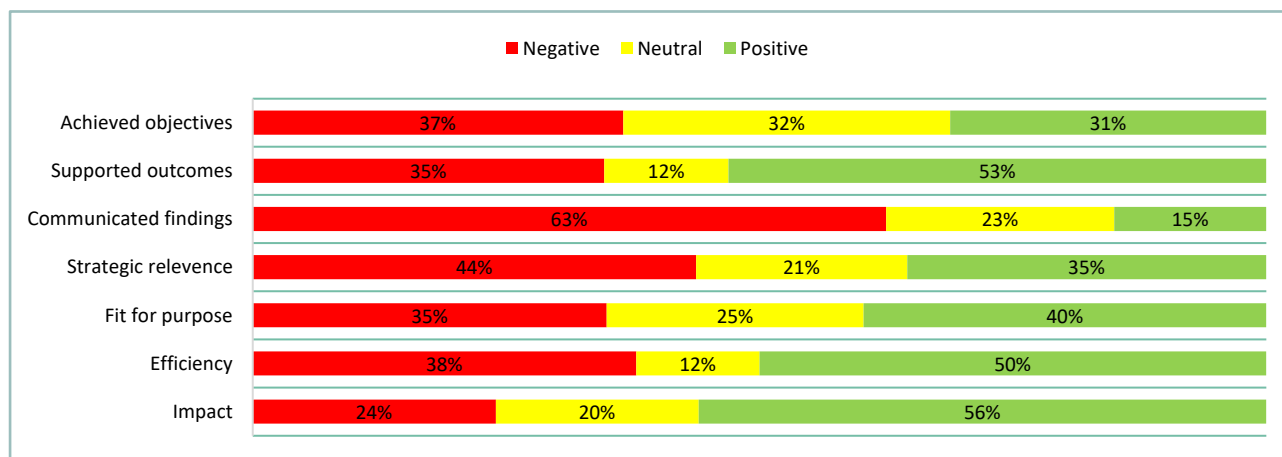
Figure 12 Relative proportions of positive, neutral, and negative sentiment across the focal areas (Group 2)
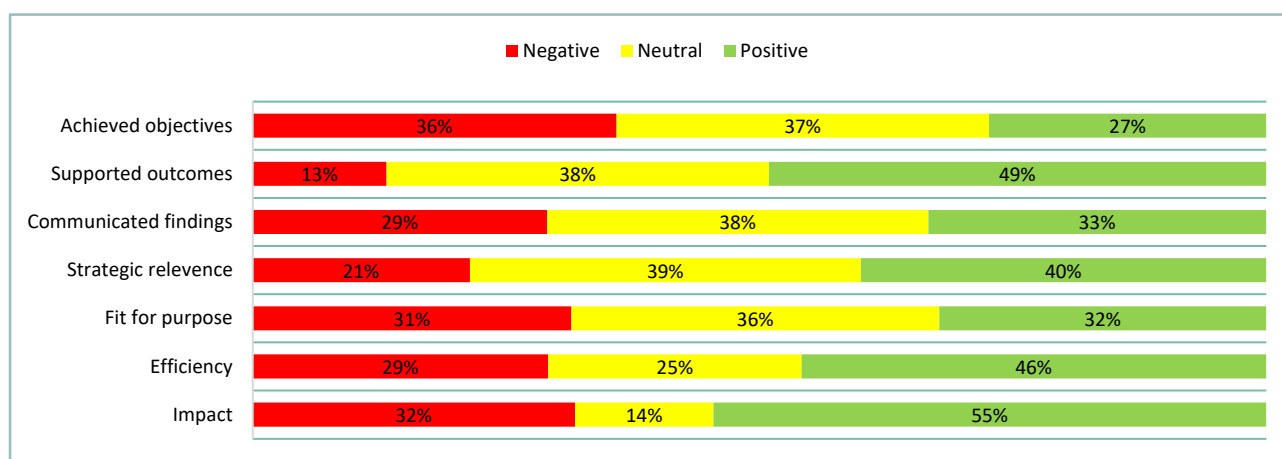
Figure 13 Relative proportions of positive, neutral, and negative sentiment across the focal areas (Group 3)

There was considerable variability in sentiment of the questions within each focal area (Figure 5). The questions with a relatively high degree of positive sentiment included the extent to which participants are confident in the science undertaken by EWKR (Q21), the extent to which participants consider the expenditure of the EWKR program worthwhile (Q25), the extent to which participants interactions with other agencies has changed as a result of the EWKR project (Q32), and the extent to which participants adopted and/or used knowledge/guidance/tools generated by EWKR (Q34).

The questions with a relatively high degree of neutral sentiment included the extent to which the EWKR project achieves its objectives (Q6), how effectively the EWKR project identified incremental changes in condition (Q9), the extent to which participants were aware of products generated by EWKR (Q11) and how they have influenced their management practises (Q14).

The questions with a relatively high degree of negative sentiment included the extent to which each of the EWKR themes enabled participants to share resources, knowledge, lessons learnt and avoid overlap (Q15), the extent to which EWKR project processes encourage participants to collaborate, share resources and lessons learnt (Q26), and the extent to which the EWKR project improved participants capacity to predict outcomes of environmental flow allocations and management over 1-5 years (Q33).
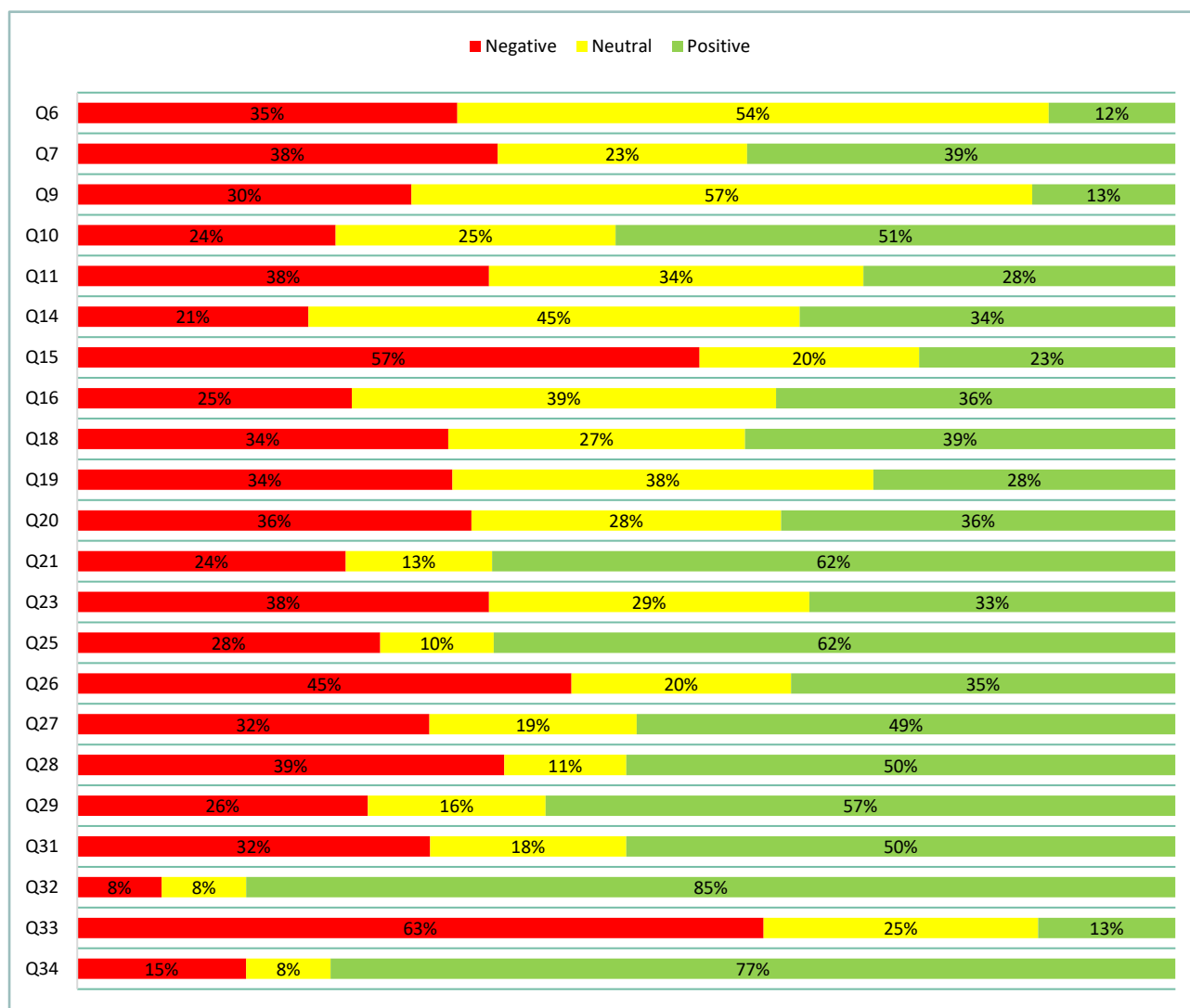
Figure 14 Relative proportions of positive, neutral and negative sentiment (Group 2 and 3) for each primary question (See Table 1) of the EWKR interviews (note that not all of the primary questions that were in the survey were asked in the interviews).

APPENDIX 1: QUESTIONS BY STAKEHOLDER GROUP

Table 3 Pool of questions provided to each stakeholder group for each focal area and relevant high-level Key Evaluation Question (KEQ).

	Survey and interview Question	Group 1	Group 2	Group 3	Relevant KEQ
1	Do you consent for your personal data to be collected?	✓	✓	✓	
2	Contact details	✓	✓	✓	
3	What is your role in environmental watering?	✓	✓	✓	
4	How long have you been in this role?	✓	✓	✓	
5	What, if any, was your role in the EWKR project?	✓	✓	✓	
Achieved objectives					
6	How familiar are you with the EWKR project objectives?	✓	✓	✓	KEQ1
7	To what extent do you think the EWKR project achieved its objectives? On what basis?	✓	✓	✓	KEQ1
8	How effectively did the EWKR project improved water managers' understanding of how environmental water management influences ecosystem function and thereby sustains biodiversity?	✓	✓		KEQ1
9	How effectively do you think the EWKR project identified incremental changes in ecological condition and linked them with ecosystem responses to watering regimes (natural and/or managed events) in each of the themes?		✓		KEQ1
Supported outcomes					
10	To what extent do you think the EWKR project has improved water managers' understanding of how management of environmental water influences environmental outcomes over time? On what basis?	✓	✓	✓	KEQ3
Communicated findings					
11	Which of the following products from the EWKR project are you aware of?			✓	KEQ2
12	For those products you have encountered (see Q9), how well were they targeted to appropriate audiences?			✓	KEQ2
13	To what extent could the targeting of products to specific audience needs be improved?	✓	✓	✓	KEQ2
14	For the products you have encountered (Q9 above), have they influenced your water management practices? How?			✓	KEQ2
15	To what degree did each of the EWKR themes enable you to share resources, knowledge, lessons learnt and avoid overlap?		✓		KEQ2 KEQ8 KEQ9
Strategic relevance					
16	To what extent do you think the EWKR project will contribute to Basin Plan objectives? Why?	✓		✓	KEQ3 KEQ4
17	How clearly has the EWKR project established that the outcomes from each theme are relevant to the Basin-wide Environmental Watering Strategy expected outcomes and the Basin Plan EWP objectives?	✓		✓	KEQ4
18	To what extent did the EWKR project take into account other ongoing and planned initiatives/projects related to Basin Plan implementation? How?	✓	✓	✓	KEQ4

|	**Fit for purpose**				
19	How appropriately designed do you think the EWKR project was in supporting water managers to manage environmental water?	✓	✓	✓	**KEQ5**
20	To what extent do you think the planning process (Phase 1) and final set of research questions adequately reflected manager needs?	✓	✓	✓	**KEQ5**
21	How confident are you in the science undertaken in the EWKR project and its relevance to the needs of environmental water managers within the framework of adaptive water management in the Murray-Darling Basin?		✓	✓	**KEQ5**
22	How appropriate do you think the EWKR project design was to deliver findings which built the capacity of water managers and complimentary natural resource managers to be able to more confidently set realistic objectives? Do you think capacity has been improved?	✓	✓	✓	**KEQ5**
23	To what extent was the design of the EWKR project integrated with complementary recent, ongoing or planned interventions in the project area or on the same problem/issue?		✓		**KEQ5**
	Efficiency				
24	How efficient was the EWKR project, in each theme, in meeting its objectives?	✓	✓		**KEQ7**
25	Do you consider the expenditure worthwhile? Question is specifically about cost.	✓	✓		**KEQ7**
26	Do you think EWKR project processes encourage participants to collaborate, share resources and lessons learnt?	✓	✓		**KEQ7**
27	How efficiently do you think the EWKR project conveyed lessons learnt to improve adaptive management of environmental water?	✓	✓	✓	**KEQ7**
28	To what extent do you feel confident that adequate funds were allocated and utilised in communication findings to appropriate audiences?	✓	✓	✓	**KEQ7**
	Impact				
29	How impactful have the outcomes from each theme been on providing new knowledge for water managers to better inform achievement of environmental outcomes from the use of environmental water?	✓	✓	✓	**KEQ6**
30	To what extent do you think the EWKR project has led to improved understanding by water managers' of medium- and long- term changes in ecological condition, including the effects of threats (hydrological, aquatic and terrestrial) which may reduce or prevent the ecological improvement expected?		✓	✓	**KEQ6**
31	How likely do you think the EWKR project findings will influence, if at all, your future water management practices?	✓		✓	**KEQ6**
32	To what extent, if any, has your interaction with other agencies changed as a result of the EWKR project?		✓		**KEQ6**
33	To what extent has the EWKR project improved your capacity to predict outcomes of environmental flow allocations and management over 1-5 years?		✓	✓	**KEQ6**
34	To what extent have you adopted or used knowledge/guidance/tools generated by the project?		✓	✓	**KEQ6**
	Opportunities for improvement				
35	What, if any, improvements could be made to the EWKR project moving forward?	✓	✓	✓	**All**

APPENDIX 2: SURVEY RESULTS BY QUESTION

Results have been presented as percentages so in some figures there will be rounding errors totaling either just below or above 100%. Also, whilst the total number of respondents is presented in the figure caption not all respondents answered every element of the questions.

QUESTION 6: HOW FAMILIAR ARE YOU WITH THE EWKR PROJECT OBJECTIVES?
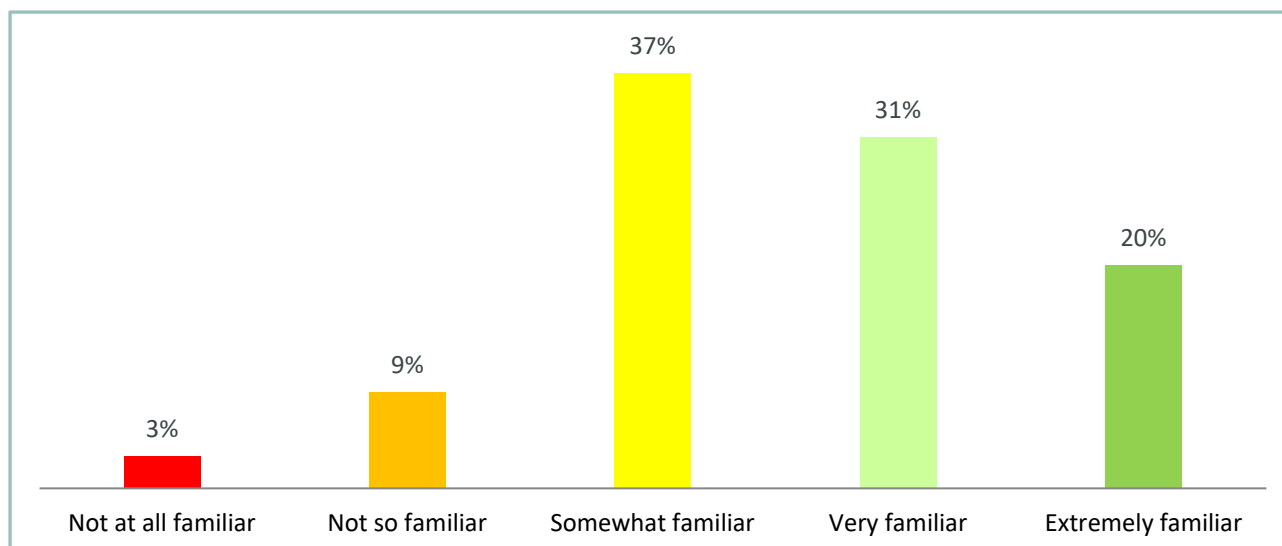
Figure 15 Combined responses to question 6 of the EWKR survey (Group 1, 2 and 3 | n = 35).
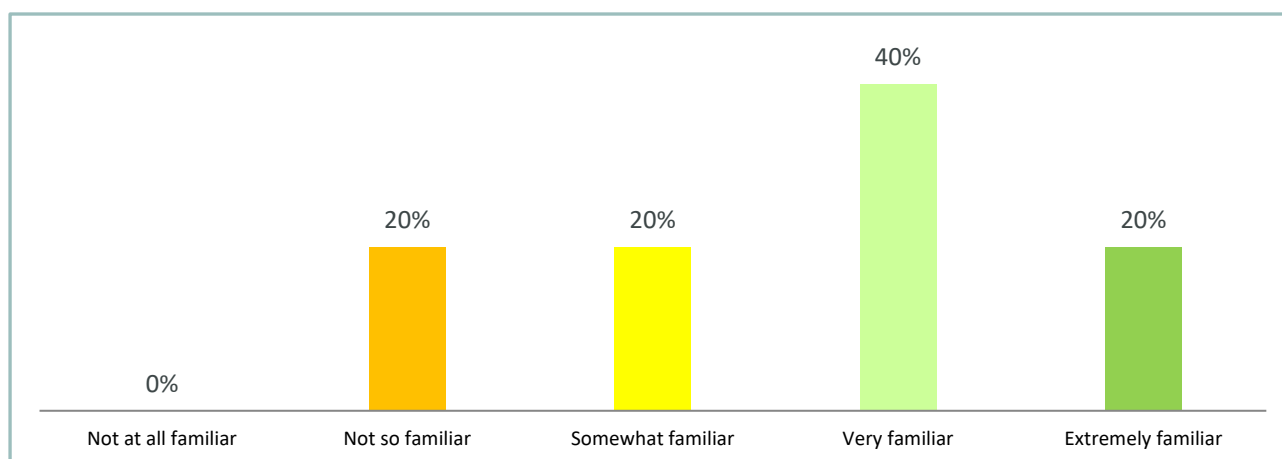
Figure 16 Responses to question 6 of the EWKR survey (Group 1 | n = 5).

Figure 17 Responses to question 6 of the EWKR survey (Group 2 | n = 11)

Figure 18 Responses to question 6 of the EWKR survey (Group 3 | n = 19)

QUESTION 7: TO WHAT EXTENT DO YOU THINK EWKR PROJECT ACHIEVED ITS OBJECTIVES?

Figure 19 Combined responses to question 7 of the EWKR survey (Groups 1, 2 and 3 | n = 34).

Figure 20 Responses to question 7 of the EWKR survey (Group 1 | n = 4).

Figure 21 Responses to question 7 of the EWKR survey (Group 2 | n = 11).

Figure 22 Responses to question 7 of the EWKR survey (Group 3 | n = 19).

Note: Group 1 was not provided with the same number of answers to select from as Group 2 and 3.

QUESTION 8: HOW EFFECTIVELY DID THE EWKR PROJECT IMPROVE WATER MANAGERS' UNDERSTANDING OF HOW ENVIRONMENTAL WATER MANAGEMENT INFLUENCES ECOSYSTEM FUNCTION AND THEREBY SUSTAINS BIODIVERSITY?
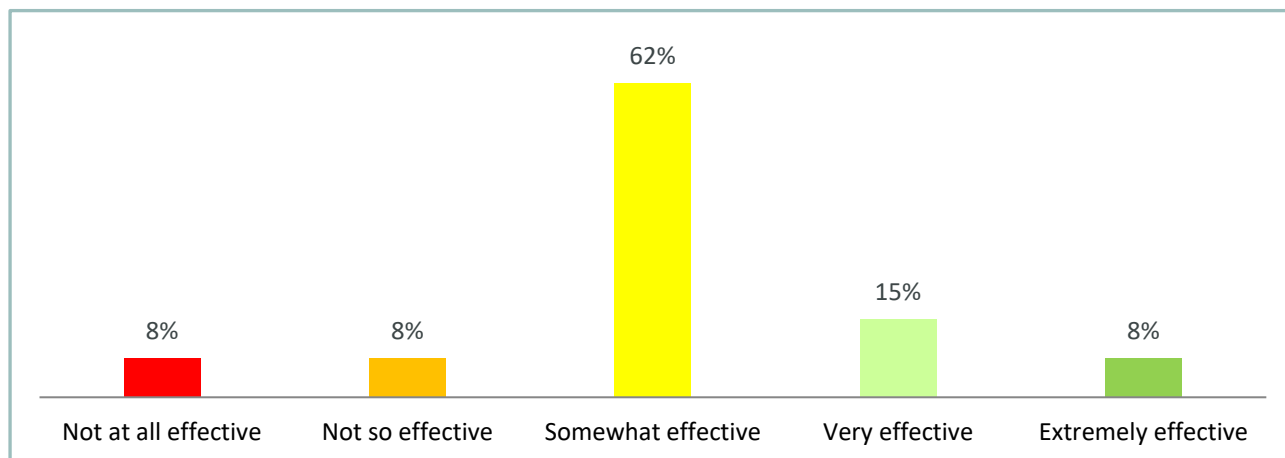
Figure 23 Combined responses to question 8 of the EWKR survey (Group 1 and Group 2 | n = 15).

Note: Group 1 were provided with an option to indicate 'don't know' in response to questions 8, whereas Group 2 were not. For the combined output of this question (Figure 23), those who indicated 'don't know' where not included in the analysis.

Figure 24 Responses to question 8 of the EWKR survey (Group 1 | n = 4)
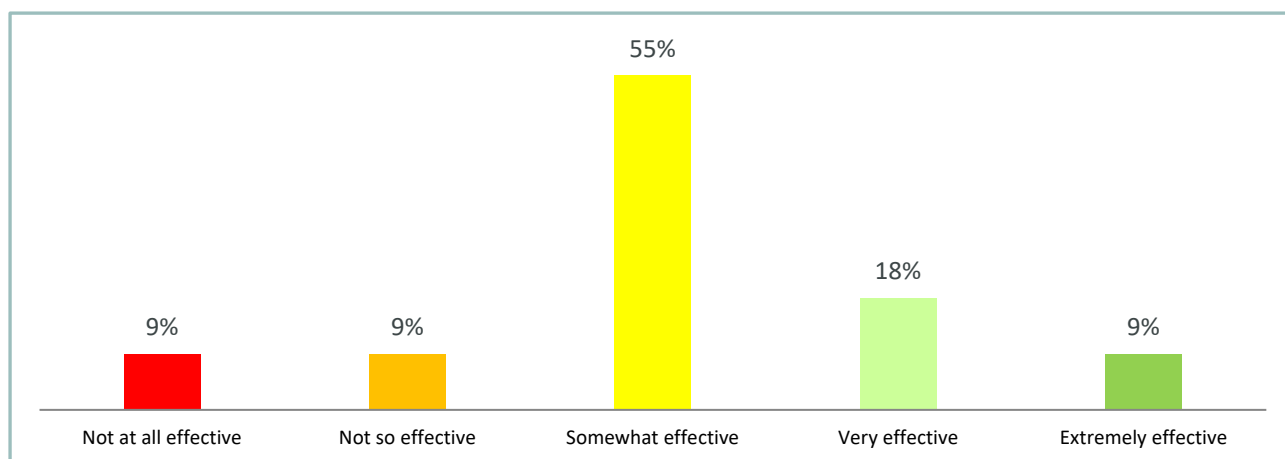
Figure 25 Responses to question 8 of the EWKR survey (Group 2 | n = 11)

QUESTION 9: HOW EFFECTIVELY DO YOU THINK THE EWKR PROJECT IDENTIFIED INCREMENTAL CHANGES IN ECOLOGICAL CONDITION AND LINKED THEM WITH ECOSYSTEM RESPONSES TO WATERING REGIMES (NATURAL AND/OR MANAGED EVENTS) IN EACH OF THE THEMES?
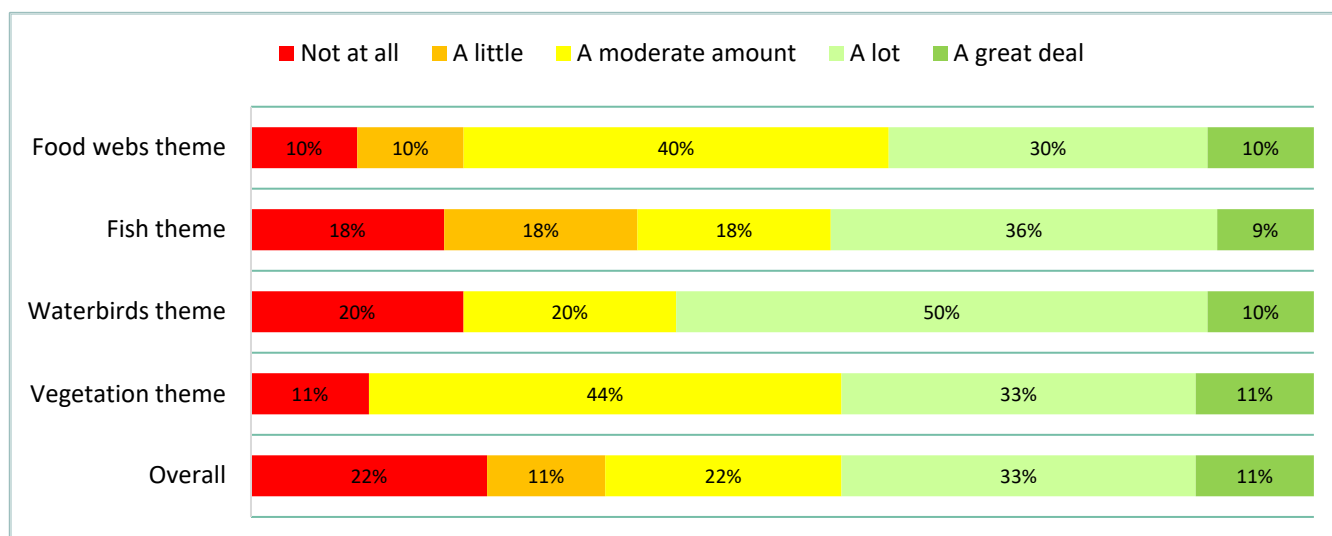
Figure 26 Percentage of responses to question 9 of the survey (Group 2 | n = 11).

QUESTION 10: TO WHAT EXTENT DO YOU THINK THE EWKR PROJECT HAS IMPROVED WATER MANAGERS' UNDERSTANDING OF HOW MANAGEMENT OF ENVIRONMENTAL WATER INFLUENCES ENVIRONMENTAL OUTCOMES OVER TIME? ON WHAT BASIS?

Figure 27 Combined responses to question 10 of the EWKR survey (Groups 1, 2 and 3 | n = 38).
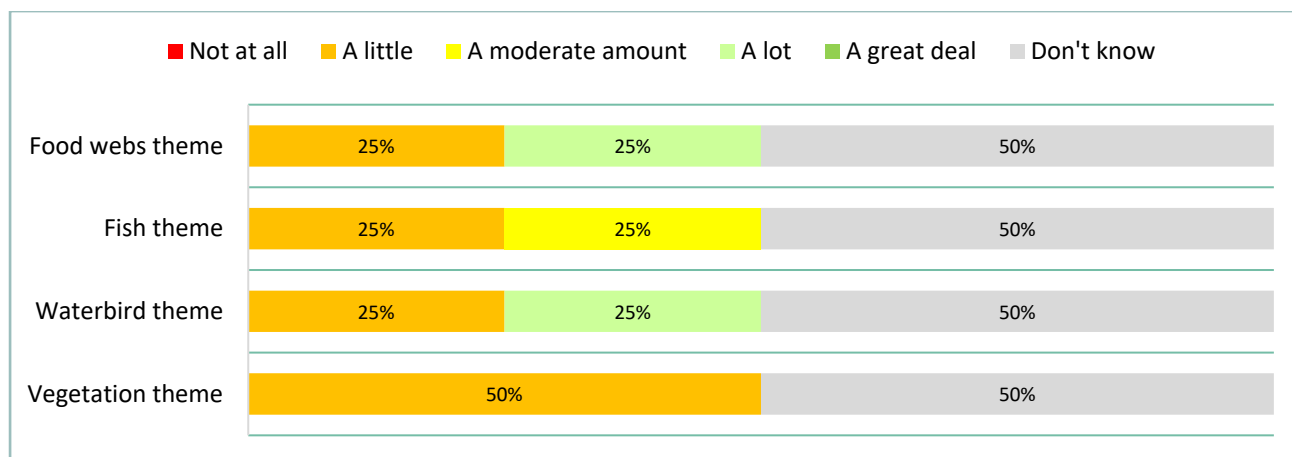
Figure 28 Responses to question 10 of the EWKR survey (Groups 1 | = 4)

Figure 29 Responses to question 10 of the EWKR survey (Groups 2 | n = 11)

Figure 30 Responses to question 10 of the EWKR survey (Groups 3 | n = 19).
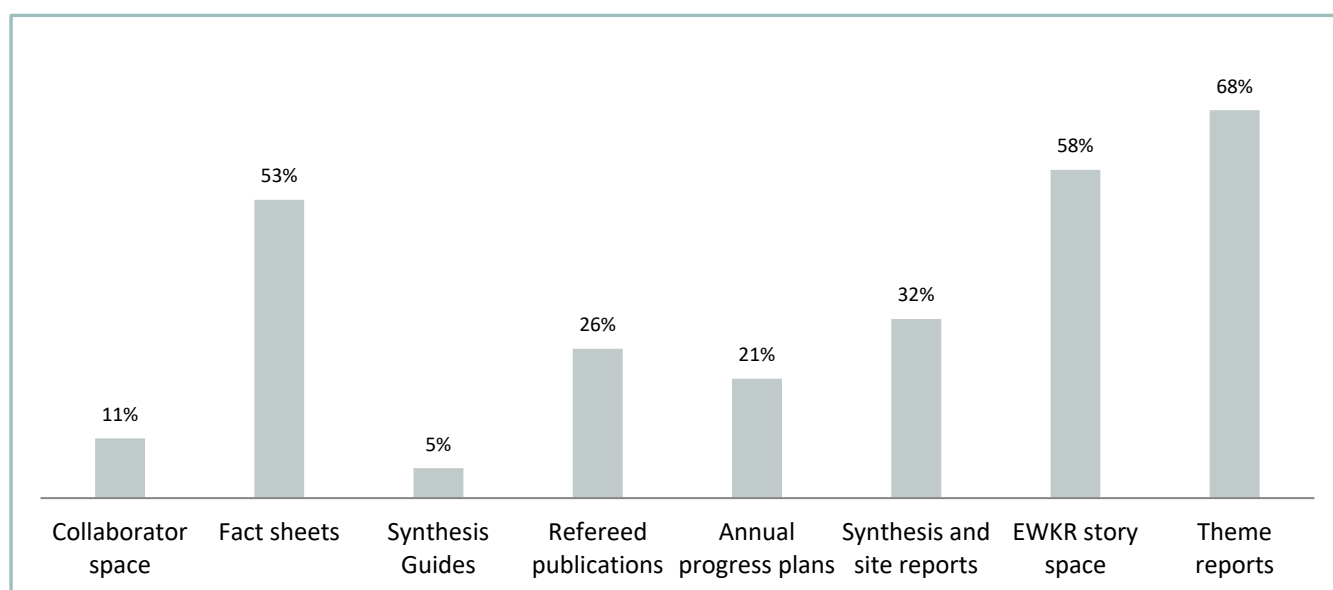
Figure 31 Percentage of responses to question 11 of the EWKR survey (Group 3 | n = 19). Data labels indicate the proportion of respondents that indicated that they are aware of that product.

QUESTION 12: FOR THOSE PRODUCTS YOU HAVE ENCOUNTERED (SEE Q9), HOW WELL WERE THEY TARGETED TO APPROPRIATE AUDIENCES?

Legend: ■ Not at all   ■ A little   ■ A moderate amount   ■ A lot   ■ A great deal   ■ Don't know

Product	Not at all	A little	A moderate amount	A lot	A great deal	Don't know
Theme reports		7%	29%	43%	7%	14%
EWKR story space			14%	36%	29%	21%
Synthesis and site reports	10%		30%	30%		30%
Annual progress reports		11%		44%		44%
Refereed publications			13%	13%	38%	38%
Synthesis guides		13%		25%		63%
Fact sheets			17%	42%		42%
Collaborator space			25%			75%
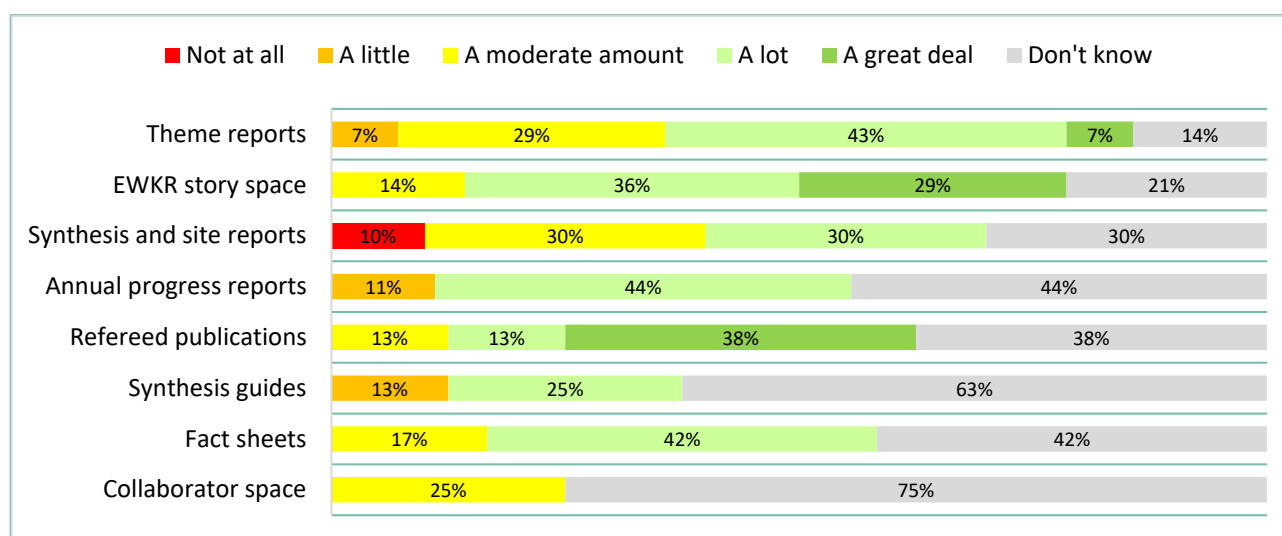
Figure 32 Percentage of survey responses to question 12 of the EWKR survey (Group 3 n = 19).

QUESTION 13: TO WHAT EXTENT COULD THE TARGETING OF PRODUCTS TO SPECIFIC AUDIENCE NEEDS BE IMPROVED?

Legend: ■ A significant amount   ■ A moderate amount   ■ No improvements needed   ■ Don't know

|	A significant amount	A moderate amount	No improvements needed	Don't know
Food webs theme	4%	36%	12%	48%
Fish theme	12%	31%	8%	50%
Waterbird theme	4%	15%	23%	58%
Vegetation theme	4%	36%	4%	56%
Quality	4%	36%	29%	32%
Frequency of delivery of products	13%	33%	20%	33%
Timing could be improved	15%	30%	19%	37%
Content targeted at specific audiences	24%	41%	10%	24%
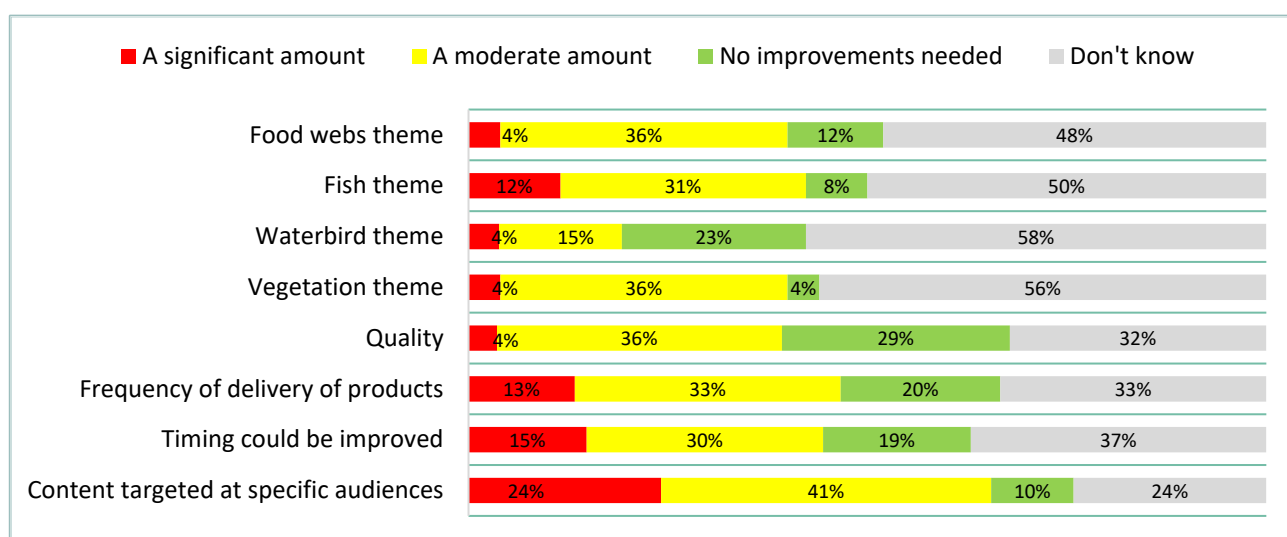
Figure 33 Combined responses to question 13 of the EWKR survey (Groups 1, 2 and 3 | n = 32).

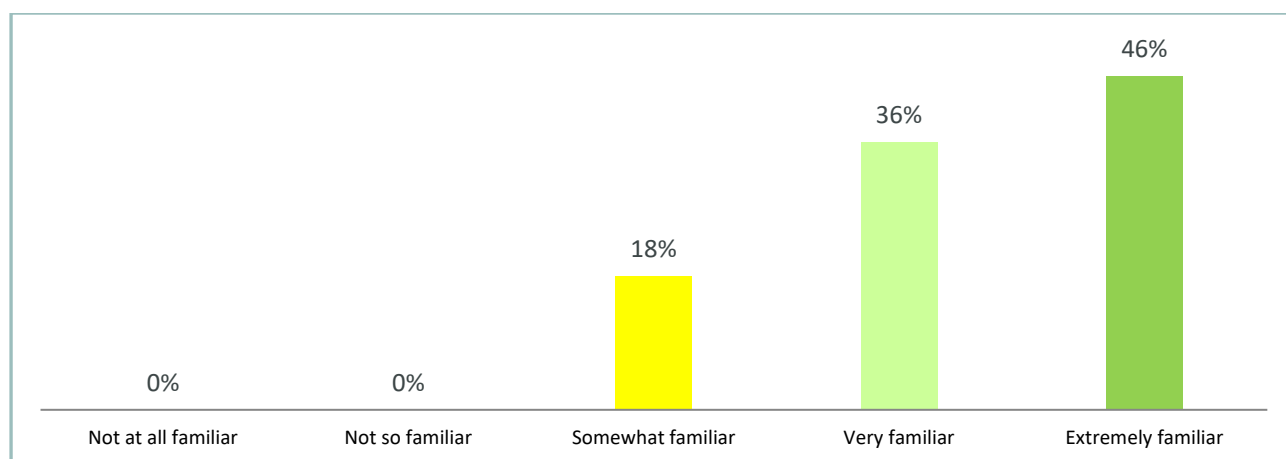**Figure 34 Responses to question 13 of the EWKR survey (Groups 1 | n = 5)**

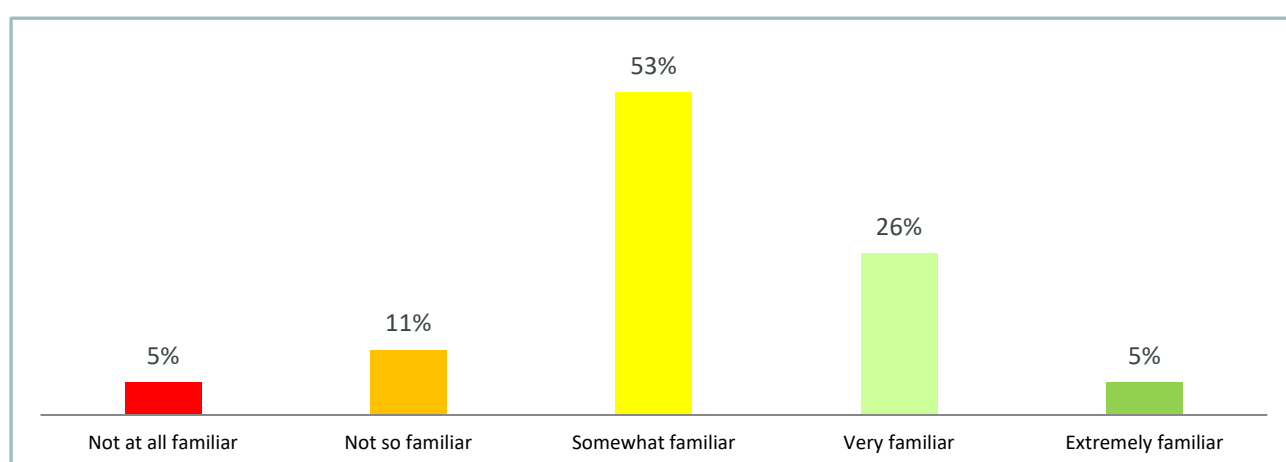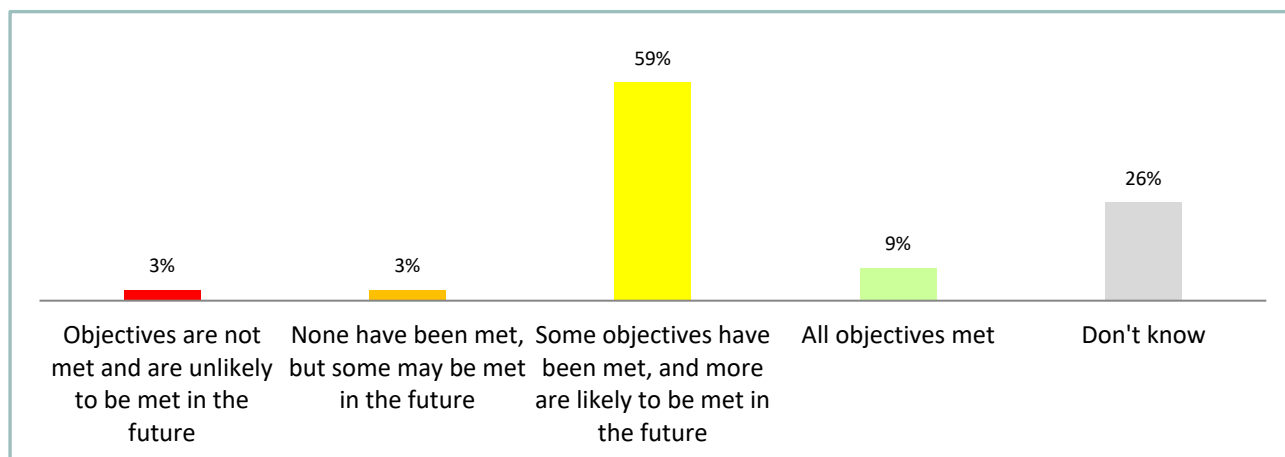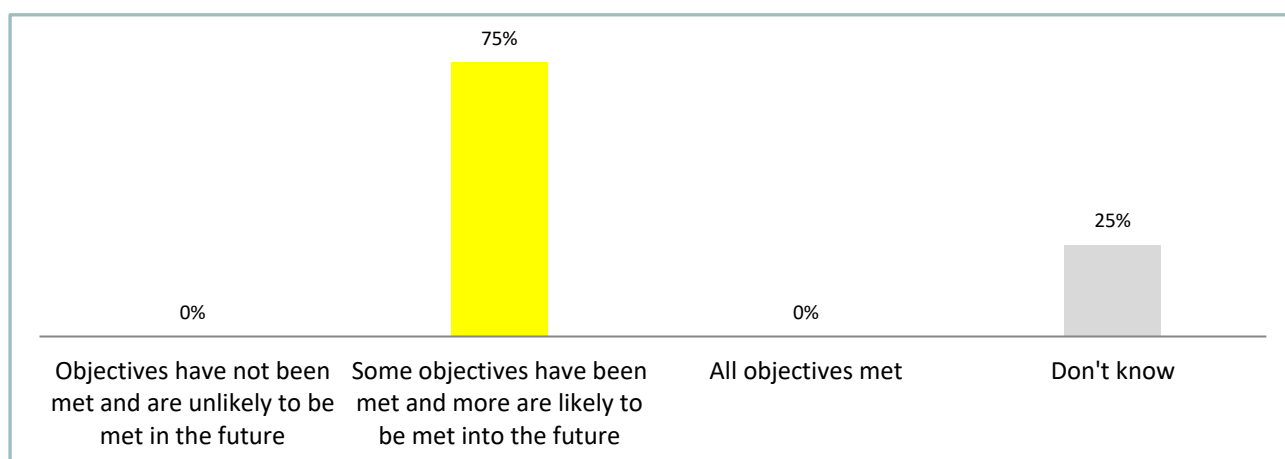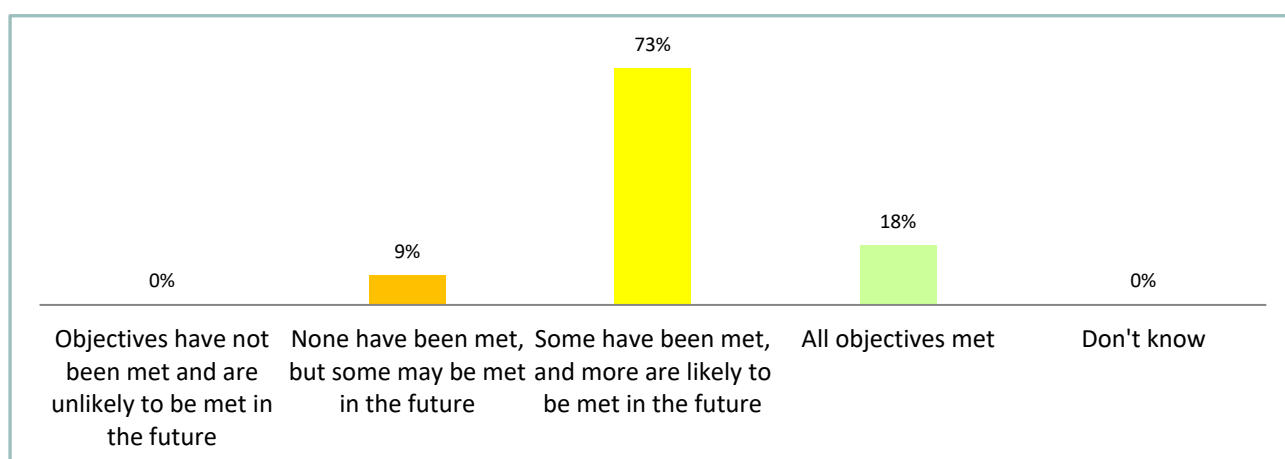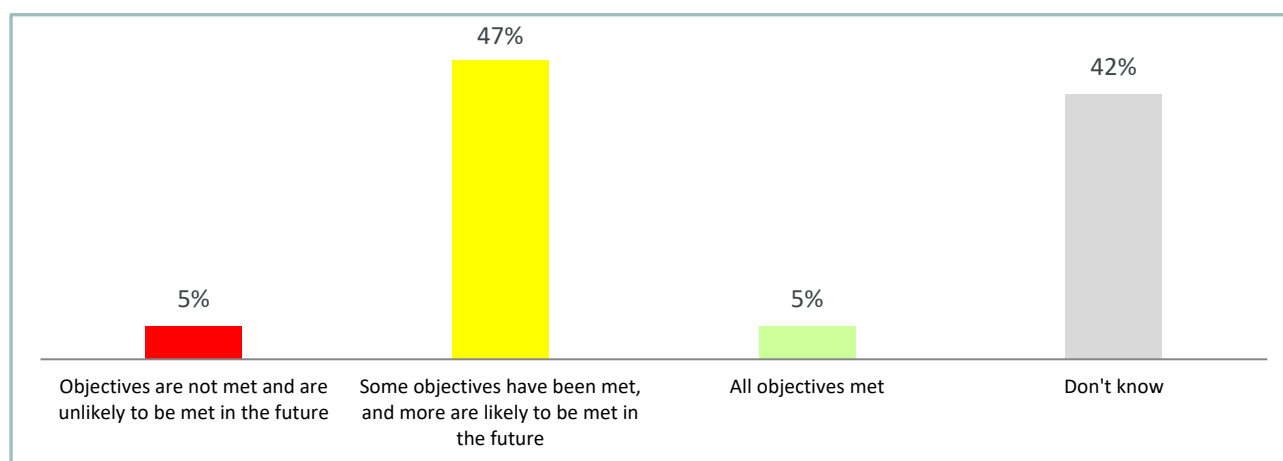**Figure 35 Responses to question 13 of the EWKR survey (Groups 2 | n = 10)**

Figure 36 Responses to question 13 of the EWKR survey (Groups 3 | n = 17)

QUESTION 14: FOR THE PRODUCTS YOU HAVE ENCOUNTERED (Q9 ABOVE), HAVE THEY INFLUENCED YOUR WATER MANAGEMENT PRACTICES? HOW?
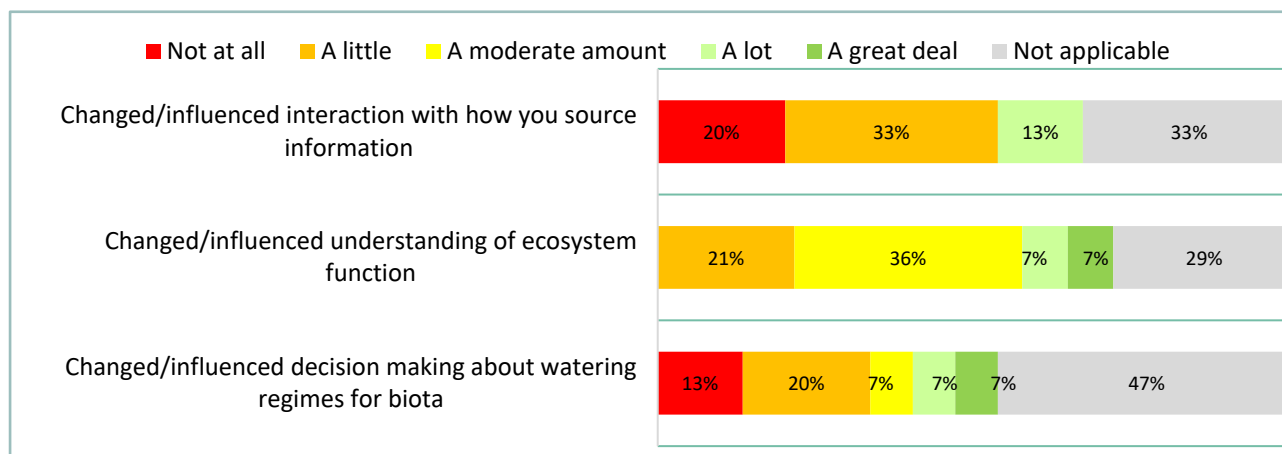
Figure 37 Responses to question 14 of the EWKR survey (Group 3 | n = 17).

QUESTION 15: TO WHAT DEGREE DID EACH OF THE EWKR THEMES ENABLE YOU TO SHARE RESOURCES, KNOWLEDGE, LESSONS LEARNT AND AVOID OVERLAP?
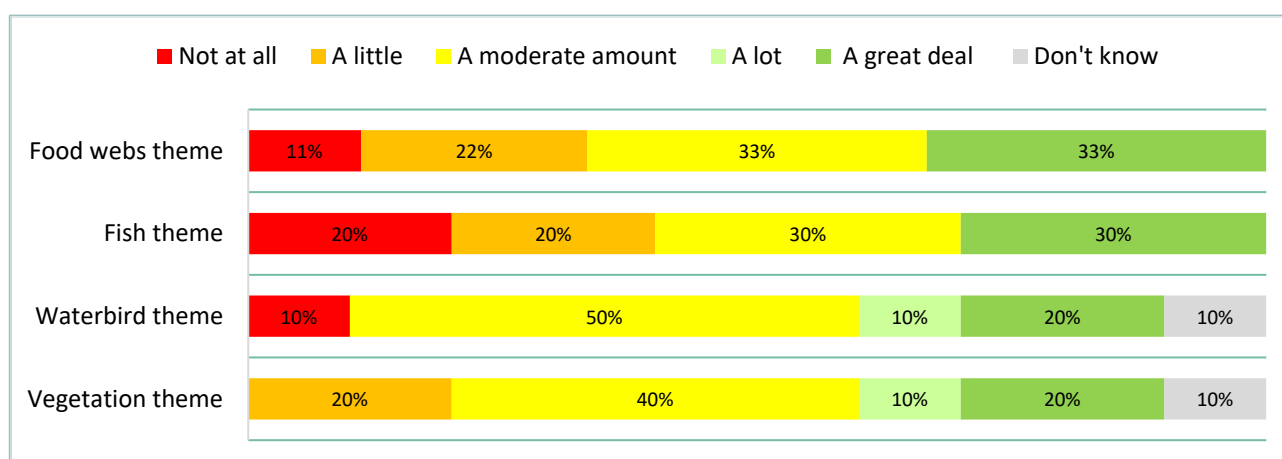
Figure 38 Responses to question 15 of the EWKR survey (Group 2 | n = 10).

QUESTION 16: TO WHAT EXTENT DO YOU THINK THE EWKR PROJECT WILL CONTRIBUTE TO BASIN PLAN OBJECTIVES? WHY?

Figure 39 Responses to question 16 of the EWKR survey (Group 1 and 3 | n = 18).

Figure 40 Responses to question 16 of the EWKR survey (Group 1 | n = 4).

Figure 41 Responses to question 16 of the EWKR survey (Group 3 | n = 14).

QUESTION 17: HOW CLEARLY HAS THE EWKR PROJECT ESTABLISHED THAT THE OUTCOMES FROM EACH THEME ARE RELEVANT TO THE BASIN-WIDE ENVIRONMENTAL WATERING STRATEGY EXPECTED OUTCOMES AND THE BASIN PLAN EWP OBJECTIVES?

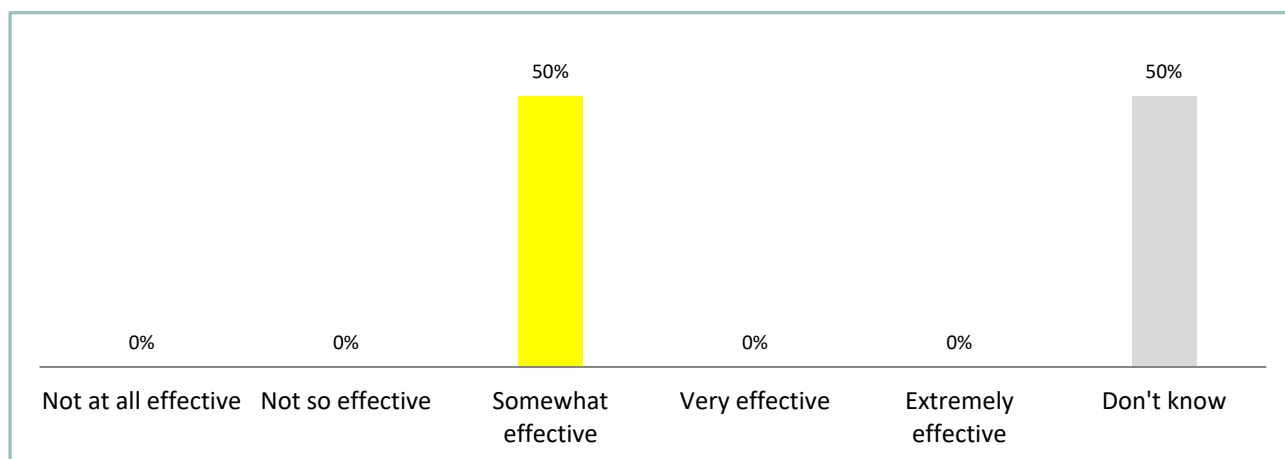**Figure 42 Combined responses to question 17 of the EWKR survey (Group 1 and 3 | n = 19).**

Figure 43 Responses to question 17 of the EWKR survey (Group 1 | n = 4).

Figure 44 Responses to question 17 of the EWKR survey (Group 3 | n = 15).

QUESTION 18: TO WHAT EXTENT DID THE EWKR PROJECT TAKE INTO ACCOUNT OTHER ONGOING AND PLANNED INITIATIVES/PROJECTS RELATED TO BASIN PLAN IMPLEMENTATION? HOW?

Figure 45 Combined responses to question 18 of the EWKR Survey (Group 1, 2 and 3 | n = 28).

Figure 46 Responses to question 18 of the EWKR Survey (Group 1 | n = 4).

Figure 47 Responses to question 18 of the EWKR Survey (Group 2 | n = 9).
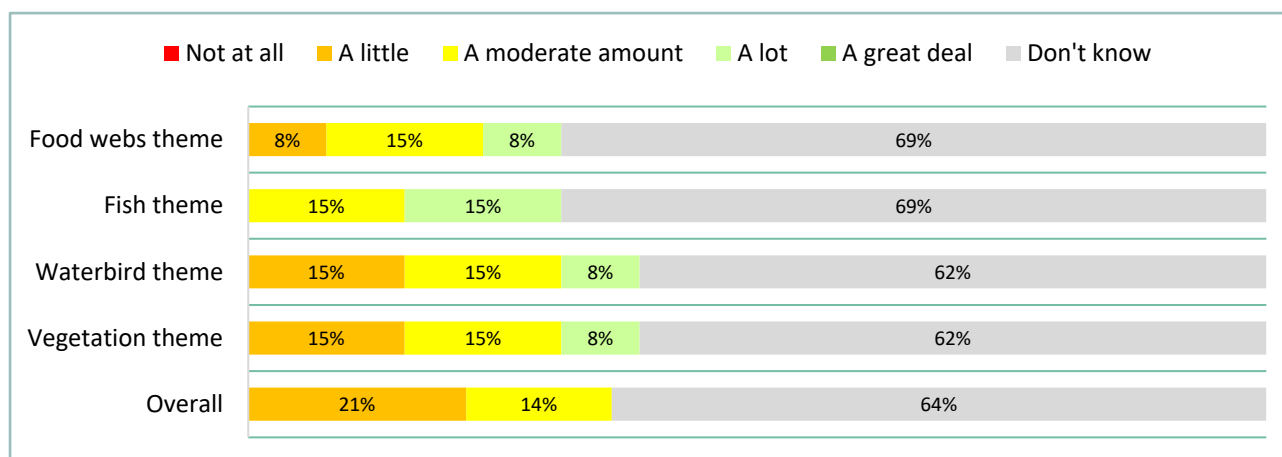
Figure 48 Responses to question 18 of the EWKR Survey (Group 3 | n = 15)
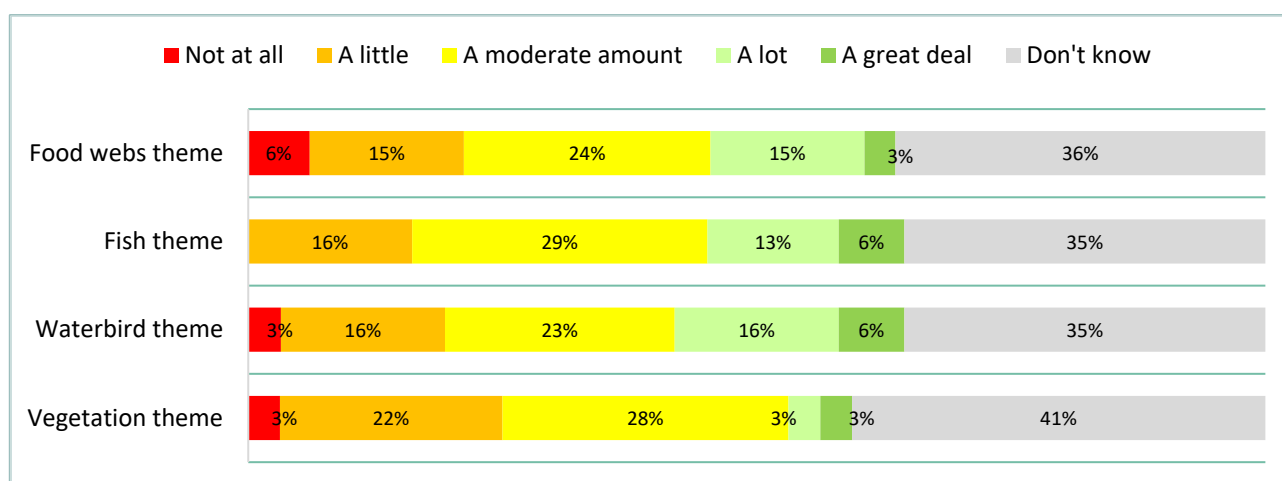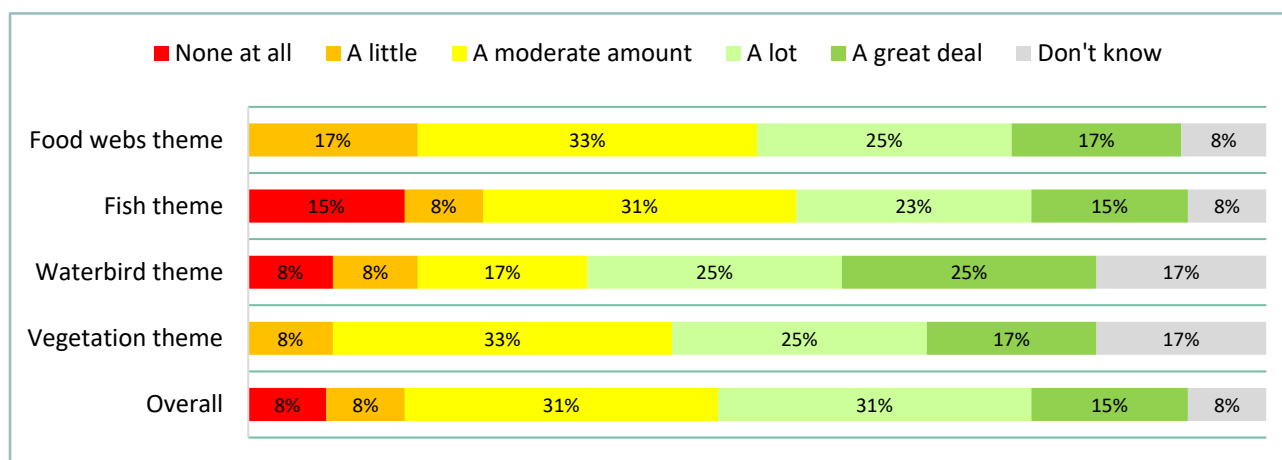
Figure 49 Combined responses to question 19 of the EWKR survey (Group 1 and 2 | n = 14).
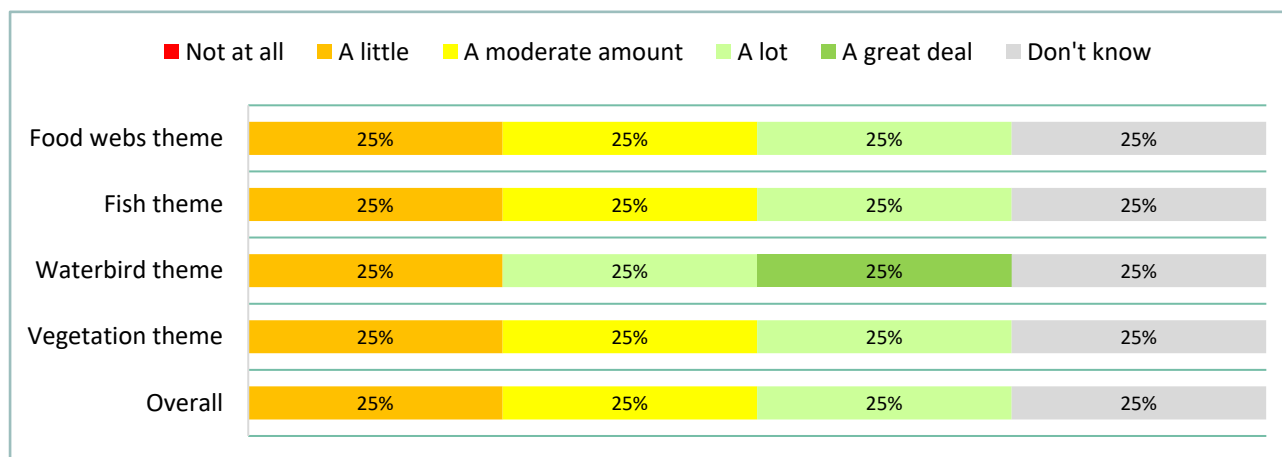
Figure 50 Responses to question 19 of the EWKR survey (Group 1 = 4).

Figure 51 Responses to question 19 of the EWKR survey (Group 2 | n = 10)

Figure 52 Responses to question 19 of the EWKR survey (Group 3 | n = 16)

Note: Due to a coding error in the Group 3 Survey Monkey, respondents were not able to apply one answer (e.g. 'a moderate amount') to the individual theme component of this question, of which Group 1 and 2 were able to. However, the 'overall' selection was functional, and thus is included in Figure 52.

QUESTION 20: TO WHAT EXTENT DO YOU THINK THE PLANNING PROCESS (PHASE 1) AND FINAL SET OF RESEARCH QUESTIONS ADEQUATELY REFLECTED MANAGER NEEDS?
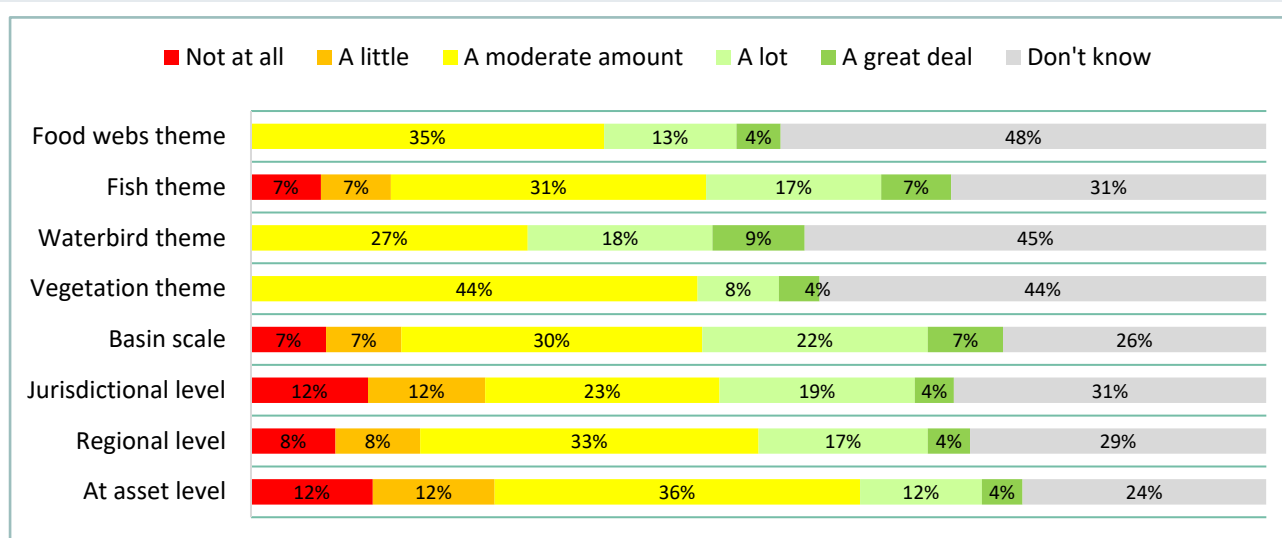
**Figure 53 Combined responses to question 20 of the EWKR survey (Group 1, 2 and 3 | n = 29).**
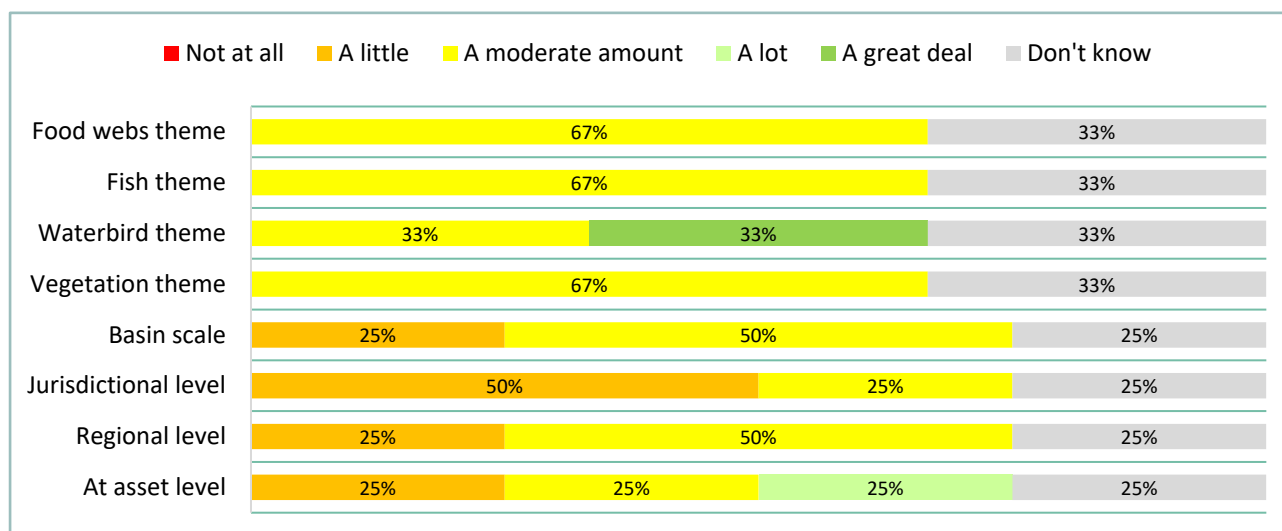
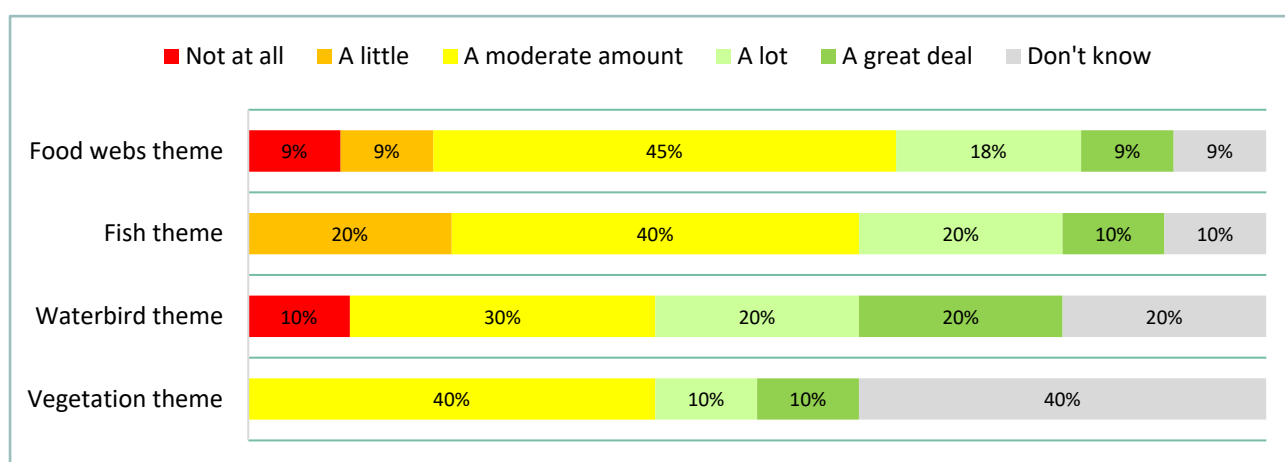**Figure 54 Responses to question 20 of the EWKR survey (Group 1 | n = 4)**
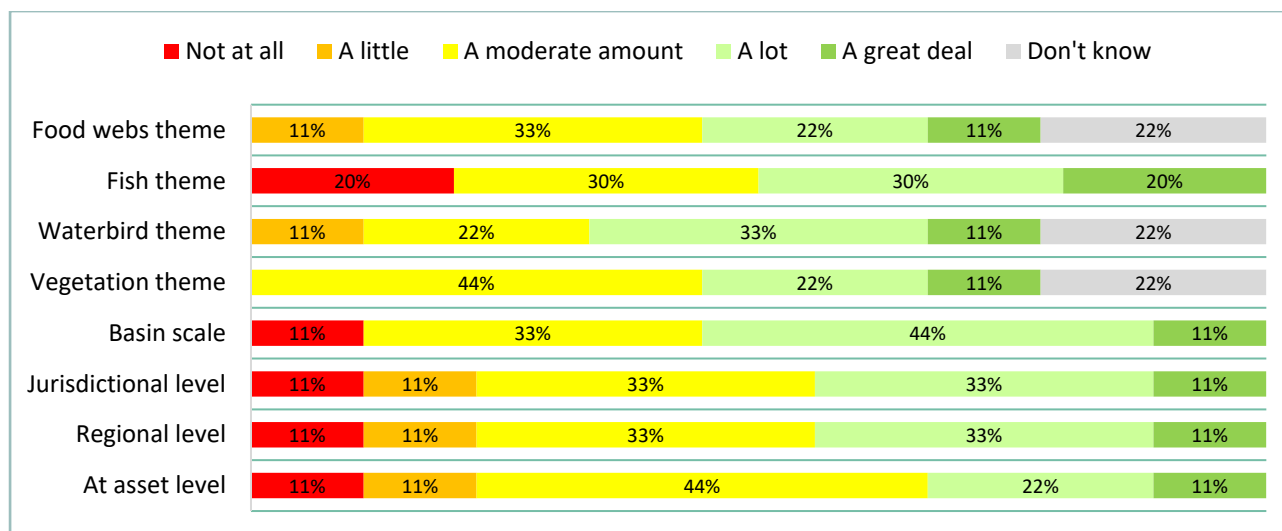
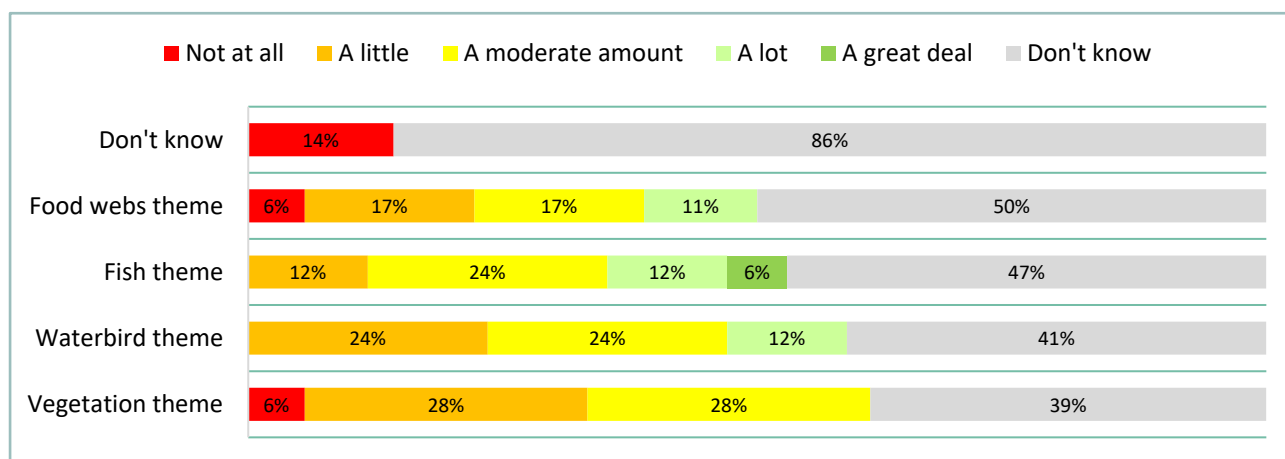**Figure 55 Responses to question 20 of the EWKR survey (Group 2 | n = 10)**

Figure 56 Responses to question 20 of the EWKR survey (Group 3 | n = 15)

QUESTION 21: HOW CONFIDENT ARE YOU IN THE SCIENCE UNDERTAKEN IN THE EWKR PROJECT AND ITS RELEVANCE TO THE NEEDS OF ENVIRONMENTAL WATER MANAGERS WITHIN THE FRAMEWORK OF ADAPTIVE WATER MANAGEMENT IN THE MURRAY-DARLING BASIN?

Figure 57 Responses to question 21 of the EWKR Survey (Group 2 | n = 10).
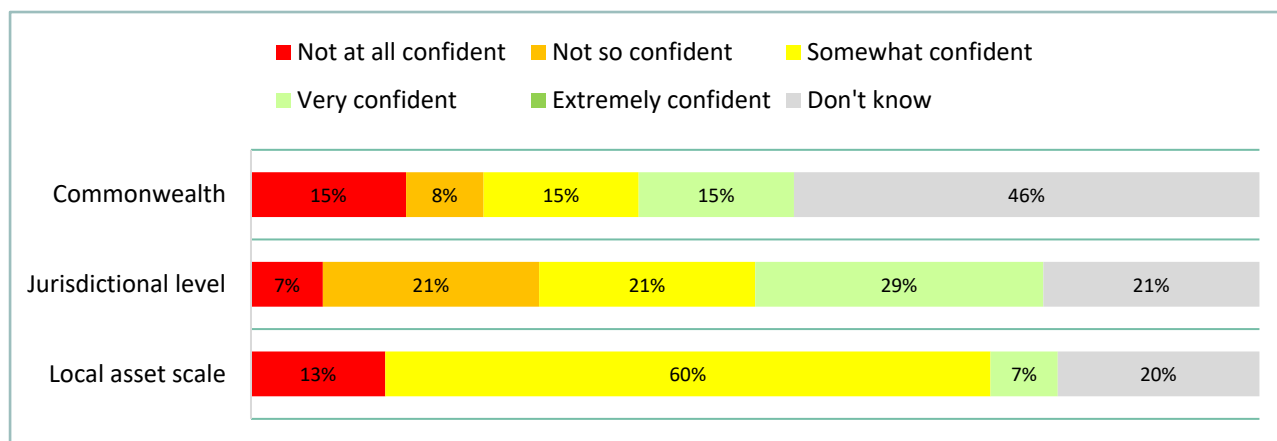
Figure 58 Responses to question 21 of the EWKR survey (Group 3 | n =15).

QUESTION 22: HOW APPROPRIATE DO YOU THINK THE EWKR PROJECT DESIGN WAS TO DELIVER FINDINGS WHICH BUILT THE CAPACITY OF WATER MANAGERS AND COMPLIMENTARY NATURAL RESOURCE MANAGERS TO BE ABLE TO MORE CONFIDENTLY SET REALISTIC OBJECTIVES? DO YOU THINK CAPACITY HAS BEEN IMPROVED?
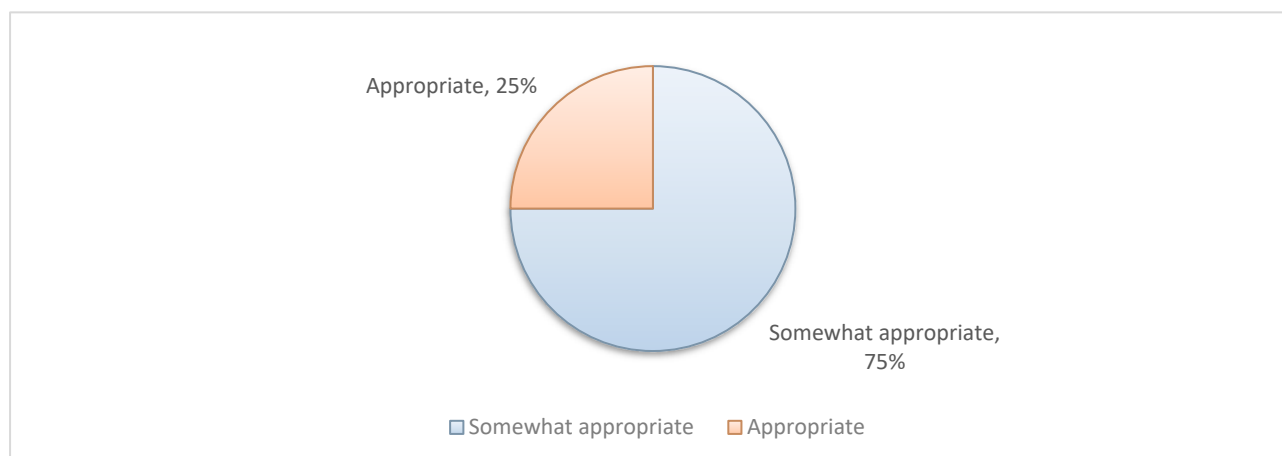
Figure 59 Responses to question 22 of the EWKR survey (Group 1, 2 and 3 | n = 24)

Note: Results may be potentially biased due to the design of this survey question - respondents were only able to select 'appropriate' or 'somewhat appropriate' and could not indicate that it was not appropriate.
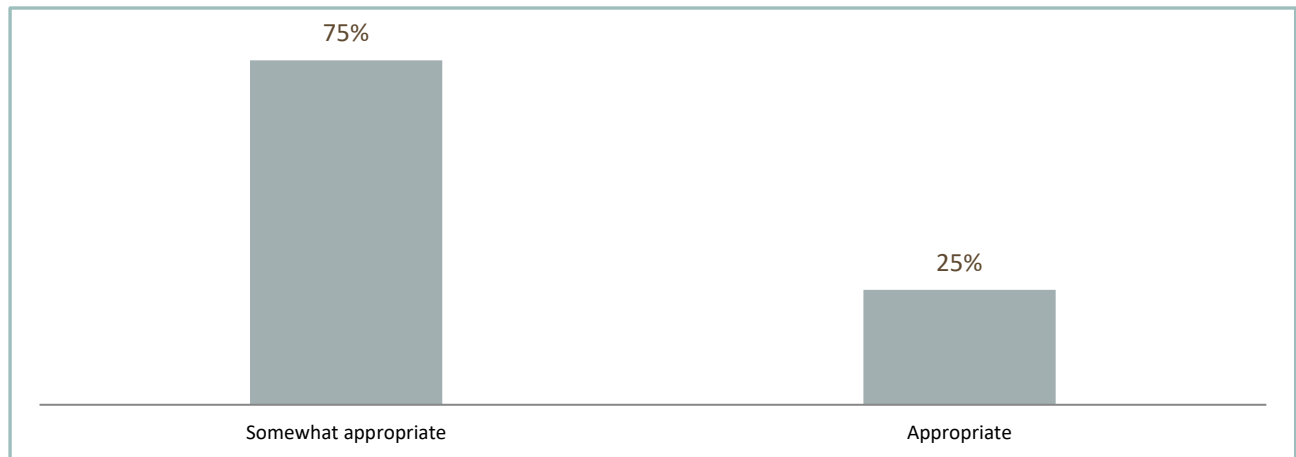
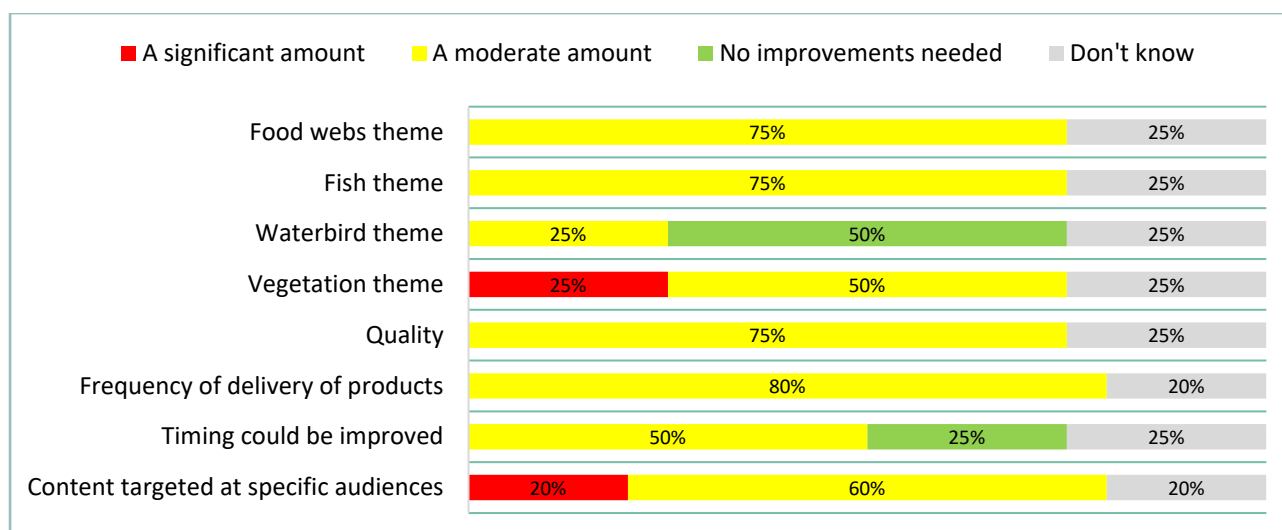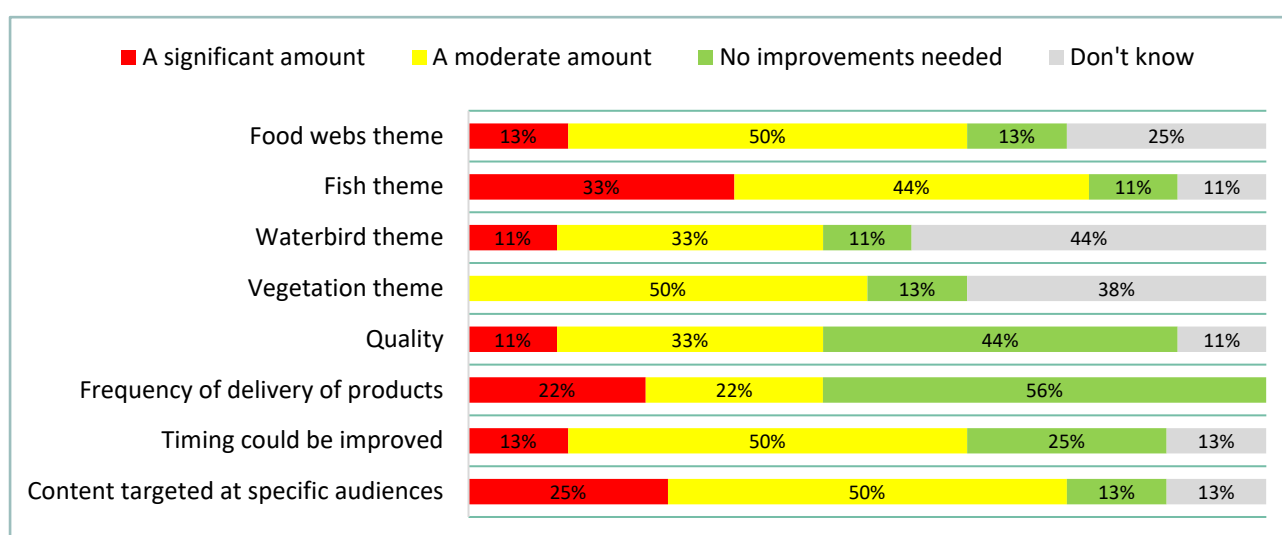**Figure 60 Responses to question 22 of the EWKR survey (Group 1 | n = 4)**
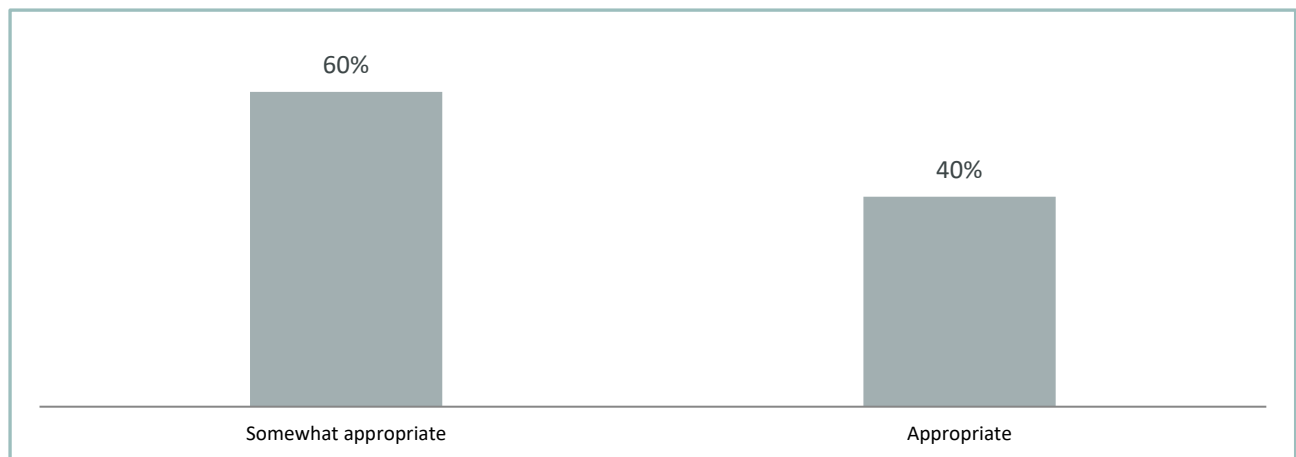
Figure 61 Responses to question 22 of the EWKR survey (Group 2 | n = 10)
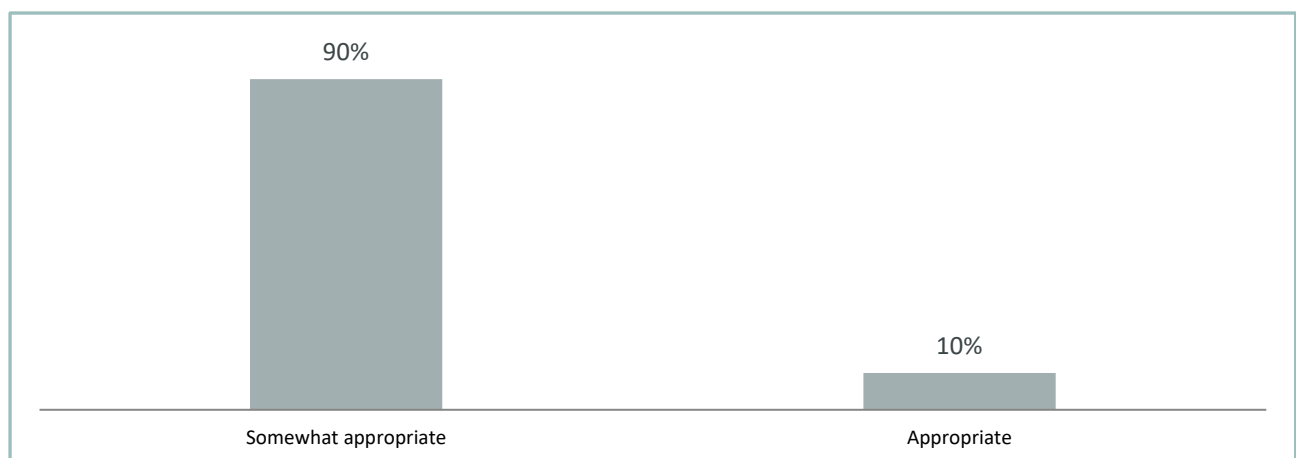
Figure 62 Responses to question 22 of the EWKR survey (Group 3 | n = 10)

QUESTION 23 TO WHAT EXTENT WAS THE DESIGN OF THE EWKR PROJECT INTEGRATED WITH COMPLEMENTARY RECENT, ONGOING OR PLANNED INTERVENTIONS IN THE PROJECT AREA OR ON THE SAME PROBLEM/ISSUE?
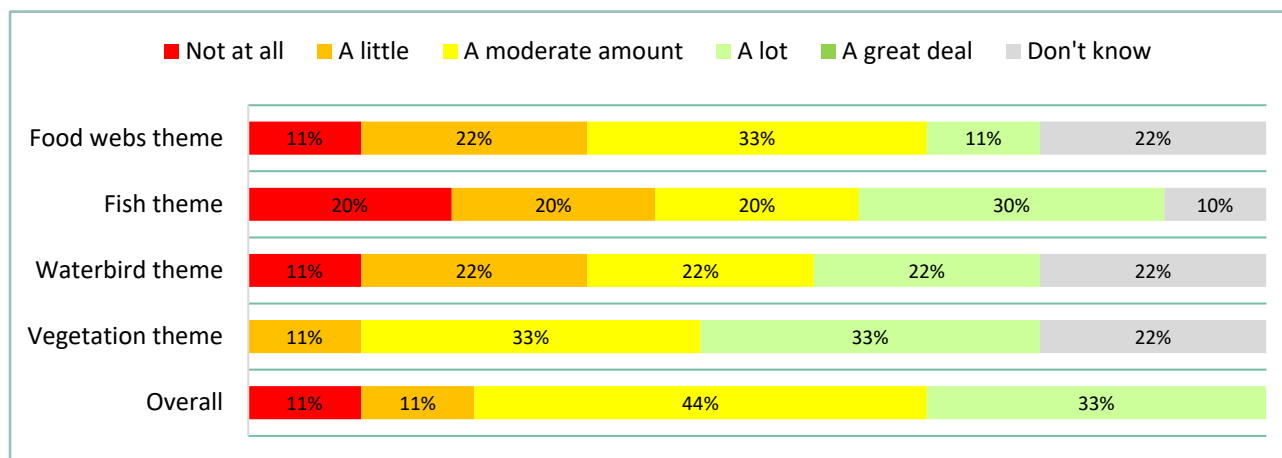
Figure 63 Responses to question 23 of the EWKR survey (Group 2).

QUESTION 24: HOW EFFICIENT WAS THE EWKR PROJECT, IN EACH THEME, IN MEETING ITS OBJECTIVES?
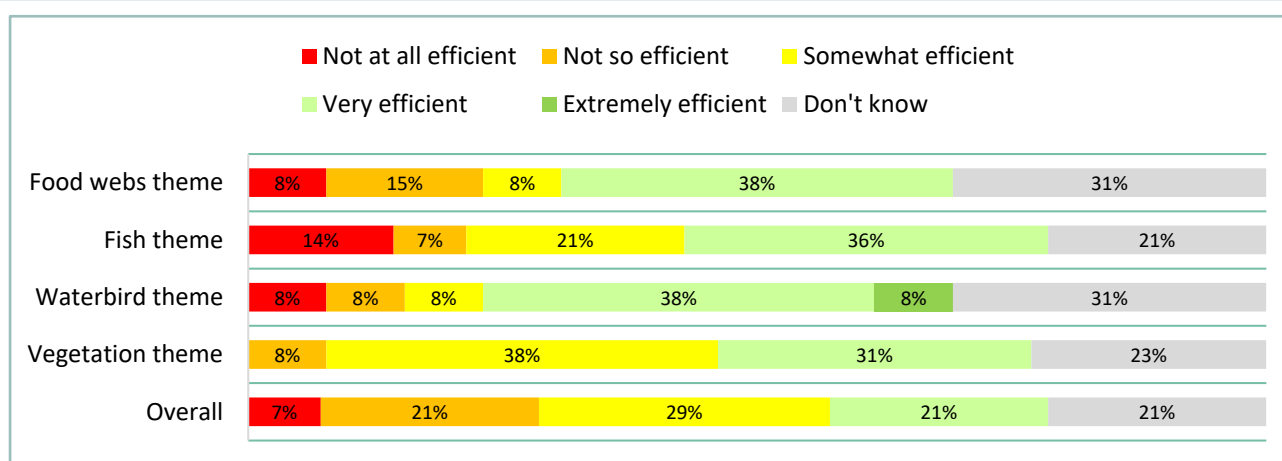
Figure 64 Combined responses to question 24 of EWKR survey (Group 1 and 2 | n = 14).
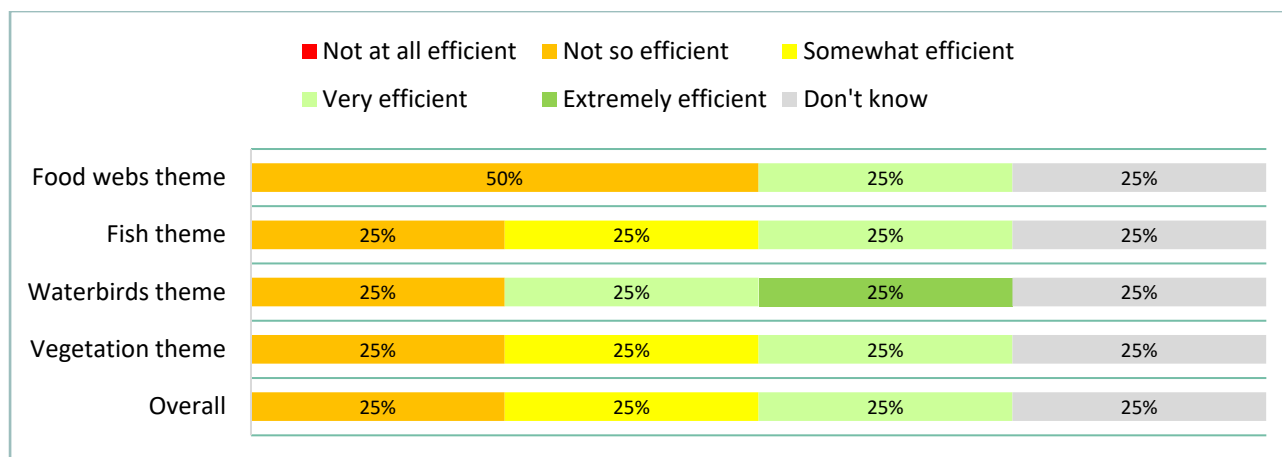
Figure 65 Responses to question 24 of EWKR survey (Group 1 | n = 4).
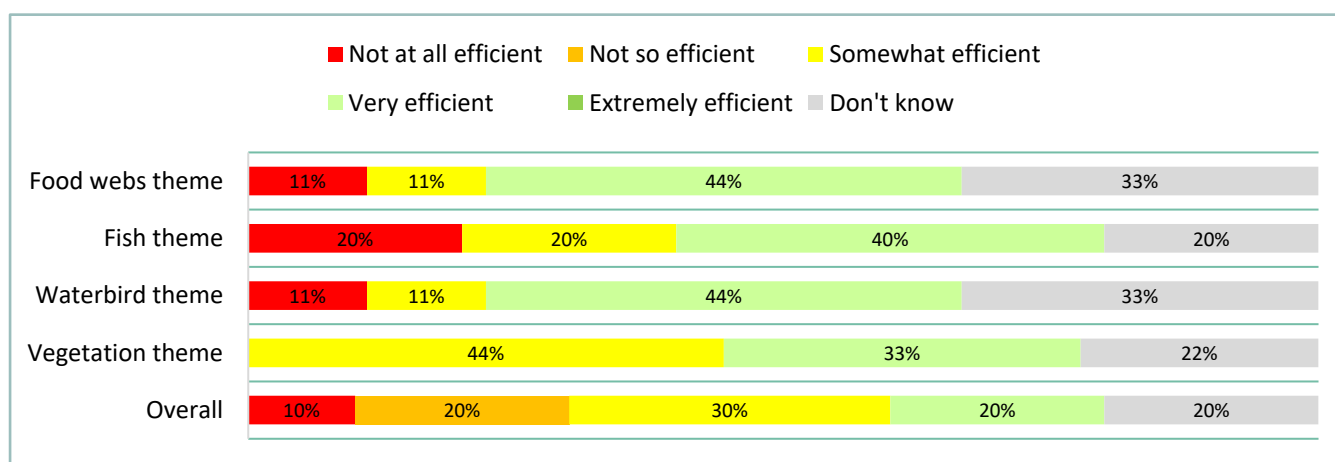
Figure 66 Responses to question 24 of EWKR survey (Group 2 | n = 10).
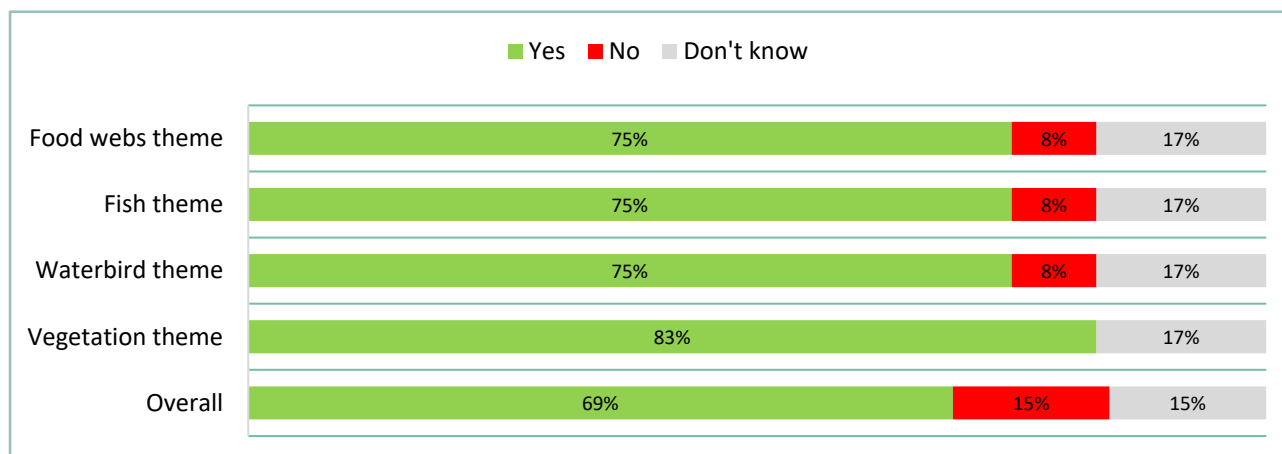
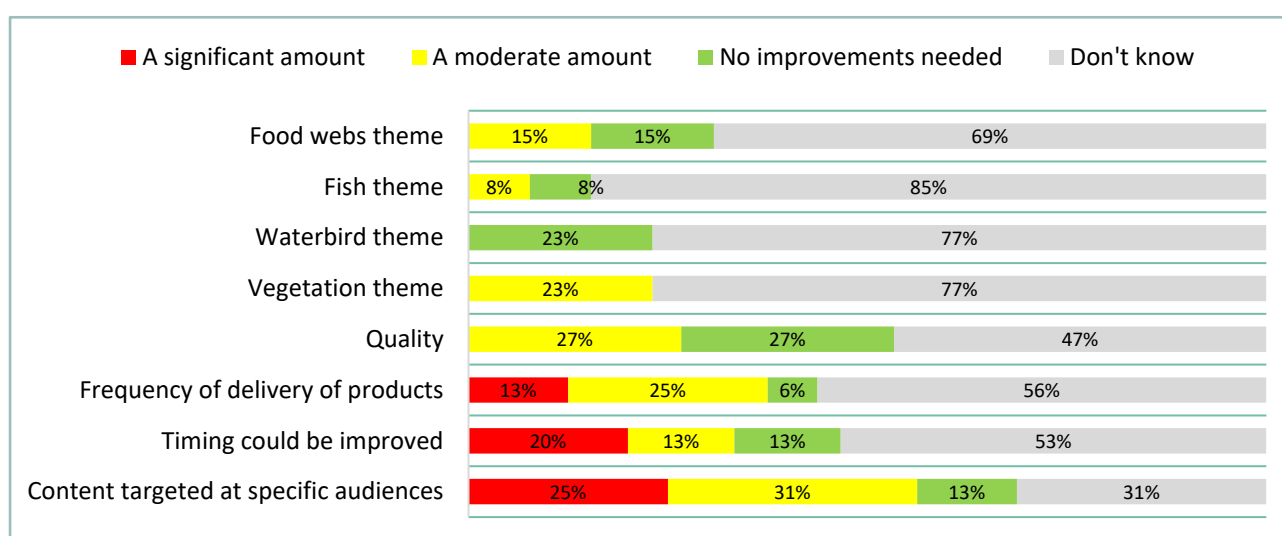**Figure 67 Combined responses to question 25 of the EWKR survey (Group 1 and 2 | n = 13).**
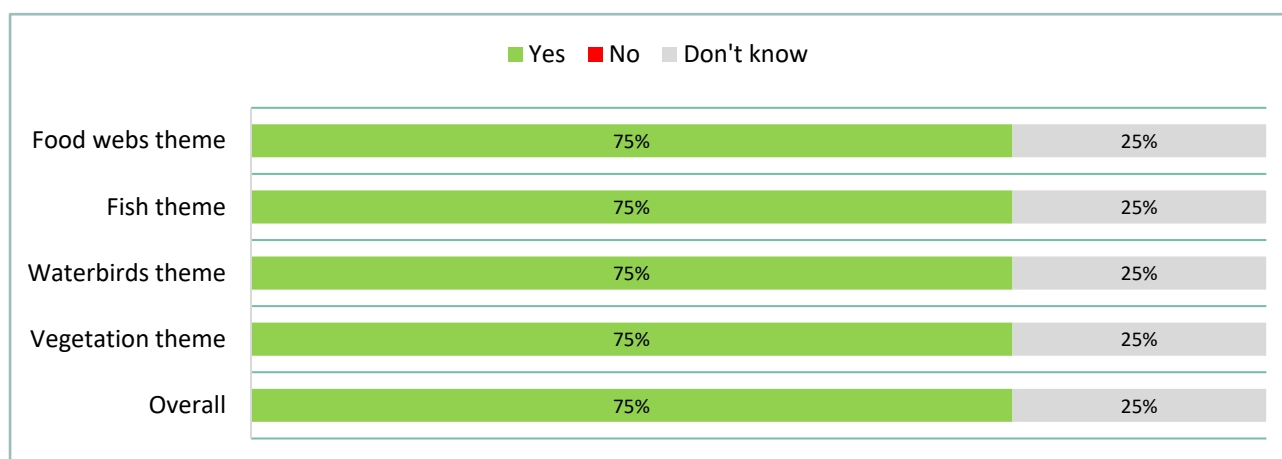
Figure 68 Responses to question 25 of the EWKR survey (Group 1 | n = 4).
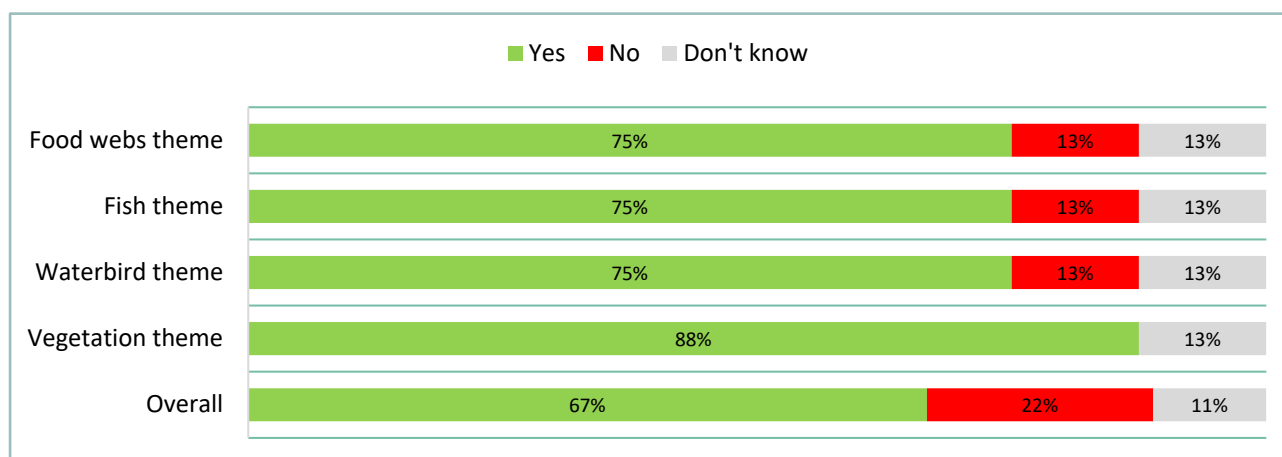
Figure 69 Responses to question 25 of the EWKR survey (Group 2 | n = 9).

QUESTION 26: DO YOU THINK EWKR PROJECT PROCESSES ENCOURAGE PARTICIPANTS TO COLLABORATE, SHARE RESOURCES AND LESSONS LEARNT?
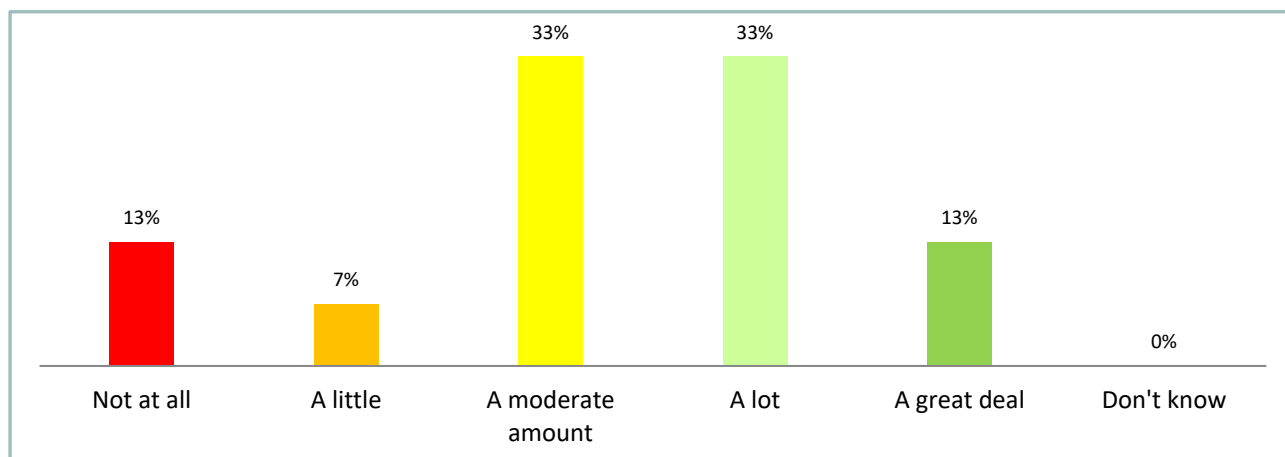
Figure 70 Combined responses to question 26 of the EWKR survey (Group 1 and 2 | n = 14).
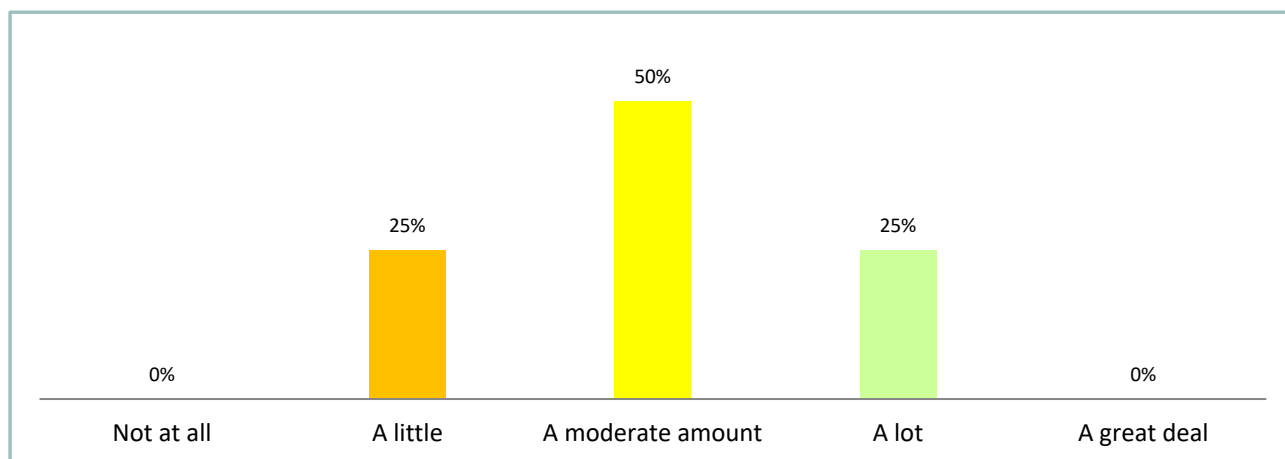
Figure 71 Responses to question 26 of the EWKR survey (Group 1 | n = 4).

Note: A 'don't know' option was not provided as a possible response in the Group 1 survey, whereas it was in the Group 2 survey.
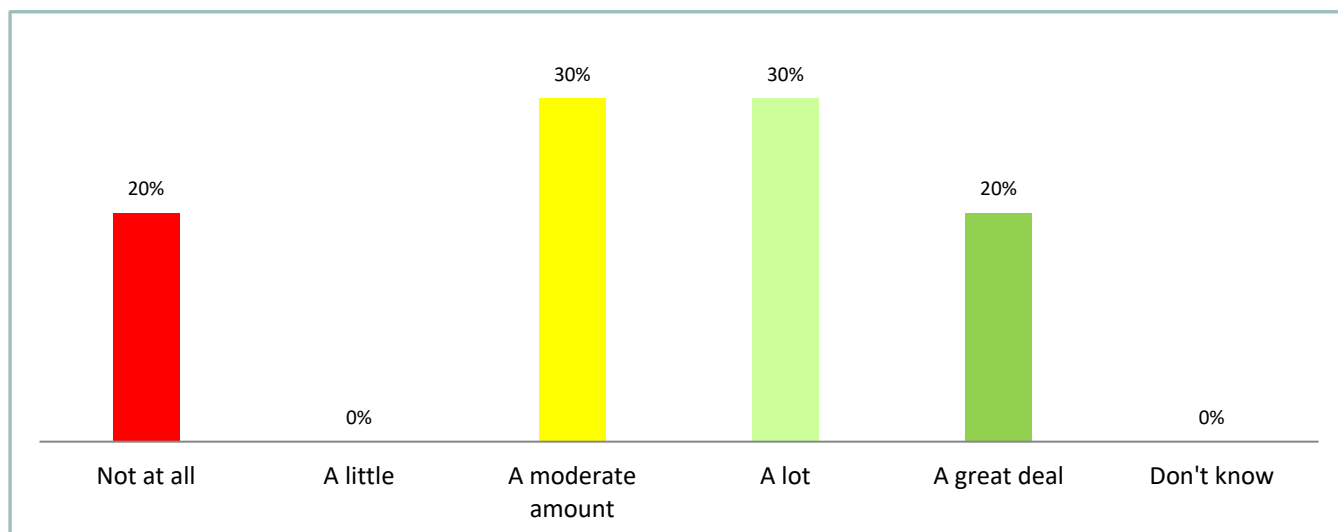
Figure 72 Responses to question 26 of the EWKR survey (Group 2 | n = 10)
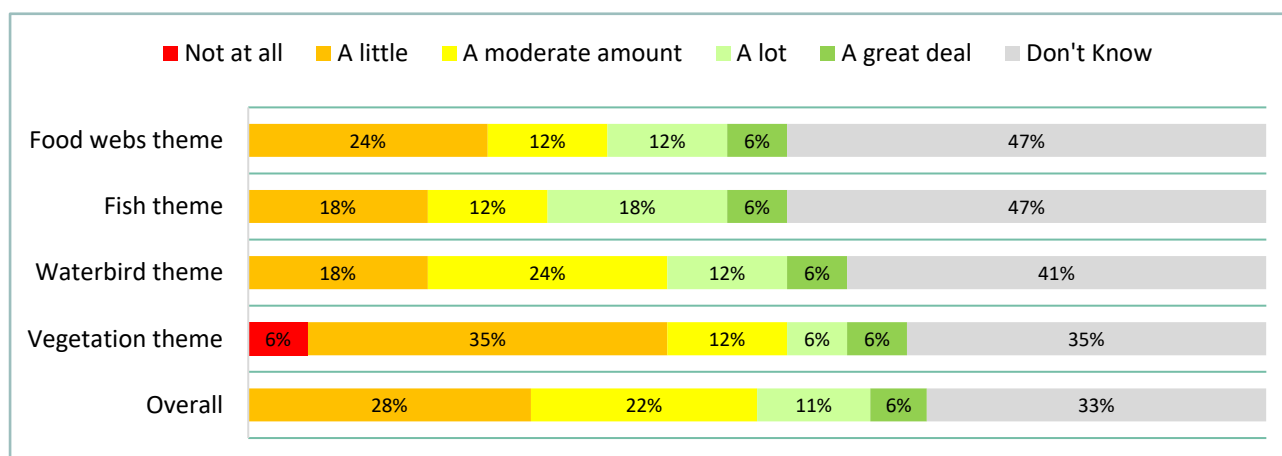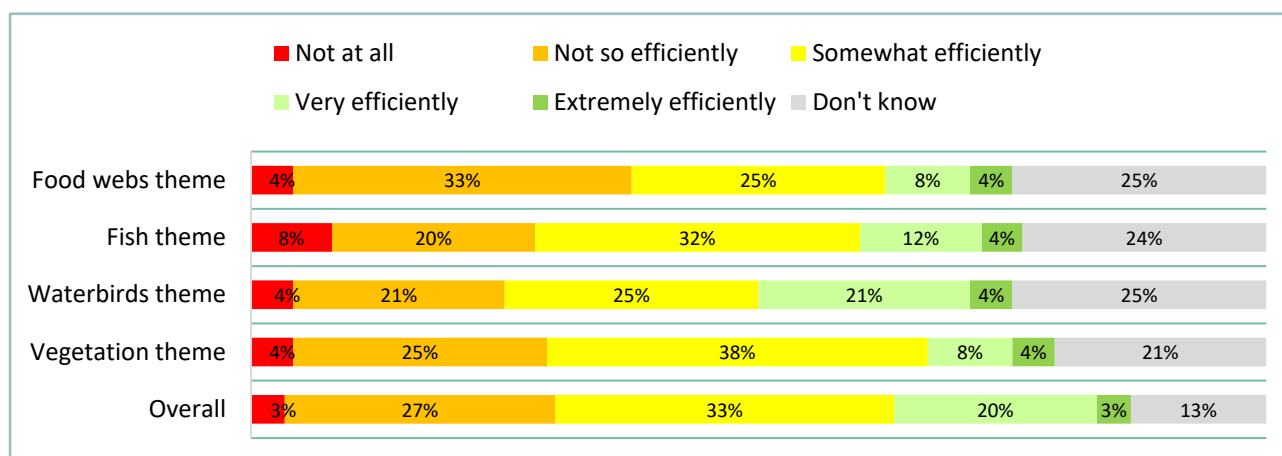
Figure 73 Combined responses to question 27 of the EWKR survey (Group 1,2 and 3 | n = 29).
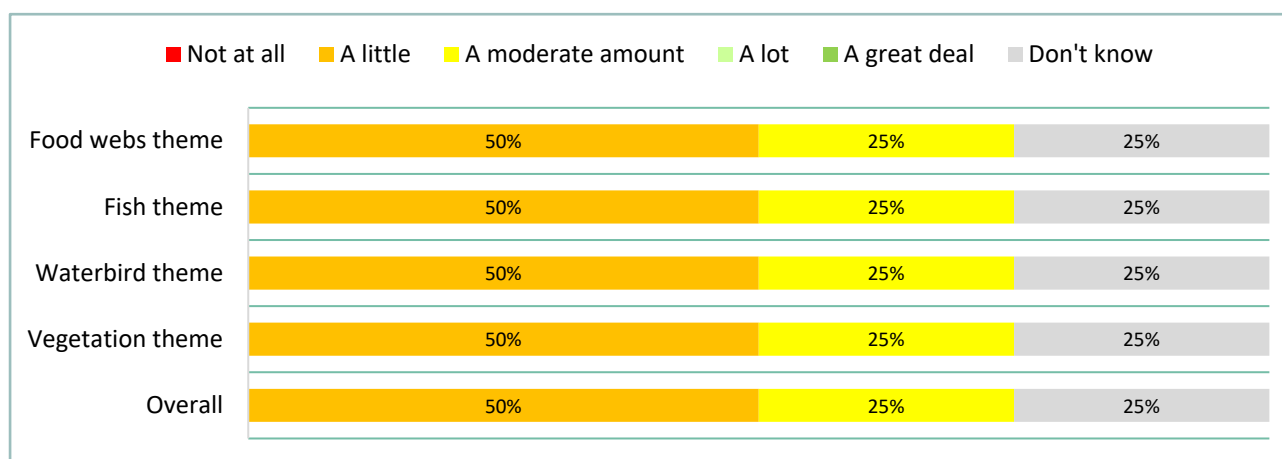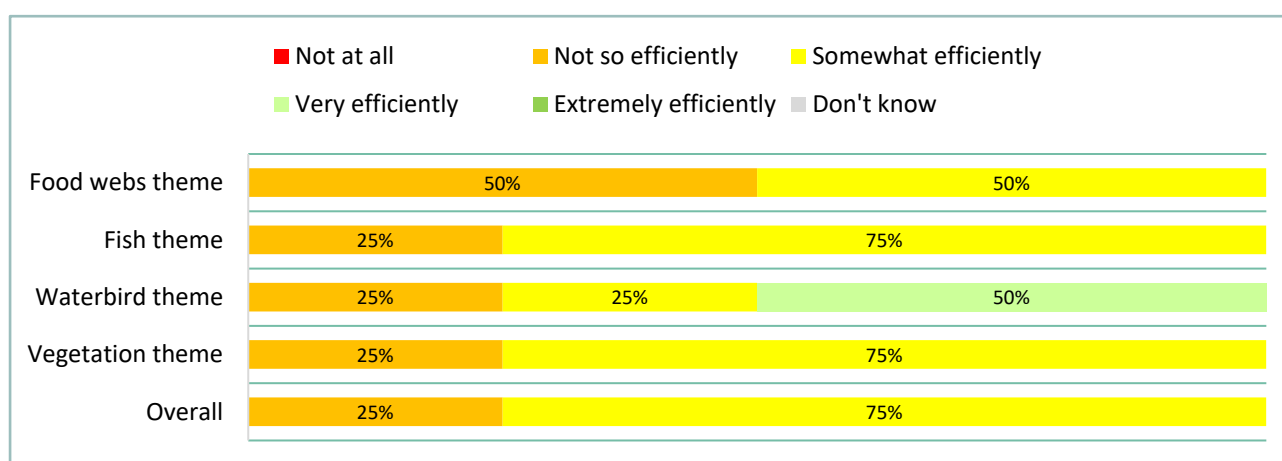

Figure 74 Responses to question 27 of the EWKR survey (Group 1 | n = 4).
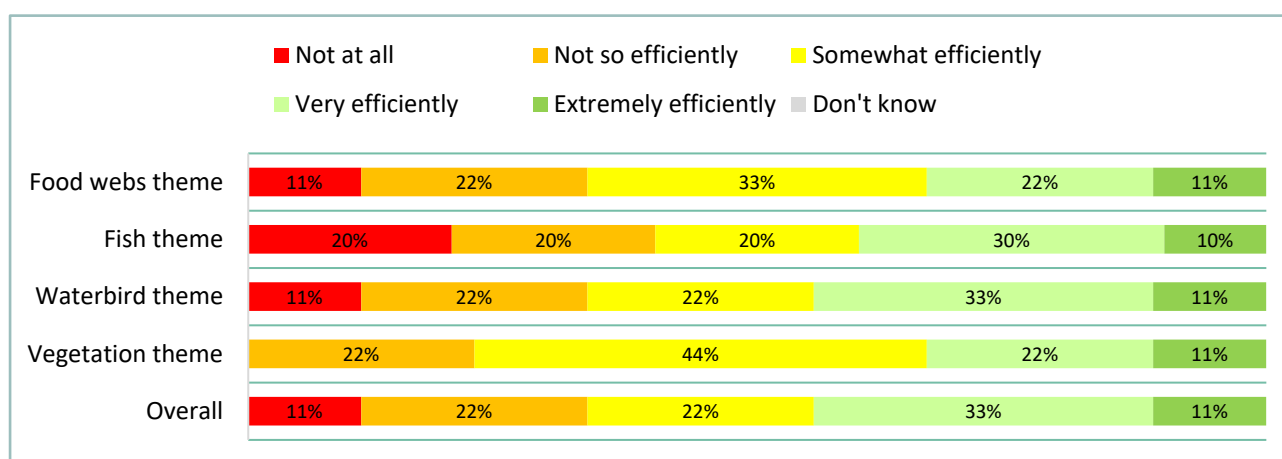
Figure 75 Responses to question 27 of the EWKR survey (Group 2 | n = 10).
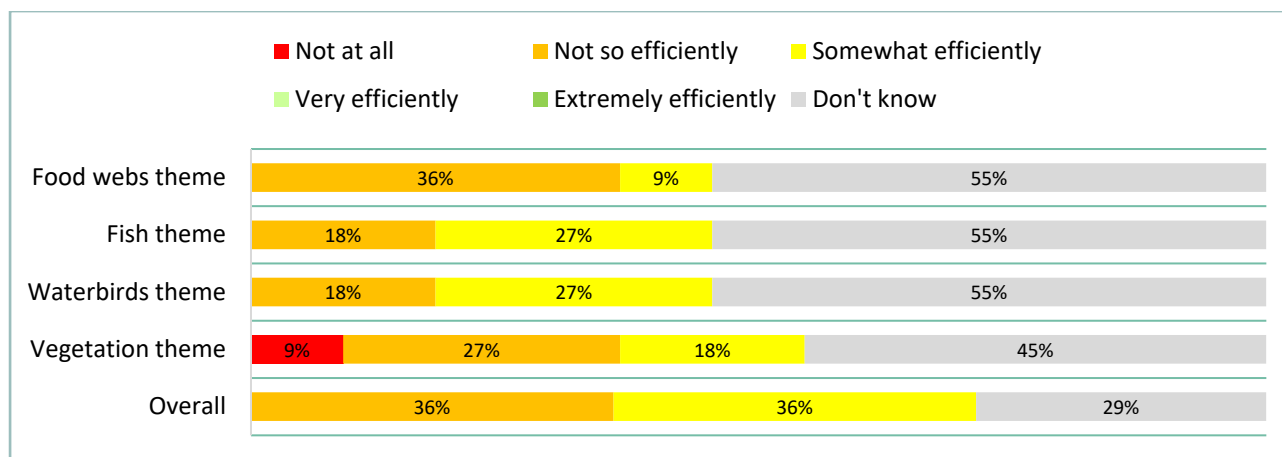
Figure 76 Responses to question 27 of the EWKR survey (Group 3 | n = 15).

QUESTION 28: TO WHAT EXTENT DO YOU FEEL CONFIDENT THAT ADEQUATE FUNDS WERE ALLOCATED AND UTILISED IN COMMUNICATION FINDINGS TO APPROPRIATE AUDIENCES?
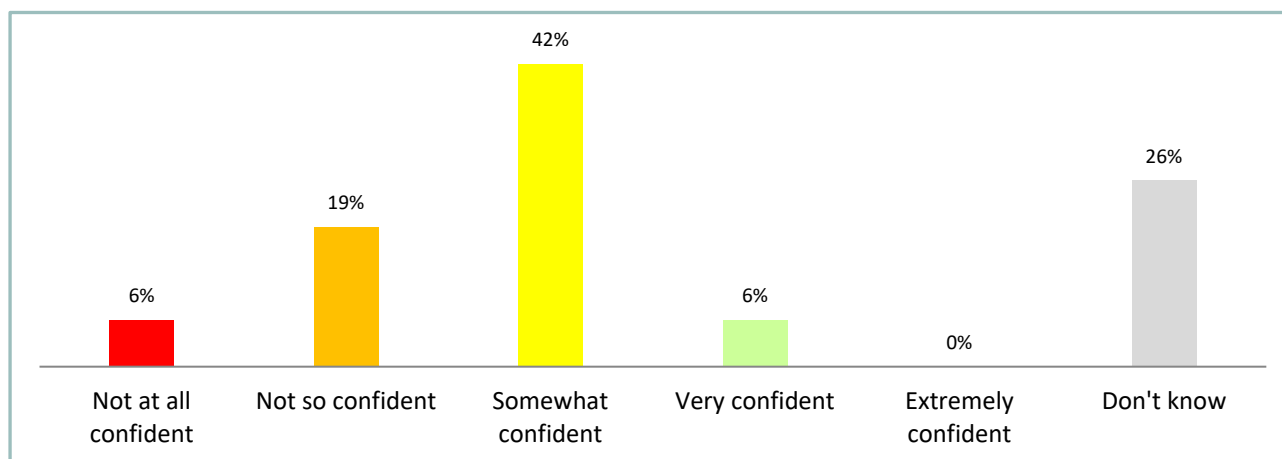
Figure 77 Combined responses to question 28 of the EWKR survey (Group 1, 2 and 3).
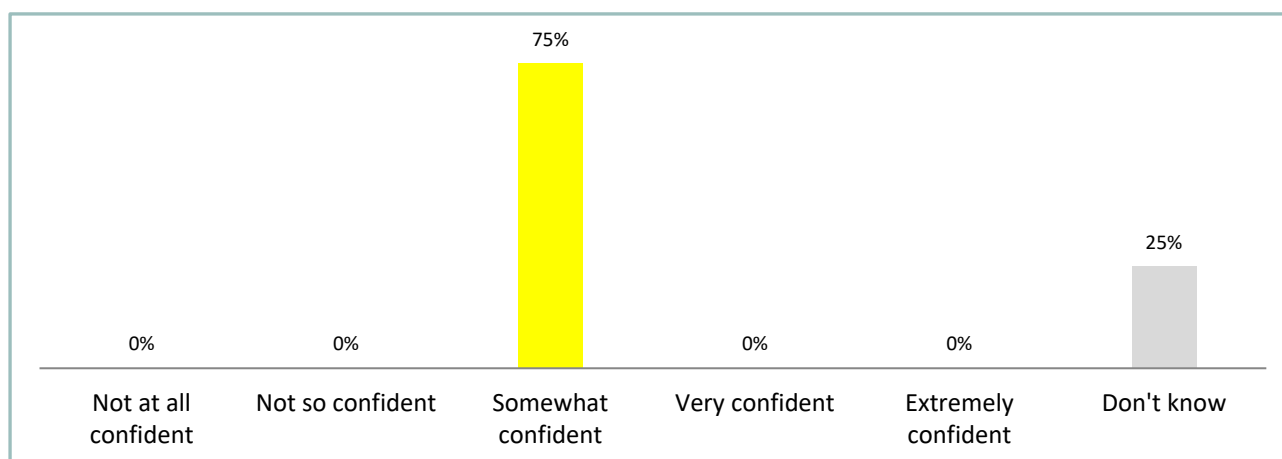
Figure 78 Responses to question 28 of the EWKR survey (Group 1).
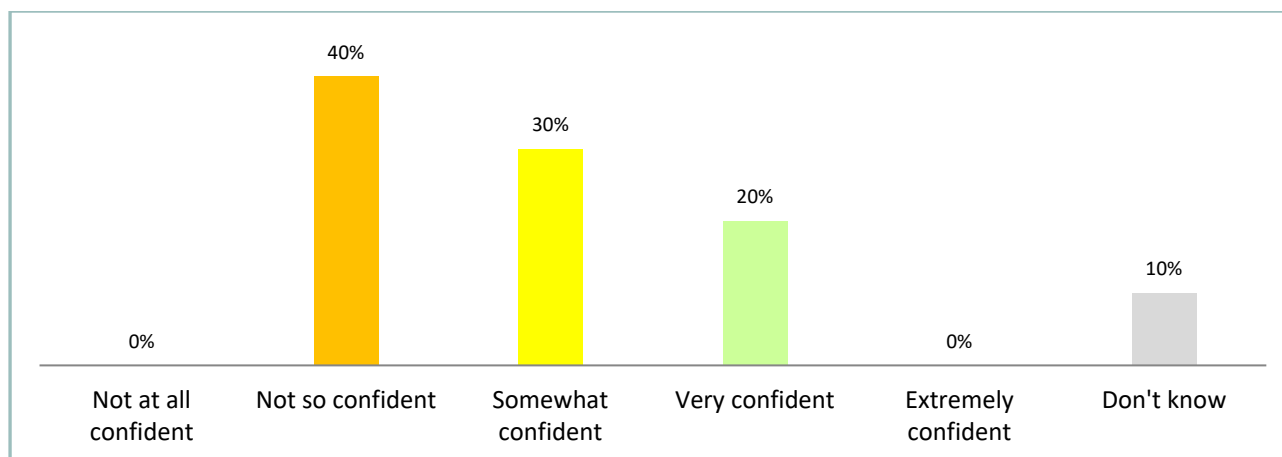
Figure 79 Responses to question 28 of the EWKR survey (Group 2 | n = 10).
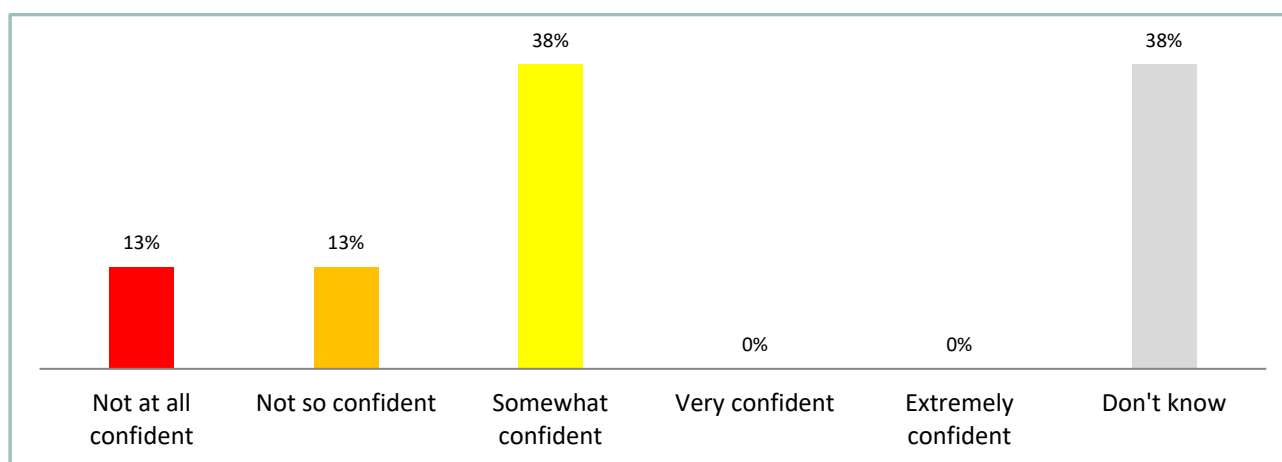
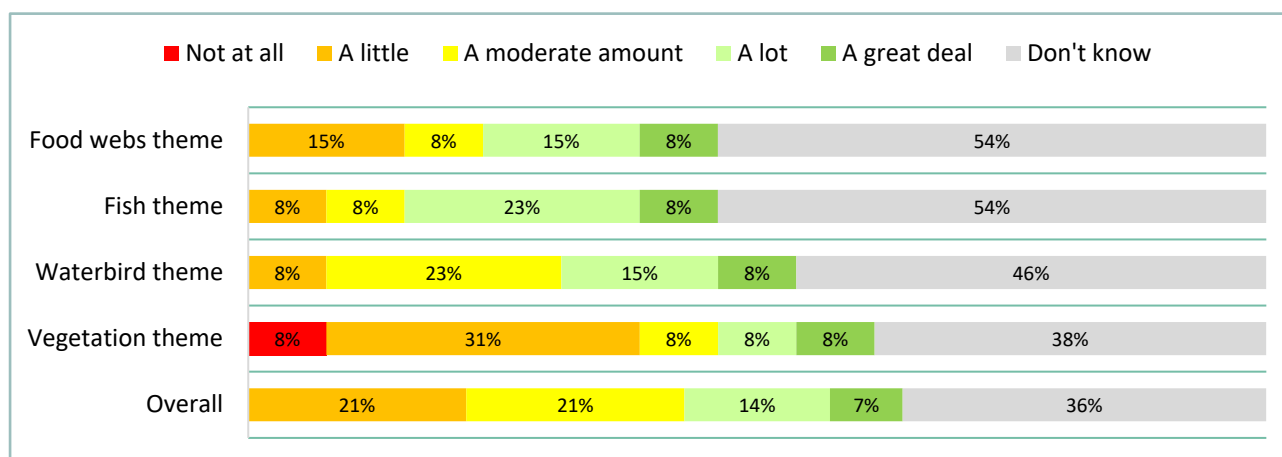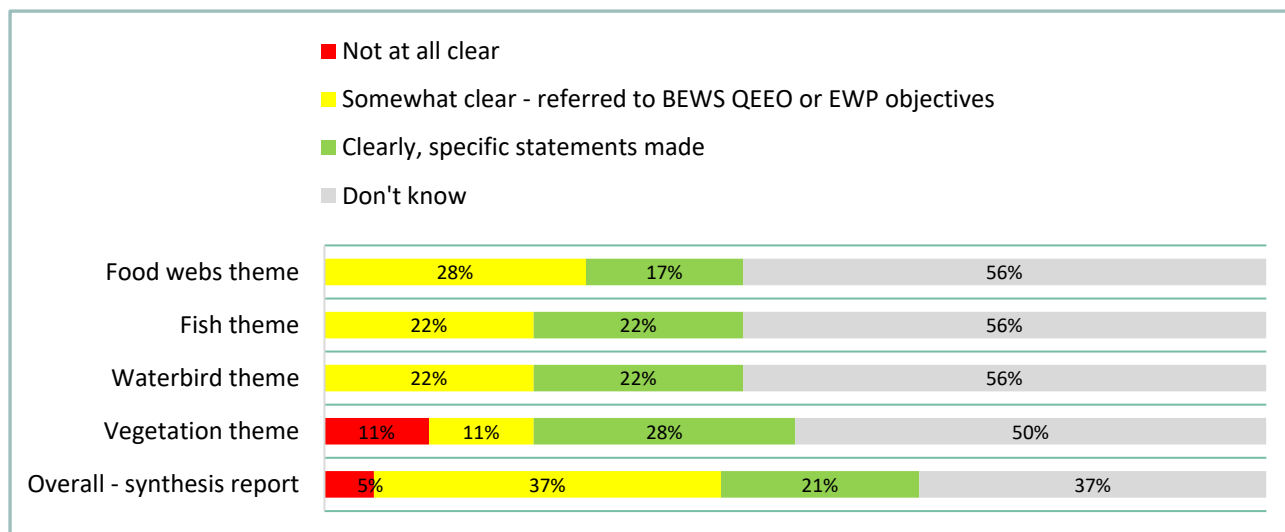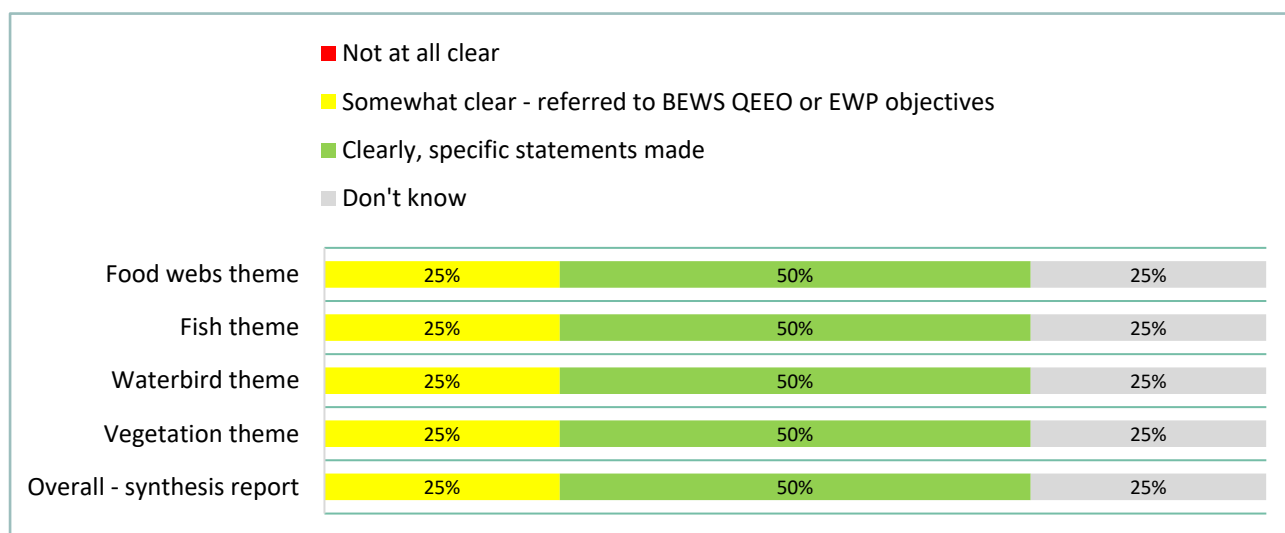**Figure 80 Responses to question 28 of the EWKR survey (Group 3 | n = 16).**

QUESTION 29: HOW IMPACTFUL HAVE THE OUTCOMES FROM EACH THEME BEEN ON PROVIDING NEW KNOWLEDGE FOR WATER MANAGERS TO BETTER INFORM ACHIEVEMENT OF ENVIRONMENTAL OUTCOMES FROM THE USE OF ENVIRONMENTAL WATER?
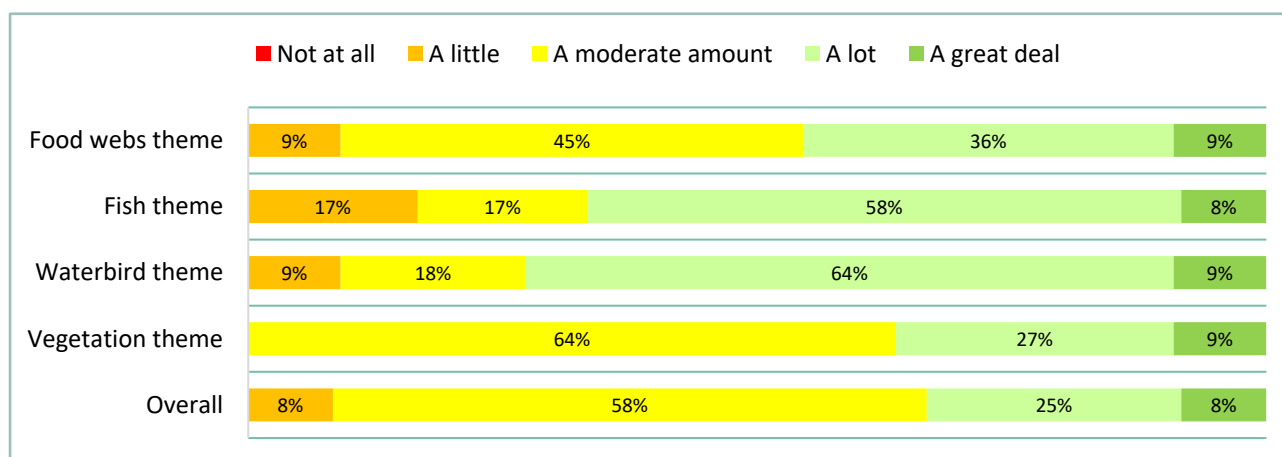
Figure 81 Combined responses to question 29 of the EWKR survey (Group 1, 2 and 3 | n = 22).

Note: This question was phrased slightly different for the Group 3 survey, however results have been combined with Groups 1 and 2 as they are taken to mean the same thing.
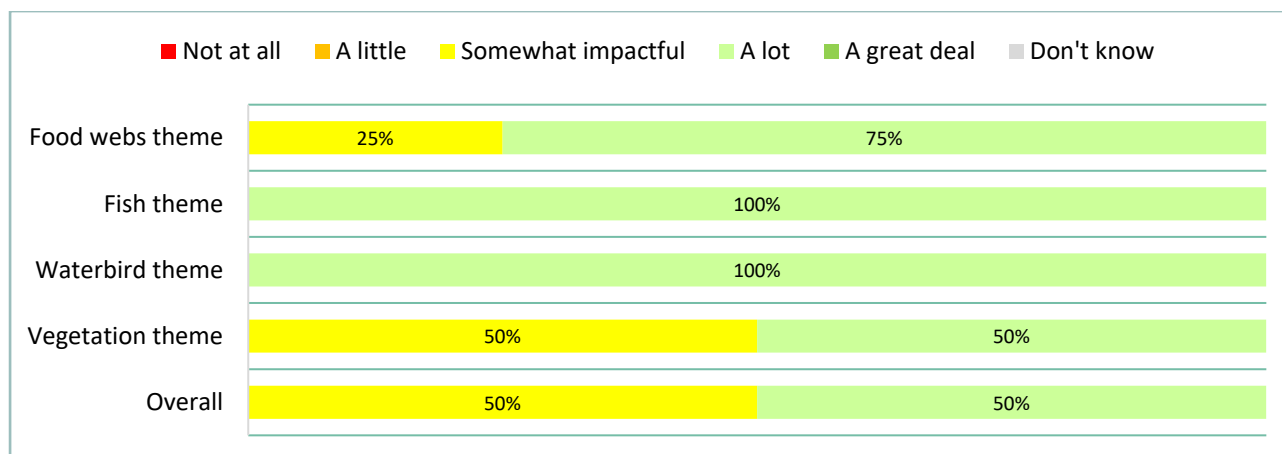
Figure 82 Responses to question 29 of the EWKR survey (Group 1 | n = 4).
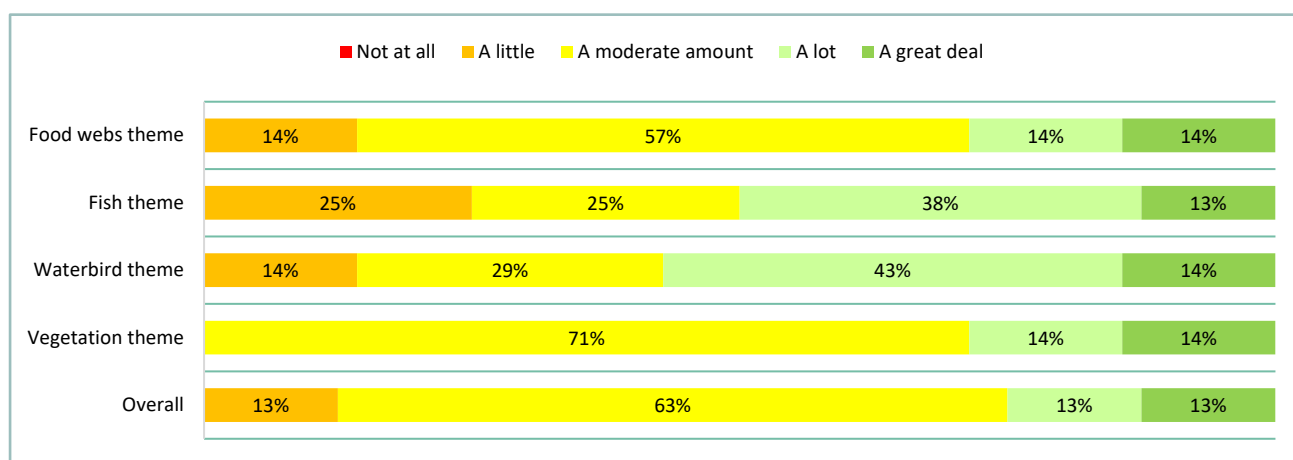
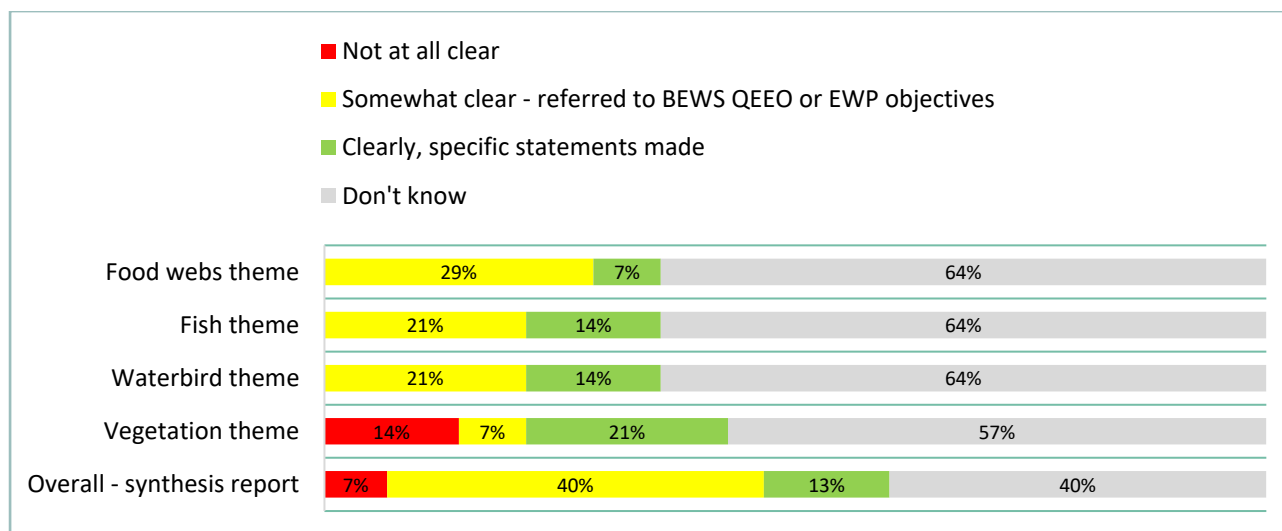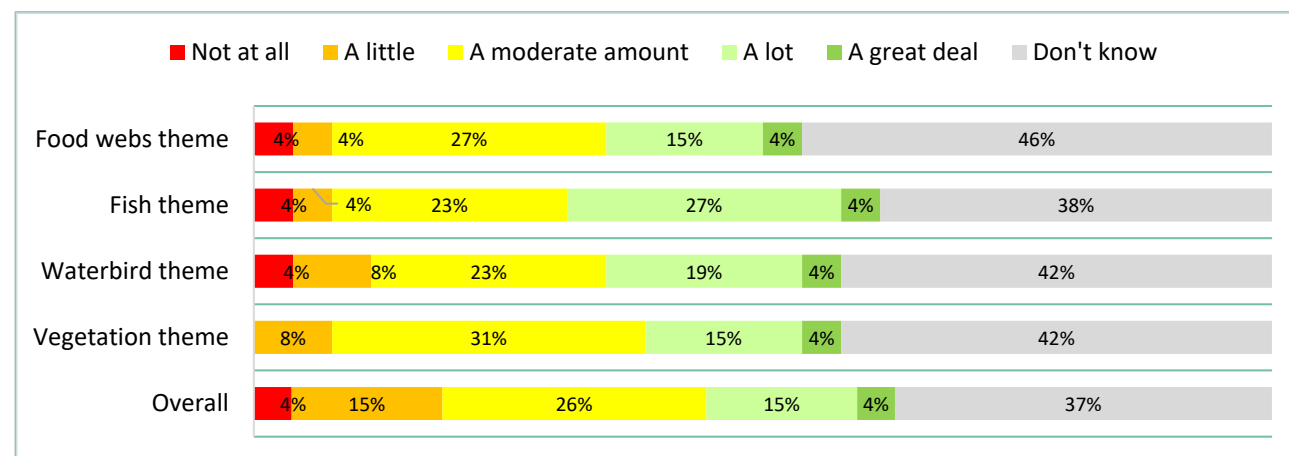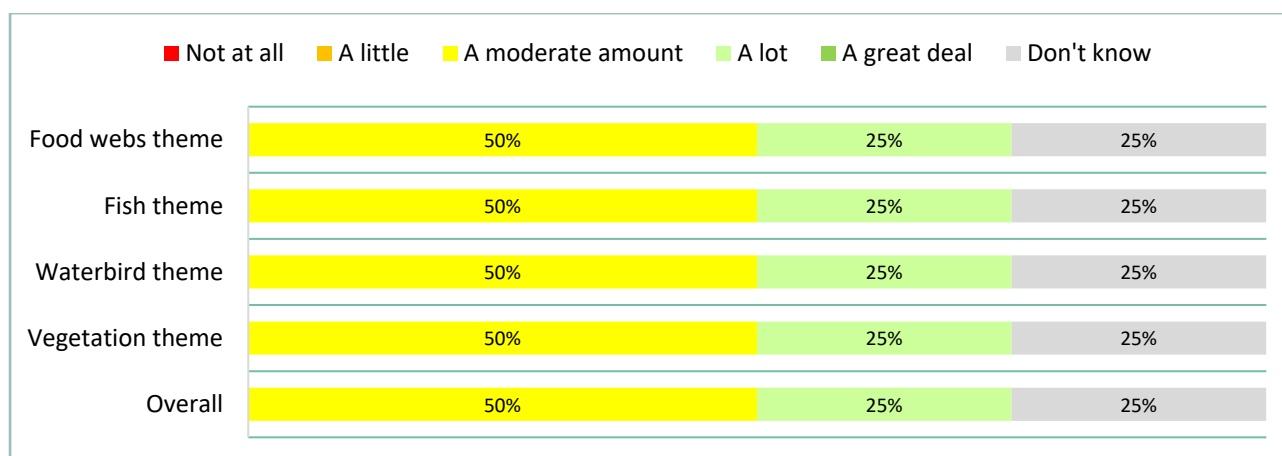**Figure 83 Responses to question 29 of the EWKR survey (Group 2 | n = 9).**
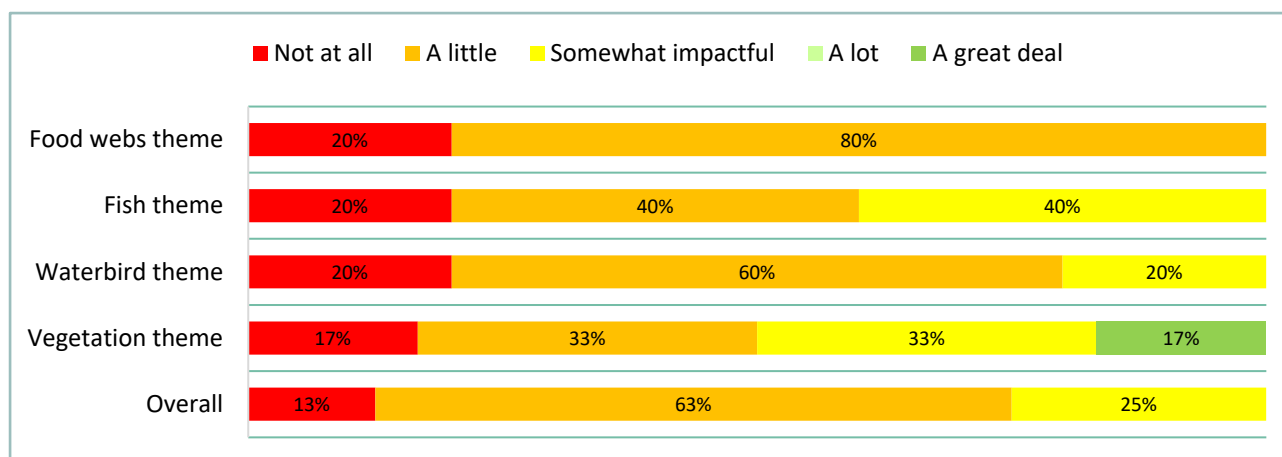
Figure 84 Responses to question 29 of the EWKR survey (Group 3 | n = 9).

QUESTION 30: TO WHAT EXTENT DO YOU THINK THE EWKR PROJECT HAS LED TO IMPROVED UNDERSTANDING BY WATER MANAGERS' OF MEDIUM- AND LONG- TERM CHANGES IN ECOLOGICAL CONDITION, INCLUDING THE EFFECTS OF THREATS (HYDROLOGICAL, AQUATIC AND TERRESTRIAL) WHICH MAY REDUCE OR PREVENT THE ECOLOGICAL IMPROVEMENT EXPECTED?
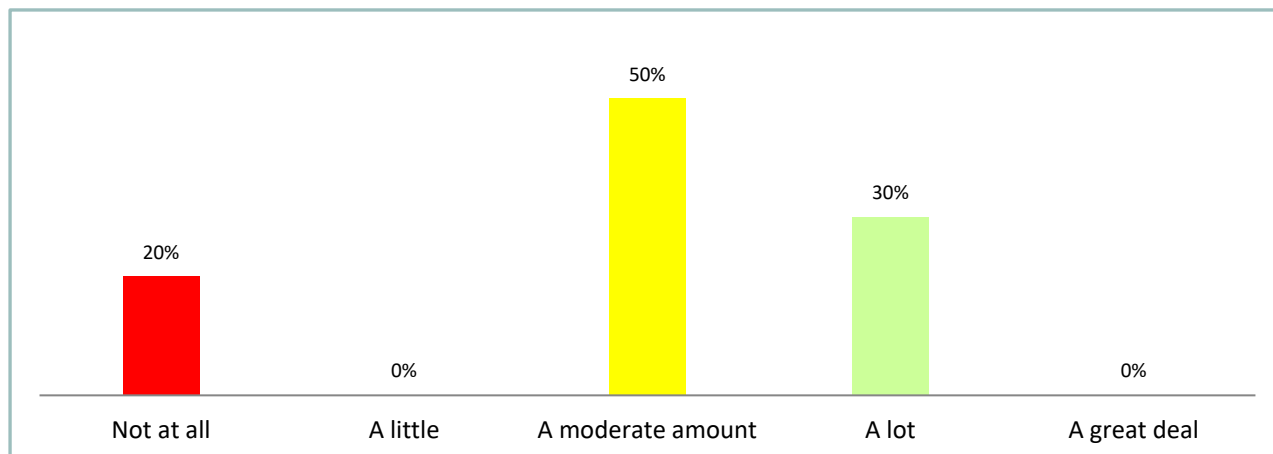
Figure 85 Responses to question 30 of the EWKR survey (Group 2 | n = 10).

Note: Whilst the same question (Q30) was asked of both Groups 2 and 3, the possible answers from which the respondents different between groups. Group 2 responses are illustrated in Figure 31 Responses to question 30 of the EWKR survey (Group 2). Figure 31, and Group 3 responses are illustrated in Figure 32.
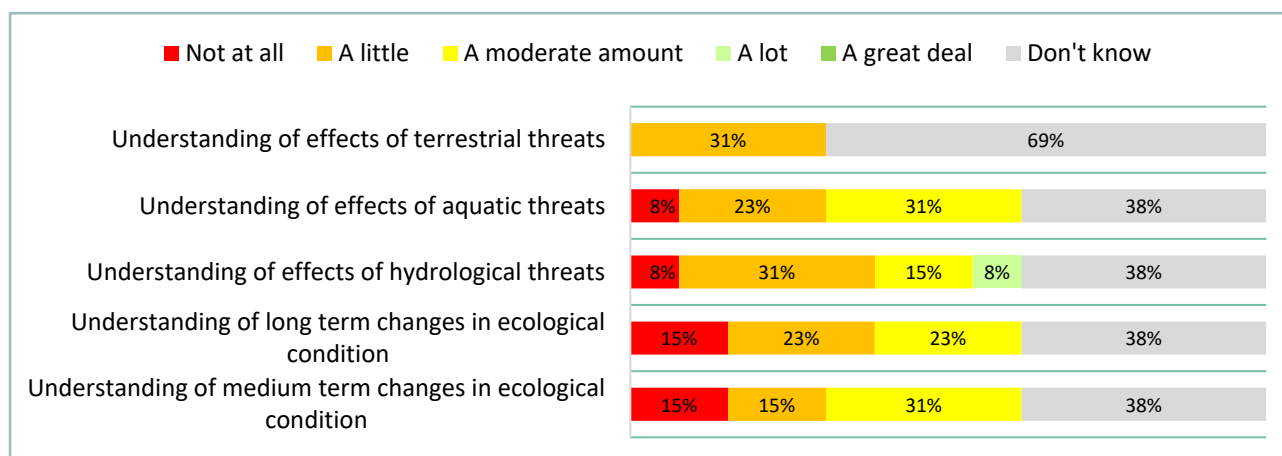
Figure 86 Responses to question 30 of the EWKR survey (Group 3 | n = 13).

QUESTION 31: HOW LIKELY DO YOU THINK THE EWKR PROJECT FINDINGS WILL INFLUENCE, IF AT ALL, YOUR FUTURE WATER MANAGEMENT PRACTICES?
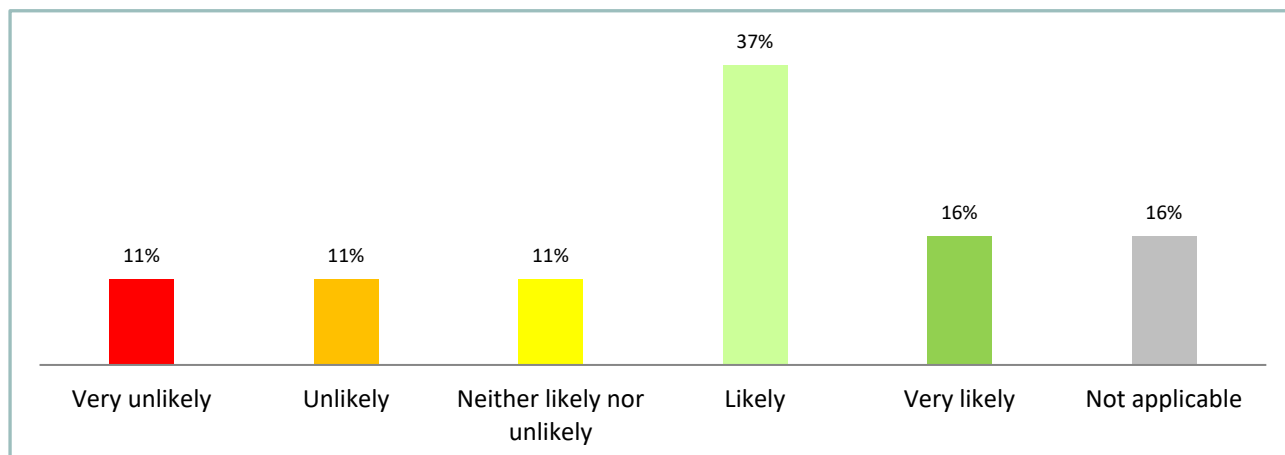
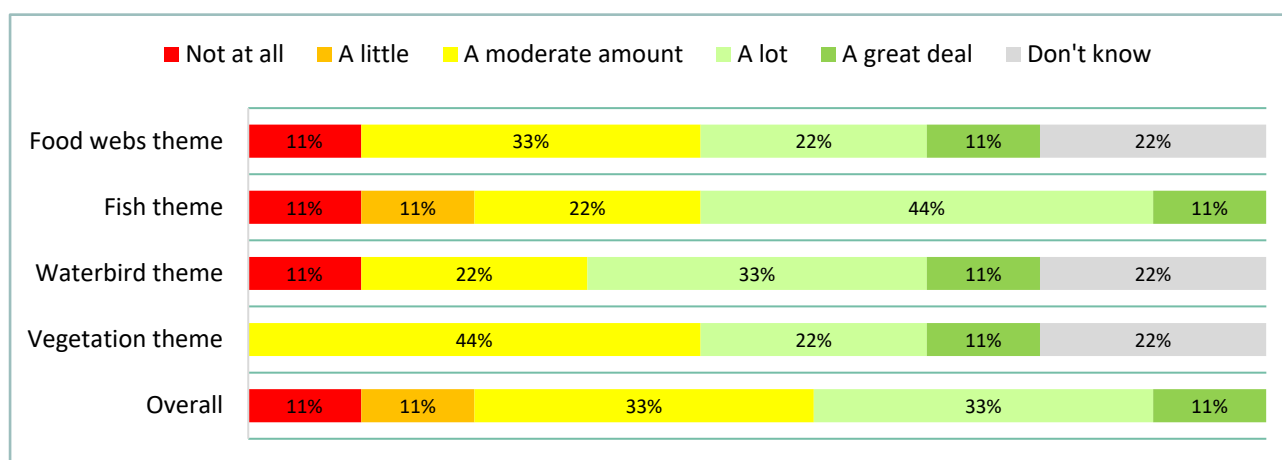**Figure 87 Combined responses to question 31 of the EWKR survey (Group 1 and 3).**
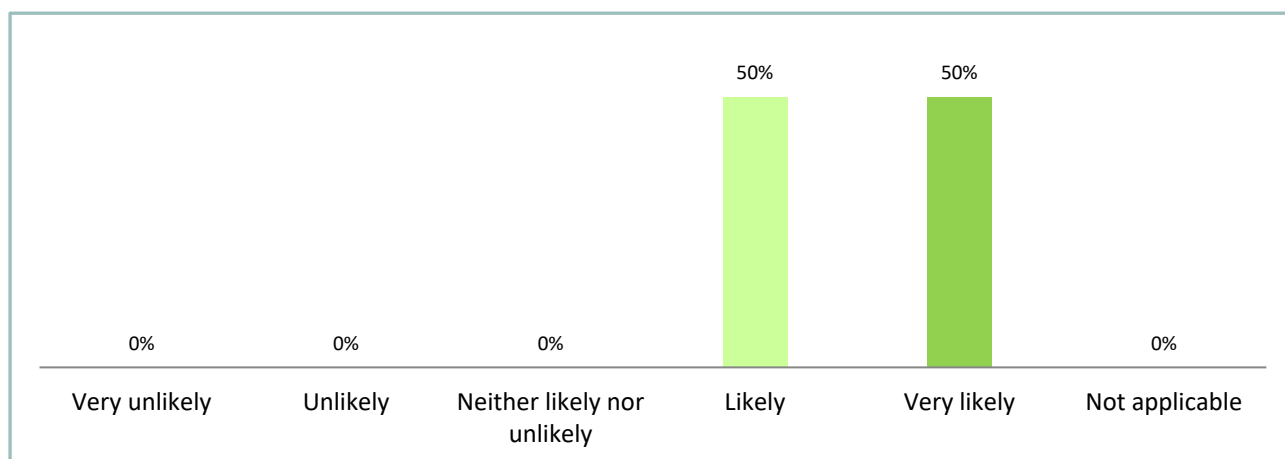
Figure 88 Responses to question 31 of the EWKR survey (Group 1 | n = 4).
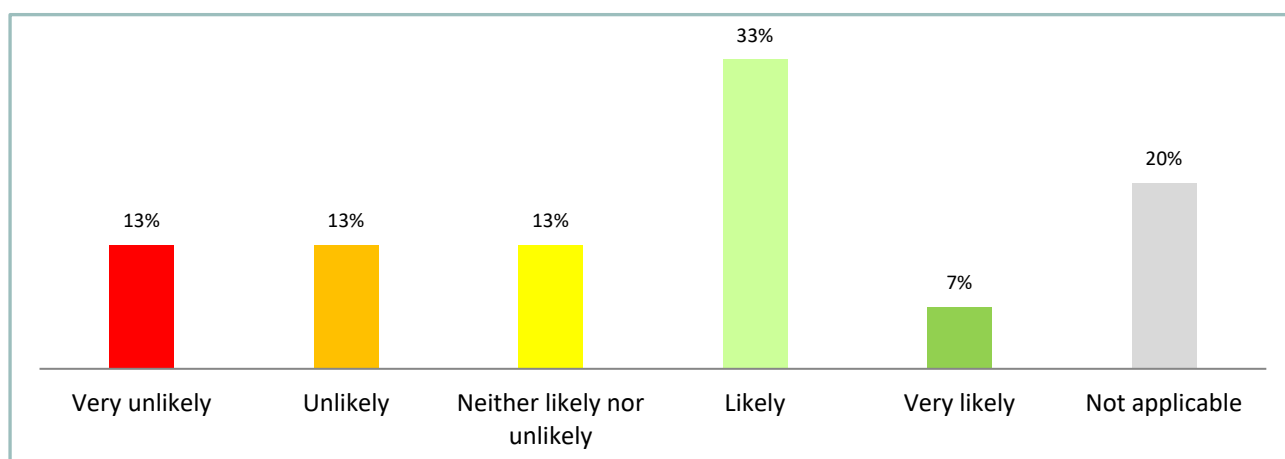
Figure 89 Responses to question 31 of the EWKR survey (Group 3 | n = 15).

QUESTION 32: TO WHAT EXTENT, IF ANY, HAS YOUR INTERACTION WITH OTHER AGENCIES CHANGED AS A RESULT OF THE EWKR PROJECT?
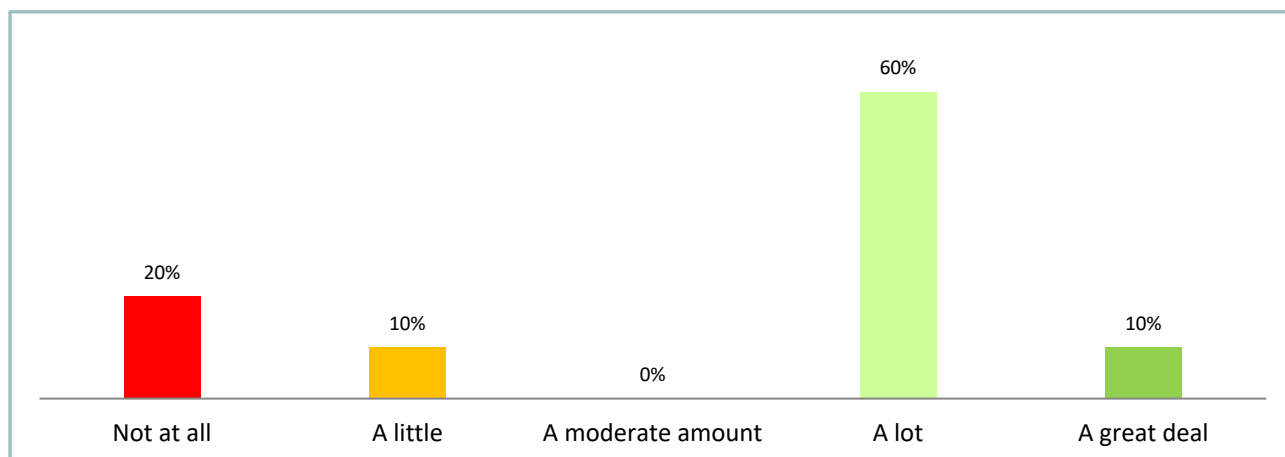
Figure 90 Responses to question 32 of the EWKR survey (Group 2 | n = 10).

QUESTION 33: TO WHAT EXTENT HAS THE EWKR PROJECT IMPROVED YOUR CAPACITY TO PREDICT OUTCOMES OF ENVIRONMENTAL FLOW ALLOCATIONS AND MANAGEMENT OVER 1-5 YEARS?
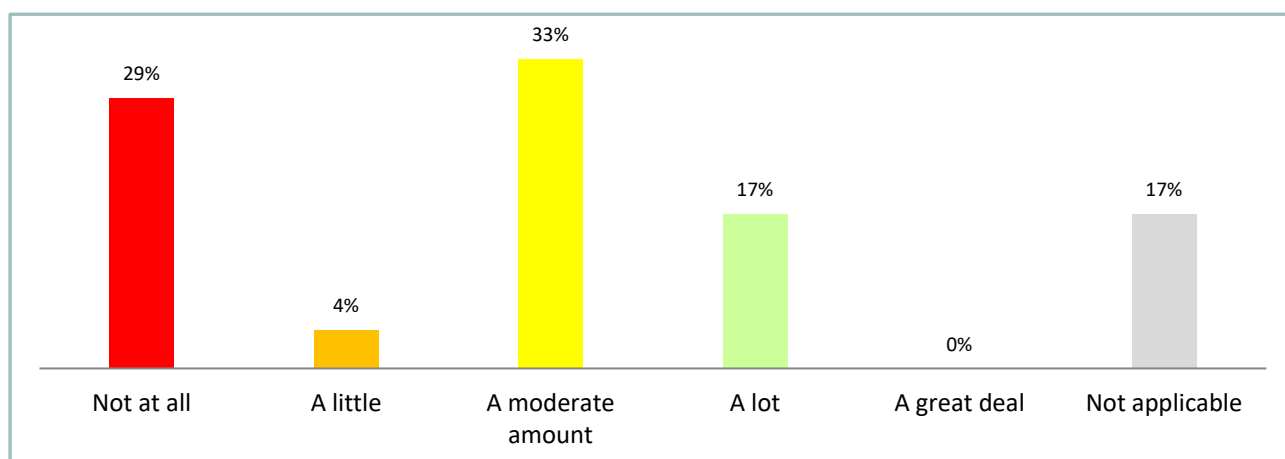
Figure 91 Combined responses to question 33 of the EWKR survey (Groups 2 and 3).
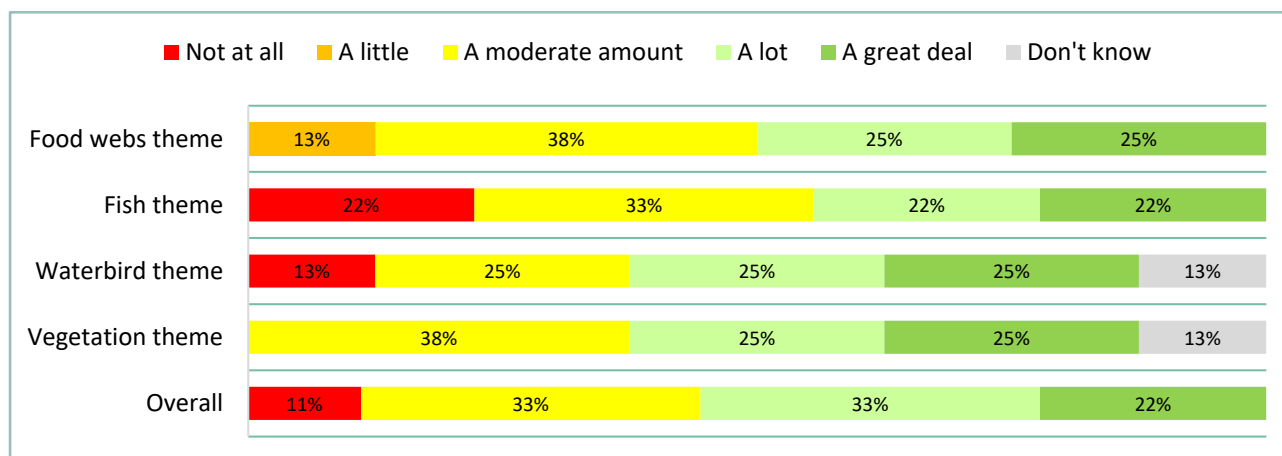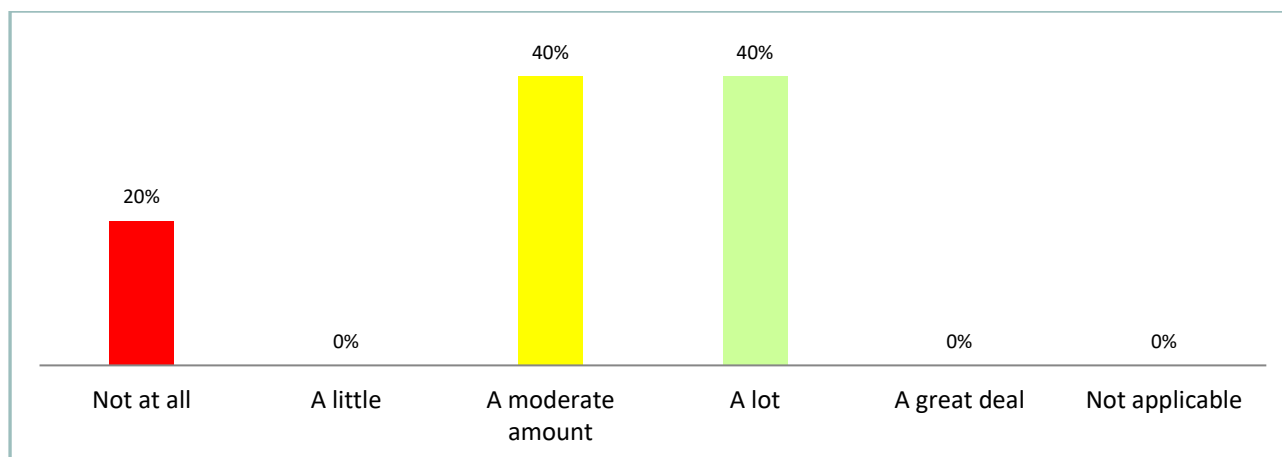
Figure 92 Responses to question 33 of the EWKR survey (Groups 2 | n = 10).
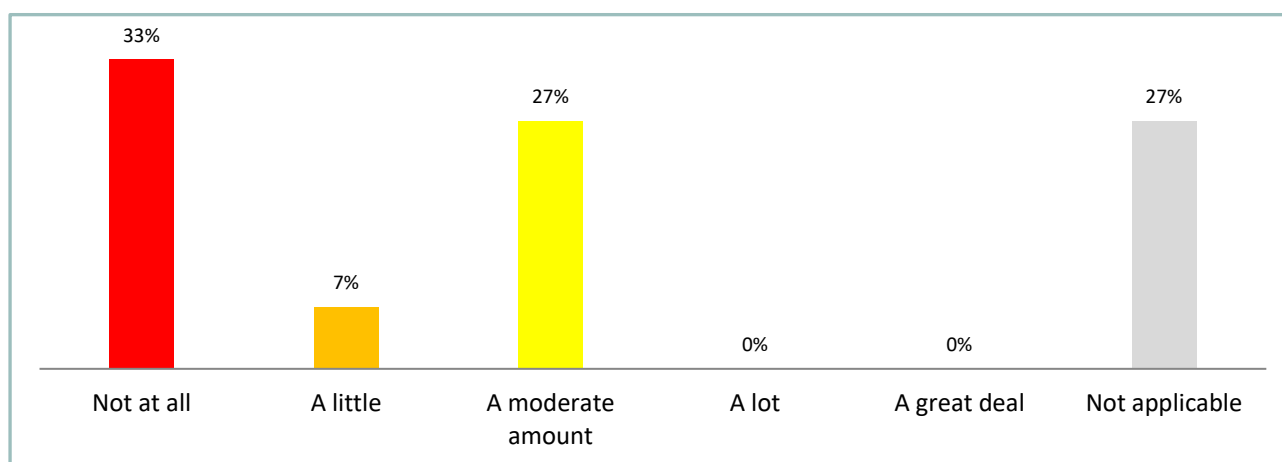
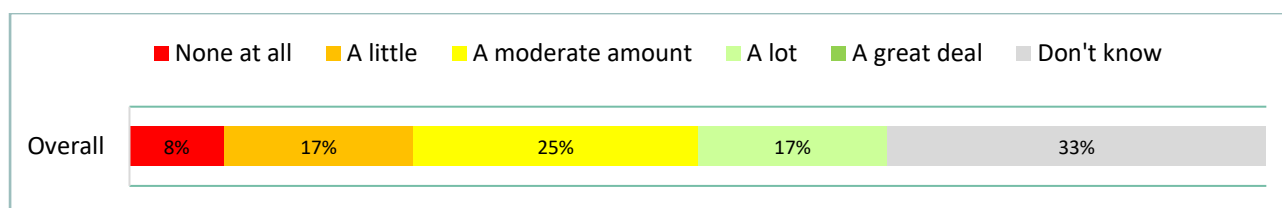**Figure 93 Responses to question 33 of the EWKR survey (Groups 3 | n = 15)**

## QUESTION 34: TO WHAT EXTENT HAVE YOU ADOPTED OR USED KNOWLEDGE/GUIDANCE/TOOLS GENERATED BY THE PROJECT?
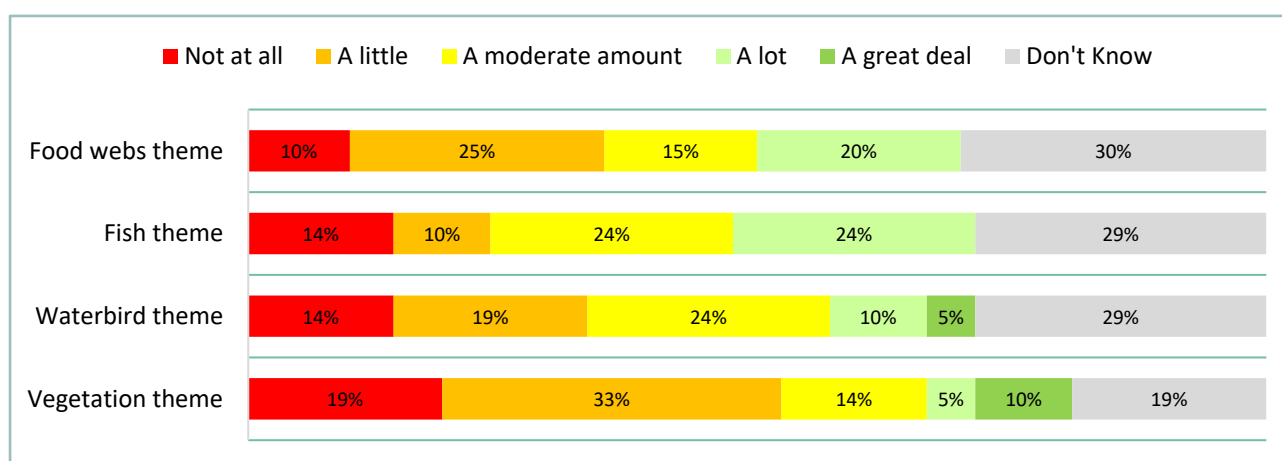
**Figure 94 Combined Responses to question 34 of the EWKR survey (Group 2 and 3).**
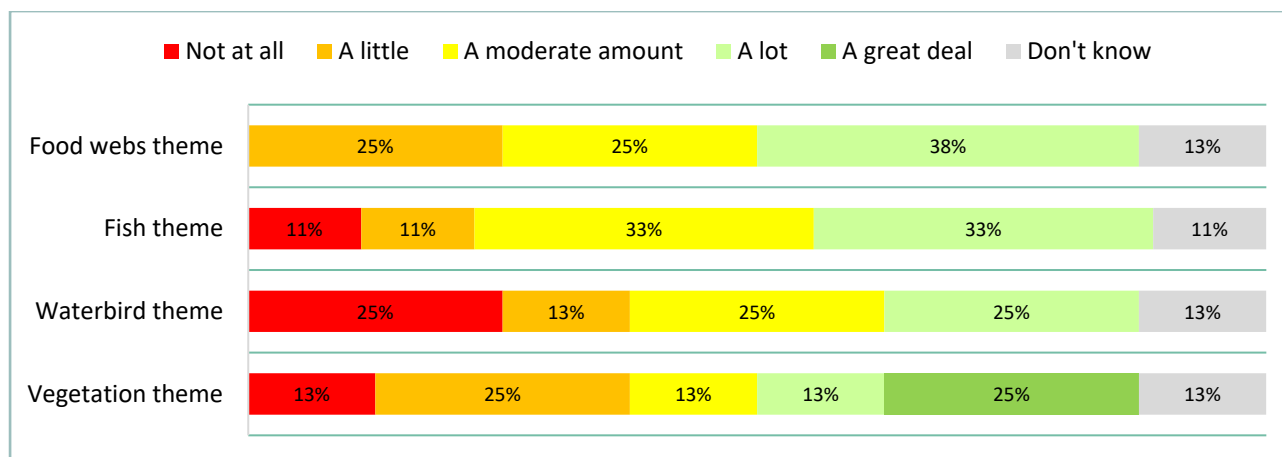
Figure 95 Responses to question 34 of the EWKR survey (Group 2 | n = 8)
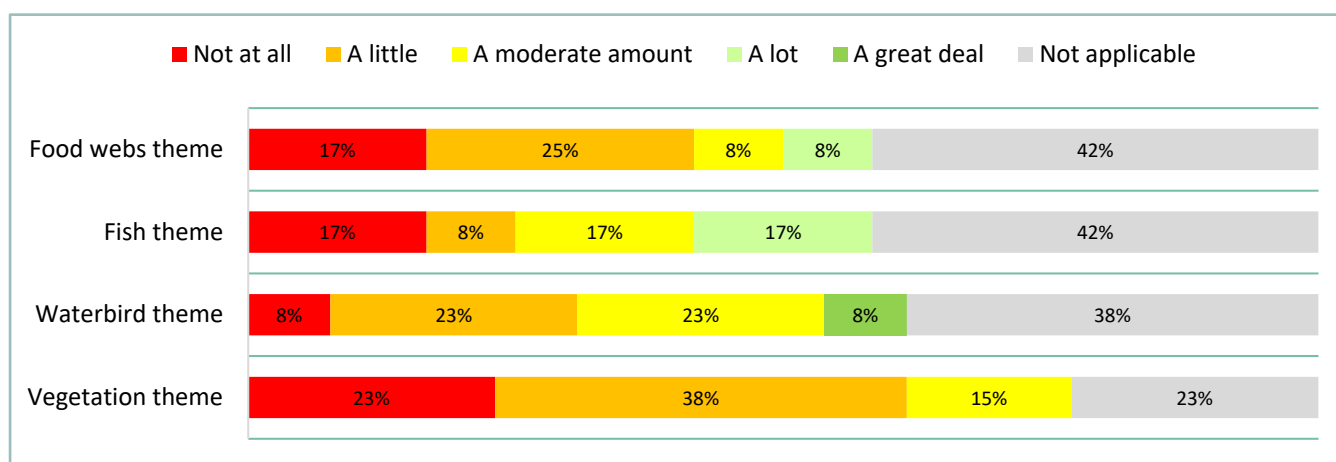
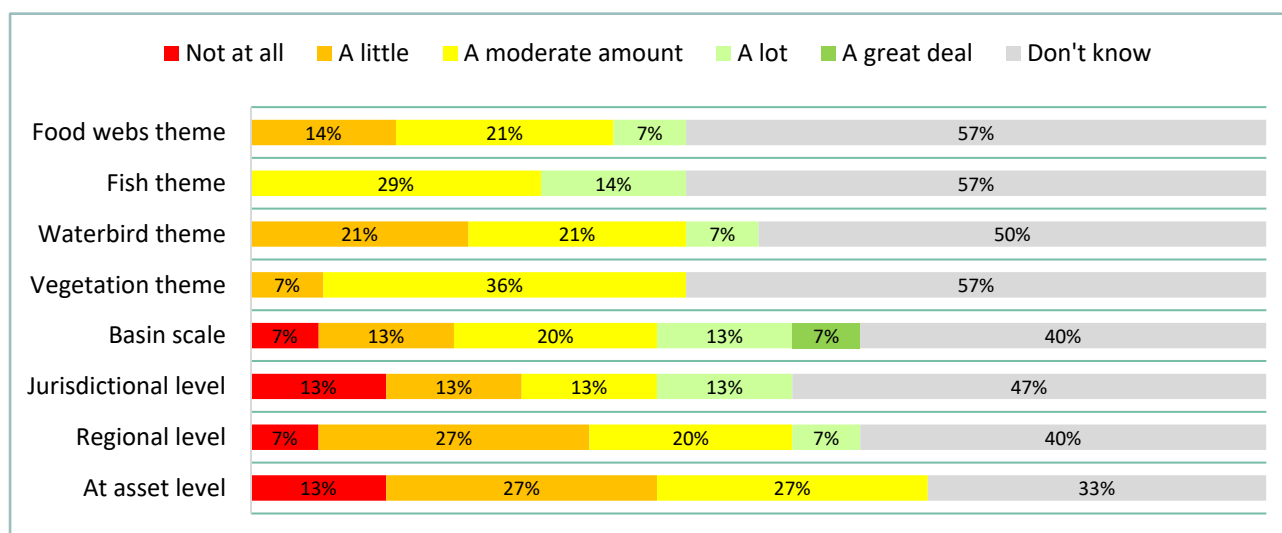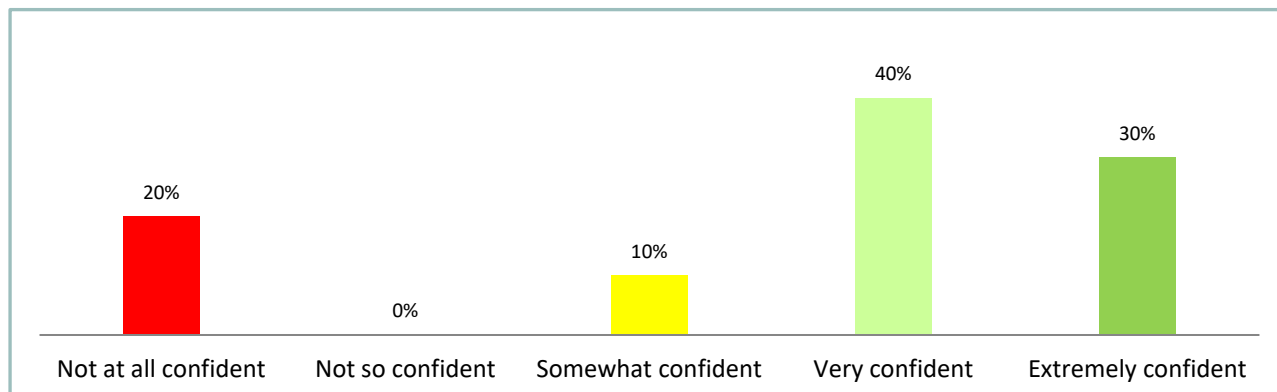**Figure 96 Responses to question 34 of the EWKR survey (Group 3 | n = 9)**

The free text responses have largely been captured in the outcome evaluation and have not been the focus of analysis for this report.

Table 4 Free-text responses to survey questions for Groups 1, 2 and 3.

| Group	Survey question and response
6. How familiar are you with the EWKR project objectives?	
Group 1	1. **1.6S:** Scope of the EWKR objectives was large, during Phase 1 and the further conceptualization of the research priorities in the first part of Phase 2 it was clear that the research needed to be further focused to ensure the project remained on track and within budget constraints. This was noted by both SAG and Theme leaders/leadership theme groups. Objectives in relation to threats and complementary NRM activities evolved to be less a priority during research refinement as so much knowledge was unknown with ecological responses of species to environmental flow. All of the research themes refined focus and narrowed the scope of the research questions, this was documented in multi-year and annual research plans.
Group 2	2. **2.10S:** Might be good here to reiterate what the specific objectives of the project actually were, as it has now been a long time since the project's inception? To me, the overarching objective was to fill priority gaps in our understanding of flow-ecology relationships to ultimately guide environmental water management. This context will frame my responses below
Group 3	3. **3.17S:** EWKR advice to regional practitioners has been ad hoc and inconsistent 4. **3.15S:** I am somewhat familiar with the overall EWKR project objectives; however, I was focused primarily on the delivery and objective of the QLD floodplain vegetation project. 5. **3.16S:** I have put 'somewhat' on the basis that I've only ever been loosely involved - having worked next to Nadia, in my LTIM role. I have never been directly involved in EWKR (which will be reflected in my general style answers!) 6. **3.13S:** I have been to a 1 day workshop with CEWO and have vaguely heard of EWKR through MEWG. 7. **3.10S:** Broadly it is research (as opposed to monitoring) to better understand the role and relative importance of water regimes (and hence environmental water management) for advancing specific environmental outcomes related to themes vegetation, fish, water birds and food webs. i.e. it is about improving conceptual models and where possible turning these into quantitative models rather than testing responses to individual flows (i.e. LTIM) 8. **3.9S:** Whilst in my science researcher role I was a member of the Vegetation Theme team. I am currently in the DPIE-EES Environmental Water MER Coordinator role 9. **3.8S:** I am familiar with the broad program objectives 10. **3.5S:** I was involved in the original jurisdictional groups when the objectives were outlined to us on numerous occasions 11. **3.2S:** We had a meeting in Shepperton with the developer of EWKR that was described as a 'managers workshop'. We put forward ideas that we hoped would have been incorporated into specific EWKR projects to help inform adaptive management for environmental water managers, planners and river operators, and help to inform water policy. We felt the managers workshops were just part of a process the EWKR brains trust had to follow to appease the agencies that were funding the program. There has never been follow up meetings to explain how EWKR met our requirements or what the outcomes of the research were.
7. To what extent do you think the EWKR project achieved its objectives? On what basis?	
Group 1	12. **1.5S:** The impact of research outputs will take time to be realised and are one of many inputs into e-water management 13. **1.3S:** EWKR has done great work building knowledge about how flow affects some key aspects of MDB ecology. The stated objectives were extremely broad though, so EWKR is contributing to this knowledge base, rather than 'answering' all the questions. Less progress made on communicating this understanding to end users, but it's probably arguable whether that should be the role of the science program.

	14.	**1.6S:** This is as explained in the question 7. Each Theme meet all objectives to varying levels and was dependent on the status of knowledge within each of the respective themes.
Group 2	15.	**2.10S:** Some sound research was conducted under the project, some of which has been published and conveyed to managers and some which has yet to fully come to fruition. From a fish ecology perspective I have seen uptake of this knowledge/concepts by environmental water managers.
	16.	**2.8S:** High level objectives were fairly broad. Would say that all were met, but with varying levels of impact in terms of improved understanding/strengthened decision making etc. Some elements also more foundational than others (e.g.. the food web theme) so may have less immediate impacts on management even though will undoubtedly be important in the long-term.
	17.	**2.7S:** The research outcomes are continuing to be developed under FLOW-MER in several cases
	18.	**2.6S:** The primary intent of EWKR was to improve the science available to support the needs of environmental water managers. EWKR certainly contributed to improving the knowledge base. In some instances the link to applied management is clear, in others it may require further work / articulation to draw a more useful link between improved scientific knowledge and practical management actions.
	19.	**2.5S:** There has been some great progress made in some of the areas of work as is evidenced in the stories and reports on the EWKR website and RipRap Magazine Edition 40 which featured the research undertaken. Unfortunately, there is much that was learnt that has not been shared and we are now making every effort to build on this knowledge as we move into the new Flow-MER project.
	20.	**2.4S:** I left before the project was completed but at that time I couldn't see how the data generated could inform water management at the basin scale. The research was fragmented, not coordinated, and driven by self-interested parties. If any objectives were met they were through 'spin' rather than anything concrete.
Group 3	21.	**3.21S:** I've put 'don't know' because I can't recall the specific objectives. Some of the themes have provided new knowledge others weren't so conclusive.
	22.	**3.17S:** As stated above, advice to the regions has been ad hoc and inconsistent. Most of my EWKR interactions have been self-initiated.
	23.	**3.15S:** Again this answer is in relation to the overall EWKR project objectives. QLD floodplain vegetation project objectives were primarily met.
	24.	**3.16S:** EWKR has been a successful project and has contributed well to the body of science that environmental watering relies on to advance and improve. I understand that the project could have better 'applied' the science to the benefit of water planners - so put more effort into the 'implications' of the findings for adaptive management purposes. It is possible the project could also have better targeted research questions that were a priority for water planners (as opposed to a priority for the research community).
	25.	**3.13S:** I do not really know what it does.
	26.	**3.11S:** The objectives relating to improving management and M&E of e-water/Basin Plan are aspirational. The research is descriptive and/or reductionist at a small number of sites. It takes time, repeated work, and management familiarity with the work to achieve change. So hence more are likely to be met in the future.
	27.	**3.9S:** By the nature of the research undertaken some of the objectives are more likely to be met in the future when there has been sufficient time to incorporate the outcomes if the research and as the environmental water management cycles progress. For example the NSW Long-term Water Management Plans (LTWP) are currently being implemented and the first 5 year evaluation will occur in 2024 - this will provide an opportunity to incorporate EWKR research outcomes with regards to improving capacity to predict outcomes from environmental water

	actions, build on conceptual models, review objectives and targets, and increase capacity to report against Basin Plan environmental objectives and targets
	28. **3.8S:** I would say the key objectives/goals have been met, but more specific theme-related objectives may not have been met yet, or at least not fully. I really don't know though.
	29. **3.7S:** I have a limited understanding of the outputs of the project
	30. **3.7S:** My memory of the objectives was there was a lot of emphasis around this program providing information which could be used to explain why e-watering was not working as expected (i.e. where we were not getting expected outcomes). I have not seen much to that effect come out yet.
	31. **3.4S:** I have included in my response to the extent objectives being met how well outcomes/outputs have been distributed and communicated.
	32. **3.3S:** Not much usable additional information in the hands of decision makers (ewags and end water managers)
	33. **3.1S:** They have done what their contracted to do
	34. **3.2S:** There has never been follow up meetings with environmental water managers to explain the outcomes of EWKR, or if there were any lessons learned from the projects and the program in general, or how/if the program informed the adaptive management process, or if there were any key knowledge gaps that environmental water managers had that could be informed by EWKR or by additional research.

8. How effectively did the EWKR project improved water managers' understanding of how environmental water management influences ecosystem function and thereby sustains biodiversity?

Group 1	35. **1.5S:** That is one of the things this review is designed to ascertain
Group 2	36. **2.10S:** Ultimately, the end of the project was rushed and there was the added complexity of a change in teams for EWKR phase 2 (MER). These factors compromised the conveyance of the utility of the research to managers and potentially the essential integration across themes. In a nutshell, some great work was conducted but the end was messy. Some extra time would have benefited all.
	37. **2.9S:** should have been very effective. there were lots of important finding in many themes and many opportunities for engagement, but I'm not sure that managers would say this. I feel as if they would say it was not communicated to them effectively. also, the final timelines in the fish theme were ridiculous, so we didn't have our final findings even when we were presenting at the final forum. many of the findings are still being fleshed out now - this comes down to poor project management (in part from fish theme, and researchers, but also this was set up from the start by changing directions, poor communication from reference group and leads)
	38. **2.8S:** The links with water managers could have been stronger, for example through co-design of projects and involvement as team members in the project design and delivery.
	39. **2.7S:** Closing the loop in terms of communication was perhaps a little limited
	40. **2.5S:** I feel that most environmental water managers will know about the key findings, but there was a missed opportunity in providing more face to face interaction between water managers and scientists to really interrogate and discuss the findings.
	41. **2.2S:** for fish achieved little as it didn't address key priorities and to date has provided little in way of research results

9. How effectively do you think the EWKR project identified incremental changes in ecological condition and linked them with ecosystem responses to watering regimes (natural and/or managed events) in each of the themes?

Group 2	42. **2.10S:** To my understanding the EWKR project as never about "identifying change in ecological condition", this was the domain of the LTIM?

	43. **2.8S:** I think all themes made valuable contributions to our understanding of these links. Would add it's often hard to measure the incremental gains from individual projects over short time frames. The waterbirds theme is a good example - the GPS tracking is providing data at scales that has not been done before. It will take time to interpret that information in directly meaningful ways, but this project starts that process. The same would apply to the otolith microchemistry work for example in the fish theme.
	44. **2.7S:** The 'moderate' ones still provided critical foundational knowledge, which was the initial focus of EWKR
	45. **2.5S:** This is based on my knowledge of the material shared through the website, RipRap and Final Reports.
	46. **2.4S:** There is a clear link between water and vegetation, so that any new knowledge could be used by water managers. The waterbird theme seemed most interested in determining migration patterns (and creating social media). The fish theme was inwardly focused. The food web theme (which I coordinated, had too many god-professors in its leadership group, and not enough resources to generate any new, meaningful data. Overall, all attempts to integrate across themes was met with a wall of self interest.
	47. **2.2S:** Cant make more than one theme stick in the assessment

10. To what extent do you think the EWKR project has improved water managers' understanding of how management of environmental water influences environmental outcomes over time? On what basis?

Group 1	48. **1.3S:** EWKR made some good progress extending the experts' understanding of these things; I think it will take some time for that understanding to transfer to managers, which will happen via ongoing communication between scientists and managers.
Group 2	49. **2.10S:** Not so sure about the "over time" aspect of this question. I think, however, that the concept of ecologically relevant spatio-temporal scales was reinforced through a range of projects.
	50. **2.8S:** As per my comments earlier, I think there could have been a stronger connection between the research and management, acknowledging this may have changed some of the research focus, and perhaps led to a stronger focus on 'burning' issues, rather than some of the more foundational science. However, I think bridging the gap between research and management, and recognising the different drivers etc. is critical. See Coleman et al (2016) for a good discussion of the challenge in this and a model of how this can be done perhaps more effectively. Coleman, R. A., R. Bathgate, N. Bond, D. Bos, T. D. Fletcher, B. Lovell, P. Morison & C. J. Walsh, Improving waterway management outcomes through collaborative research: insights from the Melbourne Waterway Research-Practice Partnership. In: Vietz, G. J., A. J. Flatley & I. D. Rutherfurd (eds) Proceedings of the 8th Australian Stream Management Conference, Leura, NSW, 31 July - 3 August 2016 2016. River Basin Management Society, p 301-309.
	51. **2.7S:** The project was too short to deal with temporal aspects well.
	52. **2.5S:** As mentioned previously, I don't believe there was enough work done in sharing the knowledge gained through the program more widely - this does not mean it is lost, it is being shared through working groups and connections between scientists and practitioners continuing to work through the Flow-MER program.
	53. **2.4S:** This was a short-term project with a limited budget (compared to its objectives). At most there were only a few years of data collected, and that was in a period of drought. Sites were also very limited.
	54. **2.3S:** I think it is also worth noting that the basic level of understanding across these areas varied widely too. There was far more known about fish and vegetation to begin with than the other two themes.
	55. **2.2S:** Little collaboration. No new knowledge outputs Few outputs really

Group 3	56. **3.21S:** The links between the waterbird, fish and food web theme about the quantity/quality of food resource were valuable. This is useful to consider how the quality of habitat influences quality of resources and energy requirements for survival of colonial waterbirds.
	57. **3.22s:** I am not familiar with the end results or if water managers have an improved understanding or not from these projects. Cannot speak for them.
	58. **3.17S:** The EWKR project has not directly influenced decision making for environmental water reserve officers in my region. This is predominantly due to limited contact with the EWKR teams or advice on what they are working on.
	59. **3.14S:** but I am not a water manager, so this is a guess.
	60. **3.16S:** I do not know enough about each theme to comment specifically. However, I have seen water planners and delivery personnel refer to EWKR research quite often - both on the front line of water planning, e.g. water delivery design, as well as the development of whole of Basin watering priorities and evaluation projects. I know the Bird Theme is probably most well-known, that I am unsure how useful that research has been for watering design.
	61. **3.13S:** I am sorry, I do not really know how EWKR operates.
	62. **3.11S:** Research rarely causes change as soon as it is completed. It takes time for it to be disseminated through ad hoc channels. Managers do not consistently read literature, even when it is translated into story spaces or common language articles. What happens is a few people are aware of the work and they let a few others know and so on - it is a slow infection of knowledge. Then those with knowledge and control of operations wrangle with integration of the new knowledge with all the other competing purposes of e-water, integrating it with the current mechanics of river operation and then pass it through a political and community lens.
	63. **3.10S:** I think the waterbird theme and fish theme are helping shift the focus to managing systems at a landscape scale rather than at individual sites and the food web theme is critically important in increasing attention to this theme in particular the need to consider quantity as well as quality of food.
	64. **3.9S:** I realise that these answers are not very helpful, but they reflect my current knowledge of water manager's knowledge and uptake of the EWKR research outcomes. My understanding is that the uptake of the EWKR research outcomes has so far been limited
	65. **3.8S:** I have not talked with water managers to know if they found the results beneficial
	66. **3.7S:** I suspect the project did contribute to water managers understanding of how environmental water influences outcomes. I think they have generally started from a high level of understanding though. I am not a water manager though, so this is an assumption only.
	67. **3.5S:** The system scale project in the fish theme is being used now by managers. I have not seen anything else that is.
	68. **3.4S:** While the understanding relating to all themes has increased - not all understanding has been well based onto managers.
	69. **3.3S:** I have not seen many outcomes.

11. Which of the following products from the EWKR project are you aware of?	
Group 3	70. **3.22S:** I am not sure if the synthesis and site reports is the same as theme reports.
	71. **3.16S:** I am well aware of these products given I was involved in the CEWO MER Section. I've found the EWKR Story space to be most beneficial for connecting with the research myself, as well as the synthesis products found on the CEWO website.
	72. **3.13S:** None, sorry I am not in touch with this world at all. I know they do research
	73. **3.9S:** However, I'm not aware of specific site reports only the synthesis report
	74. **3.4S:** Heather's regular email updates on waterbird movement
	75. [Comment deleted – text left here to not affect numbering of comments]

12. For those products you have encountered (see Q9), how well were they targeted to appropriate audiences?	
Group 3	76. **3.22S:** this is assuming I know what the target audience is. For technical reports I have read such as Qld floodplain project the audience I assume was quasi-technical.
	77. **3.16S:** I don't have a great amount to say here - other than I understand that each product has been tailored for different audiences. So the publications are for a technical audience - very different to the Story Space, which is more community focused and beneficial for managers. The EWKR Story Space in particular sets a benchmark that I believe other MER Projects should follow - user friendly, interactive, people focused etc. Fact sheets and site reports less useful as synthesis products and user friendly / interactive websites.
	78. **3.13S:** I am sorry I have not engaged or been engaged with EWKR
	79. **3.10S:** I have particularly liked the story space articles and found them very good to share with colleagues who have less technical background and less interest in looking through a dense peer reviewed article or report.
	80. **3.2S:** Do not know for all products. I did not know they existed.
13. To what extent could the targeting of products to specific audience needs be improved?	
Group 1	81. **1.5S:** Communication elements of EWKR were not delivered well at the start of the project. Things improved once Siwan Lovett became involved and were on an upwards trajectory by the time the project ended
	82. **1.3S:** The focus of the program really was on the quality of the science rather than the communication of the findings, which was addressed but not a focus. The Story space was a good addition towards the end, but a focused component of the project which got that type of accessibility to the info up and running from the start would have made a big difference.
Group 2	83. **2.10S:** Need to be cautious about compromising quality of research to try and meet yearly water planning cycles. Nevertheless, embedding researchers and/or knowledge brokers into these process to be proactive about conveying knowledge would be hugely beneficial. This happened to some extent through LTIM, but many interactions between researchers and water mangers remain informal.
	84. **2.8S:** I think these questions need to be asked with caution. There is always room for improvement in how things are done, and it would be easy to interpret scope for improvement as an indictment of poor performance of the project.
	85. **2.6S:** I think the quality of the work produced and the people involved was high and I think the frequency of the delivery of products (given it was a multi-year research project) was adequate. I don't believe it is the style of project which generally lends itself to providing information around specific watering actions (that was the realm of LTIM and the relationship between Selected Area teams and CEWO delivery teams). Largely the information produced will inform longer-term planning processes. I think there was substantial effort put into targeted content for water managers, general public and scientific audiences (conferences and papers), though there's always room for improvement. I don't know if people were looking for different products out of the different themes.
	86. **2.5S:** Environmental water managers, including the CEWO, VEWH, MDBA and OEH are the key audience for this work and I think most of these people are aware of the main findings - this is happening incrementally through informal and formal networks.
	87. **2.4S:** See above. Also, my sense was that this was seen by many participants as a chance to grab some research dollars for there own pet projects (especially in the fish, waterbird and food web themes) and less about getting useful products for the client. In some respects the client was seen as a hinderance.

	88. **2.3S:** This question doesn't seem to code properly. Only one of each type of response is possible, despite it being reasonable that you don't know (for example) for all the questions.
Group 3	89. **3.21S**: My comments above relate to my interaction with products as well as EWKR forums presenting results to stakeholders. If is often a tricky balance between have results to share early on in the project and timeliness of information sharing to inform watering year and planning cycles, as well as products for different audiences taking different amount of times to develop. 90. **3.22S:** this question assumes high level of familiarity with the documents. It's been quite a while since I've seen any reports. 91. **3.17S:** Environmental water reserve officers and CMAs are making decisions on the ground. The EWKR project research has not involved our team and we have had no direct access to or interaction with it. 92. **3.16S:** Generally speaking, I don't think timing is important for this work. Research (unlike evaluation) is more of a longer-term slow burn - annual planning cycles less relevant I'm thinking. EWKR has done well in targeting various products to various audiences - e.g. Story Space, magazine articles, online reports. the one area that could perhaps be improved is the content - less focus on 'methodology' and 'results' and more focus on implications for management - the 'so what'. Acknowledging this is a collaborative space, the research community could have better connected with the managers, or emphasised this area of their work. 93. **3.10S:** I have not looked at veg stuff very much 94. **3.9S:** It is difficult to comment on this question other than to relay feedback from an e-water manager who asked if there was going to be a product or package (rather than a report) that synthesises the EWKR research outcomes into relevant management objectives/actions. So, for each of the ecological themes I don't think the targeting to specific audiences is the issue rather it is the packaging of the information that requires a rethink 95. **3.8S:** Sorry - I am really not familiar enough with the products to be able to answer this 96. **3.6S:** Wider circulation and promotion of products targeted to water policy staff 97. **3.3S:** Products are research so no issues with timing around annual planning - any useful info would be absorbed over time. 98. **3.2S:** Quality information that helps to inform/educate our key stakeholders such as recreational fishers, Aboriginal groups, riparian landholders, etc. would be greatly appreciated. Integrating the fish and food webs theme would be very useful to demonstrate the value of overbank flows to aquatic food webs and native fish (recruitment). There should have been an Aboriginal Cultural Heritage theme included in EWKR to identify how plants (used for medicines, food, weapons, shelter, utensils), animals and totem species respond to environmental watering. Gaining a better understanding of the nesting and feeding requirements of Australasian bitterns during nesting and post fledging would be very beneficial from a species recovery perspective. The inclusion of environmental water managers in helping to develop research programs should not be understated.
14. For the products you have encountered (Q9 above), have they influenced your water management practices? How?	
Group 3	99. **3.16S:** In my current role I have seen EWKR research influence discussions around Basin Plan targets, Basin Plan chapter 8 objectives, review of the Environmental Watering Plan, 100. **3.5S:** Only the fish system scale project 101. **3.4S:** Most influence occurred through direct interactions between managers and researchers - particularly through deliveries targeting waterbirds and fish. There was also knowledge considerable knowledge exchange around increasing and measuring productivity.

	102.**3.3S:** They have not. Some outcomes seem interesting, like CSIRO bird tracking, but they don't affect the decisions we can make. Have not seen outcomes from some themes, but that could be my issue being regional so unable to access content. 103.**3.2S:** Not at all.

15. To what degree did each of the EWKR themes enable you to share resources, knowledge, lessons learnt and avoid overlap?

Group 2	104.**2.10S:** Little overlap between themes. It was envisioned early on but never facilitated. 105.**2.8S:** There were regular meetings of the theme coordinators to share progress, discuss alignment of activities etc. 106.**2.6S:** I think the set-up of themes worked well. By having different people from a wide range of organisations in the leadership teams this should have enabled information to be shared quite broadly. No doubt there was still some overlap or people missed. 107.**2.5S:** I think overall there was a lack of integration across the teams, they did not really work closely and insufficient resources were put into making this happen. Personalities in some leadership positions also played a part here, making it difficult to get people to work together. 108.**2.4S:** The food web theme was expected to help integrate across all the themes, but every attempt was thwarted. Themes were reluctant to share their resources to enable integration. In the end, I felt that the only time integration could occur was if the food-web theme would subsidies the integration (and do the targeted research on behalf of the other themes) 109.**2.3S:** This is not really relevant to me. 110.**2.2S:** food webs same as fish

16. To what extent do you think the EWKR project will contribute to Basin Plan objectives? Why?

Group 1	111.**1.5S:** The EWKR projects were designed to input to key Basin Plan themes and objectives. EWKR is one of many inputs to Basin Plan 112.**1.3S:** Better understanding re: ecological responses to watering is great and helps managers fine-tune watering actions, but lack of ecological understanding is not the main obstacle to achieving BP outcomes. Water availability, constraints, external pressures, cultural views/values are all bigger players.
Group 3	113.**3.21S:** I've focused on the Basin wide environmental watering strategy objectives. I think that particularly the food webs and food resources findings, highlight the importance of connectivity and this ecosystem function to provide the building blocks for healthy populations of fish and waterbirds. 114.**3.16S:** The science that EWKR contributes to underpins our capacity to monitor and evaluate BP objectives, as well as inform watering design that aims to achieve environmental BP outcomes. Currently I think it does this in a largely unquantifiable way - by making small advancements in science relevant to ewater management and in the aim that it will be picked up by the planning / managerial sector 115.**3.11S:** The drivers on the Basin plan objectives are way beyond just water. And even those that are tightly coupled to water are determined by how rivers run rather than just the 10% of the river that might be e-water. So one view of the outcome of e-water is that it 'buys a seat at the table' and forces mangers, politicians, diverters, community, river operators (basically everyone in the water space) to take into account environmental objectives in planning, managing, operating, using, talking and fighting about water. The rivers are managed and run differently as a result and the environment responds to the way the river runs. So research on how the socio-ecological system works, how rivers function, what are the ecosystem services and what are the thresholds where damage to these things occurs is really useful. Ever improving the understanding of flow responses (or even more specific designer hydrographs for one species in one location) is only ever going to be a small part of achieving the Basin Plan objectives.

	116. **3.10S:** Helping to shift attention to managing at a landscape scale to achieve necessary outcomes. Specific examples - for birds it highlights the importance of helping chicks survive to become breeding adults not just helping them fledge, for fish the otolith work has demonstrated importance of select nursery habitats across basin and large watering events in driving fish populations, for food webs it is increasing attention on this previously neglected area focusing on quality as well as quantity of food and relative importance of connection to floodplain, which is important in considerations of constraints management.
	117. **3.9S:** All themes and the EWKR project overall will contribute to the Basin Plan objectives because each theme undertook research that linked ecological outcomes (i.e. biotic responses) for different taxonomic order indicators (i.e. species (e.g. lignum, golden perch, ibis species), community, population, functional group) to flow/flooding regimes (i.e. patterns of wetting and drying) with regards to processes (e.g. seedling establishment, recruitment, energy) over multiple spatial scales (i.e. site/patch scale (e.g. wetland vegetation diversity, larval fish dispersal), catchment (e.g. hydrological and ecological connectivity) and inter-catchment (e.g. waterbird and fish movements))
	118. **3.8S:** I'm not sure what you mean by this question - do you mean the extent to which knowledge gained will inform restated BP objectives?
	119. **3.7S:** I think there's a lot of research out there that could inform the management of environmental water to achieve Basin Plan objectives, the trouble seems to be in transferring that research to information, and that information to knowledge, and that knowledge to understanding, and that understanding to action. I don't see research as a limiting factor currently, but I may be wrong on that.
	120. **3.6S:** Not sure I understand the question or which BP objectives you are referring to.
	121. **3.4S:** As the food web theme is complex and more difficult to quantify - more resources may be required to continue it's development and to communicate concepts.
	122. **3.3S:** Don't know. Any useful info has not ever been effectively delivered to managers in my area.
	123. **3.2S:** I don't know. These tables don't work. I would like to check all the themes with 'don't know' but the system will not let the same response in the same rows or columns be checked.
17. How clearly has the EWKR project established that the outcomes from each theme are relevant to the Basin-wide Environmental Watering Strategy expected outcomes and the Basin Plan EWP objectives?	
Group 1	124. **1.5S:** Project themes - fish, vegetation and birds are key BEWS themes. 125. **1.6S:** All themes in developing the logic and rationale needed to reflect a line of sight to BWS. This was outlined in research planning.
Group 3	126. **3.16S:** I don't feel this was a strong component of the EWKR Project, and reference to the BP was loose at best. Better alignment with Basin Plan objectives, and environmental water planning knowledge gaps and needs would benefit the project. 127. **3.9S:** My understanding of the EWKR project was that each theme was given a set of high level objectives or research questions that have regard to the overall objective of the Basin Plan - protect and restore. These research questions may not have specifically aligned with the BWS expected outcomes because the BWS objectives are limited to very specific outcomes for River flow/connectivity, Vegetation, Fish and Waterbirds. However in saying that in each theme's final report the table in the Management Relevance section: "Resource availability scenarios and associated ECO THEME outcomes, risks, considerations and knowledge requirements" do establish clear links between the theme outcomes and BWS expected outcomes 128. **3.7S:** I don't know, but I don't think the current iteration of the BWS is appropriate for use in guiding research for environmental water management.

	129.**3.6S:** I believe the EWKR work to be very specific and targeted work rather than broad and overarching (i.e. like the BWS or EWP objectives).
	130.**3.2S:** The themes align with the BWS, that's all.

18. To what extent did the EWKR project take into account other ongoing and planned initiatives/projects related to Basin Plan implementation? How?

Group 1	131.**1.5S:** I don't have day to day connection to the scientists running the projects but I understand that there were synergies between EWKR and other key projects such as LTIM, EWKR and state-based MER projects.
	132.**1.3S:** There was a reasonable effort made to understand other things that were happening and the personnel links to LTIM helped, but integration is a hard thing to do. I don't think there was any duplication with other work, but potentially there were opportunities to build on the back of previous work that weren't taken up.
Group 2	133.**2.8S:** Where possible there were definite efforts to do this, and there were a number of specific examples where components of work were done with co-investment from other sources of funding, to enable activities to occur that otherwise would not have been possible. However, as a large and complex project there were no doubt areas where opportunities might have been missed.
	134.**2.7S:** There were good links with the LTIM projects at SA scale, and with TLM and state based work for fish.
	135.**2.6S:** For example the Vegetation theme made an explicit decision to not focus on adult tree condition as it was felt this was being covered through other programs.
	136.**2.5S:** EWKR had a really difficult brief as the CEWO was also just starting so both sets of people were finding their way when it came to environmental water management. I believe the EWKR team did their best to take account of Basin Plan implementation - the difficulty of a fraught and complex policy environment like the Basin Plan is that science cannot necessarily respond with absolute answers in political time frames. This is a constant source of tension and challenge for any research organisation seeking to influence policy.
	137.**2.4S:** With the exception of LTIM (which I think has been a huge waste of resources anyway) very little.
	138.**2.2S:** little connections to those in operations No connect to MDBA at all despite direction to do so- they had done heaps of work No connections to managing agencies such as NSW fisheries - who were ignored along with most other state agencies and their key staff
Group 3	139.**3.16S:** There we're attempts to better integrate EWKR with LTIM, to ensure research better aligned with gaps in knowledge thrown up from M&E - however this was never formalised. There was an assumption that this would take place to some degree given the same agency was managing both projects. Again, I don't feel this was a strong component of EWKR
	140.**3.12S:** EWKR was extremely focused on their research outcomes and missed the overall objectives of delivering environmental outcomes. So at Hattah they tried to stop a natural watering event from occurring so they could have a drying event. This did a huge amount of damage to relationships that had taken years to develop. Some never recovered! It was a most unimpressive example of selfish science that was oblivious, maybe even contemptuous of the huge amount of work that had been undertaken and the massive commitment of individuals to deliver environmental projects
	141.**3.11S:** The big thing is all themes acknowledge that water is only one driver and that e-water is only one lever.
	142.**3.9S:** My understanding is that each EWKR project theme team were also involved in the Commonwealth Long-term Intervention Monitoring projects

	143. **3.8S:** this assessment is based on my understanding of the approach, research questions and results, and where they fit with other related programs
	144. **3.4S:** I am unable to answer this as I was not involved enough.
	145. **3.3S:** Watersheds connected with some mer so seems more agile?
	146. [Comment deleted – text left here to not affect numbering of comments]

19. How appropriately designed do you think the EWKR project was in supporting water managers to manage environmental water?	
Group 1	147. **1.5S:** As clients we emphasised the need for all research in EWKR to be management-relevant and where possible management-focused.
	148. **1.3S:** As per answer above - improved knowledge is helpful for water managers but is generally not the main factor that dictates the details of a watering action - availability and delivery constraints shape events more than what would be ecologically ideal
	149. **1.6S:** Adoption and engagement with water managers was a key activity in the design of EWKR but it wasn't implemented effectively. Themes approached it differently, for example waterbirds took a very public and very engaging approach to the research and this resulted in a high profile and awareness of the work being done by water managers and the even the general public.
Group 2	150. **2.10S:** This is likely yet to be seen to any great extent.
	151. **2.9S:** yes it was targeted at this. but also we set out to do research that wasn't monitoring and filled important knowledge gaps in eflows. some of the research therefore was therefore probably more general or theoretical than specifically relating to water requirements e.g. food densities that larval fish need
	152. **2.8S:** I think the project could have been better designed in this sense though adoption of the sort of model outlined in Coleman et al.
	153. **2.7S:** The emphasis from the outset was on process and foundational knowledge, rather than decision support.
	154. **2.6S:** That was certainly the intent. Whether it hit the mark is really up to water managers I guess. The initial process of trying to source questions / research topics to address could probably have been handled slightly differently with the beauty of hindsight. Managing the expectations of a large group is difficult (the term 'water managers' covers a lot of people, with varying roles and perceptions). The idea was to address recognised knowledge gaps to inform processes rather than address very specific management questions at very specific locations.
	155. **2.5S:** I think as our knowledge and experience in environmental water management continues to grow, the sophistication of the programs we develop also increases. At the outset I think EWKR was well conceived, five years down the track and we have a greater understanding of the opportunities and challenges of environmental water management so the Flow-MER program looks quite different - this is what adaptive management and research is all about.
	156. **2.4S:** The planning was fractured from the beginning. Each theme was allocated dollars, and basically told to design their own programs. Years (and a lot of money) was then wasted into trying to align the themes with management expectations.
	157. **2.2S:** Fish Managers not involved at the start- then after they were involved in the foundational stages- their opinions and priorities were ignored in project selection
Group 3	158. **3.17S:** Not enough water manager stakeholder involvement
	159. **3.16S:** I understand there was an early effort and extensive process, that relied primarily on state managers, to identify and prioritise the EWKR research questions in a way that connected with ewater needs. However more effort was needed over the duration of the project, especially once the research was providing dividends, to connect back in with managers, and even better involve them in the research itself with a view to informing ewater delivery and planning.

160. **3.12S:** it was focused on perfect science - not adaptive science that would be delivered in a natural system that responded to uncontrolled inputs. The river is not a controlled laboratory experiment and asking / expecting managers to deliver the perfect outcome for the science is unreasonable and unrealistic.

161. **3.10S:** Problem with Survey Monkey - it won't let me tick same rating for more than one row for this question. I think EWKR is about building and sharing knowledge not telling water managers what to do with that information. as water managers we need to take responsibility for understanding this information and deciding how to best use it.

162. **3.9S:** I think that the design of some themes were influenced by a handful of ewater managers and so the project may provide suitable support to them but possibly not to others. This is not a criticism of ewater managers but a reflection that their time is highly sought after and there is only one per valley. In saying that how ewater managers are engaged in the future my need to be reconsidered due to the high demands on their time.

163. **3.8S:** I've ticked 'Don't know' here, because I don't really know. However, my suspicion is that the results could have been better communicated to water managers - face to face.

164. **3.7S:** 'A lot' applies to all (it wouldn't let me click on more than one). My understanding of how the project was scoped by engaging with managers to identify areas of uncertainty seemed good to me.

165. **3.4S:** Some appears wrong with the way this is set up - I can't click on the responses I want to give. Water managers have conveyed to me that they couldn't always extrapolate the findings into appropriate management actions,

166. **3.2S:** Not at all that I am aware of.

20. To what extent do you think the planning process (Phase 1) and final set of research questions adequately reflected manager needs?	
Group 1	167. **1.5S:** A bit chicken and egg here. A frequent conversation in phase 1 was the EWKR team asking managers "what do you want?" and managers asking "what have you got? This circular argument meant that it was difficult to gauge managers needs and to engage their interest at the planning phase of the project. Every endeavor was made to make the research questions management relevant. 168. **1.3S:** Most water delivery is focused on asset/catchment level and involves explicit actions - can be tricky to pull out what is relevant/important to those actions from the broader process based info of EWKR. May often need an expert interpretation of how EWKR's process understanding might apply to/influence a particular action.
Group 2	169. **2.9S:** fish theme undertook targeted research with managers to gauge this specifically 170. **2.8S:** I find this framing troubling. What does a water manager need? They need many things, from short-term advice, to long-term improvements in our understanding of basic processes that may be poorly understood. I think it is easy to answer this question based on the short-term needs, and conclude that the project 'did not' meet those needs, yet I would contend that was not the objective of the project as most members understood it (including myself as an initial theme team member rather than in a leadership role). 171. **2.6S:** I think the final set of research questions broadly reflected a summary of the key knowledge gaps / areas requiring research. By largely taking a broad / conceptual approach I think EWKR does meet water manager needs at the Basin scale and in relation to each theme. Though I suspect there may not always be a direct / clear link to the requirements at individual assets. 172. **2.5S:** Water managers were asked what they wanted to know and EWKR tried to answer those questions. I have chosen a moderate amount because as EWKR progressed and water manager

	experience grew, those questions became more focused and specific - specificity is not what you can provide at basin scale.
	173.**2.2S:** For fish see the review article Koehn et al EMR 2019 and compare to the projects undertaken
Group 3	174.**3.21S:** I've generally indicated I don't know because I wasn't so involved during the genesis of EWKR and involved with the shaping of the final set of research questions. I think the TLM icon site managers that were involved with the project found it valuable at the site/asset scale.
	175.**3.16S:** Given the process relied primarily on state based water planners - I think it represented the views of state based planners. The degree to which it involved Commonwealth and site based managers, I'm less sure.
	176.**3.10S:** I think EWKR appropriately targets larger spatial scale.
	177.**3.9S:** Similar to the previous question I think that the planning process of some themes were influenced by a handful of ewater managers and so the final research questions may provide suitable support to them but possibly not to others. Nevertheless the research questions will ultimately provide useful information for all ewater managers
	178.**3.8S:** this assessment is based on my knowledge of the outcomes and their relevance to water managers
	179.**3.7S:** Unfamiliar with the planning process and research questions
	180.**3.6S:** I was not involved in setting the final research questions.
	181.**3.4S:** Managers expressed to me that they didn't feel listened to in this phase.
	182.**3.2S:** What were the final set of research questions?

21. How confident are you in the science undertaken in the EWKR project and its relevance to the needs of environmental water managers within the framework of adaptive water management in the Murray-Darling Basin?	
Group 2	183.**2.9S:** the quality of the science is not in question. there is some fantastic work there.
	184.**2.8S:** I am very confident that the work done in EWKR will play a long-term role in improving our understanding of flow-ecology relationships and how that influences management of water in the basin. I don't think that contribution can necessarily be measured easily over short timescales.
	185.**2.5S:** The researchers I worked with were dedicated to their projects.
	186.**2.4S:** You only have to look to the fish kills in the lower Darling River last year. Potentially the largest environmental catastrophe in the Basin, but none of the research undertaken in EWKR went anywhere near the issues that occurred. In particular, one thing that was abundantly clear following the fish kills is the essential lack of data on native fish physiology. The Fish theme focused on recruitment (as fish research in this country has been doing for the last 20 years).
	187.**2.2S:** see above for fish I think birds are better, not sure about veg. have heard nothing form productivity- it was supposed to link closely to fish - important for early life stages but never did
Group 3	188.**3.21S:** The project has generating new knowledge that is useful to consider for e-water planning as well testing areas where there are still uncertainties
	189.**3.16S:** I'm quite confident that a lot of the research will have some practical application in relation to water management over the long term - event if it just inches our understanding of flow-ecology science in some form. Research can always better connect with managers - both in design and implementation and that choice always come at a cost in terms of time and dollars. I feel EWKR could have spent more time and dollars on ensuring their research provided real value to the AM of ewater in the MDB. I felt like it was often an afterthought, rather than a driving motivator for some themes.
	190.**3.11S:** Both a scale thing (generalisable knowledge vs specific knowledge). But also a fundamental issue that I discussed earlier - e-water management has only a small role in achieving Basin-scale environmental objectives, but can play a big part for a particular asset. If we looked after 5, 10,

	even 50 assets really well would the Basin system be really that different? Especially if the rest of the Basin system was not well looked after then the answer would be a clear 'no'.
	191. **3.3S:** Seems like good people answering the wrong questions.
	192. **3.2S:** I don't know. I am not at all confident.

22. How appropriate do you think the EWKR project design was to deliver findings which built the capacity of water managers and complimentary natural resource managers to be able to more confidently set realistic objectives? Do you think capacity has been improved?	
Group 1	193. **1.5S:** Hopefully you will advise us on that
	194. **1.3S:** I think the use of themes in EWKR was good and generally aligns with key management objectives, whereas the 4 site concept did not really work. Capacity to set objectives is definitely improving as more and more actions are undertaken and EWKR info is helping to explain why we are seeing some of the outcomes from particular actions and patterns in monitoring.
	195. **1.6S:** Funding constraints didn't enable this to full extent.
Group 2	196. **2.10S:** The EWKR project finished a lot better than it started. Nevertheless, it was burdened by a range of legacy issues. Any project of this nature needs strong links with end-users of the research. These users need to be embedded in decision making, not just sitting on the periphery.
	197. **2.9S:** I think managers and scientists need to be more embedded with each other - this helps keep both honest! managers work within research projects, scientists work within management decisions. one of the problems we have in applied science in all areas (not just water), is making sure that they science is fit-for-purpose for managers to use. scientists argue that we do the work but managers don't listen, and managers argue that scientists do work but its not what they need. both are true!
	198. **2.8S:** The success on this measure is probably mixed, but it's unclear to what degree this was seen as the objective of the project by those designing the research activities.
	199. **2.7S:** I would argue that the intent was to build the science base rather than water manager capacity.
	200. **2.6S:** There are some very good conceptual frameworks to come out of EWKR
	201. **2.5S:** Well, I am not sure about complimentary - certainly complementary....
	202. **2.4S:** Neither, but I had to tick a box.
	203. **2.2S:** Stage 2 under a new regime is looking much better has set projects to address key management needs
Group 3	204. **3.21S:** There wasn't a don't know option, and the survey wouldn't progress without ticking a box so I have ticked somewhat appropriate above.
	205. I have no idea
	206. **3.17S:** If it is incorporated into FLOWS method etc.
	207. **3.16S:** I'm not convinced I know enough to confidently comment - however I don't think the EWKR project focused heavily on informing the design of watering objectives.
	208. **3.13S:** I don't know. I'd like to be positive here but have no real engagement with EWKR
	209. **3.11S:** At a few sites where the theme subject matter was relevant it has e.g. where colonial nesting water birds occur one can draw inference from the EWKR work . For the remaining 90% of rivers that theme is probably not that relevant. Whilst I appreciate taxa-level and site-level objectives, they do not really transform management of a Basin system. We have to look at broad ways rivers, floodplains and catchments function and preserve key functional elements and let the ecology continue to adapt
	210. **3.10S:** I think capacity has been improved by those who have actively engaged with EWKR and its findings, but not sure this is widespread.

211. **3.9S:** For some themes yes I think capacity has improved because the research focused on filling knowledge gaps around biotic responses to flow regimes at different spatial and temporal scales. The following examples demonstrate this: The waterbird theme investigated waterbird movements and found clear population connectivity between the northern and southern Basin which highlights the need for inter-valley coordinated ewater planning. It also found that foraging habitat availability needs to be managed both during and between breeding events which is an important factor for ewater managers to consider. The vegetation theme investigated Eucalypt tree seedling strategies in response to different flooding regimes and found that constant flooding of seedlings will suppress their growth. It also found the inter-flood dry periods are important for seedling growth (especially root growth). Together these findings highlight the importance of flooding timing and duration for the management of woody seedlings, an important consideration for the stand condition of tree communities. The fish theme researched the spatial patterns of food and temperature so as to identify which areas in the landscape will be important for successful fish recruitment. This has implications for the assets being targeted by ewater actions.

212. **3.8S:** As stated at Q16, my suspicion is that the results could have been better communicated to water managers - face to face.

213. **3.4S:** As difficult as it is, there needs to be more discussion/collaboration between researchers and managers throughout the entirety of the project. My experience is that initially there is a flurry of communication (even offers to go out in the field that never eventuate) but once the project commences the communication frequently dries up and the findings are written and presented with very little interaction with managers. While the output may suit what researchers had in mind, many managers struggle to convert findings into applicable management.

214. **3.2S:** No I don't think capacity has been improved.

23. To what extent was the design of the EWKR project integrated with complementary recent, ongoing or planned interventions in the project area or on the same problem/issue?

Group 2	
	215. **2.8S:** One example of a weakness in this regard was the clear disconnect between LTIM and EWKR projects, which are now (positively), more closely aligned.
	216. **2.6S:** The waterbirds theme was looking for active breeding sites so were well aware of planned interventions / other monitoring. The vegetation theme sort input / recommendations from water managers for field sites (but we weren't specifically looking for watered sites, we were looking for a range of histories). I think the themes did their best to be aware of relevant watering events but it wasn't an intervention monitoring project (that was the realm of LTIM).
	217. **2.5S:** A lot of EWKR work is being used to underpin Flow-MER. I think it is a shame that more workshops were not held at the end of EWKR as a way of marking the end of five years and the beginning of another five that build on what has gone before.
	218. **2.2S:** None in the first tranche Better now

24. How efficient was the EWKR project, in each theme, in meeting its objectives?

Group 1	
	219. **1.5S:** Progress was variable. Waterbirds went well from the start. Veg and Fish started slowly but improved, particularly after taking on board SAG advice. Food Webs made late progress but was slower than the other themes to get underway.
	220. **1.3S:** Planning process too long - objectives not well enough defined to quickly ID a scope that fit neatly within the available $ - led to lost time
	221. **1.6S:** What was achieved with the funds was efficient.

Group 2	
	222. **2.8S:** I think the efficiency of the project could have been improved considerably, particularly in the planning phases, which took too long, and invested too many time and resources in trying to justify some of the planned research activities. This cut into the field-activities in a way that

	ultimately placed pressure on the themes to compress the work into a shorter timeframe than would have been ideal.
	223. The projects were very slow to start.
	224. **2.5S:** Don't really feel I can answer this
	225. **2.4S:** The EWKR project was a monumental waste of time and Energy. A huge amount of time and effort was spent on (non-integrated) planning; with multiple (read 10's) of iterations before a research plan was developed. The final plan was not consistent, didn't address the clients needs, and was of limited scientific value (count the number of papers that have come out of EWKR vs the amount of cash and in-kind used).
	226. **2.2S:** What have the outputs been from the research?

25. Do you consider the expenditure worthwhile? Question is specifically about cost.	
Group 1	227. **1.5S:** Yes these are critical areas of work for e-water management and Basin Plan implementation. The question for me is how can we do better in achieving results not whether the projects have value in themselves. They clearly d
Group 2	228. **2.10S:** Complex question to answer, particularly given the governance model used at the outset of the project. A simple yes or no answer is difficult!
	229. **2.8S:** Overall, I do, however, I also think there were areas were resources (funds) could have been used more effectively. As per my previous comment, the planning phase was too costly in my view.
	230. **2.4S:** See all the comments above
	231. **2.2S:** Unsure for communication

26. Do you think EWKR project processes encourage participants to collaborate, share resources and lessons learnt?	
Group 2	232. **2.10S:** From a fish perspective, provided a much needed mechanisms for researchers to collaborate.
	233. **2.9S:** It encouraged participants across themes to collaborate mostly through meetings. This aspect and appointment of postdocs was good. However the governance model was troublesome from the start for this. with most of the funds going to main partner, and other potential collaborators excluded with very little explanation. there was always tension for resources.
	234. **2.8S:** I've ticked two boxes here because I think that sharing was encouraged, but did not always occur. This is somewhat inevitable with large projects with so many contributors.
	235. **2.7S:** Initial project management issues hindered this.
	236. **2.5S:** I was aware of tensions and the sacking of key personnel half way through the project was an unfortunate decision.
	237. **2.4S:** On the face of it, there were numerous insistences on collaboration, but in reality it didn't occur. A few select researchers got their projects up, most didn't. Those who did get funding held on to it quite tightly.

27. How efficiently do you think the EWKR project conveyed lessons learnt to improve adaptive management of environmental water?	
Group 1	238. **1.5S:** This is something to think on for the future. We found it very difficult to get these sorts of recommendations from the EWKR scientists, particularly in relation to opinions they might have had but which could not be defended with replicable scientific data. "What do you reckon?" was a question we frequently asked but rarely got an answer to.

	239. **1.3S:** Waterbirds theme did the best in terms of getting info out there for use by managers - haven't been many waterbird breeding events since the project to really apply knowledge. Much of the understandings built during EWKR will take time to flow through into management.
Group 2	240. **2.8S:** I think this objective could have been improved through having water managers involved directly in project activities.
	241. **2.7S:** The short term of the project hindered this phase.
	242. **2.5S:** We only had responsibilities for the website and social media components which we know performed well. However, there could have been a lot more communication outputs in the form of guides, manuals and fact sheets that never eventuated. The same with workshops to share findings in more interactive formats.
	243. **2.2S:** What where they Where were they shared and how I know of none to the people that matter We have watering happening every year by a range of agencies regardless
Group 3	244. **3.21S:** I've rated somewhat efficient based on my experience attending the final wrap up workshop where theme leaders presenting findings and reflected on potential implications for water management, really informative and useful session.
	245. **3.22S:** I went to a workshop a long time back - over a year I think that attempted to share findings and lessons learnt. Whether or not this was adopted in any themes specifically I do not know.
	246. **3.16S:** There was a genuine attempt by researchers to think about this - as evidenced in the final presentations that CEWO / MDBA folk attended. This could have been done better. A stand alone report that focused solely on this - rather than a synthesis of research findings may have beneficial and more emphasis on the AM benefits of the research, rather than the research itself. We faced similar battles with LTIM early on - less emphasis on the Monitoring and more on the Evaluation.
	247. **3.10S:** I am not sure outcomes of EWKR are widely known beyond those with direct interest or involvement in the project
	248. **3.9S:** Most of this was incorporated into final reports but this requires lengthy read time. In saying that in the Management Relevance sections the tables "Resource availability scenarios and associated ECO THEME outcomes, risks, considerations and knowledge requirements" will be extremely useful. It would be good to consider future investment in these as visual products
	249. **3.8S:** just a suspicion based on what was said at the stakeholder workshop in Canberra in March 2019
	250. **3.4S:** I'm not confident that managers are using the lessons learnt from EWKR to the extent they could be.
	251. **3.3S:** I cannot assess efficiency as I'd need to have an idea of the effort and content.
	252. **3.2S:** I don't know, probably not at all.
28. To what extent do you feel confident that adequate funds were allocated and utilised in communication findings to appropriate audiences?	
Group 1	253. **1.5S:** I think there was a significant investment in communication but activities were not delivered well until late in the project.
	254. **1.3S:** There was a reasonable focus placed on communication of findings during planning stages, but not a clear % of budget and it inevitably became a lesser priority than the research itself.
	255. **1.6S:** Funding for some activities didn't get fully utilised - e.g. adoption and engagement.
Group 2	256. **2.10S:** Again, this vital end-point seemed rushed. Also, to some extent, could have been undertaken at intervals during the project.
	257. **2.8S:** The project would definitely have benefited from someone being tasked directly with this role from early on. A knowledge broker type position would have benefited the project considerably.

	258. **2.5S:** As mentioned above, not enough was allocated to adding value to the web resources and RipRap Magazine that was produced. The previous Program Manager, Ben Gawne, had committed to a large communications effort including sessions at the Riversymposium - it was during the Riversymposium that he was sacked and so the comms effort suffered. A very disappointing outcome.
	259. **2.4S:** I left before that phase started.
Group 3	260. **3.21S:** I think at the end of the project there was a concerted effort to tailoring information to different audiences - for example the EWKR story space.
	261. **3.17S:** I've been a senior manager in the environmental water space for several years and my exposure to the EWKR program has been predominantly ad hoc or on my own initiative.
	262. **3.16S:** The EWKR Project invested in a lot of communication tools over the course of the Project. However there was a rush to finalise the research, and the communication of final results and the application of the science could have been more a focus
	263. **3.11S:** It took a while but a few of us became quite boring with our continual calls for a 'communication or adoption' theme. But some resources were explicitly devoted to comms and adoption.
	264. **3.9S:** Scientist require support to communicate their findings to appropriate audiences - these audiences differ and so require different forms of communication products. Often this component is not budgeted for and is left to scientists to do as part of their research project. However it takes time and different expertise to communicate effectively to different audiences and at different stages of the research projects.
	265. **3.7S:** I'm less familiar with the project and its outputs than I should be. I have done a little searching, but I don't feel outputs were particularly accessible
	266. **3.3S:** Seems like a bit of effort was spent.

29. How impactful have the outcomes from each theme been on providing new knowledge for water managers to better inform achievement of environmental outcomes from the use of environmental water?	
Group 1	267. **1.5S:** All of the themes have delivered management-relevant information
	268. **1.3S:** Still early days and limited opportunities to apply knowledge thus far, but all themes have contributed.
Group 2	269. **2.8S:** I think there are a few stand out examples where significant gains were made (e.g. fish and bird movement), whereas in other areas the progress is perhaps more incremental.
	270. **2.6S:** This question needs a 'I don't know' column. All of the themes were successful in providing new knowledge, I don't know if that knowledge has been impactful on outcomes?
	271. **2.2S:** Very few results especially for the money allocated Little of no transfer
Group 3	272. **3.22S:** I have no idea.
	273. **3.16S:** I don't think this was a major benefit of EWKR? It demonstrated well the CEWO commitment and investment in knowledge (not withstand the funding came from the Dept), but not so much outcomes from ewatering. A lot of the research was only loosely tied to ewatering as I understand it, which is probably a product of EWKR originating outside of the CEWO. E.g. the waterbirds research, possibly the most well known of all activities, was not about ewatering but the foraging behaviour of native waterbirds more generally. Its findings may have some application for ewater management - in better understanding how native waterbirds move and find food - but the research did not connect with ewater delivery or even inundation extent of key assets, to my knowledge.

	274.I don't know
	275.**3.11S:** I would not like to comment having not be close to this issue.
	276.**3.10S:** EWKR is about improving understanding that will inform future management decisions rather than demonstrating outcomes from past watering (that is the LTIM focus). Having said that, some of the outcomes from EWKR have helped overall understanding and CEWO and others can use that info in telling the story of environmental water to various audiences.
	277.**3.9S:** I can not comment on this question as at the moment I do not know
	278.**3.8S:** Goodness - I feel I should be able to answer this, but I honestly don't know. To me this suggests problems with comms - but it may simply be that I've been too busy and missed this information.
	279.**3.7S:** A little, if any, but I wouldn't have thought that was the purpose of the project?
	280.**3.5S:** I really have not seen much of it used by managers apart from the system scale project in the fish theme (note other parts of the fish theme I did not see used by managers either)
	281.**3.3S:** Unsure.
	282.**3.2S:** I don't know.

30. To what extent do you think the EWKR project has led to improved understanding by water managers' of medium- and long- term changes in ecological condition, including the effects of threats (hydrological, aquatic and terrestrial) which may reduce or prevent the ecological improvement expected?	
Group 2	283.**2.10S:** Again, ecological condition not the focus of project, but understanding of mechanisms promoting condition may have improved.
	284.**2.8S:** I think it's hard to make blanket judgements with such a large project - impact in this regard is probably highly variable among individuals.
	285.**2.7S:** Again, the focus was not on closing the loop to water management understanding.
	286.**2.5S:** Early days in our research so it can only be moderate
	287.**2.4S:** It was a short-term, very focused project. Little was done to even contemplate medium to long-term outputs.
Group 3	288.**3.16S:** I don't enough about how EWKR has informed condition assessment
	289.**3.11S:** I am coming from a Basin scale perspective. The threats to a Basin are very different to the threats to an asset. The EWKR work was at asset scale so has little relevance to the Basin scale.
	290.**3.4S:** Again difficult to rank across managers and locations. e.g. Northern managers may have taken more from the fish theme and southern managers may take more from veg theme.
	291.**3.3S:** Some of the colony work by csiro was interesting.
	292.**3.2S**: I don't know, probably not at all.

31. How likely do you think the EWKR project findings will influence, if at all, your future water management practices?	
Group 1	293.**1.5S:** They already do. Key EWKR findings such as the heterogeneity of wetland vegetation, the productivity of flows along anabranches and flood runners and the energy requirements (number of Big Macs) to fledge waterbirds have been noted by us and appear in the draft 2020 Basin Plan evaluation documentation. We will take these findings into consideration as we continue to manage ewater into the future.
Group 3	294.**3.21S:** While I've provided a neutral answer to the above, because I am more involved with the MER aspect that the water management, I think that the knowledge generated will help inform where e-water could be targeted and is an evidence base for expected outcomes.
	295.**3.22S:** again I am not familiar with many of the themes and do not feel qualified to answer this
	296.**3.17S:** This isn't absolute but my current knowledge of the findings is minimal so they can't influence my thinking.

	297. **3.15S:** I am not involved directly in water management practices.
	298. **3.13S:** If they are published then I'm sure NSW will use them
	299. **3.11S:** Time will tell...
	300. **3.10S:** I am already using these results to varying degrees. They are not the only influence, but are definitely an important resource.
	301. **3.9S:** There are good elements in the EWKR project findings that will help improve object setting at multiple spatial and temporal scales
	302. **3.7S:** I expect there are probably findings that will contribute to my future work, but I am involved in policy rather than water management
	303. **3.4S:** Learnings from EWKR will be included in water delivery decisions with other information.
	304. **3.3S:** Unsure,

32. To what extent, if any, has your interaction with other agencies changed as a result of the EWKR project?

Group 2	305. **2.10S:** Project provided a great mechanism for collaboration, and continued interaction with CEWO staff.
	306. **2.8S:** There could have been more/improved formal engagement with agencies by embedding staff into project steering committees, research theme teams etc. This is always hard when it is someone else's money (i.e. the CEWO's) people tend to pay less attention, but then when asked they'll often say the project wasn't that helpful to them.
	307. **2.7S:** Much closer links with CSIRO and states.
	308. **2.6S:** Its greatly improved my interaction with other scientists and some water agencies (CEWO, OEH)
	309. **2.5S:** I have learnt so much through EWKR - as a result I have shared the knowledge I gained with VEWH, MDBA, OEH and CEWO. As a convenor of scientific workshops and communities of practice I have called on EWKR researchers to attend and share what they know. This has been an effective way to share knowledge.
	310. **2.4S:** I left CSIRO/MDFRC in no small part because of my experience with the EWKR project.
	311. **2.2S:** It has all happened independently of EWKR

33. To what extent has the EWKR project improved your capacity to predict outcomes of environmental flow allocations and management over 1-5 years?

Group 2	312. **2.10S:** Improved knowledge of mechanisms.
	313. **2.8S:** I think it plays an important part (but not a distinct isolated contribution) toward this goal..
Group 3	314. **3.16S:** We will be conducting a review of the Basin watering strategy shortly, and using the latest scientific knowledge to inform a review of Basin Plan ecological targets will be central to this. I don't believe the EWKR has examined the long term BP objectives with a view to applying its findings, though this would be valuable across themes.
	315. I don't know
	316. **3.11S:** Prediction and attribution is challenging in mesocosm experiments. In an replicated, dynamic, massive Basin with lags from past disturbance still playing out and a rapidly changing climate prediction and attribution are wishful thinking and their pursuit is rather unhelpful. An alternative is to be comfortable in saying 'this is what a river needs to function well. We are providing as much of this as possible whilst maintaining what the economy and society wish to have as well. The condition of the Basin system is x,y,z. If we want something different then this is what we need to do.' Most of this is based on fundamentals and logic not prediction per se.
	317. **3.9S:** There are elements of each theme that will help with formulating the expected outcomes of specific water action objectives

	318. **3.7S:** My capacity to predict outcomes from environmental water use and management is limited. Not sure EWKR has contributed to it.
	319. **3.4S:** Learning have been used to expand consideration of other attributes such as productivity when delivering fish flows.
	320. **3.3S:** No information has been adopted. There are a variety of reasons for this.
34. To what extent have you adopted or used knowledge/guidance/tools generated by the project?	
Group 2	321. **2.5S:** I have used knowledge of the project in my work facilitating scientific workshops across a range of topics.
Group 3	322. **3.15S:** This is in relation to my use of outputs/knowledge from the vegetation theme within the QLD floodplain vegetation project.
	323. **3.16S:** Not to a great deal as I'm not a ewater manager. But I know some of the tools have used in the Basin scale projects, such as the CSIRO Ecosystem modelling project etc.
	324. **3.11S:** The information pops up in various ways, as I said earlier it is an osmotic process. So it will continue to float around with some influence.
	325. **3.10S:** I am working the Heather McGinness to try and plan water use at wetlands across northern Victoria to improve waterbird outcomes. I use knowledge about fish populations (particularly Golden Perch) to try and identify where in Victoria we should be trying to support fish breeding and where we should focus on fish movement. the food web findings on the relative quality of food in channel, vs anabranch, vs billabong is driving thinking around where and how to connect critical off channel habitats via environmental water and the need to ensure return flows from those sites.
	326. **3.9S:** At the moment I have been using information from the vegetation and waterbird themes with regards to objective and target setting in the future and also for MER reporting
	327. **3.8S:** As Program Manager, this isn't really applicable to me
	328. **3.7S:** I have drawn on some of the outputs from the project in how I think about and communicate ideas in Basin vegetation management
	329. **3.4S:** It is difficult to assess this as it varies across managers and valleys.
	330. **3.3S:** Very few useful products for management and comms purposes. The best is the csiro tracking.
	331. **3.2S:** Not at all.
35. What, if any, improvements could be made to the EWKR project moving forward?	
	See Appendix 4.

APPENDIX 4: SURVEY FREE TEXT RESPONSES TO QUESTION 35. *WHAT, IF ANY, IMPROVEMENTS COULD BE MADE TO THE EWKR PROJECT MOVING FORWARD?*

The free text comments received addressing the question of 'what would you do differently moving forward' are categorised into planning stages/aspects. Some answers have been split and some repeated as they are relevant in several areas.

Table A4. 1. Survey free text responses by program planning elements and aspects. Number relates to the stakeholder group and respondent code. 1.6S = group 1, respondent 6, Survey. Groups were 1 = client, 2 = service provider, 3 = end users.

Program planning stage/element	Program aspect	Free text responses
Governance	Project management	2.12S: Continuation of its funding to keep the theme leadership groups collaborating.
		2.10S: Transparent governance and funding models.
		2.8S: Modified governance structure.
		2.4S: A much better management structure.
		2.4S: Make sure the project and themes are led by people with experience in managing large projects successfully. (One of the problems was that the theme leaders were for the most part quite junior, but their leadership teams consisted of the aforementioned god-professors.
		3.8S: this is not really a criticism of EWKR, more of the way similar programs - like EWKR, LTIM/MER, VEFMAP/WetMAP operate in relative isolation, which makes no sense at all to me. So I guess my hope is that in the near future we can all work together more to ensure better program alignment.
		3.5S: It needs to be much less academic (in my view).
	Funding	1.6S: Investment in long term research is required to ensure we can improve our knowledge to better inform adaptive management.
		2.4S: Don't divide the dollars up at the start of the project.
		3.11S: Smearing money over themes and years means there is little available to anyone. An alternative is to schedule the funding differently, so that larger amounts are available to fewer things in any one year.
Planning	Engagement	1.6S: Networks developed thru EWKR have developed and strengthened over the life of the project and building on that and maintaining that momentum is very important to ensure the legacy of knowledge gained from EWKR are built on

		3.15S: Better integration with other relevant MER programs.
		3.10S: I appreciate EWKR has had a lot of contact with CEWO, but most of the interactions I have had have been through my existing networks and my own interest (i.e. I have sought information). Most water managers are probably less likely to seek this information out themselves and therefore are not exposed to the outcome.
	Collaboration models	2.8S: Co-design of projects, Knowledge broker role.
		2.10S: Meaningful interactions with managers and mutual recognition of managers and researchers needs are paramount.
		1.6S: The collaborations built during the EWKR project were valuable and positive outcome of the project.
		2.4S: Select the team based on experience, track records on delivery. Don't invite all to the table and then let the god-professors determine the key 'priorities".
		3.16S Better inclusion and collaboration with associated projects (i.e. the QLD floodplain vegetation project). Due to the timing/delivery of the QLD veg project ongoing involvement with the main EWKR has been limited following project completion.
		3.15S: Better ongoing connection to the ewater decision makers and planners.
		3.10S: More opportunities for the researchers to directly discuss their programs (during planning) and outcomes with e water and river managers in general. This could be done through forums such as SCBEWC. I appreciate EWKR has had a lot of contact with CEWO, but most of the interactions I have had have been through my existing networks and my own interest (i.e. I have sought information). Most water managers are probably less likely to seek this information out themselves and therefore are not exposed to the outcomes.
		3.4S: Maintain communications with managers throughout the projects. Look for more opportunities to work and write collaboratively with managers.
		3.3S: Ask better questions, work with water managers more, involve water managers, deliver content to water managers - there aren't that many and running a one-day seminar series in Canberra doesn't reach them.
		3.2S: Future programs should be co-designed by environmental water managers, not only by academics who don't understand what information is required to assist water managers, river operators, policy writers and community engagement specialists.
Design	Program logic	1.6S: Develop priorities top down and bottom up - clear expectations about what it being invested in from the beginning
		2.6S: Distinction between the roles of longer-term research to build the underlying knowledge base and inform processes and monitoring the outcomes of the delivery of environmental watering and providing feedback for upcoming actions.
		2.4S: One or two focused projects.
		2.4S: Insist on integration.

		3.12S: have the science work in with the watering regime - this means the outcomes are uncertain and so the sponsors have to accept this - but it is not sensible to try and manage environmental watering of the River Murray system purely to deliver good scientific conditions. Rather have robust monitoring that allows the testing of hypothesis.
		3.11S: I also would like to see work on Basin scale function, services and river management rather than ever more specificity and reductionist approaches.
		3.7S: I feel there's already a bunch of research that could inform env water management, but the problem is integrating it. My general feeling is it's just adding to the pile of valuable but underutilised information. I would suggest abandoning strong linkages with the BWS. Make it more system focused. Ecosystems and transition pathways. I think there are some important philosophical discussions that need to be had about what nature and nature conservation means before we can effectively guide these projects that intend to deliver us to where we want to go. Targeting bird, fish, veg, productivity goals is weird. Our thinking about systems has progressed beyond this.
		3.5S: It needs to be much less academic (in my view).
	Strategic relevance	1.6S: Need to be strategic with investment and be careful not to 'vegemite' investment.
		3.15S: Better connection to Basin Plan objectives, targets and planning frameworks. More emphasis on the adaptive management of ewater - filling gaps in knowledge, both in design and final application. Better integration with other relevant MER programs.
		3.7S: I would suggest abandoning strong linkages with the BWS. Make it more system focused. Ecosystems and transition pathways.
	Objective setting	1.3S: More explicit objectives set from the start; dedicated science communicator/s engaged to translate findings into management relevant form.
		1.6S: Refine scope and objectives - Clear expectations - Expertise required to deliver a project like EWKR involves expertise and capacity in Project Management, Communications and Engagement and Research. This expertise is not always available from one provider.
		2.4S: Pre-define the questions in a way that real answers can be generated.
		3.3S: Ask better questions, work with water managers more, involve water managers, deliver content to water managers - there aren't that many and running a one-day seminar series in Canberra doesn't reach them.
Annual processes	Engagement	1.6S: Knowledge brokering role could have been useful to integrate and communication activities better within the program, across programs and with stakeholders.
		3.21S: Consider when and how best to engage and share information with water managers early on and along the way.

	Data evaluation and reporting	2.5S: We have moved on, I think we need to ensure that what is in the reports is used in any projects now underway in Flow-MER.
		3.21S: Consider when and how best to engage and share information with water managers early on and along the way.
		3.17S: Communication. Research undertaken with a wider range of systems and therefore more diverse exposure of water managers.
	Adaptive management	3.15S: More emphasis on the adaptive management of ewater - filling gaps in knowledge, both in design and final application
		2.2S: Improvements have been made with the new set of projects
		3.2S: Future programs should inform adaptive management and inform environmental water management, river operations, Basin Plan processes such as the constraints management strategy, inform/educate the public and key stakeholders, and help to develop water policy. Future programs should be co-designed by environmental water managers, not only by academics who don't understand what information is required to assist water managers, river operators, policy writers and community engagement specialists.
Communication	Engagement	1.7S: A simplified summary of lessons learnt prepared for water managers in one overarching 2 page document, so findings are lost deep in 200 page reports.
		1.6S: Networks and interactions are important throughout the projects life and following project completion.
		1.6S: Need to provide opportunities for interaction and networking and fund it appropriately.
		3.15S: Better communication of the 'so what' - lessons for ewater improvement - both at the short and longer terms scales.
		3.9S: More synthesis products that are easily taken up by managers - i.e. as graphics, diagrams, conceptual models, question/answers. Whilst reports are good to reference all the detail and completely necessary often useful information is buried
		3.4S: Maintain communications with managers throughout the projects. Look for more opportunities to work and write collaboratively with managers.
Program evaluation		*No specific comments relating to this planning stage were made in the survey responses – no questions were specifically aimed at this either*
General comments		3.13S: EWKR is another of those acronyms that has overwhelmed me over the last 3.5 years. I wasn't engaged with their work until recently.