



# Evaluation of NERP TE Hub Generated Knowledge Uptake by Research Users

Baseline Survey Report

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## ACRONYMS & ABBREVIATIONS

ABS	Australian Bureau of Statistics
AIMS	Australian Institute of Marine Science
AFMA	Australian Fisheries Management Authority
APVMA	Australian Pesticides and Veterinary Medicines Authority
BSES	Bureau of Sugar Experiment Stations
CAFNEC	Cairns and Far North Environment Centre
CERF	Commonwealth Environment Research Facilities program
CQU	Central Queensland University
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Research Organisation
DAFF	Department of Fisheries and Forestry (formerly DPI and F - Department of Primary Industries and Fisheries)
DEEDI	Department of Employment, Economic Development and Innovation
DEHP	Department of Environment and Heritage Protection
DERM	Department of Environment and Resource Management (formerly EPA – Environmental Protection Agency, including QPWS – Queensland Parks & Wildlife Services)
DSEWPAC	Department of Sustainability, Environment, Water, Population and Communities
EPA	Environmental Protection Agency
FNQ	Far North Queensland
FRDC	Fisheries Research and Development Corporation
FNQROC	Far North Queensland Regional Organisation of Councils
GBR	Great Barrier Reef
GBRMPA	Great Barrier Reef Marine Park Authority
JCU	James Cook University
KPI	Key Performance Indicators
LMAC	Local Marine Advisory Committee (GBRMPA)
MLA	Meat & Livestock Association
MTSRF	Marine & Tropical Sciences Research Facility
NPRSR	Department of National Parks, Recreation, Sports and Racing
NQ	North Queensland
NRM	Natural Resource Management
PNG	Papua New Guinea
RRRC	Reef & Rainforest Research Centre
SRI	Sugar Research Institute



SRDC	Sugar Research and Development Corporation
TSRA	Torres Strait Regional Authority
TTNQ	Tourism Tropical North Queensland
UQ	University of Queensland
WHA	World Heritage Area
WTMA	Wet Tropics Management Authority
WTWHA	Wet Tropics World Heritage Area

## EXECUTIVE SUMMARY

This report provides the initial baseline study evaluation of the uptake of knowledge from the NERP Tropical Ecosystems Hub (NERP TE Hub), a research program funded by the Australian Government's Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). The project measures the success of the NERP TE Hub in influencing the decision making of government and stakeholders in regards to the condition, threats and management options for North Queensland's environmental assets.

### Methodology

Through a qualitative approach and a cluster sampling method, three tiers of research users were interviewed for the project. These three tiers represent:

- Tier 1 - The NERP TE Hub contractually identified *research users*;
- Tier 2 - Business, government, indigenous, environment (including NRM Groups), agriculture, fishing, and tourism sectors that should be aware called *next users: expected awareness*; and
- Tier 3 - Business, government, indigenous, environment (including NRM Groups), agriculture, fishing, and tourism sectors that potentially could be aware called *next users: potentially aware*.

### Survey Sample

A total of 367 individuals were identified as potential contacts, with 355 telephoned during the four interviewing periods between mid-October 2012 and February 2013. The final sample consisted of 187 individuals, representing *contractually identified research users* (43.8%), *expected awareness* (42.2%) and *potential awareness* (14.0%). The largest cluster was the government respondents (n=83; 44.5%), followed by the environment including NRM Groups (n=30; 16.0%) and agriculture (n=24; 12.8%) clusters. The smallest group of respondents was the Indigenous cluster (n=3; 1.3%).

### Survey Results: Section A – Unaware of the NERP TE Hub

Respondents who said they had not heard of the NERP TE Hub (n=70; 37.4% of the total respondents) were from Tier 2: *expected awareness* (n=44; 62.9%) and Tier 3: *potential awareness* (n=19; 27.1%) groups. Of the respondents unaware of the NERP TE Hub, 65 respondents (93%) indicated they did use some form of general research for policy or decision-making in their working position. These people were within the environment including NRM Groups (100%), agriculture (94%), business (93%) and government (90%) clusters.

## **Survey Results: Section B – Aware of the NERP TE Hub**

Overall, 117 respondents (62.6%) were aware of the NERP TE Hub. The largest cluster aware of the NERP TE Hub were government respondents (n=68). These fell into the contractually *identified research user* tier (79.4%), *expected awareness* tier (19.1%) and the *potential awareness* tier (1.5%). The environment including NRM Groups cluster (n=22) were the next largest cluster aware of the NERP TE Hub with half of these respondents being *identified research users*.

More than half (70.9%), who had heard of the NERP had received communications or information from the NERP TE Hub, mainly from the RRRC (n=22) and the NERP TE Hub projects/researchers (n=15). The main types of information received were project updates and NERP or RRRC newsletters or discussions with the RRRC or researchers. Many respondents, particularly the government cluster (n=49) indicated that the specific NERP TE Hub project information they had received was considered very useful. Of the respondents that had received NERP TE Hub information, the majority (65%), shared this information with selected employees or industry colleagues.

Over half of the respondents (54.7%) indicated they believed that the NERP TE Hub research was credible (23.1%) or very credible (31.6%), with much of the remainder unable to say (40.2%) because projects had not produced final outcomes as yet. Of those who thought the NERP TE Hub research was credible or very credible, 14.3% indicated that the research would strongly influence and somewhat influence (27.3%) policy or decision making relevant to their current employment.

## **Results: Qualitative Data**

### ***Project Outputs***

There were a significant number of outputs generated from the NERP TE Hub projects during the first six months of 2012. These included 61 NERP TE Hub stakeholder meetings, workshops or presentations, 88 “external” stakeholder meetings, workshops or presentation and 53 papers published or in review. Additionally, the projects had held numerous cross-disciplinary meetings and some had shared data sets with other researchers.

### ***Website Information***

A review was conducted on the NERP TE Hub website’s resources available to the public. Publications, project factsheets, and conference/workshop presentations were the main project outputs relating to the DSEWPaC key performance indicators (KPI). Google Analytic reports were produced for the NERP TE Hub website for January to June 2012. Page views vs. visits ratio (4.99) indicated that viewers accessed almost five pages upon each visit to the website. This combined with the 43% bounce rate indicates that the website is being well utilised. Access to the

NERP TE Hub website was primarily through Google searches (58%) and secondary methods of searches were made direct to the NERP TE Hub website or through the RRRC (38%) website.

### ***e-Atlas***

While the e-Atlas is continually being expanded, the website's Google Analytics shows a significant amount (1750 page views per month) of traffic already accessing the information available on the site. Early signs of this are found in the baseline survey results where some respondents mentioned using the e-Atlas as an information source.

### ***Great Barrier Reef Outlook Report 2009***

The Great Barrier Reef Outlook Report 2009 is a stock-take of the Great Barrier Reef, its management and its future. The Great Barrier Reef Outlook Report 2014 is the next to be published. A great deal of research for this report is currently being undertaken by the NERP. To date, significant data from the NERP projects are already providing results which will impact on the presentation of the 2014 Outlook Report.

# 1.0 INTRODUCTION

## 1.1 PROJECT BACKGROUND

The \$26 million National Environment Research Program Tropical Ecosystems Hub (NERP TE Hub) is a federally-funded program involving more than 220 scientists across 39 research programs, working to solve the environmental problems facing north Queensland's key environmental assets: the Great Barrier Reef (GBR) and its catchments, tropical rainforests including the Wet Tropics World Heritage Area (WTWHA), and the Torres Strait.

As described in the NERP TE Hub Multi Year Research Plan (MYRP) 2011-2014, the Hub *... builds on five years of 'public good' environmental research supported through the Marine and Tropical Sciences Research Facility (MTSRF). The MTSRF was a large investment by the Commonwealth Environmental Research Program (CERF) funded by the Australian Government through the former Department of Environment, Water, Heritage and the Arts. The MTSRF program was built on the foundation of thirteen years of prior tropical research supported by the Cooperative Research Centre Program, which funded twin Cooperative Research Centres for the reef (GBR, Torres Strait) and Wet Tropics rainforest. As in these previous programs, the NERP TE Hub will benefit from significant co-investment from research providers and other agencies.*

*The mission of the Hub is to deliver research that supports evidenced-based policy, management, and decision-making by the Australian Government and other key end-users.<sup>1</sup>*

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<sup>1</sup> NERP Multi Year Research Plan (MYRP) 2011-2014, p. 8

## **1.2 PROJECT OBJECTIVES**

This project will measure the success of the NERP TE Hub in influencing the decision making of managers, policy makers, industries and community groups in regards to the condition, threats and management options for North Queensland's environmental assets. A mixed methodology approach involved the reporting of both quantitative and qualitative results in this initial baseline report (2012-13). Measurement of the uptake of NERP TE Hub knowledge will again be conducted at the end of the NERP TE Hub (2014-15) to evaluate the success of the Australian Government's research program investment.

The qualitative approach has involved a baseline survey to report on the current understanding and use of the NERP TE Hub research. Specifically, the survey will:

- Identify the level of awareness of the NERP TE Hub;
- Investigate the level of use of the research produced by the NERP TE Hub; and
- Evaluate the acceptance of the NERP TE Hub research.

Quantitative monitoring will be reported in more detail in the final survey report due March 2015. Statistics based on the number of visitors to the NERP TE Hub website; the number of document downloads from the NERP TE Hub website; the number of peer-reviewed publications; media uptake of research project results; and various other measures of impact will be reported upon after the finalisation of the NERP TE Hub.

## **2.0 METHODOLOGY**

### **2.1 INTRODUCTION**

The size and complexity of the NERP TE Hub means there is considerable scope for monitoring and evaluation of the success of knowledge delivery efforts. A particular focus of this project will be to evaluate the credibility and impact of information generated by the NERP TE Hub. This credibility and impact will be based on research user perceptions and the uptake of advice and actions based on the NERP TE Hub generated research projects.

The mixed methodology approach involves the reporting of both quantitative and qualitative results drawn from telephone surveys and the analysis of communication outputs and the 'pathway to impact' of research from the NERP TE Hub.

#### **2.1.1 Baseline & Final Surveys**

A fundamental component of assessing delivery success is a purposely designed survey targeting research users. This baseline survey is used to analyse and report on the current understanding and use of the NERP TE Hub research. The survey will be repeated at the end of the NERP TE Hub program and the results compared, providing a robust assessment of the degree to which new Hub information was utilised in decision-making. This will not be a minor undertaking, particularly given the relatively long time periods typically required for research to impact on policy and management, and the relatively short time period available for assessment of the delivery success.

#### **2.1.2 Quantitative Monitoring**

Quantitative monitoring focuses on statistics drawn from the number of visitors to the NERP TE Hub website; the number of document downloads from the NERP TE Hub website; the number of peer-reviewed publications; media uptake of research project results; and various other measures of impact.

## 2.2 SURVEY METHODOLOGY

### 2.2.1 Sample Structure

#### *NERP Monitoring & Evaluation Plan Parameters*

The NERP TE Hub Multi Year Research Plan (MYRP) *establishes both the context and the challenge* for the Hub's research projects. The Hub *intends to transfer new knowledge and tools to managers and other users requiring environmental, social and/or economic information to support their respective future decisions*. Therefore one of the Hub's key performance indicators is *the uptake of knowledge generated by research and the generation of new understanding*.<sup>2</sup>

Specifically, The Hub's key audience are government agencies including the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC), Great Barrier Reef Marine Park Authority (GBRMPA), Torres Strait Regional Authority (TSRA) and the Wet Tropics Management Authority (WTMA). Queensland Government departments include the Department of Agriculture, Forestry and Fisheries (DAFF), Department of Environment and Heritage Protection (DEHP) and the Department of National Parks, Recreation, Sport and Racing (NPRSR). Other significant identified research users are represented by industries such as agriculture, fishing, tourism, ports and shipping, and mining; traditional owners and their communities; regional NRM organisations; regional development associations; and environmental non-government organisations (NGOs) such as the World Wildlife Fund (WWF).

With this diverse range of research users in mind, the sample parameters were structured on the basis of three strict qualifications – clusters, tiers of 'research user' representatives, and an individual's position/responsibility.

#### *Cluster Sample*

A cluster sampling structure was selected for this project as this method proved successful in the 2009 evaluation of the recognition of the outcomes of the Reef and Rainforest Research Centre (RRRC) and Marine and Tropical Sciences Research Facility (MTSRF). In total, 7 clusters were identified with respect to the NERP TE Hub and qualified by the following characteristics:

- Government: local, state and federal government, government departments and agencies (e.g. GBRMPA, DSEWPAC, DERM, DAFF, ROC);
- Business: businesses that are primarily focused on or include departments that provide environmental services such that they would reasonably be expected to have had some

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<sup>2</sup> NERP Multi Year Research Plan (MYRP) 2011-2014, p. 9



- exposure to NERP TE Hub or related research; e.g. mining, engineering, construction, development, marine, or environmental consultancy and advisory services;
- Indigenous: Indigenous authorities/ councils; and Indigenous businesses/organisations;
  - Environment: NGOs, NRM & environmentally focused agencies, environmental organisations;
  - Industry – Agriculture: grazing, sugar, farming, and agricultural industry organisations and associations;
  - Industry – Fishing: commercial & recreational fishing, aquaculture, and associated organisations;
  - Industry – Tourism: tour operators, tourism organisations and tourism authorities;

### *Tiers of Users within Clusters*

In order to further qualify the contacts for the overall sample, potential contacts were identified using definitions drawn from the NERP Communications Strategy (2011).<sup>3</sup> The Strategy defines “research users” relating to Australian and Queensland governments, industry, and regional stakeholders as *those sectors, industries, communities, and individuals who need to be informed by NERP outputs*.<sup>4</sup> The Strategy extends this definition to draw a clear distinction between “research users” and “next users” which is important to communication of NERP outputs, as explained below:

*For example, under the CERF Program, the Marine and Tropical Sciences Research Facility (MTSRF) research identified farming practices reducing run-off to the Great Barrier Reef. This included farmers undertaking those practices. MTSRF researchers did not have a direct relationship with all the relevant farmers, however, and generally worked through intermediaries such as industry bodies, extension services, regional Natural Resource Management (NRM) bodies, Landcare groups, local governments and non-government organisations (NGOs) like Greening Australia. These organisations built MTSRF outputs into their own communication with farmers in the target catchments. Such intermediaries are called ‘next users’.*<sup>5</sup>

These definitions were used to develop the next level of qualifiers for sample contacts. Three tiers of contacts were generated and defined by the following characteristics (see Figure 1).

<sup>3</sup> NERP Communications Strategy, September 2011, p6-7.

Source: <http://www.environment.gov.au/biodiversity/science/nerp/publications/pubs/nerp-communications-strategy.pdf>

<sup>4</sup> Ibid. p. 6.

<sup>5</sup> Ibid. p. 7.

### Tier 1: Contractually Identified Research Users

Identified directly in the NERP TE Hub project schedules of the MYRP.

### Tier 2: Expected Awareness (Next Users)

Individuals and organisations not identified in the NERP TE Hub project schedules in the MYRP as research users, but are working in programs associated with NERP TE Hub researchers or research outcomes (e.g. water quality, reef and rainforest programs, steering/advisory committees).

### Tier 3: Potentially Aware (Next Users)

Individuals and/or organisations that would be expected through their affiliation with related organisations (e.g. industry association members, case studies, active involvement in organisations/associations related to NERP TE Hub research outcomes) to have some level of exposure to NERP TE Hub research.

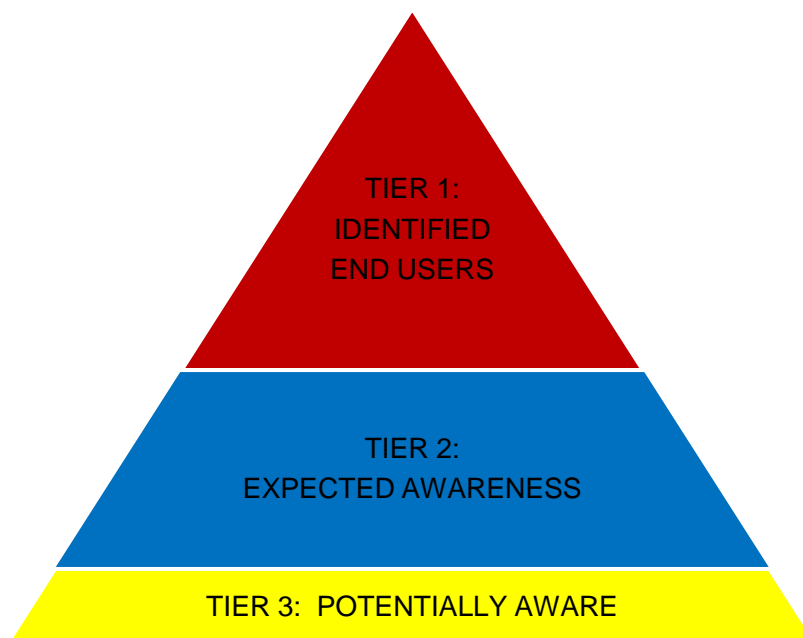


Figure 1: Sample Structure

Finally, it was considered important to focus on capturing the responses of those individuals and groups within the tiers and clusters that were defined as:

*Industries, management organisations, government departments, and other significant groups **that actively make or influence decisions on environmental and related policy within the region** spanning from Torres Strait in the north to Gladstone in the south of Queensland.*

Individual representatives were selected by reviewing their organisational/departmental objectives or purpose, projects and programs they have been involved in or have partnered with, to ensure they met all of the sample parameters.

### **Geographic Parameters**

The geographic parameters of the survey project span from the Torres Strait in the North and along the coast to Gladstone in the South of Queensland. This geographic region represents an enormous proportion of the population of Queensland and significant distances to travel for surveys or other instruments. This would require a substantial amount of time as well as resources to conduct representative samples of face to face interviews or random telephone surveys which are most often used instruments for such evaluations.

### **2.2.2 Sample Parameters & Limitations**

The strict sample parameters described in the previous sections impose some limitations on the sample size. A sample quota of 300 individuals proved successful in evaluating the recognition of the outcomes of the Reef and Rainforest Research Centre (RRRC) and Marine and Tropical Sciences Research Facility (MTSRF) research conducted in 2009. This total was also suggested for the current evaluation of the NERP TE Hub.

However, the structure of the NERP differs somewhat in comparison to the MTSRF program, in that it strictly differentiates between “*research users*” and “*next users*” (as previously defined in the *Tiers of Contacts* section and identified as *expected awareness* and *potential awareness* in this project). The sample size is therefore restricted to the number of individuals who qualify under these definitions, as is the ability to substitute unobtainable contacts or refusals.

### **2.2.3 Clusters and Sample Size**

More than 300 individuals representing each cluster were initially identified to be potentially interviewed for the project. The specific proportions for each group were established on the basis of the sample characteristics and tiers as described in Figure 1. The final cluster-based sample also takes into consideration the potential for bias in the results from interviewing mainly NERP *research users* or *next users*.

Table 1 shows the current identified NERP TE Hub research users as listed in each project description in the MYRP 2011-2014, and the sample numbers selected for each cluster.

**Table 1: Clusters and Sample Size**

CLUSTER	IDENTIFIED NERP RESEARCH USERS*	NERP TE Hub EVALUATION 2012** Target Sample
Business	0	30
Environment	15	50
Government	64	110
Indigenous	1	20
Industry - Agriculture	2	35
Industry - Fishing	0	30
Industry - Tourism	1	25
<b>TOTALS</b>	<b>83</b>	<b>300</b>

\* Identified NERP research users as listed by each NERP TE Hub program in the MYRP 2011-14.

\*\* Sample numbers include current identified NERP research users.

## **2.3 “RECOGNITION OF NERP TE HUB EVALUATION SURVEY”**

### **2.3.1 Survey for Interviewing**

The “Recognition of NERP TE Hub Evaluation Survey” (Appendix A) was specifically developed to address the aims and objectives set for the project. There are seven sections within the survey, representing specific topics:

- Demographic information
- General awareness of the NERP TE Hub
- Information and research gained from the NERP TE Hub and related organisations
- Accessibility and dissemination of NERP TE Hub information and research
- Impact of research
- Suggestions for future research
- Additional comments

### **2.3.2 Interviewing Procedure**

The identified Individuals were telephoned and the purpose of the call explained. Potential respondents were then asked if they would be willing to participate in a telephone-based interview that would take approximately 10 to 20 minutes to complete. If they were unable to complete the interview or if they considered themselves as not an appropriate person to interview, they were asked to provide the name/s of potential interviewees in their organisation. This is a well-established practice in interviewing procedures known as the “snowball technique” which maintains sample integrity.

If a positive response was given, they were then asked if they had heard of the NERP TE Hub. If a positive response was given, they were asked when would be convenient to complete the full interview. If a negative response was given, they were told the interview would only take 5-10 minutes and asked if they would mind completing it immediately, if not, a convenient time was scheduled for the interview. If the interviewee refused to complete any of the interviews, then they were thanked for their time and the refusal recorded appropriately.

There were several situations which required special consideration for interviewing. These were:

1. Unable to contact/Time Out - in the case where 4 attempts to contact the potential respondent were made and were unsuccessful. Where possible, these individuals were replaced by another potential contact identified as suitable within the sample parameters; or
2. Retired/Redundant/Left position – it was anticipated that due to several factors such as a change in state government since the commencement of the NERP, or through natural attrition, there would be individuals who were no longer in their positions. Again, where possible, these were replaced by other individuals either through the snowball technique or by others considered suitable within the sample parameters.

The interview results were recorded verbatim. The interviews were concluded with a thank you for their participation and they were told that the results would remain completely anonymous. The respondents would only be identified in the final report as a "cluster" (e.g. government/ tourism/ business/ Indigenous/ industry) representative. All of the responses were recorded in writing on the printed questionnaires. No audio/ video recordings or face to face interviews were made. The responses were then transferred to an excel spreadsheet for analysis.

## 2.4 LIMITATIONS

### *Timing of Interviews*

The timeframe for completing the survey interviews presented some challenges, which limited the number of respondents able to be contacted for the project. Interviewing was conducted in 4 rounds:

- Round 1 & 2 - commenced in mid-October 2012 through to the first week in December and stopped for the Christmas holiday leave period;
- Round 3 - commenced in mid-January 2013 and stopped on 30 January;
- Round 4 - in the early February 2013.

During these periods, a number of incidences occurred that had an impact on the sample and potential interview candidates. These were:

- Government restructuring - In December, the Queensland government made significant changes to public service positions which reduced a substantial number of potential contacts, many of these were not able to be replaced with similar research user representatives.
- Severe flooding - occurred in Central and Southern Queensland in January and February 2013 and prevented a number of contacts located in those regions from being interviewed.
- Christmas and New Year holidays – many of the potential contacts took holiday leave from early December or from January to February and replacement contacts were not possible.

### *Influence on Sample*

A quota sample size of 300 was originally established for the project, with a total of 367 individuals identified as potential contacts. While 355 were contacted during the course of the project, 70 (19%) were considered as requiring replacement for the following reasons:

- “time-out” (four or more contact attempts were made with no success);
- Their position was made redundant; or the individual retired or resigned, with no replacement (either NERP representative or other).

Up to three or more attempts were made to contact the remaining individuals during these survey periods, however only 187 interviews were able to be successfully completed. The remaining 98 individuals have been contacted at least three times, messages left on message banks or with personal assistants, but with no response. At this rate, it was evident that it would require a significant amount of time to successfully engage with these individuals. However, in order to stay within the project timeframe, it was decided to close the interviewing based on the current sample size of N=187.



## 2.5 NOTES ON ANALYSIS OF DATA

### 2.5.1 Open-ended Questions

The Recognition of NERP TE Hub Evaluation Survey contained many open-ended questions. As such, analysis of data required specialised coding which should be clarified in order to understand the results clearly.

Content analysis of the text in the open-ended question was used. While there are many methods of approach for content analysis, a simplified version was used for this data. Firstly, obvious key words relating to the study were identified. Secondly, the 'word sense', 'sentence and theme' were reviewed in order to ascertain the correct meaning of the response, while taking into account 'multiple meanings' and context.

The supporting variables for meaning and context were the type of organisation, the individual's position in the organisation, and organisational goals. Due to their *commercially sensitive nature*, these variables are not able to be presented in this report. Similarly, for this reason and for ethical policy, the names of individuals or specific organisations have been omitted from the results of some of the open-ended questions.

### 2.5.2 Cross-tabulation Analysis

Since two key structural variables largely dictate the sample parameters – clusters and tiers of users – these were considered as providing valuable insight for evaluating the uptake of communications from the NERP TE Hub. For example, it is reasonable to assume that various levels, methods and conduits of communication vary within industries, government departments, and other NERP TE Hub related stakeholders; and that identified NERP TE Hub research users are more likely to have closer communications with the Hub than next users or others.

For these reasons, the data was cross-tabulated using these two variables where appropriate. In some cases, these cross-tabulations resulted in small numbers in cells. While it is known to be problematic for statistical analysis, this project focuses on informative data with respect to evaluating the uptake of communications from the NERP TE Hub rather than statistical analysis of the data.

## 3.0 RESULTS: BASELINE SURVEY

### 3.1 SURVEY SAMPLE

A total of 367 individuals were identified as potential contacts. A total of 355 were telephoned during the four interviewing periods between mid-October 2012 and February 2013. Of these, 70 (19%) were considered as requiring replacement for the following reasons:

- “time-out” (four contact attempts or more were made with no success);
- Their position was made redundant; or the individual retired or resigned, with no replacement (either NERP TE Hub-related or other).

Due to limitations as discussed in Section 2.4, the final sample consists of 187 individuals from the 7 different cluster groups (see Table 2). The largest cluster was the government respondents (44.5%), followed by the environment (16.0%) and agriculture (12.8%) clusters.

Table 2: Sample Characteristics

CLUSTER	TOTAL SAMPLE REQUIRED	IDENTIFIED CONTACTS	TOTAL INDIVIDUALS CONTACTED	CONTACTS REQUIRING REPLACEMENT	NUMBER OF SURVEYS COMPLETED (N=187)	% OF TOTAL RESPONDENTS
Business	30	37	37	9	17	9.1
Environment	50	52	52	4	30	16.0
Government	110	173	172	37	83	44.5
Indigenous	20	12	12	1	3	1.6
Agriculture	35	43	32	7	24	12.8
Fishing	30	24	24	6	18	9.6
Tourism	25	26	26	6	12	6.4
<b>TOTAL</b>	<b>300</b>	<b>367</b>	<b>355</b>	<b>70</b>	<b>187</b>	<b>100.0</b>

As explained in Section 2.2.1 Sample , the sample parameters are structured by 3 tiers – NERP TE Hub identified *research users*, *expected awareness* and *potential awareness*. The majority of the sample represents *research users* (44%) or *expected awareness* (42%), as shown in Table 3.

**Table 3: Sample Status**

CLUSTER	TIERS OF USERS (Frequency)			TOTAL
	NERP TE Hub RESEARCH USERS*	EXPECTED AWARENESS	POTENTIAL AWARENESS	
Business	0	8	9	17
Environment	12	13	5	30
Government	59	23	1	83
Indigenous	3	0	0	3
Agriculture	4	13	7	24
Fishing	4	10	4	18
Tourism	0	12	0	12
<b>TOTAL</b>	<b>82</b>	<b>79</b>	<b>26</b>	<b>187</b>
<b>% of TOTAL SAMPLE</b>	<b>43.8</b>	<b>42.2</b>	<b>14.0</b>	<b>100.0</b>

*\* Note: Variations in the number of NERP TE Hub Research Users are due to restructuring/redundancies/natural attrition in positions (see Section 2.4 Limitations for further explanation).*

## 3.2 AWARENESS OF NERP TE HUB

During the first telephone contact, the respondents were asked a qualifying question, namely if they were familiar with the NERP TE Hub. This question served to direct the interviewer to the two subsequent sections of the survey – (A) Not aware of NERP TE Hub, and (B) Aware of NERP TE Hub.

The relationships between these questions are presented in Figure 2 along with the responses for each question. These results will be discussed in greater detail in the following sections.

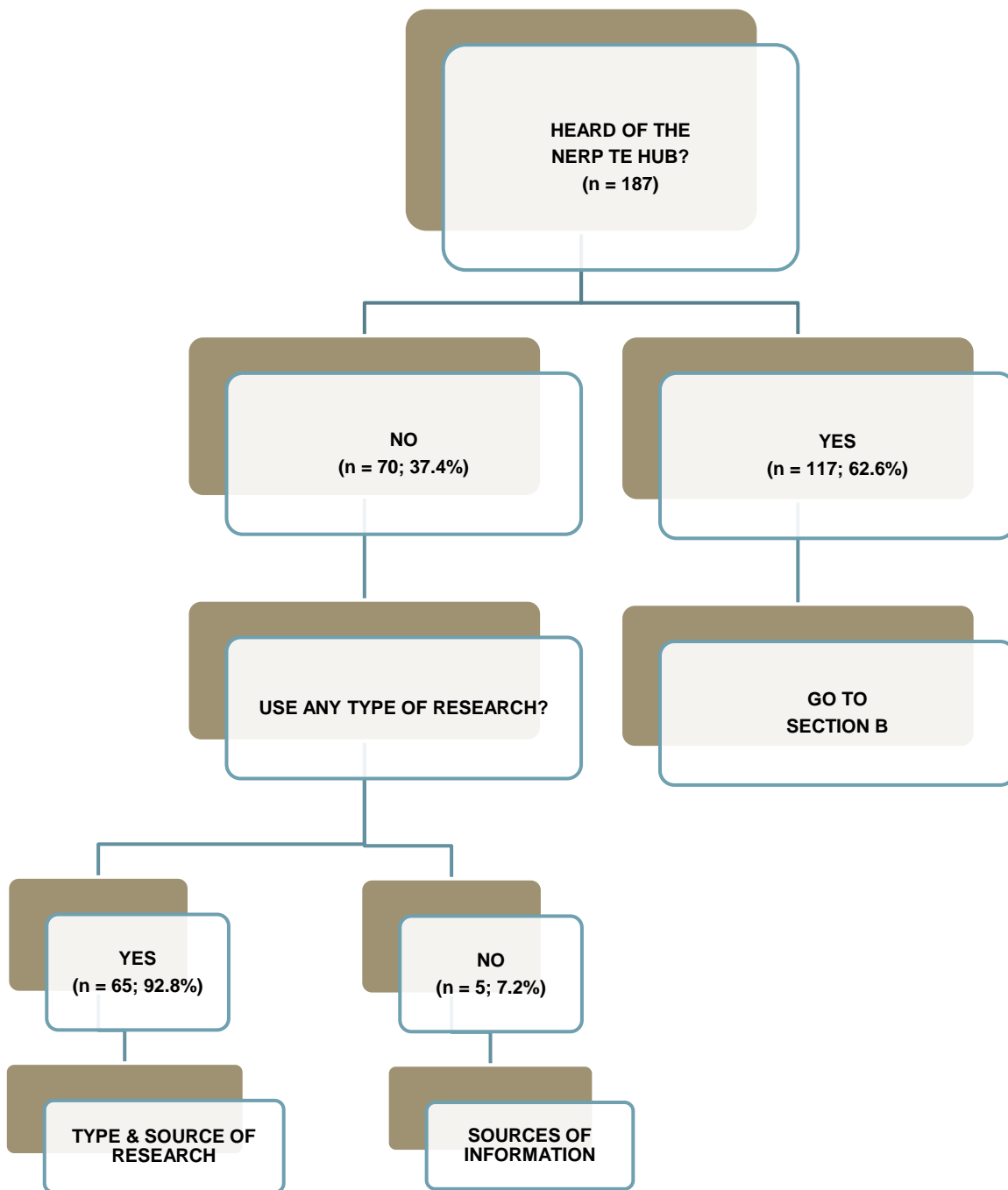


Figure 2: Relationships between Survey Questions and Sections A (Not Aware of the NERP TE Hub) and Section B (Have heard of the NERP TE Hub)

### Are you familiar with NERP TE Hub?

Overall, 117 respondents (62.6%) were aware of the NERP TE Hub (Figure 2). The majority of these respondents were in the *research user* (43.8% of total respondents) or *expected awareness* tiers (42.2% of total respondents).

The results were cross-tabulated with cluster groups for further analysis and are presented in Table 4. The cluster groups that were most aware of the NERP TE Hub were:

- Indigenous (100% of the cluster)
- Government (81.9%)
- Environment (73.3%)
- Fishing (50.0%).

The clusters least familiar with the NERP TE Hub was business (79.5%) and agriculture (70.8%).

**Table 4: Cross-tabulation - Familiarity with NERP TE Hub**

CLUSTER GROUPS		FAMILIAR WITH NERP TE Hub	
		YES	NO
Business (n=17)	Frequency	4	13
	% of Cluster	23.5	79.5
Environment (n=30)	Frequency	22	8
	% of Cluster	73.3	26.7
Government (n=83)	Frequency	68	15
	% of Cluster	81.9	18.1
Indigenous (n=3)	Frequency	3	0
	% of Cluster	100.0	0.0
Agriculture (n=24)	Frequency	7	17
	% of Cluster	29.2	70.8
Fishing (n=18)	Frequency	9	9
	% of Cluster	50.0	50.0
Tourism (n=12)	Frequency	4	8
	% of Cluster	33.3	66.7
TOTAL (N=187)	Frequency	117	70
	% of Cluster	62.6	37.4

### 3.3 NOT AWARE OF NERP TE HUB (SECTION A)

The respondents who said they had not heard of the NERP TE Hub (n=70) were from the *expected awareness* (n=44; 62.9%) and *potential awareness* (n=19; 27.1%) tiers. These respondents were asked further questions regarding their use of research and sources of information in their positions.

#### *Do you use any form of research in your position, particularly for policy or decision-making?*

There were 65 respondents (93%) who said they used some form of research for policy or decision-making in their working position, while only 5 respondents (7%) said they did not use any research. The responses were cross-tabulated with the cluster groups and the results are presented in Table 5.

The groups with the highest percentages of respondents who used research in their policy/decision-making were mainly environment (100%), agriculture (94%), business (93%), and government (90%).

**Table 5: Respondents unaware of NERP TE Hub and use Research**

CLUSTER GROUPS		USE RESEARCH	
		YES	NO
Business (n=13)	Frequency	12	1
	% of Cluster	92.3	7.7
Environment (n=8)	Frequency	8	0
	% of Cluster	100.0	0.0
Government (n=15)	Frequency	14	1
	% of Cluster	93.3	6.7
Indigenous (n=0)	Frequency	0	0
	% of Cluster	0.0	0.0
Agriculture (n=17)	Frequency	16	1
	% of Cluster	94.1	5.9
Fishing (n=9)	Frequency	8	1
	% of Cluster	88.9	11.1
Tourism (n=8)	Frequency	7	1
	% of Cluster	87.5	12.5
TOTAL (n=70)	Frequency	65	5
	% of Total	92.8	7.2

These respondents were further asked to specify their most influential or important types of research they use for policy or decision-making. The results for each cluster group are listed in Table 6.

The dominant source of information or research for all of the clusters was government departments, agencies or government programs, particularly those that are environmental (e.g. DERM, CSIRO, GBRMPA) or industry-focused (DAFF, SRDC, Canegrowers).

**Table 6: Most Influential or Important Types and Sources of Information used by Respondents Unaware of NERP TE Hub**

CLUSTERS	SPECIFIC TOPICS	SOURCE OF RESEARCH
<b>Business (n=12)</b>	Water; soils	Journals
	Only focus on real estate	Databases
	EIS public docs Previous ecological monitoring reports Specific journal articles Legal acts and policy Energy efficiency	Internet Google Legal websites
	Previous ecological monitoring reports Wetlands information +cassowary corridor Website info Specific journal articles E newsletters Wetlands information +cassowary corridor Internal policy Energy efficiency	Government departments – State and Federal DEHD extension officers DERM (DEHP and DNPRSR) DAFF (DPI) Future Beef APVMA Councils Sunwater JCU RRRC e-Atlas
	Flora /fauna scientific In-house data collection only Reserve bank Mineral prices Airport stats Primary data Economic statistics	Environmental Impact Statements - regional Environmental consultants Direct communications with stakeholders/community groups In-house data
	Wetlands information +cassowary corridor	Terrain NRM
<b>Environment (n=8)</b>	Water quality in rivers Coral reef research Data/stats/infrastructure priorities PhD research Water quality Water quality and agriculture Pesticides, nutrients & runoff	Local universities CQU Directly from researchers
	Water quality and agriculture Farming and water quality water quality reports/projects work	National Farmers Federation SRDC Canegrowers
	Water quality and agriculture	Google
	Monitoring and evaluation - reports, journals, meetings, conferences, websites Savannah grants/trials – identifying systems not working e.g. biodiversity and weeds Mapping ecosystems Rare and endangered species Ecological values of properties Fisheries information	QGIS TRAC researchers DERM WTMA DEH GBRMPA/LMAC CSIRO Reef Rescue DAFF
	Ecological values of properties Environmental information – Coral Sea protection Ecological values of properties	NRM groups NGOs CAFNEC Daintree Discovery Centre
	Environmental information – Coral Sea protection Technical knowledge	Community stakeholders Farmers
	Catch + effort species interactions Market analysis/tourism water quality sampling Herbert River Production +agriculture Canopy management Environmental values - sustainable tourism Bananas Beef Water quality	Government Agencies: DAFF AFMA Web searches for managing agencies DPI - internal DAFF - internal research DAFF - internal research SEWPAC WTMA
<b>Government (n=14)</b>		

	Drought Fire management Pest management Nutrients Pesticides, nutrients and runoff Farming and water quality Policy +regulations/EIS policy Water quality sea grasses Agronomic research on banana's	GBRMPA ABS Tropwater (JCU) State government researchers Government agencies - International +domestic
	NRM projects Control release fertilisers – bananas	In-house but supported by research
	Technical knowledge Pesticides, nutrients and runoff - initiatives and project information Funding and research – assistance	NQ Dry Topics Terrain NRM Tablelands NRM groups
	Catch and effort species interactions	Management advisory committees Resource assessment groups
	Ecotourism	Web searches - reviews of past reports
	Government policy	Databases
	Independent research on water quality	Consultants
	Our learning from...	Partnership organisations
	Climate change Alternative energy	Journals - catchment, climate change
	Climate data/ biological data	many sources too many to name - e.g. national +international
	Conduct own in-house research EIS internal policy only	In-house
<b>Agriculture (n=16)</b>	Newsletters Advice + information better management Growing bananas Irrigation /water quality reports projects work Reef guardian research Water management Chemicals on fruit Agricultural activities - info effects of farming on water quality Environmental info Impacts of agriculture on GBR	AIMS Terrain GBRMPA Reef Alliance JCU DAFF BSES CSIRO EPA/DERM APVMA State agricultural departments.
	Irrigation Reef guardian research Varieties herbicides/pesticides Regular updates on industry info +research Water runoff program info on how to reduce runoff Use of chemicals and impacts	GRDC BSES SRDC Joe Rhodes
	Environmental management system on the property Wetlands -establishing Water monitoring Assistance with trials in improving farming Adaptive research Agricultural activities info effects of farming on water quality Broader funds from research +share/data andinfo industry project info newsletters +updates De-nitrification +soil programs Irrigation info Impacts of agriculture on GBR	Landcare Reef Catchments (grants) Reef Catchments –Mackay Project Catalyst Reef Rescue Paddock to Reef program
	Advice +information better management Lab testing of soils Biological activity in soils Agricultural activities info effects of farming on water quality Impacts of agriculture on GBR	JCU UQ/ CQU/ SRDC projects University of Sydney
	Irrigation /water quality reports projects work	NRM – NQ Dry Tropics



	Water /irrigation	Individual I independent consultants
	Sugar cane soil programs	Internal /direct
	Soybean agronomy Pest and weed control	Internet Direct with authorities
	Advice +information our management better mgmt	Australian Insect Farm
	Grazing land pasture -stability groundcover nutrients /sediments Water ways Animal production management Fire management	Conduct own research then outputs are communicated
	Physical visits to see other farms	Overseas
<b>Fishing (n=8)</b>	Meetings Newsletter Fisheries science - stocks Fisheries issues /research Info + newsletter Social impacts Economic analysis, value chain analysis Social networks By catch	LMAC/GBRMPA FRDC DAFF CSIRO FRDC /Seafood CRC GBRMPA University Sunshine Coast Curtin University
	Direct research marine eco/fisheries GBR project	Universities/researchers Andrew Tobin
	Protection Water quality Noxious weeds Liaising for funding to do projects for different outcomes - e.g. habitats	NQ Dry Tropics
	Fishing industry needs	Seanet
	Water improvements by farmers	Reef Rescue
	Reef rescue info related	Nick Heath (WWF)
	Direct research marine eco/fisheries	Private sector consultants
	Searches	Google
	Industry experience	many years industry experience industry, but lost hope in researchers + government
<b>Tourism (n=7)</b>	Water quality Nutrient levels Bleaching and coral recovery	RRRC
	Info and research Environmental monitoring	GBRMPA
	Carbon flux	JCU
	Cruise industry, Alaskan standards	Cruise industry
	Own research	In-house
	Crown of Thorns starfish Climate change and impact on tourism Indigenous interactions and interpretation of tropical rainforest and reefs Visitor experience vs expectations Social management - permits and quality ecotourism products Areas of interaction - tropical forest and reefs with tourism Visitation where, when, what - natural landscapes Use of pre-existing forestry tracks for tourism Visitor perceptions - reef/rainforest, its environmental value and attraction/ expectations Ecotourism vs. mainstream Tourism in National Parks Consumer views (ecotourism)	Many sources – government, tourism Tourism organisations Tourism Research Australia

***How do you access information that does influence decision-making in your position/business/organisation?***

The respondents were asked how they access information that influences decision-making in their position. Only 55 respondents said they accessed information to influence decision-making. The most commonly used sources of information were websites (64%), email newsletters (45%), reports sent by email (35%), meetings/briefings (38%), and reports sent by mail (36%) as shown in Table 7.

**Table 7: Sources of Information used by Respondents Unaware of NERP TE Hub**

INFORMATION SOURCE	FREQUENCY* (n=55)	PERCENTAGE OF RESPONDENTS
Websites	35	63.6
Email newsletter	25	45.5
Reports - sent by email	23	41.8
Meetings/briefings	21	38.2
Reports - sent by mail	20	36.4
Journals	17	30.9
Conferences/seminars/workshops	17	30.9
Newsletter - by mail	10	18.2
Media releases	9	16.4
Newspaper articles	9	16.4
TV news	7	12.7
Fax bulletin	0	0.0
Other Sources:		
Researchers directly	9	14.5
Environmental/community organizations (Birdlife Australia, Landcare)	6	10.9
Government departments	6	7.3
GBRMPA/LMACs	4	7.3
University (JCU/CQU)	3	5.5
Canegrowers Assoc.	2	3.6
Environmental consultants	2	3.6
In-house research	2	3.6
GRDC	1	1.8
Other growers	2	3.6
Reef Catchments	1	1.8
Seafood CRC	1	1.8
Terrain	1	1.8
<b>TOTAL</b>	<b>233*</b>	<b>-</b>

\* Note: Multiple choice question therefore total will exceed n = 55.

Information sources were cross-tabulated with the cluster groups (Figure 3), and displayed as a percentage of the total responses within each cluster (total number of responses per cluster shown in brackets).

Of note, the business cluster used information from most of the sources. The environment cluster predominantly used websites and had the highest percentages for using environmental organisations as sources of information. Government tended to mainly use websites and journals. Agriculture cluster used other sources (e.g. Canegrowers Association, agricultural organisations, etc.) while the fishing cluster mainly used newspapers or websites. The tourism cluster sourced information predominantly from the media, newspapers, or websites.

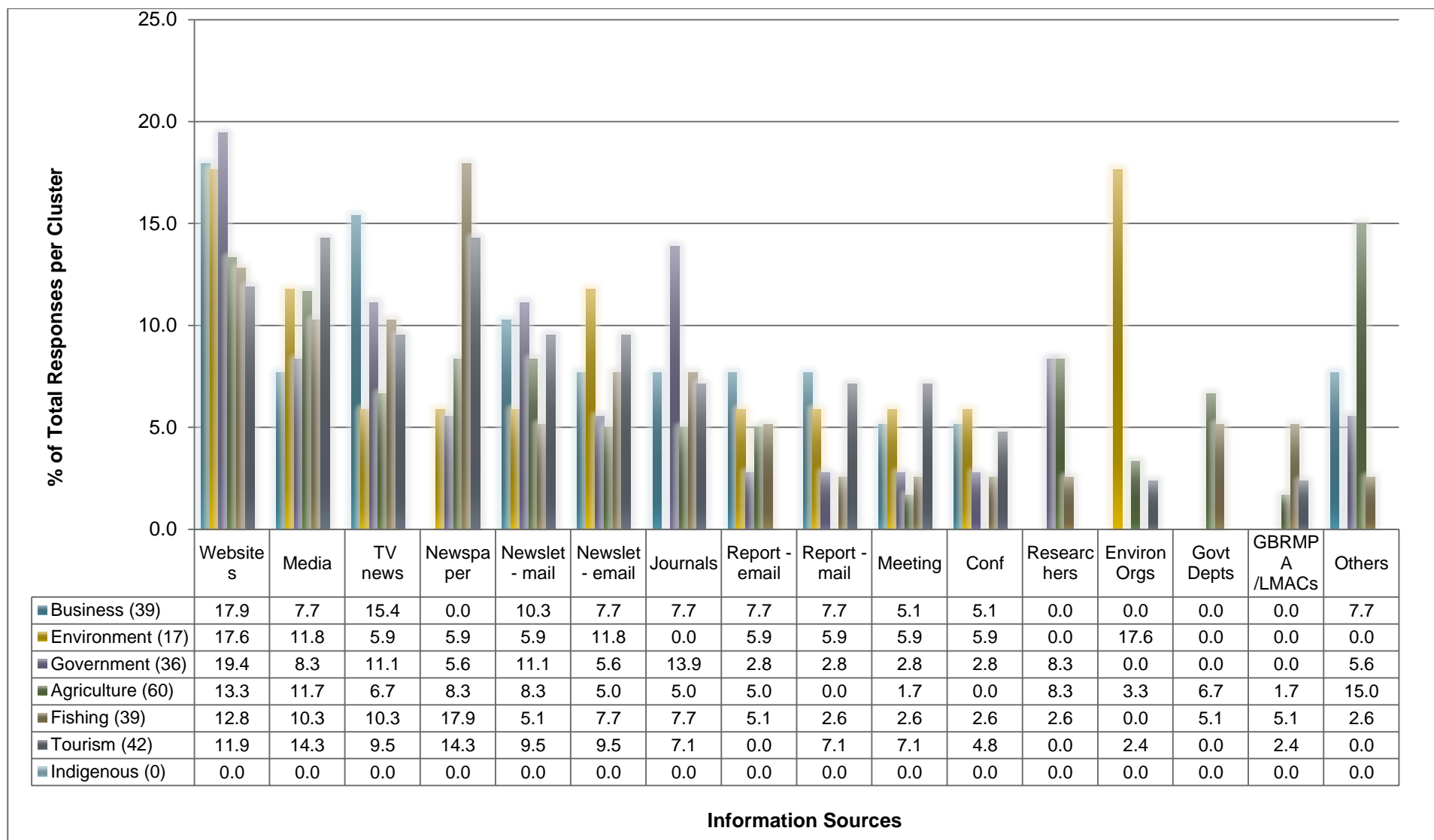


Figure 3: Information Source by Clusters (Not Aware of NERP TE Hub)

## 3.4 AWARE OF NERP TE HUB (SECTION B)

### 3.4.1 Awareness of NERP TE Hub

Those respondents who indicated they had heard of the NERP TE Hub (n=117; 62.6%) were asked questions from Section B of the survey. The results of the questions pertaining to awareness of the NERP TE Hub are tabulated in the following sections.

Figure 4 shows the respondents who indicated they were aware of the NERP TE Hub by cluster and classified within the three tiers of *contractually identified research user*, *expected awareness* and *potential awareness*. The entire Indigenous cluster (n=3) were research users who were aware of the NERP TE Hub. Respondents within the government cluster (n=68) were recognised as research users (79.4%), expected awareness (19.1%) and potential awareness (1.5%) within the tiers. All of the tourism cluster respondents (n=4) were within the expected awareness tier. Those aware of the NERP TE Hub within the business cluster (n=4) were identified as expected awareness (50.0%) and potential awareness (50.0%) tiers. Of the environment cluster (n=22), half were identified research users (50.0%) and half as expected awareness (50.0%).

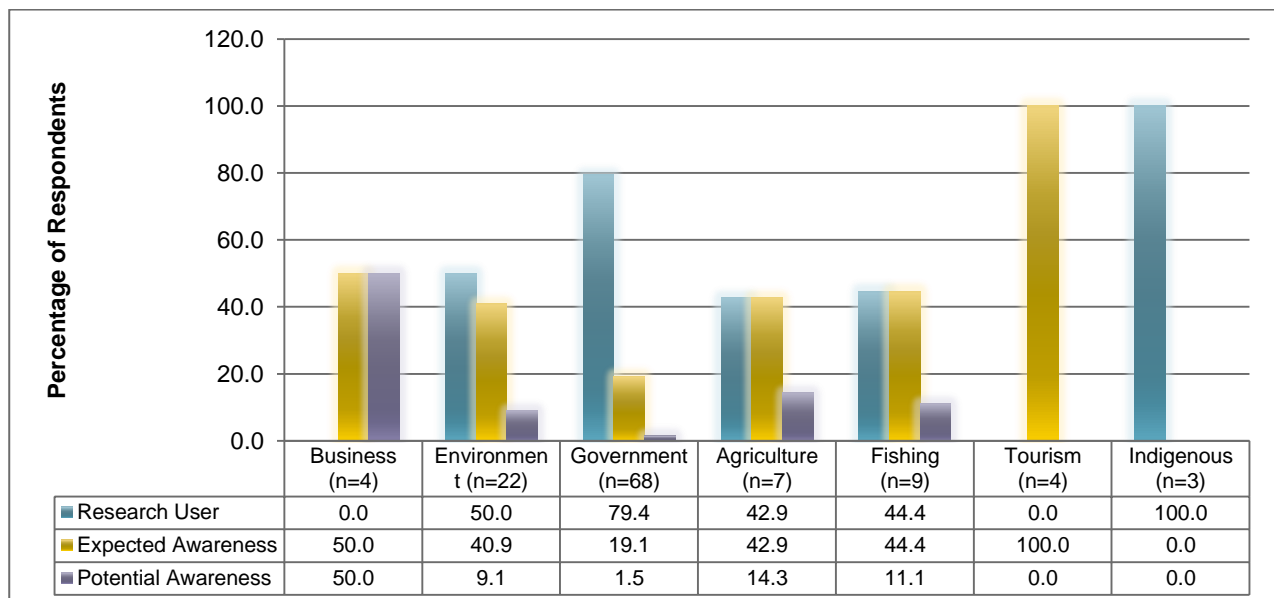


Figure 4: Respondents aware of the NERP TE Hub by Tier and Cluster

### When did you first find out about the NERP TE Hub?

As shown in Table 8, most respondents first heard about the NERP TE Hub from 2009 to 2012 (75.2%). Of these, 38.5% of respondents had heard of the program during the first two years of the NERP TE Hub (2011-2012). Equally, 36.7% of respondents heard about the NERP TE Hub during the end of MTSRF and the MTSRF Transition period.

**Table 8: When found out about NERP TE Hub**

INFORMATION SOURCE	FREQUENCY	PERCENTAGE OF TOTAL RESPONDENTS
No idea/Can't Remember	9	7.7
<b>CRC ERA</b>		
CRCs	7	6.0
2000	1	0.9
<b>MTSRF ERA</b>		
2006	9	7.7
2007	2	1.7
2008	1	0.9
2009	24	20.5
2010	19	16.2
<b>NERP ERA</b>		
2011	19	15.4
2012	27	23.1
<b>TOTAL</b>	<b>117</b>	<b>100.0</b>

### *How did you first find out about the NERP TE Hub?*

Responses to this question were recorded from all of the 117 respondents who said they were aware of the NERP TE Hub. Their comments were grouped according to information source keywords (Table 9). The most common sources for finding out about the NERP TE Hub were:

- NERP/RRRC/MTSRF (n=60; 51.3%); and
- Government agencies/programs (n=31; 26.5%).

It is reasonable to expect that many of these respondents would have been involved in the previous CERF program (MTSRF) and through its progression, would naturally be aware of the NERP TE Hub inception. Additionally, GBRMPA (n=11) is a significant partner in the NERP TE Hub so it is also expected to be a prevailing source of information.

**Table 9: How found out about NERP TE Hub**

INFORMATION SOURCE	FREQUENCY*	PERCENTAGE OF TOTAL RESPONDENTS
<b>NERP/RRRC/MTSRF</b>		
NERP – projects/ involvement	21	17.9
MTSRF (and RRRC) - NERP	12	10.3
NERP - work groups/ committees/ meetings	9	7.7
MTSRF - NERP	7	6.0
RRRC - NERP	7	6.0
e-Atlas	2	1.7
e-Reefs	1	0.9
NERP - other hub	1	0.9
<b>INDIVIDUALS</b>		
Malcolm Dunning	4	3.4
Ro Hill	3	2.6
Bob Pressey	2	1.7
Cathy Dichmont	1	0.9
John Brodie	1	0.9
Katrina Fabricius	1	0.9
<b>GOVERNMENT AGENCIES/PROGRAMS</b>		
GBRMPA	11	9.4
Reef Rescue	5	4.3
SEWPAC	5	4.3
Fisheries QLD	2	1.7
CSIRO	1	0.9
DERM	1	0.9
Fisheries NSW	1	0.9
FNQROC	1	0.9
Government agencies/departments	1	0.9
National Hendra Task Force	1	0.9
Parks Australia	1	0.9
WTMA	1	0.9
<b>WORD OF MOUTH</b>		
Colleagues/Work	5	4.3
<b>OTHER ORGANISATIONS</b>		
Terrain	2	1.7
Cassowary Recovery Team	1	0.9
University Sunshine Coast	1	0.9
<b>OTHER SOURCES</b>		
Can't remember	4	3.4
Media	1	0.9
<b>TOTAL</b>	<b>117</b>	<b>100.0</b>

### 3.4.2 Communications from NERP TE Hub or Related Organisations

Respondents were asked several questions to gauge communication of research information, particularly from the NERP TE Hub and associated organisations.

#### *Have you received any form of communication or information from the NERP TE Hub and/or related research organisations?*

Almost three quarters of the respondents who were aware of the NERP TE Hub had received communications or information (n=83; 70.9%). Respondents within the Indigenous cluster (n=3), government cluster (n=57) and environment cluster (n=14) had received the most communications from the NERP TE Hub.

An additional cross-tabulation was conducted to investigate which tiers of users had received these communications. The results revealed that the majority of *research users* (n=62; 83%) and over half of the *expected awareness* respondents (n=19; 54%) had received communications or information from NERP TE Hub or related organisations.

Table 10: Received NERP TE Hub Communication by Clusters

CLUSTER GROUPS		RECEIVED COMMUNICATIONS?		
		YES	NO	TOTAL
Business	Frequency	1	3	4
	% of Cluster	25.0	75.0	100.0
Environment	Frequency	14	8	22
	% of Cluster	63.6	36.4	100.0
Government	Frequency	57	11	68
	% of Cluster	83.8	16.2	100.0
Indigenous	Frequency	3	0	3
	% of Cluster	100.0	0.0	100.0
Agriculture	Frequency	3	4	7
	% of Cluster	42.9	57.1	100.0
Fishing	Frequency	3	6	9
	% of Cluster	33.3	66.7	100.0
Tourism	Frequency	2	2	4
	% of Cluster	50	50	100.0
TOTAL	Frequency	83	34	117
	% of Total	70.9	29.1	100.0

The 83 respondents who indicated they had received communications from the NERP TE Hub were asked additional questions regarding the NERP TE Hub information they had received. These included from whom and how the information was received, the type of information, and the regularity of these communications.



### *From whom did you receive this information?*

A total of 131 different types of communication were received from various sources as mentioned by the 117 respondents in this multiple response question. The responses were grouped into key organisations or key words for ease of analysis.

As shown in Table 11, a large proportion of respondents received communications directly from specific NERP TE Hub projects/researchers (n=68; 58.1%). A significant proportion of respondents said they received communications from RRRC (n=26; 22.2%) or NERP sources (n=21; 17.9%), however were unable to specify which projects or researcher's names.

**Table 11: Who Communicated the Information?**

SOURCE OF COMMUNICATION	FREQUENCY* (n=117)	PERCENTAGE OF TOTAL RESPONSES
NERP PROJECTS		
NERP Projects/researchers – not specified	15	11.5
Bob Pressey/ Project 9.4	10	7.6
NERP programs	5	3.8
e-atlas team	4	3.1
Rosemary Hill	4	3.1
Cathy Dichmont	4	3.1
David Westcott	2	1.4
Malcolm Dunning	2	1.4
Nadine Marshall	2	1.4
Catherine Martin	2	1.4
John Brodie	1	0.8
Torres Straits – all projects	1	0.8
Andrew Negri	1	0.8
Damien Burroughs	1	0.8
Hugh Possingham	1	0.8
Joanna Johnson	1	0.8
Water quality (most projects)	1	0.8
Myrtle Rust project	1	0.8
Renae Tobin	1	0.8
Ex-MTSRF researchers	1	0.8
Fergus Molloy @ AIMS	1	0.8
Jane Waterhouse	1	0.8
Long-term social + economic project	1	0.8
Natalie Stoeckl	1	0.8
Social and Bio project researchers	1	0.8
Sue Lawrence's team	1	0.8
James Butler (Project 11.1)	1	0.8

Resilience project	1	0.8
NERP		
NERP – unspecified/not sure who/which project	12	9.2
Peter Doherty	4	3.1
Steering/implementation - biodiversity committee	2	1.4
Indigenous engagement workshop	1	0.8
Water quality working group	1	0.8
NERP rainforest implementation group	1	0.8
RRRC		
RRRC	22	16.8
NERP communications team/ Juliana/ Milena	3	2.3
David Souter	1	0.8
GOVERNMENT/UNIVERSITY		
GBRMPA	3	2.3
SEWPAC	3	2.3
CSIRO	2	1.4
QLD government	2	1.4
DERM	1	0.8
JCU	1	0.8
OTHER SOURCES		
Self	2	1.4
Can't remember	2	1.4
<b>TOTAL</b>	<b>131</b>	<b>100.0</b>

\* Note: Multiple choice question therefore total will exceed n=117.

### *How was information communicated?*

The responses were grouped into key organisations or key words for ease of analysis and display of results. As shown in

Table 12, direct contact with the researchers using emails, meetings, phone calls and factsheets (n=65; 47.0%) was the most cited method of communication. Another key method of communicating information was by respondents attending NERP TE Hub meetings (n=19; 13.8%). Emails received from the RRRC (n=16; 11.6%) or NERP (n=14; 10.1%) were also prevalent forms of communication.

**Table 12: How was Information Communicated?**

HOW COMMUNICATED	FREQUENCY (n = 117)	PERCENTAGE OF TOTAL RESPONSES
Researchers directly – email, meeting, telephone, factsheet	65	47.0
NERP – workshop/meeting - steering committee/ implementation group	19	13.8
Emails – RRRC	16	11.6
Emails – NERP	14	10.1
Can't remember	5	3.6
Indirectly communicated through other agencies	5	3.6
NERP – unspecified communication	4	2.9
Meetings – other organisations	3	2.2
Website - RRRC/NERP	3	2.2
Emails – from non-NERP related	2	1.5
RRRC – unspecified communication	2	1.5
<b>TOTAL</b>	<b>138</b>	<b>100.0</b>

\* Note: Multiple choice question therefore total will exceed n = 117

### *What type of information did you receive?*

The majority of the information that respondents received was NERP TE Hub project-specific (n=94; 74.0%), or from RRRC/NERP-related communications (n=30; 23.6%), as grouped and listed in Table 13. Specifically, project updates (n=42; 33.1%) and newsletters (n=18; 14.2%) were the most cited forms of information.

**Table 13: Type of Information Received**

INFORMATION	FREQUENCY (n = 117)*	PERCENTAGE OF TOTAL RESPONCES
<b>NERP TE Hub PROJECTS</b>		
Project update	42	33.1
Socio economic project	8	6.2
Project factsheet	3	2.4
Fisheries	3	2.4
Flying fox info	3	2.4
Reports - outcomes	3	2.4
Water quality	3	2.4
Biodiversity	2	1.6
Spatial data	2	1.6
Rainforest research	2	1.6
Coastal info	1	0.8
Co-management	1	0.8
Data	1	0.8

Draft case studies	1	0.8
e-Atlas info	1	0.8
Emerging issues	1	0.8
GBR bio/water quality	1	0.8
Initial project update	1	0.8
Inshore biodiversity	1	0.8
Marine threat species	1	0.8
Media releases	1	0.8
Milestone report	1	0.8
Myrtle rust info	1	0.8
Native fish species	1	0.8
Nutrients, crown of thorns, pesticides	1	0.8
Paddock to reef related	1	0.8
PNG socio-economic	1	0.8
Project 11.2 updates	1	0.8
Project 2.2 updates	1	0.8
Publications	1	0.8
Repository info	1	0.8
Research outcomes	1	0.8
Weed management	1	0.8
<b>NERP/RRRC</b>		
Newsletters	18	14.2
NERP updates	6	4.7
Agendas - workshop	1	0.8
Implementation group info	1	0.8
Meetings info	1	0.8
Minutes of meetings	1	0.8
Reference group info	1	0.8
Steering committee updates	1	0.8
<b>OTHER</b>		
Not sure	1	0.8
Other information	1	0.8
<b>TOTAL</b>	<b>127*</b>	<b>100.0</b>

\* Note: Multiple choice question therefore total will exceed n = 117. Additionally, respondents noted receiving project information from more than one NERP project or more than one type of information from a project.

### *Is this information received on a regular basis from this source?*

As shown in Table 14, information was mostly communicated on a regular basis (n=61; 45.9%). Other respondents had received information only recently (n=15; 11.3%), occasionally (n=13; 9.8%) or once only (n=10; 7.5%), reflecting the early stages of the NERP TE Hub project progress during the survey period.

**Table 14: How Often Communication Received?**

REGULARITY OF COMMUNICATION	FREQUENCY (n = 117)	PERCENTAGE OF TOTAL RESPONSES
Regular	61	45.9
Recently	15	11.3
Occasionally	13	9.8
Once/one off	10	7.5
Ad-hoc/as needed	5	3.8
Monthly	4	3.0
Quarterly	4	3.0
This week (Nov 2012)	4	3.0
Few in last 12 months	4	3.0
6 months ago	4	3.0
Weekly	2	1.5
Twice	2	1.5
Several	1	0.8
Every 2 years	1	0.8
Fortnightly	1	0.8
Twice/year	1	0.8
Can't remember	1	0.8
<b>TOTAL</b>	<b>133*</b>	<b>100.0</b>

\* Note: Multiple choice question therefore total will exceed n=117

### *What is the most useful piece of information you have received from the NERP TE Hub to date?*

A total of 83 respondents were able to comment on the most useful piece of information they had received from the NERP TE Hub program to date. For ease of understanding and context, the respondents' comments have been listed verbatim under two key themes – project specific information and inability to comment/early days. The results have also been grouped by clusters in Table 15.

Many respondents made reference to specific NERP TE Hub project information they had already been exposed to, and which they thought was useful. However, a significant number also indicated they could not yet comment as the projects were still in progress, or they had not yet received information.

By far, the government cluster (n=56) had the highest number of responses for the most useful piece of information they had received from the NERP TE Hub. This is understandable since the majority of government respondents are *research users* who would be expected to have higher levels of exposure to NERP TE Hub projects.

**Table 15: Most Useful Information from NERP Program**

CLUSTERS	MOST USEFUL INFORMATION
<b>Business (n=1)</b>	<b>PROJECT SPECIFIC</b>
	Information on sea grass assessments
	Longer term monitoring programs
	Helene Marsh's PhD student's - acoustic space and mega fauna
	Bruce Prideaux's research
<b>Environment (n=14)</b>	<b>PROJECT SPECIFIC</b>
	Regular updates @ RRRC meetings - we get to ask questions and have informal discussions at meetings
	Biosecurity issues - approaches and modelling and impacts pop dynamics/DNA
	Information (provided) we can hand out to growers in simple language
	Nothing new - but fine tuning information helps to target our work
	Referencing is very helpful
	RRRC/NERP link to GBR atlas and other reports relevant to Fitzroy - if we are aware
	Lots of good work! - Can't remember specific, but individual projects communicate directly with immediate groups only; but don't know how key findings are communicated.
	It's about building into NERP communications to local stakeholders (e.g. in Mackay) then they can decide whether to engage or not.
	Understanding what research is taking place in region - how this can be used for NRM planning
	Bob Pressey - coastal management zoning - but NERP TE projects only early days
	Partner/collaborate with NERP, so do not specifically use the info
	Unsure if NERP information is from TE Hub, but regularly using it - if so, it is useful
	Reference group information - if need more information can turn to project team
	<b>CAN'T SAY/ NOT SURE/EARLY DAYS</b>
	Too early for ground breaking research but potentially useful
	Too much information to take in no time to read all that is received unless there is something very specific
	Nothing really received
	Can't remember -may have received some, but too much information in emails to remember
	Can't say - land use management for improved water quality - could be NERP information
	Can't say as NERP has low profile/not recognised personally
	Hard to say which researchers NERP funded or not - but 50% coral cover degraded
	Not related directly to my work so can't comment

Government (n=57)	PROJECT SPECIFIC
	Pest management projects - not received final reports so can't say
	Water quality and pesticides - what found in research - what monitoring being done
	Invited to provide presentation @ workshop on biosecurity movement - risks
	Information about population movement and PNG West Province
	Potential impacts climate change in PNG future planning more information than expected actually
	Only rely on others to feed information (from NERP) i.e. through “representatives”, councils, FNQROC
	Aware of what are some of the challenges the researches are having * ways of tackling issue a management - very good communications from these researches already
	Communities are surprised about research
	Sessions where sit with providers +hear where they are up to
	Sea grass +pesticides (Andrew Negri) excellent work
	Natalie Stoeckl's project
	Some MTSRF research has continued to NERP. Critical information: Jeff Jones - fish larval transport. Roth's collapse of corals. AIMS funded programs. Because they give credence from information we knew, but needed rock solid evidence. Researchers are best in their field both nationally and internationally.
	Can't say as have not really received direct research
	David Souter's project very useful, not a whole lot out there on this subject
	Jane Waterhouse's work and circulars she has sent out. Water quality workshops - opportunity first hand interaction with researchers/ Overviews/Opportunities as research user to transition R&D /maintain linkages e.g. Michelle Devlin. Excellent that opportunities for researchers are available to talk to stakeholders
	Nothing greatly useful for my position but good to know contact points if need to access research in those areas
	Haven't seen any project outcomes yet - too early - so can't say
	Data on flying fox camp size and movements and distributions
	Advance copies of significant research on GBR bio, water quality - need information to address media and management
	Starting to get information on project - Coastal dolphins, Isobel Beasley/Helene Marsh - this will be critical!
	All valuable- helps us to manage- feed into our management programs
	Frogs in Northern QLD projects. Spectacled flying fox work project
	Outline from Hub from all projects for compiling lists of reports (for others) which go out many others
	Was one of main projects wanted to see done!! Which will provide guidance for all over Australia because not much done previously on Myrtle Rust -so many will be able to use this data
	Some idea our how get of islands covered w/in protected area systems - how managing these
	Turtles and dugongs - to keep up to date on outcomes of research + for contacts on
	All going to deliver good outcomes. Andrew Negri project -very good outcomes so far Sea grass -very good outcomes so far
	From colleagues internally
	Need to see results in end - fertilisation of project topics but good areas of research
	Preliminary findings very interesting - sea grass tolerances/herbicides
	Just briefly read but not had much time involved - ones been involved in -TSRA has more information /links to data
	Not of top head - most current information is still in pipeline so nothing stands out yet
	Nothing in particular - just part of process of updating research (as it comes)
	Only that program exists and managed by RRRC as per excerpt in newsletter
	Too busy to recall. NERP is just one of many sources ,some of my staff monitor it, but NERP is a secondary data capture of work done by others
	Can't comment as not really seen enough information
	Some of the research very useful - only small – fantastic. Can't comment on specific information. Ken Anthony's project. Nadine Marshall's socio economic project.
	Still early days, but, useful - working with many researchers, as projects being done - to see what information can be disseminated to stakeholders/community/local government. Also look at what is not being published, as it may be valuable to stakeholders -which have found
	in general the e-atlas is crucial for strategic assessments, helps with linkages and information about data layers



	Cathy Dichmont - inshore biodiversity - have lots to do with project, how developed quality modelling tools, informative and applicable
	Some outcomes from AIMS - long term monitoring of corals
	Long term - coral assessment
	Diuron work was very useful for making assessments
	<b>CAN'T SAY/ NOT SURE/EARLY DAYS</b>
	Sometimes information doesn't filter down from above
	Haven't used yet
	Can't say -information not at a stage we can use yet,, but as develops will provide basis for tools to look at regional management of fisheries
	Not so much the published data but the processes involved are of interest
	Not much from TE Hub, but marine Hub, so know that project is not finished yet and will get outcomes then.
	Nothing immediate comes to mind
	Can't say - not received any specific project information yet
	Can't say - not really received direct research from program but briefings +information useful
	Nothing in particular-only go to meetings but would like to get project factsheets ect.* erly findings would be useful.
	None used - research not specific to position
	Can't say
	Can't answer - mainly obtain data from researchers - many communications with
	Nothing in particular - though TE Hub is only one (i.e. Hub) that had an Indigenous engagement strategy
	Any information is very useful! But nothing specific yet
	Not sure- can't now but at end of projects will comment whether doing well-(very complicated +lots of work +liaisons before projects even done!)
	Not received updates yet, so can't say
	Since project still only on development stage -looking at end of this information and how it affects us
	Information tends to be more generic /updated if we need more in -ddepartmentept
<b>Indigenous (n=3)</b>	<b>PROJECT SPECIFIC</b>
	Some research programs are very helpful - intend to use Ro Hill's work -very useful northern team - monitoring +effectiveness
	Had workshop to engage TOs into research - all were interesting and will be useful
	Nature of the project itself is interesting and practical/ way of linking to researchers for own professional development, such as co-publishing
	Community perspective - not very contextualised but when further along
	Engages community is new opportunity and involvement/ traditional owners opportunity to co-author papers
	Everything is useful! To help us on country - our input and information from project both help
<b>Agriculture (n=3)</b>	Unable to say as haven't looked at it yet
	Still early days - overview of projects/factsheets were very good - assists to get information to growers*how it all fits -got this information from projects overviews
<b>Fishing (n=3)</b>	Great to see marine-side, need modelling backed up by practices
	Good to see how the R&D is coming together-catchments and marine ecology as in one portal
	Research was very biased
	Most interest in projects fishing/fisheries not much received from these projects
<b>Tourism (n=2)</b>	Hard to say - find results interesting but not directly related
	Still early stages - outcomes from MTSRF - indicator that the coverage of corals or reef has declined by half, explain major events - cots, recovery of

### 3.4.3 Dissemination of NERP TE HUB Communications

Respondents were asked a number of questions on the distribution and use of NERP TE Hub information for the purpose of understanding the extent to which NERP TE Hub research is disseminated to colleagues and networks in the community.

#### *Do you share or distribute the NERP TE Hub research or information with others – if so, who?*

There were 55 (66.3%) respondents who indicated they share or distribute NERP TE Hub research with others and 28 (33.7%) who said they did not share research (most of them noted it was because they had not received any information from projects as yet).

These results were cross-tabulated with cluster groups and are presented in Table 16. Although small in numbers, those in the indigenous, fishing, tourism and agriculture clusters all distributed information they received. More than half of the government respondents (n=37; 64.9%) shared or distributed this information with others.

**Table 16: Share/ Distribute Research by Cluster Groups**

CLUSTER GROUPS		DISTRIBUTE RESEARCH?	
		YES	NO
Business (n=1)	Frequency	1	0
	% of Cluster	100.0	0.0
Environment (n=14)	Frequency	8	6
	% of Cluster	57.1	42.9
Government (n=57)	Frequency	37	20
	% of Cluster	64.9	34.1
Agriculture (n=3)	Frequency	2	1
	% of Cluster	66.7	33.3
Fishing (n=3)	Frequency	3	0
	% of Cluster	100.0	0.0
Tourism (n=2)	Frequency	1	1
	% of Cluster	50.0	50.0
Indigenous (n=3)	Frequency	3	0
	% of Cluster	100	0.0
TOTAL (n=83)	Frequency	55	28
	% of Respondents	66.3	33.7

The respondents who said they did distribute research (n=55) were then asked to specify who they shared this research with (see Table 17).

A total of 115 responses were given for this multiple response question, with the main distribution points being certain employees in organisation (63.6%), colleagues in industry (30.9%), or all of the employees in their organisation/department (27.3%).

Interestingly, 23.6% also indicated they shared information with stakeholders, while 18.2% shared information with (other/within their own) government agencies, and 12.7% also shared information with community groups.

**Table 17: Who NERP TE Hub Information is Shared With**

WHO SHARE INFORMATION WITH	FREQUENCY* (n=55)	PERCENTAGE OF RESPONDENTS
Only certain employees	35	63.6
Colleagues in your industry	17	30.9
All employees in organisation	15	27.3
Professional associations	9	16.4
Members of club/group	6	10.9
Others:		
Stakeholders	13	23.6
Government agencies	10	18.2
Community members/groups	7	12.7
Researchers	2	3.6
Other	1	1.8
<b>TOTAL</b>	<b>115</b>	-

\* Note: Multiple choice question therefore total will exceed n=55.

These results were cross-tabulated with clusters as displayed as percentage of the total responses within each cluster (total of responses per cluster shown in brackets) in Figure 5.

Of note, this revealed that the government cluster group tended to distribute this information more with certain employees, or others (i.e. stakeholders, other government agencies or community groups). The fishing cluster mainly distributed information to colleagues, while the tourism cluster predominantly shared information with certain employees or club/group members.

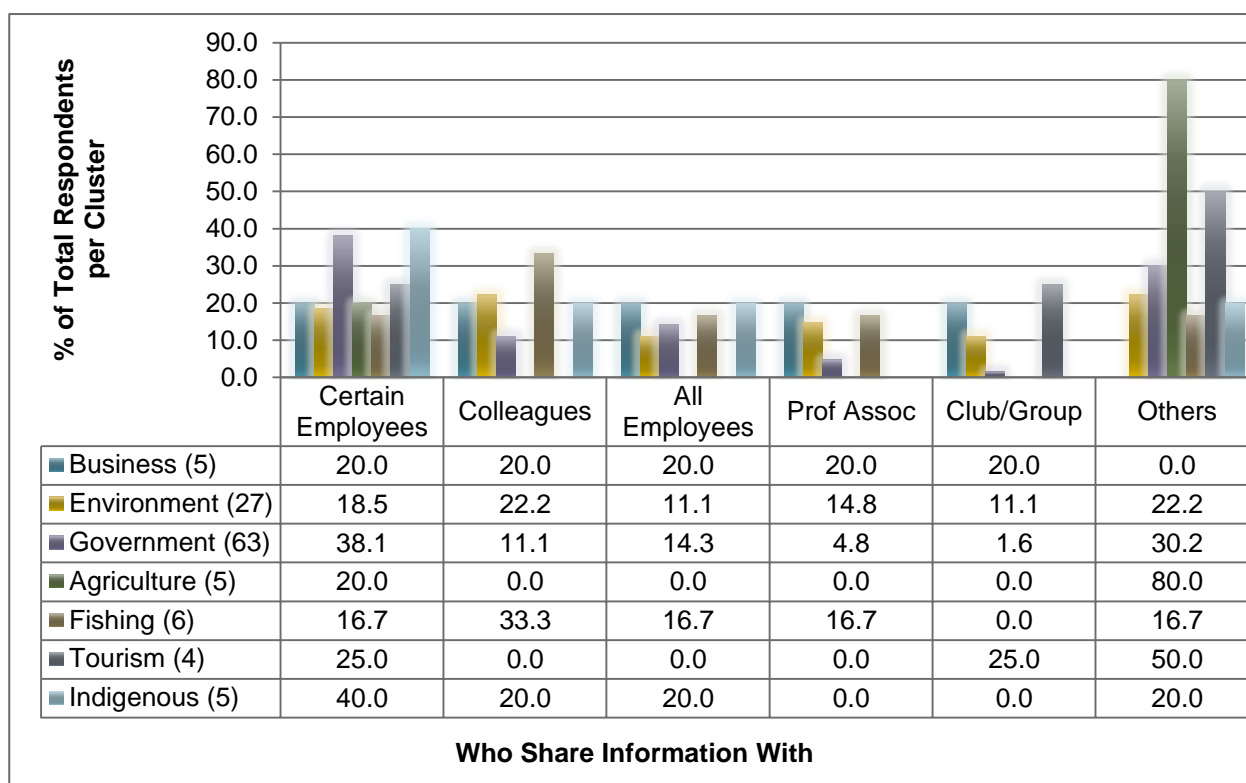


Figure 5: Who share Information with by Clusters

### *How do you access information that does influence decision-making in your position/business/organisation?*

Respondents were asked to indicate from a pre-determined list of sources, how they access information that influenced decision-making in their positions.

The results, as shown in Table 18, revealed that the main sources of information are websites (particularly accessed via Google searches) (n=95; 81%), email newsletters (n=56; 66%), reports by email (n=61; 52%), journals (n=52; 44%), or meetings (n=50; 43%).

Interestingly, government agencies/departments (n=30; 26%) or communicating with researchers directly (n=26; 22%) were significant other sources of accessing information.

**Table 18: How is Information Accessed?**

HOW ACCESS INFORMATION	FREQUENCY* (n =117)	PERCENTAGE OF TOTAL RESPONDENTS
Websites	95	81.2
Email Newsletter	66	56.4
Report Email	61	52.1
Journals	52	44.4
Meeting	50	42.7
Report Mail	42	35.9
Conference	36	30.8
Media	27	23.1
Newspapers	27	23.1
Newsletter	25	21.4
TV News	22	18.8
Fax	2	1.7
Other Sources:		
Government agencies/departments	30	25.6
Researchers directly	26	22.2
Networks - colleagues	15	12.8
Environmental organisations/conferences	10	8.5
GBRMPA	6	5.1
Universities (JCU,CQU, Griffith)	6	5.1
Industry colleagues /members (agriculture, tourism)	5	4.3
Internal sources	4	3.4
Media (ABC radio, newspapers)	2	1.7
Stakeholders (sugarcane, fisheries)	2	1.7
TSRA	2	1.7
Libraries (university)	1	0.9
<b>TOTAL</b>	614*	-

\* Note: Multiple choice question therefore total will exceed n = 117.

These results were cross-tabulated with clusters as displayed as percentage of the total responses within each cluster (total of responses per cluster shown in brackets). The results are shown in Figure 6.

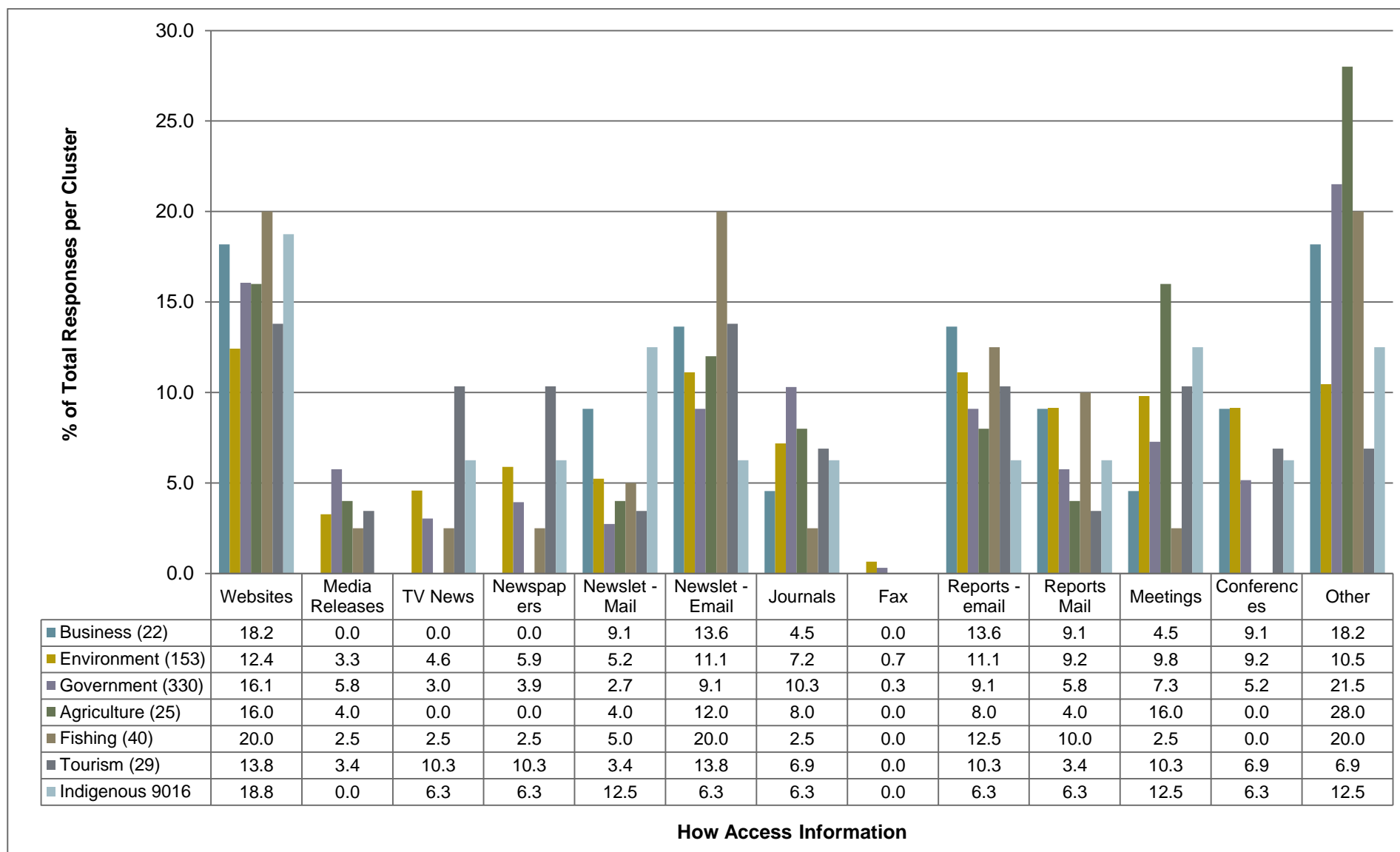


Figure 6: How Information is accessed by Clusters

### 3.4.4 Impact of Research

In order to gauge the impact of NERP TE Hub research, respondents were asked several questions relating to the:

- credibility of NERP TE Hub research,
- extent of use of NERP TE Hub research, and
- if and how this research influences policy or decision-making.

#### *How credible do you think the research produced by the NERP TE Hub is?*

Respondents were asked to use a rating scale where 1 = Very credible and 5 = Not credible at all to indicate how credible they thought NERP TE Hub research is.

Figure 7 indicates over half of the respondents indicated they believed that the NERP TE Hub research was credible (31.6%) or very credible (23.1%). A significant proportion stated they could not say (40.2%), largely due to the fact that many projects had not produced final outcomes so the respondents were not in a position to evaluate the research.

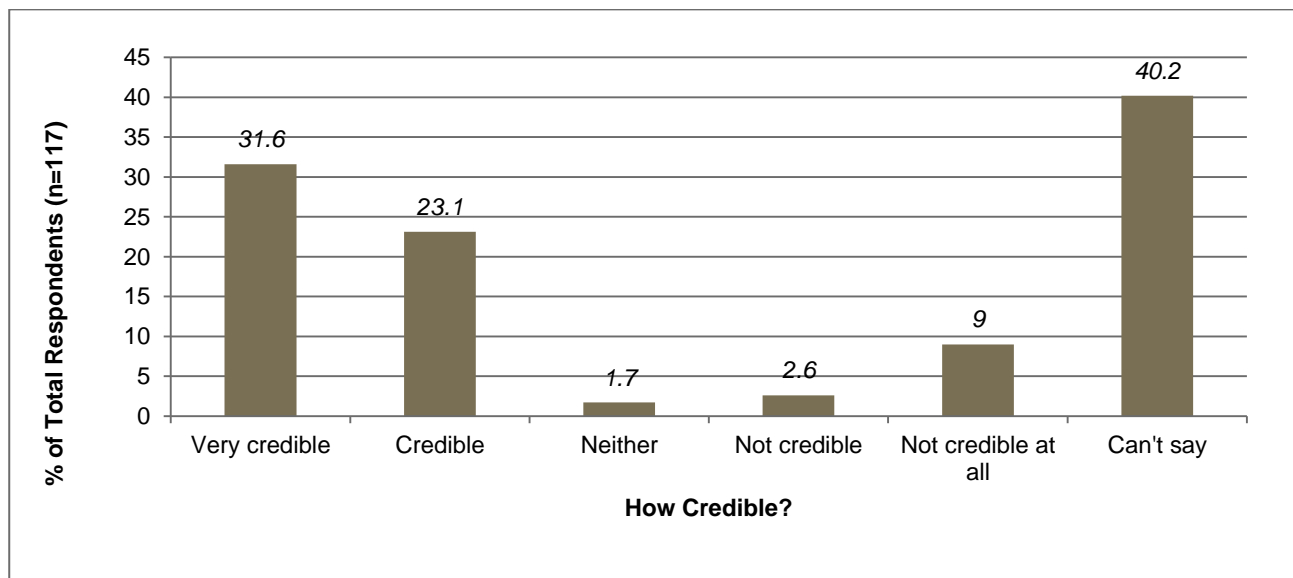


Figure 7: How Credible is NERP TE Hub research?

The responses were cross-tabulated with the clusters as displayed in



Table 19. While a significant proportion of respondents (40.2%) indicated they were not in a position to comment on the credibility of the research due to not being familiar with any of the outcomes, overall 54.7% said the research was credible or very credible. Within the government cluster, 58.8% of these respondents indicated the NERP TE Hub research was very credible and credible.

Table 19: How Credible is NERP TE Hub Research by Cluster Groups

CLUSTER GROUPS		HOW CREDIBLE IS NERP TE Hub RESEARCH? (n = 117)						
		Very credible	Credible	Neither	Not credible	Not credible at all	Can't say	Total
Business	Frequency	1	0	1	0	0	2	4
	% of Cluster	25.0	0.0	25.0	0.0	0.0	50.0	100.0
Environment	Frequency	7	6	0	0	0	9	22
	% of Cluster	31.8	27.3	0.0	0.0	0.0	40.9	100.0
Government	Frequency	26	14	1	2	1	24	68
	% of Cluster	38.2	20.6	1.5	2.9	1.5	35.3	100.0
Indigenous	Frequency	0	2	0	0	0	2	3
	% of Cluster	0.0	66.7	0.0	0.0	0.0	66.7	100.0
Agriculture	Frequency	1	1	0	0	0	5	7
	% of Cluster	14.3	14.3	0.0	0.0	0.0	71.4	100.0
Fishing	Frequency	1	2	0	1	0	5	9
	% of Cluster	11.1	22.2	0.0	11.1	0.0	55.6	100.0
Tourism	Frequency	1	2	0	0	0	1	4
	% of Cluster	25.0	50.0	0.0	0.0	0.0	25.0	100
TOTAL	Frequency	37	27	2	3	1	47	117
	% of Respondents	31.6	23.1	1.7	2.6	0.9	40.2	100.0

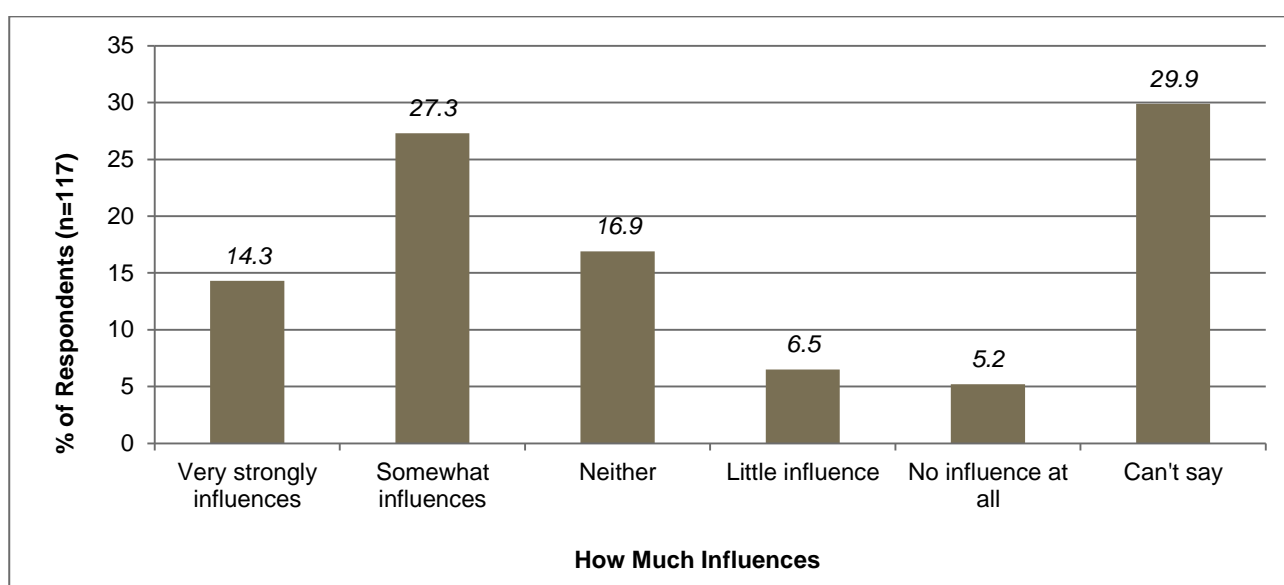
The respondents' credibility rating was also cross-tabulated with tiers of users to investigate any potential differences between the users. The results revealed that of the *research users* (n=75), 63% said the NERP TE Hub was either very credible or credible, with a further 32% indicating they couldn't rate the level of credibility. The respondents from the *expected awareness* tier (n=35) also mainly stated the research was either very credible or credible (43%) and over half said they were not able to rate the research (54%).

***To what extent does the research from the NERP TE Hub influence policy and decision-making in your position?***

Respondents were asked to use a rating scale where 1 = Very strongly influences and 5 = No influence at all to indicate the extent that NERP TE Hub research influenced policy or decision-making in their position.

As many of the respondents had already noted in previous questions that it was still early stages for comment on the NERP TE Hub research, a significant percentage of the sample were not in a position to respond (n=52; 44.4%).

Slightly more than half of the sample (n=65, 55.6%) rated the extent of influence from NERP TE Hub research. As shown in Figure 8, the research influenced 31.6% of the respondents, with a further 12.8% indicating neutral ground on influences from the research.



**Figure 8: How much NERP TE Hub Research Influences?**

The responses were cross-tabulated with the clusters as displayed in Table 22. Most of the clusters had higher percentages of respondents stating the research strongly influenced policy and/or decision-making.

**Table 20: How much NERP TE Hub Research Influences by Clusters**

CLUSTER GROUPS		HOW MUCH INFLUENCES						
		Very strongly influences	2	3	4	No influence at all	Can't say	Total
Business	Frequency	1	0	1	0	0	2	4
	% of Cluster	25.0	0.0	25.0	0.0	0.0	50.0	100.0
Environment	Frequency	1	9	0	2	3	7	22
	% of Cluster	4.5	40.9	0.0	9.1	13.6	31.8	100.0
Government	Frequency	9	12	11	3	2	31	68
	% of Cluster	13.2	17.6	16.2	4.4	2.9	45.6	100.0
Indigenous	Frequency	0	1	1	0	0	1	3
	% of Cluster	0.0	33.3	33.3	0.0	0.0	33.3	100.0
Agriculture	Frequency	1	0	1	0	0	5	7
	% of Cluster	14.3	0.0	14.3	0.0	0.0	71.4	100.0
Fishing	Frequency	1	0	1	1	1	5	9
	% of Cluster	11.1	0.0	11.1	11.1	11.1	55.6	100.0
Tourism	Frequency	0	2	0	0	1	1	4
	% of Cluster	0.0	50.0	0.0	0.0	25.0	25.0	100.0
TOTAL	Frequency	13	24	15	6	7	52	117
	% of Cluster	11.1	20.5	12.8	5.1	6.0	44.4	100.0

***In what specific way does the NERP TE Hub research influence policy or decision-making in your position?***

The respondents who said that NERP TE Hub research either “1 = very strongly influences” or “2 = somewhat influences” (n=79) were then asked to explain in what specific way does that research influence policy/decision-making in their position. A total of 61 respondents were in a position to comment on the research. These comments were grouped according to key themes, namely “informs”, “supports”, “credible”, “influence later”, and “other” as shown in Table 21.

The highest number of comments made was those relating to the research supporting policy and decision-making in the respondents’ position. As expected, there were also a significant number of comments stating their anticipation of the research, that when completed it would potentially have an impact on policy and/or decision-making in their position.

**Table 21: Specific Way that NERP TE Hub Influences Policy/Decision-making**

GROUPS OF RESPONSES	SPECIFIC WAY INFLUENCES
INFORMS	Good reputation overall. Specifically - John Pandolfi's projects - means that need to do much more - dealing with 100 years - scale of the problem - the context of how to move forward
	Trying to provide complete picture and information from GBR atlas is very important part of this process
	Updating our current knowledge and understanding - how everything in the ecosystem is working
	By putting information out to cane growers assists them to understand the impacts and science to improve perceptions. Trying to put back positive things happening on the ground to change community perceptions - improve awareness of positive. Managed cane best management practice programs supported by QLD government
	Critical that linkages were not as correct in data - such as parks and wildlife input. However, value the work done to limited extent - only seen published data in last 6 months. Policy review not my area.
	On ground surveys are valued. Ecological survey methodologies that are being picked up. informative aggregation, collation methods
	Have to take into account other research and socio-economics of people who have to do something about it. Goes into pool of information in context of other work - decisions made using all of the information
	Projects 9.2 and 10.1 - use outcomes. Being used for strategic assessment report
	Only one field of information that we deal with (i.e. David Souter's project) - only one area out of many; so need to consider others... but not about quality of research
INFLUENCE LATER	Not so much now, but when it comes to fruition will have more influence
	Research is incomplete, but potential when results start flowing
	Has potential to influence when completed
	Don't access NERP research, but will be looking forward to Bob Pressey's
	When I look at the research, some of it has a lot of value - but some also looks like it could be done much better, so not all of it influences
	Depends on topic - e.g. feral cat project in Northern Australia, and keen to see outcomes from Arukun project
	Researchers and teams are very credible. Great projects being done and outputs will be useful, but haven't seen outcomes - so too early to say
	Depends on research being done is baseline information/very targeted - so for it to have influence.... projects still in early days but likely that it will influence priorities in future
	Can't say yet, but will be when completed
	Not completed yet so can't say, but when completed will definitely
	Projects only just starting to roll out so can't comment
	Early days - but...coastal management
	Haven't seen results yet. Any research that highlights negative impacts from tourism point of view - would influence policy and strategy
	Because still trying to make it up as we go along - if asked me 5 yrs ago - it would not. Currently there is a shifting situation
	Know it is still early stages and will fine tune as goes along - but the added information is to our benefit

CREDIBILITY	Can't remember specific research, but highly qualified /skilled researchers - would not hesitate to use their information
	Have great confidence in their research but not used yet as not finished with research (i.e. no outcomes yet)
	Tend to develop policy directly from research outputs
	Markedly improved since CRC days - competitive (market for researchers) - have so many R & D projects industry programs
	Researchers are excellent. But don't think department has done good job in commissioning NERP - not well enough connected , our research questions not well coordinated
SUPPORTS	Pest management plans - keeps informed with best practices - indirectly influences weed/forestry management
	Need research to support my position. Fact that previous research was done (MTRSF) - them led to new funding and programs
	Conservation planning results will affect our policies on regulations/approvals permits
	Greatly - but also confirms we on right track with own management +policy making
	Big decisions made using research to support management of different fisheries - rock lobster fishery
	Indigenous management + engagement information-will consider any information in future program out comes for policy + decision -making
	Influences design of the reef rescue initiative - funding is defined by outcomes from these projects
	We can't make decisions without this research - currently putting together management plans
	Not directly for decisions, more overall environmentally related to industry. Catchment care and practices are doing best, but we haven't been good at sharing with government and communities, so is good to see research ratifying this though
	In terms of management, yes also - upgrade policy - legislative amendments
	Lots good scientific information!!! Status of environment - then brings good policy decisions + can put researchers in touch with another (cross-fertilization of research) + share with PNG + circulate more broadly in communities. Critical!!! Helene Marsh + Mark Hammond - means we can decide on zones / no zones - management of areas
	It more verifies/supports-documentation of policy issues to chase up *stakeholder involvement very important
	Being able to advise our clients in anything such as new research outcomes ;what is happening in research
	Underpins/provides information - enable us to inform our decision making, because it's credible - if not focused on types of things department needs to know about
	Some still ongoing but do take into account in policy dev/assessments strategic mgmt
	Water quality guidelines Under review w/in 12mths so projects will have big influence on guidelines Pesticides – sea grass - remote sensing also change method + type of monitoring Biodiversity strategy - need design, inshore mgmt strategy
	Mapping/climate change project - Ken Anthony - very good collaboration- science/impact pathways
	Access to information direct from researchers - when stakeholders involved, the information is highly valued by them. Research products are big steps forward and very useful! Will have some great outcomes when they are completed.
	Decision making and prioritizing projects
	Determining rehab policies - why and how and action timetable
	Freshwater and coastal fisheries information/ weed control

	Priority setting, methodology for designs - conservation intervention
	If relevant for lobbying - peer reviewed research is needed before they listen.
	Coral bleaching - solution for COTs/ GBRMPA zoning policy - bio geographic regions
	Fact sheets (e.g. Invasive species) research on conditions of NQ rainforests/ org assists nerp doctorates and research projects/ social and economic values of WTWHA on residents
	Empowers key stakeholders - water quality, recreational fishing in different zones, turtle sustainability
	Research could be focused on policy sector, health of reef, key factors for health, strategy, policy as to government
	Through availability of information a "go to spot" for data and research on GBR information. Relied on heavily, more and more as it progresses
	Examples - Helene Marsh's project - results have been directly inserted into policy considerations of management of dugongs. Cathy Dichmont's outcomes - way think about stakeholders on the ground, particularly approach she has used to elicit responses
	Gives s practical information to make decisions and policy management
OTHER	Don't primarily not our core business to just deal with "climate change" (believes is main nerp research area *not been a lot of communications from NERP
	other hubs are more valuable for my position to decision -making

### *Why is there little or no influence?*

The respondents who said that NERP TE Hub research either has “4 = little influence” or “5 = no influence at all” (n=23) were then asked to explain why this was the case.

These responses were grouped into key themes – “may influence later”, “not relevant to position”, and “can’t say” as listed verbatim in Table 22.

The highest number of responses related to the NERP TE Hub research being in its early stages, therefore not yet influencing policy and/or decision-making. However, many of these respondents noted their anticipation for results from some of the projects.

**Table 22: Why Little or No Influence**

GROUPED RESPONSES	SPECIFIC WAY INFLUENCES
MAY INFLUENCE LATER	Partly topical - fish management research not completed yet but use day to day management decisions - results have strong potential to influence
	Lost a lot of faith in research - previous researchers had strong credibility and government picked up good research + disseminated /used today drives their own agenda +research so researches only do what is asked by government -to make living it is understandable but not useful
	Depends on government of the day
	Seeing interesting paradigm - very centralised research but too micro; depends on how people interpret research - may be personal opinion in there; will consider it but may not influence decisions
	Still waiting for research results but at moment influences way we think + directions we might take ask ourselves questions -does this research agree with our thinking? Are they on the mark? Does it complement what we are doing so far no surprises but information on communication has been surprises
	It only refers to research conducted as in his department they will go straight to source such as JCU, UQ - where they will go directly to source and methodologies - not rely on 2nd hand references
	Research not publicised widely enough in arena
	Can't say because research hasn't finished and results not presented yet/like to use when available
	Can't say definitely - if information is quality, then yes it can be influential
	Doesn't seem to be applicable for marine ecotourism ops in cairns region, except for Eye on the Reef - good as participatory activity for crew and useful for monitoring
	We are very focused on specific issues - but project information only used in small areas because it is mostly academic
NOT RELEVANT TO POSITION/ WORK	Nothing specific researched by NERP that can influence position
	Does not directly relate to the work we do
	(Rainforest only) not relevant/ haven't seen anything that directly relates
	Because information from NERP pitched toward government policy/decision makers not the broad scale community, it can't really be used
	Where challenge is transfer to policy and management
	Nothing specific researched by NERP that can influence position
	None - all being covered already
CAN'T SAY	Can't say



### 3.4.5 Future Research Opportunities

The final question in the “Recognition of NERP TE Hub Evaluation Survey” asked respondents about their desire for future research.

*What specific issues/problems relevant to your position/business/organisation would you like to see addressed by NERP TE Hub in the future?*

This open-ended question allowed respondents the freedom to express any desires for specific issues/problems to be addressed by the NERP TE Hub researchers in the future.

These results were grouped according to key themes and are presented in Table 25. Briefly, the themes were:

- research agenda (changes in the current research agenda)
- agriculture (mainly pesticides, herbicides, and runoff issues)
- already being researched
- application and communication of research
- biosecurity
- climate change
- coastal
- fisheries
- Indigenous
- land
- marine
- linkages (collaboration and cross-disciplinary research)
- long-term research
- pest management
- rainforest
- water quality
- social/socio-economic
- tourism
- dingoes.

**Table 23: Future Research Opportunities**

GROUPED RESPONSES	FUTURE RESEARCH
RESEARCH AGENDA	Need quicker/cutting edge research (too slow to wait for reports to go public), it's mainly about timing of out puts
	NERP is only part of the research, will always be gaps in research, we were closely involved in setting up and research agendas, so far new wouldn't change
	Don't think phone surveys good way to get specific issues etc. our department should be much more well organised to coordinate feedback on what our research questions are, then drive research. e.g. decision Hub is very ad hoc
	Provides great opportunity to get research done that wouldn't have otherwise had. Would love to see it continue as it is critical
	Lots of gaps. But NERP can't do - very restricted by \$ money - need funding to do many bits and pieces of overall picture
	When do things as a planner - council get information, spend money on reports but because workloads and conflicts - agendas are internally conflicting between flood/fire/planning policies - when it comes to get expert policy it is already directed by government agencies so don't get researchers involved
	Malcolm Dunning drove a lot of the projects but since he left - roles are still up in air so can't say at moment
	Have a draft research plan. Early opportunities to discuss research options and what would match terrain programs and needs.
	Important to grow research capacity - MTSRF loss of funding did take research capacity in this backwards
	Need to effectively plan activities well in advance, organise fieldwork components, more time factored into notice
	NQ Dry Tropics not well involved in research goals
	Also more diverse questions not regional /location focused - localised vs. generic research
AGRICULTURE	All key herbicides. Access to testing methodology for key herbicides *develop tool that arranges to screen herb quickly easily "herbicide detector"
	Reducing pollution from agricultural and how agricultural products can minimise run off - particularly impacts on water/ marine
	Insects - fruit spotting bug, fruit piercing moths - getting worse - need to know how to control without chemicals. Some research done but not providing any results
	Very sceptical about research - whether it is biased or not. Current issue with APVMA-Diuron / misconceptions with chemicals - not sure if all science is factual and the science that is done is it accurate?
	Haven't seen much of research but too much on cane + grazing +banana's not much on horticulture industries
	The newer chemicals /herbicides /pesticides-their impacts on reef
	What is output of research, so we can distribute to graziers + farmers. Equips producers to understand research (prime the market to use the research). Consider how it is delivered- is the information available/what is available? What funds are available? What is best way to package that is intuitive and meaningful (to farmers +graziers) -what are benefits +applications of that research -how do we separate information and instruction?? e.g. language and subjectivity (used too much )don't have enough "objectivity".
	Too marine -centred. Need work on different views on cost effective management practices - because rural debt is high - so graziers can't invest in new systems without seeing logistics /gain benefits. Also mixed view on practices - what are differences in practices?
	Pesticide knowledge - only one project at moment. Sea grasses.
	No new developments in aquaculture for 30 years (CSIRO have been very supportive) but fed government - no research done ,yet increasing /seafood/agriculture + we are still importing more than 70% and aquaculture industry still seen as major polluters
	Burdekin -Haughton Irrigation area - a rise in groundwater in recent years that within 8 years there will be salinity problems - have not been addressed
	Interactions of pesticides and problems
	Cyclone resilience for tropical fruits - trellising. Co-project with DPI - but we are getting 1/10th of the funds to give up our ideas (intellectual property). Funding issues -unfair distribution of funds/flawed system

	Researchers need to get down to the "bush" a really find out what goes on because they are getting the results They want current research. Is their research peer -reviewed? If chemicals as bad as what scientists say then only do I still have grass + fish in the waterways?
	Where research should head is... are there better products that canegrowers can use? Because there isn't much research or choice available. What would you prefer to see more nutrients/chemicals/sediment because there will be trade -offs.
	More data on primary production site specific - Bulk ground conductivity and sediments - to try to deduce what goes into models
	More information on catchment natural processes – pre-European agriculture - what has changed? How has agriculture impacted on those processes? (1970s was one of dominant impact times)
	Nutrients and pesticides in runoff
	What effect irrigations would have -i.e. locking in through agriculture e.g. as a management tool irrigation
	Current outcomes leads to perceptions that pesticides all bad with implications to perceptions to food safety from public
<b>ALREADY BEING RESEARCHED</b>	Already working on them!
	Already have the systems + procedures for identifying science needs/gaps + should be utilised for a "community scan" – to give time to think about potential research topics
	Pretty much up to date with research being conducted thru NRM-with their involvement in water quality
	As an org -Sunfish sets priorities every year FRDC funding normally
	Already had researchers contacting us for future projects (to both diversify and maintain)
	Not at moment - as already working with us to have better relationships
	People in policy don't have to wait most of the topics are being researched already
<b>APPLICATION and COMMUNICATION</b>	Research is good, but needs to be applied validation of some of our research sites -connectivity - positive/negative impacts of their work
	CYP is over-researched!! Need more implementation (on environmental research)
	Bug have with researchers doing research - looking at applications for it
	Depends on research type - but need extension to industry, then will support it.
	NERP doesn't address management authorities being accountable
	Need more education for fishers + farmers rather than research and funding
	Research should be published in mainstream media - more publicised
	Translation of research into extension material -doesn't get clearly defined in proposals -researchers aren't necessarily best people to determine who/what extension material
	RRRC can't get information to people as they could - brief email with new information and website, informal meetings and presentations
	Communications breakdown - more newsletters, community information sessions, emails
	Research users not particularly engaged, then user directions not adopted well enough/ sharing information with users in the field
	Need more access to information for all users - workshops, face to face works better than reports or emails with spirited and outdoor people like fishers, farmers Indigenous people and some tour ops - for some of them not trustful of researchers (self-serving) some not good communicators/ workshops few hours, lunch or evening, involve staff as well as directors or owners etc.
	Who is going to synthesize TE Hub material for operators and staff (dive operation)?? How would it be shared (e.g. information sessions at end of day on board)
	"Inter-operability" - improving ability to share data between organisations - policy and technology barriers

	Issue of knowledge transfer into policy and management - less theoretical and more practical - how to do in practice? E.g. difficult to get operations managers to change - how adaptive are organisations? i.e. scientist have no idea how science needs to be done to operationalise e.g. institutional, cultural, personal constraints - when political - uptake of information is strong, but when environmental it is very difficult.
	Information accessibility by the community is not at all .NERP is more aimed at policy +decision makers rather than changing broader community member/stakeholders
	Information is there, but people don't have time to access it
	Managing data and making it publicly accessible - really important (increasing budget restraints so need to overcome this)
	Outcomes of NERP - make it more global look at ways of putting information out more to others international + national applications more for
	Disappointed not rec'd much to date lack of communications
	Tools of management - missing best practice management tools for council, main roads, infrastructure etc.
	Sometimes science presentations too complicated/scientists not expressive enough to reach out
	Hub - work more cooperatively with GBRMPA, AIMS and TQ to communicate results to research users/ecotourism operators
	Better application + consultation with recreational fish industry /people - huge gap - 400%diffs in recreational fishing vs. other research - recreational fishers were not included in research - e.g. Mackay - pressure on crab industry asking- how many got? vs. asking did you go to get crabs?
	A lot of research done but not much hits the ground. Example (analogy) - media in Cairns but storm chasers were in Mission Beach during Cyclone Yasi - Mission Beach is good idea for weather research due to reading water temps etc. on site
	NERP workshops for tourism research users
	Partnerships with research users to communicate by f2f, newsletters, straight forward fact sheets
<b>BIOSECURITY (Pests and Weeds)</b>	Biosecurity pathway information - movements that take place in nth Australia(including Torres Strait)- risks -pest/weeds/diseases - implementing effective measures surveillance strategies to detect risks - engaging with communities to raise people awareness of risks - data/information on people movement patterns in the Nthn Australia
	Biosecurity issues - rainforest /immediate response times quicker
	Guinea grass - how to get rid of via changing soil "biologically move guinea grass (some research been done on Gamba grass in NT)
	Diseases- e.g. Myrtle Rust, phytophthora - 8 different species 200 dead patches
	Invasive species - Wet Tropics
	How can make happen on the ground? Adaptation to Myrtle Rust
	Public (parks/council/main roads) sector need to assist private landholders - weeds, fire, water quality - otherwise private land management is losing battle
<b>CLIMATE CHANGE</b>	More regional information - Biodiversity - Climate change
	Lot of emphasis on climate change - negative. Need research on positive aspects "of climate change (e.g. our region had storm - appears to have made good breeding season for marlins
	Climate change - impacts of coal mining on GBR
	Payment for ecosystem services e.g. carbon, fresh water, restoration, reforestation
	Climate resilience
	More research on climate change/ interactions with nature tourism/Indigenous involvement
	Climate change and coastal adaptation
	Climate change - mitigation at local scale

COASTAL	Possibly after this NERP because things change e.g. explosion in shipping + ports =may need research
	Shipping /port issues
	Not enough NERP information into the value of coastal lowlands - not valued by government policy
	Connection between terrestrial, coastal, near shore and deep marine would be appreciated
	Latest issues are ports development. Need to try to minimise impacts as much as possible (e.g. Gladstone) +impacts from farms too e.g. dead ecosystem @plantation creek all full of hymenanche which is a good fish habitat area when floods quickly = dead fish + problems
	Key interest is interaction between terrestrial and aquatic , as tend to treat separately - not good continuity between systems - this is where real policy gains will be.
	Estuarine communities - habitat foundation (not just specific species) as it does not look broadly at community - tend to ignore smaller forage species - long term program e.g. Ian Potter - Swan River 10 year project - different components of the community, very successfully done
	Better plan for use of coastline - under pressure coastline/ different uses conflicting - plain straightforward outcomes may not lead to better use
	3 keystone areas for chemicals research - coral, sea grass, mangroves - not sure there has been much work on testing in mangroves
	Biogeochemistry of coastal waters and estuaries
FISHERIES	Better GDP value of reef fishing
	Stock assessments- species related not ecosystem particular species those in high risk e.g. Threadfin Salmon
	Mud crab migration /lifecycle and habitat loss concerns (e.g. dugong +sea grass) where port developments displacement of fish /crabs if less of habitat (sea grass) e.g. this year starvation of crabs, loss of habitat shelled they were out of cycle -need more research on this area
	More accurate data on stock assessments. Current research too. Modelled e.g. Snapper research - 2yrs ago
	GBRMPA doesn't do much to help fishing industry. We are trying to find funding to get a buy back scheme as fishing shrinking. Reef Rescue going the wrong way- farmers getting money off government etc. but not making any difference some making it worse
	Could be more research information/articles put into fisheries management
	Job losses - specially Mackay/QLD state fisheries person has left
	Assessing recreational fishing – bio + eco status. Bench marking is" scatty" - usually against international codes which aren't relevant - pushing for FAO codes to be used. Better benchmarking needed
INDIGENOUS	Cora fisheries -abundance of certain species- susceptibility to climate changes -impacts/resilience of species -lots research on aquapora but it is only a small portion of corals species
	Management effectiveness - how to incorporate research into emerging management. NERP seems to be focused on Nth Australia. But some southern research would be helpful. Decision making – Indigenous
LAND	Not necessarily, but would encourage strengthening Indigenous engagement at the start and ensure that research meets AIATSIS guidelines
	Terrestrial ecological - CYP and Torres Straits
	Invasive ants + potential spread onto tropical ecosystems. Feral pigs - action /control work needed
	Council parks vs. vegetation clashes - native vegetation on beaches are degraded. Small hits at time, revegetation is non-native (endemic)
LINKAGES	Griffith University (some work done) Revegetation - impacts of soils. Soil biology - how can it be improved?
	Linkages could be better across board how do we engage better? - with government/research agencies need to get back to objectivity in research
	Better connectivity between researchers +others one on one opportunities-e.g. sugar managers in Mackay connection with researchers + then connect to cane farmers - since they are the day to day managers. e.g. get Bob Pressey to talk directly to council about better social

	More of synthesis of projects - get research together from multiple results - to help department better use for policy development
	Better collaboration - like some of other hubs do -think sessions - about tropical
	Some are addressed by other hubs - integrating research projects at a higher level - across species to inform recovery plans
<b>LONG-TERM RESEARCH</b>	Long term monitoring of environmental assets -marine land socioeconomic e.g. PhDs on 3 years can't do long term research - continuity of data to give species +temporal feel
	Ongoing impact monitoring- currently all have grants for 3 years but some research can take 10 years to see results
	Longer term commitment to co-management from a statutory point of view. Legislative point - not structured is very select, not well resourced in terms of money/funding, and will probably lose if change of government.
	Comprehensive + broad scale environment base lays - inputs in method that can track environmental conditions
	Long term presence of staff for landholder confidence
<b>MARINE</b>	One glaring gap in research in general absence of marine base line data -particularly on specific species that is available to individual stakeholders - in respect of impacts of coastal development like impacts of dredging
	Sharks -was surprised not much research on sharks in QLD -need -research populations + nursery areas
	Turtle + dugong + finfish fishery are already well researched by NERP - climate change - need to keep looking at and keep up on it
	Lack of research on crown of thorns starfish - one of major drivers of coral decline - it is one we might be able to manage thru water quality.
	hunting of marine turtles and dugongs (all over)
	Key priorities - as whole GBRMPA
	Vulnerability mapping. Resilience of GBR. Ecological and social systems (integration can be better)
	Process studies on - missing links in our models -case study basis - enhance /benthic/pelagic coupling
	Where to site pontoons
	Crown of Thorns - like cane toads
	Challenge is negative perceptions of reef and related press articles in light of the GBR being best managed reef in world
	Sea grass coverage e.g. cultivating sea grass
	Connecting impacts on fresh water ecosystem-more of a whole picture on impacts
	Drivers of Crown of Thorns outbreaks. Mangroves/coastal ecosystems. Thresholds /tipping points - corals. Need to look at statistics + trends. Has long list - contact for more
	Coral bleaching
<b>PEST MANAGEMENT</b>	Broad scale distribution of inshore dolphins (not just focused like Helene Marsh's)
	Constant issue is pest management and fire management and a landscape level would be good for more of this
<b>RAINFOREST</b>	Tropical biology + ecology - other than rainforests better mapping of particularly
	Wet Tropics and GBR is always of interest
	No need for NERP information - as now focused on protecting land - tropical forest rehabilitation in Cape Tribulation - principles are really well known!!!
	Not enough research into why Cassowary Coast Council is concrete- focused when compared to Cairns Council/ community vision/ why conservation minded people not acted upon by councils/social research on these

	dev of commercial viable export of tropical rainforest/reef science, management and ecotourism to other regions/countries in world
	Issues re: mapping - not 100% accurate e.g. biodiversity corridors - too many layers - inaccuracy
	Restoration ecology
<b>SOCIAL/SOCIO-ECONOMIC</b>	E -newsletters would be good. Social aspects of use of the reef. Bob Pressey's project change of management - that can influence how reef management can be influenced. More management focused research - not pure science but applied science. NERP has too many fields of interest to hone into what I am interested in
	Real lack of social + economic science. Under-represented - there are lots we could do but lack funding
	Crocodiles and social interactions - human-wildlife interaction, not much research but not sure if that is a the hub subject
	Fill in the gaps data gaps to be filled, not necessarily new research population numbers trends in populations
	How effective is our community engagement? Is it working? Is communication working? How effective before and after change to on ground community activity?
	How citizen science can be used in these programs/ how to continue citizen science data into TE programs
	How to make nexus between environmental management and socio-economic, e.g. environment + policy "closing the gap" - demonstrate lack of involvement/benefits of Indigenous involvement in environmental management
	Cultural heritage value in recreational fishing that hasn't been identified yet very strong belief in our membership. (Member) GBRMPA said recreational fish has no cultural heritage value
	Socio-economic research - fisheries commercial
	Always tends to be biophysical bias but 2 other major areas that need to be focused on (1) social science (2) economic science
	Social science answer - why aren't people adopting it??
	How to get people to behave socially and environmentally
	Social research - scared of the answers, long term project and costs, presently short term projects, not enough to confidently answer issue, implications for reef and reef users
	Social research on clash of tourist/economic government plans with biodiversity plans - why at odds?
<b>WATER QUALITY</b>	Our reef plan strategy /plan making explicit link from reefs to catchments e.g. if don't want to exceed water quality guidelines what would use have to do?
	Practice changes + impacts on water quality
	Need look @water quality issues in area-never seen so dirty dredging +transport inshore zones vs offshore
	Currently research is on application methods/products/ use different sciences about water quality issues but is funded by us (farmers); nice if we had more support/ funding directly. There are Reef Rescue programs now .(focused on technology)but technology has reached saturation - now need to focus on products -e.g. environmentally friendly products vs. normal practice products - better environmental products
	More water quality research (current is very good)
	Need more money spent on monitoring e.g. water quality to get more of a picture on what is happening - impacts on cane industry depends on what is in media e.g. crown of thorns, chemical impacts
	Limits of acceptable change /resilience - what is being done now outcomes will influence + new research - how to minimise runoff/water quality impacts
	Water - environmental quality in Torres Straits/PNG - lots more research needed to manage litigate, design policy
<b>DINGOES</b>	Water quality targets - for some reason not sufficient funding to develop targets and relevant policy
	Difficult to say because of my position processes that my place to elevate new/ research to bring up for consideration already seen sophisticated +robust
	Work on dingoes - hybridization issue - distribution between wild dogs and dingo hybrids; conflicting legislation on dingoes across Australia

<b>TOURISM</b>	Industry research needs - how many visitor each year - need get TRAC, TQ, AMPTO all on board
	Visitor statistics information needed!!
	Hard to judge what is quality ecotourism - not sustainable enterprises - GBRMPA has issued too many permits
	Tour operators - plain English speak to pass on to visitors
<b>OTHER</b>	This department recently produced research on dugongs in QLD - did not use NERP by choice - won't use condensed versions
	Nothing at this stage. Years ago -bad process to plan research, but not in place so no plans for next few years
	Never have enough baseline data to support compliance + monitoring activities
	A lot of big gaps to a fair degree - current research focused on biophysical but the key obstacles. Alternative economic solutions
	Haven't had much feedback despite 5yrs of reef rescue
	Will not participate in reef plan -no integrity +honesty in environ research
	Don't use government research as it full of lies +propaganda and waste of money to do this research
	If NERP project continues there will be more very useful information + outcomes
<b>UNSURE/ DON'T KNOW</b>	Can't say at this stage - not enough knowledge of what is currently being researched
	Can't think of any at moment, but sure will have opportunity to input in future
	Can't say - haven't seen what is being produced out of current projects yet.
	Can't say much yet as have I have not seen what is being researched
	Don't think I am qualified to answer -until see results of current projects then can she gaps on need for more research
	Can't say-need to look at what is being done in programs at moment
	Don t know -difficult to think of any specific need
<b>NONE</b>	Not from my position at all
	Can't think of anything off the top of head
	Don't see any gaps in the marine subject area - very comprehensive cover thru all of the NERP Hubs
	None that I can think of



## 4.0 RESULTS: QUALITATIVE DATA

### 4.1 PROJECT OUTPUTS

Monitoring and evaluation of the NERP TE Hub is described in detail in the NERP TE Hub Monitoring and Evaluation Plan. Within the plan, it is noted that DSEWPaC required the NERP TE Hub to develop key performance indicators for three phases of program implementation:

- 1. **Systems establishment phase (1/1/11 – 1/1/12)** – assesses how well the Hub has implemented the systems required to successfully deliver on the NERP Hub MYRP. These indicators will become obsolete following the first year of funding.*
- 2. **Outputs delivery phase (1/7/11 – 30/6/14)** – provides confidence that the Hub is delivering research outputs intended for input into the policy development process.*
- 3. **Project impact phase (1/1/12 – 30/6/14)** – will reveal how well the Hub has delivered outcomes, i.e. demonstrate that Hub research has had a positive and demonstrable effect on the policy issues managed by the department and other Australian Government agencies and resource management organisations specified in Hub work plans. It is recognised that many, but not all research outcomes occur after programs have been completed.*

The (1 January, 2012 – 30 June, 2012)<sup>6</sup> tables the progress and outcomes of the NERP TE Hub with respect to the last 2 phases, and uses key performance indicators (KPIs) as its parameters NERP Biannual Progress Report #3 for measuring progress. Information drawn from this progress report will be reviewed and used as a comparison against results from the baseline survey (see previous section). These are discussed in greater detail in the following section.

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<sup>6</sup> Note: Only the January to June, 2012 Biannual Progress Report was available at the time of writing this report.

### 4.1.1 Project Outputs and Communications

#### Overview of Outputs

There were a significant number of outputs generated from the NERP TE Hub projects and related committees. The outputs were reported in terms of KPIs in the NERP Biannual Progress Report #3 (2012) and presented in the following sections

As displayed in Table 24, during the first 6 months of 2012, there were 61 NERP TE Hub stakeholder meetings/workshops/presentations, 88 “external” stakeholder meetings/ workshops/presentations, and 53 papers published/in review.<sup>7</sup> Additionally, the projects held numerous cross-disciplinary meetings and some shared data sets with other researchers.

Table 24: Project Outputs based on KPIs

PROJECT OUTPUTS: January to June 2012*		
Stakeholders - Departmental/Portfolio		
	Meetings	35
	Workshops	6
	Presentations	13
	Implementation Group Meeting Presentations	7
Stakeholders – External		
	Meetings	50
	Workshops	18
	Presentations	13
	Implementation Group Meeting Presentations	7
Publications		
	Papers – accepted/in-press	45
	Papers – in review	8
Research Output Dissemination		
	Preliminary research outputs for several projects disseminated to end users.	
Cross-disciplinary Meetings		
	Water Quality and Socio-economic projects	
	Implementation Group meetings	
	Cross-Hub meetings	
Research Information		
	Several projects providing data sets to other users	

<sup>7</sup> NERP Biannual Progress Report #3 (1 January, 2012 – 30 June, 2012), p. 8.

## **Stakeholder Workshops – Departmental and External**

**KPI B1** - Number and description of stakeholder workshops with departmental/ portfolio staff. *Progress achieved:*

Thirty-five meetings, six workshops, 13 presentations to stakeholders, and project updates presented by every project at the seven NERP Implementation Group meetings involved departmental or portfolio staff during the reporting period.

Many of these activities involved staff of the DSEWPaC and Great Barrier Reef Marine Park Authority (GBRMPA) that are integral to project teams or liaise closely with project teams as they conduct their research. Additional noteworthy contact between researchers from the TE Hub and the Department/portfolio occurred through the Science Advisory Committee of the Protected Zone Joint Authority (project 2.1), the Australian Natural Heritage Assessment Tool staff (project 3.2), and the Australian Committee for the International Union for the Conservation of Nature (project 12.1).<sup>8</sup>

**KPI B2** - Number and description of stakeholder workshops with parties external to the department. *Progress achieved:*

Fifty formal meetings as well as many informal meetings, 18 workshops, 13 presentations plus presentations by every project at the seven Implementation Group meetings occurred during the reporting period. Project leaders for Project 4.4 spent a week in the Torres Strait meeting with the Torres Strait Regional Authority and stakeholders to scope potential pollutant sources. Project 4.2 provided specific advice on herbicide toxicity methods to the Australian Environment Agency Pty Ltd as part of the Diuron Review report to DSEWPaC.<sup>9</sup>

These KPIs are evidenced in the baseline survey results as detailed in Section 3.4.2 Communications from the NERP TE Hub of this report. Specifically, almost three quarters of the respondents, mainly from the Indigenous, government, and environment clusters, said they had received communications or information from the NERP TE Hub. Most of these communications were received directly from NERP TE Hub researchers.

### **Implementation Group Meetings**

Implementation group meetings were held at various times throughout 2012, with opportunities for research users to gain valuable updates on NERP TE Hub projects (see Table 25).

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<sup>8</sup> NERP Biannual Progress Report #3 (1 January, 2012 – 30 June, 2012) p. 8.

<sup>9</sup> Ibid. p.13

**Table 25: Implementation Group Meetings 2012**

MEETING DATES	DATES BY GROUPS			
	Rainforest	GBR - Bio	GBR – Water Quality	Torres Strait
	3 Feb 2012	31 Jan - 1 Feb 2012	1 Feb 2012	7 Feb 2012
	27 April 2012	1 May 2012	30 April 2012	23 Apr 2012
	17 Aug 2012	9 Aug 2012	8 Aug 2012	26 Aug 2012

## **Publications**

The list of 2012 publications is provided in Attachment B. There are currently 37 published journal articles available to the public on the NERP TE Hub website. Reporting for this KPI states:

***KPI B3 - Papers being published according to (or in excess of) the work plan.***

*Progress achieved:*

Forty-five papers are accepted, in press or have been published, and eight papers are currently in review by NERP TE Hub researchers during the reporting period. While some of these papers have been generated through early work in the NERP TE Hub, many of these papers have been developed through related work conducted under the previous Australian Government funded MTSRF and MTSRF Transition programs.<sup>10</sup>

## **Research Outputs Communicated**

***KPI B4 - Research outputs provided to research users on time and as identified in the work plan. Progress achieved:***

Projects in the TE Hub are progressing well and have started to disseminate research outputs to research users, albeit in many cases, preliminary research outputs. Project 1.2 was able to deliver maps on the distribution of marine turtles in the GBRWHA and circulate a report on the results of dugong aerial surveys. Project 2.3 has delivered real-time marine conditions data to the TSRA and on the internet, as well as reviews of coral reefs in the Torres Strait and environmental conditions during recent summer periods. Project 8.1 has posted preliminary results of coral reef surveys in the GBR on the AIMS website as well as circulated the results to key stakeholders.<sup>11</sup>

<sup>10</sup> Ibid. p. 20.

<sup>11</sup> Ibid. p. 26.

The baseline survey results noted that in many cases respondents acknowledged that the research was still in its early stages with small amounts of information being communicated at this stage.

### **Cross-disciplinary Meetings**

**KPI B5** - *Number of cross-disciplinary meetings held between hub consortium members, and with other NERP hubs, to further hub objectives. Progress achieved:*

Regular cross-disciplinary meetings occurred between Hub members particularly between the water quality and socio-economic projects, and also through the seven Implementation Group meetings held during the reporting period. Numerous collaborative meetings to discuss project synergies were held with other NERP Hubs during this period; including the Northern Australian Hub (Projects 9.3, 9.4, 10.2 and 13.1), the Environmental Decisions Hub (Projects 9.1 and 12.2), and the Marine Biodiversity Hub (Projects 5.1 and 8.1).<sup>12</sup>

### **Research Information made accessible**

**KPI B6** - *Research information (i.e. data and metadata) made accessible to other users in accordance with the NERP Guidelines and the funding agreement. Progress achieved:*

Some of the projects in the TE Hub have progressed to the stage where they are providing data-sets to other users or will be providing data in the next reporting period. Those include Project 3.1 that has contributed to JCU's Tropical Data Hub, Project 10.1 that has developed a metadata catalogue, and Project 2.1 that will be providing turtle tracking data to the Queensland Marine Turtle Tagging Database. As more project data and metadata becomes available, it will be made accessible under the NERP TE Hub Data management Protocol, ensuring that the storing, recording and licensing of TE Hub generated data comply with the Protocol. Progress within e-Atlas project 13.1 will facilitate the achievement of the achievement of data management objectives of the TE Hub.<sup>13</sup>

This data exchange was briefly mentioned by a couple respondents in the baseline survey results - who said they had received data/spatial data/repository information (see Table 13). The e-Atlas was also mentioned, and communications through this medium is discussed further in a subsequent section.

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<sup>12</sup> Ibid. p.31.

<sup>13</sup> Ibid. p. 36

## 4.2 MEDIA AND OTHER COMMUNICATIONS

### 4.2.3 Media Releases

It was not possible to collate all of the media releases from the NERP TE Hub projects, however a sample of media releases made within the second half of 2012 has been provided in Figure 9 and Figure 10.

#### SAMPLE OF MEDIA RELEASES FROM NERP TE Hub JULY – DECEMBER 2012

##### JCU

##### **Marine reserves provide baby bonus to fisheries**

25 May, 2012

An international team of scientists have gathered the first conclusive evidence that marine reserves can help restock exploited fish populations on neighbouring reefs which are open to both commercial and recreational fishing. The groundbreaking study was carried out in the Keppel Island group on Australia's Great Barrier Reef by researchers from the ARC Centre of Excellence for Coral Reef Studies (CoECRS), in conjunction with other leading research institutions. Its findings help to resolve a long-running debate in Australia and worldwide about whether marine reserves, areas closed to all forms of fishing, can help to replenish fish numbers in areas left open to fishing. Their paper *Larval Export From Marine Reserves and the Recruitment Benefit for Fish and Fisheries* by Hugo B. Harrison, David H. Williamson, Richard D. Evans, Glenn R. Almany, Simon R. Thorrold, Garry R. Russ, Kevin A. Feldheim, Lynne van Herwerden, Serge Planes, Maya Srinivasan, Michael L. Berumen and Geoffrey P. Jones appears in the latest online issue of *Current Biology*.

##### **Protecting the 'koalas of the marine world'**

28 May, 2012

One of Australia's most culturally significant native animals will be the subject of a public lecture at James Cook University this week. Distinguished Professor Helene Marsh will present *The Challenge of Conserving Dugongs* in Townsville on Thursday, May 31.

##### **Hunt on for frogs not seen in north Queensland for 40 years**

August 10, 2012

A SCIENTIFIC expedition will head into rugged north Queensland rainforests next month on a last-ditch mission to find frogs not seen for decades. The frogs are thought to be extinct but there is some conjecture they may have survived in remote pockets. The expedition by James Cook University scientists Conrad Hoskin and Robert Puschendorf also hopes to find evidence that some frogs may be building resistance to the devastating chytrid fungus that has wiped out about 100 species around the world since the 1980s.

##### **Two new frogs for Hinchinbrook and the Wet Tropics**

July 7, 2012

It's a very long name for a very small frog but the Hinchinbrook Island nursery-frog (*Cophixalus hinchinbrookensis*) has grabbed headlines recently as one of two new frog species identified by Dr Conrad Hoskin and colleagues at JCU. In probing the genetics of the ornate nursery-frog (*C. ornatus*) Dr Hoskin found that this frog, which had been considered a single species for well over a century, was in fact just one of three distinct species, which first diverged millions of years ago.

##### **One frog becomes three says expert**

June 7, 2012

A north Queensland scientist has discovered that one species of frog is actually three different species. Dr Conrad Hoskin from James Cook University has been researching the ornate nursery frog found in the wet tropics between Townsville and Port Douglas.

##### **Lost in the clouds**

June 7, 2012

ABOUT 220 species of animals, reptiles and amphibians live in the lush rainforests of far north Queensland — with 90 or so found nowhere else in the world. But, because of the effects of a warming climate, the situation for 83 of these species is bleak, with many facing extinction over this century, says Professor Steve Williams.

Figure 9: Sample of Media Releases NERP TE Hub July to December 2012 (JCU)

#### SAMPLE OF MEDIA RELEASES FROM NERP TE Hub JULY – DECEMBER 2012

##### **AIMS**

##### **GBR coral cover: scientist calls for more action to build reef resilience.** 12<sup>th</sup> July 2012

Dr Peter Doherty, past Research Director of the Australian Institute of Marine Science (AIMS) and Science Leader of the Tropical Ecosystems Hub of the National Environmental Research Program (NERP), will speak at the 12<sup>th</sup> International Coral Reef Symposium about long term changes in coral cover on the Great Barrier Reef.  
2<sup>nd</sup> October 2012

##### **The Great Barrier Reef has lost half of its coral in the last 27 years**

##### **Can we save the Reef by controlling crown of thorns starfish?**

The Great Barrier Reef has lost half its coral cover in the last 27 years. The loss was due to storm damage (48), crown of thorns starfish (42), and bleaching (10) according to a new study published in the Proceedings of the National Academy of Sciences today by researchers from the Australian Institute of Marine Science (AIMS) in Townsville and the University of Wollongong.

Researchers: Glenn De'ath, Katarina Fabricius, Hugh Sweatman

##### **UQ**

##### **Historic coral collapse on Great Barrier Reef**

November 7, 2012

Australian marine scientists have unearthed evidence of an historic coral collapse in Queensland's Palm Islands following development on the nearby mainland. Scientists from the ARC Centre of Excellence for Coral Reef Studies at the University of Queensland say the rapid collapse of the coral community is potential evidence of the link between man-made changes in water quality and the loss of corals on the Great Barrier Reef. Their paper "Palaeoecological evidence of a historical collapse of corals at Pelorus Island, inshore Great Barrier Reef, following European settlement" by George Roff, Tara R. Clark, Claire Reymond, Jian-xin Zhao, Yuexing Feng, Laurence J. McCook, Terence J. Done and John M. Pandolfi appears in the latest issue of Proceedings of the Royal Society B.

Figure 10: Sample of Media Releases NERP TE Hub July to December 2012 (AIMS and UQ)

## 4.2.4 Website Information

### *NERP TE Hub Website Information*

A review was conducted on the NERP TE Hub website's<sup>14</sup> resources available to the public. The type and of information and number available that were found are displayed in Table 28.

This information corresponds to the project outputs as noted in the previous section. Specifically, the publications, project factsheets (for distribution both internally and externally), and conference/workshop presentations were the main project outputs relating to the KPIs.

It should be noted that the NERP TE Hub website is undergoing restructuring in February 2013, wherein publications and other resources are being updated and uploaded.

<sup>14</sup> NERP TE Hub website address: <http://www.nerptropical.edu.au/> (accessed on 1 February, 2012)



**Table 26: NERP TE Hub Resources Available on Website**

RESOURCES	NUMBER OF RESOURCES
<b>PUBLICATION TYPE</b>	
Journal Article	37
Project Factsheet	38
Conference / Workshop Presentation	25
Media Report	11
Hub administration	6
Project Factsheet for the Torres Strait Community	6
Research Synthesis Product	3
Book Chapter	2
Brochure	2
Technical / Research Report	2
Communiqué	1
Guide	1
Workshop Summary	1
<b>TOPICS</b>	
World Heritage Areas	95
Environmental management	84
Great Barrier Reef	75
Coastal habitats	50
Rainforests	47
Management	46
Human communities	44
Torres Strait	44
Water quality	42
Management tools	37
Social and/or economic research	33
Biodiversity	32
Coral reef monitoring	31
Ecosystem health monitoring	31
Habitat	29
Climate change	28
Pollutants	26
Environmental restoration	22
Marine fauna	22
Nutrients	22
Wetlands and waterways	21
Marine Species	17
Seagrass	17
Invasive species	16
Catchment health	14
Marine Park zoning	9
Marine predators	8
Tourism	8



Predators	7
Seabirds	7
<b>FOCUS AREA</b>	
Great Barrier Reef	69
Wet Tropics Rainforests	50
Torres Strait	42

### Google Analytics

Google Analytic reports were produced for the NERP TE Hub website for one period to date – January to June 2012. Technical difficulties with the website during July to December 2012 hindered the extraction of analytic reports from this period.

As shown in Table 27, page views vs. visits ratio (4.99) indicate that viewers accessed almost 5 pages upon each visit to the website. This combined with the 43 bounce rate indicates that the website is being utilised well. This correlates to the way in which some respondents said they accessed information (see Section 3.4.3) particularly through websites.

**Table 27: Google Analytics Overview of NERP TE Hub Website\***

GOOGLE ANALYTICS	STATISTICS*
Page Views	7494
Pages/Visits	4.99
Average Visit Duration	0:06:20
Bounce Rate	43.24
New Visits	60.16
Page Views	7494
Pages/Visits	4.99
Average Visit Duration	0:06:20
Bounce Rate	43.24

*\*Google Analytics statistics during 1 January – 30 June 2012.*

Access to the NERP TE Hub website was primarily through Google searches (58) as shown in Table 28 and Figure 11. This corresponds to the method of website access noted in the baseline survey data (see Section 3.4.3).

The secondary method of access was directly to the NERP TE Hub website, although it is also likely that visitors accessed the website through the RRRC as well (see results in Table 29). English was the primary language used by visitors to the website, with only 14 visits from visitors using other languages. The majority of website visitors accessed it either through searches (58) or

directly (36) as displayed in Figure . It would be reasonable to imply that the searches are conducted using Google as this the most popular method generally.

Table 28: Google Analytics Method of Access to NERP TE Hub Website

METHOD	FREQUENCY	PERCENTAGE
Search	876	58.4
Direct	539	35.9
Referral	86	5.7
TOTAL	1501	100.0

\* Google Analytics statistics 1 January – 30 June 2012.

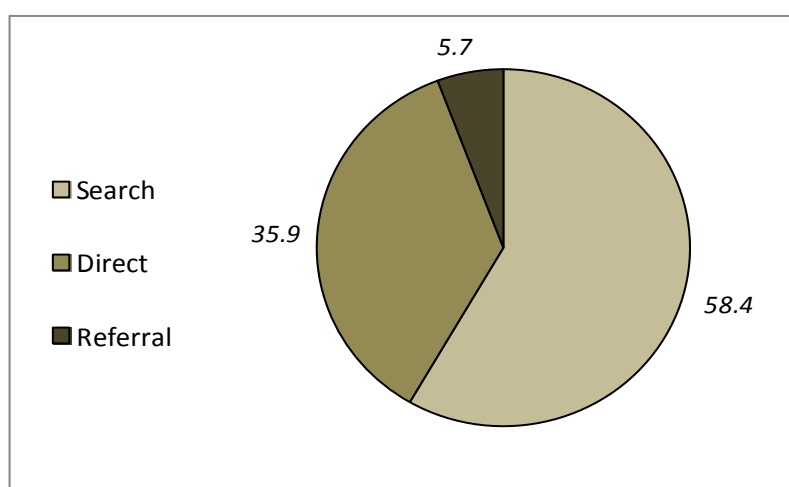


Figure 11: Google Analytics Method of Access to NERP TE Hub Website (1 Jan – 30 Jun 2012)

Due to technical difficulties with the website analysis, Google Analytics was not available until January 2013. The number of visits to the website during January 2013 is displayed by day in Figure 12.

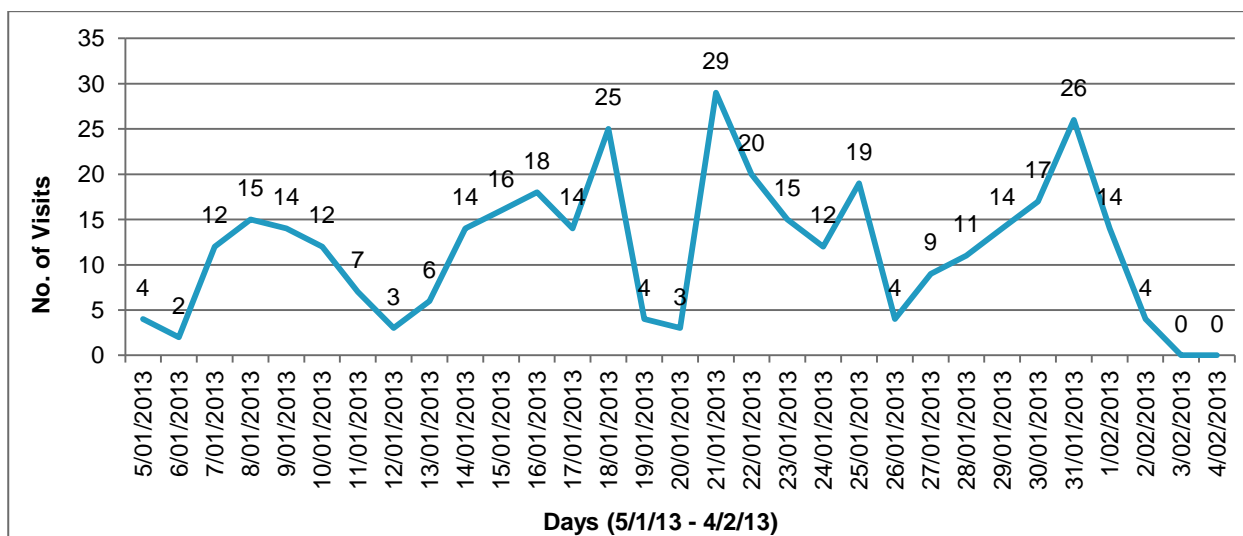


Figure 12: Google Analytics Site Visits (5 Jan - Feb 2013)

The key access points for website visitors are the RRRC website (38) and The Conversation website. “The Conversation” website is:

*...an independent source of analysis, commentary and news from the university and research sector viewed by 669,000 readers each month. Our team of professional editors work with more than 4,700 registered academics and researchers from 280 institutions.<sup>15</sup>*

A brief review of the articles on The Conversation website was undertaken and revealed there are numerous NERP TE Hub researchers publishing on the site, thereby correlating the Google Analytics data in the table below.

**Table 29: Google Analytics Top 10 Access Points to NERP TE Hub Website**

ACCESS POINT	FREQUENCY*	PERCENTAGE*
rrrc.org.au	33	38.4
theconversation.edu.au	16	18.6
jcu.edu.au	7	8.1
sensis.com.au	5	5.8
tsra.gov.au	5	5.8
dpcvmdev03	3	3.5
google.com.au	3	3.5
search.mywebsearch.com	2	2.3
search.sweetim.com	2	2.3
36ohk6dgmcd1nc.c.yom.mail.yahoo.net	1	1.6
<b>TOTAL</b>	<b>77</b>	<b>90.0</b>

*\*Google Analytics statistics 1 January – 30 June 2012*

<sup>15</sup> The Conversation – sourced from <http://theconversation.edu.au/> on 5 February 2013.

The main source cities for website users are Brisbane, Townsville, Sydney and Melbourne as shown in Table 30. This is to be expected as many of the researchers, as well as identified NERP TE Hub research users are situated in these regions.

**Table 30: Google Analytics Source City**

<b>SOURCE CITY</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Brisbane	449	29.9
Townsville	254	16.9
Sydney	159	10.6
Melbourne	122	8.1
Canberra	90	6.0
Hobart	76	5.1
Cairns	26	1.7
Perth	26	1.7
Not Set	17	1.1
Adelaide	15	1.0
<b>TOTAL</b>	<b>1234</b>	<b>82.2</b>

*\*Google Analytics statistics 1 January – 30 June 2012 sourced from NERP TE Hub Bi-Annual Progress Report #3: 1 January 2012 – 30 June 2012.*

## 4.3 E-ATLAS

### 4.3.1 e-Atlas

The e-Atlas represents Program 13 of the NERP TE Hub projects (Australia's Tropical Land and Seas e-Atlas) Dr Eric Lawrey, AIMS). It is a partnership between many research providers to provide access to environmental research results and data focusing on the Great Barrier Reef, the Wet Tropics and Torres Strait.<sup>16</sup>

Since several of the NERP TE Hub projects feed information into the e-Atlas, it is continually expanding. The e-Atlas is seen as a valuable avenue for communicating research data from these projects. Early signs of this are found in the baseline survey results where respondents mentioned using the e-Atlas as an information source.

The e-Atlas' most recent Milestone Report (June 2012) summarises some of the information that has been published since the commencement of the project:

*The e-Atlas made significant advances in the ability to integrate map layers from external data sources with the map catalogue now containing over 960 layers (of which 470 layers have been sourced from external map services, though not all are public yet).*

*Development of the e-Atlas mapping system is ahead of schedule with two additional releases of the AtlasMapper software being developed during the year. These releases include support for additional data formats (NetCDF), additional data sources (ArcGIS server, Atlas of Living Australia layer metadata integration) and the ability to easily link (using URLs) to preconfigured maps and embed those maps in an external website.*

*Some achievements during this year include:*

- *Three day workshop to establish a better understanding of Torres Strait research-user needs for the e-Atlas.*
- *Delivery of a dataset catalogue of CSIRO data holdings for Torres Strait region to assist with prioritisation of maps layers to be prepared by CSIRO.*
- *A coordinated (in collaboration with the RRRC) approach to the role and content to be displayed on the NERP-TE management website and the e-Atlas.*

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<sup>16</sup> Source: <http://e-Atlas.org.au/> accessed on 5 February, 2013.

- A mapping portal that highlights the WTMaps vegetation dataset. This portal enables public access to this important dataset for the wet tropics bioregion.
- A new mapping system that allows a large catalogue of map layers to be compiled from a wide range of external map services, greatly expanding range of map data useable in the e-Atlas.<sup>17</sup>

### 4.3.2 e-Atlas Usage Statistics

The Google Analytics for the e-Atlas website are presented in the following tables (Table 31 and Table 32 ). The characteristics are explained in the e-Atlas Milestone Report (June 2012) as:

*The following are approximate usage stats based on server logs (except where noted). All automated robots (search engines, crawlers, etc.) were removed from the logs before the usage stats were calculated. In addition to this traffic generated by the e-Atlas team was also estimated and removed from the stats.*<sup>18</sup>

These show a significant amount of externally-generated traffic already accessing the information available on the site.

**Table 31: Google Analytics for e-Atlas Website<sup>19</sup>**

Usage measure	Value
Page visits from Google search traffic (based on April – May 2012, estimated from Google web master tools)	1750 page views / month
Map tiles and images (from Feb - May 2012)	230,000 images / month
Average number of Unique IPs accessing e-Atlas web pages or map tiles (from Feb – May 2012).	4500 / month
Average number of uses of the new map client ( from April – May 2012)	165 / month
Uptime of website, as observed by siteuptime.com	99.98
Approximate uptime of the mapping system	99.9

<sup>17</sup> Program 13 — Australia's Tropical Land and Seas (e-Atlas) — Dr Eric Lawrey, AIMS – Milestone Report 1 June, 2012

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

**Table 32: Top 20 Most Popular Pages on the e-Atlas Website\***

Page	Impressions	Clicks	CTR**
<a href="http://e-Atlas.org.au/content/relationship-between-corals-and-fishes-great-barrier-reef">http://e-Atlas.org.au/content/relationship-between-corals-and-fishes-great-barrier-reef</a>	22,000	250	1
<a href="http://e-Atlas.org.au/content/soft-corals-great-barrier-reef">http://e-Atlas.org.au/content/soft-corals-great-barrier-reef</a>	15,000	250	2
<a href="http://e-Atlas.org.au/">http://e-Atlas.org.au/</a>	1,600	250	14
<a href="http://e-Atlas.org.au/content/great-barrier-reef-today">http://e-Atlas.org.au/content/great-barrier-reef-today</a>	35,000	200	1
<a href="http://e-Atlas.org.au/content/introduced-species-great-barrier-reef">http://e-Atlas.org.au/content/introduced-species-great-barrier-reef</a>	900	200	27
<a href="http://e-Atlas.org.au/content/gbr-jcu-3dgbr-geomorph">http://e-Atlas.org.au/content/gbr-jcu-3dgbr-geomorph</a>	8,000	170	2
<a href="http://e-Atlas.org.au/content/impacts-severe-tropical-cyclone-inshore-and-offshore-coral-reefs">http://e-Atlas.org.au/content/impacts-severe-tropical-cyclone-inshore-and-offshore-coral-reefs</a>	6,500	150	2
<a href="http://e-Atlas.org.au/content/gbr-jcu-bathymetry-gbr100">http://e-Atlas.org.au/content/gbr-jcu-bathymetry-gbr100</a>	4,500	110	3
<a href="http://e-Atlas.org.au/content/gbr-gci-symbiodinium-clade-distribution-article">http://e-Atlas.org.au/content/gbr-gci-symbiodinium-clade-distribution-article</a>	15,000	90	1
<a href="http://e-Atlas.org.au/content/coral-sea">http://e-Atlas.org.au/content/coral-sea</a>	8,000	90	1
<a href="http://e-Atlas.org.au/content/gbr_gbrmpa_zoning-2003">http://e-Atlas.org.au/content/gbr_gbrmpa_zoning-2003</a>	3,500	90	2
<a href="http://e-Atlas.org.au/content/long-term-monitoring-great-barrier-reef-status-report-no-8-aims-ltmp">http://e-Atlas.org.au/content/long-term-monitoring-great-barrier-reef-status-report-no-8-aims-ltmp</a>	8,000	70	1
<a href="http://e-Atlas.org.au/content/spatial-modelling-data-e-Atlas">http://e-Atlas.org.au/content/spatial-modelling-data-e-Atlas</a>	5,500	60	1
<a href="http://e-Atlas.org.au/rrmmp/gbr-actrf-jcu-terrestrial-run-off">http://e-Atlas.org.au/rrmmp/gbr-actrf-jcu-terrestrial-run-off</a>	4,500	60	1
<a href="http://e-Atlas.org.au/content/herbivorous-fish-communities-great-barrier-reef-ltmp">http://e-Atlas.org.au/content/herbivorous-fish-communities-great-barrier-reef-ltmp</a>	1,000	60	6
<a href="http://e-Atlas.org.au/content/jellyfish-great-barrier-reef">http://e-Atlas.org.au/content/jellyfish-great-barrier-reef</a>	600	60	12
<a href="http://e-Atlas.org.au/sites/default/files/dataset_details/gbr-project-3dgbr-high-resolution-bathymetry-great-barrier-reef-and-coral-sea-jcu-194/gbr_jcu_bathymetry-gbr100_map-print-v1.1.pdf">http://e-Atlas.org.au/sites/default/files/dataset_details/gbr-project-3dgbr-high-resolution-bathymetry-great-barrier-reef-and-coral-sea-jcu-194/gbr_jcu_bathymetry-gbr100_map-print-v1.1.pdf</a>	320	60	17
<a href="http://e-Atlas.org.au/content/gbr-aims-bruvs">http://e-Atlas.org.au/content/gbr-aims-bruvs</a>	8,000	50	1
<a href="http://e-Atlas.org.au/content/water-quality-great-barrier-reef-spatial-and-seasonal-patterns">http://e-Atlas.org.au/content/water-quality-great-barrier-reef-spatial-and-seasonal-patterns</a>	4,500	50	1
<a href="http://e-Atlas.org.au/rrmmp/gbr-entox-uq-inshore-pesticide-monitoring">http://e-Atlas.org.au/rrmmp/gbr-entox-uq-inshore-pesticide-monitoring</a>	4,500	50	1
<a href="http://e-Atlas.org.au/content/middle-reef-coral-status-and-trends-1993-2009-aims-ltmp">http://e-Atlas.org.au/content/middle-reef-coral-status-and-trends-1993-2009-aims-ltmp</a>	2,500	50	2

\*Based on traffic from Google search over a 2 month period (1st April – 1st June 2012). CTR is the Click Through Rate.

\*\*CTR = Click Through Rate.

## 4.4 GBRMPA OUTLOOK REPORT 2014

The Great Barrier Reef Outlook Report 2009 is a stock-take of the Great Barrier Reef, its management and its future:

*The Report underpins decision-making for the long term protection of the Great Barrier Reef. It was prepared by the GBRMPA based on the best available information and was independently peer reviewed from many sources, including:*

- *Australian and Queensland Government agencies*
- *Leading Great Barrier Reef scientists and researchers*
- *Industry representatives*
- *Advisory committees*
- *Members of regional communities and the public.*

*The publication of an Outlook Report was a key recommendation of the review of the Great Barrier Reef Marine Park Act 1975. A report is to be prepared **every five years** and given to the Minister for Sustainability, Environment, Water, Population and Communities for tabling in both houses of the Australian Parliament.*<sup>20</sup>

The Great Barrier Reef Outlook Report 2014 is the next to be published. A great deal of research for this report is currently being undertaken by the NERP TE Hub. To date, significant data from the NERP projects are already providing results which will impact on the presentation of this report (see Figure ).

*NERP projects from the GBR Biodiversity and Water Quality nodes help reef managers understand ecosystem condition and trends; function and cumulative pressures, and management effectiveness on the Great Barrier Reef. Results from these projects feed directly into the GBRMPA Outlook Report, which underpins decision-making for long term protection of the Great Barrier Reef.*

*In isolation or in combination, the projects have revealed some outstanding results. Combining AIMS Long Term Monitoring Data with biodiversity modeling revealed a loss in coral cover on the Great Barrier Reef averaging 50% over the past 27 years.*

*Losses are most significant in the south of the Great Barrier Reef but low in the north. This has significant management implications for the GBRMPA as much of the losses are attributable to the Crown of Thorns Starfish.*

Figure 13: NERP Project Outcomes and the GBRMPA Outlook Report 2014

<sup>20</sup> GBRMPA Outlook Report 2009, sourced from <http://www.gbrmpa.gov.au/outlook-for-the-reef/great-barrier-reef-outlook-report>, on 5 February 2013.



## 5.0 CONCLUSION

### 5.1.1 Overview of the Study

This project has provided a baseline for measuring the success of the NERP TE Hub in influencing the decision making of managers, policy makers, industries and community groups in regards to the condition, threats and management options for North Queensland's environmental assets.

Through a qualitative approach and a cluster sampling method, three tiers of research users were interviewed for the project. These represented NERP TE Hub *research users* and *next users*, from business, government, Indigenous, environment, agriculture, fishing, and tourism sectors.

### 5.1.2 Awareness

The majority of users were aware of the NERP TE Hub, which is not surprising, considering there have been substantial communications between many of the researchers and *research users*, as well as with *next users* (represented in this report by *expected awareness* and *potential awareness* respondents). This was the case for most of the clusters, but more so for the government, environment, Indigenous, fishing and agriculture.

### 5.1.3 Communication and Impact of Research

The direct communications with researchers and research users occurred on a regular basis, with project updates conveyed regularly. The baseline survey outcomes correlate to the project outputs, particularly communications involving workshops/meetings and publications. Additionally, regular updates of project outcomes may be assisting with the early indications of the research impacting on policy and decision-making, although projects are not completed yet. Research user expectations are prominent as evident in their anticipation of the NERP TE Hub outcomes that may impact on policy and decision-making activities relevant to their positions.

For the majority, NERP TE Hub communications were shared mainly with other employees, colleagues and some stakeholders. This level of communication is likely due to the information being only in its early stages of analysis or reporting.

The website, being a key form of communication for research users and other research users, is an integral component of the communication system for the NERP TE Hub projects. Of interest, is the high use of *The Conversation* website as a link to the NERP TE Hub website. The e-Atlas is also proving to be a practical and useful method of storing and communicating data being produced by the NERP TE Hub projects. Several mentions of the usefulness of this repository were made by some of the research users.

**ATTACHMENT A: FINAL SURVEY**

## RECOGNITION OF NERP TE Hub EVALUATION SURVEY

### INITIAL CONTACT

#### DEMOGRAPHIC VARIABLES

CODE:

Interviewee's Name \_\_\_\_\_

Position \_\_\_\_\_

Organisation Name \_\_\_\_\_

Organisation/Department Objectives/Purpose (just a brief description)


#### INITIAL CONTACT

*You have been selected for this interview because we believe you have, in the past, actively contributed to policy or decision-making in your industry.*

*We are interested in your recognition of the outcomes from the NERP Tropical Ecosystem Hub research projects.*

*Are you familiar with this name? (Circle responses)*

NERP TROPICAL ECOSYSTEM HUB RESEARCH PROJECTS	Yes	Ask for interview time for 10-20 min interview
	No	Tell them interview will take approximately 5 mins, so do you have time right now?

#### CONTACT DIARY

	DAY/DATE	TIME	DETAILS & COMMENTS
1			
2			
3			
4			
5			

#### FINAL INTERVIEW SET UP DETAILS

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Interviewer: \_\_\_\_\_

## SECTION A – USE IF HAVE NOT HEARD OF NERP TE HUB

### 1(a) Do you use any form of research in your position, particularly for policy or decision-making?

By research, we mean any type of information that is produced by professional individuals or organisations or universities, which may be in the form of newsletters, reports, magazines, journals, or seminars/ conferences, etc.

**NO** → Go to Q. 1 (b)

**YES** → Please tell me what the **THREE MOST INFLUENTIAL OR IMPORTANT TYPES OF RESEARCH** you use are, and where it comes from?

	TYPE OF RESEARCH	SOURCE <i>Could you be very specific about the source e.g. Journal of Environmental Studies</i>
1		
2		
3		

### 1(b) “How do you access information that does influence decision-making in your position/ business/ organisation?”

*(Read out each one & record any further comments as well)*

INFORMATION SOURCE	YES = ✓ NO = X	Additional comments on Source
Websites		
Media releases		
TV news		
Newspaper article		
Newsletters – by mail		
Email newsletter		
Journal articles ( <i>in what journal/s?</i> )		
Fax bulletin		
Reports – sent by email		
Reports – sent by mail		
Meetings/briefings		
Conferences/seminars/workshops		
Any Others? (please specify)		

*Thank you for participating in this interview.*

*Could I please review your responses before we complete the interview?*

Review the open-ended answers with respondent to ensure they are satisfied with your notes.

## SECTION B: USE IF HAVE HEARD OF NERP TE HUB

1. When & how did you first find out about:

*(Interviewer – Important to keep in mind that respondent may have found out from initial set-up interview, if so, please note this in this section)*

	WHEN	HOW
NERP TE HUB		

### COMMUNICATIONS FROM NERP TE HUB OR RELATED ORGANISATIONS

2. Have you received any form of communication or information from the NERP TE HUB &/or related research organisations?

**NO → GO TO QUESTION 5.**

**YES → From whom/what did you receive this information? (e.g. University)**

**How was it communicated? (e.g. email/newsletter/report)**

**What type of information did you receive? (e.g. research report, media release)**

**Is this information received on a regular basis from this source?**

WHO	HOW	TYPE OF INFO	REGULAR (how regular?)

3. What is the most useful piece of information you have received from the NERP TE HUB programs to date?


#### **DISSEMINATION OF NERP TE HUB COMMUNICATION**

4. Do you share or distribute the NERP TE HUB research or information with others?  
(even in discussions/conversations)

**NO → GO TO QUESTION 5**

**YES → Who do you share with or distribute this information to?**

<i>Read out each one</i>	<b>YES = ✓ NO = X</b>	<b>Additional Comments</b>
All employees in your organisation		
Only certain employees in your organisation		
Members of your club/group		
Colleagues in your industry		
Professional associations (member or not)		
Others:		

**5. “How do you access information that mainly does influence decision-making in your position/ business/ organisation?”**

*(Read out each one & record any further comments as well)*

<b>INFORMATION SOURCE</b>	<b>YES = ✓ NO = X</b>	<i>Additional comments on Source</i>
Websites		
Media releases		
TV news		
Newspaper article		
Newsletters – by mail		
Email newsletter		
Articles in professional journals ( <i>in what journal/s?</i> )		
Fax bulletin		
Reports – sent by email		
Reports – sent by mail		
Meetings/briefings		
Conferences/seminars/workshops		
Any Others? (please specify)		

**IMPACT OF RESEARCH**

**6. On a rating scale where 1 = Very credible and 5 = Not credible at all...**

How credible do you think the research produced by the NERP TE HUB is?

1                      2                      3                      4                      5

**7. On a rating scale where 1 = Very strongly influences and 5 = No influence at all...**

To what extent does the research from NERP TE HUB influence policy and decision-making in your position?

1                      2                      3                      4                      5

**If RESPONSE IS 1 – 3 →**

**In what SPECIFIC WAY does the NERP TE HUB research INFLUENCE POLICY OR DECISION MAKING in your position?**

Could you give me specific examples or instances where you have used the research or it has influenced your outcomes?

[illegible]

**IF RESPONSE IS 4 – 5 →**

### Why is there NO OR LITTLE INFLUENCE?

[illegible]



8. The \$25 million NERP TE HUB is a federally-funded program involving 300 scientists across 38 research PROGRAMS, working to solve the environmental problems facing north Queensland's key environmental assets: the Great Barrier Reef and its catchments, tropical rainforests including the Wet Tropics World Heritage Area, and the Torres Strait.

**What specific issues/problems relevant to your position/business/organisation would you like to see addressed by NERP TE HUB RESEARCH in future?**

*This is an opportunity for you to potentially direct future research.*

[illegible]

*Thank you for participating in this interview.*

*Could I please quickly review your responses before we complete the interview?*

Review open-ended answers with respondent to ensure they are satisfied with your notes.

**ATTACHMENT B: NERP TE HUB RESEARCHER  
PUBLICATIONS LIST 2012**

**NERP Researcher - Publications (Jan – June 2012)**

Project	Publications	Sent to Dept with Coversheet	Live on NERP website	PDF received
1.1	Miller IR, Cheal AJ, Emslie MJ, Logan M and Sweatman HPA (2012) Ongoing effects of no-take marine reserves on commercially exploited coral trout populations on the Great Barrier Reef. <i>Marine Environmental Research</i> 79: 167-170.			
1.2	-			
1.3	<p>Butler IR, Sommer B, Zann M, Zhao Jx, Pandolfi JM (Submitted) The impacts of flooding on the high-latitude, turbid zone, terrigenoclastic influenced coral reefs of Hervey Bay, Queensland, Australia. <i>Coral Reefs</i>.</p> <p>Clark TR, Roff G, Zhao Jx, Feng Yx, Done TJ, Pandolfi JM (Submitted) Coral gravesite linked to the 1997-1998 bleaching event: A test of the U-Th method in dating very young corals. <i>Proceedings of the Natural Academy of Sciences</i>.</p> <p>Clark TR, Zhao J-x, Feng Y-x, Done T, Jupiter S, Lough J, Pandolfi JM. 2012. Spatial variability of initial <math>^{230}\text{Th}/^{232}\text{Th}</math> in modern <i>Porites</i> from the inshore region of the Great Barrier Reef. <i>Geochimica et Cosmochimica Acta</i>. 78, 99-118 [doi: 10.1016/j.gca.2011.11.032]</p> <p>Lewis SE, Sloss CR, Murray-Wallace CV, Woodroffe CD, Smithers SG (In Press) Post-glacial sea-level changes around the Australian margin: A review. <i>Quaternary Science Reviews</i>. <a href="http://dx.doi.org/10.1016/j.quascirev.2012.09.006">http://dx.doi.org/10.1016/j.quascirev.2012.09.006</a></p> <p>Roff G, Clark TR, Raymond C, Zhao Jx, Feng Yx, McCook LJ, Done TJ, Pandolfi JM (2012) Palaeoecological evidence of a historical collapse of corals at Pelorus Island, inshore Great Barrier Reef, following European settlement. <i>Proceedings of the Royal Society B</i>. <a href="http://dx.doi.org/10.1098/rspb.2012.2100">http://dx.doi.org/10.1098/rspb.2012.2100</a></p> <p>Yu K, Zhao J-x, Roff G, Lybolt M, Feng Y, Clark T, Li S. 2012. High-precision U-series ages of transported coral blocks on heron Reef (southern Great Barrier Reef) and storm activity during the past century. <i>Palaeogeography, Palaeoclimatology, Palaeoecology</i>. 337-338, 23-36</p> <p>Yu, K., Zhao, J., Roff, G., Lybolt, M., Feng, Y., Clark, T., Li, S. High-precision U-series ages of transported coral blocks on Heron Reef (southern Great Barrier Reef) and storm activity during the past century. <i>Palaeogeography, Palaeoclimatology, Palaeoecology</i> xxx (2012) xxx–xxx</p>			
2.1	Weiss K. Hamann M. Kinney M & Marsh H (2012) Knowledge exchange and policy influence in a marine resource governance network. <i>Global Environment Change</i> 22: 178-188			
2.2	Hitchcock, Finn, Burrows and Johnson (2012) 'Fish from fresh and brackish waters of Torres Strait, far north Queensland', <i>Memoirs of the Qld Museum, Nature</i> . 56(1): 13-24.			
2.3	-			
3.1	-			
3.2	Costion C, Edwards W, Ford A, Metcalfe D, Harrington M, Cross H, Richardson J, Crayn D, Lowe A (in review) <b>Complex origins: Biome assembly and phylogenetic diversity of the Queensland Wet Tropics World Heritage rainforest flora.</b> <i>Proceedings of the National Academy of Science, USA</i>			
3.3	-			
3.4	Campbell, HA, Dwyer, RG, Fitzgibbons, S, Klein, CJ, Lauridsen, G, McKeown, A, Olsson, A, Sullivan, S, Watts, ME, and Westcott, DA (2012) Using animal home-range placement and habitat utilisation to			

	<p>inform reserve design: A case study for the southern cassowary (<i>Casuarius johnsonii</i>). <u>Endangered Species Research 17: 53-61.</u></p> <p>McKeown, A, and Westcott, DA (2012). Assessing the accuracy of small satellite transmitters on free-living flying-foxes: a case study for the use of satellite transmitters with active terrestrial animals. <u>Austral Ecology 37:295-301.</u></p> <p>Westcott DA, Fletcher CS, McKeown A, Murphy HT (2012). Monitoring when species are highly mobile over large spatial scales: an assessment of monitoring methods and power for flying-foxes (Pteropodidae). <u>Ecological Applications 22: 374-383.</u></p>			
4.1				
4.2	<p>Botté, E.S., Jerry, D.R., Codi King, S., Smith-Keune, C., Negri, A.P., 2012. Effects of chlorpyrifos on cholinesterase activity and stress markers in the tropical reef fish <i>Acanthochromis polyacanthus</i>. <i>Marine Pollution Bulletin online first.</i></p> <p>Magnusson, M., Heimann, K., Ridd, M., Negri, A.P., 2012. Chronic herbicide exposures affect the sensitivity and community structure of tropical benthic microalgae. <i>Marine Pollution Bulletin online first.</i></p> <p>van Dam, J.W., Negri, A.P., Mueller, J.F., Altenburger, R., Uthicke, S., 2012. Additive pressures of elevated sea surface temperatures and herbicides on symbiont-bearing foraminifera. <i>PLoS ONE 7(3), e33900.</i></p> <p>van Dam, J.W., Negri, A.P., Mueller, J.F., Uthicke, S., 2012. Symbiont-specific responses in foraminifera to the herbicide diuron. <i>Marine Pollution Bulletin online first.</i></p>			
4.3	-			
4.4	-			
5.1	<p>De'ath G, Fabricius KE, Sweatman H, Puotinen M (2012) The 27 year decline of coral cover on the Great Barrier Reef and its causes. <i>Proceedings of the National Academy of Science 109 (44): 17995–17999.</i></p> <p>De'ath G (2012) The Multinomial Diversity Model: Linking Shannon Diversity To Multiple Predictors. <i>Ecology. Ecology 93(10) 2286-2296.</i></p>			
5.2	<p>Uthicke S, Fabricius K (2012) Productivity gains do not compensate for reduced calcification under near-future ocean acidification in the photosynthetic benthic foraminifera <i>Marginopora vertebralis</i>. <i>Global Change Biology online first</i></p> <p>Uthicke S, Vogel N, Doyle J, Schmidt C, Humphrey C (2012) Interactive effects of climate change and eutrophication on the dinoflagellate bearing benthic foraminifera <i>Marginopora vertebralis</i>. <i>Coral Reefs 31: 401-414</i></p> <p>van Dam JW, Negri AP, Mueller JF, Altenburger R, Uthicke S (2012) Additive pressures of elevated sea surface temperatures and herbicides on symbiont-bearing foraminifera. <i>PLoS ONE 7: e33900</i></p> <p>Witt V, Wild C, Uthicke S (2012) Interactive climate change and runoff effects alter O<sub>2</sub> fluxes and bacterial community composition of coastal biofilms from the Great Barrier Reef. <i>Aquatic Microbial Ecology 66: 117-131</i></p> <p>Reymond CE, Uthicke S, Pandolfi JM (2012) Tropical Foraminifera as indicators of water quality and temperature. <i>Proceedings of the 12th International Coral Reef Symposium, Cairns, Australia, 9-13 July 2012, 21B Enhancing coral reef resilience through management of water quality, D. Yellowlees &amp; T. P. Hughes (eds.), James Cook University, Townsville, Queensland 4811, Australia (result of</i></p>			

	<p>MTSRF)</p> <p>Webster NS, Uthicke S, Botte E, Flores F, Negri AP (2012) Ocean acidification reduces induction of coral settlement by crustose coralline algae. <i>Global Change Biology</i> online first</p>			
5.3	<p>Collier, C. J., M. Waycott, and L. J. McKenzie. 2012. Light thresholds derived from seagrass loss in the coastal zone of the northern Great Barrier Reef, Australia. <i>Ecological Indicators</i> <b>23</b>: 211-219.</p> <p>Collier, C. J., C. Villacorta-Rath, J.-K. Van Dijk, and M. Waycott. In prep. Shoot proliferation precedes seagrass mortality during hypo-salinity events: a SIMR response.</p> <p>McMahon, K. M., C. J. Collier, and P. S. Lavery. Subm.. Identifying robust bioindicators of light stress in seagrasses: a review.</p> <p>Devlin, M., Brodie, J., Wengner, A., da Silva, E., Alvarez-Romero., J.G., Waterhouse, J., McKenzie, L., (2012). Chronic and acute influences on the Great Barrier Reef: Putting extreme weather conditions in context.</p> <p>Devlin, M.J., Schroeder, T., McKinna, L., Brodie, J.E., Brando, V. &amp; Dekker, A. (2012). Monitoring and mapping of flood plumes in the Great Barrier Reef based on in situ and remote sensing observations. In: <i>Environmental Remote Sensing and Systems Analysis</i> (ed: Chang, N.). pp.147-165. CRC Press. ISBN: 1439877432.</p> <p>Devlin, M., McKinna, L., Alvarez-Romero., J.G., Petus, C., Abott, B., Harkness, P., Brodie, J., (2012). Mapping the pollutants in surface riverine flood plume waters in the Great Barrier Reef, Australia. <i>Marine Pollution Bulletin</i>.</p> <p>Devlin, M. and Schaffelke, B (editors).,(2012) Catchment to Reef continuum: Case studies from the Great Barrier Reef. <i>Marine Pollution Bulletin</i>.</p> <p>Schroeder, T., Devlin, M., Brando, V.E., Dekker, A.G., Brodie, J., Clementson, L., McKinna, L., (2012). Inter-annual variability of wet season freshwater plume extent into the Great Barrier Reef lagoon based on satellite coastal ocean colour observations. <i>Marine Pollution Bulletin</i>.</p> <p>Alvarez-Romero, J., Devlin, M.J. Teixeira da Silva, E., Petus, C., Ban, C., Pressey, R.L., Kook, J., Roberts, S., Cerdeira, S., Wenger, A and Brodie, J., (submitted). Following the flow: a combined remote sensing-GIS approach to model exposure of marine ecosystems to riverine flood plumes. <i>Environmental Monitoring</i>.</p>			
6.1	-			
6.2	-			
6.3	<p>Chambers L.E, C.A. Devney, B.C. Congdon, N. Dunlop, E.J.Woehler, P. Dann, (2011) Observed and predicted impacts of climate on Australian seabirds. <i>Emu-Austral Ornithology</i> 111(3): 235-251</p>			
7.1	-			
7.2	<p>Westcott, D.A &amp; Fletcher, C.S. (2011). Biological invasions and the study of vertebrate dispersal of plants: opportunities and integration. <i>Acta Oecologica</i> 37: 650-656.</p> <p>Hardesty, B.D. &amp; Westcott, D.A. (2011). <b>Persistence and spread in a new landscape: Dispersal ecology and genetics of <i>Miconia</i> invasions in Australia. <i>Acta Oecologica</i> 37: 657-665.</b></p> <p>Catford, J.A., Daehler, C.C., <u>Murphy, H.T.</u>, Sheppard, A.W., Hardesty, B.D., <u>Westcott, D.A.</u>, Rejmánek, M., Bellingham, P.J., Pergl, J., Horvitz, C.C. &amp; Hulme, P.E. (2012) The intermediate disturbance hypothesis and plant invasions: Implications for species richness and management. <i>Perspectives in Plant Ecology, Evolution and</i></p>			

	<p><i>Systematics</i>. doi: 10.1016/j.ppees.2011.12.002.</p> <p>Sydes, T.A. &amp; Murphy, H.T. Bridging the knowing-doing gap in on-ground biodiversity management. <i>Journal of Applied Ecology</i>, in revision.</p> <p>Grice, A.C., Clarkson, J.R., Friedel, M.H., Murphy, H.T., Fletcher, C.S. &amp; Westcott, D.A. 2012. Containment: the state of play. Proceedings of the 18th Australian Weeds Conference, Melbourne, in press.</p>			
7.3	<p>Storlie, C., Phillips, B., Jeremy VanDerWal, &amp; Williams, S.E. (in press) Improved spatial estimates of climate predict patchier species distributions. <i>Biodiversity &amp; Distributions</i></p> <p>Storlie, C., Merino-Viteri, A., Phillips, B., Jeremy VanDerWal, Williams, S.E. &amp; J. Welbergen, J.A. Biological confirmation of improved spatial weather layers for species vulnerability analysis. <i>Biology Letters</i>.</p>			
8.1	-			
8.2	<p>Feldheim KA, van Herwerden L, Planes S, Srinivasan M, Berumen ML, Jones GP (2012) Larval Export From Marine Reserves and the Recruitment Benefit for Fish and Fisheries. <i>Current Biology</i>.</p> <p>Ceccarelli D.M. &amp; Williamson D.H. (2012). Sharks that eat sharks: Opportunistic predation by wobbegongs. <i>Coral Reefs</i> 31: 471.</p> <p>Harrison HB, Williamson DH, Evans RD, Almany GR, Thorrold SR, Russ GR, Feldheim KA, van Herwerden L, Planes S, Srinivasan M, Berumen ML, Jones GP (2012) Larval Export From Marine Reserves and the Recruitment Benefit for Fish and Fisheries. <i>Current Biology</i> 22: 1023–1028.</p> <p>Cvitanovic C, Wilson SK, Fulton CJ, Almany GR, Anderson P, Babcock RC, Ban NC, Beedon R, Begger M, Cinner J, Dobbs K, Evans LS, Farnham A, Friedman K, Gale K, Gladstone W, Grafton Q, Graham NAJ, Gudge S, Harrison P, Holmes TH, Johnstone N, Jones GP, Jordan A, Kendrick A, Kerr I, Klein CJ, Little LR, Malcolm H, Morris D, Possingham HP, Prescott J, Pressey RL, Skilleter GA, Simpson C, Waples K, Wilson D, Williamson DH (2012) Critical research needs for managing coral reef Marine Protected Areas: perspectives of academics and managers. <i>Journal of Environmental Management</i>, in press</p>			
8.3	<p>Harrison HB, Williamson DH, Evans RD, Almany GR, Thorrold SR, Russ GR, Feldheim KA, van Herwerden L, Planes S, Srinivasan M, Berumen ML, Jones GP (2012) Larval export from marine reserves and the recruitment benefit for fish and fisheries. <i>Current Biology</i>, on-line. doi:10.1016/j.cub.2012.04.008.</p> <p>Wen C, Almany G, Williamson D, Pratchett M, Jones G. (2012) Evaluation of the effects of marine reserve status on diet, prey availability and prey selection by juvenile predatory fishes. <i>Marine Ecology Progress Series</i> 469:133–144. DOI: 10.3354/meps09949</p> <p>Harrison HB, Saenz-Agudelo P, Planes S, Jones GP, Berumen ML. Relative accuracy of three common methods of parentage analysis in natural populations. <i>Molecular Ecology</i>, in press</p> <p>Wen C, Pratchett MS, Almany GR, Jones GP (2013) Patterns of recruitment and microhabitat associations for three predatory coral reef fishes on the southern Great Barrier Reef, Australia. <i>Coral Reefs</i>, in press. DOI: 10.1007/s00338-012-0985-x</p> <p>Cvitanovic C1, Wilson SK, Fulton CJ, Almany GR, Anderson P, Babcock RC, Ban NC, Beedon R, Begger M, Cinner J, Dobbs K, Evans LS, Farnham A, Friedman K, Gale K, Gladstone W, Grafton Q1, Graham NAJ, Gudge S1, Harrison P, Holmes TH, Johnstone N1, Jones GP, Jordan A, Kendrick A, Kerr I, Klein CJ, Little LR, Malcolm H, Morris D, Possingham HP, Prescott J, Pressey RL, Skilleter GA, Simpson C, Waples K, Wilson D, Williamson DH (2012) Critical research needs for managing coral reef Marine Protected Areas: perspectives of academics and managers. <i>Journal of Environmental Management</i>, in press</p>			

9.1	Wooldridge et al. Mapping areas of resistance to warm-water coral bleaching on the Great Barrier Reef, Australia. Environmental Modelling and Software. (submitted)			
9.2	-			
9.3	-			
9.4	-			
10.1	-			
10.2	Jarvis, D., Stoeckl, N, Chaiechi, T., (2012) "Applying econometric techniques to hydrological problems in a large basin: Quantifying the rainfall-discharge relationship in the Burdekin, Queensland, Australia". Under review.			
11.1	Analysis of potential impacts of the Western Province resources boom on marine-based livelihoods of Torres Strait Treaty villages, Papua New Guinea (Busilacchi, Butler & Skewes <i>Marine Policy</i> )  Butler, J.R.A., Tawake, L., Tawake, A., Skewes, T. & McGrath, V. <i>in press</i> . Integration of traditional ecological knowledge and fisheries management in the Torres Strait, Australia: the catalytic role of turtles and dugong as cultural keystone species. <i>Ecology and Society</i> .			
11.2	-			
12.1	Maclean, K., Hill, R., Pert, P. L., Barclay, S., Bock, E., Mundraby, V., Talbot, L. D., Sarago, L. & Schmider, J. (2012) Framework analysis: towards Indigenous co-management and biodiversity protection in the wet tropics. In: Cairns: Milestone report for the National Environment Research Program's Tropical Ecosystems Hub from CSIRO Ecosystem Sciences.  Cullen-Unsworth, L.C., R. Hill, J.R.A. Butler, and M. Wallace. 2012. Development of Linked Biophysical and Cultural Indicators for the Wet Tropics World Heritage Area. <i>The International Journal of Science in Society</i> 2:181-194  Cullen-Unsworth, L. C., Hill, R., Butler, J. R. A. & Wallace, M. 2011. A research process for integrating Indigenous and scientific knowledge in cultural landscapes: principles and determinants of success in the Wet Tropics World Heritage Area, Australia. <i>The Geographical Journal</i> : doi: 10.1111/j.1475-4959.2011.00451.x.  Hill, R., Grant, C., George, M., Robinson, C. J., Jackson, S. & Abel, N. (2012) A typology of Indigenous engagement in Australian environmental management: Implications for knowledge integration and social-ecological system sustainability. <i>Ecology and Society</i> . 17 (1) 23. DOI: <b>10.5751/ES-04587-170123</b>  Hill, R., L.C. Cullen, L. D. Talbot, and S. McIntyre. 2011. Empowering Indigenous peoples' biocultural diversity through world heritage cultural landscapes: A case study from the Australian tropical forests. <i>International Journal of Heritage Studies</i> , 17 (6) 571-591.			
12.2	Catterall, C.P., Freeman, A.N.D, Kanowski, J. and Freebody, K. 2012. Can active restoration of tropical rainforest rescue biodiversity? a case with bird community indicators. <i>Biological Conservation</i> 146: 53–61.  Shoo, L.P. Catterall, C.P. Stimulating natural regeneration of tropical forest on degraded land: a review and meta-analysis. in review.			
12.3	-			
12.4	van Oosterzee, P., Preece, N. & Dale, A. (2012). An Australian landscape-based approach: AFOLU mitigation for smallholders. In Wollenberg E, Nihart A, Tapio-Biström M-L, Grieg-Gran M (eds). <i>Climate Change, Mitigation and Agriculture</i> . Earthscan, London.			
13.1	-			

**NERP Researcher - Publications (Jul-Dec 2012)**

Project	Publications	Sent to Dept with Coversheet	Live on NERP website	PDF received
1.1	Miller IR, Cheal AJ, Emslie MJ, Logan M and Sweatman HPA (2012) Ongoing effects of no-take marine reserves on commercially exploited coral trout populations on the Great Barrier Reef. <i>Marine Environmental Research</i> 79: 167-170			
1.2				
1.3				
2.1	No papers have been accepted within the milestone period			
2.2	One paper published in scientific journal <i>Nature</i> . (have sent Burrows an email asking for the citation)			
2.3				
3.1	o activities undertaken in this milestone period.			
3.2	Costion C, Edwards W, Ford A, Metcalfe D, Harrington M, Cross H, Richardson J, Crayn D, Lowe A (in review) <b>Complex origins: Biome assembly and phylogenetic diversity of the Queensland Wet Tropics World Heritage rainforest flora.</b> <i>Proceedings of the National Academy of Science, USA</i>			
3.3				
3.4				
4.1				
4.2	Nil			
4.3				
4.4				
5.1	De'ath G, Fabricius KE, Sweatman H, Puotinen M (2012) The 27 year decline of coral cover on the Great Barrier Reef and its causes. <i>Proceedings of the National Academy of Science</i> 109 (44): 17995–17999 De'ath G (2012) The Multinomial Diversity Model: Linking Shannon Diversity To Multiple Predictors. <i>Ecology</i> . <i>Ecology</i> 93(10) 2286-2296			
5.2	Uthicke S, Soars N, Foo S, Byrne M (2012) Effects of elevated $pCO_2$ and the effect of parent acclimation on development in the tropical Pacific sea urchin <i>Echinometra mathaei</i> . <i>Marine Biology</i> online first: 1-14  Reymond CE, Uthicke S, Pandolfi JM (2012) Tropical Foraminifera as indicators of water quality and temperature. <i>Proceedings of the 12<sup>th</sup> International Coral Reef Symposium</i> , Cairns, Australia, 9-13 July 2012, 21B Enhancing coral reef resilience through management of water quality, D. Yellowlees & T. P. Hughes (eds.), James Cook University, Townsville, Queensland 4811, Australia (result of MTSRF)  Webster NS, Uthicke S, Botte E, Flores F, Negri AP (2012) Ocean acidification reduces induction of coral settlement by crustose coralline algae. <i>Global Change Biology</i> online first  Witt V, Wild C, Uthicke S (2012) Terrestrial runoff controls bacterial community composition of biofilms along a water quality gradient in the Great Barrier Reef. <i>Applied and Environmental Microbiology</i> online first (result of MTSRF)			



5.3	<p>Collier, C. J., M. Waycott, and L. J. McKenzie. 2012. Light thresholds derived from seagrass loss in the coastal zone of the northern Great Barrier Reef, Australia. <i>Ecological Indicators</i> <b>23</b>: 211-219. (Attachment A)</p> <p>Collier, C. J., C. Villacorta-Rath, J.-K. Van Dijk, and M. Waycott. In prep. Shoot proliferation precedes seagrass mortality during hypo-salinity events: a SIMR response. (Attachment B)</p> <p>McMahon, K. M., C. J. Collier, and P. S. Lavery. Subm.. Identifying robust bioindicators of light stress in seagrasses: a review.</p> <p>Devlin, M., Brodie, J., Wengner, A., da Silva, E., Alvarez-Romero., J.G., Waterhouse, J., McKenzie, L., (2012). Chronic and acute influences on the Great Barrier Reef: Putting extreme weather conditions in context.</p> <p>Devlin, M.J., Schroeder, T., McKinna, L., Brodie, J.E., Brando, V. &amp; Dekker, A. (2012). Monitoring and mapping of flood plumes in the Great Barrier Reef based on in situ and remote sensing observations. In: <i>Environmental Remote Sensing and Systems Analysis</i> (ed: Chang, N.). pp.147-165. CRC Press. ISBN: 1439877432.</p> <p>Devlin, M., McKinna, L., Alvarez-Romero., J.G., Petus, C., Abott, B., Harkness, P., Brodie, J., (2012). Mapping the pollutants in surface riverine flood plume waters in the Great Barrier Reef, Australia. <i>Marine Pollution Bulletin</i>.</p> <p>Devlin, M. and Schaffelke, B (editors).,(2012) Catchment to Reef continuum: Case studies from the Great Barrier Reef. <i>Marine Pollution Bulletin</i>.</p> <p>Schroeder, T., Devlin, M., Brando, V.E., Dekker, A.G., Brodie, J., Clementson, L., McKinna. L., (2012). Inter-annual variability of wet season freshwater plume extent into the Great Barrier Reef lagoon based on satellite coastal ocean colour observations. <i>Marine Pollution Bulletin</i>.</p> <p>Alvarez-Romero, J., Devlin, M.J. Teixeira da Silva, E., Petus, C., Ban, C., Pressey, R.L., Kook, J., Roberts, S., Cerdeira, S., Wenger, A and Brodie, J., (submitted). Following the flow: a combined remote sensing-GIS approach to model exposure of marine ecosystems to riverine flood plumes. <i>Environmental Monitoring</i>.</p>			
6.1	Nil			
6.2	Nil			
6.3	<p>Manuscripts currently in review</p> <ol style="list-style-type: none"> <li>1. Weeks S. J., C. Steinberg, B.C. Congdon (<i>in review</i>). Oceanography and seabird foraging: within-season impacts of increasing sea surface temperature on the Great Barrier Reef. <i>Marine Ecology Progress Series</i></li> <li>2. <i>McDui</i> F, S. Weeks and B.C. Congdon (<i>in review</i>) Wedge-tailed shearwaters utilise at-distance foraging resources for self-provisioning. <i>Marine &amp; Freshwater Research</i></li> <li>3. <i>McDui</i> F, W. Goulding, D.R. Peck, B.C. Congdon (<i>in review</i>) Colony-specific growth in wedge-tailed shearwaters: Developmental plasticity or evolutionary divergence? <i>Marine Ecology Progress Series</i></li> </ol>			
7.1	Ford, A.J. and Metcalfe, D.J. 2012. Floristic impact of re-alignment of beach ridge track, Cowley Beach. Report provided to Cassowary Coast Regional Council.			
7.2	<p>Submitted:</p> <ol style="list-style-type: none"> <li>1. Sydes, T.A. &amp; <u>Murphy, H.T.</u> Bridging the knowing-doing gap in on-ground biodiversity management. <i>Journal of Applied Ecology</i>, <i>in revision</i>.</li> <li>2. Grice, A.C., Clarkson, J.R., Friedel, M.H., <u>Murphy, H.T.</u>, <u>Fletcher,</u></li> </ol>			

	C.S. & Westcott, D.A. 2012. Containment: the state of play. <i>Proceedings of the 18<sup>th</sup> Australian Weeds Conference</i> , Melbourne, in press.			
7.3	Storlie, C., Phillips, B., Jeremy VanDerWal, & Williams, S.E. (in press) Improved spatial estimates of climate predict patchier species distributions. <i>Biodiversity &amp; Distributions</i>  Storlie, C., Merino-Viteri, A., Phillips, B., Jeremy VanDerWal, Williams, S.E. & J. Welbergen, J.A. Biological confirmation of improved spatial weather layers for species vulnerability analysis. <i>Biology Letters</i> .			
8.1				
8.2	<ol style="list-style-type: none"> <li>1. Ceccarelli D.M. &amp; Williamson D.H. (2012). Sharks that eat sharks: Opportunistic predation by wobbegongs. <i>Coral Reefs</i> 31: 471.</li> <li>2. Harrison HB, Williamson DH, Evans RD, Almany GR, Thorrold SR, Russ GR, Feldheim KA, van Herwerden L, Planes S, Srinivasan M, Berumen ML, Jones GP (2012) Larval Export From Marine Reserves and the Recruitment Benefit for Fish and Fisheries. <i>Current Biology</i> 22: 1023–1028.</li> <li>3. Cvitanovic C, Wilson SK, Fulton CJ, Almany GR, Anderson P, Babcock RC, Ban NC, Beedon R, Beger M, Cinner J, Dobbs K, Evans LS, Farnham A, Friedman K, Gale K, Gladstone W, Grafton Q, Graham NAJ, Gudge S, Harrison P, Holmes TH, Johnstone N, Jones GP, Jordan A, Kendrick A, Kerr I, Klein CJ, Little LR, Malcolm H, Morris D, Possingham HP, Prescott J, Pressey RL, Skilleter GA, Simpson C, Waples K, Wilson D, Williamson DH (2012) Critical research needs for managing coral reef Marine Protected Areas: perspectives of academics and managers. <i>Journal of Environmental Management</i>, in press.</li> </ol>			
8.3	<ol style="list-style-type: none"> <li>1 Wen C, Almany G, Williamson D, Pratchett M, Jones G. (2012) Evaluation of the effects of marine reserve status on diet, prey availability and prey selection by juvenile predatory fishes. <i>Marine Ecology Progress Series</i> 469:133–144. DOI: 10.3354/meps09949 (see <b>Attachment 5</b>)</li> <li>2 Harrison HB, Saenz-Agudelo P, Planes S, Jones GP, Berumen ML. Relative accuracy of three common methods of parentage analysis in natural populations. <i>Molecular Ecology</i>, in press</li> <li>3 Wen C, Pratchett MS, Almany GR, Jones GP (2013) Patterns of recruitment and microhabitat associations for three predatory coral reef fishes on the southern Great Barrier Reef, Australia. <i>Coral Reefs</i>, in press. DOI: 10.1007/s00338-012-0985-x</li> <li>4 Cvitanovic C1, Wilson SK, Fulton CJ, Almany GR, Anderson P, Babcock RC, Ban NC, Beedon R, Beger M, Cinner J, Dobbs K, Evans LS, Farnham A, Friedman K, Gale K, Gladstone W, Grafton Q1, Graham NAJ, Gudge S1, Harrison P, Holmes TH, Johnstone N1, Jones GP, Jordan A, Kendrick A, Kerr I, Klein CJ, Little LR, Malcolm H, Morris D, Possingham HP, Prescott J, Pressey RL, Skilleter GA, Simpson C, Waples K, Wilson D, Williamson DH (2012) Critical research needs for managing coral reef Marine Protected Areas: perspectives of academics and managers. <i>Journal of Environmental Management</i>, in press</li> </ol>			
9.1	Submitted: Goldridge et al. <i>Mapping areas of resistance to warm--- water coral bleaching on the Great Barrier Reef, Australia</i> . <i>Environmental Modelling and Software</i>			
9.2	Nil			
9.3	Nil			
9.4	Nil			
10.1	Nil			
10.2	Jarvis, D., Stoeckl, N, Chaiechi, T., (2012) “ <b>Applying econometric techniques to hydrological problems in a large basin: Quantifying the rainfall-discharge relationship in the Burdekin, Queensland, Australia</b> ”.			

11.1	<p>1. Analysis of potential impacts of the Western Province resources boom on marine-based livelihoods of Torres Strait Treaty villages, Papua New Guinea (Busilacchi, Butler &amp; Skewes <i>Marine Policy</i>)</p> <p>2. Butler, J.R.A., Tawake, L., Tawake, A., Skewes, T. &amp; McGrath, V. <i>in press</i>. Integration of traditional ecological knowledge and fisheries management in the Torres Strait, Australia: the catalytic role of turtles and dugong as cultural keystone species. <i>Ecology and Society</i>.</p>			
11.2	he submitted – have asked project leader for citation			
12.1	<p>Submitted for publication in a joint ACIUCN/SEWPaC edition:</p> <ul style="list-style-type: none"> <li>• Hill, R. 2012. Bringing the community into world heritage through biocultural diversity - issues and policy implications. Paper read at <i>Keeping the Outstanding Exceptional: the Future of Australia's World Heritage</i>, at Cairns. Published as Abstract in Conference Handbook:</li> <li>• Hill, R., P.L. Pert, J.D. Davies, F. Walsh, C.J. Robinsons, and F. Falco- Mammone. 2012. Indigenous governance and knowledge integration into environmental management: ensuring integrity and equity. In <i>People and Conservation in Land and Sea Country</i>, edited by Oceania Chapter of the Society for Conservation Biology. Darwin 21-23 September.</li> <li>• Pert, P.L., R. Hill, J.D. Davies, F. Walsh, C.J. Robinsons, and F. Falco-Mammone. 2012. A spatiotemporal analysis of investment in Indigenous land and sea management in Australia. In <i>People and Conservation in Land and Sea Country</i>, edited by Oceania Chapter of the Society for Conservation Biology. Darwin 21-23 September.</li> </ul>			
12.2	Shoo, L.P. Catterall, C.P. Stimulating natural regeneration of tropical forest on degraded land: a review and meta-analysis. in review.			
12.3	Nil			
12.4	Nil			

**ATTACHMENT C: REPORTED PROJECT  
COMMUNICATIONS FOR MILESTONE PERIODS  
JULY – DECEMBER 2012 & JANUARY – JUNE 2013**

**Reported Project communications in next milestone reporting period (July-Dec 2012)**

<b>Project #</b>	<b>Project Leader</b>	<b>Institution</b>	<b>Communications/Events</b>
1.1	Sweatman	AIMS	No activity this year
1.2	Marsh/Hamann	JCU	<ol style="list-style-type: none"> <li>1. Data from the aerial surveys and turtle tracking will be analysed.</li> <li>2. Planning meetings with QDERM and GBRMPA will be held to refine marine turtle projects</li> <li>3. Planning will start for the inshore dolphin surveys that will be held in 2012/2013</li> </ol>
1.3	Lewis/Zhao	JCU/UQ	<p><b>Journal Articles:</b>  Clark TR, Roff J, Zhao JX, Feng Y, Done TJ, Pandolfi JM. 'Coral gravesite linked to the 1997-1998 bleaching event: A test of the U-series method in dating very young corals'.  Roff G, Clark TR, Reymond C, Zhao JX, Feng Y, McCook LJ, Done TJ, Pandolfi JM. 'Historical collapse of coral assemblages on the inshore Great Barrier Reef following European Settlement'.  Lewis S, and Smithers S, to submit a review paper compiling sea-level indicator data from Australasia from the last 18 ka to a book titled 'Palaeohistory of Australasia' led by Colin Murray Wallace.</p> <p><b>Workshops and Meetings:</b>  NERP IG Meeting (April 2012)  International Coral Reef Society Symposium (ICRS) (July 2012)  International Geological Congress (IGC) (August 2012)  Anticipated meeting with Eric Lawrey regarding e-Atlas.  Project meeting at UQ with M. McCulloch following ICRS (July 2012)</p>
2.1	Marsh/Hamann	JCU	<ul style="list-style-type: none"> <li>• Community visits planned for mid-June and July-August to discuss treatment of turtle and dugong as follow-up to ABC media.</li> <li>• Mark Hamann and Helene Marsh to present public talk at Thursday Island in the Torres Strait on turtle and dugong research and findings (6 Aug 2012).</li> </ul> <p>Torres Strait 'turtle rodeo' fieldwork, dates are tentatively 6–8 June and late July/early Aug 2012 in partnership with TSRA LSMU staff.</p>
2.2	Burrows	JCU	<ul style="list-style-type: none"> <li>• Freshwater field program will begin in July 2012 and includes seeking further local knowledge and observations about mangroves and their benefits amongst local communities (starting with the northern islands of Boigu, Sabai and others).</li> <li>• Two key international meetings will be held in July 2012. Mangrove projects, including those in Torres Strait will feature at: (1) the Australian Marine Science Association Conference in Hobart, and (2) the International Mangrove MMM Conference in Sri Lanka.</li> </ul>
2.3	Berkelmans	AIMS	Completion of material for use in community consultation and liaison.
3.1	Williams, S	JCU	None currently scheduled
3.2	Crayn, D	JCU/ATH	None yet planned
3.3	Puschendorf	JCU	Nil to report
3.4	Wescott	CSIRO	None currently planned
4.1	Fabircius	AIMS	Project begins July 2012
4.2	Negri	AIMS	<p>The pesticide working group to be formalised to better coordinate research and to consult and update stakeholders.  C. Collier will provide further updates, as relevant, through MMP regular meetings and annual integration workshop.  Four team members will attend the International Coral Reef Society Conference in Cairns and the new projects will be introduced during oral presentations</p>
4.3	Brodie/Kookana	JCU	Not applicable
4.4	Brodie	JCU	<ul style="list-style-type: none"> <li>• Site visits to a number of the outer islands (Horn, Thursday, Badu, Sabai, Masig, Erub and Warraber Islands) will be undertaken in August 2012 to assess the status of sewage discharges, desalination plants (where applicable) and identify specific local concerns. The project team is working closely with the local Councils and TSRA to ensure that they are involved in the site visits.</li> <li>• Site visit follow-up with local staff from TSRA, TSIRC, TSRC, AMSA, MSQ and AFMA.</li> <li>• Draft project overview flyer prepared for August site visits and</li> </ul>

			with TSRA for comment.
5.1	De'ath	AIMS	
5.2	Uthicke	AIMS	Planned Implementation Group Meeting on August 8 Five team members will attend the International Coral Reef Society Conference in Cairns and the new projects will be introduced during oral presentations.
5.3	Collier	JCU	<ul style="list-style-type: none"> <li>Peer-reviewed published paper on light thresholds: Collier et al. (2012) Light thresholds derived from seagrass loss in the coastal zone of the northern Great Barrier Reef, Australia. <i>Ecological Indicators</i> 23, 211-219.</li> <li>Seminar by C. Collier at GBRMPA scheduled for 6 June 2012 to update on research progress to date, future directions and applicability to management portfolio.</li> <li>Ongoing communication with Reef Rescue Marine Monitoring Program project providers through regular MMP meetings.</li> </ul>
6.1	Huepel	AIMS	Continued field efforts to deploy transmitters and download receiver data
6.2	Simpfendorfer	JCU	<p>Preliminary results of broad-scale nursery area survey will be discussed with DEEDI and GBRMPA staff at regularly scheduled meetings.</p> <p>Preliminary results of the broad-scale survey will be presented at the Australian Society for Fish Biology Annual Conference in Adelaide in July 2012.</p>
6.3	Congdon/Steinberg	JCU/AIMS	McDuie F., Weeks S.J., & Congdon, B.C. 2011. How do oceanography and climate impact prey availability of tropical seabirds: Electronic tracking of wedge-tailed shearwaters to identify critical foraging resources of the Great Barrier Reef. Abstracts of <i>Fifth International Albatross and Petrel Conference</i> Wellington, New Zealand
7.1	Metcalf	CSIRO	Discuss logistics with private landholders in Tully River valley to set up seedling monitoring plots in heavily disturbed rainforest, for fire experiments.
7.2	Murphy	CSIRO	Accepted abstract for the Australian Weeds Conference 2012 (October, Melbourne) – Murphy HT, Lawson T. Managing emerging weed threats in the Wet Tropics.
7.3	Welbergen	JCU	Welbergen intends to attend and present at the next NERP meeting. No other communications or events have been planned at this relatively early stage.
8.1	Sweatman	AIMS	None planned at this stage
8.2	Russ/Williamson	JCU	<p>A briefing Meeting with GBRMPA has been arranged for June 2012.</p> <ul style="list-style-type: none"> <li>Garry Russ will provide a presentation at the NERP Implementation Group meeting in Townsville on August 9th 2012.</li> <li>ICRS (International Coral Reef Symposium), Cairns. July 9-13, 2012. Various project results will form components of presentations by Garry Russ, David Williamson and Dani Ceccarelli.</li> <li>A public meeting will be conducted in Yeppoon, QLD between June and December 2012. The meeting will be organised in cooperation with CapReef and GBRMPA. Invitations will be extended to local stakeholders (Fishers, tourism operators etc) as well as members of the Rockhampton/Yeppoon community.</li> </ul>
8.3	Jones	JCU	<ol style="list-style-type: none"> <li>G.P. Jones will be giving a plenary address at the International Coral Reef Symposium (ICRS) Cairns 9 July, 2012.</li> <li>G.P. Jones will be giving a press conference on 11 July at the ICRS symposium.</li> <li>G.P. Jones has been invited to the Australian Academy of Science's Second Australian Earth System Outlook Conference "Ticking Time Bombs in the Human-Earth System" 26-27 November 2012. Shine Dome, Canberra.</li> <li>Garry Russ will provide a presentation at the NERP Implementation Group meeting in Townsville on August 9th 2012.</li> <li>A briefing Meeting with GBRMPA will be arranged for June or July 2012.</li> <li>A public meeting will be carried out in Yeppoon, QLD between June and December 2012. The meeting will be organised in cooperation</li> </ol>

			with CapReef and GBRMPA. Invitations will be extended to local stakeholders (Fishers, tourism operators etc) as well as members of the Rockhampton/Jeppoon community. 7. ICRS (International Coral Reef Symposium), Cairns. July 9-13, 2012. Various project results will form components of presentations by David Williamson and Hugo Harrison.															
9.1	Anthony	AIMS	International workshop in Operationalising Reef Resilience for Managers and Practitioners held on Fitzroy Island 14-18 July. The workshop will be run by researchers and end users under this project, but will be co-funded by IUCN and NOAA. The workshop will have 30 participants, representing national and international leaders in reef resilience research, management and policy.															
9.2	Dichmont	CSIRO	The project will start developing relevant objectives as a Hierarchy for Mackay and one other region. In Mackay, this will be undertaken through the LMAC.															
9.3	Pressey	JCU	Major technical workshop in October 2012, on Magnetic Island, involving managers and technical teams from GBR and Western Australia and one overseas expert. Media release being discussed.															
9.4	Pressey	JCU	More specific and smaller workshops will now be arranged for each major aspect of the project, beginning with land use change modelling in September or October.															
10.1	Marshall	CSO	<div>During the next reporting period we aim to hold a series of workshops with the steering committee and advisory committee as well as with the working groups to review and refine SELTMP and prioritise the primary data to be collected. The prioritization process has not as yet been finalized. By December 1 2012 we expect to have a complete list of indicators to assess for each stakeholder group. Those that can be delivered on using secondary data will be highlighted, and those requiring primary data will be too. A strategy delineating how primary data will be collected will also be described. A summary of outputs to be delivered on are included here:</div> <table><tr><th colspan="3">Outputs for SELTMP for the next reporting period</th></tr><tr><td>1. Steering Committee meeting</td><td>By 1 Dec 2012</td><td>Will provide date and minutes of meeting</td></tr><tr><td>2. Stakeholder and Scientific Committee meeting</td><td>By 1 Dec 2012</td><td>Will provide date and minutes of meeting</td></tr><tr><td>3. Working Group meeting to prioritise primary data collection</td><td>By 1 Dec 2012</td><td>Will provide date and minutes of meeting</td></tr><tr><td>4. Design of primary data collection</td><td>By 1 Dec 2012</td><td>Will provide a template of SELTMP showing data where available, and indicators that are to be reported on using primary data</td></tr></table>	Outputs for SELTMP for the next reporting period			1. Steering Committee meeting	By 1 Dec 2012	Will provide date and minutes of meeting	2. Stakeholder and Scientific Committee meeting	By 1 Dec 2012	Will provide date and minutes of meeting	3. Working Group meeting to prioritise primary data collection	By 1 Dec 2012	Will provide date and minutes of meeting	4. Design of primary data collection	By 1 Dec 2012	Will provide a template of SELTMP showing data where available, and indicators that are to be reported on using primary data
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4. Design of primary data collection	By 1 Dec 2012	Will provide a template of SELTMP showing data where available, and indicators that are to be reported on using primary data																
10.2	Stoeckl	JCU	<div>The project team will continue to meet regularly during the preparation stages and data collection stages (although this will not be of media interest).</div> <div>The team is also producing pamphlets and information sheets that will explain the project in plain English and the reason for participation, for general distribution and also for distribution while surveying is being undertaken. These will also be included with the mail-out questionnaire.</div> <div>As such, the data collection activities, will provide many opportunities to distribute information about the project to residents of, and visitors to, the GBRCA.</div>															
11.1	Butler	CSIRO	<ul style="list-style-type: none"><li>A pathway to impact plan and monitoring and evaluation strategy is being developed with the project Steering Committee for completion at the next meeting in July 2012.</li><li>It is proposed to present the project to the July 2012 Traditional Inhabitants' Meeting as part of the Torres Strait Treaty process (date yet to be set by DFAT).</li></ul>															
11.2	Laurance	JCU	<ul style="list-style-type: none"><li>Visit Thursdav Island in August to meet with TSRA and plan the</li></ul>															



			<p>field work program for 2013.</p> <ul style="list-style-type: none"> <li>Meetings with TSRA, Qld Health and Biosecurity to gather existing information on disease studies across the Torres Strait.</li> </ul>
12.1	Hill	CSIRO	<ul style="list-style-type: none"> <li>Oceania Society for Conservation Biology Conference, Darwin 21-23 September 2012 <i>Indigenous knowledge integration for biodiversity protection in the wet tropics</i></li> <li>Racism in the New World Order, Cairns 30-31 August 2012 <i>Multilevel biodiversity governance and the marginalisation of Indigenous cultural rights</i></li> <li>World Conservation Congress, Jeju 7nd-15<sup>th</sup> September 2012 <i>Meetings of the Commission on Environment, Economic and Social Policy</i></li> </ul>
12.2	Catterall	GU	<p>A community and stakeholder Field Day is being planned in relation to Objective (b); tentatively scheduled for the end of August – final date subject to further consultation with stakeholders and partners (WTMA, TRC, TKMG, CVA TREAT).</p> <p>The following presentation may be made to national scientific conferences (tbc):</p> <ul style="list-style-type: none"> <li>- Ecological Society of Australia annual conference, Melbourne, December 2012 (Carla Catterall).</li> </ul>
12.3	Stoeckl	JCU	Project just starting July 2012
12.4	Dale	JCU	<p>Formalised project communications outlined above are planned to continue as above for the next milestone period. Two specific (invited) Symposia presentation have also been secured, including:</p> <ul style="list-style-type: none"> <li>The Coast to Coast Conference in Brisbane in September 2012;</li> <li>Symposia for the Darwin meeting of the Oceania section of the Society for Conservation Biology 21-23rd September 2012; and</li> <li>The second week long ACEAS meeting to be held Darwin in late 2012.</li> </ul>
13.1	Lawrey	AIMS	<ul style="list-style-type: none"> <li>Attend all four implementation group meetings in August 2012.</li> <li>Meet with project leaders that have project data ready for submission to the e-Atlas.</li> <li>Workshop with TSRA to discuss the CSIRO data catalogue.</li> <li>Provide an update on e-Atlas progress and perform a second trial of the AtlasMapper at GBRMPA.</li> <li>Provide a display of the e-Atlas at the 12<sup>th</sup> International Coral Reef Symposium via the AIMS stall.</li> </ul>



**Reported Project communications in next milestone reporting period (Jan-Jun 2013)**

<b>Project #</b>	<b>Project Leader</b>	<b>Institution</b>	<b>Communications/Events</b>
1.1	Sweatman	AIMS	Uncertain
1.2	Marsh/Hamann	JCU	<p>Objective 1 The community consultation for the inshore dolphin surveys has begun. Community visits have been undertaken in 14 locations to determine workshop locations. In the next milestone period (Dec to June) a minimum of two workshops will be conducted in communities to collect data on inshore dolphin distribution. A field trip is currently being planned to Princess Charlotte Bay between April and June 2013 to get an estimate of inshore dolphin abundance.</p> <p>Objective 3 Three publications are being prepared (1) stable isotopes in juvenile green turtles (2) genetic structure of green turtles at Low Isles and (3) satellite tracking and home range analysis of green turtles from coastal ecosystems.</p>
1.3	Lewis/Zhao	JCU/UQ	
2.1	Marsh/Hamann	JCU	<ul style="list-style-type: none"> <li>• Bramble Cay nesting turtle trip – planned for first week of Dec 2012</li> <li>• Dauar Island nesting turtle trip – planned for last week Nov 2012</li> <li>• Bramble Cay and Dauar hatchling production trips planned for late January / early February 2013</li> <li>• Sassie Island trip – planned for early Feb 2013</li> <li>• Deliverance Island nesting turtle trip planned for late March</li> </ul>
2.2	Burrows	JCU	Nil
2.3	Berkelmans	AIMS	<ul style="list-style-type: none"> <li>• Radio interview with 4MW planned for early December regarding the coral project and tangible outcomes for the community</li> <li>• Media coverage is planned as part of the biodiversity surveys and establishment of long-term monitoring sites in the TS. The scope and makeup of the media coverage is up for discussion.</li> </ul>
3.1	Williams, S	JCU	Williams will present project results at the Ecological Society of Australia conference in Melbourne in Dec 2012. Williams will also work with Indigenous rangers in conjunction with EarthWatch as part of the next field sampling in March 2013
3.2	Crayn, D	JCU/ATH	Subject to acceptance by the journal, our NERP funded research may be published in one of the highest profile scientific journals (Proceedings of the National Academy of Science, USA).
3.3	Puschendorf	JCU	Nil to report
3.4	Wescott	CSIRO	None currently planned
4.1	Fabricius	AIMS	Too early to say; this is a complex study and we have only started 5 months ago.
4.2	Negri	AIMS	<p>A second meeting of the Pesticides and the Great Barrier Reef Working Group is planned for the first half of 2013. That meeting will focus on “end user” presentations.</p> <p>C. Collier will provide further updates, as relevant, through MMP regular meetings and annual integration workshop.</p>
4.3	Brodie/Kookana	JCU	PROJECT COMPLETED
4.4	Brodie	JCU	<p>We are yet to discuss the release of this report with the TSRA or the Councils, however it is expected that an overview of the project will be provided at the NERP TE Hub Conference in May 2013.</p> <p>Jon Brodie has been invited to attend a local meeting in early 2013 organised by TSRA but with bodies such as AMSA also in attendance to discuss potential shipping hazards in the Region.</p> <p>Eric Wolanski is in the process of preparing a paper on the hydrodynamic model that will be provided to the NERP team for</p>

			information.
5.1	De'ath	AIMS	Nil
5.2	Uthicke	AIMS	NERP Implementation workshop
5.3	Collier	JCU	Nil
6.1	Huepel	AIMS	Continued field efforts to deploy transmitters and download receiver data. More detailed analysis of animal movement data.
6.2	Simpfendorfer	JCU	None currently planned
6.3	Congdon/Steinberg	JCU/AIMS	<ol style="list-style-type: none"> <li>1. BC has been invited to participate in a joint Australian/New Caledonia Government Workshop to support effective conservation and management of the Coral Sea</li> <li>2. BC will visit Centre d'Etudes Biologiques de Chizé, France to facilitate collaborative publications and finalise a grant application for a joint project in the Coral Sea region</li> <li>3. BC will visit the School of Geography &amp; Planning, University of Queensland to undertake joint analysis and manuscript preparation</li> <li>4. BC will visit GBRMPA to undertake a one day workshop to finalise production of an in prep manuscript: <i>Conserving seabirds in the Great Barrier Reef under a changing climate: understanding vulnerability to inform management</i></li> <li>5. GBR Biodiversity Implementation Group meeting</li> </ol>
7.1	Metcalfe	CSIRO	<ol style="list-style-type: none"> <li>1. Submission of littoral rainforest mapping guidelines to (i) Matt White (SEWPaC Director of Ecological Communities) and Peter Latch (SEWPaC threatened species unit), and to WTMA, Queensland Herbarium, Terrain NRM and regional councils. Hold workshop with Terrain NRM to present to community groups at Mission Beach.</li> <li>2. Presentation on littoral rainforest and mahogany glider work to Wet Tropics Tour Guide Workshop (at Mission Beach) in March 2013.</li> <li>3. Present Mabi rainforest update to Mabi Advisory Group, and TKMG community group</li> </ol>
7.2	Murphy	CSIRO	Nil
7.3	Welbergen	JCU	Welbergen has agreed to present at the WT Guide School held at Mission Beach in March/April 2013
8.1	Sweatman	AIMS	NO ACTIVITY ON THIS PROJECT DURING THIS PERIOD
8.2	Russ/Williamson	JCU	Nil
8.3	Jones	JCU	Attend ARC Centre of Excellence Workshop on "Connectivity and the design of marine protected area networks", Magnetic Island, February 2013.
9.1	Anthony	AIMS	<p>A synthesis paper from the international resilience workshop on Fitzroy Island will be submitted to a high-profile journal in the coming month.</p> <p>We plan to hold a workshop in Townsville in February or March 2012 to showcase the spatial vulnerability framework. The purpose will be two-fold. Firstly to engage researchers around solving problems associated with complex scenario testing; and secondly to engage stakeholders around opportunities for optimal decision-making. We hope to hold a second workshop focused on collaborating with SEWPAC on broader management and policy decision-making in mid-year in Canberra. A second paper presenting a novel operational metric for reef resilience will be submitted in January.</p>
9.2	Dichmont	CSIRO	The project will start developing relevant objectives as a Hierarchy for Mackay. It will start qualitative modelling and developing objectives for the Bowen/Burdekin region. At this stage, much of the output would not be of potential media interest.
9.3	Pressey	JCU	<p>A meeting is planned between the Townsville-based GIS analyst and Perth-based government staff during a conference in Perth in late November to discuss issues relevant to both projects.</p> <p>Further workshops and meetings will be planned as needed.</p>
9.4	Pressey	JCU	<ul style="list-style-type: none"> <li>• In April 2013, there will be the last of three ACAES meetings on catchment to coast management where a paper on an operational model for integrated catchment management for three northern catchments and selected GBR catchments will be finalised. During the last meeting, the use of network analysis to analyse further the GBR coast governance was discussed and</li> </ul>

			<p>will be trialled prior to this meeting where the use of this tool will be discussed and assessed.</p> <ul style="list-style-type: none"><li>• Identification of case studies and their defined extents</li><li>• Report on land use change GBR coast workshop along with description of scenarios and final proposed land use change method will be produced and sent to all stakeholders who have participated in previous workshops and to the reference group for comments.</li><li>• Draft publication on coastal zone definition and significance</li></ul>																		
10.1	Marshall	CSO	<p>Outputs for SELTMP for the next reporting period</p> <table><tr><td>1. Steering Committee meeting</td><td>By 1 June 2013</td><td>Will provide date and minutes of meeting</td></tr><tr><td>2. Survey – Recreational users</td><td>By 1 June 2013</td><td>2000 surveys completed across 6 regions</td></tr><tr><td>3. Survey - Tourists</td><td>By 1 June 2013</td><td>2000 surveys completed across 6 regions</td></tr><tr><td>4. Survey – Tourism operators</td><td>By 1 June 2013</td><td>100 surveys completed across 6 regions</td></tr><tr><td>5. Survey – commercial fishers</td><td>By 1 June 2013</td><td>100 surveys completed across 6 regions</td></tr><tr><td>6. SELTMP 2012</td><td>By 1 June 2013</td><td>Secondary data only incorporated. Design improved</td></tr></table>	1. Steering Committee meeting	By 1 June 2013	Will provide date and minutes of meeting	2. Survey – Recreational users	By 1 June 2013	2000 surveys completed across 6 regions	3. Survey - Tourists	By 1 June 2013	2000 surveys completed across 6 regions	4. Survey – Tourism operators	By 1 June 2013	100 surveys completed across 6 regions	5. Survey – commercial fishers	By 1 June 2013	100 surveys completed across 6 regions	6. SELTMP 2012	By 1 June 2013	Secondary data only incorporated. Design improved
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10.2	Stoeckl	JCU	<p>The project team will continue to meet regularly (although this will not be of media interest). A 2-day 'retreat' has been scheduled for February 2013 where the team will discuss the tourism aspects of the project. The primary aims are to:</p> <ol style="list-style-type: none"><li>1. <i>Explore the idea of trying to combine some of the data collected under MTSRF with that collected under NERP --- perhaps using some of NATSEM's ideas about 'synthetic data sets'. This will also require researchers to play with data a bit, looking for relationships between socio-demographic variables and other data.</i></li><li>2. <i>Sketch out some ideas for publications, working out:</i><ol style="list-style-type: none"><li>a. Approximate content of each article</li><li>b. Who has responsibility for 'driving' (and hence being lead author) on which articles</li></ol></li><li>3. <i>Determine:</i><ol style="list-style-type: none"><li>a. The types of information that needs to go into the tourism questionnaire for the 2013/2014 financial year. An obvious option here is to continue the idea of having more than one questionnaire (minimising number of pages of each)</li><li>b. How/where researchers should 'sample' during the 2013/2014 financial year (this will require researchers to spend some time checking for statistically significant differences in responses/respondents collected at different locations).</li></ol></li><li>4. <i>Devise some recommendations about:</i><ol style="list-style-type: none"><li>a. What might be usefully included in the GBRMPA's longer-term 'tourism monitoring' survey (and perhaps also some of their community monitoring surveys)</li><li>b. Sampling for GBRMPA's longer-term monitoring program</li></ol></li></ol> <p>Importantly, researchers will then meet with Nadine Marshall and others involved in the SELTMP –to discuss ideas developed under points (3) and (4) above. The overall aim of this meeting will be to determine how best to blend our ideas (and perhaps also our data and planned data collection activities for 2013/14) with theirs to benefit the long-term monitoring program.</p> <p>Researchers also plan to hold a one-day workshop (on Mar 26) to discuss and plan publications that focus primarily on the water quality issue. This will not only discuss data and ideas from activity C (activities A and B have also generate much data relevant to water quality).</p>																		
11.1	Butler	CSIRO	<p>The Steering Committee has suggested that the first workshop results should be presented to the new TSRA Board and Torres Strait Island Regional Council.</p>																		

11.2	Laurance	JCU	Nil
12.1	Hill	CSIRO	Participatory workshop to evaluate status of Indigenous co-management in the Wet Tropics in April 2013
12.2	Catterall	GU	<p>The following presentation may be made to national scientific conferences (tbc):</p> <ul style="list-style-type: none"> <li>- Returning forest to degraded tropical land on a budget. 2012 Australian Frontiers of Science: Science for a green economy, Australian Academy of Science, Sydney, December 2012 (Luke Shoo).</li> <li>- Can revegetation projects rescue rainforest bird communities? Ecological Society of Australia annual conference, Melbourne, December 2012 (Carla Catterall).</li> </ul>
12.3	Stoeckl	JCU	<p>The project team will continue to meet regularly during the preparation stages and while refining the questionnaires. Once draft questionnaires have been finalised, the team will conduct another workshop in Cairns to test elements of the surveys in terms of clarity, relevance and importantly to ensure that aspects identified in the first workshops are fully integrated.</p> <p>The team will also pre-test the surveys amongst 'live' tourists and local residents, and develop an appropriate sampling strategy for these groups.</p>
12.4	Dale	JCU	<p>Formalised project communications are planned to continue as above for the next milestone period, but also may include a planned presentation at the Seattle Climate Change Adaptation Conference.</p> <ul style="list-style-type: none"> <li>• <i>Regular meetings with the National NRM Working Group;</i></li> <li>• <i>Several formal meetings with appropriate DCCE, SEWPAC and DEH/DNRM representatives;</i></li> <li>• <i>Participation and communication with the five north Queensland Regional NRM Bodies concerning climate change adaptation via the RIRDC Funded Regional Transformation Project;</i></li> <li>• <i>Community scale briefings and presentations;</i></li> <li>• <i>Effort alignment with and ACEAS Project concerning spatial planning within northern Australia;</i></li> </ul>
13.1	Lawrey	AIMS	<ul style="list-style-type: none"> <li>• Attend all four implementation group meetings in February 2013.</li> <li>• Attend and present at the NERP-TE conference.</li> <li>• Meet with project leaders that have project data ready for submission to the e-Atlas.</li> <li>• Training workshop of the Torres Strait Workshop.</li> </ul>

