



# Summer Estuary Workshop Series

## 2. Greenough River Estuary

Workshop held on 29th November 2012 at the QEII Centre, Geraldton.

Attendees: Dr Mic Payne, Tegan Clarke, Ashley Robb, Kym Jefferies, Rolan Deuterkom, Mark Canny (NACC), Dr Malcolm Robb, Michael Johnson (Dept of Water), Rob Ronan (Aboriginal representative), Konrad Seidl, Mike Dufour, (City of Greater Geraldton), Suresh Job, Colin Johnson, Alice James (Durack Institute of Technology), Jim Sorgiovanni, Yvonne Marsden, Sherry O'Brien, Barbara McKinnon, Stan Gratte, Sally Vigilante (community representatives).

Apologies: Robyn Nicholas, Irene Ghannage (CGG), Donna Rayner (Migenew Irwin Group)

### Workshop goals

- Raise community awareness of the issues associated with the Greenough River Estuary (GRE);
- Record estuary values important to the community;
- Identify threats to the estuary and possible solutions to mitigate these issues.

### Summary of presentations

The Greenough River Estuary - Dr Mic Payne (NACC) and Dr Malcolm Robb (DoW)

- Estuaries represent transition zones between rivers and the sea; they are very dynamic and biologically productive with complex food webs, but are generally not very diverse;
- Australian government database, OzCoasts (<http://www.ozcoasts.gov.au>), have adopted a general definition of estuaries as "semi-enclosed bodies of water where salt and freshwater meet";
- The GRE is classified as a wave-dominated estuary, which means that ocean-derived sediments tend to deposit at the mouth to form a sand bar;
- Deposition of ocean-derived coarse sediment occurs at the estuary mouth, while fine land-derived sediments are deposited in the upper estuary;
- Flow in the GRE is maintained by significant groundwater inflow, although decreasing rainfall in the region is reducing flushing;
- Lack of regular flushing results in nutrient accumulation, nutrients can come from a range of sources including agricultural run-off (in surface water or groundwater), urban development (garden fertilisers, septic tanks) and leachates from catchment geological formations;
- The GRE has a relatively high background level of nitrogen suggesting a geological source, however agricultural run off has elevated the levels of nitrogen and phosphorus considerably ;
- The GRE supports significant fish populations, including recreationally important species such as black bream, mulloway and mullet;
- A number of significant fish kill events have occurred in the recent past, although determining the precise cause of these kills is often very difficult;
- Prawns could be caught in large number in the past;
- Up to 2005, the Dept of Water regularly monitored water quality in the GRE but this no longer occurs;
- A commercial tour operation no longer operates.





#### Aboriginal perspective - Rob Ronan (Amangu representative)

- Robs grandfather was one of the last initiated tribal men in this region;
- Rob and his family have a very long association with the GRE;
- Extensive middens are located in the dunes around the GRE and Rob has located artifacts including a ball of sap used as traditional medicine;
- A freshwater spring used to be evident near the estuary mouth but is now difficult to locate.

#### Off Road Vehicles (ORV) - Konrad Seidl (CGG)

- There is considerable contemporary and historic use of ORVs around the GRE;
- The City of Greater Geraldton has reviewed its Natural Area Local Laws as they relate to ORVs and this process is about 75% complete as of November 2012;
- Difficulties encountered during the review include vocal user groups and varying land tenure, CGG local laws only apply on shire reserve;
- Next steps include continued liaising between shire rangers and police, empower local community groups (eg NatureWatch), complete Law review, develop Natural Area Advisory Groups and investigate Gazetted areas for ORV use.

#### Revegetation projects - Michael Dufour (CGG)

- The Cape Burney Progress Association used to be involved in land restoration works, but is no longer active;
- African boxthorn is a major weed around the GRE and persists despite numerous eradication programmes;
- Recent projects include fencing blowouts and formalizing tracks on the southern side of the estuary mouth.

#### Batavia Coast Marine Institute – Dr Colin Johnson (Durack Institute of Technology)

- Current project to stock 5,000 black bream into both the GRE and the Chapman River estuary;
- Local broodstock will be used and community stewardship will be encouraged;
- Students are currently involved in environmental monitoring of the Chapman and Greenough Rivers, including fortnightly water quality, invertebrate and macrophyte sampling.

## Community values

#### Workshop attendees attributed the following values to the GRE;

- Recreational – fishing, boating, walking;
- Educational resource – Batavia Coast Marine Institute;
- Natural amenity;
- Bird watching;
- Aboriginal culture/heritage.

## Community concerns

At the conclusion of the workshop attendees were invited to complete a feedback survey. A Feedback Report is included as Appendix A.





## Conclusions

Nutrient levels in the GRE are high compared with other estuaries in the Northern Agricultural Region resulting in decreased water quality and probably contributing to past fish kill events. Lower rainfall in the region means that the estuary is not receiving as much flushing as in previous times, contributing to water quality issues. BCMI has commenced regular water quality monitoring by students as part of its courses. High recreational use of the GRE requires the City of Greater Geraldton to focus on managing impacts from this use, primarily off road vehicles. Weeds, particularly the African Boxthorn, are prevalent in the riparian vegetation.

The GRE is greatly appreciated by the local community for its recreational values, particularly boating, fishing, walking and driving (off road vehicles). BCMI also values it as an educational resource. Three community concerns regarding management stand out, these are;

- Catchment management, including reducing nutrient runoff from agricultural land and improving water quality;
- Protection and revegetation of riparian zones, including weed control;
- Management of off road vehicles and other recreational activities around the estuary.

This workshop supported by;



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## Appendix A : Greenough Estuary Feedback Report



Figure 1: Workshop participants measuring salinity of the Greenough River Estuary, 29<sup>th</sup> November, 2012, Geraldton, Cape Burney, (photograph: NACC)

Geraldton, January 2013

Author: Rolan Deutekom, Social Science Research Officer at NACC





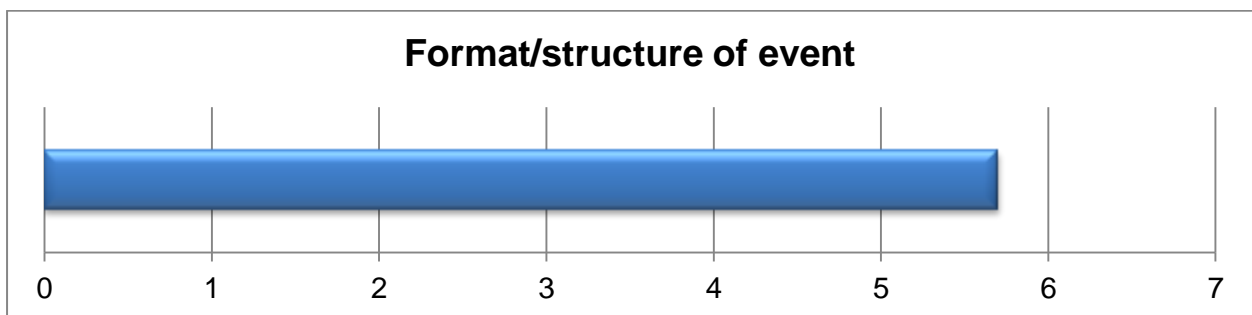
## Introduction

A summer estuary workshop on the environmental value of the Greenough estuary was conducted in the Northern Agricultural Region (NAR). A total of 16 participants attended the workshop, from state government, local government and community organisations.

Funding for these workshops was provided by Caring for Our Country and the Northern Agricultural Catchments Council (NACC). The workshop aimed to engage the coastal community in raising awareness of the role of estuaries in our coastal environment and issues associated with estuary management. Community feedback was recorded via feedback forms distributed at the end of the workshop.

Fourteen respondents filled in a survey, but not all respondents filled in all questions.

### Question 1: How do you rate the format/structure of this event?



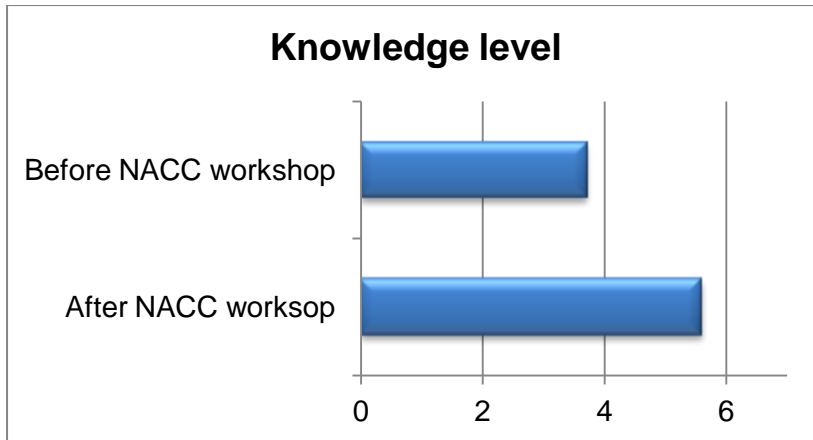
Thirteen respondents answered this question. Most respondents rated the format/structure of the workshop as very good. Three respondents provided the following comments:

- Very well presented
- Difficulty with light regard to screen protection
- Good timing with varied guests





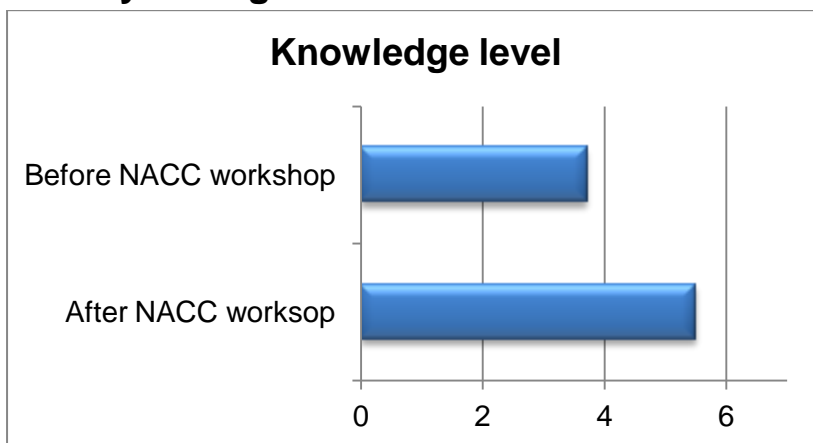
**Question 2: Please indicate your knowledge level on the environmental value of estuaries:**



Fourteen respondents answered this question. They indicated a  $(5.6 - 3.7) / 3.7 * 100\% \approx 51\%$  increase in knowledge. Four respondents provided the following comments:

- Learnt plenty, lots more to learn (mentioned three times)
- Most informative

**Question 3: Please indicate your knowledge level on issues relating to estuary management:**



Fourteen respondents answered this question. They indicated a  $(5.5 - 3.7) / 3.7 * 100\% \approx 49\%$  increase in knowledge.

Three respondents provided additional comments:

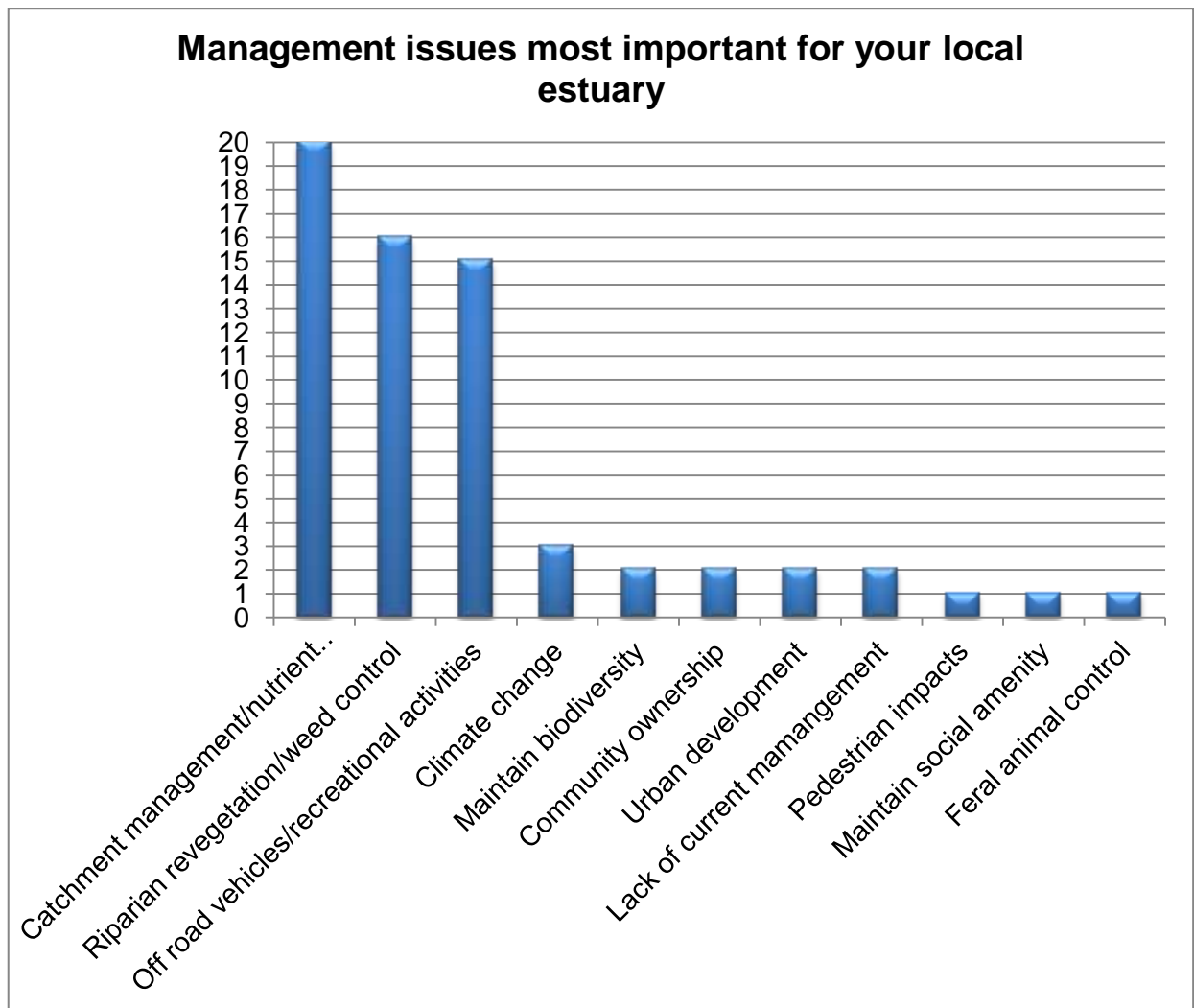
- Have been involved for several years. Catchment management still high impact.
- I have noted a vast change in management knowledge over many years of my interest.
- Good to see collaborative management.





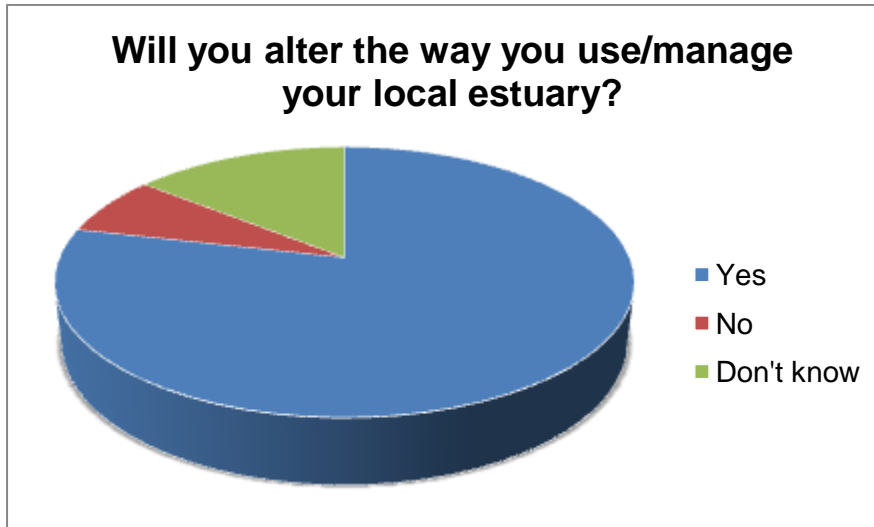
**Question 4: Please rank (in order of priority) three management issues you regard as most important for your local estuary:**

This question was answered by fourteen respondents. They were asked to rank the most important management issues in three different priority groups. Any issues mentioned in the highest priority groups were scored with a 3, followed by a 2 for the second group and 1 for the last group. Following this strategy the issues of Catchment management/nutrient runoff/water quality was mentioned as most important (20 points), followed by Riparian revegetation/weed control (16 points) and Off road vehicles/recreational activities (15 points).





**Question 5: Would you alter the way you use/manage your local estuary as a result of this workshop?**



Fourteen respondents answered this question. Eleven respondents indicated 'yes', two 'don't know' and one 'no'.

**Question 6: Would you share information learned at this workshop with others?**

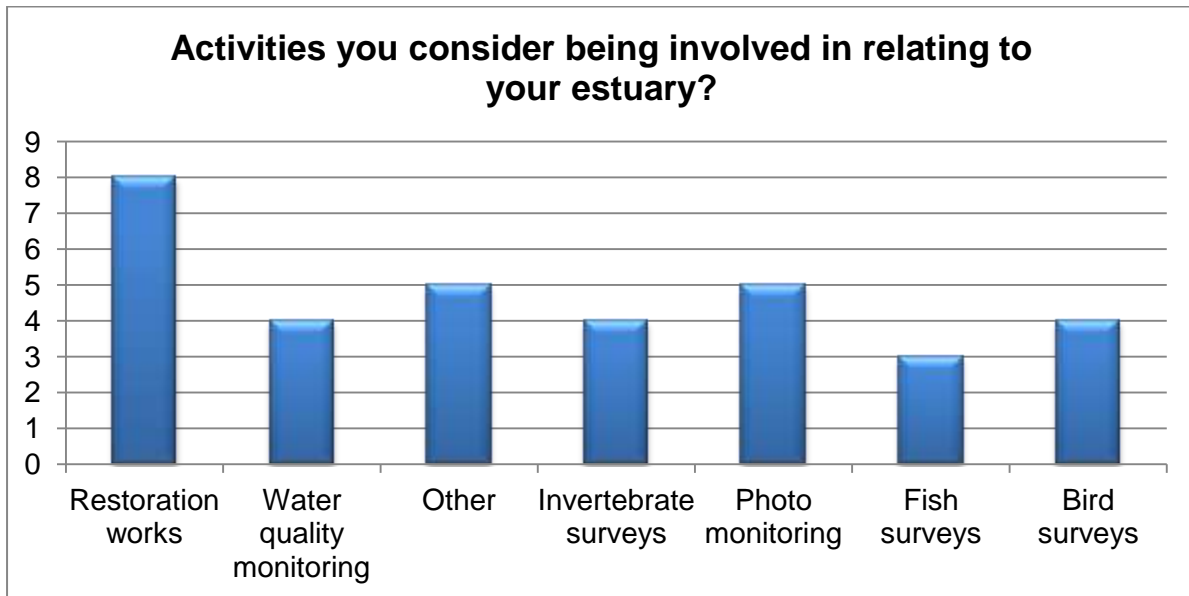


Fourteen respondents answered this question and all indicated that they would share information with others.





**Question 7: Would you consider becoming involved in any of the following activities relating to your local estuary?**



Thirteen respondents answered this question. Their answers can be found in the above graph. Five respondents indicated "Other". Their detailed comments can be found below:

- Foreshore condition assessment.
- Invite local people to be involved.
- Grant funding projects.
- Balancing the environment.
- I'm too old unfortunately.

**Question 8a: What was the one thing you enjoyed most about this event?**

Fourteen respondents answered this question. Their answers can be found below.

- Wonderful, informative presentations from different perspectives (mentioned four times)
- Enjoyed it all (mentioned two times).
- Indigenous viewpoint and maps (mentioned two times)
- Format was lively and engaging.
- Interaction of like minded people and general learning.
- CGG informing us about ORV management.





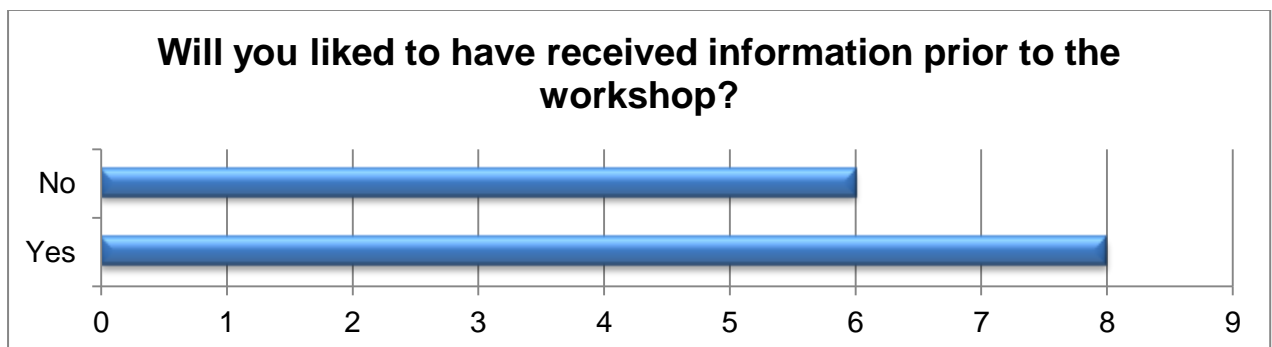
- More understanding of estuary life.
- Learning of the improvements in the environment.
- Learning something new.
- Networking opportunities.

### Question 8b: What was the one thing you enjoyed least about this event?

Nine respondents answered this question and their answers can be found below.

- Moving rooms (mentioned four times)
- Lighting in facility, implication on screen etc. (mentioned four times)
- Slightly slow pace.
- A bit too many presentations.
- No real solution in managing catchment.
- Hard for me to retain knowlegde just through listening. Suggest more interaction - looking forward to the walk this arvo.

### Question 9: Would you like to have received relevant information to read prior to the workshop?

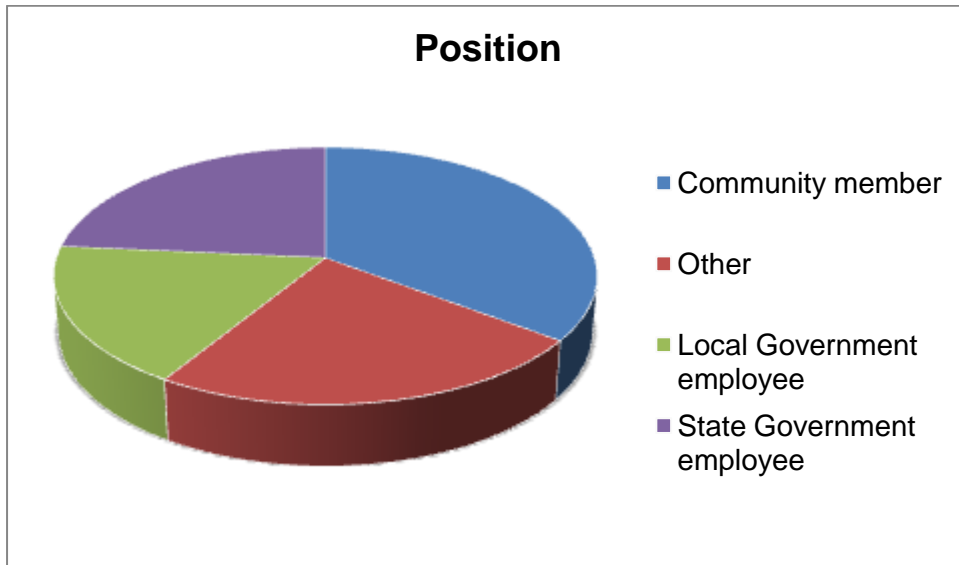


Fourteen respondents answered this question and their answers are depicted in the above graph.





### Question 10: Please indicate your position:

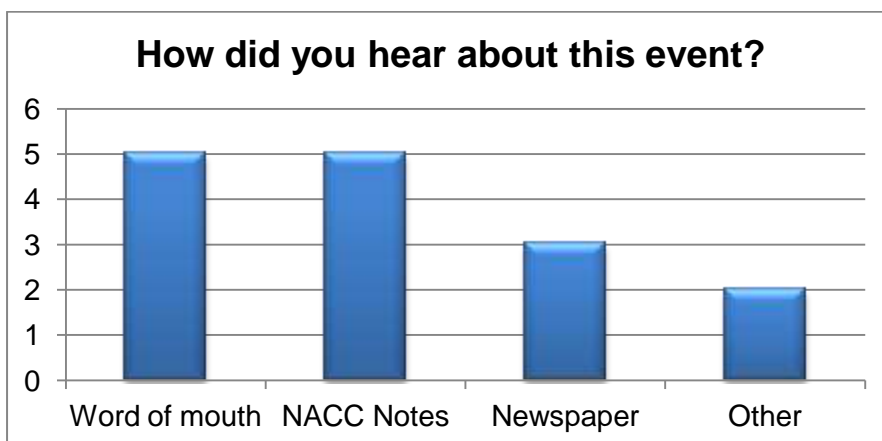


Fourteen respondents answered this question. Six people identified themselves as community members. Three respondents as Local government employee, four as a State Government employee and four as 'other'. The detailed responses to the category 'other' can be found below:

- Member of Wonthealla Progress Association
- NACC'er
- Interested person/birdwatcher
- NRM

### Question 11: How did you hear about this event?

Fourteen respondents answered this question and their answers can be found in the graph below.



Two respondents mentioned 'other'. Of these respondents one elaborated and stated 'email'.





## Question 12: Other comments?

- Five respondents answered this question and their answers are depicted below.
- Very interesting - I am keen to read/research more with regard to estuaries
- Well done Mic and Tegan, great job!
- Keep up the good work. Engage more young people (schools?)
- Well organised. Wish I could attend others. Would like to see follow up action workshop.
- I think you should approach local schools to become involved in your reveg and monitoring projects as they all do environmental studies and local monitoring would develop ownership. Another idea for community engagement is addressing retirees who have time on their hands and are not "past their use-by dates".

## Conclusion

The workshop was well attended by local and government agency staff, however community representation was low, most likely because the workshop was held on a weekday. Workshop participants considered the workshop format good and increased their knowledge on the environmental values of and management issues for estuaries. Management concerns focused mainly on issues relating to improved catchment management and the riparian environment, namely off road vehicles, revegetation, weed control and erosion. Participants indicated a willingness to change how they use/manage the estuary, a willingness to share workshop information with others and to get involved in community-based activities. Just over half respondents would have liked background material to read prior to the workshop.

