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PLACE-BASED SOCIAL VALUES OF THE POPULATION OF THE LESCHENAULT INLET AND ESTUARY DISTRICT IN 2012
Sandra Wooltorton and Fran Steele

A comprehensive study of the place-based social values of the population of the Leschenault Estuary district in 2012 is reported in this chapter. The key question was: What are the place-based social values of the population of the Leschenault Estuary in 2012?

These photographs illustrate a selection of the place-based social values of the population of the Leschenault Estuary district in 2012. They include kayaking (top left, photograph: Chris Tate), an education activity (top right, photograph: Terry Wooltorton), kite surfing (centre left, photograph: Chris Tate), bird watching (centre middle, photograph: Chris Tate), crabbing (centre right, photograph: Chris Tate), boating (bottom left, photograph: Chris Tate), wind surfing (bottom right, photograph: Chris Tate).

For consistency in place-name references, an earlier version of the map below was provided as part of data collection. (The hard copy of the survey which includes the map is appended at the end of this report.)

Plate 32: Map shows Leschenault Estuary and Inlet, adapted from the Leschenault Inlet Management Authority (1993). Thanks to George Mardon and Mike Whitehead for their advice on place-locations, and to Tu Ly for graphic design.
The purpose of this chapter is to present the quantitative results of the 2012 place-based social values study of the population of the Leschenault Estuary district. There are three sections: method; findings; and an interpretation of the outcomes.

4.1 Research Method
A mixed quantitative and qualitative survey was designed following consideration of other place-based social values studies and after consultation with stakeholders. The survey instrument was extensively trialed and amended before being distributed in hard copy and online via the electronic platform: Qualtrics. The survey was open for public participation for a period of 12 weeks, between 17 July 2012 and 15 October 2012. 947 survey responses were received by the electronic close-off date. For ethical reasons there was no participation incentive such as entry in a prize draw. As completed hard copies of the survey were returned to the research team, the data was entered into Qualtrics and combined with data from the electronic survey; the results do not differentiate between data sources. Of the 947 surveys, 753 were completed and the average number who completed any particular question was 620.

This section briefly reviews the relevant research literature before discussing the instrument, the method, the implementation strategies used and the issues encountered. This chapter presents only the analyses of the quantitative data. The qualitative data is presented in the following chapter.

4.1.1 Literature Review: Method
A review of methods used to conduct place-based social values studies was conducted. Summaries of five studies are presented here: Community survey of future values and aspirations for the Swan and Canning Rivers (Research Solutions, 2007); Measuring change in place values using public participation GIS (G. Brown & Weber, 2012); Mapping Place Meanings on the Bitterroot National Forest – a landscape-level assessment of personal and community values as input to fuel hazard reduction treatments (Gunderson et al., 2004); Mapping the social landscape values of New Zealand (G. Brown & Brabyn, 2012); and Health and the nature of urban green spaces (Carter, 2009).

Community survey of future values and aspirations for the Swan and Canning Rivers
Research Solutions (2007) used focus groups and a telephone survey of 400 people to explore and measure river values and aspirations amongst Perth community members. The social values assessed were: ecosystem health and biodiversity, recreation, landscape, culture, navigation, fishing and water supply. The key findings were that the rivers were seen to be a significant feature of Perth's recreation, social and cultural landscape. In terms of overarching attitudes, the highest priorities were the rivers' natural areas and overall health.

Aspirational values included water recreation such as swimming, and walking and cycling access all the way around the rivers; as well as fishing, including the availability of fish, prawns and crabs that are healthy enough to eat. The rivers were regarded as an intergenerational resource for children of the future to experience river play in a similar way to present and past generations. Attitudes towards commercial development were mixed, and those living nearest the rivers were opposed to more cafes and kiosks along the river foreshore. However, there was strong approval for 'nodal' developments such as East Perth away from the shore rather than along the foreshore. This study seemed to regard those living within 5km of the foreshores as 'locals', who tended to visit the rivers more often. Overall, respondents deemed water quality to be the highest priority for the rivers, followed by the protection/conservation of flora and fauna and recreational opportunities.
Measuring change in place values using public participation GIS

Brown & Weber (2012) conducted two studies of place-values on Kangaroo Island, South Australia – a baseline study in 2004, and another in 2010 to measure changes in the importance and spatial distribution of landscape values. The study commenced by defining as landscape values, those that are variously called place values, forest values, environment values, ecosystem values or wilderness values. Brown & Weber (2012) refer to ‘held’ values and ‘assigned’ values. Held values are important to people and form enduring beliefs about a mode of conduct or particular end state, such as valuing pristine natural areas over built human environments. Assigned values include the attribution of a held value to a particular environmental feature, such as a particular area of scenic beauty. A typology of 13 landscape values was used, comprising: aesthetic, recreation, biodiversity, life-supporting, economic, learning, historic, cultural, future, intrinsic, spiritual, therapeutic and subsistence.

Public Participation GIS (PPGIS) merges participatory action learning and GIS mapping, and is similar to the process of mapping of traditional cultural and ecological knowledge of Indigenous people. The 2010 study involved inviting the original participants to the new study. Participants were asked to place particular descriptors of landscape values on places on the map, to show meaning for them. By comparing the difference in spatial distribution of markers between the two studies, change can be calculated. With the qualifier that a reduced number participated in the 2010 study, there were relatively few changes. Aesthetic and recreation values were the most important in both studies. Biological and life-sustaining values appeared to have slightly increased, while economic values slightly decreased. Changes in landscape value did occur around a major tourist development though, showing that altering physical landscapes at small and large scale invariably change landscape values, and that land use conflicts are invariably conflicts over particular human values.

Mapping place meanings on the Bitterroot National Forest – and landscape-level assessment of personal and community values as input to fuel hazard reduction treatments

This study of the people of the Bitterroot Wilderness in Ravalli County, Montana (Gunderson et al., 2004) was conducted some time after a forest fire devastated houses, property and 350,000 acres of Bitterroot forest in an area that depended upon the forest for its sense of place, aesthetic values, tourist values and identity. People had been connected to their locality through a strong sense of their place in nature. Their dreams – and life-savings – had been connected to their homes, their properties and the land around them.

The Bitterroot watershed, river, mountains and wilderness had been undergoing human population change due to evolving attitudes to forestry, which had commenced scaling down operations in 1969. Before the fire, the area had been experiencing an influx of new people and the population was sustained by a variety of economic activities. This meant that rebuilding following the fire demanded development of a new relationship with nature, which included regarding people as part of nature and now, as part of fuel hazard reduction. Thus, the intention of the research was to understand the relationship between people and place, firstly because there was a severe lack of trust between the people and the Forest Service in making decisions that affect local values, and secondly because there was a need to modify forest stewardship practices.

The first objective of the study was to more accurately understand meanings and values attached to Bitterroot places, while the second objective was to “integrate places, their meanings, uses and landscape values into existing ecological modeling to include the relationship between humans and the Bitterroot Front as a basis for evaluating alternative fuel hazard treatments” (Gunderson et al., 2004, p.2). Several methods
to achieve these were developed. Participants were asked to circle places on a map and explain meanings and impact of fire treatments, to enable construction of a data base on human values about places. Interdisciplinary teams used anthropological methods to visit a locale and in a few days collect triangulated information using semi-structured interviews, focus groups and key informant focus groups. Gunderson et al., (2004) question the reliability of quantitative surveys since people tend not to explain their views.

**Mapping the social landscape values of New Zealand**

This study mapped social landscape values across New Zealand and compared their attribution to physical landscape features. A correlation was evident. In their introduction, the authors state: “The mapping of social landscape values reveal human connection to place and the complexity of human/landscape relationships that may paradoxically, seek to exploit and degrade land in one location while protecting and preserving it in another” (G. Brown & Brabyn, 2012, p.84). The method used was Public Participation GIS (Geographic Information Systems), which in this case began with a typology of 13 landscape values (listed previously, on page 81 in the method review titled: “Measuring change in place values...”). There are seven regions in New Zealand and a separate data-gathering website for each one was produced.

People were then invited into the project by mail on a random selection basis. They were supplied with a google maps application and on-screen they used it to drag and drop values markers to places. After this phase was completed, the data was compared to the landscape classification data, which produced a correlation. Hence the study shows that landscape classifications tend to be associated with human landscape values. Generally, high value areas are protected conservation areas including national parks, reserves and recreation parks. The important question they ask in conclusion is: in landscape changes, anthropogenic or of other origin, which human values will be affected?

**Health and the nature of urban green spaces**

This PhD research (Carter, 2009) used a mixed-method design to determine whether there is any relationship between engaging with nature in urban green spaces, and human health. The study aimed to discover whether people’s attitudes to nature influence their perception of nearby green spaces, and whether people who have positive attitudes to nature and positive perceptions of nearby green spaces, also have better health. The study design involved a cross-sectional survey after which respondents were invited to participate in a semi-structured interview. 440 surveys and 25 interviews were analysed.

The findings were that feelings about nature did influence perception of green spaces. People with positive views about nature tended to appreciate and care for their urban green space. In some cases, this was the basis upon which the suburb was selected to live in. Finally, there was a connection between appreciation of urban green spaces and health. People who appreciated green spaces saw their places as healthier. The urban green spaces enabled socialisation, walking and exercise, and these people reported better general health, mental and emotional health, and feelings of energy and liveness.

Along with stakeholder requirements, these five studies influenced the design of the current study and the rationale for some of the survey questions. Key points taken forward were as follows:

a) People assign values and meanings to places.

b) Respondent-location in relation to the place being studied is likely to be significant.

c) Natural areas and environmental health were prioritised by respondents in each of these studies.

d) There is a wide range of definitions, terminology and classifications for place-based social values.

e) It is likely that ‘held’ place-based social values do not change much over time, but ‘assigned’ values – those attributed to specific places – do change with land-use modifications.
f) Depending upon their attitudes to nature, green spaces can affect people deeply and have positive health-based consequences.
g) Quantitative and qualitative data collection methods used together can produce reliable and descriptive data about place-based social values.

4.2.2 The Instrument and Implementation

The hard-copy version of the study instrument has been placed at Appendix One at the end of this report. The online survey used identical questions to the hard copy version, but had a different appearance due to the Qualtrics platform structure. The survey dispersal method was public distribution and easy availability combined with multi-media promotion. A website was created at http://www.leschenaultproject.org.au to enable online access. This was followed by extensive promotions. Construction of a Facebook site at http://www.facebook.com/LeschenaultProject was launched in early August, 2012 and enabled daily use.

During the data collection period Edith Cowan University produced three media statements that were published in local newspapers and widely circulated by email, by university websites, by the project partners and by a wide range of local organisations which supported the project. Project advertisements were published in local newspapers, letters were written to the Editor of the South West Times and a full article was published in the South Western Times in early August 2012, in the Bunbury Dolphin Centre column.

Each project partner promoted the electronic survey independently and extensively. Volunteers also forwarded emails through their distribution lists, and several organisations including the WA Science Network produced online news articles for their distribution lists. (For example, see http://www.sciencewa.net.au/topics/environment-a-conservation/item/1655-leschenault-estuary-future-hinged-on-survey-data.html.)

The project convenor was interviewed on 7th August on ABC South West morning radio by announcer Ron Tate. Perry Home, the 6.30AM South West ABC radio Saturday morning leisure fishing announcer spoke for over three minutes promoting the survey on Saturday 15th September. Several small public presentations about the project were made by the project convenor, with one larger one to an audience of about 35 Bunbury Rotarians.

Distribution points for the survey hard copies were advertised in the papers and A3 flyers were posted on notice boards around the University, in the Bunbury City Library, the Australind library, the Withers library, Sports Marine Boat Centre in Strickland Street Bunbury, the Bunbury Dolphin Centre and the Bunbury City Council. Each of these organisations also held copies for public distribution, and worked as collection points for surveys. These were picked up weekly by volunteers then returned to the University for data processing. In addition to this, five volunteers distributed flyers promoting the project in letterboxes in their local areas within the study location, and others took surveys with them on their daily routines – such as walking along the estuary – and invited passers-by to take one.

Whilst this sounds like extensive promotion, it does not imply that everyone in Bunbury knew about the project. Unfortunately it proved very difficult to get the message about the survey to people. Distribution of messages through newspapers and other media outlets and prominently placed posters does not mean that people will read or even notice them. For example in the last week of the survey data collection period, a morning walk along the Inlet by the project convenor to hand out leaflets revealed that only two of the ten people had heard of the project (and both had forgotten to do the survey so took leaflets to follow up the
discussion). Several weeks after the survey data collection period had closed people were still finding out about the project and requesting survey copies.

Other project promotion difficulties were associated with the three other Leschenault Estuary or Inlet-related projects that were open for data collection at the same time. The most confusing one for potential Bunbury participants was the Bunbury City Council consultation study about the future development of the Inlet foreshore near the Central Business District. There was also a Ridley Place consultation conducted by consultants to Harvey Shire Council to determine how Australind locals would like to see the Ridley place Estuary foreshore developed. Finally, there was an Aboriginal Cultural Mapping exercise taking place at the same time. All these projects considered together helped to make the current research context quite complex in terms of promotion and attracting people’s attention.

Many people who were invited to participate in this survey, particularly older people, confidently advised volunteers that they had completed a survey but further questions revealed that they had in fact participated in one of the other studies. It is not known how common this project confusion was. Further to this, a very small amount of research resistance was detected, but it cannot be ascertained how widespread this was. One email message stated in essence that social research on the population of the Estuary district is a waste of money, because it is procrastination and the money should have been used to fix the health of the estuary instead. Another message left on the Project’s Facebook site declared that the survey was too biased to make it worthwhile for the individual to bother completing it.

The final issue, caused by an oversight, was that the hard copies of the survey did not include the due date. Whilst the electronic distribution methods were able to publicise the closing date, there was no way to let people who had already collected a hard copy know to return them quickly. Whilst there could not be any quantitative analysis of the 52 late ones received (as at November 30th, 2012), a light analysis of their qualitative sections was completed to ensure there was no perspective that was not already represented.

In conclusion, this section described the method, the distribution mechanisms, the promotion strategies and some associated issues. The survey comprised a mixed quantitative and qualitative instrument, available both online and in hard copy format. A large multi-modal media campaign widely promoted survey availability and distribution points in both electronic and hard copy format. Issues were: bringing media notices to people’s active attention; competition from other Leschenault Estuary and Inlet social surveys being conducted simultaneously; some resistance to research and the accidental omission of the due date from the hard copies.

4.1 The Quantitative Study
This section presents the quantitative data, together with analysis and discussion. The respondents’ background is presented first followed by their relationship with the Estuary and Inlet. The final sub-section reports respondents’ opinions on a range of place-based issues.

78 Statistically, the late submissions would not make a difference to the outcomes.
4.2.1 Demographic Data
Questions 10 – 17 asked respondents information about their gender, heritage, age, residential area and residential status. This is presented first, to provide an understanding of the people who contributed to the study.

**Gender, Heritage and Residential Status**
Respondents comprised roughly similar numbers of males and females and there was not a significant variation between male and female responses to any question. Therefore male and female data has been aggregated. Two percent of the respondents said they were of Aboriginal heritage, which is roughly similar to the composition of the general population. However the number of responses in this category is not a representative sample for extrapolating responses, therefore these responses have not been differentiated. Eighty six percent of the respondents stated they were residents, and 13% indicated they were regular visitors. The remaining 1% said they were one-off visitors.

**Age**
Seventy six percent of the respondents said they were over 36 years of age, of whom 55% were over 45 years of age. Only 11 responses were received from the group who were under-18 years old, so those responses cannot be used to represent that group. Similarly, the 18 – 25 age range is not well represented in the data set. Representatives of the latter group participated in a focus group which compensates this statistical weakness in the study overall, whilst a group of school children participated in an innovative photo-elicitation qualitative study.

**Locality of Residence and Residential Area**
Twenty seven percent of the respondent group stated that they live within 499 metres of the Estuary or Inlet. Altogether 58% of the respondent group said they live within two kilometres of the Leschenault Estuary or the Leschenault Inlet. Even though this survey was advertised across Greater Bunbury in news media and public outlets such as libraries, the greatest response rate was from the group of people who live nearby. Interestingly, over half of the respondents lived in the residential corridor east of the Leschenault Estuary.

**Length of Residence or Regular Visitation in the District**
Whilst 36% of the respondents stated they have lived in or regularly visited the district for more than 20 years, it is of interest that another 36% of the respondents have lived in or regularly visited the district for 10 years or less. It is clear that the respondents are a mixed group of newer and older residents of the district.

**Occupation**
Forty six percent of the respondents nominated their occupations as manager or professional, and 18% stated they were retired or unemployed. Twelve percent of respondents stated they were a technical and trades worker. Altogether 64% of the respondents stated they were professionals, managers or retired/unemployed.

4.2.2 Place-Based Social Values
Questions one, two and four asked about respondents’ place-based social values. Questions inquired into usage patterns, feelings for the Estuary and Inlet and the values they uphold.

**Use of the Estuary and Inlet**
In question one, respondents were asked to respond to each category of use provided, by declaring they were either frequent, occasional or never users of the Estuary or Inlet in that category. In the survey
question, frequencies of use (frequent, occasional or never) were left undefined because in the trials, self-declaration seemed to be easier for people to deal with.

The analysis shows that 40% of respondents reported that they frequently use the estuary for walking, jogging or running. The next most frequent use was foreshore recreation, followed by walking the dog, crabbing, contemplation or meditation, fishing, bird-watching, and photography or artistic pursuits.

Interestingly, more than 50% of the respondents reported that they occasionally engage in foreshore recreation, and occasionally engage in walking, jogging or running. More than 40% of respondents reported that they occasionally use the Estuary for crabbing, fishing, cycling, photography or artistic pursuits, bird-watching, contemplation or meditation, kayaking, swimming and kayaking, canoeing or rowing.

Another way of reading this data is to say that more than 80% of respondents use the Estuary or Inlet sometimes for walking, jogging or running, and foreshore recreation. Similarly, more than 50% of respondents use the Estuary or Inlet sometimes for walking the dog, crabbing, contemplation or meditation, bird-watching, fishing, photography or artistic pursuits, kayaking, canoeing or rowing, swimming, motorboating, camping and outdoor pursuits. As well, more than 25% of respondents use the Estuary or Inlet sometimes for nature studies or science activities, education-type activities, markets or local trading activities and off-road driving. The category ‘other’ has been excluded from this analysis due to its low frequency and wide variance. It can be concluded that the Estuary is well used by respondents, most frequently for walking, jogging or running and foreshore recreation.

*Feelings for the Estuary and Inlet*

Question 2 asked about feelings for the Estuary and Inlet. The great majority of respondents indicated that they like the estuary. From a philosophical and historical perspective, it is significant that 402 of 624 respondents strongly agreed with the statement: “I cherish the estuary”, plus a further 173 agreed with the statement. That is, 84% of respondents agreed that they cherish the estuary.

The other two parts to this question are also of particular interest. Four hundred and sixty respondents agreed or strongly agreed with the statement that “I feel a sense of being at home when I am close to the estuary”, and 335 respondents agreed or strongly agreed with the statement: “for me, the estuary is a spiritual place to be”. Spiritual values and home-heart-hearth values indicate an emotional relationship with place.

*Place-Based Social Values*

Question 4 asked about sense of place values. The great majority of respondents indicated that they value the estuarine system for its natural open space. In Table 3 overleaf which shows survey respondents’ sense of place values, for clarity of presentation the two agreement categories (agree and strongly agree) were combined into one ‘agree’ category. The two disagreement categories were merged in a similar way. Values have been ordered from greatest to least level of agreement with the statement.

The top ten values were: natural open space, being close to nature, dolphin habitat, recreational space, appealing landscape, a place for socialising with friends, species diversity, a place for peacefulness/relaxation and raising children close to nature. These reflect intrinsic values, use values and aesthetic values. Educational values and economic values (tourism) were also highly placed.
Table 3: Survey Respondents’ Sense of Place Values (Quantitative Extraction).

<table>
<thead>
<tr>
<th>Question</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Responses</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A natural open space</td>
<td>619</td>
<td>7</td>
<td>0</td>
<td>626</td>
<td>1.4</td>
</tr>
<tr>
<td>A place to be close to nature</td>
<td>606</td>
<td>16</td>
<td>3</td>
<td>625</td>
<td>1.43</td>
</tr>
<tr>
<td>A dolphin habitat</td>
<td>600</td>
<td>23</td>
<td>1</td>
<td>624</td>
<td>1.42</td>
</tr>
<tr>
<td>A place for recreational activities</td>
<td>599</td>
<td>20</td>
<td>4</td>
<td>623</td>
<td>1.49</td>
</tr>
<tr>
<td>An interesting/appealing landscape</td>
<td>590</td>
<td>30</td>
<td>1</td>
<td>621</td>
<td>1.54</td>
</tr>
<tr>
<td>A place for socialising with friends or family</td>
<td>585</td>
<td>31</td>
<td>8</td>
<td>624</td>
<td>1.57</td>
</tr>
<tr>
<td>An ecosystem with species diversity</td>
<td>584</td>
<td>37</td>
<td>5</td>
<td>626</td>
<td>1.5</td>
</tr>
<tr>
<td>A place for peacefulness or relaxation</td>
<td>573</td>
<td>44</td>
<td>6</td>
<td>623</td>
<td>1.62</td>
</tr>
<tr>
<td>A place to raise children close to nature</td>
<td>570</td>
<td>46</td>
<td>8</td>
<td>624</td>
<td>1.61</td>
</tr>
<tr>
<td>A place with intrinsic ecological values</td>
<td>561</td>
<td>57</td>
<td>2</td>
<td>620</td>
<td>1.55</td>
</tr>
<tr>
<td>A place for educational activities</td>
<td>561</td>
<td>59</td>
<td>3</td>
<td>623</td>
<td>1.69</td>
</tr>
<tr>
<td>A feature that contributes to tourist economy</td>
<td>551</td>
<td>59</td>
<td>15</td>
<td>625</td>
<td>1.71</td>
</tr>
<tr>
<td>A place for sports and fitness</td>
<td>548</td>
<td>63</td>
<td>12</td>
<td>623</td>
<td>1.76</td>
</tr>
<tr>
<td>An expression of water or waterscape</td>
<td>547</td>
<td>70</td>
<td>4</td>
<td>621</td>
<td>1.65</td>
</tr>
<tr>
<td>A place for science activities</td>
<td>544</td>
<td>70</td>
<td>7</td>
<td>621</td>
<td>1.75</td>
</tr>
<tr>
<td>A place for fishing and crabbing</td>
<td>541</td>
<td>48</td>
<td>31</td>
<td>620</td>
<td>1.73</td>
</tr>
<tr>
<td>A place for outdoor adventure</td>
<td>527</td>
<td>71</td>
<td>20</td>
<td>618</td>
<td>1.81</td>
</tr>
<tr>
<td>A place of wilderness</td>
<td>516</td>
<td>80</td>
<td>22</td>
<td>618</td>
<td>1.77</td>
</tr>
<tr>
<td>An artistic opportunity (e.g. photos, poetry)</td>
<td>515</td>
<td>95</td>
<td>11</td>
<td>621</td>
<td>1.81</td>
</tr>
<tr>
<td>A place for swimming and other water play</td>
<td>505</td>
<td>87</td>
<td>28</td>
<td>620</td>
<td>1.93</td>
</tr>
<tr>
<td>An inheritance for my children</td>
<td>495</td>
<td>88</td>
<td>38</td>
<td>621</td>
<td>1.85</td>
</tr>
<tr>
<td>A place of memories and stories</td>
<td>485</td>
<td>107</td>
<td>29</td>
<td>621</td>
<td>1.93</td>
</tr>
<tr>
<td>A historic site</td>
<td>468</td>
<td>108</td>
<td>46</td>
<td>622</td>
<td>2.06</td>
</tr>
<tr>
<td>A meeting place for outdoor learning</td>
<td>451</td>
<td>62</td>
<td>4</td>
<td>517</td>
<td>1.76</td>
</tr>
<tr>
<td>A place for health, wellbeing or healing</td>
<td>423</td>
<td>167</td>
<td>31</td>
<td>621</td>
<td>2.07</td>
</tr>
<tr>
<td>A place for contemplation or meditation</td>
<td>397</td>
<td>175</td>
<td>46</td>
<td>618</td>
<td>2.16</td>
</tr>
<tr>
<td>Supports the value of my house or property</td>
<td>397</td>
<td>161</td>
<td>52</td>
<td>620</td>
<td>2.16</td>
</tr>
<tr>
<td>Benefits local weather patterns and global climate</td>
<td>376</td>
<td>211</td>
<td>33</td>
<td>620</td>
<td>2.2</td>
</tr>
<tr>
<td>A place for camping</td>
<td>370</td>
<td>152</td>
<td>97</td>
<td>619</td>
<td>2.4</td>
</tr>
<tr>
<td>A place for markets and local trading</td>
<td>369</td>
<td>187</td>
<td>67</td>
<td>623</td>
<td>2.33</td>
</tr>
<tr>
<td>My family home</td>
<td>295</td>
<td>190</td>
<td>132</td>
<td>617</td>
<td>2.57</td>
</tr>
<tr>
<td>A spiritual connection</td>
<td>287</td>
<td>242</td>
<td>85</td>
<td>614</td>
<td>2.51</td>
</tr>
<tr>
<td>A food source</td>
<td>254</td>
<td>198</td>
<td>167</td>
<td>619</td>
<td>2.85</td>
</tr>
<tr>
<td>A site of shipwrecks</td>
<td>251</td>
<td>267</td>
<td>96</td>
<td>614</td>
<td>2.69</td>
</tr>
<tr>
<td>A sacred heritage</td>
<td>243</td>
<td>227</td>
<td>143</td>
<td>613</td>
<td>2.77</td>
</tr>
<tr>
<td>My traditional home</td>
<td>134</td>
<td>289</td>
<td>189</td>
<td>612</td>
<td>3.11</td>
</tr>
<tr>
<td>Other 1</td>
<td>24</td>
<td>31</td>
<td>24</td>
<td>79</td>
<td>3.03</td>
</tr>
<tr>
<td>Other 2</td>
<td>12</td>
<td>31</td>
<td>24</td>
<td>67</td>
<td>3.36</td>
</tr>
</tbody>
</table>

4.2.3 Priorities and Attitudes

Questions 18 – 22 asked about values priorities, history knowledge and opinion on condition of the waterways. It also inquired into sense of responsibility for Estuary and Inlet, and sense of commitment to it.

**Socio-Economic-Environmental Priorities**

Respondents were asked to nominate their priority for the estuary’s future by nominating one alternative from a choice of seven possibilities. (All possibilities are shown on the graph below.) While there was no clear majority response to this question, 95% of respondents made a selection that recognised the environment as part of their priority. The graph of responses to question 22 is presented here to illustrate the clarity of response. Economic priority alone is definitely not regarded as a sufficient base for decision-making. On the other hand, economic priorities considered together with social and environmental priorities, was the first choice of this respondent group.

Whilst 35% of the respondent group believe that social, environmental and economic considerations are of equal priority, 32% believe that social and environmental considerations are together the highest priorities and 28% believe that environmental considerations alone are the highest priority. The main implication is that 95% of the respondent group stated that the environment should always be considered in decisions.
made that relate to the district. Only 563 respondents answered this question – perhaps this was because there was no ‘undecided’ category.

![Graph showing question 22 responses as environmental, economic and/or social priorities]

**Figure 3: Graph Showing Question 22 Responses as Environmental, Economic and/or Social Priorities**

**History and Opinion on Waterways Condition**
Sixty seven percent of respondents reported that they did not have sufficient local history knowledge. Eighteen percent of the respondents believe the Estuary waterways to be in poor condition, 41% believe it to be in average condition, and 26% believe it to be in good condition.

**Collaborative and Personal Responsibility and Sense of Commitment to the Estuary and Inlet**
Most respondents stated they would support stronger policies to improve the estuary, and 69% of respondents believe that responsibility for improving the estuary should be shared between the various jurisdictions.

In terms of personal commitment, 68% said they would be willing to work with a community group to improve Leschenault Estuary and Inlet health and 48% responded that they would happily make individual changes to improve the estuary. Altogether 80% of the respondents said they would be happy to make individual changes within limits as they are busy.

**4.2.4 Discussion and Conclusion**
The quantitative sections of the survey revealed that a cross-section of the community has participated in this study. Roughly half of the participants were male, and there was no statistically significant difference between male and female responses. Two percent of the respondents were of Aboriginal heritage however generalisation across the group of Aboriginal people resident in Greater Bunbury would not be valid.

76% of respondents were over 36 years of age, and 55% were over 45 years of age. Eighteen percent of the population were residents and 13% were regular visitors. Sixty five percent of the respondents have lived in the area for more than 10 years, and 37% have lived in the area for less than ten years. Forty six percent of the respondents were employed in professional or management occupations, while the next biggest group was retired or unemployed.

The majority (more than 52%) reported that they live in the corridor to the east of the Leschenault Estuary, while the next biggest group live in the area east and south of the Leschenault Inlet. Fifty eight percent reported that they live within two kilometres of the Estuary or Inlet, and 80% reported that they live within seven kilometres of one of the waterways. Although this survey was advertised quite widely, the majority of the people who participated lived within the vicinity of the Estuary or Inlet.
The Estuary and Inlet were reported to be well-used by respondents. Walking, jogging or running and foreshore recreation were the two most popular activities, which more than 80% of respondents stated that they do frequently or occasionally. Similarly, more than 50% of respondents frequently or occasionally walk the dog, go crabbing, use contemplation or meditation, go bird-watching, go fishing, undertake photography or artistic pursuits, go kayaking, and go canoeing or rowing, swim, go motor-boating, or participate in camping and outdoor pursuits.

Eighty four percent of the respondents agreed or strongly agreed with the statement: 'I cherish the estuary'. Given a range of options including improved health facilities, improved roads, improved job opportunities and improved local schooling, the most highly ranked priority by the respondents was improved estuary environment (over 45%). Respondents' highest place-based social value is the Leschenault Estuary and Inlet as a natural open space. No respondent disagreed with this. This value was followed closely by: a place to be close to nature, a dolphin habitat, a place for recreation activities, an interesting or appealing landscape, a place for socialising with friends or family, and an ecosystem with species diversity, a place for peacefulness or relaxation, and a place to raise children close to nature.

In response to the question about perception of Estuary and Inlet health, 41% of respondents said they believe it to be in average condition, and 28% said they believe it to be in good or very good condition. Sixty seven percent of the respondents indicated that they need to know more about the history of the area. Most people would support stronger policies to improve the health of the Estuary, and 68% would be willing to work with a community group to improve the Estuary health. Forty eight percent of the respondents are happy to make changes for the good of the Estuary and altogether 80% of the respondents are happy to make changes within limits.

In allocating responsibility for problem-solving in the Estuary, 69% believe it is the responsibility of a combination of governments, industry and environmental groups, community groups and individuals working together. Twenty eight percent believe it to be the responsibility of local and state governments. Finally, 99% of the respondent group believe that the environment should always been considered in all decision-making in the district.

In other words, interpreting the findings together, we can say that the Estuary and Inlet are central to respondents' sense of place. These quantitative results are in line with those of Research Solutions (2007) relating to the community survey of future values and aspirations for the Swan and Canning Rivers. A deeper exploration of the respondent groups’ values is reported in the following chapter.

At present, the data is pointing to an interesting, unanticipated conclusion about a localised sense of place. Therefore it is recommended that a follow-on study carry out further interrogation of the data using SPSS, a statistical analysis package, to determine whether it can be concluded that there is a localised sense of place in the respondent group. That is, to inquire into whether it is true that the closer people live to the Estuary or Inlet, the more likely they are to feel a strong sense of connection to the waterways. It is also recommended that further analysis be conducted to determine whether any patterns accompany the criteria of age and of socio-economic indicators.

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79 It is possible that a strong sense of connection to the waterways might cause people to move closer to the waterways.
4.3 The Qualitative Study

All written survey answers, focus group and interview transcripts, as well as photo-elicitation project responses have been analysed and interpreted. After a commentary on the research methods this section presents the outcomes of the qualitative components of the project in three parts, which are the place-based social values, the concerns about places and the aspirations for the Estuary and Inlet.

Research Methods

Whilst the data collection period was open between 17 July 2012 and 15 October 2012, written survey responses were entered into the Qualtrics electronic survey platform directly by the respondents who participated online, and by a research assistant who entered hard copy data. At the same time researchers conducted six focus groups to ensure all place-based social values were represented in the final study. These comprised a group of eight Bunbury business people, a group of ten workers at a local industrial facility, a group of six older citizens, a group of seven people in the under 30s age bracket, a group of six people people who live within 500 meters of the waterways, and a group of people known to researchers for their interest in environmental matters.

While this was going on, interviews were conducted with five long-term residents of varied ages who have some connection with the Leschenault waterways. Finally, a group of year 10 students from a local high school was taken to three waters-edge sites for them to take pictures as part of an innovative photo-elicitation research method.

All of these responses were later transferred for analysis into the QSR NVivo qualitative data management program. NVivo facilitates the data organisation, coding, storage and access process. The researchers then used an ethnographic analysis method to code and interpret the findings.

The discussion schedule for the focus groups and interviews comprised questions based upon the following guide:
- Are the estuary and inlet important to you?
- If so, how and why are the estuary and inlet important to you?
- How have the estuary and inlet changed over time?
- Are there any places that are of particular value to you? If so, what are their names and why are they special?
- What would you like for these waterways in the future?

4.3.1 Place-Based Social Values

To describe the place-based social values, the qualitative data was amalgamated, analysed and coded for interpretative description which is presented here. A range of place-based social values were described. Intrinsic values are those deemed to be significant irrespective of human interests. These were frequently listed and include values such as wilderness, biodiversity and power of place. Cultural values, which specify use to humans, include: aesthetic, iconic, heritage, recreation, home-place, intergenerational, community, therapeutic and economic values. Ecosystem health, particularly good quality water, is an aspiration which was noted by the majority of respondents.

Respondents described their favourite Estuary and Inlet places. The Cut was the most commonly listed place (referred to by 86 people in the survey), followed by Ridley Place (55), Cathedral Avenue (47), Mangrove Boardwalk (39), Pipeline Jetty (34), Turkey Point (33), Buffalo Beach (33), Pelican Point (31), Belvedere (28), Karragarup (28), The Elbow (22), Cook’s Point (19), Dawe’s Channel (18), Inlet as a whole (17), Koombana
Bay (17), Estuary as a whole (16), Alexander Island (12), Point McLeod (10), Collie River (9), and a further 37 places that were referred to less than nine times each. Below is an overview of the place-based social values, presented in localities to keep description brief.

Overview of the Place-based Values: Leschenault Peninsula; Eastern Foreshore and Inlet

The Leschenault Peninsula was highly valued for its heritage values, accessibility and signage, peacefulness, biodiversity and wilderness values, aesthetic values, many species of birds and fishing. A number of places on the Peninsula were described in great detail. These included the Cut, Belvedere, the camping ground, Buffalo Beach and Burragenup. There is great affection felt about all of these places.

The Cut was valued for its ocean access, dolphin visitation, surfing and fishing; Belvedere for its place-embedded stories and the camping ground with simple facilities within biodiversity values; Buffalo Beach for its sustainable fishing specifically herring; and Burragenup (along with the entire northern end of the estuary) for its bird biodiversity and amenity for bird watchers. All places were important to people for family memories.

The entire eastern shoreline of the Estuary was valued due to its places for reflection, environmental connection, recreation, family memories and general appreciation of its natural open space. People wrote that they cherished it for its beauty, sense of natural art in the trees, biodiversity and wilderness, dolphin habitat, intergenerational values, recreation values, historic vista and the evident colonial and long pre-colonial sense of time, peacefulness and sense of sacredness which is particularly evident at sunset.

A good number of respondents live their lives in very close connection to the river and the Estuary, and feel themselves to be very much part of its life. They regularly plant trees, clean up rubbish, monitor its moods and changes, observe birds and fauna in great detail, have family gatherings on its shorelines and catch fish, crabs and prawns. Generations of children have grown up around and on the river and Estuary, and feel it to be their family home from their ancestors to future generations. Several places were singled out for lengthy description including Cathedral Avenue, Ridley Place, Cook Point, Karragarup and the Collie and Preston River mouths.

The Leschenault Inlet was very highly valued for its biodiversity, aesthetic qualities, iconic status and extraordinary heritage. Particular places were singled out for considerable commentary, including the Mangrove Boardwalk, the walk circuit, Anglesea Island/Yadyenup/ the Blunders, the boat ramps and the
Plug. People wrote that they valued these places for their dolphin visitation, social amenity, beauty of the walk circuit, recreational values, vibrancy; and health of the mangrove ecosystem and its vital contribution to estuarine health. They also valued the ocean access for boats and the tidal qualities of the waterway evident in Koombana Channel and the Plug. Several people referred to the volume of water moving in and out of the Plug with the tides as symbolic of the system breathing. Family memories were frequently referred to.

The photo-elicitation study with a group of school students showed a deep appreciation of the district’s aesthetic and biodiversity values, as well as evidence of sustainable development. Respondents were critical of economic values, and a level of distrust of adults and decision-makers was felt in relation to the goal of preserving the district’s biodiversity for the respondents’ future. Respondents requested that adults demonstrate that they value natural open space for sustainable futures.

4.3.2 Concerns About Places around the Leschenault Estuary and Inlet.
419 concerns about particular places were listed, and 144 were noted relating to the Estuary and/or Inlet as a whole. The most commonly raised concern was water quality including nutrient and contaminant inflow from drains, farms and other sources. Other common concerns were high levels of litter of all types in many places; damage to biodiversity values through neglect, vandalism, or hoon driving; and reduction in fish and crab stocks. Concerns were raised about over-development and commercialization, vandalism of amenities and general lack of respect for the waterways and natural areas by other users. Concerns are presented here in landscape zones.

The Leschenault Peninsula: The Cut to Burragenup
Concerns listed for this zone were habitat threats including degraded vegetation, water quality (particularly relating to the Parkfield Drain), silting and sedimentation of the waterways, litter and rubbish, vandalism of amenities and environment, mosquitoes and damage from four wheel-drive vehicles.

The Eastern foreshore of the Estuary, north of the Collie River but including Point Douro
By far the biggest concern listed for this zone was water quality, comprising the effect of ground water seepage from Kemerton Waste Water Treatment Plant and sewage systems, the past and present impact of Crista Global, inflow from fertilizers on farms and residential areas, as well as contaminants from roads. Respondents said they are concerned that water quality deterioration has already resulted in fish, bird and dolphin deaths.

Respondents also listed excessive litter and rubbish, deteriorating riparian habitat particularly reeds, and they expressed concerns about the likelihood of further development which they believe is likely to reduce biodiversity values further. Concerns about the impact of climate change and sea-level rise were also noted, as were siltation and sedimentation, horses and horse droppings, dog droppings, and mosquitoes. A number
of respondents from this zone called for environmental education for children and families. Better amenities were also called for, particularly around Cathedral Avenue.

The Collie River to South of the Cut, Including the Canals Estates, Vittoria Bay, the Preston River and Samphire Bay

Water quality was the most commonly listed concern for this zone, such as toxic wastes from industries upriver in the Preston and around the Preston River mouth. Fears about further development particularly the Preston River realignment were listed, as well as the possibility of further housing estates in and around high biodiversity areas of the Collie River. Siltation and sedimentation were common concerns as were those relating to litter and diminishing numbers of fish and crabs. Upgraded amenities were called for in this zone.

The Inlet, Including Point McLeod, Koombana Bay and the Inner Harbour

Water quality concerns were the most frequently listed for this zone, together with concerns about litter and rubbish. Concerns about threats to habitat particularly the mangroves were noted, as were inappropriate and excessive development, siltation and sedimentation and reduction in fish and crab stocks. Upgrading of amenities for this zone was also called for by respondents, particularly waterfront shade provision and tree planting in the vicinity of the Entertainment Centre.

For the Estuary and/or Inlet as a whole, water quality was by far the most numerous of the concerns listed by the respondents. This was followed by concerns about diminishing stocks of fish and crabs, and habitat loss including threats to birds and dolphins. There were also numerous concerns listed relating to siltation and sedimentation in the waterways, litter and rubbish, inappropriate development particularly where this is likely to threaten habitat values, and hoon driving. Upgrading of amenities was called for across the district, particularly toilet blocks and picnic facilities.

4.3.3 Aspirations for the Estuary and Inlet

Aspirations for the Estuary and Inlet were in line with the place-based social values and the concerns presented above. In brief, respondents want natural open space where possible, with nonintrusive amenities for enjoyment of places. They seek improved water quality, litter-free places, and healthy land and water-based ecosystems. Whilst the majority favour policy change, changed behaviours and education for enacting these aspirations, others propose engineering solutions for immediate improvement. These four different quotes seem to be points of agreement for most respondents:

a) Remain as is, i.e. long term maintenance of ecological values. Regeneration of degraded areas.

b) An attractive, accessible, open space that contributes to Bunbury’s identity and attraction as a destination to visit and a great place to live.

c) First and highest priority is to take measures to protect the long term environmental health of the inlet & estuary waters, plant life, fish life & bird life to preserve the area as a healthy ecosystem over the long term. The ecosystems must be protected to avoid the degradation of the area and the loss of species. We do not want these areas to become dead water bodies over time, but to retain their value of wild areas that provide a healthy ecosystem for its wild residents (fish, crabs, dolphins, birds) that we as humans will still be able to appreciate and enjoy in generations to come. We as humans have a responsibility of stewardship, not only for future generations of humans, but also toward the wildlife to which the inlet & estuary have been home over millenia. // In areas planned for human use, implement facilities and strategies that maximise ecosystem protection & minimise damage: eg walk paths, rubbish bins for litter disposal, toilets, environmental protection education.

d) I would love to see the estuary surrounds becoming revegetated, like Cathedral Ave, with pockets where people can access the water, small beach fronts.
4.3.4 Conclusion: Place-Based Social Values of the Leschenault District (2012)

Below is a summary of the place-based social values of the 2012 respondents, as expressed through the qualitative data collection methods. This is supported by the quantitative study results.

<table>
<thead>
<tr>
<th>Intrinsic Values (independent of people)</th>
<th>We hold values and do things that make us who we are. Continuity with the past.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>It has its own right to the expression of existence irrespective of the interests of humans.</td>
</tr>
<tr>
<td>Life-sustaining Values</td>
<td>It is wild and natural.</td>
</tr>
<tr>
<td>Spiritual Values</td>
<td>It nurtures the ecosystem – including people – with food and provision for life.</td>
</tr>
<tr>
<td>Cultural Values (of value to people)</td>
<td>It has a landscape-embedded life-force, power or energy.</td>
</tr>
<tr>
<td>Aesthetic Values</td>
<td>We hold values and do things that make us who we are. Continuity with the past.</td>
</tr>
<tr>
<td>Identity – Iconic Values</td>
<td>It is beautiful.</td>
</tr>
<tr>
<td>Intergenerational Values</td>
<td>It is unique, precious, a landmark in Greater Bunbury. It defines our place.</td>
</tr>
<tr>
<td>Home-heart-hearth values</td>
<td>In the same way as our ancestors did, we care for the Estuary and Inlet for our children and the children of the future.</td>
</tr>
<tr>
<td>Historic Values</td>
<td>We cherish the estuary and the inlet – the district is our home-place.</td>
</tr>
<tr>
<td>Learning Values</td>
<td>History is embedded into the landscape, and needs to be recognised and celebrated.</td>
</tr>
<tr>
<td>Human Use Values</td>
<td>It is a place of learning.</td>
</tr>
<tr>
<td>Community Values</td>
<td>It is useful to people for therapy, for community meetings and for recreation.</td>
</tr>
<tr>
<td>Recreation Values</td>
<td>It is a place to meet, socialise and celebrate the place.</td>
</tr>
<tr>
<td>Therapeutic Values</td>
<td>It is a place for foreshore-based and water-based recreation.</td>
</tr>
<tr>
<td>Economic Values</td>
<td>It is a healing space.</td>
</tr>
<tr>
<td>Aspirational Values</td>
<td>The waterways need to be healthy and have integrity as systems.</td>
</tr>
</tbody>
</table>

Table 4: Qualitative Interpretation of Place-Based Social Values of the Leschenault Estuary and Inlet Population, Using Written Survey Data, Interview Transcripts, Focus Groups and Photo-Elicitation Data.
**Concerns – Summary**

Listed below is a brief overview of the concerns listed for each area. Water quality together with siltation and sedimentation were listed for each estuarine zone.

A wide variety of threats to land-based habitat and water quality were the most commonly-listed concerns for the Leschenault Peninsula. Siltation and sedimentation was a notable concern, as is wilful damage by vandals.

The predominant north-eastern estuary foreshore concern listed was water quality as a result of multiple pollution sources. It was widely believed that water quality deterioration has already resulted in fish, bird and dolphin deaths. Concerns about the impact of forthcoming climate change and sea-level rise were noted, as were siltation and sedimentation.

Water quality was also the main concern listed for the south-eastern estuarine zone, particularly toxic wastes from upstream sources. Fears about inappropriate economic development such as the proposed Preston realignment and the likelihood of further housing development on high biodiversity zones were common, as were siltation and sedimentation.

For the south of the estuary and the Inlet including Koombana Bay and the Inner Harbour, water quality was again the predominant concern, together with habitat threats particularly to high biodiversity zones such as the mangrove ecosystem. Fears about inappropriate or excessive development were listed.

**Aspirations**

Respondents aspire towards natural open space where possible, with nonintrusive amenities for enjoyment of places. They ask for improved water quality, litter-free places, and healthy land and water-based ecosystems.

Respondents request the upgrading of amenities such as toilet blocks, picnic facilities and shade provision, and there was a significant request for improved local environmental education in schools and for community members in communicative spaces such as signs and news media. Whilst the majority of respondents favour policy change, changed behaviours and education for enacting these aspirations, a number of respondents proposed a variety of engineering solutions for immediate improvement. Ideas included a new cut to the north of the Estuary and various linkages between the Preston, the Inner Harbour and the Inlet.

*The Elbow, Collie River. Photograph: Terry Wooltorton*
CONCLUSION: A SENSE OF HOME IN THE LESCHENAULT ESTUARY AND INLET DISTRICT

People have valued the life-sustaining qualities and the natural open spaces of the Leschenault Estuary District for thousands of years. For most of that time, it has been valued for its nurturing characteristics and as a source of sacredness. Through the skilled use of fire in the landscape and the application of traditional ecological knowledge, the Leschenault Estuary District has been cared for by the *Elaap* people for whom it was home.

In colonial times, whilst people appreciated the Leschenault Estuary District’s life-sustaining qualities, its aesthetic values and its recreational opportunities, the dominant value was to exploit the economic potential of the district. This included the capacity to create the cultural products and foods to which the settlers were accustomed. For these goals, the place needed to change, as did the first people.

Historically certain perspectives have been backgrounded, particularly those informed by views which see progress in terms of social and environmental justice. On the other hand voices have been privileged by virtue of their embedded socially hierarchical assumptions about society, or their unquestioned ideas of progress towards economic growth.

The literature review showed that there is an unquantifiable stress on estuarine health caused by a variety of sources associated with economic development.

However in 2012, the place-based social values of the respondent group indicate an understanding of this context. They aspire to improve estuarine ecosystem health, particularly water quality. Respondents of the 2012 quantitative and qualitative research explained that they cherish the estuary, and uphold intrinsic and cultural values of place. Their highest place-based social value is ‘natural open space’. There are still landscape-embedded stories, old ones and newer versions. Once again people see the Leschenault Estuary and Inlet as ‘home’ and as icons of Bunbury and Australind.

*Leschenault Estuary, Australind. Photograph: MJ Pilsworth*
Recommendations for Further Research

There are recommendations for further historical and quantitative research.

Historic Research

Further research is needed to augment claims made in the pre-colonial and the colonial/post-colonial history sections.

Noongar Times

First is the issue of *Elaap* territory which appears to contradict established understandings about the history of Bunbury Noongar people. In this study it has been shown that the first people of the Leschenault Inlet from its mouth to the lower Preston River were known as the *Elaap*, as was their place. This is unambiguous: Bunbury was known for aeons as *Elaap*. There is evidence in this document to support the proposition that the Leschenault Estuary and the district north to about Myalup, eastward up the hill slopes and south of Dalyellup was also *Elaap* district. However two other groups of people were referred to by Bunbury (1930), one to the north of the Collie River and one to the north of Burragenup. It was argued in this report that the other groups were also *Elaap* people due to their close association with the Estuary and the notion of family properties in land, but more work is needed to establish their identities and the extent of *Elaap* territory.

Second is the matter of *Elaap* ownership and belonging (as in 'this is our place'). It was argued in this report that *Elaap* people belonged in the place that they were obliged to care for, their *karlap* (which means home-place), whereas they visited other people and places for shorter seasonal tasks such as harvesting fruit and tubers and attending meetings, trading, dances and celebrations. This is quite different in effect to the impression of temporary occupancy associated with the idea of 'continually shifting'. Using the methods applied in this project together with ethnographic research with Noongar elders, more evidence needs to be acquired to describe and illustrate the nature of *Elaap* tenure and in the process, garner considerably more knowledge of place-based relationships in the Leschenault District. The first step will be piecing together direct and ‘throw-away’ comments from a wide variety of historic sources to establish Noongar seasonal routines over geographic space.

Colonial and Post-Colonial Times

Due to time constraints there are notable omissions in the report that need rectifying through further research, to more clearly document the richness and diversity of the place-based social values of colonial and post-colonial times. The first – and very important – question is: what happened to the *Elaap* people and their place-based knowledge over time?

Quantitative Research

At present, the data is pointing to an interesting, unanticipated conclusion about a localised sense of place. Therefore it is recommended that further interrogation of the data using SPSS, a statistical analysis package, is conducted to determine whether it can be concluded that there is a localised sense of place in the respondent group. It is also recommended that further analysis is carried out to determine whether any patterns accompany the criteria of age and of socio-economic indicators.
Epilogue 1: Coming Home to Place in the Leschenault Estuary – A Writer’s Reflection

Collie River Twilight. Painting by Sue Kalab.

I go to the Collie River mouth, Mardalup. I imagine. I imagine the Elaap ancestors of this place. In my mind, I call up the Elaap grandmothers’ people – all the women of this land before me. I imagine women like me, two hundred years before me. I imagine them sitting with me now. I ask them for answers.

They smile. The answers, they say, are all around you. Open your eyes. Move your body. Experience our place. Perceive. Understand our relations, they say. Our moort – our kin, our karlapgur – people of our home-hearth-place. Cherish our trees, cherish our plants, cherish our animals, cherish our flowers, cherish the smallest bugs. Live lightly, live simply. And come to the estuary. Walk by it, check on it, share responsibility for its health. Speak with it, speak for it, speak for us. Tell stories. The language of this place is Noongar, they say.

You are one of the derbalung, they say, the people of the estuary. And so, you need katitjiny, the knowledge. You need the knowledge of the estuary, the ancestors say. I let the women from the past return – and I keep some of their spirit – of place, of heart. I remember the boodjar under my feet is sacred.

I go to the Preston Delta, Barajillup. I imagine. I imagine our children and their children into the future. In my mind, I call up our children and their future children – all the women and men after me. I imagine descendents of ours, two hundred years after me. I imagine them sitting with me now. I ask them for answers.

They smile. The answers, they say, are all around you. Speak with the estuary, speak for it, speak for us. Tell stories. The language of place is Noongar, they say. The place and her moort, her kin, have spoken Noongar for many thousands of years.

The estuary has been pristine for thousands of years, they say. It has only been in decline for a very short time. This will pass very quickly, they say, if you and your karlapgur act for us. You, and we after you, need katijin, the knowledge. We need the knowledge of our place, my children’s descendents say. I let the
children from our future return – and I keep some of their spirit – of place, of heart. I remember the boodjar under my feet is sacred.

I go to Bunbury, Gwenilup – place of the bandicoot. I imagine all of the ancestors from the past, and all of our children’s children in the future – with all of the men and women of this place at present. I imagine the stories and people of the past, and the stories of people of the future. I imagine them all sitting together. I ask them for answers.

They smile. Teach our community, they say, and teach our children. For we are all moort, we are all karlapgur. We are the derbalung. We are all the people of the estuary, and the estuary needs us all now. She needs us to care for her, to relate to her, to hear her stories, and to speak for her. She needs us to address the spirits of our place. The spirits are still here, and they are becoming weak. She needs the spirits of the animals, the spirits of the trees, and the spirits of our kin. She needs us to teach all people to come home to place. She needs us to live in place, as karlapgur.

And as the years passed, the people began to come home to place, to live as karlapgur, and to exist as derbalung...

Pelican Over the Estuary. Painting by Sue Kalab.
Epilogue 2: Cries of the Derbal Elaap: Where are you now, my people?

In times before the icy cold Nyitiny,
Wargal, Walitj, Waitj, Yongka, Kumal, Kurlbardi, Wardang and all the other animals,
With jarrah, marri, balga and muja, were tending regularly to their seasonal chores and tasks.
There was gurduboodjar – love of place,
Across my sacred landscape.

Then there came thunder, lightning and huge, colossal storms,
When Wargal swept across my hills,
Gouging out my valleys, shifting my mighty boulders,
Crashing down the Collie Hills, creating wild and mighty rivers,
To flow into my estuary, and give me people who care.
There was gurduboodjar – love of place,
Across my sacred landscape.

My people called me by my names and spoke my many voices,
All my different clans, all my different stories, all along my waterways,
Co-created my biodiversity, my creativity, my imagination, my pristine health,
And danced and laughed and sang my many songs.
Across my sacred places, they honoured all my spirits.
For Gurduboodjar – love of place,
Across my sacred landscape.

I saw the sail, I heard the gun.
I saw the sickness, I smelled the pain,
My stories dimmed, my songs faded – to only here and there.
I felt the plough, I suffered the blade,
While my soul was being drained,
For economic growth - economic ‘progress’.

Now, in this new century,
I am emaciated of my former wild self.
I am tamed, at the mercy of the modern.
My rains reduced, nutrients and contaminants flow,
Algal blooms, concrete, sorrow.
My voices are weakening, my strength is waning.
I endure grief – my future is in your hands.

Where are you now, my people?
Your voices are frail, please stand for me now.
Strengthen my language, relearn my stories,
Listen to my spirits, sing my songlines, dance my sacredness,
And honour my soul – I am your grandchildren’s inheritance.
I need gurduboodjar, love of place,
Across my sacred landscape.

On the Estuary 2. Painting by Sue Kalab.
References


Department of Fisheries. (2012). *Status reports of the fisheries and aquatic resources of Western Australia 2011/12: state of the fisheries*. Perth: Government of Western Australia.


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Millett, E. (1980). *An Australian parsonage or, the settler and the savage in Western Australia*. Nedlands, Western Australia: University of Western Australia.


Roth, W. (1902). *Notes of savage life in the early days of West Australian settlement: Based on reminiscences collected from F. Robert Austin, Civil Engineers, late Assistant Surveyor, WA, late Sergeant-at-Arms, Parliament of Queensland, discoverer of the Kimberley Goldfields, WA*. Brisbane: Read before the Royal Society of Queensland, 8th March.


Smith, H. (2012). *Population dynamics and habitat use of bottlenose dolphins (tursiops aduncus), Bunbury, Western Australia*. Murdoch University, Murdoch.


Survey and Information Letter:
A Cultural Geography of the Leschenault Estuary and Inlet

This project is being undertaken in 2012 by a research team from Edith Cowan University, with the support of the South West Catchments Council, Department of Water, Leschenault Catchments Council and HotRock. The chief investigator is Associate Professor Sandra Woolorton.

Introduction

The Leschenault Estuary and the Leschenault Inlet are undergoing change – increasing populations, changing land use, decreasing rainfall, changing water quality and so on. Some say we need to make decisions now – but on what basis? We need to know the value of the estuary to the people who live and work here.

This study will ask estuary users and those living or working in the vicinity of the estuary, the inlet and the hinterland; about their attitudes, values and aspirations for the waterways. We will then provide a report that can be used by local agencies, other research groups or policy makers. Our intention is for this to guide future actions so that the estuary remains an environment that meets everyone’s needs.

Research Methods to be Used in the Project

1. A survey of residents that asks them about their use and values of the estuary, the way they would like the estuary to be in the future and their reasons for these choices.
2. Focus groups will be asked to describe the values they hold for the estuary and why.
3. Interviews will be conducted with some long term residents about their stories of change in the estuary and inlet over time.
4. We are also encouraging people to go to the project’s website on www.leschenaultproject.org.au to upload any photographs with explanations, and/or creative works (such as poetry, story or painting) that will tell their story of the estuary.

The resulting information from each aspect of the project will be compiled and analysed to produce a research report.

This project has been approved by the ECU Human Ethics Research Committee.

How to Complete the Survey

• We are asking you to complete the attached questionnaire. Answering the questions will take about 25 minutes. When you have completed the consent form and questionnaire please place them in the envelope provided.

• Participation in this survey is entirely voluntary. No explanation is needed if you choose not to participate, or withdraw at any time.

Security of Data

• You are not asked to provide your name or any identifying details. Surveys will be held confidentially by the research team at Edith Cowan University. Only general results will be made available to partner organisations and the general public. Data will be stored securely for a period of 5 years. At the end of that time all electronic files will be erased and paper documents shredded.

Benefits

• Participation in the survey allows you to have your say about the future of your local environment. A public forum to inform local residents of the findings of the research will be held toward the end of 2012 or early 2013. A written report and an updated website showcasing local contributions will be available in 2013.

• The only discomfort involved with this survey is the time it will take you to complete it.

Leschenault Catchment Council

Government of Western Australia
Department of Water

HotRock

South West Catchments Council
Project Consent Form: A Cultural Geography of the Leschenault Estuary and Inlet

Chief Researcher
Associate Professor Sandra Wooltorton
Phone (61 8) 9780 7753

This is a statement that:
(Please place a tick or cross in the box)

☐ I have been provided with a copy of the information letter.
☐ I have read and understood the information provided.
☐ I understand that participation involves filling out the accompanying questionnaire.
☐ I understand that the information provided will be kept confidential on an individual basis, and the information given by participants is anonymous.
☐ I understand that the data collected in this phase of the research will be used for the purposes of this research project; and may also be used in future connected research being implemented by the current research team.
☐ I understand that the information will be used to write one or more research reports for public dissemination, and that no individual will be identifiable in the report.
☐ I understand that I am free to withdraw participation at any time without explanation or penalty.
☐ I am aware that if I have any questions, I can ring Sandra Wooltorton on (61 8) 9780 7753.
☐ I am aware that if I have any complaints about any part of this project, I can ring Sandra Wooltorton on (61 8) 9780 7753 or ECU Research Ethics on (61 8) 6304 2170 if I have any complaints about the ethics of the research.
☐ I fully agree to participate in this survey, and filling out the forms in this document is evidence of my consent.
In this survey, whenever we use the word 'estuary', we also would like you to include the inlet in your answer - even if it is not specified.

Q1. Your use of the estuary. Please put a tick in the column/s that best describes your use of the estuary.

For this question, please keep in mind all of the land or water that is close to the estuary and inlet, including public open space, waters-edge vegetation or bushland.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking, jogging or running</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking the dog</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cycling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horse riding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kayaking, canoeing or rowing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stand-up paddle boarding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surfing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor boating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wind surfing or kite-boarding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sailing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreshore recreation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camping and outdoor pursuits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreshore competitive sports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive water sports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crabbing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swimming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird-watching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature studies or other science activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photography or artistic pursuits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contemplation or meditation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education-type activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cruise boat, tour boat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Markets, local trading activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Off-road driving - 4WD or motorbike</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other use (please name)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please note that all extra comments should be written at the end of the survey.
Q2. Your feelings about the estuary and inlet. Please say how much you agree or disagree with the following statements. Please circle your selected number on each line.

For this item, please keep in mind all of the land or water that is close to the estuary and inlet, including public open space, waters-edge vegetation and bushland.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I cherish the estuary</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>For me, the estuary is a spiritual place to be</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I feel a sense of being at home when I am close to the estuary</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I like the estuary</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I don't particularly care about the estuary</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I don't like the estuary at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Q3. Your local area priorities. Please read then rank the following statements from 1 to 7: where 1 is the most important to you and 7 is the least important to you.

<table>
<thead>
<tr>
<th>Priority Statement</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved health facilities in local areas</td>
<td></td>
</tr>
<tr>
<td>Improved roads in local areas</td>
<td></td>
</tr>
<tr>
<td>Improved job opportunities for local workers</td>
<td></td>
</tr>
<tr>
<td>Improved local schooling and other education facilities</td>
<td></td>
</tr>
<tr>
<td>Improved local sports facilities</td>
<td></td>
</tr>
<tr>
<td>Improved estuary environmental condition</td>
<td></td>
</tr>
<tr>
<td>Improved estuary public amenities</td>
<td></td>
</tr>
</tbody>
</table>
Q4. Your sense of place.

For this item, please keep in mind the land or water that is close to the estuary and inlet, including public open space, waters-edge vegetation and bushland. Please say how much you agree or disagree with the following statements. Please circle your selected number on each line.

To me, the estuary is...

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>My traditional home</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>My family home</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A food source</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A sacred heritage</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A historic site</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A site of shipwrecks</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>An inheritance for my children</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place of memories and stories</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place to be close to nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place of wilderness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A natural open space</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place to raise children close to nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>An ecosystem with species diversity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place with intrinsic ecological values</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A beneficial contributor to local weather patterns and the global climate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A dolphin habitat</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>An expression of water or waterscape</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A spiritual connection</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for contemplation or meditation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for health, wellbeing or healing</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for peacefulness or relaxation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>An artistic opportunity (eg photos, poetry)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>An interesting/appealing landscape</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for recreational activities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for educational activities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for science activities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for camping</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for outdoor adventure</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for fishing and crabbing</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for sports and fitness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for socialising with friends or family</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for swimming and other water play</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A feature that contributes to the tourist economy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A place for festivals, markets and local trading</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A feature that supports the value of my house or other real estate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Other:
Q5. Place-Specific Values.

Are there any places in the estuary or inlet that have special meaning for you? If so, please name them, and briefly describe their meanings:

<table>
<thead>
<tr>
<th>Place</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eg. Point Douro</td>
<td>Childhood fishing spot</td>
</tr>
<tr>
<td>Eg. Mouth of the Preston</td>
<td>Bird watching</td>
</tr>
</tbody>
</table>

If yours is not on the map, please mark it.

Map shows Leschenault Estuary and Inlet.
Map is adapted from the Leschenault Inlet Management Authority (1993).

Legend

1. Point McLeod
2. Anglesea Island (Pig Island)
3. Mangrove Boardwalk
4. The Blinders
5. Mill Point
6. Point Mornington
7. Preston Delta
8. Pelican Point
9. Bar Island
10. Alexander Island
11. Point Douro
12. Doherty's Place
13. Waterways Discovery Centre
14. Red Dunes
15. Pipeline Jetty
16. The Elbow
17. Old Backwater
18. Ridley Place
19. Dawes Channel
20. Cathedral of Paperbark Trees
21. Karragarup (Place of crabs)
22. Cook's Park
23. Buffalo Road
24. Fairfield Drain
25. Burragegup
26. John Boyle O'Reilly Memorial
27. Buffalo Beach Car Park
28. Waterloo Head
29. Belvidere
30. Tuart Grove
31. Jetty Beach
32. Pipeline Cove
33. Tracks to Beach
34. The Cut
35. Turkey Point

- Leschenault Inlet
- The Plug
- Mangroves
- Bird habitat / Nesting

Thanks to George Mardon and Mike Whitehead for advice on place-locations; and Tu Ly for graphic design.
Q6. Your perception of the environmental condition of the estuary and inlet.

In the box below, please tick ONE statement that best describes the environmental condition of the estuary:

<table>
<thead>
<tr>
<th>Very good</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Very poor</th>
<th>Not sure</th>
</tr>
</thead>
</table>

Q7. Your concerns about specific places. Please write any concerns you have about a specific place or places here:

<table>
<thead>
<tr>
<th>Place</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q8. Your concerns about the estuary and inlet as a whole. Please write any concerns you have about the estuary and inlet as a whole here.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
Q9. Your aspirations for the estuary. What would you like the estuary environment to be like in the future?

For this item, please keep in mind all of the land or water that is close to the estuary and inlet, including public open space, waters-edge vegetation or bush.

Questions about your background

Please tick the correct box

Q10. Gender

☐ Male  ☐ Female

Q11. Are you Aboriginal?

☐ Yes  ☐ No

Q12. Age

☐ Under 18  ☐ 36 - 45

☐ 18 - 25  ☐ Over 45

☐ 26 -35

Q13. Category of Residency

☐ Resident

☐ Regular visitor

☐ One-off visitor

One off visitors, do not answer Q14 and Q15 below

Q14. Locality of Residence

(One-off visitors, do not answer this question)  Please tick ONE box

☐ Estuary or Inlet foreshore (up to 199m to estuary or inlet)

☐ Estuary or Inlet hinterland (200m to 2km of estuary or inlet)

☐ Estuary or Inlet region (2.1km to 7km of estuary or inlet)

☐ Outlying from Estuary or Inlet (7.1km to 25km from estuary or inlet)

☐ More than 25.1km from estuary or inlet

Q15. Residential Area

(One-off visitors, do not answer this question)  Please tick ONE box

☐ Australind, Treendale and Parkfield

☐ Other - Shire of Harvey

☐ Eaton, Millbrook

☐ Other - Shire of Dardanup

☐ Bunbury Central, Pelican Point, East Bunbury, Rathmines

☐ Wollaston, Glen Iris, Davenport, Picton

☐ South Bunbury, Carey Park, Kinkella Park, Withers and Usher

☐ College Grove, Dalyellup, Gelorup and Stratham

☐ Other - Shires of Capel, Donnybrook - Balingup or Collie

☐ Other

Please note that all extra comments should be written at the end of the survey.
Q16. Years of residence or regular visiting in the area. Please tick ONE box

- [ ] 0 - 5 years
- [ ] 5.1 - 10 years
- [ ] 10.1 - 15 years
- [ ] 15.1 - 20 years
- [ ] Greater than 20 years

Q17. Occupation
Please tick the box beside the category that best represents you.

- [ ] Manager
- [ ] Professional
- [ ] Technicians and trades worker
- [ ] Community and personal service worker
- [ ] Clerical and administrative worker
- [ ] Sales worker
- [ ] Machinery operator and driver
- [ ] Labourer
- [ ] Retired or not currently employed
- [ ] Student

Q18. History of the area
Do you believe you know enough about the history of the area?  
- [ ] Yes
- [ ] No

Q19. Your sense of collective responsibility for the estuary and inlet environs.
I would support stronger policies to improve the environmental condition of the Leschenault Estuary, Inlet and environs.  
- [ ] Yes
- [ ] No

I am willing to work with a community group that aims to improve the environmental condition of the Leschenault Estuary, Inlet and environs.  
- [ ] Yes
- [ ] No

Q20. Your sense of individual responsibility to the estuary and inlet environs.
Please tick the box beside ONE of the following statements to answer the question.

- [ ] I am happy to make changes.
- [ ] I can make changes within limits as I am a busy person.
- [ ] I can make changes when present limitations on me are reduced.
- [ ] I would like to make changes, but I have a disability or frailty that prevents me.
- [ ] I might make changes, but the estuary is not a high priority for me.
- [ ] I am not willing to make personal changes.
Q21. **Responsibility for addressing problems relating to the estuary.**

Who do you believe is responsible for solving problems within the estuary and inlet? Please tick the box beside ONE of the following statements to answer the question.

- [ ] State government
- [ ] Local government
- [ ] Commonwealth government
- [ ] Industry groups
- [ ] World heritage-type organisations
- [ ] Community groups
- [ ] Individuals
- [ ] All of the above (or any combination of the above)
- [ ] None of the above

Q22. **Your socio-economic-environmental priorities for the area in the future.**

Decisions are often made after consideration of the impact upon social, economic and environmental values. In decision-making on the estuary's future which do you think should be a priority? Please tick the box beside ONE of the following statements to answer the question.

- [ ] Social priorities
- [ ] Environmental priorities
- [ ] Economic priorities
- [ ] Social and environmental priorities together
- [ ] Social and economic priorities together
- [ ] Economic and environmental priorities together
- [ ] Social, environmental and economic priorities together

Optional: You may like to comment on the above choice:

________________________________________________________________________

________________________________________________________________________

If you would like to say anything else, please write it here:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Thank you very much for your contribution to the Leschenault Estuary Project. The results of this survey will be published on the website: [www.leschenaultproject.org.au](http://www.leschenaultproject.org.au) before April 2013.

The Leschenault Estuary Project Team

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**Please return completed survey to any of these places:**

- Bunbury, Australind or Withers Library
- Bunbury City Council
- Bunbury Dolphin Centre
- Sports Marine Boat Centre, Strickland Street, Bunbury
- Edith Cowan University, 585 Robertson Drive Bunbury
Appendix Two: Making a Bwok or Booga (Coat)

Below is a substantial quote from Bunbury (Bunbury, 1930, page numbers marked with /#) to extend the information provided about Elaap clothes-making and conceptions of personal adornment for ‘looking handsome’ on page 35 of this document. Since this is a direct quotation, spelling of Noongar and English words have been left as per original text. Thanks to Phyllis Barnes for permission to use these transcripts prior to her own publication of this material.

I halted for about an hour & a half on the left bank of the "Preston" in a rich flat where my horses soon filled themselves with grass. A very large party of Natives collected round me during my halt & sat down in circles around the fires they kindled watching all my movements most carefully & making at the same time an overpowering noise talking & laughing most vehemently. As I could spare but a very small piece of damper, my stock being barely sufficient to last till my return I boiled them a piece of Pork & gave them what please them still more, the greasy water in which it was boiled: skimming the floating fat off with their hands they mixed a large quantity of "Wilghi" with which they smeared not only their heads, but faces, bodies & legs. This "Wilghi" which is a preparation of red earth & grease constituted their favourite ornament & covering, when smeared with this

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they consider themselves particularly handsome & discard the Booga, the small apology for clothes they usually wear. I observed at Port Leschenault that most of them used the red earth alone, fat being difficult to obtain so they appeared particularly delighted to get some. The Natives here do not differ in either manners or appearance from the tribes farther north, they are like the Murray men, stout & generally well made having apparently plenty to eat & many of the young women are extremely good looking, with particularly fine teeth & an open pleasing expression, but as scantily clad and as dirty as usual. The only clothes worn by any of the Natives of Western Australia that I have seen is the "booga" or cloak, made of Kangaroo skin. They generally use & prefer the skin of the female Kangaroo "Waroo", as being softer & closer in texture & finer that that of the Male "Yowert" & I have also though very rarely seen skins of the Brush Kangaroo & Wallobi used by

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them, which are the prettiest by far, with closer fur, of a grey color inclining to white at the tips, which gives it a silvery hue. The skins are first pegged out on the ground, fur underneath to dry & then the fleshy & greasy parts are scraped off by the women with small tools on purpose, consisting of a short stick tipped with the hard "Beever" or Grass tree Gum in which is inserted a fragment of glass or Quartz with the necessary shape & edge. With this instrument they scrape the skin all over several times crossing the former marks diagonally, until the skin is sufficiently soft & pliable. Four to six skins are necessary to form a cloak, each one being cut obliquely from the head increasing in width very gradually to the hind quarters & they are sown together with the sinews extracted from the tail of the Kangaroo, holes being made with a sharp pointed bone or stick but they have no needle. The sinews which must be drawn from the tail of the Yowert

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or male Kangaroo as being the largest are obtained by cutting round the skin about two or three inches from the extremity sufficiently to obtain a hold & then twisting & turning until the joint of the bone is seperated [sic] when by a strong pull the sinews of the whole length of the tail are drawn out when they must be wound diagonally round a spear of "Wonna" to prevent their shrinking in drying. They then form the best Material that can possibly be obtained for strong sewing. The cloak is fastened round the neck by a bit of grass or more often by a little stick or bone thrust through two or
three holes in the front, & a narrow cape or collar above hangs over in an irregular manner as the skin of the head is often left & not cut square. It is worn in different ways, but oftenest over the left shoulder & back, hiding the hand which carries the spears & "Mero" & the knife "Dalba" & Hammer "Kadjoo" stuck in the belt or "Noolaban". If it is very cold however when walking they jerk their cloaks forward, so as to cover their chest and belly & with the disengaged hand carry underneath it the firestick which is as constant companion as the spears. These grasped by the middle are usually carried with the "Mero" in the left hand with the points to the rear, or if likely to be wanted in one of them the right hand, fixed in the throwing stick & the point upright or leaning against the shoulder. A man never carries more than one cloak & often not even that but the women have frequently more skins & on their backs they carry one or two bags "Cotto", of Kangaroo skin slung round the neck & shoulders, containing the child & any tools, spare skins, roots, or other provisions or stores they may possess. In travelling or moving their camp the young children are always carried by the Women in these bags & one frequently sees another somewhat larger seated astride on her shoulders, but the men also will sometimes condescend to carry a boy on his shoulders if he is tired, where he sits quite at his ease grasping tight by their hair: this is the only burthen except their spears that the men will ever carry, the women being not only compelled to carry everything, but to make the huts & fires when they halt for the night. The belt of Noolaban consists of a very great length of roughly spun opossum hair but slightly twisted & not strong, this is wound round & round the body even many dozen of times & its beauty is estimated according to its length; it is usually made tight & seems equally prized for supporting the stomach when empty or confining it when full, & in it are stuck the hammer & knife, the former generally behind with the head in the small of the back & the handle sticking straight down. Their hair is often confined by a piece of Noolaban, in which are stuck the Mannuite(?) tufts, or bunches of white cockatoo feathers which are highly prized as ornaments as indeed are all white or gray coloured feathers, these are prepared by tearing the feathery parts from the quills & tail & fastening them together on a little bit of stick so as [to] form a little bunch drooping all round and really very picturesque, sometimes white sometimes black with red stripes (the tail of the black Cockatoo) or at other times reddish brown when saturated with Wilghi. These are worn on the head or as armlets & occasionally when plentiful in the belt: well adorned with these & smeared with grease & red ochre a warrior is fully drest ...