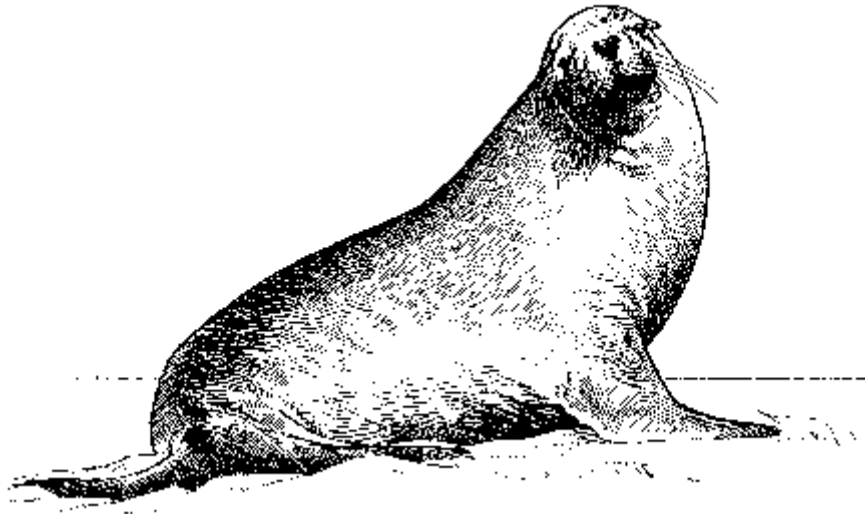

A summary of the thesis:

Swimming with sea lions: Friend or Foe?

**Impacts of tourism on
Australian sea lions *Neophoca cinerea*,
at Baird Bay, S.A.**



by

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1 INTRODUCTION

This study contains two major parts to determine the impacts of 'Ocean Ecotours' on a colony of Australian sea lions (*Neophoca cinerea*) on Jones Island (Baird Bay; South Australia), and the participating tourists. Firstly it tries to determine any attitude changes of the tourists towards the sea lions and secondly it investigates the impact tourism has on the sea lions' behaviour.

'Ocean Ecotours' is at present the only tour operator in South Australia that takes tourists out to swim with Australian sea lions. Since this tourist destination is between the exploration and involvement stage, the first two stages of Butler's tourist area life cycle, it offers an excellent opportunity to collect data on the positive and negative consequences of tourism early in the development of this site.

This study was carried out from November 2002 to May 2003. During this time 28 observations of the sea lion colony were performed. Of these observations 20 were conducted while a tour was scheduled and 8 on days with no tour. The observation method was either from the tour boat 'The Investigator' or independently from a canoe anchored outside Jones Island. To detect any changes of behaviour the sea lions were observed in three time intervals, one hour before the tour, during the tour (usually an hour) and one hour after the tour. Sea lion locations and behaviours were recorded as were the activities of the tour operator and tourists. No significant behavioural changes were determined for the animals on the beach. There was also no correlation between the number of tourists in the water and the number of sea lions interacting with them. However, individual animals did show reactions like looking up, sitting up and moving further up the beach due to loud noise from the tour operator's dinghy and tourists.

After the swimming interaction with the sea lions the tourists were given a survey to complete. The aim was to see if the tourists had gained any additional knowledge about Australian sea lions and if their attitude towards them had changed. Positive attitude changes could be important to the conservation of the Australian sea lions and their marine environment. The evaluation of the survey showed that tourists joining the tour did not gain any concrete information about the Australian sea lion and their marine life and the tour did not significantly change the tourists' attitude towards making specific contributions to environmental conservation. However, the tour did create an emotional connection for the tourists towards the sea lions.

2 RECOMMENDATIONS AND CONCLUSION

2.1 Discussion about possible guidelines for sea lion interaction

The results from this study show no significant change in sea lions' behaviour due to tourism and I believe that at present this tour operator does not have any major negative impacts on the sea lions. However, this does not mean that it could not change with time and an increase in tourist numbers. I believe it is important to consider some specific guidelines for the approach of the tourists to the sea lions. At present, only 'Ocean Ecotours' is giving information on how to interact with the sea lions. They also make the tourists stay off the beach. However, tourists who choose to 'play' and watch the sea lions without the tour are not given any information about how such interaction should be done. The existing guidelines that apply for swimming with pinnipeds in South Australia are the same as for swimming with all marine mammals (refer to table 1).

Table 1. Part 4 (Miscellaneous) of South Australia's National Parks and Wildlife (Whales and Dolphins) regulations 2000

<p>SWIMMERS AND MARINE MAMMALS</p> <p>17. (1) THIS REGULATION APPLIES TO MARINE MAMMALS EXCEPT WHALES, DOLPHINS AND PORPOISES.</p> <p>A SWIMMER MUST NOT APPROACH CLOSER THAN 10 METERS TO A MARINE MAMMAL.</p> <p>IF A SWIMMER IS SWIMMING TO OBSERVE MARINE MAMMALS AND IS CLOSER THAN 10 METERS TO A MARINE MAMMAL, HE OR SHE MUST NOT CONTINUE SWIMMING FOR THAT PURPOSE UNLESS HE OR SHE EITHER MAINTAINS HIS OR HER POSITION OR MOVES AWAY FROM THE MARINE MAMMAL.</p> <p>EXEMPTION</p> <p>20. (1) THESE REGULATIONS DO NOT APPLY TO A PERSON TO THE EXTENT THAT HE OR SHE IS ACTING REASONABLY IN THE BEST INTERESTS OF A MARINE MAMMAL THAT IS-</p> <p>SUFFERING FROM INJURY, DISEASE OR EXHAUSTION; OR</p> <p>STRANDED OR ENTANGLED OR OTHERWISE INCAPACITATED BY MATERIAL OF HUMAN ORIGIN.</p> <p>(2) THESE REGULATIONS DO NOT APPLY TO A PERSON TO THE EXTENT THAT HE OR SHE IS RESPONDING IN A REASONABLE MANNER TO AN EMERGENCY INVOLVING DANGER TO HUMAN LIFE.</p>
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However, these guidelines are of no value if the visitors do not know about them. It is also not responsible to rely on people being aware of the basic marine mammal guidelines. Additional recommendations are needed that are relevant for interactions with sea lions at Jones Island and else where. Independent tourists going out to Jones Island have to be managed so they will go out to the island with all necessary information for their own safety and to provide minimal disturbance for the sea lions.

It is not unrealistic to assume that in the future Baird Bay's marine mammals will attract more tourists and other tour operators. At present, it is hard to believe that it

could become another Monkey Mia¹. However not many people thought that the remote Monkey Mia would become a world famous attraction. Despite the fact that in Baird Bay the weather has a significant effect on whether or not it is possible to take a tour out, it cannot be ignored that Baird Bay has an enormous potential to become a big tourist attraction. According to Trish Payne, a tour operator from Glenelg ('Temptation sailing') has thought to offer this experience at Baird Bay to its clients. However, this has not yet happened (the reasons are unknown to me). That interest in starting similar 'swimming with sea lions' tours is on the mind of other residents of Eyre Peninsula is known. Eyre Peninsula National Parks have had a request from a potential tour operator (a resident of Streaky Bay) to take tourists out to 'Olive Island' (outside Streaky Bay) to swim with the Australian sea lions (Armstrong 2003). Hence there should be a discussion on what guidelines and information needs to be put in place both for independent swimmers and tour operators. 'Ocean Ecotours' has over nine years of experience and has the wellbeing of the animals as a priority and at present their approach to the sea lions does not show any significant disturbances to the animals. It cannot be forgotten that expertise in interacting with sea lions lies in the hands of 'Ocean Ecotours'. Their specialised knowledge of how to approach this sea lion colony is very important and they need to be consulted about management (including guidelines) of sea lions tours.

The tourism plan for 2003-2008 suggested by the South Australian Tourism Commission (SATC) provides a clear message: "South Australia's tourism vision is to be an inspirational leader in innovative and sustainable tourism" (SATC 2002). In order to reach this goal, a partnership between SATC, researchers and tour operators has to be established. This study aims to provide the first guidelines and outlines what future research need to be undertaken so that Baird Bay will be a sustainable tourism destination.

¹ A popular tourist destination in Western Australia where tourists can have an encounter with dolphins close to the beach.

My contribution to a discussion of guidelines after my observations is the following recommendations:

1. Prohibit unrestricted access Jones Island.

Justification: There is no need for people to land on the island, and from my personal observation and information from the tour operator, it is very stressful for the animals if people land on the island. It was observed to cause many sea lions to flee into the water. This stress for the animals could easily be avoided by a simple regulation.

2. Signage to be put up in Baird Bay to publicise the guidelines on how to 'interact' with the sea lions.

Justification: I recommend putting up a sign in Baird Bay which outlines the guidelines/rules/recommendations for sea lion interactions. Knowledge is the most important factor to create a safe environment for the sea lions and the visitors. Even if the regulations can be difficult to enforce it is important to have guidelines and to publicise them.

3. Exclusion zone for boats and swimmers along the sea lions' resting beach.

Justification: This study implies that there are no major disturbances for the sea lions on the beach when the tour operator anchors or cruises close to the beach. However, during my canoe observations I recorded during nearly every tour some kind of disturbance for individual animals (10 out of 12 tours). Individual animals might sit or look up or open their eyes when the dinghy approached too close. Extensive noise from the anchor, high laughter from the tourists and the aluminium ladder clanging against the aluminium dinghy also caused reactions from individual animals. For minimal disturbance I would recommend a limit on how close boats and tourists can come to the beach. However, because I did not record the distance of the tourists and the dinghy to sea lions when disturbances occurred, I could not accurately recommend a distance, this has to be further looked at. I would recommend to apply a minimum distance for all boats (maybe with an exemption during very low tide when the only way out of the bay is to pass Jones Island). The distance also has to apply to swimmers in the water. Tourists have been observed coming closer than two meters to the beach and their sudden noise or standing up has caused stress among the animals lying on the beach. However, it also has to be considered that the exclusion zone cannot be too far out, as that could

compromise the safety of the swimmers (eg increased risk of sharks and drowning). This exclusion zone should only be implemented after careful analysis of the risks and benefits to both the sea lions on the beach and the swimmers in the water.

4. Minimise the noise associated with tours.

Justification: The short distance between people and animals has caused individual animals on the beach to react to sudden loud noises from the tourists. There should be guidelines to educate people to be quieter when close to the sea lions. People get excited when they are around the sea lions and often the noise level rises considerably. On several occasions tourists also tried to attract the sea lions in the water by making sounds. This made the sea lions on the beach look up when they were lying down. I believe it is important to keep the noise level down and to recognise that we are trespassing in their environment.

5. No chasing after the sea lions.

Justification: People in the water should not try to attract the sea lions back to them when the animals have got tired of interacting with the swimmers by chasing after them. The sea lions' friendly nature and curiosity should not take advantage of to lure them back to 'interact'. When the sea lions have had enough and swim away they should be left alone.

6. Do not try to touch the sea lions.

Justification: The sea lions are extremely friendly and come very close. It is very tempting to try to touch them and on advertising material you can see pictures of people reaching out trying to touch the sea lions. People have to be reminded that they are interacting with wild animals and that they should be treated as such. Having people frequently trying to touch the animals could be devastating both for the sea lions and for the swimmers. We do not know enough about the consequences of touching for the animals or for humans. For example we do not know if there are any diseases which could be transmitted between humans and sea lions.

2.2 Recommendation for the tour operator.

1. Minimise the noise level from tourists and boat.

Justification: The tour operator should try to minimise disturbances such as noise or close approach to the sea lions on the beach. They should try to find a solution for the loud noise the ladder is making every time it goes in and out of the water. Perhaps, to put rubber around the ladder to stop the noise? The tour operator should also remind the tourists that the beach is an important resting area for the sea lions so voices should be kept down. If possible the anchor should not be thrown in when the boat is very close to the beach.

2. Prevent swimming and interacting with sea lions too close to the beach.

Justification: Swimmers standing up close to the beach have caused disturbance among the resting sea lions

3. Provide more quality information about sea lion biology and conservation.

Justification: More information should be given during the tour. Tourists should learn about the features that make the Australian sea lion a unique pinniped species. The tourists should also be informed that this sea lion species is endemic to South Australia and Western Australia. This information is especially important for Australian residents who should know what a special pinniped species Australia has in the Australian sea lion. This knowledge will be important for future support for the conservation of the Australian sea lions and their marine environment. The 'new' information could be mentioned when the tour operator is taking the tourists to watch the sea lions lying on the beach. The engine could be turned off and while the tourists are watching the animals the guide could present an interesting and informative talk about the animals. This new presentation of information together with the information sheet given out at the end of the tour would create good combined information for the tourists. This would not require a big change in the way the tour is currently conducted. The tour operator's dinghy already stays a little bit longer after all tourists are back in the dinghy. This is the time which could be used to give the tourists more details about the sea lions.

4. Clear 'take home messages' about environmental care.

Justification: This study has shown that the tour gives the tourists an emotional connection with the animals. However the results have also shown that the tour does not make the tourists aware of what they can do to in their every day life to contribute to a more sustainable environment. If the tour operator provided examples of contributions, such as minimising the use of plastic bags or the importance of using environmentally friendly products, an awareness for these important measure could be created. It does not have to be a long talk. The information can be implicitly transmitted by for example placing plastic posters on the coffee table or a section in the picture album could give information and ideas about environmental contributions that can preserve the sea lions' marine environment. Information material could for example be gained from Coast Care. Another idea could be to not only sell Ocean Ecotours T-shirts, but also environmentally friendly cotton bags with sea lions printed on them. I believe that giving this kind of information together with the new 'friendship' that develops between tourists and sea lions will form a strong message for tourists to take home and remember.

2.3 Recommendations for future studies.

It is difficult to predict how popular Baird Bay marine mammals will become in the future, because at present there is no other tourists destination where tourists can swim with both sea lions and dolphins. However we know that it is important to make an early start monitoring the different aspects of how tourism can affect the sea lions. This study is the first done in Baird Bay and provides answers to my initial questions about the possible impact of the tours on the sea lions. It has now led me to ask further questions, especially about the impacts of the tours on sea lions' behaviour. My recommendations for future studies are:

1. A follow up survey for the tourists on 'Ocean Ecotours'.

Justification: If the tour operator will implement some of the changes that I have suggested to inform guests more about the sea lions and possible contributions to their conservation it would be interesting to follow up with another survey to see how successful the changes are. If they prove to be successful the results could be valuable for similar tours.

2. Determine if the 'resting' sea lions have their eyes open or closed.

Justification: Because my observations were made from an unstable canoe and using binoculars most of the time I could not determine if the animals on the beach had their eyes opened or closed. For future studies it would be valuable to be able to observe the animals' eyes. This could provide a better assessment of whether or not the animals are getting disturbed. Having their eyes open or closed could be a significant difference in their quality of resting time. Perhaps a stable 'platform' (eg such as a pyramidal framework with a seat on top that could be dropped in a area of flat bottom near the beach) would make it easier to observe the eyes of the animals and determine their cohort and sex. However, it cannot be at the cost of major disturbance for the marine life.

3. Have more than one researcher to observe the 'interaction' between sea lions and swimmers.

Justification: I recommend having two researchers: one on the tour operator's dinghy to help with the observation and counting of sea lions in the water with the swimmers to minimise the risk of missing animals, and one in another location to observe animals on the beach.

4. The sea lions 'interacting' behaviour towards swimmers.

Justification: The sea lions' behaviour when interacting with swimmers could be more closely examined. For example how does the sea lions' behaviour change towards a swimmer showing an active versus a passive interaction with them.

5. The number and duration of sea lions 'interacting' with the swimmers.

Justification: This should regularly be recorded to enable a comparison between peak and low season. For example, there might be fewer sea lions and they might get 'bored' faster if there have been many successive tours compared with when there has been a long time between successive tours. These data could be important for comparisons with future studies, especially to determine if the sea lions behaviour changes in the long term. The data would also be valuable for comparisons with other 'swim with sea lion' attractions if, and when, they develop.

6. Do the sea lion pups 'play' further and further away from the beach?

Justification: Do the sea lions' pups have a tendency to 'play' further and further away from the beach to avoid the tourist boat? Also, a laser range finder could measure the distance between tourists and 'self-playing' sea lions to gain a better understanding of

any relationships between the two activities. This could be a gradual change that would only be detectable with a long-term monitoring scheme.

7. Conduct a study including the sea lions 18 month breeding cycle.

Justification: The data presented in this thesis is from a very short-term study and was mostly undertaken during the peak season and the start of the 2003 breeding season. It would be much better to conduct a study that lasted over the entire 18 months cycle. Does sea lion behaviour change depending on the stage of their breeding season, the climatic season or the tourist seasons?

8. Regularly record the number of pups born at Jones Island.

Justification: There is a debate whether the population size at Jones Island has increased since the start of the tour. It would be of value to regularly record the number of pups born on the island to find out if the Jones Island sea lion population is stable, increasing or decreasing.

9. Sensitivity to sudden noise.

Justification: Individual animals are disturbed by high level of noise. This research did not try to determine the noise level required to avoid disturbance. Trials with different noises could be made from different distances or with different noise levels from one site to find out the 'safe' distance and/or volume to minimise disturbance to the animals on the beach.

10. Find the 'carrying capacity' of the colony on Jones Island.

Justification: This study did not investigate the carrying capacity for tours that the site could tolerate without reducing the wellbeing of the sea lions or the quality of the experience for the tourists. It is important to estimate this carrying capacity and use it to develop a management plan for how many tours are allowed.

11. Zoning of access to parts of the sea ways around Jones Island.

Justification: I would recommend to look into a zoning approach similar to that on Seal Bay on Kangaroo Island, especially if there is an increase in tours and independent visitors. It may be necessary to prohibit access to some areas and limit access to other areas to people escorted by a suitably qualified guide (as at Seal Bay). I think it is important that the sea lions have a place in the water and on the island where they have minimal interference from humans. For example, the Southern beach is the one that the sea lions use to get up onto the

island and here the cows also take down their pups. This beach was not part of this study and future studies of its importance to the sea lion population may show that its surrounding water should be off limit for boats and people. However, zoning should not be implemented without further studies and consultation with the tour operator.

12. Monitor movements of the sea lions.

Justification: Individual animals that have shown changes in behaviour could be animals that have not yet habituated. If in the future a non-intrusive way could be found to mark individual animals, it could be possible to monitor the movement of the animals. The tour operator is strongly opposed to any disturbance of the sea lions that might change their behaviours and hence has objected to previous plans to mark the population. If nearby colonies were marked (non-intrusive), then dispersal into Jones Island colony from these colonies could be detected. If possible it would also be interesting to track the movement of the sea lions that are in the water when the tour boat is arriving to see if the animals are swimming away or towards the boat.

13. Monitoring sea lions behaviour before a new tourism venture begins.

Justification: It is also important to record what happens to the animals before habituation has been reached. If possible, before a new tourism venture involving swimming with sea lions is approved, observations should be made of the animals' behaviour and population numbers. If feasible, this should continue until habituation is thought to be reached to document the changes that occurred during the introduction of tourism.

2.4 Conclusion

My results show that most of the sea lions at Jones Island have become habituated to 'Ocean Ecotours' tours. The tour guests gain an emotional bonding with the sea lions. However, they do not leave with any concrete new information about them. With these results in mind do we consider this tour as being negative or positive for the sea lions?

Given the current number of tours, the number of tourists per tour and the way 'Ocean Ecotours' is approaching the sea lions, this study shows that the tour operator produces only minimal disturbance to a few of the sea lions on the beach. To irrevocably conclude that there are no significant disturbances due to tourism will require more research. A guideline is needed to determine at which stage tourism is considered negative for the animals' behaviour, eg how many percent of animals must alter their behaviour before the impacts are considered to be negative. As Higham (1998) mentions, it takes years to detect changes that habituation could have on the animals. What also needs to be remembered is that there are no records documenting what changes occurred to the Jones Island sea lion colony during the period it took the sea lions to reach signs of habituation.

The results from the tourist survey highlight the need for this eco style tour to provide better information to its clients. I strongly recommend 'Ocean Ecotours' to provide their guests with better information about the colony they are exploiting. They should also try to make the tourists understand that their behaviour on land can affect the marine life the sea lions live in. As the results show, if the tour operators do not explicitly explain to the tourists what contributions they can make towards the conservation of the sea lions and their marine environment, the tourists will leave with an emotional connection for the sea lions but will not understand that: recycling, donating money, buying environmental friendly products etc. can help the conservation of the sea lions. However, with some changes the tour operator could have more positive impacts on the sea lions by providing an awareness among their guests about different critical facts concerning the Australian sea lions, what threats they are facing for their future survival and what contributions tourists could make for their conservation.

In conclusion, I suggest the effect of 'Ocean Ecotours' to be neutral towards the behaviour of the sea lion colony at Jones Island and the species in general but positive for the overall wellbeing of this particular colony. However, my results should not be interpreted as being permanent. For example more tours, bigger groups or frequent improper behaviour of tourists approaching the sea lions could initiate negative impacts on the sea lions' behaviour. On the other side, with

effective restrictions and guidelines put in place the observed disturbance of individual animals, for example due to different loud noises, could be avoided. This study has given a first insight into how 'Ocean Ecotours' impacts the sea lion colony at Jones Island. Further research is required now to answer the questions that this study has revealed. I hope that study will start a discussion on which guidelines need to be implemented so that future tours will cause minimal disturbance to all sea lions at Jones Island.

3 REFERENCE:

Armstrong, D. *Personal communication March 2003*. David is the head ranger with Baird Bay in his jurisdiction.

Higham, J.E.S. 1998, 'Tourists and albatrosses: the dynamics of tourism at the Northern Royal Albatross Colony, Taiaroa Head, New Zealand', *Tourism Management*, vol. 19. pp. 521-531.