



PRELIMINARY ADVICE AND RECOMMENDATIONS FOR THE MINIMISATION
OF POTENTIAL IMPACTS OF THE SSDP UPON MARINE MAMMALS NEAR
BINNINGUP, WA.

Draft memo 2

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Summary of preliminary advice and recommendations

The final operational marine structure of the SSDP will be a series of long sub-surface pipelines extending approximately 1 km offshore of Binningup. Based on underwater video of a similar operational Desalination plant at Kwinana, the structure will support a variety of benthic organisms encrusted on its surface with assemblages of fish species along its length. There will also be a semi-permanent plume of hyper-saline effluent around the diffusers of the outlet pipeline that gradually dilutes with distance from the outlets.

Marine mammals (cetaceans and pinnipeds) are common along the coastline of WA and may also be frequent visitors near the proposed SSDP at Binningup. The advice included in this report addresses the following questions:

- What are the likely impacts of this operational structure and the effluent on marine mammals?
- What are the likely impacts of the construction of this structure on marine mammals?
- How will the presence of marine mammals be managed during the construction phase?

Information available on the occurrence, species diversity, abundance, distribution and movements of marine mammals is extremely limited at or near the proposed SSDP at Binningup. There have been no directed surveys on marine mammals near Binninup and indeed in the local area, so any advice is therefore based on information gained from any local knowledge, relevant literature and previous experience working with marine mammals, particularly cetaceans and will be preliminary in nature. Pinniped (sea lion and seal) species may also use this area as well.

Confirmed cetacean species at Binningup include southern right whales and dolphins, most likely Bottlenose dolphins. Photographs taken in October 2007 show a female and calf southern right whale resting approximately 200m off the shoreline close to the proposed pipeline structures. Local people have observed groups of dolphins at various times in the area. Other cetacean species may well use this area at various times for different purposes including resting, socialising, feeding migrating and possibly calving and nursing of young.

Cetaceans are by nature mobile, nomadic or migrational species that move at times vast distances usually from feeding to breeding areas. Therefore to obtain useful information on their life histories, long-term studies are essential and these need to cover relatively large areas. Local studies can provide a small piece of a usually much bigger picture. Cetaceans are top order predators and are therefore essential for ecosystem health.

Potential Impacts on Marine Mammals

Operational stage

Hyper-saline effluent discharge

It is unlikely that the discharge will impact on cetaceans, both at an individual and population level as these animals are presumably able to sense changes in water salinity and density and avoid if necessary.

Although effects of diluted hyper-saline discharge on cetaceans are unknown it is unlikely that presumed very low levels of contaminants in the effluent will impact on any marine mammal species, as it will depend on the concentrations and degree of exposure for different species. This will require further consideration and investigation.

Pipeline structures

The structures will present as a new underwater object in the area to marine mammals. For large cetaceans with calves, such as southern right whales, there may be some displacement from the immediate area containing these structures if that area is being used as a migratory corridor or calving/nursing ground. This would probably not impact on the overall recovery of the population. The structure may also provide feeding opportunities for some of the smaller cetacean species such as dolphins, with the increased diversity of fish life.

Construction stage

The most likely perturbations of the local environment during construction are new objects on the seabed, noise sources (blasting, pile-driving, boat motors), turbidity and boats in the water.

It is likely that noise will cause some cetacean species to be displaced to some degree during the construction phase, especially from high energy blasting and pile-driving. This noise is also capable of inducing physiological damage and even death to cetaceans if they are too close. Construction activities will be localised and temporary in nature, and some species may develop new movement or migratory patterns to avoid these activities and will unlikely impact on their population.

Management of cetaceans during the construction of the pipelines.

As described in the Management Plans for the Seawater Pipeline Installation, an exclusion zone is to be established around the pipeline alignment. It is recommended that the zone be at least 1km from either side of the alignment so that it can be used both for local vessel traffic as well as for marine mammal management.

The suggested use of an Ocean watch vessel for boat and cetacean management and land based observers for cetacean monitoring and hour before any blasting or pile driving is very important and provides good coverage of the area, especially in marginal weather conditions. However an effective observation protocol is required to detect cetaceans (and Pinnipeds) that venture into the local area during construction of the pipelines on a daily basis.

The best way to do this is have a number of personnel equipped with binoculars and versed in identification of the likely cetacean species on an elevated vantage point or series of points that will provide a high degree of coverage over the construction area. The observers will be in radio contact with those involved in the construction and on the vessel to give alert if any cetaceans are sighted. The series of Marine warning buoys will serve as distance markers for both small boats as well as distance estimation by the observers. Records are required for daily observations and estimates of distances and bearings will also assist with monitoring movement and direction in relation to the construction.

Recommendations

As an overall summary it is recommended that a series of studies be undertaken which will encompass the pre and post construction periods in addition to the time during construction that will require a unique set of guidelines for the observation of marine mammals within close proximity of the site. Three methods are proposed and a suitable mix of these may serve as a useful scenario for data collection to enable a better understanding of marine mammal use of the area before, during and after the construction of the SSDP (Figure 1) and give relevance to studies in the broader area of Geographe Bay:

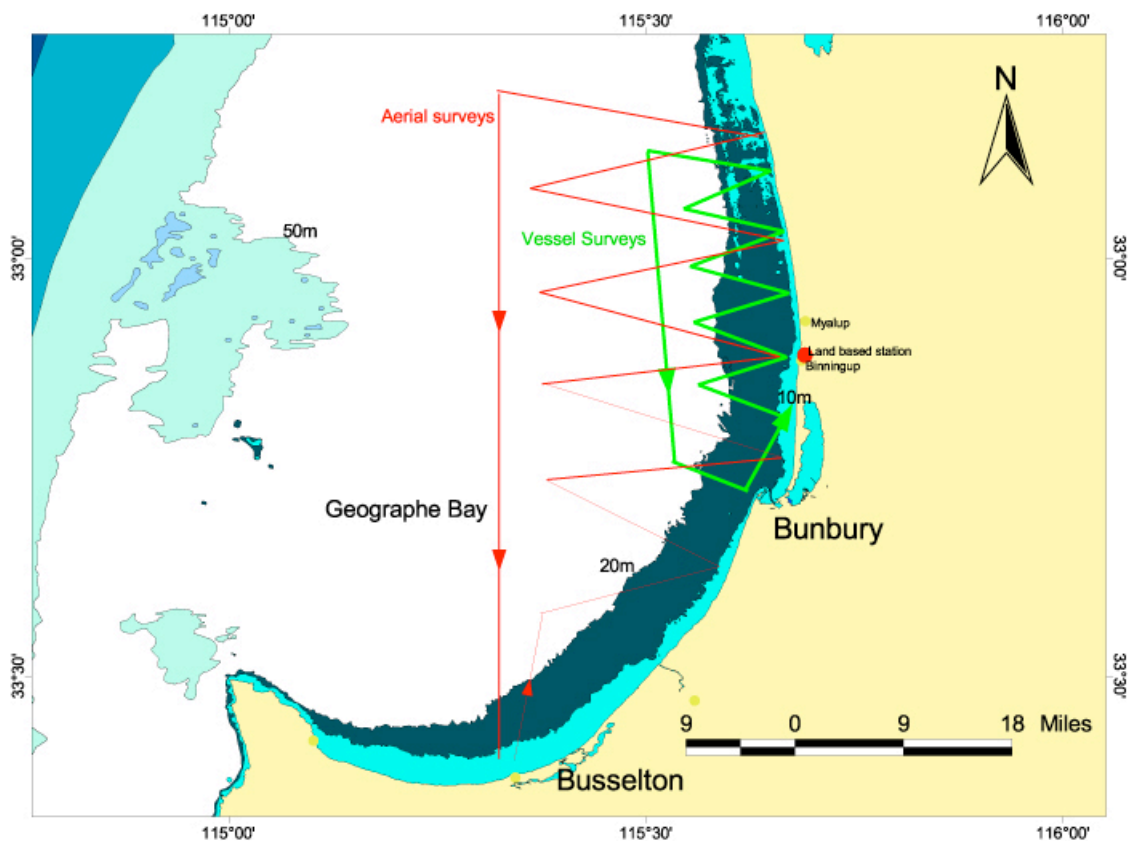
- Aerial surveys will give a set of data that describes a regional perspective out to approximately 20-50km;
- Vessel based surveys will identify species distribution and movements within 10-20km from the site.
- Land based observations will provide more local distribution and movement patterns of selected species over a reasonable time frame.

Land based observations are able to determine the use of the nearby ocean areas by cetaceans, and in particular the southern right whale that has been recently shown very close to land (within 200m from photographs).

Acoustic loggers may also play a significant part in the understanding of marine mammal use of the area by the collection of species specific calls and anthropogenic sound, including that of the construction phase.

In addition a desktop study can provide work that encompasses all other relevant available information on whales and dolphins.

Figure 1. Proposed aerial, vessel and land based survey tracks in relation to the Binningup Desal Development site.



Conclusion

It is unlikely that the construction and operation of the SSDP will result in any marine mammal impact as long as adequate management practices and recommendations as outlined in this summary report are carried out.