

**COMMENT ON THE MARINE ECOLOGY REPORT
THYSPUNT NUCLEAR 1 DRAFT ENVIRONMENTAL 2nd DRAFT IMPACT ASSESSMENT
REPORT**

Prepared by: Trudi Malan on behalf of the Thyspunt Alliance.

We are of the opinion that the Marine Ecology Report should be redone. The fact that the study does not include detailed information with regard to off-shore structures that will influence and impact the marine environment as well as the failure of the specialist to include information on species of special significance constitutes a serious flaw. The information in the DEIR is therefore incorrect and in contravention of section 81(1) of the EIA Regulations.

We fail to understand how in the assessment of impact tables in the Marine Ecology Report the Impact on irreplaceable resources is recorded as Medium while for Thyspunt it is reflected as low. Our only conclusion is the failure to record certain species of special significance at Thyspunt.
Bantamsklip Table:

Impact	Nature	Intensity	Extent	Duration	Impact on irreplaceable resources	Consequence	Probability	Significance	Confidence level
Impacts resulting from disruption of the marine environment during construction Due to construction of the cooling water intake and outflow systems	Negative	Medium	Low	Medium	Medium	Medium	High	Medium	High

Thyspunt Table:

Impact	Nature	Intensity	Extent	Duration	Impact on irreplaceable resources	Consequence	Probability	Significance	Confidence level
Impacts resulting from disruption of the marine environment during construction Due to construction of the cooling water intake and outflow systems	Negative	Medium	Low	Medium	Low	Medium	High	Medium	High

There seem to be a discrepancy between the impact tables in Chapter 9 of the DEIR. The disruption during construction: Due to construction of the cooling water intake & outflow systems is recorded as HIGH for Bantamsklip but as Low-Medium for Thyspunt.

1.2.1 Assumptions and limitations

The chlorination regime applied to abstracted cooling water will consist of an estimated 2 mg/kg of chlorine released on a continuous basis.

No reference is made of the 4 x daily flushing exercise

At present a technical feasibility study is underway, considering the logistics of spoil disposal at sea at the Thyspunt site. To date no technical fatal flaws have been identified (Eskom position paper 2011). As a necessity, recommendations made in this specialist report assume technical feasibility of the proposed disposal options at Duynefontein and Bantamsklip.

This statement clearly indicates the bias towards the Thyspunt Site. Eskom is not awaiting the outcome of the DEIR and the document is littered with references to Eskom studies. These studies are not part of the DEIR and therefore I&AP's cannot comment on the validity of these statements.

We maintain that the specialist cannot determine impact unless they are aware of the construction methods and locations.

2.3.1 General Description

No rare or endangered species are known from the site, and no sites of special biological significance occur within the designated area (Jackson and Lipschitz 1984),

We find it unacceptable that a 27 year old study can be used as a reference for an EIR of this importance.

2.3.3 The Benthic Environment

Both sandy and rocky bottoms are present in the vicinity of Thyspunt (Nuclear Site Investigation Programme; Eastern Cape 1988). Rocky shores are often steep vertical rock-faces (Figure 6). Species composition and abundance in these habitats are typical of the region. Rocky reef communities are dominated by colonial ascidians, hydroids and sponges, with coralline algae being important to a depth of about 20 m (Nuclear Power Investigations; Eastern Cape 1988). The benthic environment demonstrates medium tolerance to disturbance and as a result is rated as a medium sensitivity habitat.

We fail to understand how the specialist can so glibly brush over the benthic environment. If the description of the benthic environment for Thyspunt & Bantamsklip is compared it is clear that there has been very little done to describe or research this environment at the Thyspunt site. The specialists make no mention of the presence of abalone at the Thyspunt site but they seem to be very concerned about the abalone at Bantamsklip. They do note that abalone is a species listed as endangered in terms of CITES Appendix III (CITES 2007) in the Bantamsklip description. The CITES regulations is not limited to a specific area and the abalone present at Thyspunt has the same value as the abalone at Bantamsklip. We consider this omission as a further indication that the Marine Ecological Report should be re-done. We are of the opinion that the impacts have not been assessed due to the lack of information about the planned structures.

No mention is made of any of the review work conducted for the National Biodiversity Spatial Assessment of the benthic environment of the Agulhas Bioregion (Lombard *et al* 2004). The threat status of this biozone was defined as vulnerable, with extractive utilisation of marine resources identified as the greatest threat (Lombard *et al* 2004). Pollution, mining and climate change were listed as additional significant threats to marine biodiversity in the Agulhas subphotic biozone (Lombard *et al*, 2004).

2.3.5 Avifauna

The complete lack of attention to the Thyspunt site is again reflected in this point. One only has to compare the listed species to the description of the other two sites to realise that the Thyspunt site has been neglected. We believe this is in part due to the fact that the specialists are based in the Western Cape. We would like to refer the specialist to comments made by the Vertebrate Faunal

Specialist in his report. It will provide more clarity on some of the threatened species occurring on the site.

3.3.1 Disruption of the marine environment during construction

As at the other sites, the construction of an intake and outfall system for cooling water will result in temporary but severe localised disruption to the marine environment.

No mention is made of the placement of pipes and pump-stations to pump the spoil 6km out to sea and the possible impacts related to this infrastructure.

There is no description or discussion of the physical damage during installation and construction.

There is no assessment of the increase in hard substrate habitat.

The presence of abalone at the site is again completely ignored.

The long discussion with regard to squid is appreciated as this issue has previously been ignored. We still believe that the information provided is not complete and we would again state that the Marine Ecology Report should be redone in its entirety. The Scientific Squid Working Group should be afforded more time to provide comments. We find the fact that they were eventually only contacted after the second DEIR was published unacceptable.

Again no mention is made about the possible impact on abalone.

3.3.2 Abstraction of cooling water and subsequent entrainment of organisms

Again higher ambient water temperatures than those occurring at KNPS (i.e. maximum and minimum sea surface temperatures of 22.5 and 16.6°C respectively (Shillington 2007)) are expected to increase the toxicity of chlorination (Huggett and Cook 1991) when compared to the west coast site.

Mention is made about increased toxicity, but the possible impacts of the increased toxicity is not discussed.

However, long-term climate change induced decreases in sea-surface temperatures along this section of coast (Rouault et al.2009) may reduce this effect in the long term.

The above statement is in conflict with Coastal Engineering Report Rev 5, Appendix G, which indicates the following in Table 3.1 on page 4:

Parameter	Change
Sea level rise to 2100	+ 0.8 m
Sea temperature	+ 3°C
Wind speed	+ 10%
Wave height	+ 17%
Storm surge	+ 21%

No species of commercial value are likely to be affected by entrainment.

We fail to understand why the report will only focus on species of commercial value. We do not judge ecosystems solely on the commercial value of species. The possible impact on the biodiversity should be discussed.

The lower productivity of nearshore waters in this area is, however, expected to result in less entrainment of organisms and little effect on the marine environment at Thyspunt.

We would content that this statement is not true and not based on recent research.

The California Energy Commission commissioned a report on "Issues and environmental impacts associated with once-through cooling at California's Coastal Power Plants." (Addendum 1 to Marine Ecology Review)

The following quote is from the abstract & summary of this report:

"There is no question that the once-through cooling systems of coastal power plants cause adverse environmental impacts - the cooling systems kill vast numbers of marine plants and animals, and may alter receiving water habitats over large areas. The severity of the impact can be ecologically important - conclusions by Regional Water Quality Control Boards of "no adverse impact," based on studies done in the 1970's and early 1980's and more recent NPDES monitoring, have been shown to be wrong at all plants recently reassessed using study approaches and analyses based on present scientific knowledge.

For example, recent studies at Moss Landing and Morro Bay have shown that power plant cooling systems previously thought to have no adverse impacts may kill 10- 30% of the larvae of particular fish species in the source water. It can be argued that while the early impact assessments were, in retrospect, of uncertain accuracy, they were acceptable given knowledge at the time. This is true relative to the ability to identify larvae and models available to evaluate impacts, but it is not true for sampling designs. Pilot studies to determine the most accurate way to sample entrained larvae and to determine putative survivorship after passing through a cooling system were poorly designed,

and insufficient attention was given to sampling designs that would optimize detection of thermal and entrainment impacts.”

In May 2010 Californian regulators adopted a policy requiring coastal power plants - including the state's two nuclear power plants - to phase out the use of once-through cooling systems.

3.3.3 Release of warmed cooling water

No input of warmed water comparable to that of the proposed development exists along this section of coast. As this site lies at the warm end of the Agulhas Bioregion it could be argued that a portion of species occurring here may be near the upper end of their temperature tolerance range and hence could be particularly vulnerable to further temperature increase. Although theoretically possible, this is however, unsubstantiated.

The last statement in this paragraph is cause for concern. If this is theoretically possible the specialist should either substantiate the probability or follow the precautionary principle. Either way, the report should consider all possible impacts and if this impact is possible it should be discussed.

Again the report does not discuss the impact on the abalone population found at this site.

3.3.4 Release of desalination effluent

The South African Water Quality Guidelines for Coastal Marine Waters states a target range of 33 ppt to 36 ppt for salinity of effluents entering the sea (Department of Water Affairs and Forestry 1995). These guidelines will be met by this development during the operational phase. Although they will not be met during the construction phase, dilution will occur within 110 m of the point of release.

As the brine released during the construction phase will not meet the South African Water Quality Guidelines we believe that all possible ecological impacts should be discussed. The statement: ***“Any ecological impacts will be focused within the water column due to the high energy of the surf zone.”*** does not describe the possible impacts.

3.3.5 Radiation emissions

In the improbable event of a nuclear accident affecting the marine environment, mortalities are expected to be focused in the general area of the power station. Highly mobile species, such as fish, exposed to low to intermediate levels of radiation may, however, move great distances. This could pose a threat to public health if these fish were later consumed.

As was clear from the recent events in Japan, the large discharge of radioactive water into the marine environment should be discussed in more detail. The statement: “this could pose a threat” should be changed to: “this would pose a threat”. There is no doubt in any of the scientific studies available that there will be a threat to human health in the event of an accident, the “toning down” of this threat by using semantics is unacceptable.