

Tasmanian Conservation Trust Submission to:
Basslink Joint Advisory Panel
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**COMMENTS ON THE MARINE ENVIRONMENT
ASPECTS OF THE DRAFT BASSLINK INTEGRATED
IMPACT ASSESSMENT STATEMENT**

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August 2001

Please note that this submission is additional to Tasmanian Conservation Trust submissions to the Basslink Joint Advisory Panel on other aspects of the Basslink Integrated Impact Assessment Statement.

Comments on the Draft Basslink Integrated Impact Assessment Statement

1. INTRODUCTION

This submission looks at those sections of the Integrated Impact Assessment Statement that relates to the marine environment.

It does not cover those sections that deal with terrestrial or freshwater impacts.

It is also not concerned with the economic aspects of this development, although it is worth pointing out that the Tasmanian Government appears to bear the full economic risk of this undertaking. A market for Tasmanian power at a reasonable price on the mainland is by no means guaranteed, especially considering increasing power production capability on the mainland. There is little the Hydro Tasmania can do to manage economic risks associated with new generating capacity in Victoria and expanded capacity in the interconnections to New South Wales and South Australia. There is also little that Hydro can do if the current review of the National Electricity Market achieves its aim and reduces the volatility in electricity prices, especially in the very high prices for peak power which is the very market that Tasmanian hydroelectricity is best suited for.

The Tasmanian community will pay the cost of any mistake in this area.

It is likely that the Tasmanian community will also have to bear much of the cost of any environmental impacts associated with this development.

The rest of this submission looks at a range of problems associated with the marine environment that we have noted with the Integrated Impact Assessment Statement prepared by the Basslink proponents.

2. PROBLEMS WITH INTEGRATED IMPACT ASSESSMENT STATEMENT

Lack of Comparison between Cable Types

A fundamental flaw in the Integrated Impact Assessment Statement (IIAS) is that it does not make any useful comparison between the various cable options available to transfer electricity between Tasmania and mainland Australia. While the monopole underwater cable system being proposed is no doubt the cheapest, it would be useful to have a reliable indication of the difference in cost between all potential different systems, and in particular a bipolar cable in a protective casing buried approximately 1 m below the seabed.

With regard to environmental concerns, a bipolar cable in a protective casing buried approximately 1 m below the seabed could be expected to have minimal, and acceptable, environmental impacts. This option should have been investigated as part of the IIAS.

Outdated Technology

Data relating to monopole cables in the Baltic are used by the IIAS to illustrate that the environmental impacts of this sort of technology are acceptable. In fact the current situation is that concerns about the environmental impacts of monopole power cables in Europe mean that no more cables of this type will be constructed and that existing monopole cables will be decommissioned or converted to metallic return systems. Why should Australia allow the construction of a type of cable that has been rejected as having too great an impact on the environment in Europe?

Unsupported Hyperbole

Statements unsupported by fact can be found in the IIAS. For example, Chapter 10 discusses the effect of electromagnetic fields on migratory species and on page 61 states that the “...*annual salmon runs have continued unabated to the rich coastal salmon fishing grounds of south Sweden (e.g., Blekinge coast) and then upriver to Sweden’s famous salmon rivers, such as the Mörrum River.*”

The reality is that salmon fishing has actually declined in southern Sweden. Imported and farmed fish dominate the local market and present.

It is of course impossible to conclude that this decline is related directly to undersea power cables of any description, given the current level of knowledge. However the simple fact that the IIAS makes a factually incorrect statement to support its position that undersea power cables have not damaged local fish stocks would seem to be deliberately misleading and undermines the credibility of the report.

3. IMPACTS ON THE MARINE FISHERS AND NAVIGATION

Recreational Fishers

IIAS 10-33 (Paragraphs 6,7&8) "*There is little recreational fishing ...*" in the area of the cable. This position is incorrect. Marine and Safety Tasmania have advised that, depending on the Post Code areas selected, there are between 4000 and 5000 boats registered in the Northern area. Approximately 10% could be expected to fish in the area between Tamar Heads to Bridport. Considerable seasonal increases occur in local fishing populations in those locations with launching facilities and jetties.

Compass Effects

IIAS 10-65 "*During operation, the magnetic field generated around Basslink marine infrastructure has the potential to cause compass deviation in the vicinity of the cable.*"

There is also the statement (IIAS 10-59) that "*Commercial shipping and fishing almost exclusively use navigation equipment which does not rely on magnetic compass*". This is incorrect. Survey authorities require vessels to have magnetic compasses in proper working order and vessel navigators are required to be competent in their use in the event of electronic break down.

Recreational vessels currently rely almost entirely on magnetic compass used at the most basic level to ensure their safety at times of low visibility.

In addition the autopilot mechanism on many vessels depends on a magnetic compass. This includes meaning large commercial vessels that would otherwise use electronic GPS to navigate.

Significant compass deviations have the potential to place the vessels of both commercial and recreational uses at risk. The simple denial of the reality of the risk of impacts on navigation aids relying on the earth's magnetic field in the IIAS does not bode well for a constructive approach to mitigating its impact.

4. IMPACTS ON THE MARINE LIFE AND MARINE ENVIRONMENT

Monopole Cables Impact on Marine Life

The presence of an underwater monopole power cable across Bass Strait may have a significant impact on some forms of marine life. In particular the electromagnetic fields generated by the cable may seriously impact the behavior of many species of sharks and rays. Many species of sharks and rays are very sensitive to electromagnetic fields. For example, many rays can detect the electromagnetic fields generated by prey animals buried and hidden in the substrate. Electromagnetic fields may also be important for navigation during the migration of some species.

A strong artificial electromagnetic field created by the proposed power cable across Bass Strait may well act as a barrier for many species of sharks and rays, severely disrupting normal feeding, other vital behaviors as well as patterns of movement.

This environmental impact could have secondary economic impacts if populations of commercial species such as school and gummy sharks were significantly impacted. These species are already under severe pressure from the commercial fishing industry.

Other marine animals may also be affected, including fish such as eels and cetaceans. Evidence from the Baltic suggests that the movement of eels can be modified by the presence of monopole cables, in contrast to the assertion in the IAS. It is worth pointing out that whichever way these results are interpreted, these studies rely on such a small number of experimental animals that any results must be viewed with caution.

The relationship between electromagnetic fields and the stranding of cetaceans is inconclusive, but has certainly not been discounted and is worthy of further investigation. Bass Strait is an important habitat for many species of Cetacea.

Lack of Information about Local Species and Conditions

There is a notable lack of basic scientific research on the environmental impacts of a monopole cable on the marine environment of Bass Strait and local marine species. What evidence is put forward is minimal, and drawn from studies undertaken in the northern hemisphere, of the Baltic Sea being an important area in this regard. It must be pointed out that the Baltic Sea is a very different environment to Bass Strait and has a very different salinity regime, temperature regime, exposure regime etc and of course the marine species are also generally different.

Chemical Products at the Anode

During the operation of the monopole cable, chlorine gas and hydroxide ions would be produced at the anode. Hypochlorous acid, a powerful fungicide, would be produced as the chlorine gas reacted with sea water. Alkalinity would also be increased.

Other chemical processes associated with the operation of the anode will produce phenols, chloroform, carbon tetrachloride hypobromous acid and other chemical byproducts. These materials are toxic and Chlorophenols and bromophenols can bioaccumulate.

A range of additional and unpredictable reactions will take place depending on the quantity and type of available organic matter in the water.

The observation is made in the IAS (10-35, 10-69 and 10-80) that brown algae exposed to the chlorine reaction products continue growing on the anode. Apparently these observations are made to suggest that chlorine reaction products are not particularly harmful to marine life. In fact brown algae are particularly resistant to chlorine reaction products, as they use them as a protective mechanism, and can not be used to support this position.

This observation certainly should not be used to suggest that chlorine reaction products are not relatively toxic. The suggestion has made that chlorine is used in drinking water for human consumption and is therefore environmentally friendly. Of course the whole point of using chlorine is to kill aquatic life which may be pathogenic to humans.

Relying simply on water movement to flush the area around the anode and reduce the concentration of chemical products may not be adequate, particularly in the case of materials that can bioaccumulate.

Water movement around the anode may also mean that the same water repeatedly passes over the anode so that the flushing effect will be reduced.

The close proximity of the seal colony at Tenth Island is also of great concern with regard to the production of chemical pollutants at the anode.

Derived Chlorine Criteria

IIAS 10-75 states "Owing to the absence of free chlorine at distance from the anode surface, the USEPA chronic criterion for chlorine of 7.5 microgrammes was divided by two to derive an ambient water quality of 3.75 microgrammes per litre for chlorine produced oxidants. Similarly a value of 6.75 microgrammes was used as a derived USEPA acute criterion for chlorine. These derived criteria are used as surrogates for the USEPA water quality criteria for chlorine."

It is generally accepted that chlorine is normally converted at the anode, so it appears to be pointless to aim to measure free chlorine at a distance from the anode. The derived criterion should not be compared with USEPA water quality criteria for chlorine. It is meaningless to do so.

5. CONCLUSIONS

The IIAS presents much information, but unfortunately does not adequately deal with economic concerns and environmental impacts on the marine environment of Bass Strait. Eel studies in the Baltic, and incorrect statements about the Swedish salmon fishery only serve to undermine the credibility of the entire IIAS.

Precautionary Principle

While the IIAS is an impressive seeming document, its sheer mass contradicts the fact that the main impacts of a monopole underwater cable system on the marine environment in Bass Strait are poorly understood. There is no significant experimental data to support a position that environmental impacts will be negligible on local species. The Precautionary Principle has become a widely used management tool in recent years, and its application to this situation would indicate that much more research is required before impacts on the marine environment can be quantified or justified.

Additional Research

Currently, the state of knowledge about the environmental impacts of the monopole cable system being proposed by Basslink means that many concerns can not be properly addressed.

Before the monopole system should even be considered, it is essential that research on impacts on electrosensitive marine life and chemical pollution produced at the anode be undertaken.

There is also need for baseline studies prior to installation of any cable so that there is a reasonable chance of determining impacts of the cable once it is made operational.

Decision Rules

Decision rules should be developed to cope with environmental problems as they develop. These should include a clear indication of who is responsible for paying for mitigation, and if the cable proves to be having unacceptable environmental impacts, it should be made clear as to who is responsible for bearing the cost of closing the cable down.

The Encased and Buried Bipolar Cable Option

A bipolar cable in a protective case buried approximately 1m below the seabed is likely to have insignificant environmental impacts. The Tasmanian Conservation Trust suggests that if Tasmania must be connected to the national grid, this is currently the only environmentally acceptable method of doing so.

We are told that clean, green and clever are Tasmania's selling point in the global marketplace. The use of a cheap and dirty technology, represented by a monopole cable, is completely at odds with this image, particularly with uncertain economic benefits.

Potential economic and environmental costs associated with the current Basslink proposal mean that Tasmania cannot afford to use a monopole underwater cable.