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ENVIRONMENT RESOURCES AND DEVELOPMENT COURT

(Her Honour Judge Trenorden, Commissioner Hodgson and Commissioner Berriman)

CONS COUNCIL OF SA v DAC & TUNA BOAT OWNERS ASSOC (NO 2)

Judgement of Environment, Resources and Development Court

16 December 1999

LOCAL GOVERNMENT - TOWN PLANNING

Development - building work - change of use of land - whether use of marine waters is use of land.

Aquaculture - tuna farms - ecologically sustainable development - impacts of tuna farming on marine environment/coastal environment - visual amenity - harm to wildlife - whether impacts manageable.

Need to obtain lease/licence to farm fish - consideration of grant of development approval relying upon management under fish farm licence - power to attach and vary conditions under fish farm licence - consideration of Fisheries Act provisions.

Development Act 1993; *Environment, Resources and Development Court Act 1993*; *Harbors and Navigation Act 1993*; *Fisheries Act 1982*; *Environment Protection Act 1993*, referred to. *Keane v Kleem* (1988) 50 SASR 66; *City of Noarlunga v Fraser* (1986) 42 SASR 450; *Hafza v Director General of Social Security* (1985) 60 ALR 674; *Attorney-General v Wdght* (1987) 2 QB 318; *Port Vincent Progress Association v Development Assessment Commission & Colmion Pty Ltd* J/number [1999] SAERDC 7; *Attorney General (British Columbia) v Attorney General (Canada)* (1914) AC 153, *Harper v Minister for Sea Fisheries* (1989) 168 CLR 314; *Bienke v Minister for Primary Industries and Energy* (1996) 135 ALR 128, considered.

Appellant CONSERVATION COUNCIL OF SA INC:	Counsel: MR M PARNELL
Solicitors: ENVIRONMENTAL DEFENDERIS OFFICE	
Respondent DEVELOPMENT ASSESSMENT COMMISSION:	Counsel: MS J BRADSEN
Solicitors: CROWN SOLICITORIS OFFICE	
Respondent TUNA BOAT OWNERS ASSOCIATION OF SA INC:	Counsel: MR S HENRY,
WITH MR HILDITCH	
Solicitors: WARD & PARTNERS	

Hearing Date/s: 20/09/1999 to 23/09/1999, 24/09/1999, 27/09/1999 to 01/10/1999, 05/10/1999 to 08/10/1999.

File No/s: ERD-99-357, ERD-99-378, ERD-99-399, ERD-99-420, ERD-99-441, ERD-99-462

Judgment No. [1999] SAERDC 86

CONSERVATION COUNCIL OF SA INC.
v
DEVELOPMENT ASSESSMENT COMMISSION
and
TUNA BOAT OWNERS ASSOC OF SA
(ERDC Nos 357, 378, 399, 420, 441 & 462 of 1999)

[1999] SA ERDC 86

THE COURT DELIVERED THE FOLLOWING JUDGMENT

1 These appeals which were heard together, are each in respect of a proposal to establish tuna farms in the waters of Louth Bay in Spencer Gulf. The **first** question for determination in these matters is a jurisdictional question. The second respondent in each case (who is the applicant for consent) asserts that its proposal to farm tuna within a defined area in waters of Louth Bay, Spencer Gulf, does not constitute "development" within the meaning of the *Development Act 1993*. On the other hand, the relevant authority, namely the Development Assessment Commission, asserts that the proposal is "development" on the basis that it is both "building work" and "a change in the use of land". In accordance with the definition of "development" in Section 4(1) of the *Development Act*, the proposal would constitute development if it was either "building work" or "a change in the use of land".

Whether the Proposal is "Building Work".

2 The relevant definition of "building work" in the Development Act is as follows:-

..... work or activity in the nature of-

(a) the construction, demolition or removal of a building;"

The term "building" is also defined in Section 4(1) of the Development Act, as follows:

a building or structure (including any fixtures or fittings which are subject to the provisions of the Building Code of Australia), whether temporary or permanent, moveable or immovable, and includes a boat or pontoon permanently moored or fixed to land.....

The term "structure" is not given a meaning in the *Development Act*, but it does include a fence or wall when used in the *Development Act*. The definition of land includes land covered with water.

3 Each tuna farm would comprise six pontoons moored in place, from which a net is suspended. The definition of "building" includes a pontoon permanently moored to land. Assuming for the moment that the pontoon which is the floating "base" of the tuna farm or sea cage in each case, is not permanently moored to land, the question is whether it is, a structure and thus within the definition of "building", because any structure which is temporary and moveable constitutes a "building".

4 Whether the pontoon is a structure is determined by its relationship with land as a physical entity: *Keane v Kleem (1988)* 50 SASR 66 and *City of Noarlunga v Fraser (1986)* 42 SASR 450. The pontoon is a structure. Each pontoon will be approximately 40 metres in diameter with polyethylene frames, and of "the polycircle design used in tuna and salmon operations", according to the applicant's documentation, which also stated that the moorings for each pontoon would "be 6-12 per pontoon, around 1 tonne metal or concrete each, and be fully moving". Further information was provided in the Development Assessment Commission Officer's Report for the meeting of 11 March 1999, as follows:

"The sea cages measure between 30 and 40 metres in diameter and consist of 2 circular 'Polarcircle' (sic) rings (pontoons) made of high density polyethylene plastic. The floats are held together with either plastic or galvanised stanchions which extend above the sea surface to approximately 1.5 metres. A rail is attached above the float to be used as a hand rail and support for the net.....

A net is suspended from the floats to contain the fish. The net falls from the stanchions to approximately 12 metres below the sea surface where they are lead-weighted to maintain tension and a circular shape.....

Each sea cage will be positioned on site by between 6 and 12 metal mooring devices. The moorings weigh approximately 1 tonne each and are movable (sic)."

5 The structures are large and are intended to be moored at a specific location for up to 9 months in each year. A condition of provisional development plan consent presently limits the introduction, husbandry and harvesting of tuna to the period 1st January to 1st August in each year and the evidence was that each pontoon would be positioned at the operator's convenience, preparatory to the introduction of tuna into the cage, and would be removed, again at the owner's convenience, subsequent to the harvesting of the last tuna from the cage. Assuming tuna were to be contained in the cage over the full extent of the 7 month period allowed, and depending on the number of cages operated by each tuna farmer and the available staff resources, each cage could be in place for a period of 9 months. As part of the

proposal is to relocate the cages each year, it is not envisaged that they would remain *in situ* for a period longer than approximately 9 months.

6 Each structure is thus intended to remain temporarily in place. After each period *in situ*, the pontoon would be towed away for maintenance and cleaning. It would then be towed to the new site within the lease area and affixed to the seabed by moorings. Whether a structure is affixed to land temporarily or permanently is to be determined by reference to the intention of the applicant in each case: *Hafza v Director-General of Social Security (1985)* 60 ALR 674. Is this the sense in which the word "temporary" is used in the definition of "building"? We understand that the structures are permanent in the sense that they are not dismantled after the tuna are harvested each year. The net is removed for cleaning, but the pontoon structure is subjected only to cleaning and maintenance work. Accordingly, the structures are not temporary but are temporarily affixed to land.

7 Clearly, the structures are moveable. Thus, each pontoon is a building within the definition in the *Development Act*, unless the statement that a "building" includes a boat or pontoon permanently moored or fixed to land, evinces an intention by Parliament to exclude a pontoon temporarily moored, from being defined as a building. In this context there were various submissions from counsel as to the meanings of "permanent" and "temporary". However, we do not have to decide finally whether each pontoon constitutes a "building" within the meaning of the *Development Act*. If the pontoons are "buildings", each would constitute a Class 10 building: see 1.3 of the Building Code of Australia. By Clause 9 of Schedule 3 of the *Development Regulations 1993*, building work in relation to a Class 10 building that is not within the area of a council is not development, unless it falls within the exceptions specified in paragraphs (a) to G): see Regulations 7(1).

8 Counsel for the appellant suggested that the building work fell within the exceptions specified in Clause 9G). We reject that submission, which would entail reading Schedule 20 other than in the context of Regulation 84, which would be inappropriate, and thus we are satisfied that the placement of the pontoons in the lease area proposed, would not amount to "building work" under the *Development Act*.

Whether the Proposal Constitutes a Change in Use of the Land.

9 Counsel for the applicant submitted that the proposal in each case does not constitute a change of use of land. The issue is whether what is proposed is a use of "land". The *Development Act* in Section 4(1) gives the following meaning to the word "land":

"(a) land as a physical entity, including land covered with water and including any building on, or fixture to, the land; or

(b) [not relevant],,

10 *In Attorney-General v Wright* (1897) 2 QB 318, it was accepted by the members of the Court of Appeal that the defendant, who was the lessee of a fishery in tidal waters, enjoyed, as an incident of his right in the fishery, the use of the soil beneath the fishery. That acceptance by members of the Court of Appeal is consistent with the juristic concept of land. The right to use land includes the right to use the column of water above that land. That proposition and its reverse, is part of the common law. However, it may not be necessary to rely on the common law, assuming the position is as we have stated it. Under the *Development Act*, land includes any fixture to the land. As we have determined above, the structure, being the farm pontoon, is temporarily affixed to land. In our view, this makes the pontoon a fixture and thus brings the land beneath the pontoon into the definition of "land" in the *Development Act*.

11. Even if we are wrong in our conclusion in the preceding paragraph, the consequences of installing a farm pontoon at a particular location in the waters of Spencer Gulf would effectively prevent the use of the seabed over which the pontoon is located, by any other person. The facts in relation to the pontoon and the net suspended beneath it, appear to us to make this clear. Mr Henry for the applicant, submitted that there would be sufficient room for a diver to manoeuvre between the suspended net and the sea-floor and thus the "land" beneath the farm pontoon could be used by other persons, namely persons passing over the sea-floor in the process of fishing, collecting data and specimens, or studying the seabed. This argument does not attract us. The only evidence concerning the likelihood of these activities was to the effect that it would be considered dangerous for a diver to undertake manoeuvres in the space between the suspended net and the sea-floor. In practical terms, the seabed beneath the farm pontoon could not be used while the pontoon was moored in place. Debris, namely faecal matter and uneaten food which would drift down to the sea-floor, and the turbidity of the water, resulting from the farming of tuna in the net suspended from the pontoon would effectively preclude any other use of the land below the farm pontoon. If the development was to proceed, the farm operator would be using the land beneath the pontoon. That would be the case irrespective of whether any other person also used the land. Thus, the development would result in a change of use of land, and is "development" within the meaning of the *Development Act* @ cl.

Assessment of the Development

12 A number of issues were addressed in the hearing of the matter, pertinent to our assessment of the proposed development against the relevant provisions of the appropriate Development Plan; namely the Land Not Within a Council Area (Coastal Waters) Development Plan dated 28 August 1997. Relevant matters addressed by the Development Plan include ecological sustainability,

impacts on wildlife and marine predators, damage to the seabed and sensitive ecological areas, conservation of the water quality, marine flora, fauna and ecosystems, visual amenity and the effect on sites used for recreational activities.

13 The specific major issues addressed were ecological sustainability, the impact of the development on the growth of the seagull population and consequentially upon the native and migratory birds, the impact on marine mammals and pinnipeds, the impact of using imported frozen pilchards as feed for the farmed tuna, the likelihood of ecosystem changes in the benthic and pelagic environments, the impact of the pontoons upon the visual amenity of the seascape, the potential for impact upon the nearby beaches and recreational sites by reason of the escape of debris and material from the farm sites, and the suitability of the site generally for tuna aquaculture.

14 The difficulty in assessing the proposed development is that there is only a small amount of information available upon which we can draw to address the issues. Tuna farming is a very new industry, embarked upon following the acceptance by the Australian government of the concept of a total allowable catch of southern bluefin tuna (*Thunnus maccoyii*) and a resultant annual quota, pursuant to the provisions of the *Convention for the Conservation of Southern Bluefin Tuna* (1993) to which Australia, New Zealand and Japan are parties. The tuna industry is seeking to capitalise on the limited amount of tuna which may be caught, and the very large market (predominantly in Japan) which exists for tuna. Little is known about the impacts of tuna farming, which in South Australia ' is presently a process whereby tuna is caught in purse seine nets in the waters of the Great Australian Bight, transferred to and towed in towing pontoons to the farms in the waters of Spencer Gulf, reasonably close to the industry's land base in Port Lincoln, transferred to and grown in the farms, before being harvested and chilled or frozen for export to Japan. The tuna industry in South Australia holds rights to catch almost all of Australia's total allowable annual catch.

15 The first investigations in this State in relation to the likely consequences of tuna farming began in 1994, with subsequent monitoring and the collection of data on tuna farming, commencing in July 1996 (the Tuna Environmental Monitoring Programme (TEMP)). A final report containing the data collected between July, 1996 and December 1998 and the analysis thereof, has yet to be produced, but we were able to have the benefit of a second or final draft report (August 1999). Dr Stephen Clarke, one of the authors of the draft final report, conceded that the power of the report is not high. For a report to be accorded significant weight, it has to be an analysis of the results of monitoring undertaken and data collected over a statistically significant number of years. Ideally studies should also have been undertaken to detect the impact upon the

environment as a result of tuna farming, in the nature of Before and After Control and Impact (BACI) studies, but that was not the path chosen in respect of the tuna farming when first proposed. It is unfortunate that this course was not followed.

Ecologically Sustainable Development

16 Assessment of the proposed development against the relevant provisions of the appropriate Development Plan requires consideration of whether the proposed development would be ecologically sustainable. Objective 35 provides (in part):

"Development of the marine environment and in particular the marine aquaculture industry:

(a) in an ecologically sustainable way",

and Principle of Development Control 12 provides (in part):

"Marine aquaculture should be located, sited, designed, constructed and managed to be ecologically sustainable, to minimise interference and obstruction to the natural processes of the marine environment, and to allow maintenance of the environmental quality of the foreshore, coastline, ocean and ocean-bed....."

17 The same provisions were considered by this Court in *Port Vincent Progress Association v DAC & Colmion Pty Ltd* Judgment number [1999] SAERDC 7. While we do not resile from what the Court said in that judgment about the concept of ecologically sustainable development and its meaning, we consider it is necessary to enlarge upon the views there expressed and to set out the means by which we have approached the issue of whether the proposed development would be ecologically sustainable, as sought by Objective 35 and Principle of Development Control 12.

18 For the attainment of the goal of ecologically sustainable development (ESD), guiding principles have been established, at the International, Commonwealth Government and State Government levels. One of the guiding principles is that known as the "precautionary, principle". It is expressed, in both the National Strategy for Ecologically Sustainable Development (NSES) and the Inter-Governmental Agreement on the Environment (IGAE) as follows:

"Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation."

In the NSESD, there are six other guiding principles for the attainment of ESD. The document provides that no one principle should predominate over others and that a balanced approach is required, taking into account all objectives and principles. The IGAE, to which the Government of South Australia was a party, addresses the attainment of ESD in similar terms, but the principles are set out in greater detail, together with the agreement of the parties to use the specified four principles of ESD to "inform policy making and programme implementation" in the promotion of the integration of environmental considerations into Government decision-making. The first specified principle is the precautionary principle. The statement of the principle is followed by these words:

"In the application of the precautionary principle, public and private decisions should be guided by:

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and
- (ii) an assessment of the risk-weighted consequences of various options."

The term "risk-weighted consequences" has been expressed to mean "an attempt to undertake a semi-quantitative analysis, and determine the likelihood of irreparable damage or an undesired or adverse outcome arising from a particular development or activity" (from the Glossary in *Draft National Strategy for Ecologically Sustainable Development : A Discussion Paper* June 1992 - The Ecologically Sustainable Development Steering Committee. The definition is of the term as it is used in the IGAE which is summarised in Chapter 1).

19 The IGAE sets out other principles of ecologically sustainable development, as we have identified. They include the principle of inter-generational equity:

"the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations";

and the principle of the conservation of biological diversity and ecological integrity:

"conservation of biological diversity and ecological integrity should be a fundamental consideration".

The final principle, as expressed in the IGAE, relates to improved valuation, pricing and incentive mechanisms.

20 In this matter, it was submitted that the Court should have regard to the precautionary **principle**, in assessing whether the development would be ecologically sustainable. As each proposed development is fundamentally identical, we will use the singular term. In these reasons, we will refer to the principles of ESD as they are set out in the IGAE, because of the greater detail in that document.

21 To understand the precautionary principle, it is necessary to look a little at the history of its development. It is common knowledge that it has resulted from increasing world-wide concern about the consequences of damage to the environment. The principle has been developed through international fora and declarations with respect to action to limit and minimise environmental damage in the interests of all. An understanding of the precautionary principle and its effect is essential to an understanding of the term "ecologically sustainable" as it is applied to development. We were not referred by counsel to any authorities or articles with respect to the meaning and consequences of the application of the precautionary principle. We have relied on our own researches and had regard, *inter alia*, to the following articles:

1. Gunther Handl, *Environmental Security and Global Change : The Challenge to International Law* 1 Yb. Int'l Env. L(1990);
2. James Cameron, *The Precautionary Principle - Core Meaning, Constitutional Framework and Procedures for Implementation (1993)*, Paper presented at the Precautionary Principle Conference, Institute of Environmental Studies, University of New South Wales, September 1993;
3. Warwick Gellett, *Environmental Protection and the "Precautionary Principle" - A Response to Scientific Uncertainty in Environmental Management* (1997) EPLJ 52;
4. Owen MacIntyre & Thomas Mosedale, *The Precautionary Principle as a Norm of Customary International Law* 9 J Env.L 221 (1998); and
5. Charmian Barton, *The Precautionary Principle in Australia : Its Emergence in Legislation and as a Common Law Doctrine* 22, Harv.Envtl.L.Rev. 509 (1998).

Generally, the precautionary principle in its various formulations has been said to be "preventive" (Cameron), and to involve the minimisation of consequential environmental impact (MacIntyre & Mosedale), and the taking of remedial action upon evidence of a significant but not necessarily provable risk of environmental harm (Handl).

22 There would appear to be general agreement amongst the authors of articles on the precautionary principle that it was developed in response to the recognition, based upon observation, that the environment could not assimilate all the consequences of activities impacting upon it. Implicit in this recognition is an acknowledgment that science and the scientific method have limitations. Because of the limitations, it is unlikely that the full consequences of the impact of a particular act or activity upon the environment can be known in advance. The scientific process involves deriving knowledge from the testing of a hypothesis. A number of biases have been identified in the process, giving rise to comments such as "the normal process of scientific reasoning is not as logically water-tight as one might imagine" (Fisk, David *Environmental Science and Environmental Law* 10 J Env.L 3 (1998)). The scientific method does not necessarily give the quality of certainty to the opinion or assessment of a scientist. Indeed, one writer has suggested that a scientific opinion might be best evaluated for reliability by testing it against seven types of uncertainty he identified as being likely to be found in any scientific assessment or opinion, namely conceptual uncertainty, measurement uncertainty, sampling uncertainty, mathematical modelling uncertainty, causal uncertainty, testing uncertainty and communicative and cognitive uncertainty (P.Brad Limpert, *Beyond the Rule in Mohan : A New Model for Assessing the Reliability of Scientific Evidence* 54 Univ Toronto L Rev. (1998)). Thus, the inherent uncertainty or bias in the scientific method combined with (generally speaking) a perennial lack of resources and a consequential lack of data to assist scientists, leads inevitably to the conclusion that there is likely to be an incomplete understanding of the full extent of the environmental impacts of any particular act or activity proposed. That prospect, supported by empirical observations gathered world-wide, led to the development of the precautionary principle as a commonsense approach to avoid or minimise serious or irreversible harm to the environment.

23 There have been and are various formulations of the precautionary principle around the world., That which has been adopted by the Government of South Australia through being a party to the IGAE, and which is reflected in the legislation of the State Government (the *Environment Protection Act 1993*) is broad and non-specific. It is the same formulation set out in the *Rio Declaration on Environment and Development* (1992), to which Australia is a signatory., We have set it out above.

24 The question arises as to who has the onus of satisfying us that the proposed development would be carried out in an ecologically sustainable, available, and located, sited, designed, constructed and managed to be ecologically sustainable. It is well accepted in the literature, and it stands to reason, that the proponent needs to satisfy us that the development would be ecologically sustainable. In the matter before us, is the proponent called upon to prove this,

only when the appellant has proved, on the balance of probabilities, that there is a threat of serious or irreversible damage to the environment? That cannot be the case. It is our task, as it was that of the relevant authority 5 to assess the proposed development against the relevant provisions of the Development Plan. The development should be ecologically sustainable in the terms of Objective 35 and Principle of Development Control 12. The onus lies on the proponent to show that the development would meet the policy set out in the Development Plan. In any **event**, it cannot be the case that the appellant must prove that the development will threaten serious or irreversible environmental damage, for another reason. Because of the inherent uncertainty in a scientific opinion, an appellant is unlikely to be able to show that a particular development would be likely to result in serious or irreversible damage to the environment. In reasoning thus, we have taken "threat" to mean "likelihood" or "probability" : see the relevant word meanings in the *Macquarie Dictionary* (second edition). However, the appellant must be mindful of its status as appellant and the provisions of Section 17(4) of the *Environment, Resources and Development Court Act 1993* and thus would need to show that there is a prospect of serious or irreversible damage to the environment, should the proposed development proceed. If that is shown, the burden of proof switches to the proponent and it will be necessary for the proponent to show, in order to have his or her development classified as ecologically sustainable, the following:

- the measures that the proponent will take (within the limits of practicability) to avoid serious or irreversible damage to the environment;
- and
- that the risk-weighted consequences of the development assessed together do not suggest that serious or irreversible environmental damage would be sustained.

The above is derived from the IGAE, which recorded the agreement of the parties as to the process, for reaching decisions, in the application of the precautionary principle (see above).

25 The proponent would have to satisfy the burden of proof by evidence as to the likely consequences of the proposal, including scientific evidence (with its limitations), evidence as to the proposed management regime and measures, and evidence to assist the Court in the assessment of the risk-weighted consequences of the proposal.

Provisions of the Development Plan : Assessment

26 In addition to seeking development of the marine aquaculture industry in a manner that is ecologically sustainable (Objective 35(a) and Principle of Development Control **12**), the Development Plan seeks development which

will preserve and conserve marine flora and fauna, conserve environmental quality and the coastal environment, and not require public expenditure for the protection either of the development or the environment. The farm structures should be as visually unobtrusive as possible. Development of the nature proposed should not impair the maintenance of the environmental quality of the foreshore, the coastline, the ocean and ocean-bed. Adverse impacts to marine and terrestrial wildlife and their breeding grounds should be avoided. Development should be undertaken so as to minimise:

- interference with and obstruction of the natural processes of the marine environment;
- seabed damage (and enable the dispersal of sediments so as to prevent the build-up of waste);
- harm or destruction of marine predators such as seals, dolphins, and birds;
- and
- adverse impacts on the visual amenity of the coast, particularly in areas of outstanding beauty or which enjoy high public use.

27 The assessment of the ecological sustainability of the development will have taken into account many, if not all of the considerations referred to in the preceding paragraph. However, in view of the extensive evidence in this matter, we consider it appropriate to express our views on a number of the issues.

28 The tuna in the farms are fed largely on frozen, imported pilchards. The manner of feeding usually employed appears to encourage large numbers of scavenging seagulls in search of a ready meal. As a consequence of the existence of tuna farms in Louth Bay, there has been increased breeding of seagulls resulting in large numbers on nearby Louth Island, to the detriment of other species of native and migratory birds, who have previously bred on the island and a substantial increase in foul-smelling excreta deposited on the island. The situation is able to be managed, provided that the feed for the tuna is released beneath the surface of the sea, rather than being shovelled into the pontoon from the deck of a boat, and a management plan for Louth Island is agreed between the owner of the island and the tuna industry and acted upon by the tuna industry, for the control of seagull numbers. We have come to this conclusion, despite the poor record of the tuna industry on this issue to date.

29 The entrapment of marine mammals and pinnipeds (seals) has been an issue in the past for tuna farmers and will continue to be an issue. However, we are of the view that with good management, the underwater release of pilchards where they constitute the feed for the tuna, and the abandonment of the use of predator nets, the number of marine predators which would be destroyed as a result of the operation of the tuna farms, is likely to be small.

30 We understand that the tuna being fanned are variously fed imported frozen pilchards, fresh locally caught pilchards and manufactured pellets. The latter are still in the experimental stage. There are insufficient local pilchards to satisfy demand, and hence the tuna industry argues that it must import and use, frozen pilchards. There have been two incidents where imported frozen pilchards have come under suspicion as the cause of major fish mortalities. They were the widespread incidence of pilchard deaths in South Australian and adjacent waters, in 1995 and 1998. The cause of each of these incidents has not been conclusively determined, but in some quarters the imported pilchards have been exonerated. The concern is that imported pilchards could be a source of harm to the marine wildlife and predators, infecting local pilchards and thus bringing one or more exotic diseases into the food chain.

31 We received evidence to the effect that the Australian Quarantine Inspection Service (AQIS) has carried out an import risk analysis which has concluded that imported frozen pilchards do not constitute a risk. This analysis was in accord with the obligations of AQIS to implement both Australian government policy to protect Australia's environment, and animal, plant and human health, and Australia's international obligations as a World Trade Organisation (WTO) member bound by the Sanitary and Phytosanitary (SPS) Agreement. It concluded that there is no risk posed by the importation into Australia of non-viable, non-salmonid marine finfish used for fish feed (including pilchards). However, we do not accept that the import risk analysis process is entirely consistent with the precautionary principle approach to development, which is sought by the Development Plan. The process under the WTO SPS Agreement which AQIS implements, is described by the Agreement as being scientifically-based. It assumes that science is able to identify risks, and concludes that where there is no evidence of a risk, there is no risk. The evidence is that there is a significant lack of scientific information on disease in non-salmonid marine finfish, and the susceptibility of Australia's native marine species to exotic pathogens. It must be remembered that the AQIS import risk analysis was developed pursuant to the Australian Government's obligation under the SPS Agreement to develop, adopt and enforce sanitary and phytosanitary measures in accordance with the agreed framework so as to "minimize their negative effects on (international) trade": see *The AQIS Risk Analysis Process Handbook*, and annexures, to which we were directed by both Dr Sarah Kahn and Dr Michael Deering. There is some risk in using imported pilchards as feed. It might be a manageable risk but nothing, was suggested in this regard. There is ongoing research. We do not know the full scientific consequences of using imported pilchards as feed.

32 An inevitable consequence of the establishment of tuna farms will be changes to the benthic and pelagic communities, at least in the vicinity of the tuna farms. Sediment beneath the cages will result in changes to the benthos,

while the addition of nutrients to the water by the concentrated keeping of fish will cause changes to the pelagic environment. While we agree that on the basis of present scientific knowledge, the tuna farms will be sited, designed and located so as to cause less adverse impacts on these environments and the health of the tuna, than if they were located elsewhere in close proximity to the shore bases at Port Lincoln ' we do not yet know the full consequences of their establishment in the locations proposed, including the temporal and physical extent of any impacts. This is despite tuna farming as proposed, having already been carried out at or near the proposed locations. Reference was made in the course of the evidence to the major tuna mortality event in April-May 1996, when 70-75% of all farmed tuna in the waters near Port Lincoln died. The SARDI Report (1996) concluded that the incident resulted from the storm of 12-13 April 1996, which stirred up the sediment beneath the cages in a location where the current and depth of water was insufficient to prevent the sediment causing severe harm to the tuna. That is the accepted view, but we understand a respected scientist does not discount the view that the deaths could have resulted from micro-algae and developing algal blooms. We heard evidence about the allegedly acceptable impact of salmon farming at locations elsewhere in Australia and in the waters of other countries, but this was not persuasive, not necessarily being relevant to the farming of tuna in the specific environment of the waters of Louth Bay, Spencer Gulf.

33 To approve the proposed developments, we would have to be satisfied that they would be subject to a monitored adaptive management regime, with the aim of securing minimal adverse impact on these environments. It is acknowledged that the tuna industry carries out a daily monitoring programme presently, to ensure water quality in the vicinity of the farms, and that the information is transmitted promptly and daily to tuna farmers, for action as necessary. However, the purpose of that collection and analysis is to ensure the maintenance of healthy tuna. We are not satisfied that this monitoring "covers the field" in terms of the health of the pelagic environment generally.

34 There was evidence of debris from the tuna farm activities in Louth Bay waters presently, including parts of navigational marker buoys and items from the pontoons, tuna farm boats, and the activities of feeding and maintaining the tuna cages, being washed up upon the shores of Louth Island and the Louth Bay beaches. We are satisfied that, except in rare circumstances, such as a storm. these incidents could be prevented by appropriate management. We suggest that good management would also ensure that an inspection of the waters and coastline in the vicinity of the tuna farms is carried out subsequent to a storm event, and that any tuna farm debris is collected and appropriate disposal measures taken, in the interests of safety of persons and vessels and visual amenity.

Whether the Proposed **Development Can be Managed in** an Ecologically Sustainable Way **Pursuant to Conditions of a Licence under the Fisheries Act 1982.**

35 The thrust of the case for the applicant, supported by the evidence of Dr Deering was, in part, that while there is a degree of uncertainty about the environmental impacts of the proposed development, which would require an adaptive management approach for the proposal to be managed so as to be ecologically sustainable, this could be achieved by imposing conditions on the operation of the development, which could be varied as the need arose. Both respondents submitted that it was inappropriate to do this by means of conditions attached to a development authorisation because the *Development Act* does not give a relevant authority power to vary the attached conditions. It is envisaged that it would be essential for an authority to have the ability to vary conditions, as more information about environmental impacts becomes available. This is the essence of the "adaptive management" approach recommended by Dr Cheshire. It was submitted that this desirable state of affairs could be achieved under a Fisheries Act licence to farm **fish** (Section 53). A lease or licence may be issued for a term not exceeding ten years subject to conditions or limitations as determined by the Minister. Evidence was given that the current practice of the Minister with respect to applications for fish farming leases or licences, is to grant a licence for a maximum period of one year. That practice, it was submitted, enables the Minister, in effect, to amend or vary conditions of a fish farming licence, annually.

36 In addition to the scientific evidence about the desirability of management of the environmental impacts through licence conditions which could be reasonably readily varied, Mr Jeffriess, the executive officer of the applicant, accepted that annual licensing was necessary, in the interests of an adaptive management approach, and urged upon us the need for strict farming licence conditions, which would require farmers to adopt appropriate management methods to avoid or minimise the environmental impacts which might result from tuna farming.

37. We accept that an adaptive management approach, implemented by way of licence conditions to achieve ecologically sustainable development, which could be varied in response to new knowledge, is one means by which the development could proceed in an ecological sustainable manner.

38 Mr Pamell, counsel for the appellant, submitted that this Court could not rely on the Minister for Primary Industries having any power to ensure that the proposed development would be managed in an ecologically sustainable manner. He submitted that there is no obligation upon a fish farmer to obtain a licence pursuant to Section 53, to engage in fish farming activities in coastal

waters. In support of his submission, he drew our attention to the fact that there are no consequences set out in the legislation, for a failure by a fish farming operator to obtain a licence pursuant to Section 53. If there is no obligation upon a fish farming operator to obtain a licence, there would be no opportunity for the Minister to embark upon an "adaptive management" approach to ensure an ecologically sustainable development. Mr Parnell argued that, even if the development could be approved, on merit, by this Court, it would be inappropriate in the circumstances to attach management conditions to any development authorisation. Hence, he submitted, there is no mechanism for the monitoring of the development, should approval be granted, to ensure that it would be managed so as to be ecologically sustainable.

39 We do not accept that Mr Parnell's submission is correct for the reasons he has argued. As a matter of common law, a right inheres in members of the public to freely navigate tidal waters : see, for example, *Attorney-General v Wright* (above). An incident of that right is the right to fish in tidal waters. That right can only be restricted by legislation : *Attorney General (British Columbia) v Attorney General (Canada)* (1914) AC 153 at 169-170 and *Harper v Minister for Sea Fisheries* (1 989) 168 CLR 314 per Brennan J at 330-33 1. The common law right of the members of the public to fish in tidal waters **was** removed and replaced by a statutory privilege conferred upon a licensee who had obtained a licence under relevant legislation : *Harper* (above) at 325 and see *Bienke v Minister for Primary Industries and Energy* (1996) 135 ALR 128. Examples of the legislative limitations imposed on the public's right to navigate (and fish) in tidal waters are Sections 26 and 27 of *the Harbors and Navigation Act 1993* which enable the restriction of the use of specified waters, and Section 48G of the *Fisheries Act 1982* which restricts entry to an area proclaimed as an aquatic reserve or marine park. Examples of limitations imposed by statute on the public right to fish in tidal waters are Sections 34, 53 and 53A of the *Fisheries Act*. By the last-named sections, the Minister for Primary Industries may grant a licence for fish farming to an operator, who will have a resulting right of exclusive possession of the marked-off area of the fish farm "subject to the terms, covenants, conditions, limitations, reservations and restrictions in the..... licence".

40 While it appears that it is not an offence to fail to obtain a licence for the area in which fish are farmed and from which the fish farm operator would want to exclude members of the public, the operator would have no right to enforce to maintain the integrity of the fish farm, without a lease or licence. In addition, as the holder of a lease or licence under Section 53, the fish farm operator has protection for his operation under the provisions of Section 53A of the *Fisheries Act*, which creates offences in relation to acts by persons who enter upon the subject area without lawful excuse. Thus, while there may not be a requirement for a fish farm operator to obtain a licence pursuant to

Section 53 ' it would be prudent for the operator to do so if he or she wishes to preclude the public from the fish farm location and enjoy the protection provided by the Act for a licensed fish farm operation.

41 However, that is not the end of the matter. A licence granted pursuant to Section 53 of the *Fisheries Act* cannot be the means by which the proposed development might be managed so as to be ecologically sustainable in the future, as more information concerning environmental impacts of the development becomes available. Notwithstanding the current practice of the Minister under Section 53, to issue licences but not leases, for a one year period only, the legislation enables licences and leases to be granted for a maximum period of ten years. At any time the Minister could vary the current practice or policy. The legislation does not restrict the Minister in this regard. In addition, there is no power in the *Fisheries Act* for the Minister to vary the conditions attached to a licence granted under Section 53. Thus, in the future, were the proposed development to be approved, we could see the fish farm operator granted a licence subject to conditions, which could not be varied during the term of the licence which could be a period of as much as ten years. Should a licence or lease be granted for a long period, the "adaptive management" approach claimed to be presently available under the current practice of the Minister. could not be implemented, under the present legislative provisions. The imposition of conditions upon a fish farming licence or lease would then be open to the same criticism as would a decision to impose management conditions upon any development authorisation for the effective management of the environmental impacts of tuna farming. Hence, in our view, a licence granted pursuant to Section 53 of the *Fisheries Act* cannot be the means of ensuring the ecologically sustainable management of the proposed development.

42 It is to be noted that **in** so deciding, it was not necessary for us to consider the nature of conditions which might be imposed by the Minister upon a Section 53 licence. Unlike legislation dealing with aquaculture leases and licences in other jurisdictions in Australia, the *Fisheries Act* does not specify or prescribe the subject matter of conditions. To examine the nature of conditions -which might properly be imposed on any licence under Section 53, it would be necessary for us to consider the nature of the licence. It is not necessary for us to do that, having come to the conclusion which we have reached. Hence, it is our decision that the respondent's case cannot succeed.

43 In passing, we note that there is a world of difference between a licence which may be granted under Section 53 of the *Fisheries Act* and an environmental authorisation which may be granted under Section 40 of the *Environment Protection Act 1993*. Although an environmental authorisation may be granted for a period determined by the Environment Protection

Authority (Section 43), the Authority may attach conditions which it has power to vary at any time, even without the consent of the holder of the authorisation, provided the Authority considers that it is necessary to vary a condition or impose a new condition, in consequence of the risk of material or serious environmental harm. The Authority may also revoke a condition at any time : see generally Section 45, *Environment Protection Act*. If the proposed development had required an environmental authorisation, our conclusion most likely would have been different.

Conclusion

44 For the reasons we have expressed above, it is the decision of the Court that the appeals should be upheld and the decision of the Development Assessment Commission in each matter reversed.

45 By way of footnote, we would add some comments in relation to expert witnesses. It was apparent that there was some confusion in the minds of certain of the expert witnesses who gave evidence as part of the assistance provided to this Court by the relevant authority, as to the role of the agency by which they are employed, in responding to a relevant authority in relation to a development application that has been referred under Section 37 of the *Development Act*. An agency is to respond "in relation to the matter or matters for which the referral was made" (subsection 37(1)(b)). Those matters are determined by reference to Regulation 24 and Schedule 8 of the *Development Regulations 1993*. It is not envisaged that an agency would respond in terms of the provisions of the Development Plan. That is not its task. The legislation, in Section 37, acknowledges that all expertise relevant to the assessment of a development application might not reside in the relevant authority. The task of a referral agency is to advise or report in terms of the matters relevant to that agency which are set out in Schedule 8. The relevant authority then assesses the application against the relevant provisions of the Development Plan, in light of the (expert) report from the referral agency or agencies. It is not the task of an agency to assess the application against one or more provisions of the Development Plan. In the same vein, a scientist, whose task is to collect and analyse data, test it against a hypothesis and draw a conclusion, merely reports the results. It is not the task of the scientist to carry out a risk assessment in the context of the community's expressed social and political goals. It is for others, namely those to whom the task of decision-making has been allocated, to assess the risk in light of the knowledge and against the relevant policy and make a decision.