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**HOUSE OF
REPRESENTATIVES**

STANDING COMMITTEE ON CLIMATE CHANGE, WATER,
ENVIRONMENT AND THE ARTS

Subcommittee

Reference: Climate change and environmental impacts on coastal communities

WEDNESDAY, 8 OCTOBER 2008

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**HOUSE OF REPRESENTATIVES STANDING COMMITTEE
ON CLIMATE CHANGE, WATER, ENVIRONMENT AND THE ARTS**

Wednesday, 8 October 2008

Members: Ms George (*Chair*), Dr Washer (*Deputy Chair*), Mr John Cobb, Mrs D’Ath, Mr Dreyfus, Mrs Irwin, Ms Livermore, Mr Scott, Mr Wood and Mr Zappia

Members in attendance: Ms George and Dr Washer

Terms of reference for the inquiry:

To inquire into and report on:

Climate change and environmental impacts on coastal communities. The committee will inquire into and report on issues related to climate change and environmental pressures experienced by Australian coastal areas, particularly in the context of coastal population growth. The inquiry will have particular regard to:

- existing policies and programs related to coastal zone management, taking in the catchment-coast-ocean continuum
- the environmental impacts of coastal population growth and mechanisms to promote sustainable use of coastal resources
- the impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise
- mechanisms to promote sustainable coastal communities
- governance and institutional arrangements for the coastal zone.

WITNESSES

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Subcommittee met at 8.52 am

BURCH, Ms Leanne, Director, Coast, Marine and Heritage, South Australian Department for Environment and Heritage

HUPPATZ, Mr Anthony Nestor, Senior Planner, Coastal Management Branch, South Australian Department for Environment and Heritage

TOWNSEND, Dr Murray Robert, Manager, Coastal Management Branch, South Australian Department for Environment and Heritage

CHAIR (Ms George)—I declare open this public hearing of the House of Representatives Standing Committee on Climate, Change, Water, Environment and the Arts, and welcome you here today. The committee is inquiring into climate change and environmental impacts on coastal communities. The Ministers for the Environment, Heritage and the Arts, and Climate Change and Water have asked the committee to examine the environmental impacts of coastal population growth, as well as the impact of climate change, on coastal areas, and strategies to deal with climate change adaptation, particularly in response to projected sea level rise. The committee will also look at existing policies and programs related to coastal zone management, mechanisms to promote sustainable coastal communities, and governance arrangements for the coastal zone.

I would now like to welcome representatives from the South Australian government to this public hearing. Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. The committee has received your submission—thank you—and it has been authorised for publication. I would now like to invite you to make a brief opening statement, if you wish, before we proceed to questions and discussion. Thank you.

Ms Burch—Thank you. The Department for Environment and Heritage has sought this opportunity to engage with this standing committee in order to supplement the South Australian government's written submission in respect to some key matters. In respect to the governance of the coast, South Australia has a Coast Protection Act 1972 for the conservation and protection of the beaches and coast, and a Coast Protection Board of six people is established under that act, whose functions include the protection of the coast from erosion, damage, deterioration, pollution and misuse.

The board has developed various policies to facilitate its work, including its policy on coast protection and new coastal development of 1991, which I would like to table today, and Dr Townsend has a number of copies for the committee.

CHAIR—Thanks.

Ms Burch—This policy is illustrated and explained in some detail in a coastline document titled *Coastal erosion, flooding and sea level rise standards and protection policy*. We have only

brought one copy of that document but thought it might be a good background document with some good illustrations in it.

The principles of the main policy were incorporated into South Australia's development plans by ministerial direction in 1994 and, as a consequence, the policy has guided coastal development in South Australia since that time. The policy has proven robust and has served well in ensuring development and infrastructure are adapted through allowances of sea level rise of 30 centimetres by 2050 and one metre by 2100. Even so, the Coast Protection Board has recently established a sea level rise advisory committee to conduct a review of this policy, in view of the 2007 reports of the Intergovernmental Panel on Climate Change and other recent research publications which indicate accelerated climate change.

The sea level rise advisory committee's terms of reference include a review of sea level rise projections to at least 2100 and consideration of intermediate dates—for example 2050 and 2070; collation of sea level rise information relevant to South Australia; and liaison with other agencies and institutions including interstate colleagues and reference to overseas publications; provision of recommendations to the Coast Protection Board on what is required to assess sea level rise and its effects on coastal and marine regions of South Australia; consideration of the adequacy of our current adaptation measures in the board's policy; advice to the board on any amendments to that policy; and assistance to the board in the promulgation of and consultation on policy, if required. In that regard, the board may recommend to the Minister for Environment and Conservation that a conversation occur with the community in order to better promulgate understanding of what changes might be required. Any review of the standards set in South Australia will be shared with the Australian government and other states and territories, and we have initiated conversation with our colleagues interstate in that regard.

I would like also to refer to South Australia's planning system under the Development Act 1993. Under the Development Act there is provision for a planning strategy of South Australia that guides the content that should be placed into our development plans and against which development applications are assessed. There is one development plan for each council and others for areas outside of councils. These development plans continue area-wide provisions, including quite importantly coastal area provisions with specific provisions for sea level rise as per the Coast Protection Board policy mentioned earlier. So here we see the translation of the board's policy into the actual planning system.

An ongoing strategy is to ensure that appropriate coastal zones are established over sensitive coastal features, such as sand dunes and salt marsh, and hazard areas, so that development is not placed in areas at risk of coastal hazards and so that sensitive coastal features can be protected from the adverse impacts of development. In that regard, the Coast Protection Board receives referrals of development applications for comment on a large number of the developments occurring on coastal land, and it provides direction in some limited instances but mostly advice to the local planning authority or the Development Assessment Commission in South Australia.

Overall then, South Australia has an appropriate planning system to address climate change, the operation of which, though, is subject to continuous improvement—for example, through the integration of climate change policy settings and through the inclusion of sensitive features and coastal hazards within coastal zones at the time of the update of development plans, in which Tony plays an assiduous role.

However, at this time, a high-resolution digital elevation model of the South Australian coast, including near-shore bathymetry, would enable broadscale, quantitative assessment of the potential impacts of climate-change-induced sea level rise and the identification of appropriate response strategies. This would assist with the recognition of, and the planning for the need for, major capital expenditure on protection for existing settlements. Whilst notably some work has been conducted on this including natural disaster mitigation program funding for Port Adelaide and Yorke Peninsula—I understand you visited Port Adelaide yesterday—and the selection of some Yorke Peninsula townships as part of the case studies for the first pass national coastal vulnerability assessment, our sense of it is that this work is potentially sporadic or a bit here and a bit there and that there would be a definite benefit from a national approach to digital elevation modelling with a more consistent source of funding to it. Thank you.

CHAIR—Thank you. Would anyone else like to make an opening statement before we proceed?

Ms Burch—I would invite you, Murray, to comment on the membership of the board's sea level rise committee.

Dr Townsend—I would be most happy to. I did bring along copies for the committee of the terms of reference and the board's sea level rise advisory committee. The Coast Protection Board was keen to ensure that as wide a base as possible of knowledge and expertise in various considerations was present on this committee. Clearly we needed expertise in climate science and coastal management but we also sought expertise on the actual measurement of sea levels, infrastructure and the development industry.

While the advisory committee is chaired by the chair of the Coast Protection Board, we have three climate scientist/coastal management academics: Professor Barry Brook from the University of Adelaide; Professor Nick Harvey also from the University of Adelaide; and Dr Tom Wigley from the National Centre for Atmospheric Research in Boulder, Colorado, who is spending gradually more and more time in Adelaide and did agree to join the committee. He has contributed a lot of the background research and has a lead role in climate science and the work that the IPCC uses.

We also have Bill Mitchell, who is the manager of the National Tidal Centre, which is part of the Bureau of Meteorology based here in Adelaide. They install, maintain and operate the SEAFRAME network, which is the accurate tide gauge system across the Indian, Australian and Pacific regions, and conduct precise measurements of sea level. We have South Australia's Chief Scientist Dr Ian Chessell on the committee as well. Another Coast Protection Board member is Ms Peri Coleman. Mr Stephen Holmes, who is a leading Adelaide development consultant, has agreed to join the committee, so his views on how the policy relates to the development industry are actively being sought; and finally myself.

The executive support for this committee is provided from the coastal management branch, particularly our coastal research engineers, and we will report to the Coast Protection Board early in the new year.

CHAIR—Your first term of reference is specifically focused on sea level rise, but from what we are understanding from the science it is not just sea level rise but also extreme weather

events, wave patterns and coastal erosion. Are those issues also going to be examined or is it specifically focused on sea level projections?

Dr Townsend—The advisory committee has two focuses. One is on sea level rise itself. Broader coastal vulnerability assessments, taking into account changed wave patterns and climatic information, would be conducted separately under coastal vulnerability assessments. The complementary tool to having the sea level rise and climatic information is this digital elevation model of which much has been said in recent years. Combined with the other information, it will allow full quantitative assessment of coastal vulnerability.

The most recent regional downscaling information I have seen from CSIRO indicates that the intensification of weather systems for South Australia is probably fairly minor and with the changed latitude of the winter low-pressure systems—possibly staying further south—we might be seeing fewer winter storms, perhaps more into spring and autumn, but not necessarily an intensification of those as such.

CHAIR—Is there a time line for the committee to finalise its considerations?

Dr Townsend—We are about to hold our second meeting next Wednesday, at which we will be considering a number of policy revisions. There will be at least a third meeting early next year, after which we hope we will be putting our final recommendations to the Coast Protection Board.

With regard to the storminess, we do recognise, and have recognised for some time, that rising sea levels contribute to an increase in frequency of severe storms, if you use water level as a proxy for measuring storm intensity. That is a major issue for any of the gulf settlements, whether that is in the Spencer Gulf or the Gulf St Vincent for South Australia. Because they are relatively sheltered, there is a limit to the magnitude of the waves that can be generated but the storm surge is a major contributor. So if you are starting from a higher mean sea level, we will see more frequent occurrence of what we currently consider to be extreme events, like the one-in-100-year storm.

CHAIR—Do you see the work that the Commonwealth is now doing, in terms of the first pass assessment and the digital elevation modelling, being of substantial assistance to you at the state level?

Dr Townsend—The digital elevation modelling will be the single most effective assistance that could be provided. The first pass vulnerability assessments are currently under way and there is a workshop in Adelaide tomorrow to discuss the Yorke Peninsula case studies. The usefulness of those will depend on what is in the final reports. I gather it is early days still for the Yorke Peninsula study. We did assist the consultants in their site visit several weeks ago to look at the sites in question. The reason that the sites on Yorke Peninsula were chosen is that they are sites for which we have already obtained high-resolution topographic data, through the Natural Disaster Mitigation Program funded study.

CHAIR—Why is the Yorke Peninsula as a region particularly vulnerable? What is happening there?

Dr Townsend—It has been popular for a long time as a weekender, coastal retreat area for Adelaide because of its proximity, so there is a lot of development pressure on the Yorke Peninsula. Much of it is also quite low-lying and therefore potentially vulnerable to the impacts of sea level rise. And it has a wide range of coastal systems, from the very low, flat, salt marsh area right down to the open, exposed coast down on the southern part of the foot.

CHAIR—I think the other hot spot that people talk about is the Barker Inlet?

Dr Townsend—Yes, Barker Inlet right around.

CHAIR—Is it right that there is some suggestion of already a subsiding coastline along that peninsula?

Dr Townsend—There is local subsidence around the Port Adelaide area along Barker Inlet. That has been taken into account in development that has taken place since the adoption of the 1991 policy. The policy does state that appropriate levels for development should be arrived at by taking into account projected sea level rise and adding onto that expected subsidence in the design period as well. But it is variable around that area. In some places it is about one to 1½ millimetres a year. In other areas, it could be up to 10 millimetres around Barker Inlet.

CHAIR—It is interesting. For part of our time yesterday we went on a boat trip and looked at some of the critical infrastructure for the state located along the river there out at Port Adelaide. Is the state government doing some vulnerability and risk assessments in that particular area, so far as critical pieces of infrastructure are concerned?

Dr Townsend—Certainly. I am sure you heard yesterday about the Port Adelaide flooding study, which has a substantial part of its funding from the Natural Disaster Mitigation Program. The Coast Protection Board is itself putting contributions to both stages of that study to date, and a significant amount of in-kind contributions, and I myself am on the steering committee for that project. So there have been contributions to that project and there is no point in doubling up and doing independent studies, and certainly stage 1 of that project turned out very well and gave a very interesting picture of the risks that they face in Port Adelaide.

CHAIR—I am just trying to get a handle on planning regimes and what strategies, if any, are starting to be put in place by local government authorities. I got the impression from the contribution Ms Burch made that your view is that the system currently is pretty robust but there will need to be some changes in light of developing scientific evidence, but it does not quite tally with the Supreme Court decision about the Marion Bay development. If the planning regimes were robust and took into account projected sea level rises, why was it that the matter had to be litigated? Could you just explain a bit about it.

Dr Townsend—Certainly. The board's policy was developed in 1991. The policy said that there should be an adequate buffer for a public reserve, plus an erosion buffer. When that was translated into development plans in 1994, the word 'adequate' had been quantified to 50 metres. The Coast Protection Board has to comment on development applications in light of its policies, but planning authorities should be assessing developments in accordance with the development plan.

In addition, that particular allotment for which the subdivision development application was submitted was not in a coastal zone. It was not referred to the board formally. There was an informal referral on which we provided advice but, according to the board's policies, we could not make a substantive objection. Council did then refuse the development application based on the development plan, and the developer appealed it, which is why it went to court.

CHAIR—I see. Council did originally refuse the application.

Dr Townsend—I believe so.

CHAIR—Consistent with state policies?

Dr Townsend—With the development plan.

Mr Huppertz—That is right. The advantage in the Marion Bay case was that there was that recognition of, amongst other things, sea level rise in the development plan, so it was on the strength of that that council refused the application, and the ERD Court supported that refusal. So that was the advantage: there were these provisions specifically in the development plan, which is the development control instrument.

Dr Townsend—So you would have to say that the system in place—

CHAIR—Did work.

Dr Townsend—behaved robustly.

CHAIR—Good.

Ms Burch—In that regard I would mention that in Tony's planning area a special planning package has been prepared for South Australian councils so that they can better understand what it is they need to put into effect in their coastal areas, explained in very clear language that planners can relate to, and that is part of the education campaign that has been undertaken by the Coast Protection Board and the Department for Environment and Heritage, to try and not only ensure that the appropriate information is in development plans but also that it is taken up and applied.

CHAIR—Part of the dilemma and problem for the committee is that every state has its own regulations and processes and means of doing things, so the committee is trying to get a handle on the complexity state by state and on local government responses to state policies, but I do commend the South Australian policy framework and development. It does seem to me to be comprehending the complexities of the challenges that are going to face us in the century ahead. In reading the submission, I understand that the development plans are now being modified. Could you shed some light on that process.

Mr Huppertz—Yes. The most recent exercise there—you may have something of it before—is the Better Development Plans program run out of Planning SA in this state. That sought to review the basic structure and content of development plans across the state. As you would know, each geographic area has a development plan. Mostly, each council has a single

development plan applying to its area. Some parts of those development plans are consistent from development plan to development plan, and the Better Development Plans program sought to standardise, again, those area-wide provisions and make them more concise and easier to understand. That included a consideration of the coastal areas provisions and so there was some reworking of the old provisions. In the case of the coastal areas provisions, those were inserted in development plans back in 1994, so they were made a little bit more concise, a little bit more direct.

Associated with that there was also an examination of the different zones in development plans and some standardising of those zone provisions, including three various coastal zones. It was a means of standardising those development plans across the state. The development plan modules are being applied across the state, mostly as the various councils review their development plans, and those new provisions have been added.

CHAIR—And there are different modules that come with these development plans. Is that right?

Mr Huppertz—That is right. There is a library of modules covering not just coastal areas but all sorts of issues: the council-wide provisions that apply across the whole council area and then, more specifically, the individual zones that might apply across the council area—residential zones and coastal zones included.

CHAIR—In terms of Ms Burch's earlier advice about the integration of sea level rises into development plans, you have also talked about the buffer restrictions.

Mr Huppertz—Yes.

CHAIR—Are there other factors that are relevant to the coastal zone that you already incorporate as guidelines?

Mr Huppertz—Yes. There are certainly the sea level rise provisions and requirements for floor and site levels for new development. There is recognition of the need to allow a retreat of habitat systems, salt marsh and mangrove particularly, associated with sea level rise, and some provisions about amenity, coastal viewscales and so on.

CHAIR—Are these written in a way that the layperson can comprehend and understand?

Mr Huppertz—I think so, yes.

CHAIR—Would it be possible, Mr Huppertz, for the committee to have a copy of such a plan that we could give some consideration to?

Mr Huppertz—Yes.

CHAIR—You have one with you.

Mr Huppertz—Yes. If it suits the committee, I do have some excerpts from the Better Development Plans Policy Library. In this case it is the coastal areas provisions and I could

further, perhaps, point you in the direction of the other coastal modules as well. They are available on the Planning SA website. You will see there highlighted some of the provisions that directly relate to climate change matters.

Dr Townsend—There are discussions of erosion allowances—on top of existing erosion rates in some areas, what allowances should be made for the impacts of sea level rise induced erosion—and also a discussion of, with projected decreased rainfall and therefore aridification, what destabilisation of sand dunes could occur and the implications of that for development, and so the need for buffers between sand dunes and development to prevent sand dune drift induced problems.

CHAIR—Just so that I have got the process right: this policy is promulgated in an act of parliament or derives from a legislative provision?

Mr Huppertz—Yes. The controlling act is the Development Act 1993 and that sets up some sort of hierarchy of development control. At the top level there is the state's planning strategy and that planning strategy provides the general guidance for development plans and, more particularly, the review and amendment of development plans. I have here, too, some excerpts from two volumes of the planning strategy: the outer metropolitan Adelaide region and metropolitan Adelaide.

You will see there some provisions that, again, relate to climate change matters, so that planning strategy then guides the formulation and the amendment of development plans. Those development plans in turn are the one guiding instrument for development applications that are lodged, whereby the planning authorities—either the council or the state's Development Assessment Commission—assess the development applications against the development plan, which includes those coastal area provisions.

CHAIR—Every local government authority is bound and mandated to follow the prescriptions set out?

Mr Huppertz—Yes, they are, by way of development assessment.

CHAIR—Do you indemnify councils that act consistently with your state provisions? Is there a policy that takes the legal liability off councils and onto the state government if they follow your directions?

Mr Huppertz—I guess, in legal terms, if the council was seen to be acting properly in accordance—

CHAIR—And in good faith.

Mr Huppertz—with that development plan, that would be a defence in regard to a liability matter.

Ms Burch—It would be appropriate for us to come back to you with information on that.

CHAIR—That might be useful, because our understanding is that, in New South Wales—and the act is being revised—providing local government authorities act in good faith in terms of the framework and the policies enunciated by state legislation, any legal liability then passes from the council to the state.

Mr Huppertz—There are not specific provisions in the Development Act saying that.

CHAIR—You do not have anything specifically in legislation?

Mr Huppertz—No. The other control in the development assessment process that was referred to earlier is that most development applications on coastal land, which includes coastal zones, are referred to the Coast Protection Board, which has that role of providing responses. On some occasions the planning authority is subject to the direction of the board, so the board could direct refusal or direct that specific conditions be applied to any approval given. In other cases the planning authority needs to at least have regard to that board advice.

CHAIR—So if I was a member of the council, say, at Port Adelaide Enfield and there is a development application before me that impinges on the coast zone, does that matter get referred to the Coast Protection Board for decision, rather than the council?

Mr Huppertz—It is certainly referred to the Coast Protection Board and it depends on the nature of the development as to what regard the council would need to have to that board advice.

CHAIR—As I understand it, the protection council has the right to reject applications as being non-compliant—is that the word?

Dr Townsend—There are a couple of triggers for the direction of the board. If there is a large amount of excavation or fill as part of the development, that triggers the board's power of direction. The other trigger is if there are any coast protection works proposed as part of the development, in which case the Coast Protection Board could either direct refusal or, more likely, direct that conditions be applied to any approval given. In most cases the planning authority, whether that be council or the Development Assessment Commission, need only have regard to the board's advice. It might recommend refusal; it might recommend conditions; it might have no objection.

Ms Burch—There might be a subtlety here about the power of the board to advise or direct on coast protection matters versus the power of the planning authority to determine the planning matter before it. The board is able to advise in certain circumstances that the planning authority have regard to certain matters. It can advise in respect of a coast protection concern of significance and direct that the application should be refused on a particular basis, but in technical terms it is the planning authority that exercises that power.

CHAIR—So, despite the directions or views of the board, a local government authority could choose to ignore that and proceed to give consent to a development.

Dr Townsend—Not if it is a direction. If it is advice they may, on balance, disregard that advice. But if it is a direction, there is a compulsion to comply with that.

CHAIR—I am sorry we are getting down to the detail, but I am quite interested in the system that operates here. It is kind of advanced in terms of some of the other systems. Would it be possible for you to put in a supplementary submission that does a flow chart along those lines so that we have got a clearer view of exactly what the role of the Coast Protection Board is in agreeing or disagreeing to development applications?

Dr Townsend—Certainly.

CHAIR—In the state of New South Wales any major development along the coastline can be ‘called in’ by the minister, in which case his powers can override local environmental plans at the council level. Does such authority happen and reside here in this state too?

Mr Huppertz—Yes. There are provisions of the Development Act, again—the major development process—whereby a particular development or sometimes a particular type of development, sometimes a development in a particular area, can be deemed to be a major development. In that case the process is different. It can require some level of environmental impact assessment, and the ultimate authority is the Governor, with of course the advice of the government.

In that matter, through the assessment process as well as that environmental impact assessment, the development plan is still taken into account, but it is possible for the planning strategy directly to be taken into account in that final decision. So in that case the authority does not rest with the local planning authority—council or the Development Assessment Commission. Also, with regard to the Coast Protection Board, although advice could be provided, there would certainly be no power of direction resting with the Coast Protection Board for a major development.

CHAIR—Is the minister’s decision appellable in a court of law?

Mr Huppertz—I am not sure of that.

CHAIR—You might take that on notice and let us know.

Mr Huppertz—Yes.

CHAIR—For example, in the state of New South Wales, other than matters of legal process, the decision is not appellable.

Ms Burch—I thought that was the case here too, but we will take that formally on notice.

Dr WASHER—I would have thought so, Chair. They make the laws.

CHAIR—Yes.

Dr WASHER—Great submission. It is one of the better ones we have seen. Congratulations.

Dr Townsend—Thank you.

Dr WASHER—I love that you are putting some measurements down in writing. The big problem—and it is a very generic problem I would state to you—is that naturally there are sceptics about all this. I am not a sceptic, but that ought to be taken into account. I notice that you have said there has been a 1.5 millimetre per year rise in sea levels. Murray, you said that. Could you tell me over what period of time you have measured that and how you have measured it.

Dr Townsend—That 1.5 mil a year in the policy was current as of 1990 or 1991. That advice would have been provided through what was then the National Tidal Facility at Flinders University, South Australia. That body has been transferred to the Bureau of Meteorology and is now the National Tidal Centre. Certainly the latest advice we are getting from them is that the rate of sea level rise has accelerated since that time. I believe it is nearing five millimetres a year at present.

Dr WASHER—That certainly occurs in Pacific Island measurements. Since 1993 it has been 5.7 millimetres in Rabaul, as you know. That is great. Putting it at 0.3 of a metre rise by 2050, it is something to aim at. It makes it a bit more significant when we give you DEM models and provide facilities to you, as to what we should really aim at. That is great. Can you elucidate the fact that a lot of this would be due to thermal expansion of oceans. You also said that you expect bigger storm events as a result of sea level rises. Is that because of the warming of the oceans?

Dr Townsend—I believe that there has been some work done for tropical regions that indicates that higher sea surface temperatures could lead to more intense cyclones. In South Australia we have got very different mechanisms for the generation of storms. Our severe events tend to accompany the passage of cold fronts. There has been some indication that there could be a slight deepening of low-pressure systems associated with those, but my recollection is that it was very slight, in the order of one hectopascal, on average, deeper than what they are now, which is a relatively minor change.

I do not think that higher sea surface temperatures are likely to lead to any changes in that. However, meteorology is not my area. I am a coastal engineer and I rely on the expert advice of others for that. My understanding is that the major contribution to sea level rise to date is in fact the thermal expansion component.

The major uncertainties lie in the future contributions of icesheet and glacial melt. Certainly the publications that have been released in the last 18 months or so are painting a more dire picture every time you pick up another document. The information that John Church and others have put together, including this one, which was released only a fortnight ago through their Antarctic Climate and Ecosystems CRC—

CHAIR—I have seen that one.

Dr Townsend—It is a very good briefing indeed on clarifying what is happening with sea level rise and why and how global emissions are greater than projected by the IPCC some time ago. We are seeing sea level rise tending to follow that pattern at present.

Ms Burch—An issue of interest to South Australia, given that we have put sea level rise settings into our development system, is the way in which the IPCC's most recent report is being

interpreted. We have been paying close attention to the fine print, which is the factor that needs to be added in there for ice melt. But from time to time we read publications or statements from elsewhere and it concerns us that people seem to be taking the base figure that has been provided as the figure, without doing the interpretive work.

CHAIR—Without taking into account the factor of the melt.

Ms Burch—Yes. Hence that additional work that is now occurring in South Australia.

CHAIR—There is a good body of scientific evidence in Australia now that suggests that we should be planning between 0.5 and 1.4 metres by the end of the century.

Dr Townsend—That is certainly what John Church et al have discussed in this.

CHAIR—It corroborates that.

Dr Townsend—Yes. It seems that much of the discussion looks at the numbers presented by the IPCC but has not taken into full account the qualifications that the IPCC applied to those numbers, based on the rather large uncertainties.

CHAIR—In your submission you talk about the modification of the development plans and you talk about:

- Improving the development assessment process by extending the powers of direction of the Coast Protection Board in relation to coastal hazards.

Importantly, there is a provision for listing inappropriate developments as ‘non-complying’, which provides greater assurance that such development does not occur.

First of all, if the board makes a determination that something is non-complying, does that then get referred back to the council, which makes the ultimate decision?

Ms Burch—A couple of things there. I might start at the beginning of the process that we are working through with Planning SA at this point in time. We have recently, as a department, done some extra work on mapping—to the best of our ability, with current knowledge—coastal hazards in South Australia.

We have been in a number of discussions with our colleagues in the planning agency, Planning SA, regarding where those coastal hazards occur in respect to current development plan zoning, with a view to getting a more sophisticated and reliable form of coastal zoning in South Australia so that we can be sure that, if infrastructure is going to be at risk if it is placed in that area, or if indeed sensitive coastal features are going to be put at risk if development occurs in that area, there is a referral to the Coast Protection Board; also, that there are appropriate settings in the development plan around the non-complying side of it.

Non-complying does not necessarily mean that the board has more powers; it means that there is a greater onus on the planning authority to achieve concurrence from a similar upline planning authority. For example, if you are a local council and you are making a determination on a non-

complying matter, then the Development Assessment Commission would be equally called upon to concur with your decision.

CHAIR—The Development Assessment Commission is, what, a state-wide or regionally based body?

Mr Huppertz—It is a state body that on occasions is the planning authority for a particular application. For example, if a development application is out of council areas or if it is a particular type of development—big shopping centres and other things—the Development Assessment Commission becomes the planning authority. With regard to non-complying development, it is the development plan that lists, generally in the zones, whether a development is non-complying or not. It is for the planning authority to make that call to determine the nature of the development. If it is non-complying, the process is a little different to an ordinary application in the final assessment of the application.

Although a council might be the relevant planning authority, in the case of a non-complying type of development, the council would need to seek the concurrence—the agreement—of the Development Assessment Commission to any approval given. So it is a separate part of the process to whatever the advice or direction that the Coast Protection Board might provide. I suppose we see it as providing some insurance against bad decisions.

In coastal zones, for example, we would like to see inappropriate development listed as non-complying. It provides some assurance of the process of the local planning authority, the council and also the Development Assessment Commission entering into the decision making.

Ms Burch—You could appreciate that, because that requirement is more onerous, it should be applied selectively. In the main, South Australia is looking to probably do the opposite and streamline its planning processes at this point in time, wherever that is conceivable. However, where you are on a coastal hazard zone, it would seem appropriate that you would take such action in respect to particular types of development.

CHAIR—So you think it is possible to simplify and do a diagrammatic representation of the planning process?

Mr Huppertz—Yes.

CHAIR—Let's say, hypothetically, a developer comes along and he has got a proposal for what at first glance would look like inappropriate development along the coastline. What would the process be for that to get assessed? I am particularly interested in the interaction between the powers of the board and the local government authority. You seemed to indicate in the submission that you were looking at extending the powers of the Coast Protection Board.

Ms Burch—Yes.

CHAIR—Is that still on the agenda?

Ms Burch—It is and the government has given in-principle support to extending those powers and that is now a matter of dialogue between agencies, to provide the appropriate information to

ministers for consideration. That is why South Australia's Department for Environment and Heritage has been doing that coastal hazard mapping, so that we can then enter into dialogue about the areas in which we would be suggesting that the Coast Protection Board receive those additional referrals.

Given that we are trying to streamline the referral process in South Australia, you can appreciate that that is a statement really by the South Australian government that it takes quite seriously the question of development being put at risk of coastal hazards, understands the future implications in terms of its duty to South Australians, and is trying to mitigate against that occurring.

CHAIR—With regard to the development plans and what we have talked about earlier in terms of some of the restrictions that are applied, do you have any restrictions on canal estates in the state, or is that a local government authority decision?

Mr Huppertz—There is none specifically stated, so it is left to either development plan assessment or, most likely, in the case of canal estates, the development is declared a major development and so it is run through that process, including some level of environmental impact assessment.

CHAIR—If we take that canal estate, hypothetically, and it goes to the minister for determination, are the views of the local government authority sought on that development or is the minister free to make a decision without consideration of the views and the planning instruments at the local level?

Mr Huppertz—No, certainly the views of the local planning authority or the councils are taken into account through that process.

CHAIR—And the coastal board would be as well?

Mr Huppertz—Yes.

CHAIR—What impact do you think the Supreme Court decision about the Marion Bay proposal has had?

Mr Huppertz—I saw it as a very positive recognition of those coastal areas provisions in the development plans. I think the court showed a good understanding of what those provisions were about and how important they were in the assessment of coastal development.

CHAIR—You know that there has been a decision of similar nature in Victoria by the Victorian Appeals Tribunal.

Mr Huppertz—Yes.

CHAIR—Do you have many cases like this that get litigated? What has been the history of matters resolved without the need for legal action?

Mr Huppertz—It is relatively rare, I would say. Given that the Coast Protection Board has a power of direction over a certain number of applications, thinking back over the last five or six years, there have been a couple of appeals in regard to board directions; none of them have proceeded on to a hearing of the court. So the level of litigation is relatively low.

CHAIR—Yesterday on our site visit we saw an area of salt marsh that potentially is earmarked for future residential and industrial development. I think it was around the Gillman area.

Dr Townsend—It is a proposed eco-industrial precinct.

CHAIR—In your submission you say:

... 80 per cent of the original saltmarshes have been lost to reclamation for industrial development.

That is a pretty high proportion:

Urban development on what were previously sand dunes has resulted in the disturbance and loss of coastal vegetation and habitat ...

Then you talk about associated sand drift. Could you tell us a little bit more about this proposal for further development in that zone and also what action your state government has taken or is taking in relation to acid sulfate soils. That is becoming a growing concern.

Dr Townsend—Can I can work backwards on that and talk about acid sulfate soils first?

CHAIR—Yes.

Dr Townsend—There has been a recognition for some years now in South Australia of the acid sulfate soils issue. In fact, CSIRO experts in the field are based in Adelaide, which has been helpful to us, there is no doubt about that. We have done a fair bit of work—the Coast Protection Board and DEH—with CSIRO on this, and the Coast Protection Board has a strategy for dealing with acid sulfate soils in South Australia. I have some copies of that here. That is a summary of the board's strategy document. It does not prohibit development occurring in acid sulfate soils, but it does provide guidelines on how to manage the presence of potential or actual acid sulfate soils.

This strategy is extraordinarily relevant to the Gillman site, which was banded off some decades ago from Barker Inlet, and which caused areas within that site to go from potential acid sulfate soils to actual acid sulfate soils. There are tens of thousands of tonnes of acid in the soils at Gillman and, of course, that has been accompanied by increased subsidence from the compacting effect of the acidity and various other issues. The site has been investigated thoroughly in recent years for this proposed eco-industrial precinct, and a number of options have been considered on how best to manage that site, given its highly disturbed nature, but also there are areas that still retain some environmental and conservation value and how they could be preserved.

It is still being discussed. No final position has been taken, but certainly there is movement towards a resolution that will accommodate the impacts of climate change, deal with the acid sulfate soils and retain some open space habitat areas. That is my understanding.

Ms Burch—In respect to this particular coastline and acid sulfate soils, you may wish to observe that the policy position here does not necessarily say that you cannot develop in these circumstances, whereas interstate some of the states do say that. They say, ‘If there are coastal acid sulfate soils, then you can’t develop,’ whereas there is a risk based approach here.

Dr WASHER—You have done some protection works for sea level rise, increased storm surges and some inundation problems because of water pumping. I guess we are going to need a few of those, and you have put in some seawalls and levee banks et cetera. How effective have they been in your opinion so far?

Dr Townsend—Could I just give you a bit of background first on how we go about that in South Australia. The Coast Protection Board has a mixture of skills based and jurisdiction based membership, including membership of someone with expertise in local government. In addition, there are three local government observers that attend all board meetings, so there is a close relationship between the board and local government.

The Coast Protection Board also administers a fund which it largely uses to assist local government in implementing investigations, protection works—anything within its scope; largely protection works with local government. Generally speaking, a grant is provided to the relevant council who then undertakes the works. The grant can be up to 80 per cent of the cost of the works, and the council is generally expected to fund the rest.

Since the board’s policy on coast protection and new coastal developments was adopted, the board has insisted that protection works take into account the impacts of sea level rise and are correspondingly designed for that purpose. Notably, I think, we have got the levees that have been constructed around Port Pirie. They built in an allowance for 30 centimetres of sea level rise, with a capability of being raised in the future to deal with greater sea level rise. Similar works are being staged at Port Augusta; they have been going for some years.

Seawalls have been built along many erosion-prone areas. One of the most active areas that we have at the moment is Beachport, a small settlement down in the South-East, which has a very active foreshore, if I can put it that way, and there has been a staged construction of seawalls along that area for some years. Probably the highest impact area in the state would be the Adelaide metropolitan coast, which is a naturally eroding coastline that has been heavily developed, and it was in fact the initial driver for the Coast Protection Act back in the 1960s. Most of the seawalls there were built prior to the sea level rise policy, but many of them have been upgraded in the last decade or so to at least be capable of dealing with a 0.3 metre sea level rise. There is scope to raise them further in the future, if required.

The state more directly looks after the Adelaide metro coast, because it is divided amongst a number of councils and it is hard to allocate responsibility to the different local governments, but certainly outside the metropolitan area the board deals directly and very closely with council by council. For example, at St Kilda in the city of Salisbury, the board has committed significant

funds to assist the council to build a new seawall to protect that settlement from flooding and erosion.

CHAIR—Before we conclude, could we ask you some of the priorities that you would have on your mind for this committee to make recommendations about. What do you see as some of the key roles that the federal government—which has been largely absent from coastal policy and involvement—could take? What do you think would be of greatest assistance to the state and to local governments here? We have talked about the digital elevation modelling which, on most current reports, will probably be finalised by early next year, and we do plan to have a meeting initiated by the federal government which would involve large numbers of people who are active at the local council level. There is talk about funding for an interactive modelling to help planners at the local level understand the impact of the DEM and what it means for their location and their region. What would you see as a positive contribution by the federal government for the future, particularly in this area of coastal protection?

Dr Townsend—Certainly the digital elevation model and a national approach to the digital elevation model so there is consistency of approach, that the data is gathered and stored in a consistent and accessible manner, would be my highest priority. It is very important that this information is obtained. Without it, it is very hard to do broadscale quantitative vulnerability assessment. We are getting inquiries now from various councils that are interested in this coastal vulnerability work, but I think there could be economies of scale gained by doing it in a coordinated fashion rather than in a piecemeal manner.

CHAIR—What about the complexities of planning regimes? Is there any particular role that you think the federal government might be able to play in that regard?

Dr Townsend—That is a bit more difficult, given the wildly varying coastal and meteorological conditions that occur around Australia. Whilst there is value in a toolbox and maybe some consistency of approach with relation to sea level rise, bearing in mind the regional variations that are expected around the global mean, around the country, that would be a lot more difficult to implement on a national basis.

Ms Burch—That was perhaps the finding that led to the national cooperative approach to integrated coastal zone management. I am aware that there is discussion at this point in time about reviewing this document for the NRM Ministerial Council, in conjunction with the findings of this House of Reps committee, to determine the way forward in terms of how we might do things together.

A lot of what might come out of this is to provide, as Murray said, the toolbox or some settings to inform each state and territory as to how it applies it into its legislative and policy framework. That is where we can do some work together and that is why South Australia will, for example, be very happy to share its learnings from the current review it is doing with its sea level rise advisory committee.

In respect to the resolution of responsibility for funding, liability and compensation, there is probably a collective community role there to have a lot more discussion about what it means and what falls out at national level versus state and local government level. Just getting the DEM data and being able to use that information to better understand the potential impacts will start to

bring about a greater conversation in our community than we otherwise are having at this point in time.

It is appropriate that we do understand with greater clarity what could be occurring to infrastructure that will last for possibly a century or more. So the sooner that we as a community right around Australia can understand that implication and plan for it and prepare for it, the less expense we will incur in the future. So that could be helpful.

Equally, there is a role, in having that conversation with the community, in having levels of conversation through different governments, with industry, and with the broader general public. So, for example, when the findings of the sea level rise advisory committee are available in South Australia, in all likelihood there will be some public meetings around what has been found, how the government plans to use that information, and how it will come about that the South Australian public will benefit from it.

CHAIR—Did you want to add anything?

Mr Huppertz—No, just to reinforce, from a planning point of view, that South Australia's planning system is robust enough to deal with the issue, but it needs that information that the DEM can provide to determine exactly what we need to address next. Then we need to put our nose to the grindstone and get the planning system addressing that.

But also I think that if the community were engaged across the nation it would help there to be greater recognition of the issues that we face. Then there would be more acceptance of the changes that need to happen to the planning system and in other places.

CHAIR—I would like to thank you very much for coming along and sharing your knowledge with us this morning. Thank you for your submission and we look forward to receiving some follow-up from you. We have been very impressed with the way things are moving in this state by comparison to some others and there might be some lessons we can learn from the approach that you have adopted here.

In concluding can I, for the *Hansard* record, thank you very much for attending the hearing today. The secretary will send you a copy of the transcript for any corrections that need to be made. I would be grateful if you could also forward on to the secretariat any additional material that you believe might be of use to the committee. The exhibits that were tendered this morning, the committee will consider the material at its next meeting and resolve the formal status of the document you presented. But they, I am sure, will be very useful as we proceed with this inquiry. Thank you very much for your time and effort and sharing your views with us this morning.

Ms Burch—Thank you. We look forward to learning from your report.

[9.59 am]

IASIELLO, Mr Wally, Director, Technical Services, City of Port Adelaide Enfield

SANDERS, Ms Verity, Strategic Planner, Environment Policy, City of Port Adelaide Enfield

CHAIR—I would like to welcome representatives from the City of Port Adelaide Enfield to this public hearing. Although the committee does not require you to give evidence under oath, I should advise you that these hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. The committee has received your submission and it has been authorised for publication. The committee would like to thank you most sincerely for your efforts in arranging for a worthwhile and valuable site visit, both on the river and in the surrounding areas yesterday. It certainly helped inform our views about this important issue. I would now like to invite you to make a brief opening statement, if you so wish, before we proceed to questions and discussion. Thank you.

Ms Sanders—Thank you, and thank you to the committee for the opportunity to provide a presentation and to give you the opportunity to have a look around the area yesterday. It was valuable from our perspective as well. Local government has a key interest in this. Local governments around Australia have core policy and operational interests in coastal planning, both from a flood management perspective and also a development planning perspective. We were pleased to see an Australian Local Government Association representative on the COAG subgroup for climate change and the infrastructure group, which links together well.

The Local Government Association in South Australia has just prepared its first strategy for climate change, which I should forward to you for interest. It is a good document, the aim of which is to bring together councils around South Australia, particularly at a regional level, to begin to look at and work together on issues such as working with the state and federal governments on modelling and looking at assessment of climate change impacts in different regional areas. That will be a valuable way of gathering councils together and getting them working together in some of these areas, particularly in coastal planning.

Port Adelaide Enfield, like most capital city ports around Australia, has a mixed coastline. About a quarter of our coastline is high-value residential property areas, which, similarly to other parts of Australia, have some pressures in relation to the sea change phenomenon, but we also have a buffer along our beach coastline of 100 metres or so, which our forefathers had the vision to put in place and which are now extremely valuable dune buffers which the community have great ownership of, which is wonderful.

Probably half of the coastline in the council area is traditional, industrial and manufacturing port related activities, so highly engineered over 150 years, with a whole other unique set of issues. About a quarter of it is some of the area that you looked at yesterday, such as the Gillman area, which is also highly engineered but still retains significant biodiversity and ecological values and assets which we are keen to look at.

So we have a mixture of issues and a challenge in terms of how we put in place risk treatment options and adaptation options down the track, because it is not going to be a one size fits all, even within our own council let alone in relation to how we link to our adjacent coastal councils, so there is important coordination and collaboration work to be done. With that in mind, several years ago council initiated and prepared a project brief which we put to the federal government under the DOTARS Natural Disaster Mitigation Program funding, which was all that was available at that stage, in terms of looking particularly at flood risk in these areas.

That is a three-stage project. The first stage was completed in 2005 and undertook the digital elevation modelling and also looked at the bathymetry and topography of the coastal areas and tidal impacts. It included the stormwater management issues upstream, which is important, and it was excellent to see the catchment coast continuum as part of the committee's terms of reference because it has a critical impact on coastal areas in this context.

Stage 1 of that study also looked at sea level rise and increased storm energies, based on the CSIRO and IPCC report data and predictions. It was supported from the beginning by tripartite funding, all three levels of government. The state as well came through, as part of their involvement in the NDMP program, and I should say that the Coast Protection Board supported the project, as did our department of transport. So there were several agencies who saw the value of it early on, which was terrific, and we want to retain that. The three levels of government working together is critical.

Stage 2, which we are currently undertaking, is to have a look at what the best risk treatment options are for the areas: what is the best mix of strategies we can put in place? We will come up with some recommendations regarding that, then stage 3 will be actually implementing the recommendations. That is where significant funding will be required down the track.

There are two major areas within the study area for that project: the northern Le Fevre Peninsula and the Gillman area, which are currently undergoing regional planning and additional assessment with a view to releasing those areas for industrial development. It is a timely opportunity to be able to incorporate the science that we already have into that regional work which is being done now, and look at how those areas can be developed with that science and any additional work that needs to be done, so that those areas can be developed with climate change and upstream stormwater management issues at the forefront of everyone's minds. That is where we are at this point, and that is the current status that we would put to the committee in relation to particularly the Port Adelaide Enfield area.

CHAIR—Mr Iasiello, do you wish to add anything?

Mr Iasiello—No. I think Verity has covered it well. Just to reinforce, we were pleased at the cooperative approach between the three levels of government, and the people from the Coast Protection Board that were just here were helpful in terms of both financial and in-kind assistance with that study. They have been supportive and have helped us greatly in terms of progressing the study.

CHAIR—Thank you for those introductory comments. I must commend your council for its foresight in applying for funding under the national disaster management scheme.

Ms Sanders—We are very creative with our opportunities.

CHAIR—Very creative! Since then you would be aware that the Department of Climate Change now has a program to assist local governments in doing their risk assessments.

Ms Sanders—Yes.

CHAIR—But you are certainly well ahead of the pack in terms of seeing the immersion issues as being of critical concern to your local government authority area. We have just had a presentation from representatives of the South Australian department and I guess their argument is that they believe that their planning regime and the way it works in this state, so far as coastal vulnerability is concerned, is pretty robust and that the protection board is now doing a review particularly focused on sea level projections for the future.

You are at the coalface of these endeavours. Do you see that the framework that applies here is a reasonably supportive one of your endeavours at the local government level? And how might it be improved?

Ms Sanders—Yes. The state government is currently undergoing a fairly extensive planning review which is looking at not just efficiencies—that is one aspect of it—but also streamlining of development assessment generally. Part of that also has been to look at where government agencies need to have greater input or referral powers in regard to some particular issues, particularly emerging issues such as climate change. The Coast Protection Board has certainly put their case very strongly, I think, to the state government and to the authorities that they work with in regard to development and planning policies, to make sure that those issues are well in the front of people's minds.

In regard to the current system, each council has a development plan which includes both Coast Protection Board policies in terms of quantitative requirements for sea level rise protection and provisions in regard to protection of flood-prone areas and so on, and protections in terms of distances from coastal areas, coastal zone specific provisions. Those state-wide provisions are incorporated into all council development plans and for these sorts of issues it is very appropriate for the state government, for Planning SA, to look at the generic better development program policies which they are developing, which can then be incorporated as general, city-wide principles into all development plans. Then each council can look at specific issues that are relevant in terms of their own particular coastal issues and contexts.

In the metropolitan area, I think it is a little bit easier because most of the coastal metropolitan area is already developed fairly fully, except for a couple of the areas that you saw yesterday which are to be released for development. It is probably more in country areas, particularly the sea change areas, where there is a lot more pressure to develop in coastal areas. I imagine the state government agencies, not just in South Australia but elsewhere, are having to look at tightening up the planning provisions and making sure that they can respond in a way appropriate to the science and the risk assessments that are currently being conducted.

Mr Iasiello—I speak from my experience as a member of the Coast Protection Board for four years until April this year. Verity is quite right: the pressures are particularly strong in the rural areas for a lot more ribbon development along the coastline. One of the difficulties is that

sometimes the board only has power to advise rather than power to direct, and there is pressure on those councils then to adopt that advice. But they are mindful that, if they reject a development and it goes to appeal, appeal costs can be quite significant. For a small rural council with a small revenue base, that can be a real issue.

CHAIR—We have heard that often in submissions, yes—the cost of litigation.

Mr Iasiello—That puts a lot of pressure on the councils. What we were finding in the board was that metro councils generally followed the board's advice pretty closely, but rural councils tended to sometimes deviate from that advice. That can cause problems. Certainly our council strongly follows the board's advice in terms of any conditions that they think we should apply to developments.

CHAIR—In terms of the process from your end, if you receive a development application that impinges on the coastal area and you foresee some potential problems, does the council refer the application to the board or does the board get a copy of it concurrently with the council?

Ms Sanders—It depends on the development at that stage—the type of development and land-use activity. Where council receives a development application, where council is the planning authority as opposed to the state, if it is even a rezoning or a land division or a development application, in some cases the Development Act requires referral to the Coast Protection Board in some types of activities. I must say that we tend to use the Coast Protection Board as a real resource as well, so even if we do not necessarily have to mandatorily send an application to the Coast Protection Board, very often we will anyway—if we have time to do that—to get their advice and their thoughts, which we may then be able to incorporate into conditions or into comments back to the developer. Often the developer finds that very useful as well.

Dr WASHER—When you said 'time', how long do they normally take on an average?

Ms Sanders—I could not give you the times—

Dr WASHER—I suppose it depends on the project.

Ms Sanders—It does, yes. Not being a DA planner, I would have to get back to you on that and provide you with the particular time frames. There is always a bit of a battle between making the development assessment process very streamlined and efficient and as quick as possible from the developer's perspective, and for the council and other interested parties, but also to make sure that all the issues are looked at carefully; that need to be looked at for the developer's benefit as much as the council's benefit, the planning authority. There is usually a fair bit of flexibility in the system. The issue comes up where things are determined as automatically complying or not complying, and very often if something is complying there is not the time or the opportunity, or the referral opportunity sometimes, to make sure that the input that is needed is gained. Sometimes there is a bit of tension there in trying to keep things efficient but also effective.

From our perspective, at Port Adelaide Enfield council we have a very efficient development assessment team, so we are able to make sure that we do get the information that we need, that

we think we require to properly assess an application against our plan, but at the same time ensure that we follow the statutory requirements in terms of time taken to assess the applications.

CHAIR—You were saying that the Coast Protection Board has two different powers—one advisory and one directional.

Ms Sanders—Yes.

CHAIR—Does the act specify on the grounds—

Mr Iasiello—Yes.

CHAIR—Could you tell us a little bit about that.

Ms Sanders—Not in a lot of detail—again, not being a planner—but the act does list quite specifically the types of land-use proposals which the Coast Protection Board needs to have direction over—that goes for other agencies like the Environment Protection Authority and other agencies—and also where an application needs to be referred to them, but where they simply provide advice rather than actually being able to provide direction.

CHAIR—Do they use the direction power when they consider that the proposed development is inappropriate?

Mr Iasiello—No. I think the direction powers relate primarily to where there are risks to either infrastructure or property. Sometimes development is inappropriate because of impact on views. One of the things that the Coast Protection Board has done of recent times is assess the views along the coastline to try and develop some criteria for when development should or should not be allowed on, say, headlands and those sorts of things. In those cases, it is generally only a power to advise rather than power to direct. As Verity said, the act is reasonably specific in terms of where the board can direct and where it can only advise.

CHAIR—What impact do you think the recent Supreme Court decision about the Marion Bay development has had? Does it confirm that the system is working and it is robust?

Ms Sanders—I think the impact it had was to have most councils rushing off to their development plans and to their lawyers, which probably was a good thing. Many of these cases become test cases, which are very valuable, particularly when there are challenges, which then sets them up as precedents in the civil area. There have been a few around Australia now in relation to climate change law, and they are certainly writing the textbooks. The Marion Bay decision, as far as I am aware, was based on the existing development plan that Marion Bay had in relation to, particularly, flood-prone areas and their existing coastal zone provisions. The climate change sea level rise issue was an additional aspect which they considered in their assessment, which was the challenge that was made. I think, particularly in rural areas, in country councils, it has provided them with a good example of where predicted sea level rise can be potentially used as an issue: it can be raised as an issue in coastal development.

What it has really highlighted to councils is that risk assessment and risk management has to be based on good science and good risk assessment analysis and, if any councils are going to

refuse or challenge development applications based on predicted sea level rise or predicted climate change impacts, we have to have the science to back that up. We cannot simply say, 'We might get sea level rise.' That is where the work that the Coast Protection Board is doing is very important, and we are getting the DEM modelling and other general vulnerability assessments done in a good scientific risk based approach, which is extremely important. That is something which the Local Government Association strategy is looking very carefully at, and making sure that that information is available to underpin development plan policies and provisions in each council area, so that then the development assessment process can be based on good science and good assessment in each area.

CHAIR—In terms of adaptation strategies, we were told this morning that the Coast Protection Board has funding available for protection works like levee banks and seawalls. Is that money appropriated from state revenue to the board, or do councils contribute as well to that fund?

Mr Iasiello—No. Funds from the state government are appropriated to the board. Generally they will fund up to 80 per cent of projects. So then the local government funds the remaining 20 per cent. I would say that those funds are going to be under a lot of pressure, given the issues that are being identified. There will be greater demand for funds over the ensuing years and that will be an issue for the state government and perhaps even the federal government. As studies such as ours are completed and works programs are identified, I would say there will be a greater demand for funds from the Coast Protection Board.

CHAIR—Do you think our efforts at the national level in getting the digital elevation modelling completed on a national basis and the first pass assessment by early next year will be of significant value to people like yourselves at the local government level? Could you tell us what value that will have for the kind of work you are doing.

Ms Sanders—At Port Adelaide Enfield, as you said, we are probably a little bit ahead of the pack there. So in effect we have really already done that and done a little bit more with including the stormwater management side of it as well. For the vast majority of councils, though, it will be invaluable.

The Local Government Association, again, will be certainly supporting that, and supporting it to be done at a regional level. It is silly to do it council by council. Even with the work that we have done, we incorporated Salisbury council and looked at the whole of the Barker Inlet area. But certainly it is going to be extremely valuable to get that baseline science and baseline data that is required.

The next stage of that is to look at genuine vulnerability assessments, which is, once you have got a bit of an idea of where the flooding issues—the inundation issues—might be on the coast, to then look at what the actual capacity of each region is to adapt and what the best mix of risk treatments and so on is, getting to an economic and social level of impact assessment as well. But certainly the DEM work is going to be absolutely critical.

Mr Iasiello—The benefit of it being done on a much larger scale is the economies of scale that can be gained from that. Also, climate change will not recognise council boundaries.

Ms Sanders—Or even state boundaries.

Mr Iasiello—Or even state boundaries. So to have a comprehensive model that can be used regionally would be much more effective than little individual council ones on their own.

CHAIR—Do you know whether the natural resource management body—is that what they are called in South Australia?

Mr Iasiello—Yes.

CHAIR—NRMs.

Mr Iasiello—NRMs, yes.

CHAIR—Did they apply for funding under the Community Coastcare program?

Ms Sanders—I assume they would have.

CHAIR—Specifically for coastal issues, under their purview.

Ms Sanders—I could not speak on their behalf.

CHAIR—Did council put an application in as well?

Ms Sanders—No. The NRM framework has been a little bit of a moving feast over the last couple of years in South Australia.

CHAIR—Yes, you indicated that in your submission.

Ms Sanders—Yes, which is no criticism of the NRM people. I am sure they are coming to a structure that works with the state and federal government changes as well. Obviously the NRM boards are linked directly to federal government through their Caring for our Country programs. They have been on hold a little bit until the new government puts its structure in place as well.

So that is certainly not a criticism of the NRM boards. We work very closely with them and have been looking at the sorts of works and projects we can do with them over the next period, so that question would probably be better addressed to the NRM boards themselves in terms of how they see themselves playing a role in this area.

The NRM board in South Australia is broken up into NRM groups. Recently the Adelaide metropolitan area has actually lost its group status, but there is a section within the NRM board which is going to, I understand, focus on coastal planning and coastal management issues, which will be terrific. So we will be liaising with them fairly closely in the future, I am sure, in those areas.

Dr WASHER—You are in one of those unique positions—not totally unique—where you have got a fairly large industrial complex on the coast, surrounded by areas of state fishing zones

that are fairly valuable to them. Things have cleaned up generally in the industrial sector, as we saw in that estuary. I think someone said no-one is quite ready to swim in it yet, but it is getting that way.

What resource and what is actually being done to handle these types of industrial complexes in terms of outfalls, eutrophication and other problems that are going to naturally affect not only the environment but the fishing industry et cetera?

Ms Sanders—That question would be better targeted to the Environment Protection Authority and the Department for Environment and Heritage at the state level. There have been significant programs in place via those two agencies in particular to monitor and manage the coastal waters around metropolitan Adelaide, including the Port River and the Barker Inlet areas.

There has been a project called the Adelaide coastal waters water quality project, which has been doing quite significant ongoing monitoring of both the beachside suburbs, in terms of public use of the coastal beaches, and also within the Barker Inlet area. The Environment Protection Authority are also the key state agency for monitoring and managing industrial activities and processes and many of them are licensed via that system and under the Environment Protection Act.

There is a fairly strong planning regime in place in terms of new industrial developments in the area as well. There is very little direct discharge into the river any more, which is probably the first time in 150 years. I think there are only two premises that currently do that, and they are also in the process of undergoing improvement programs with the Environment Protection Authority. I am sure they would have a lot more detail on that.

There has also been a project called the Port River Water Quality Improvement program, which incorporates some federal funding under the Coast and Clean Seas initiative, over the last two or three years as well, which has been looking at particularly the eutrophication and nutrient loads into the river and the Barker Inlet generally.

There has been some excellent modelling—particularly hydrological modelling—going on in that regard in terms of inputs from, for instance, the Bolivar sewage works further up the coast and also a couple of the smaller sewage treatment works in the metropolitan area. Council has an interest in that in regard to ensuring that our stormwater output into the river is as healthy and as high quality as it can be.

One of the great benefits we have in our area is the tidal wetlands, which we use to basically pick up most of north-west metropolitan Adelaide's stormwater, particularly from the highly industrialised areas. This goes through those treatment wetlands prior to discharge to the Gulf St Vincent, which is incredibly valuable and probably good luck more than good management. It was created 20-odd years ago and is now incredibly valuable in that regard. So there are certainly significant state programs in place to monitor and manage the quality of any discharge to that area.

Dr WASHER—But you are ultimately responsible for those wetlands, aren't you?

Ms Sanders—We have care and control of the wetlands, yes. They are crown land but we have care and control and management of the wetlands. We have management plans in place which we review regularly, and we are also very aware of the biodiversity values of the area.

Mr Iasiello—As I mentioned yesterday, we maintain those wetlands on behalf of not just Port Adelaide Enfield but the other adjoining councils whose catchments come into there. Those councils are very cooperative. We have a good relationship with them.

The other thing worth mentioning in terms of the Port River is that, up until about three years ago, there was a significant sewer discharge into the river. The government spent hundreds of millions of dollars diverting that sewer outfall to Bolivar, where it gets a higher level of treatment. A lot of that water is then reused in the Virginia market gardens. Also, a lot of the effluent from the Glenelg treatment plant is going to be diverted via a pipeline back to the parklands around the CBD of Adelaide. So the government is working very hard at reducing discharge from sewer plants into the gulf.

Ms Sanders—I think South Australia has the highest proportion of waste water reuse and recycling anywhere in Australia now, which is excellent.

Dr WASHER—It is terrific. I am glad I gave you an excuse to talk about that.

Ms Sanders—I could go on for hours, but I will not.

CHAIR—In terms of the recommendations that will come out of our report, from the perspective of practitioners at the local government level dealing with these issues on a day-to-day basis, what kind of intervention, assistance or role and responsibility would you like the federal government to take in this area into the future? Are there any particular things that you think we could and should be doing that we are not doing?

Mr Iasiello—Certainly continue the programs that are available, that have enabled us to get funding to do the studies.

Ms Sanders—Or similar, I guess.

Mr Iasiello—Or similar. The major issue, though, will be how we go about implementing the findings of those studies. That is where significant investment will be required. Having programs that can be shared between the three levels of government will be critical.

CHAIR—For example, if your findings show that you have got very vulnerable, significant pieces of infrastructure, not only for your area but for the whole state, at risk of rising sea level and current protective barriers are not going to do the job, who is then up for the payment and what role can the government play in assisting you to deal with that?

Mr Iasiello—Yes. I see that as the major role perhaps that the federal government can assist with.

CHAIR—In your submission you do quantify out of the first report scenarios, in terms of cost implications.

Ms Sanders—I think we have included insurance costings, which came out of the study. I do not think we put any costings in for implementation of the works, or required works, because we are not sure exactly what they will look like at this stage.

CHAIR—I know there were a range of things—page 44.

Ms Sanders—Yes. I think they were the different scenarios in relation to what the insurance costs would be.

CHAIR—Yes, different scenarios:

The study reported floodplain mapping and damage estimates for a range of future sea level scenarios of inundation combined with a 100 year storm event. These predict that the damage associated with a 100 year storm event will increase dramatically from existing conditions ... to future scenarios.

Ms Sanders—That is right.

CHAIR—Was that damage to property?

Ms Sanders—Yes.

Mr Iasiello—Yes, damage to property.

CHAIR—So continuing to make a contribution in terms of adaptation strategies, particularly aimed at—

Mr Iasiello—Yes.

Ms Sanders—Absolutely.

CHAIR—pieces of critical infrastructure.

Mr Iasiello—Yes.

CHAIR—You are saying that the DEM modelling is going to be very useful for councils with minimal resources.

Mr Iasiello—Absolutely, yes.

Ms Sanders—Yes, particularly in rural areas. I think that is going to be critical.

Mr Iasiello—Yes.

Ms Sanders—Simply the support at federal level of nationally consistent methodologies for coastal management in general, including sea level rise and climate change impacts, would be very valuable.

CHAIR—We hear that often—‘nationally consistent’.

Ms Sanders—I am sure you do.

CHAIR—Part of the dilemma is because of the uncertainty of the scientific predictions and because of the variability, depending on where you are on the coastline.

Ms Sanders—Exactly. Of course, yes. So it comes down to methodologies, and then each area being able to plug their specific situations and circumstances into that. That would be very valuable. In terms of local governments in South Australia generally, that policy and program support at federal level would be very valuable. The three levels of government can then at least be speaking the same language and heading in the same direction, with some aims and outcomes in mind, rather than the three levels tending to have quite different agendas simply because of different jurisdictional needs and responsibilities and roles. We tend not to talk to each other enough.

CHAIR—Is there anything else you would like to comment on?

Mr Iasiello—No, I think that has covered it all.

CHAIR—Thank you to both of you for attending the hearing today and for making yourselves available for the site visit yesterday, which was very informative to the committee. The secretariat will send you a copy of the transcript for any corrections that you would like to make. I would be grateful if you could also send to the secretariat, as soon as possible, additional material that you have undertaken to provide. The outcome of the next stage of your research project, if it coincides with the dates for our inquiry, would be useful to have a look at. I commend the Port Adelaide Enfield council on its foresight and its early understanding of the risks that climate change will pose at the local level, and we look forward to continuing a constructive relationship with you. Thank you very much for coming along this morning.

Ms Sanders—Thank you.

Mr Iasiello—Thank you for the opportunity to appear.

Proceedings suspended from 10.35 am to 10.52 am

GAUT, Ms Alex, Marine Program Coordinator, Conservation Council of South Australia

PETTETT, Ms Julie, Chief Executive Officer, Conservation Council of South Australia

CHAIR—I would like to welcome representatives from the Conservation Council of South Australia to this public hearing. Thank you. Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. In that regard, the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. The committee has received your submission and it has been authorised for publication. I now invite you to make a brief opening statement, if you so wish, before we proceed to questions and discussion.

Ms Pettett—First of all, we would like to thank you for giving us this opportunity to come and talk with you. We would also like to give apologies on behalf of member organisations—the Nature Conservation Society, the Wilderness Society, the Friends of Gulf St Vincent, the Marine Life Society, and the Save Our Gulf Coalition. Unfortunately, there is another inquiry going on at the same time, which is around desalination, and we were asked to attend at the same time, so we have had to split ourselves a little. For the conservation movement, I think the short time frame leading up to an inquiry like this often prohibits attendance. We have got one person in Barcelona and one on a research boat at the moment.

The Conservation Council is the peak environment body for South Australia, recognised in a number of pieces of legislation, including the Natural Resources Management Act. We have over 50 member groups. Much of our submission focus is around coastal development and planning, including concerns with coastal population growth. Further to our submission, we would like to say up-front that CCSA would like to recommend that the Commonwealth place a moratorium on any development in coastal zones with an average land height of one metre or less above sea level.

Our submission recommends the formation of a high-level coastal reference group or advisory group to assist in coordinating all relevant agencies. It also recommends the need for Commonwealth legislation. It is envisaged that this legislation would provide a framework to protect strategically important coastal habitats, and limiting or restricting activities that cause coastal erosion. This can include access to development et cetera.

We would also like it noted that we believe that coastal councils, especially regional councils, that struggle with resourcing are needing support and assistance to achieve a number of aims: to prevent inappropriate coastal development; to assist in relocation of current inappropriate development; to promote ecologically sustainable principles when developing public infrastructure in coastal regions that would cope with the fast coastal population growth; to protect sensitive habitats such as low-lying salt pans and mangrove forests, which can protect against storm surges and have the potential to act as buffer zones.

An example of that is that yesterday, on the trip at Port Adelaide, we saw a whole line of mangroves, which are really important. Unfortunately, because there is development behind

those mangroves, there is nowhere for the mangroves to retreat to as the sea level rises. This is an issue that we think is particularly pertinent to a number of coastal areas: to look at the development in the contexts of sea level rise and climate change.

We would also like to refer to the IPCC fourth assessment report, which provides examples of mitigation and adaptation options and strategies, including standards and regulations that integrate climate change considerations into design, land-use policies, building codes and insurance. Thank you.

CHAIR—Ms Gaut, would you like to add any introductory comments to Ms Pettett's submissions?

Ms Gaut—No, thank you.

CHAIR—Okay. Thank you very much for your submission. With any parliamentary inquiry there are always cut-off dates, but we were being flexible so if you did require an extension, that would have been granted to you. Just for the record, the submission that you have made is on behalf of all your member organisations?

Ms Pettett—No, we have actually stated at the beginning of the submission:

Unfortunately, due to the timelines, it has not been possible for us to canvass the opinions and receive feedback from all our member groups, so the following submission should not be taken as a completely comprehensive statement on their behalf.

Having said that, the groups that we specifically mentioned at the beginning were groups that we have had contact with. They have seen our submission and would have liked to, but were unable to, attend today due to various different commitments.

CHAIR—And they have not wanted you to convey any additions or changes to what we have in writing?

Ms Pettett—Other than the one that we specifically said then: placing a moratorium on any development in the coastal zone with an average land height of one metre or less above sea level. That was the only addition.

CHAIR—We heard this morning from representatives of the South Australian government who argue the case that they believe their planning regimes, systems and processes are pretty robust and do give consideration to coastal vulnerability issues. Would you like to comment on that and whether you perceive any deficiencies in the way that the planning regime operates in this state.

Ms Pettett—On the surface—and Alex may have further information about this—largely the state government do set out to do a good job, but I would like to give you an example of where it has not been apparent. There has just been a state government review of our planning regime as a whole in South Australia. I attended when the consultant gave the results of the review, bearing in mind this review was not a green paper or white paper. It was declared a fait accompli and they said that the only area that they were negotiating on was the implementation of the review.

When the presentation was given and they talked about how they were going to structure the planning for the future, a person, not myself, asked how climate change was taken into account, and the consultant said, 'That wasn't part of our brief. We didn't look at climate change.'

For us, that is a fundamental flaw in what is happening, and instances like that have led us to believe that it is essential that the Commonwealth develop a piece of coastal legislation that provides a framework. Then state government, local communities et cetera all need to fall under that framework. We are of the understanding that Planning SA are now putting in place a number of measures to bring climate change into it but, as we are all aware, it is a lot harder to adapt those afterwards than it is to consider it in the make-up at the beginning.

CHAIR—I find it difficult to reconcile the two views about the planning regime. I have in front of me a planning document that, in my opinion, does give some consideration to potential climate change impacts; for example, it does specify sea level rise parameters. It talks about how development should be designed and sited so that it does not prevent natural landform and ecological adjustment to changing climatic conditions and sea levels, for example, and about new areas to be colonised by mangroves, samphire and wetland species, and sand dune drift. We were told this morning that it also incorporates buffer zones.

Ms Pettett—That is what I said. There has been a lot of work done since the initial planning review was undertaken around the implementation. We have worked with Dr Susan Close on different issues in relation to planning and have had meetings with her. So, yes, we think that there is work being done now, but it was not necessarily in their thinking at the beginning, when they did the initial review.

CHAIR—We were told that these planning documents relate to the act of the early nineties; 1991.

Ms Pettett—I was there when they did the presentation. There were probably about another 300 people, because the room did a slight gasp, and then we moved on.

CHAIR—Where do you think the current planning regime is deficient in terms of giving proper consideration to the variety of climate change impacts for the future? Where would you see amendments to the current planning regime?

Ms Pettett—I do not think I could give them to you off the top of my head, but one example was when the planning was done and they launched what they referred to as TODs. Can you remember what TODs stand for? Transport corridors?

Ms Gaut—It is something to do with high-density development.

Ms Pettett—Yes; and the example they gave was strengthening the high development down at Port Adelaide. That was one of the TODs, so there was quite a bit of infrastructure put in place for transport to take people down to Port Adelaide; to have that seen as a high-development area. That was the point that was triggered around climate change, and where they were putting the TOD was the same place we saw yesterday on the maps: the yellow and green areas that were potentially going to be quite affected by sea level rise. That is a simplistic view of where they have not necessarily got it right. I think since then there have been a lot of changes made and I

have not followed them in any great detail, other than to say that I have probably a reasonable level of confidence now that it is being looked at, but I am aware that some of it is catch-up, rather than design.

CHAIR—How do you see the current functions and role of the Coast Protection Board and what additional powers do you think it may need to be provided with in the future?

Ms Gaut—I am not intimately familiar with the powers of the board but my concern is that they have a strong Adelaide metropolitan focus and, outside of that metropolitan area, they have little to do with coastal protection. It has been flagged as a concern that they have such a strong focus. Obviously, that is where the main population is, but there is a feeling amongst several of our member groups that perhaps they should be widening their focus outside that metropolitan area.

CHAIR—There is nothing in the legislation that restricts their focus?

Ms Gaut—No, I don't think so.

CHAIR—It is just a matter of—

Ms Gaut—That is just the way they have chosen.

CHAIR—It did seem from what we were told this morning that the recent court case involving the development on the Yorke Peninsula, in the words of the government representative, showed that the system was robust, in that the court upheld the council's decision not to approve a development application. Would you like to comment on that?

Ms Gaut—Yes, that was a real precedent, that particular decision. To my knowledge it was the first in Australia, first development application that was rejected on sea level rise concerns. Since then, to my knowledge, there have been at least two similar decisions—one in South Australia and one in Victoria—so it is starting to take effect.

There is a report that came out earlier from New South Wales, from the Sydney Coastal Councils Group. I think it is called *Coastal Councils Planning for Climate Change*. They specifically worked with their Environmental Defender's Office to look at climate change and sea level risks, and looked at words, policies and legislation with regard to climate change, sea level rise and development and implications of what coastal councils had to do, if anything.

They found three quite weak—in their words—references to, 'Councils should consider climate change and/or sea level impacts when assessing developments.' The way it was worded in those policies and legislation was quite weak. It said they 'should' or 'ought to' consider those impacts. But the implication is that once a council has made that consideration, they can then make a decision on other reasons.

So there is not any current legislation that really empowers councils in stronger words to encourage those kinds of decisions. I also refer back to the opening statement that, in particular, regional councils, where the ratepayer base is much lower and they are much less well resourced, do tend to struggle a little bit when it comes to development and assessing potential

developments and future plans to do with sea level rise—although at least the Marion Bay one was a regional council, which is great. So it is happening. There needs to be a little bit more encouragement.

Ms Pettett—We are facilitating some work at the moment, funded through state strategic reserve funds for natural resource management, to look at the roles and responsibilities of NRM boards in relation to coast and marine issues, to build the capacity of the boards, to understand what their roles are and how that works. We are facilitating a two-day forum later in the year. Is it early December?

Ms Gaut—Early December.

Ms Pettett—And it is to look at just that. So we are having a paper written at the moment to look at what the legal responsibilities are and how they operate. We would be happy to send through information relating to that if it would be of any value, especially the paper that is being developed at the moment looking at the state NRM Act and how that transposes through to boards.

Also, the conservation movement through the Conservation Council is beginning next week a review to look at marine and coastal issues within South Australia, primarily focusing on state government issues. That review will involve a one-day summit where we will put forward a number of recommendations on things that need to be changed within South Australia.

CHAIR—In your written submission and in the comments you made this morning you argued the need for Commonwealth legislation. You say:

Commonwealth legislation that refers to generic coastal management, where relevant, is required.

Could you just elaborate on that and provide the committee with specific suggestions of what you had in mind?

Ms Gaut—Yes. There are several issues that will be common to coastal areas around Australia, disregarding what kinds of habitats they might be, such as both vehicle and pedestrian access to dunes and foreshore areas, activities such as development and camping, and activities that will occur around Australia. Those activities that are common right around Australia need Commonwealth legislation that will support the development of both state and local policies and other legislation to provide an overarching framework with guidelines for managing all those issues: managing coastal access, whether it is vehicular or pedestrian; managing access for camping, for surfing; whatever those issues are.

CHAIR—Do you really see that as the role of the federal government?

Ms Gaut—The federal government could provide a framework that would then guide the development of state legislation and policies.

CHAIR—More policy frameworks rather than legislative frameworks? We are constrained at the federal level constitutionally.

Ms Gaut—Yes, I appreciate that. I still think there are some issues that have such commonality that a legislative framework would provide a little bit more strength and leadership to the states.

CHAIR—We are now involved in doing the first pass assessment on coastal areas that are particularly vulnerable and we hope by early next year to have a national digital elevation model for the whole of Australia. You mentioned earlier the problems of local government authorities, particularly those that are not well resourced. What benefits do you see arising from that investment?

Ms Gaut—It is not before time, to be honest. It is an excellent project that will definitely give support, particularly to regional councils where they really need that sort of modelling to be able to plan for future mitigation strategies and adaptation to see if they need to relocate infrastructure. It will definitely help in that development assessment process as well. So, yes, it is excellent.

CHAIR—Where do you think the limitations are in your own state's planning regime to take into account the vulnerability of some coastal areas? I got the impression from the government people this morning, taking into account the protection board reviewing the sea level rise issue, that they thought the system operated in a fairly robust way. If there were to be changes, where would you seek to strengthen existing state legislation?

Ms Gaut—I would have to take that question on notice.

CHAIR—That is fine.

Ms Pettett—But that is a question that we would like to actually respond to.

Ms Gaut—Yes.

Ms Pettett—That would be quite good. As I said, we are having some quite clear discussions with the member groups as a whole to look at issues pertaining to coast and marine. Unfortunately they start in another few weeks. But that is something that we would like to get back to you on, because it is quite important.

Ms Gaut—I would like to add that earlier this year our state Environment, Resources and Development Committee undertook a coastal development inquiry. Out of that came more than 80 recommendations for planning and development, many of which were excellent, and we support the majority of those recommendations. If they are taken up by government, that will definitely support the whole state to deal with coastal planning and development issues particularly.

CHAIR—We do have a copy of that report and its recommendations. So you recommend that we pursue further—

Ms Pettett—Definitely worthwhile.

Ms Gaut—Yes, it is really excellent.

CHAIR—Could you provide the committee with the examples of developments that your body would consider as inappropriate that have been permitted to go ahead, either by local authority or at the state level?

Ms Gaut—One example is at Glenelg. Glenelg is a very popular tourist area. It has, unfortunately, been developed on top of foredunes that would have mitigated sea level rise or storm surges. There are photographs showing coastal erosion very early on, even since the 1930s, because they had already built so early on, and they have had to spend decades protecting that particular area.

In the last two to three years there have been a number of high-rise developments, mainly flats, along with shops and hotels, right along the foreshore there. They have had to now build in groins and protective seawalls because, where they built those high-rise developments, the currents were going to create serious erosion problems. So they have had to add in additional infrastructure in the water to protect those buildings and that now has implications for how the longshore drift will change. Then further up the coast, where it would have been taking sediment to replenish the beaches, that has implications because those beaches are not being replenished.

Ms Pettett—So now they are actually building pipes to shift the sand from where it is going down back up to where it should be.

Ms Gaut—It is a very expensive project.

Ms Pettett—So now we have got this huge engineering process.

Ms Gaut—They have to dig up foredunes that are really valuable, with quite significant dune vegetation. They have to dig it all up, put huge pipes underneath it, and try to re-create those habitats. That Glenelg development was flagged a couple of years ago as being a particularly bad example of coastal development.

CHAIR—Was that a development approved by the local government authority or was it state approved?

Ms Gaut—I am afraid I do not know. I am sorry.

Ms Pettett—There is also a current development in Port Wakefield—and I do not have many details on it—a marina, and our concerns are shared by a number of people within the Department for Environment and Heritage. It does not fit within the state government's abilities in planning; it fits within the local council only. From our perspective we have not necessarily pursued that, because we do not have the resources to pursue a lot of things within South Australia. But it is an area that we have real concerns about because they are going to be dramatically changing the shape of the coastline to develop this marina and it is in areas that we believe are going to be particularly low and vulnerable.

Dr WASHER—Just to clarify that, I would have thought from what the state government said that any project like that would come under the description of a fairly major project and fall into their portfolio to look at before they would approve it.

Ms Pettett—My understanding is that it is not necessarily. It is being done in a number of stages. If you put the stages together, I think it would, but because it is staged—and I think this is something that does happen—then stage 1 by itself is not big enough and stage 2 by itself is not big enough. Had you put those together, then it would have. But it was staged.

CHAIR—So it is not assessing on the cumulative impact.

Ms Pettett—No, just on each stage. I would say that that is probably one of our biggest flaws—it enables this kind of thing to happen.

Ms Gaut—I can give you another example of this. In Whyalla on the Eyre Peninsula, there is a particularly significant habitat for a species of cuttlefish and, on this one peninsula called Point Lowly, there are at least five industrial developments in the pipeline. But, again, because they are separate development proposals, each one will get assessed separately rather than cumulatively. But they are going to be all in the same area that is extremely significant for this particular species of cuttlefish. It is the only place where they can go to mate in the whole Spencer Gulf. That is another area where there is going to be cumulative multiple developments that have serious impacts, not just for the coast but for the marine environment around there as well.

CHAIR—Is that an issue, do you recall, that was taken up in the recommendations from the South Australian inquiry?

Ms Gaut—I do not think so, because the inquiry happened before some of those proposals came through.

CHAIR—Not necessarily specifically about that proposal, but in principle did the committee draw attention—

Ms Gaut—I am not familiar with that.

CHAIR—We will have a look at that. We do get that concern expressed about the impact of the national act. It does not comprehensively take into account cumulative impact.

Ms Pettett—We are very aware that, for local councils specifically and for a state, South Australia is not a wealthy state. We are very aware of that and we know that there is quite a balance between needing development and making sure that that development is sustainable. We try hard as the Conservation Council to bear that in mind and not to be unrealistic, and I think that the cumulative effect is something that is probably one of our biggest concerns. A lot of the time in this state, the current process for approvals et cetera is relatively robust. There are a number of things that could be changed, but cumulative is a bit concern.

Cumulative effects is something that could probably be looked at around the country, as well as South Australia, in terms of Commonwealth legislation; looking at the trends that are happening, from a policy perspective.

Ms Gaut—With regard to cumulative impacts, our state government marine research agency SARDI aquatic sciences, to my knowledge, are going to be starting a project this year, looking at

cumulative impacts in our two gulfs. I do not know much about it, but I think it will be very interesting when the results of that come out.

CHAIR—Just recently the federal government announced its Community Coastcare program. Do you have a view about the program? Did you or any of your member groups apply for funding under this program?

Ms Gaut—Yes, we did. We submitted applications for two large-scale grants. I am not sure if I should declare a conflict of interest. I was actually a Coastcare assessor for the program for small-scale grants.

CHAIR—Okay.

Ms Gaut—I think it is excellent that the government decided to implement the program again, because many volunteer groups need a continuum of funding so that they can keep improving their local areas. So, yes, I would support the program wholeheartedly and recommend that it continues.

CHAIR—You sat in judgement about the applications for the small grants, not the large ones.

Ms Gaut—Yes.

CHAIR—What was the nature of the major program grant that you applied for?

Ms Gaut—These were programs up to \$250,000 over two years.

CHAIR—What was yours specifically?

Ms Gaut—Ours? We already have two programs running that involve recreational divers in monitoring temperate reefs, in particular, so one of those applications was asking for funding to support the continuation of that program. These are divers who look at subtidal reefs under water, but also we have people who are nondivers who look at the intertidal zone and monitor the health of those reefs and then provide that data to management agencies for management decisions. The other program is looking at introduced marine pest species and species of conservation concern. These are not necessarily endangered species but they are species where scientists have advised us that they are concerned about the species or they do not have enough data about the species to make judgements about their rarity, their status.

The program trains divers in particular to report if they see any of a particular species that we list, either introduced or of conservation concern. We want to now broaden the program, not just for divers but also for other users of the aquatic environment, such as recreational fishers and boaters in particular, because they have the potential to spread introduced marine pests through their activities. That is what we were asking for—funding support.

Dr WASHER—NGOs are great organisations to put the governance through. That is a bit of a surprise, though, when you said that by stealth things can happen without the overall planning being looked at. I am interested in a couple of things that you mentioned in your submission. One was coastal population growth. I have a particular interest in what we can hold around our

coast; 85 per cent of people go to the coast, as you know, whether they come to live in the country or whether they are born in this country. You also mentioned some of the septic tank problems. I can understand that perhaps in small community areas you would still have septic, but they would not allow any development now in coastal zones that are not sewered. That would be a true statement, wouldn't it?

Ms Gaut—I would hope that would be the case.

Ms Pettett—But I would not be 100 per cent sure. We would need to check that further to be clear on that.

Dr WASHER—From a health point of view, that would come within the federal government's interest, I can assure you. We would be pretty concerned about water issues and other issues if they were not in new developments. Some of the stormwater management we saw, of course, where we went in Port Adelaide Enfield looks good. They are starting to really work on that. I know that they have got a way to go.

Ms Pettett—So has Salisbury and various areas. It would probably be the biggest statement made by the Conservation Council in South Australia at any given time—about stormwater, and the lack of a state-wide plan on how to deal with stormwater, and how to use it as an asset. We are all aware that South Australia is exceptionally dry, we have got water issues, and I think if stormwater was harvested in the way that the Salisbury council did it, we could actually reduce our use of the Murray River by up to 80 per cent. That is a huge amount. That is turning stormwater into an asset. That is something of real concern to us. In order to do that, you have got to have the area in which to do it, and this was one of the things where we talked about the planning in South Australia. Cheltenham racecourse is no longer going to be a racecourse. It is going to be converted, and a number of scientists—the conservation movement—specifically stated that they felt it should be used for aquifer storage. It is an ideal place to hold and to treat stormwater within the city confines. It is just over the edge. If you picture those maps that we saw yesterday where we saw the pink bits, the outer bits, the Cheltenham racecourse is just outside of that. So, invariably, one would say in years to come it is going to be close to the coast if those predictions work out. Unfortunately, the state government has decided to use it for housing.

CHAIR—I thought some of it was going to be set aside.

Ms Pettett—Some is, but only for the treatment, we understand, of that complex, not of all the other stormwater, and for us that was an area that, when you look at climate change, was critical, because it is looking at that long-term use of stormwater and how you can turn it into an asset, reducing the impact on the coastal-marine areas.

Ms Gaut—In addition to that, you have probably already heard about the Adelaide Coastal Waters Study. Out of that is now coming the Adelaide coastal water quality implementation plan, and we hope that that will have a number of actions that will be coordinated amongst agencies and councils so that it will be across state government and local government within the Adelaide metropolitan region, and will refer not only to stormwater but also to management of a number of water assets that have influence in the coastal zone. If the plan gets implemented, it will be fantastic, but we have yet to see how that is going to work.

CHAIR—In your written submission, when you refer to development applications, you argue:

Development Applications should not just be approved if they comply with elevation requirements ... There is more to the scenario than just elevation, there could be major change of current coastal features in some areas.

Could you elaborate on that point that you made. From what we were told this morning, the development plans do incorporate much more than just elevation, so would you like to expand on that. Thank you.

Ms Gaut—The immediate issue that comes to mind is erosion. I think the Glenelg development is an ideal example, in that any development that impacts in particular on dune areas will affect the balance of sand available in that area. It is a very typical scenario. During the summer, beaches are replenished from other areas and then in winter they are depleted, and this becomes a seasonable cycle. But if you build on the dunes that are providing that replenishment, whether it is in one area or another, it will start to have erosion effects.

It does not have to be just housing development and so forth; it could be development such as seawalls and groynes. In the UK this is a huge problem. Over decades, they have put in hundreds of groynes around the UK and they are trapping all the sediment up against them but they are preventing that sediment from moving further down the coast, and then further down the coast there are cliffs with people's houses on top that are falling down because they are not being replenished. That is a major concern. That erosion and replenishment cycle needs to be maintained.

CHAIR—And there is no reference to those issues currently, as you understand, in the development process?

Ms Gaut—I am not aware of that, but I am happy to be corrected.

Dr WASHER—Can I just take that a little further. I saw the new developments on primary dunes, and what you are saying is that that, to put it diplomatically, is quite loopy because those primary dunes are just the buffer. So when we come to this digital elevation model, to clarify this and for simplicity, that elevation is only appropriate when you say, 'Don't build below one metre,' say, but you have to go back to: what level of dunes would you say is safe, reasonably, and would you define the dunes? The primary dunes are the first dunes and then there are the secondary dunes et cetera. Where would you say you would be happy to build above one metre in the foreseeable future? What dune level would you start building on?

Ms Gaut—From a conservation perspective we would go right back to, at the very least, secondary or tertiary dunes. From alternative perspectives, I suspect they would want development to be much closer, and I think at the very minimum we would say, 'Don't build on or immediately behind the primary dune.' The primary dune provides the replenishment source for other areas, so primary dunes are very significant buffer zones and replenishment sources. That system in that primary area is really significant in terms of climate change, and in mitigating storm surges, so that is the most significant area that needs to be protected.

The area behind that, the secondary and tertiary dunes: yes, like I said, from a conservation perspective it would be preferable to preserve those areas because they also provide significant

groundwater filtering services and they provide habitat for coastal animals and plants and so on. An area that has been, I think, quite good in managing this is up at Semaphore. Their primary dunes are somewhat diminished now, but they have put in some really good management measures, putting car parks way back behind the secondary dunes and then putting restricted pathways through, and fencing. They have done, I think, quite a good job in terms of leaving the development way behind the secondary dunes. Yes, I would say from a conservation perspective, at least behind the secondary dunes.

Ms Pettett—And that area is the area that we saw yesterday on our maps is not going to be affected, due to planning. All along that sort of spit is not going to be affected because the planning has been done already and it is far enough back that it is not going to come up and impact them.

CHAIR—You might want to take this on notice, but I would just like to get to the bottom of the planning process here in the state. What you are saying about what happened at Glenelg seems to me, on first reading, to be in breach of the principles of development control that apply in this state, and I quote:

Development—

this is coastal development—

should not be located in delicate or environmentally-sensitive coastal features such as sand dunes, cliff-tops, wetlands or substantially intact strata of native vegetation.

... ..

Development should not be undertaken where it will create or aggravate coastal erosion, or where it will require coast protection works which cause or aggravate coastal erosion.

So on the one hand we are getting a document which says, ‘These are the kinds of protections that apply.’ On the other hand, you are telling me that developments occur that have no regard to that. Could you take it on notice and provide a supplementary response to clarify the situation, from the perspective of the Conservation Council, as to why it is that in the example you cited all these protections appear to have been overlooked or not given due regard. Is it possible to do that?

Ms Pettett—I think that it is. Would mid to late November be too late to get that information through to you?

CHAIR—No, that is fine. We are not writing until next year.

Ms Pettett—Great, because the Environmental Defender’s Office in South Australia are part of the review that we are doing on environmental policy in, as we said, the marine and coastal areas. They do a review of the act, of all the legislation, looking at where the issues are, and then we look at it in the context of where we think things are inappropriate, and we are going to be doing that piece of work quite robustly and would be very happy to be passing that sort of thing over.

CHAIR—So could you just, from your perspective, have a look at the protections that we are told apply for coastal development insofar as local government authorities are concerned and that a recent development is quite contrary to the principles enunciated.

Dr WASHER—Those principles, by the way, were enunciated in 1991.

CHAIR—That is right.

Ms Pettett—Is everything actually recorded here and open for the general public?

CHAIR—Yes.

Dr WASHER—Chair, if I may: on mitigation or overcoming the problem, I have observed in WA what you have talked about. I like to fish, and you see the groynes being built and you see the sand shifts. Could you perhaps—if we may, through you, Chair—get a bit more information on that. That is very significant. They build seawalls and levees and, at the end of the day, you transfer the problem from one area to another.

When you start having to pump sand out it means that things are tough now. If they are going to get tougher, that is a waste of time. You literally might as well retreat and surrender. Also, I will add to that that in the Netherlands they are now retreating from a lot of their seawalls, as you know, because it is not viable. We need to understand that if we muck it up, fixing it is going to be a very big problem.

Ms Gaut—And expensive.

Dr WASHER—Yes, and perhaps not even pleasant. We have focused on climate change, but part of our inquiry is about the environment of the coastal areas. What is the marine environment? Is sedimentation a problem out there? Is eutrophication a problem in many areas here, or is it not too bad? What about the seagrass situation? All these are things that affect the habitat et cetera.

Ms Gaut—Different areas have different problems. In the Adelaide metropolitan coastal area the significant problems are increased nutrients from agricultural run-off and stormwater run-off, as well as increased sedimentation. These issues have affected seagrass very badly and in the last 50 years we have lost—I am not sure of the statistics, but a massive amount of seagrass.

Aerial photographs show the line of seagrass going back and back and back from the beach where it is being eroded. It causes its own problem, because once you get a barren area where there used to be seagrass, it continues to be barren because of erosive effects of the currents underwater. So replenishing seagrass beds is extremely difficult.

So, yes, nutrients and sedimentation have contributed to the loss of seagrass in the Adelaide metropolitan coastal area. They have to some extent, but not as badly, affected one particular significant reef in the region, Port Noarlunga Reef, which is an aquatic reserve. In the mid-1990s it was very heavily affected by a sedimentation event and is starting to show signs of recovery, I believe, but not to the extent of the pre-event status.

In other areas of the state there has been significant seagrass dieback in the very northern area of the Spencer Gulf, which is just above where a desalination plant and other developments that I mentioned previously are planned. So that is a major concern. I am not aware of any other really significant issues in other parts of the state, but any developments that put structures into the water, such as marinas, for example, will create erosive problems because of the way they change the currents.

Dr WASHER—Marinas are one of those things that people love. They go to the coast so that they can have boats or do whatever. Have you had a look at the result of cutting marinas into the land?

Ms Gaut—No, sorry.

Dr WASHER—That is all right.

Ms Gaut—That would be an interesting study.

Dr WASHER—They have done that on the west coast. They have built some big marinas that are cut inland. They do not actually project them out, they bring them in. But it is early days. Out of interest—the simple things are easy to fix—you mentioned dune erosion because of trail bikes, four-wheel drive vehicles et cetera running around. I would have thought most areas now would have been cut off for that. Certainly in the west—I am only talking about home—the local areas are fenced off. We want people to access it, so, like you said, they have got the car parks coming in behind the primary dunes where you can get off and then they have got a walking path that is fenced. Then they have revegetated. But is not a lot of that happening here?

Ms Gaut—In the metropolitan area it is being done quite well. In regional areas, it is being done best in national parks. So any coastal national parks are quite well managed in that way. There is, however, one national park that I am aware of in the South-East that does actually allow four-wheel driving on it in specific areas.

So outside of those areas it is a very topical issue at the moment. Local councils are very confused about the legislative arrangements in terms of who can govern the access in their area, because if they are managing crown lands what rights does that give the council in terms of management? If DEH is managing crown lands, how can they work with DEH to control access? What kinds of by-laws might they need or could they put in place to manage access in terms of speed, and the kinds of vehicles, and pedestrians? At the moment it is a very big issue in South Australia and it is coming down to a matter of confusion about land tenure: who has the rights to organise the management and so forth. It is very much on the minds of the NRM boards and councils at the moment.

Ms Pettett—Some of what we are alluding to as a whole within the submission is the need to look at the coastal area within South Australia and the state as a whole with that real view of climate change; so it is almost from that precautionary view. The science is changing so fast from what we thought. As we saw yesterday, is it a one-in-100-year occurrence or is it now a one-in-30-year occurrence? It is not just what do we need to do to protect our coast and marine areas now, but what might be happening in the next 50 or 100 years and what might that area need to be protected? We are feeling that that precautionary principle is not being applied. That

is more of an enabling principle using the current benchmarks and, as we know, they are changing too fast. What we knew 30 years ago is very different to what we know now.

CHAIR—Based on our experience, looking at some of the detail of the planning regime here, it would seem to me that this state was well advanced in terms of incorporating some of those factors and impacts of climate change, more so than other jurisdictions.

Ms Pettett—I cannot comment on other jurisdictions at all.

CHAIR—But you feel that it is not keeping up to date with the science on climate change?

Ms Pettett—Yes, I do not think that it is and that we have not as a whole adopted that precautionary principle. In relation to climate change, it is almost at the point now where, right across, whatever part of the land or the environment we are talking about, we need to apply that precautionary principle. That is, is the information we have got now—the information we are doing the analysis on—looking at it from a climate change point of view? Has it looked at what it is liable to be like in 50 years time? If it has not, then we should not be going ahead until we actually have some understanding of that.

I am not saying that we have to set ourselves a target of what we think it is going to be in 200 years time, because it is going too fast for that, but we have enough evidence already through the IPCC to know that, if we look at the range of predictions, what was the long-term, far-out prediction is now becoming the norm, so are we preparing for that as time goes on?

It is around capacity. A lot of it is not just about whether we can do it at the planning level so that it comes into the policies, but do people understand where it is coming from, what is the capacity? We have eight NRM boards in South Australia, of which seven have coast, and there is an exceptionally limited understanding. Some of the members on these boards did not even realise that they had any responsibility at all when it came to coastal areas, yet they do.

It is about finding that balance between building that capacity and making the policy and, when policy is made, actually understanding that there is not necessarily the capacity. Climate change, yes, is now on the front page or close up on every paper and people 'get it' a lot more than they did 10 years ago, but what to actually do is moving into a different era.

CHAIR—In terms of what to do next, obviously there is going to be a big issue about adaptation and mitigation strategies, which are going to be dealt with at a more national level. But in terms of adaptation strategies, part of the problem is, of course, the capacity of local government—

Ms Gaut—Yes, totally.

CHAIR—to fund some of those strategies and works that would need to be undertaken. In your written submission you argue:

A review of current coastal developments is required, and those that are not ready for sea level rise are assisted by government to relocate or find alternative arrangements. This includes public assets and private recreational facilities.

Would you like to expand on what you have in mind?

Ms Pettett—Eighty per cent of South Australia's electricity is generated by AGL out on Torrens Island and at the moment Torrens Island is going to be one of the first to be taken out, so it is looking at the large picture: how do we move that infrastructure? Where should it be going to? Where should it be positioned? Who should pay for what and at what point should they pay?

CHAIR—Does the Conservation Council have a view about how the adaptation strategy should be funded? Do you see it as a tripartite arrangement or the responsibility of a state government for its own state infrastructure?

Ms Pettett—In the end it has to have some definite Commonwealth steering as to when it is deemed to be appropriate to start dealing with the issue and how it is dealt with. It needs to be tripartite. For example, in the case of large business like that, there has to be an element of, 'The organisation is making a profit; therefore, they have to carry some of it as well.'

The last thing we want is a situation where we keep going up to the eleventh hour and then we have a company saying, 'Well, we're now going to pull out because it is no longer viable for us to be operating in that area.' Then it becomes basically a real state concern, because you do not have a business interest. So, no, I would say we do not have a clear understanding. It is the responsibility of every citizen and every level of agency, whether it be local, state or federal.

CHAIR—The overwhelming majority of our infrastructure on the coastal zone is privately owned, not government owned.

Ms Pettett—That is dead right. But the fact is, although it is private, what do we do in a situation—and I am not for one minute saying that AGL would do this—of a company who just got to the eleventh hour and said, 'It's no longer viable for us to continue. Thank you very much, but we are going to close down'? That might be fine for them from a business perspective, but that actually is not going to help the state or anybody, because they are providing a service. Although they are private, it is a service that the state requires. We cannot necessarily keep going without it.

CHAIR—We have looked at the Port Adelaide Enfield council's risk assessment strategies.

Ms Pettett—Which are exceptionally good.

CHAIR—Are you aware of any other local government authorities that are as advanced as that?

Ms Pettett—No, not at all. They are being held up as a bit of a model. I quite regularly am out and about in the regions talking to various people from local councils, NRM councils. There is very much a 'Let's wait until the science is all clear' attitude, whereas I am not sure we are ever going to get clear science. We are in a different realm than we were 50 years ago. Whose responsibility is it?

There is definitely some thinking going on and there are some people getting a few frights about different things, but I do not think there is any clear strategy within South Australia on

how to deal with it. Port Adelaide are being used as an example and they are watching and they are monitoring, which is very good, and there are going to be a number of lessons learnt. But the work that they are doing is very specific to that area, so there are going to be limits, and my concern is that the other councils are going to, through lack of resources, try and apply some of that information to themselves. That brings about a whole other group of problems, because it may be that there are very different environmental problems in those areas and it is not going to be the same at all.

CHAIR—Do you think the councils are aware that there is a Commonwealth program by which local government authorities are funded?

Ms Pettett—I think that they are, but a lot of it is down to whether councils actually have the capacity and what other issues are focusing their time and resources. This is where there needs to be some level of Commonwealth decision making upon things that need to be done. There need to be some levels of priorities. I see that as the carrot. But somewhere along the line we have to balance it up with, ‘Well, actually, you are required to do something by this date,’ and it may be 2015 or whatever. At some point there is going to be a requirement that every regional council who has a coastal area in Australia needs to have assessed what their risks are, what their opportunities are and how they are going to move forward.

CHAIR—Is there anything else you would like to add before we conclude the hearing?

Ms Pettett—No, that is it.

CHAIR—In concluding then, I would like to put on record our thanks to you both for attending the hearing today. The secretariat will send you a copy of the transcript for any corrections that you would like to make. I would be grateful if you could also send the secretariat any additional material and the response to the matters that you have taken on notice and provide those to the secretariat as soon as is humanly possible. Thank you both for coming along and assisting in the deliberations of the committee. Thank you very much to our recording staff.

Resolved (on motion by **Dr Washer**):

That this committee authorises publication of the transcript of the evidence given before it at public hearing this day.

Subcommittee adjourned at 11.52 am