

## The Value of the Adelaide Beaches

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## INTRODUCTION

The sandy metropolitan beaches of Adelaide play an important part in the lifestyle and recreation of the local community. The beaches are available for all to use and enjoy. Over the years a lot of research has been undertaken to determine the costs involved in maintaining these beaches and to provide the most effective coastal protection measures, but little research has been undertaken to determine the value of these beaches to the community.

This "COASTLINE" examines why the metropolitan coast is valued by the community, how a value can be determined for the metropolitan beaches, and finally provides some estimates from recent research of various components of the total beach value. More detailed information can be obtained from the references

listed at the end of this publication. It forms part of a three "COASTLINE" set which provide information about the metropolitan coast between Outer Harbor and Kingston Park. "COASTLINE No. 27" provides a basic understanding of the geomorphological history of the Adelaide coast, the impact of the European settlement on the dune system, and the coastal processes at work on the coastline. "COASTLINE No. 28" provides a basic explanation of why there is a need to maintain the coast, how the coast is monitored, what alternatives exist to manage the problems, and the most cost effective solution for managing the situation.

### WHY IS THE METROPOLITAN COAST VALUED BY THE COMMUNITY?

The Adelaide metropolitan coast, particularly the sandy section between Kingston Park and Outer Harbor, is a natural resource which provides numerous benefits to the community. The following sections indicate the primary benefits:



*Surf Fishing*

## \* RECREATION AND LEISURE ACTIVITIES

The beaches are used for recreation and leisure activities. Estimates from surveys undertaken in 1986 for the coast between Port Adelaide and Sellicks Beach indicate that almost 70% of the Adelaide community (aged 15 years and over) visit this section of metropolitan coast each year. On average, each of these beach users visit the beach more than 10 days a year, which equated to an average annual visitation rate in excess of 6,000,000 visits in 1986. This would be like filling Football Park to capacity for a Crows match at least twice a week for the entire year, or filling the Entertainment Centre to capacity every day of the year. Most of the beach users remained at the beach for two or more hours on each visit.



*Recreational Boating*

The sandy beaches between Port Adelaide and Kingston Park attract the majority of the beach users. In 1986 it was estimated that over 4,000,000 visits occurred to these beaches. The survey indicated that Glenelg was by far the most popular beach, followed by Semaphore, Brighton, Henley Beach, West Beach and Grange.

The metropolitan coast is heavily used as a recreational resource. The primary purpose for the beach visits appears to be for swimming and relaxing on the beach, but other activities include walking, sailing, windsurfing, jet skis, boating, fishing, beach games and general exercising.

## \* BEACH VIEWS AND COASTAL AESTHETICS

What constitutes a scenic coastline? This is a question which has been debated by various groups, particularly planners, for some time without reaching a definitive answer. Everyone is able to express an opinion about what adds to, or detracts from, their aesthetic enjoyment of a coastal area, but the opinions can vary considerably depending on the individual and the development options being proposed.

Beach views and coastal aesthetics are valued for a variety of reasons. For example, many people enjoy coastal vistas, including just watching the rhythmic

wave motion, the feeling, sight and naturalness of the sea and its environment, the activities of others on the beach, or watching sailing boats slowly passing. There are numerous visual attractions at the coast. Boating areas, such as marinas and boat launching ramps, tend to attract onlookers at the coast. However, there does appear to be a general preference for natural vistas, such as dunes and coastal vegetation while at the other extreme there is general local opposition to high rise coastal developments, alienation of public foreshore and advertising displays on the foreshore.



*Boat Launching at Glenelg*

The aesthetic value of the metropolitan coast has been demonstrated by the community when considering coastal development proposals. Examples of this are documented in the environmental impact statements prepared for the Jubilee Point proposal at Glenelg, the four Glenelg foreshore and environs proposals, and the Sellicks Beach marina-residential development proposal. In addition, there have been debates focussing on aesthetic issues published in the media about various proposals from time to time. Examples of these include the marina proposal at Kingston Park in 1987, and the proposed restaurant on the Henley Beach jetty in 1992.

Many of the public comments received for these proposals identified concern about the visual impact these developments would have on the coast. This indicates that the general community appears to place a positive value on the coastal aesthetics and beach views of the metropolitan coast, even if it is difficult to quantify.

## **COASTAL PROPERTIES**

The beaches and existing foreshore protection works offer protection to the adjacent coastal properties that would otherwise be under greater threat from coastal hazards if beach erosion was allowed to occur. The maintenance of the beaches and the foreshore protection provides an added insurance against storm damage to public and private property.

The metropolitan beach system is artificially maintained. The Coast Protection Board has a beach replenishment

strategy which nourishes southern beaches and other vulnerable locations. This strategy counteracts the natural losses of beach sand resulting from the ongoing coastal processes. Without this strategy, and the existing foreshore protection structures, the coast would be left vulnerable to storm attack and ongoing erosion. Property loss would result and beach amenity would rapidly decline.

Therefore, there is a real benefit in maintaining the beaches and foreshore protection and this is manifested in the coastal property values. However, it must be remembered that this is just one of the many components which, when combined, determine the market value of the coastal property.

## **TOURISM POTENTIAL**

The fact that there is a long stretch of sandy beaches forming a western boundary to metropolitan Adelaide provides an opportunity to market this as a potential attraction for tourists visiting Adelaide. Beaches do provide an attraction for tourists, and developers have invested in the provision of holiday accommodation and associated attractions along the coast to take advantage of this. The ability to use this attraction for tourism purposes, and hence generate increased revenue, employment, etc., in the local community, is a benefit to the Adelaide community.

However, the actual value of the beach due to its tourism potential is a difficult issue to quantify because in many cases the Adelaide beaches may only be incidental to the total tourism package enjoyed by the visitors to Adelaide. That is, the Adelaide tourism industry is dependent on numerous attractions, not just the metropolitan beaches, so tourists may still prefer Adelaide as a destination even if its beach amenity was reduced.

It is, however, generally agreed that the sandy metropolitan beaches do offer another attraction for tourists visiting Adelaide, and this is therefore a benefit to the Adelaide community.



*Adelaide coastline*

## \* COMMERCIAL AND OTHER PUBLIC ACTIVITIES

Beaches provide a unique community venue. They provide large, public, open spaces, and consequently can cater for large assemblies of people for special occasions. For example, the metropolitan beaches are used for the following events:

- historical re-enactments, such as the Australia Day Proclamation Day celebrations;
- surf carnivals, such as the Ironman Events, and various State, National and International Surf Life Saving Events;
- sand castle building competitions, such as the annual events at Glenelg and Brighton;
- beach volley ball competitions;
- boating regattas for local, State, National and International events;
- general interest events, such as Life Be In It, rock concerts, Bay to Birdwood car rallies, and in the past events such as the Beach Girl and Birdman events;
- Commercial film making:

These events attract large numbers of people, and in the main are dependent on the beach venue for the enhancement of the activity. Generally, the spectators gain free entertainment from these events because they are not charged a direct fee for admission to the events. The popularity of these events is observed by the large numbers of people they attract. While some local residents may argue that there are disbenefits generated from these events because of the temporary inconveniences and annoyances they create, generally those attending of these events receive benefits for which there is no direct user payment required.

## \* CONSERVATION VALUES

The beaches and the nearshore coastal zone provide important heritage, environmental and ecological sites. The coast has mythological and archeological significance for the aboriginal community. For example, at Kingston Park a monument identifies the start of the Tjilbruke Trail which is part of the local Aboriginal mythology, and numerous books have been written about the customs, culture and lifestyle of the Kaurna people and the importance of the coast to these people. There is also significant European heritage attached to the coast. For example, there is a Historic Reserve in the near shore waters at Glenelg to identify an area containing European artefacts. There are also sites of historic ship wrecks, and jetties, now used for recreational purposes, which have played a historic part in the development of Adelaide.

The beaches and the coastal landforms provide specific geological and geomorphological information. Probably the most publicised geological sites on the Adelaide coast are at Hallett Cove and Maslin Beach. Other



*Special Events*

geological monuments have been identified and declared to be sites of special scientific interest. Research has also been conducted into the marine flora and fauna found along the metropolitan coast. One issue to have caused significant community concern and debate is that of the die back of the sea grasses found off the metropolitan coast. Similarly, loss of mangroves continues to be an issue along the northern Adelaide coast.

The Patawalonga basin at Glenelg has been a focus of public concern for many years. Environmental issues such as water quality and litter have been critically reported in the media.

It is evident that heritage, environmental and ecological issues are of concern to the community, and the general consensus appears to be a desire to maintain and conserve coastal areas, such as the metropolitan coast.

## \* OPTION AND BEQUEST VALUES

In addition to the benefits accruing from the coast because it has "use values", (that is, its benefits are derived from being used in the present), there are also "non-use values" which can be ascribed to the metropolitan sandy coast. Non-use benefits include:

- existence value: the benefit obtained simply from the knowledge that a public resource is there;
- option value: the benefit achieved by retaining the option to use the resource at some time in the future;
- bequest value: the benefit the current generation obtains by preserving the resource for use by future generations.

These are more complex than the "use values" and relate to the value of the resource as a potential benefit rather than to actual present use. These values are very difficult to obtain and even more difficult to quantify. They are highly dependent on subtle changes in social attitudes.



*Glenelg Beach - 1900*

Non-use values are essentially an expression of preference to conserve a resource so that future communities may also be able to derive benefits from it.



*Henley Beach – early 1900s*

#### **HOW CAN A VALUE BE PLACED ON THE METROPOLITAN COAST**

Unlike many other goods and services, the value of the metropolitan coast cannot be easily determined by prices in the open market place. The values of most goods and services are determined by the process of buying and selling, or supply and demand. The market place attempts to establish a price at which the supply of a good matches its demand. For example, you can purchase some tomatoes from the shop at a certain price. If there is an oversupply of tomatoes, say in summer when your backyard tomato bushes are covered in tomatoes, then demand in the shops will fall and so will the price of tomatoes. Similarly, in winter when we don't have tomatoes on our backyard plants the price in shops will rise because there will be a greater demand for the available tomatoes.

This process of automatic adjustment enables most goods and services to be valued through a pricing mechanism in the market place. Individuals need to reveal their "willingness-to-pay" in order to purchase the

goods and services. However, this is not the case for the metropolitan coast. The metropolitan beaches, like lighthouses, national defense, national parks, clean air and water, landscapes, etc, have attributes of "public goods".

"Pure public goods" have the attributes that they are available for all to use without being able to generally exclude anyone, and when someone does use the resource it does not detract from the satisfaction or benefits enjoyed by anyone else using the resource. They are said to be "non-excludable" and "non-rivalrous" in consumption. Because of these properties, the value of the metropolitan beaches cannot be determined using the conventional market pricing mechanism. This system breaks down because individuals do not have to fully reveal their willingness-to-pay and hence their value of the resource. They can, in fact, enjoy the benefits which are paid for by others.

Individuals can "free-ride" on others contributions. For example, you may enjoy watching a sailing boat or a coastal vista at the metropolitan coast without contributing to the cost of the boat or the view. In this instance, your cost may be negligible but your enjoyment, and hence your value of the experience, may be significantly greater.

It is usually very difficult to accurately quantify the value of goods and services which are not subject to the market pricing mechanism. Alternative techniques have been developed to assist in the evaluation of these benefits. Some of these techniques rely on market prices of related goods and services while others rely on survey-based approaches to infer values. The following list provides an indication of the more commonly used techniques. It should be noted that all the methods contain basic assumptions and qualifications, and the results from such methods should only be considered as providing indicative values.

**Shadow Prices:** Use related market prices as an indication of the value of the likely benefit or willingness to-pay. For example, it may be possible to relate the entrance fee into a sporting event to the price people would be prepared to pay to access a metropolitan beach for recreational purposes;

**Travel Cost Method:** This is a survey based approach developed primarily to evaluate recreational benefits. It is based on estimating travel costs to and from the attraction, and other associated costs, to indicate the amount people are prepared to pay to get to a place of recreation or interest. The method has been used for various studies including determining the recreational value of coastal locations and beaches;

**Contingent Valuation Method:** This is a direct approach, which seeks to obtain the personal valuations of people by asking them what they are prepared to pay to receive a benefit, or alternatively be compensated for the loss of a benefit. The method generally involves

using a questionnaire to survey people to find an upper limit to their willingness-to-pay, based on a hypothetical market. An example might be "Would you be prepared to pay \$5 to access a beach?" if the answer is yes, the fee might be increased to \$10, then \$20, and so on, until the respondent is no longer prepared to pay. The aim is to elicit valuations, or bids, which are close to those you would expect from an actual market situation. By sampling the population, an estimate of the community's value of a particular resource can be determined.

**Hedonic Price Method:** This is an indirect method which infers values for particular resources based on related markets. It involves using an indicator to determine how an existing market will be affected by a particular factor. For example, it may be possible to find a house in a suburb away from the beach which is almost identical to one located on the metropolitan beach front. If all things are similar except for the beach location, then any difference in market price for the two houses can be inferred to be directly related to the beach location factor. This provides an estimate of the value of the beach for those living in the beach front location.

All these methods have been used to estimate values for various resources in the community which are not subject to the normal market pricing process. Perhaps it is important to remember that all these methods, including the market pricing process, determine values which are decidedly anthropocentric (ie human centred), and in certain instances the individual's rational preference may be quite different to the community's collective choice.

### *WHAT IS THE ECONOMIC VALUE OF THE METROPOLITAN COAST*

It should be evident, from the information contained in the preceding sections, that calculating a value for the benefits of the metropolitan beaches is not an easy task. However, in 1983 a study commissioned by the Coast Protection Board (Kinhill Stearns and Reidel and Byrne 1983) attempted to place a value on the metropolitan beaches as part of a study to review the coast protection alternatives available for the metropolitan coast.

This study used survey data from the Metropolitan Adelaide Recreational Study undertaken in 1973/4, and applied the travel cost method to determine an estimate for the recreational value of the metropolitan coast. It determined that in 1983 the recreational value only of the coast between Outer Harbor and Sellicks Beach was about \$6,400,000 per annum, of which \$3,800,000 per annum was related to the recreational value of the coast between Outer Harbor and Seacliff. This equates to a present day value (that is a value in terms of 1993 dollars) of about \$11,500,000 and \$6,800,000 respectively, adjusted in accordance with published CPI figures since 1983.

The 1984 "Adelaide Coast Protection Strategy Review" used this recreational value of the metropolitan beaches and, after highlighting some of the shortcomings, suggested that these figures seemed reasonable when compared with receipts from other recreation and sporting venues. It did, however, suggest that the value be treated as a broad indicator of what the recreational value might be rather than an exact figure.

In 1992 the Coast Protection Board again sought to quantify the benefits of maintaining the metropolitan coast in order to compare this to the costs involved, and also to provide information as part of a review of the Coast Protection Act. The Board engaged The Centre for South Australian Economic Studies to provide an economic value of the metropolitan coast.

An initial report was prepared in July 1992 to provide information for discussions which were occurring at that time about the review of the Coast Protection Act on future funding responsibilities between State and Local Governments. The authors express some reservations about the published results, and they considered the results could be further refined by the use of a larger data set. The Board agreed to fund some additional research, which led to a final report (Evans & Burgan 1993) being published in May 1993.



*General enjoyment of the metropolitan beach*

This study estimated the value of the metropolitan beaches in terms of its recreational value, impact on property values (including the values to local residents of beach amenity, coastal views, and direct beach access), and additional benefits which accrue to State and Local Governments because the coast enhances rate and tax revenue. The authors point out that there are other values not included in this assessment, such as those listed in the previous sections and for that reason the derived beach value should be treated as an estimated lower bound to the total beach value.

**This study estimates that the lower limit of the benefits flowing from the metropolitan beach resource from Outer Harbor to Seacliff to be between \$15,400,000 and \$21,100,000 per annum. This represents a total capital value of between \$220 million and \$300 million using a 7% discount rate. Based on these figures the current benefits to cost ratio for maintaining this section of metropolitan coast is in excess of 10. That is, the benefits derived from this section of coast are considered to be at least ten times greater than the current costs involved in maintaining it.**

The study recognises that those who choose to live at the beach front and enjoy the coastal lifestyle are likely to place a different set of values on the beach amenity compared to the other segments of the community who may only occasionally visit the beach. This is because when they purchase a coastal property they are also buying a coastal lifestyle, and are prepared to pay a property value premium for this. Others, who live elsewhere and occasionally visit the beach are more likely to see a visit to the coast as an alternative to undertaking another recreational activity such as going to a swimming centre or sporting event. These alternatives involve costs such as travelling to and from the venue and admission costs. The best estimate of the recreational value to these beach users is therefore the costs they are prepared to incur in order to enjoy the beach amenity.

The study concentrates on these two aspects to determine an overall value for the metropolitan beaches. For the day-visitors, the recreational value is determined using a travel cost method applied to data from 1986 beach user surveys (ABS, and Hassell Planning Consultants and McGregor Harrison Marketing) and an estimated travel cost of between \$2 and \$3.60 per visit based on shadow prices and interpretation of the values used in the 1983 study. The study determines the present day value of this component of the beach value to be at least \$7,000,000 to \$12,600,000 per annum. This is the lower limit value of the beach amenity for those people living outside the coastal residential zone.

For those people living in the coastal zone, the value of the beach amenity was estimated by using a series of simple linear regression models based on the hedonic

identifiable as beach characteristics, such as direct beach access, within walking distance to the beach, etc.

A sample of 508 properties was used to determine the capitalised value of the beach amenity for properties in the coastal residential zone. The study determines this component of the beach value to be at least \$8,000,000 per annum.

Other benefits were acknowledged in the study, but were considered too difficult to quantify with the current data available. However, an attempt was made to quantify the loss of rate revenue to the metropolitan coastal Councils if the coast was permitted to erode and property loss resulted. This was broadly set at not less than \$450,000 per annum, but the determination of this figure is based on restrictive assumptions.

It is also worth noting that based on the analysis undertaken, the results indicate that about 50% of the determined value of the beach amenity is directly attributed to the benefits perceived by the property market for coastal residences and these benefits are



*Metropolitan coastal lifestyle*

## CONCLUSIONS

The metropolitan coast is an important community resource. It serves as a major recreational venue for the Adelaide community, and provides a unique life-style for local residents. Although these and many other benefits are readily acknowledged, it is a difficult task to quantify the benefits related to the metropolitan coast, and hence determine a value for this section of coast.

Unlike many of the goods and services used by the community, the value of the metropolitan coast cannot be found by the usual supply and demand pricing mechanisms. Alternative valuation techniques need to be used to quantify the benefits. The difficulty is in getting people to reveal their true "willingness-to-pay" for the benefits they receive from the coast.

However, it is important for the community, and the decision makers, to be able to compare the benefits received from the coast to the costs involved in

maintaining its amenity. This has prompted the Coast Protection Board to pursue the task of determining a value for the metropolitan coast. Based on best available information, a lower limit estimate for the value of the metropolitan coast has been determined to be between \$15,400,000 and \$21,100,000 per annum. This means that the community values the beach amenity at 10 to 20 times more than the current costs involved in maintaining it. This provides an important context for expenditure on maintaining the coast and especially for the beach replenishment program which is the largest cost item. The annual expenditure on beach replenishment is approximately \$1,200,000.

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For further information contact the Coasts and Marine Section of the Environment Protection Agency of the Department for Environment, Heritage and Aboriginal Affairs.