Investigation of Coastal Management Strategies at XXX Beach

As an environmental consultant hired by XXX Shire Council, enclosed in this report is an investigation in the effectiveness of current coastal management strategies and recommendations for improvements.

Clear statement of purpose

Natural and Human impacts on XXX Beach

As XXX Beach is one of XXX Shire Council's greatest assets and is a treasured natural scenery to residents and tourists supporting the economic activity of the council, many human and natural impacts have taken place creating change in its appearance. As many of these alterations are occurring, actions also must to be taken to manage the coastal environment.

Humans impact the coastal environment by causing the loss of natural environment due to the man-made features that have been added and also causing there to be a greater need for maintenance as a result of the usage of the beach. Human interactions that are present and clearly seen on XXX Beach include, car parks, rubbish bins, electricity substantions, lifesavers lookout tower, benches, a surf club, a cafe, showers, vegetation planted by humans (for example palm trees), fences, buildings and cabins, toilets, drain systems, pathways and floodlights. Many of these unnatural sources that humans have added are unneeded and there for the enjoyment of the public thus have no additional benefits for the environment. Some litter is also seen and shows one of the many ways humans have and still do impact the natural, beach environment. As the majority of these are located on the foredune- the last line of defence against erosion - a vast amount of vegetation and animal habitat was removed to provide space for them, and as the foredune possesses the responsibility of preventing erosion and displacement of sand, these resources are in particular danger of being damaged by erosion.

Very high level of skill in identifying and describing the impacts of management strategies on the natural processes and landforms

Rock Platform

Although there are numerous human impacts that exist at XXX Beach, a number of natural impacts are also seen. Active erosion is a key natural influence that is clearly displayed at XXX Beach, as there is a cliff present and also a rock platform. The cliff is in existence and has eroded due to the fierce waves impacting on the surface as well as other natural causes such as the wind and rain. The rock platform is also present where the cliff base was previously, and is evident as the water is breaking at the surface of the edge of the platform. It is shown that the eroding of the cliff has been taking place for a fair amount of time without any prevention strategies, as it is quite a large yet worn-down rock platform.

Describes the natural elements of the beach environment

Current Coastal Management Strategies

XXX Shire Council has currently put into practice a variety of coastal management strategies including the fencing of the foredune to protect the vegetation and habitats from the public and preserving it, thus making it effective and keeping the beach and dune as natural and durable as possible. Footpaths and boardwalks are added to guide people and disable them from Interfering in the dune restoration process and car parks and roads also guide people so they do not damage the dunes.

Instructive sign informing public of dune restoration area

Evidence of extensive knowledge from the field

These also make the beach more easily accessible to the public. Speed bumps are additionally used so people are aware to take care with the speed they are travelling at so they do not damage anything. In conjunction, instructive signs are used to inform visitors of certain rules to abide by when using the beach such as areas to keep out of and other restrictions or warnings. These are used to supervise and contain the impact caused by humans on the beach environment. Bins are another management approach used so people do not leave their rubbish behind, leaving the beach as clean and appealing as possible and minimising pollution.

A thorough list of management strategies with some discussion of each strategy's purpose

Effectiveness of the Current Coastal Management Strategies

Dune vegetation

Although there are a vast amount of coastal management strategies currently put into operation, not all of them are as effective as they can possibly be, nevertheless, some of the various ways of approach are incredibly effective in managing the environment.

Dune restoration is an incredibly successful strategy that is currently in operation as there is an imeasureable amount of vegetation growing which will thus add stability to the primary dune. The fencing of the dune restoration area is the most effective strategy in effect, as there is an imense amount of dune vegetation now growing hence preventing further erosion of the foredune and making it more durable. The instructive signs bins, footpaths and boardwalks, car parks and roads and also moderately successful as they provide a guideline for the public to follow instead of driving or walking directly onto the dune vegetation however, I feel that they are only benefitting humans as it is making it easier for the public rather than having any major value to the vegetation or the preservation of the dunes. In conjunction, as there were only a small amount of signs, undersized in dimension, I feel that they also were not quite effective as the were not very strict or clear in direction and the public does not understand the importance of the instructions hence, ignoring them.

Identifies the need for coastal management strategies

Extensive evaluation of management strategies

Recommendation of Improvements or New Coastal Management Strategies

Even though a variety of coastal management strategies have been implemented, a number of additional strategies will benefit XXX Beach. Firstly, the fencing of the dune restoration area must be repaired on the beach side of the dune and the wire needs replacing. Possibly moving the fence forward making the dune restoration area larger and planting more vegetation such as marram grass to better stabilise the dune would be effective. This is a successful strategy, as a stable dune will prevent erosion due to thriving vegetation. This is a long term, ecologically

Specific species identified

sustainable solution yet it is incredibly expensive however valuable, costing approximately $250,000.

Use of sophisticated geographical terminology

In addition, land zoning and other planning measures may also be used to keep open space behind the dune as it prevents urban encroachment and the loss of habitat and will preclude the damage of property when erosion begins to furthermore occur. This is an extremely useful strategy that has no cost involved and is a long-term approach to keeping buildings such as the surf club and the cafe safe from any danger. In conjunction, the relocation of the surf club outside and away from coastal risk zones when they need replacing is an immensely effectual way to prevent storm damage to the property and has no cost. A largely efficient plan that could be used is enhancing the community's education and knowledge about coastal management and strategies to preserve XXX Beach. This can be done through tools such as websites information booklets or brochures and informative signs, the cost of this is $50,000+ which is reasonable and exceptionally effective as the community plays a large role in the management of the coast. A CoastCare group could potentially be established for XXX Beach as a variety of people and perspectives may assist and the residents could have the opportunity to participate and become involved in keeping the beach managed. This is a simple yet effectual method as it gives the public the opportunity to contribute.

Evidence of wider research

As there is considerable chance of sand being transported in the event of a large storm, beginning the search for sand for beach nourishment is a strategy that the council must be prepared to implement as sand is transported in the occasion of which a powerful storm occurs with deconstructive waves. This will ensure that in an event as such, the sand is prepared to be transported to the beach, ready for visitors and continually being physically appealing. This strategy is ecologically sustainable and has a low impact on the beach yet requires continuous funds and may potentially be expensive. To contain the erosion of the cliff and rock platform groynes or seawalls are recommended as they contain the impact of the waves however, they are incredibly artificial and

Considers a possible future outcome of management strategies and makes recommendations in relation to these

are a visual eyesore with a high cost incurred. Lastly, recycle bins could be added as there is currently only rubbish bins. This is an extremely affordable strategy that will also be very simple yet effective and benefit the coast as litter is a large problem created by humans therefore making us responsible for fixing it.

In conclusion, XXX Beach has experienced a large amount of human and natural impacts that have changed the structure and scenery of the environment. To effectively manage these changes, strategies must be put in place to minimise the effect of human use on the beach and also minimise and prevent negative changes that can possibly be a hazard to those in the area. These also need to be used to keep the beach looking as natural and appealing as possible just as a beach should be.

Draws an appropriate conclusion based on extensive knowledge

Sources

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Grade Commentary

Kai has demonstrated an extensive knowledge and understanding of management strategies and coastal processes. This report shows a very high level of competence as it is well structured, clear, logical and uses sophisticated geographical language. Links have been made between physical processes and appropriate management strategies. This task shows characteristics of work typically produced by a student performing at a B grade standard.