Coastal Partners

FAREHAM
BOROUGH COUNCIL

Hook Lake Exhibition Booklet

2022

Contents

Hook Lake Today

Key Features

The Hook with Warsash Nature Reserve, located at the mouth of the River Hamble, is made up of a number of important features including a shingle shore, Hook Spit, Hook Lake, wetlands, grazing pastures and woodland.

The nature reserve and its intertwining footpaths, including the Solent Way, is owned and managed by Hampshire County Council and is popular with the local community and visitors alike.


1. Main Embankment


2. Reedbeds of Hook Lake


3. Central Causeway Footpath


4. Existing Sluice Structure


5. Cowes Lane Footpath to Beach is the eastern limit of the study site


6. Overwashing of beach

Environment

Hook Lake is important for its habitats and wildlife. It is protected by national and international environmental designations as a Ramsar wetland site, Special Protection Area (SPA), Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI).

The Hook Lake site is made up of important natural habitats including coastal grazing marsh, saltmarsh, coastal vegetated shingle, lowland meadows, reedbeds and wet woodland. These habitats support a variety of wildlife including protected species such as breeding and over-wintering birds, water vole, reptiles, bats and badgers.


7. Main beach with Vegetated Shingle


8. Main beach


9. Remains of WW2 Bofors Towers


10. Hook Spit

Did You Know?

The landscape of Hook Lake has changed drastically over time:

- In the Saxon and medieval times, Hook village was a thriving harbour and port.
- In the 1800's Hook River remained a navigable estuary.
- In the late 18th C, the 'Ships Bank' embankment was constructed across the mouth of the Hook River to create an enclosed boating lake (Hook Lake).
- South of Hook Lake was once a golf links.
- The remains of a rare World War II Bofors Tower can be found on the shingle beach.

The Challenges

Climate Challenges

The Solent coastline, including Hook Lake, is facing growing challenges from climate change, where sea levels are rising, storms are becoming more frequent and extreme, and coastal flood and erosion risk is increasing.

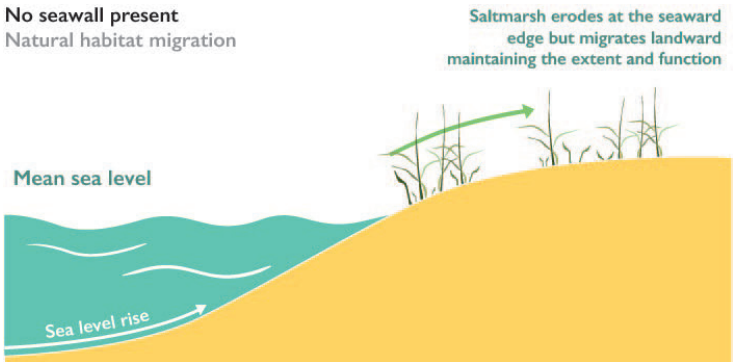
Damage to footpath and main embankment caused by Storm Barra

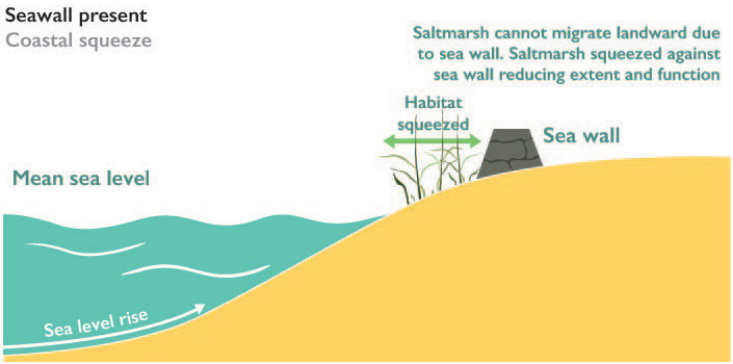
Habitat Loss & Coastal Squeeze

As sea level rises, important intertidal habitats along the coast, such as mudflats and saltmarsh, will be lost as they are constrained by hard sea defences and unable to move landwards as they would naturally do.

This process is called coastal squeeze (shown in the diagram below), where habitats are 'squeezed' against the defences which are relied upon for protection by coastal communities.

Consequently, intertidal habitat is rapidly declining in the Hamble Estuary and the wider Solent as a result of coastal squeeze. Hook Lake has been chosen as a potential area to create new intertidal habitat to compensate for these losses as it has the required characteristics for intertidal habitat to thrive. Enabling the tide to return here will allow other areas to continue to be protected.





Storm Barra

Storm Barra made landfall on 7th December 2021, with wind speeds of up to 40 mph experienced. Both the sea and river flooded at the same time, which led to flooding of the highway at Hook Park Road. The highway was closed for more than 3 hours, blocking the only exit route for residents of Hook Park.

Storm Barra also caused sea water overtopping along the main embankment, damaging the entire length of the footpath.

Flooding at Hook Park road bridge (7 Dec 2021)

Overtopping of the main embankment during Storm Barra

Ageing Coastal Defences

The main coastal defence is a man made embankment enclosing Hook Lake, which includes a seawall and sluice that drains water from Hook Lake out into the sea.

The main embankment at Hook Lake is starting to fail, meaning that it will become increasingly hard and costly to maintain into the future. If we don't address this issue now, the structure will eventually fail, health and safety will be an issue and seawater will come into the site in an uncontrolled way. **Therefore, a better, longer term, sustainable solution is required for future management.**

The shingle beach and spit also provide a natural form of defence to the area behind. This natural feature will rollback landward over time as sea levels rise.

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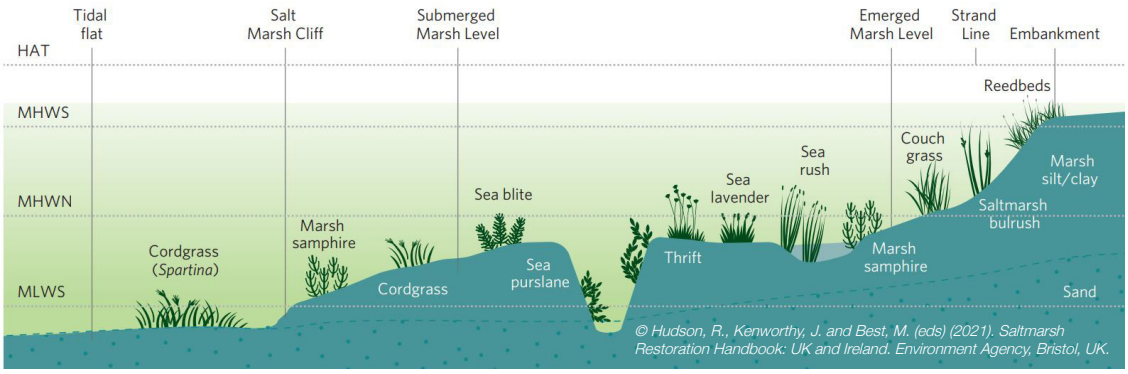
Creating Intertidal Habitat

What Are Intertidal Habitats?

At the coast, in areas where land meets the sea, intertidal habitats form between the low and high tide lines. They are exposed at low tide and are covered by seawater at high tide. This twice daily variation in moisture, temperature and salinity means that the plants and animals that live here are adapted to harsh extremes.

Some species live further up the shore and closer to the high tide line, while others live further down the shore closer to the low tide line.



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Why Are They Important?

Intertidal areas rich in sediments, like those at Hook Lake and the Hamble Estuary, are populated by plants such as saltmarsh and animals such as worms, clams and crustaceans. The plants and animals living here are a vital food source for the water birds that breed and over-winter here in the Solent.

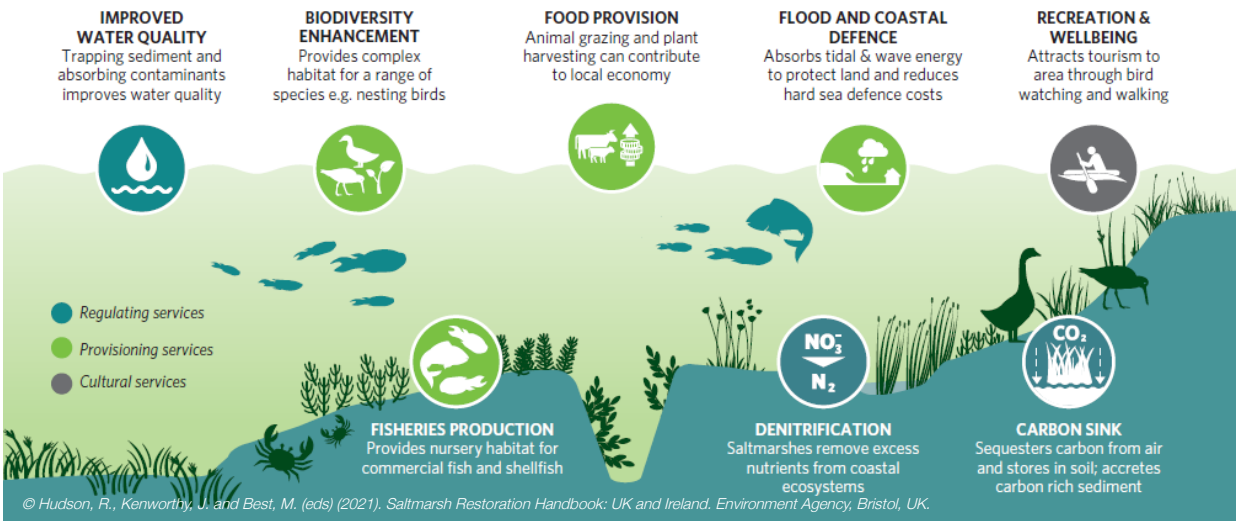
The health of our intertidal habitats is declining. They have been **harmed by human activities** including **climate change, development, construction of hard engineered coastal management structures** and **poor water quality from agriculture and water treatment works.** This deterioration in the health of our intertidal habitats **reduces their ability to provide the benefits that we rely on, with knock-on effects for human health.**
Creating new places for coastal habitats and wildlife to thrive is essential to ensure that they are **resilient to the challenges of climate change** and will **provide a variety of benefits** to help **restore the health of the Hamble Estuary.** It will also ensure that **local communities** can **continue to enjoy our treasured coastlines** for many years to come.

Intertidal habitats provide a range of ecosystem services, shown in the infographic below.


Intertidal Rocky Shore


Intertidal mudflats


Saltmarsh



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Ecosystem Services

These are the direct and indirect contributions of ecosystems to human wellbeing, and have an impact on our survival and quality of life.

Other Wider Opportunities

During the study we will explore other investment opportunities to allow us to deliver wider placemaking benefits relating to recreation, amenity, education, health and wellbeing and environmental enhancements, alongside habitat creation, subject to securing additional investments.

Education

Recreation

Environment Enhancements

Amenity

Education

Health & Wellbeing

How will we create the habitat?

We are exploring different ways to create intertidal habitat at Hook Lake, and have identified a shortlist of potential approaches alongside a baseline option, to which all other approaches are compared. In selecting these approaches we have considered four key criteria:

Technical Is it technically possible to build? Is it safe? How does it affect flood risk to other areas? How does it impact on coastal processes?
Environmental Can we create the habitat needed? What is the carbon footprint? How does it impact on ecology, landscape and heritage?

Economic Is it cost effective? Is it low maintenance? How long will the design last?
Social what is the impact on recreation? Does it meet community needs?

The 4 Shortlisted Approaches are:

Baseline
With present management

Maintenance is reactive. Once at the end of its design life the main embankment will fail. Seawater will come into the site in an unmanaged way following defence failure. Habitat will be created in an unmanaged way.

Main Embankment
- **Reactive maintenance until failure**
- Remove tidal flaps + reactive maintenance
- Managed breach
- Un-managed breach + allow to fail

Causeway
- **Leave to fail over time**
- Create a breach

Spit and Shingle Beach
- **Natural rollback**

Habitat Creation Potential
- 0-20 years
- **20-50 years**
- 50 years+

Unmanaged — Managed

Approach 1
Remove tidal flaps

Remove tidal flaps to enable sea water into Hook Lake and create a breach in the causeway. Reactive maintenance of main embankment. Once at the end of its design life the main embankment will fail. Habitat will be created in a managed way.

Main Embankment
- Reactive maintenance until failure
- **Remove tidal flaps + reactive maintenance**
- Managed breach
- Un-managed breach + allow to fail

Causeway
- Leave to fail over time
- **Create a breach**

Spit and Shingle Beach
- **Natural rollback**

Habitat Creation Potential
- **0-20 years**
- 20-50 years
- 50 years+

Unmanaged — **Managed**

Approach 2
Management breach

Create a breach in the main embankment and causeway, reinforce the remaining main embankment and maintain. Habitat will be created in a managed way.

Main Embankment
- Reactive maintenance until failure
- Remove tidal flaps + reactive maintenance
- **Managed breach**
- Un-managed breach + allow to fail

Causeway
- Leave to fail over time
- **Create a breach**

Spit and Shingle Beach
- **Natural rollback**

Habitat Creation Potential
- **0-20 years**
- 20-50 years
- 50 years+

Unmanaged — **Managed**

Approach 3
Unmanaged breach

Create a breach in the main embankment and causeway. Reactive maintenance of main embankment. Once at the end of its design life the main embankment will fail. Habitat will be created in a managed way.

Main Embankment
- Reactive maintenance until failure
- Remove tidal flaps + reactive maintenance
- Managed breach
- **Un-managed breach + allow to fail**

Causeway
- Leave to fail over time
- **Create a breach**

Spit and Shingle Beach
- **Natural rollback**

Habitat Creation Potential
- **0-20 years**
- 20-50 years
- 50 years+

Unmanaged — **Managed**

What could a scheme look like?

Here are some images of other intertidal habitat creation schemes that have been completed in the Solent region to give an impression of what new intertidal habitats could look like once seawater is returned to the site.

Cobnor during high tide

Cobnor Point, Chichester Harbour

6.5 hectares site
A mix of mudflat and saltmarsh habitats were created when the site was reopened to the tide. To do this the sea wall was breached in two places. These breaches were protected with rock armouring to keep then stable. This was required because bridges were placed across both of them to preserve a footpath.

Cobnor during low tide

Chalkdock Marsh

Medmerry during high tide

Chalkdock Marsh, Chichester Harbour

3.3 hectares site
Saltmarsh habitat was created and is now well established at the site, after Regulated Tidal Exchange was implemented by opening the existing sluice.

Medmerry, West Sussex

302 hectares site
Created a large mosaic of habitats to include around 183 ha of intertidal habitat that is regularly inundated by the tide through a large breach in the shingle beach.

Medmerry

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The Hook Lake Coastal Management Study

A Timeline of Events:

2010 Earlier Proposals

- North Solent Shoreline Management Plan 2010
- River Hamble to Portchester Strategy 2016
- Regional Habitat Compensation Programme 2018
- Identified Hook Lake as a key site for creating intertidal habitat

2021 Hook Lake Coastal Management Study

How is the project funded?
As this project looks to fulfil a legal requirement to create new habitat, this Study is entirely funded by Government through Defra Flood and Coastal Erosion Risk Management (FCERM) Grant in Aid.

What will the Study deliver?
The Study will:

- Identify a leading approach that maximises both intertidal habitat creation and recreation opportunities for both local people and wildlife to keep Hook Lake a special place.
- Develop preliminary designs for a scheme.
- Identify a detailed programme to move forward to construction.
- Put forward a business case to seek government funding to deliver a habitat creation scheme. Explore other investment opportunities to help deliver additional recreation, amenity and environmental enhancements

2023 Subject to funding, the following events will be programmed:

- Detailed Designs 2023-24
- Obtain licences and consents 2024-25
- Construction 2025-28
- Let seawater back into Hook Lake to create new intertidal habitat

2028 Scheme Completion

Who is Involved?

Project Team

Coastal Partners

We are a team of specialist coastal officers and engineers who deliver a comprehensive coastal management service across 162km of coastline. As part of Fareham Borough Council we are managing the delivery of this project.

binnies

Binnies, part of the RSK group of companies, are an engineering consultancy, helping us deliver the more technical elements of the study. Binnies are experts in this field, having developed designs for similar habitat creation projects around the country.

Key Partners

FAREHAM BOROUGH COUNCIL

Fareham Borough Council is responsible for delivering local projects and essential services throughout the Borough.
Fareham Borough Council has permissive powers for sea defence and coast protection.

Hampshire County Council

Hampshire County Council own and manage the Hook Lake with Warsash Nature Reserve. Other interests within the study area include Public Rights of Way, and Hook Park Road.

Environment Agency

The Environment Agency is legally obliged, under the Habitat Directives, to create new intertidal habitat to compensate for the losses resulting from coastal squeeze.

Project Steering Group

The Hook Lake Coastal Management Study Project Steering Group consists of representatives from organisations with a significant interest in the Study as it progresses.

The role of the Steering Group is to guide the delivery of the project; share knowledge, particularly regarding local issues, opportunities and constraints, best practice, and provide feedback and input to decision making at key milestones in the Study.

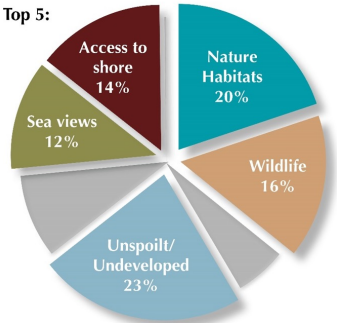
River Hamble Harbour Authority
Environment Agency
FAREHAM BOROUGH COUNCIL
NATURAL ENGLAND
Hampshire County Council

Community

You've told us what's important to you…
In June 2021, we conducted a visitor survey to understand how the site is valued and to gather visitors' views on their aspirations for the current and future management of Hook lake.
We received responses from 183 participants, the majority of whom were local residents to Hook Lake and Warsash, and almost three quarters of whom visited daily or weekly.

Visitor feedback report:

What do you value most about this location?



What happens next?

2022 — 2023

Modelling
Understand which habitats we can create and how much

Economics
Calculate costs and benefits

Appraise Approaches
Appraise each approach against technical, environmental and social objectives

Leading Approach
Identify the leading cost effective approach to creating habitat

Engagement
Understand what habitats and how much we can create.

Business Case
Submit business case to Government to fund scheme detailed design and construction

We need your help

Share Your Thoughts

We'd like to hear from you about this exhibition and the project itself.

We would really appreciate your help by completing a short questionnaire with multiple choice questions to help us improve our future events.

You will also have the opportunity to leave us feedback and questions if you wish.

Exhibition Survey

Use this QR code to get a link directly to the Survey to share your thoughts on the proposals shown at this exhibition.

Further information

Tell Us...

What you think or if you would like to contact us for more information email Lauren Burt at **lauren.burt@havant.gov.uk.**

Website

FAQs

E-newsletter

Coastal Partners

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