



## Flood and Coastal Erosion Risk Management Research Programme

### What is coastal squeeze? Project summary FRS17187

#### Introduction

The purpose of this project was to better define and understand what causes 'coastal squeeze' as well as to assess the best way of managing its past and future impacts.

Coastal squeeze is defined as 'the loss of natural habitats or a deterioration in their quality caused by man-made structures or human activity'. Coastal squeeze prevents these habitats from migrating towards land (transgressing) in response to rising sea levels.

#### Background

There is a legal obligation to compensate for the impacts of maintaining coastal flood management infrastructure, or management activities that could lead to coastal squeeze. Coastal practitioners define coastal squeeze to the best of their ability, but a number of studies have highlighted inconsistencies in the definition used for 'coastal squeeze' and demonstrated problems in quantifying it.

If coastal squeeze is under estimated, then the legal obligation is not fully met, and if overestimated extra compensatory habitat is put in place at considerable cost. We looked to:

- improve our understanding of the factors and methods that lead to coastal squeeze, and
- set out best practice for assessing the historic and future impacts of coastal squeeze at different scales.

#### Findings

Through desk-based research and a workshop with coastal practitioners we agreed the following new definition.

*"Coastal squeeze is the loss of natural habitats or deterioration of their quality arising from anthropogenic structures or actions, preventing the landward transgression of those habitats that would otherwise naturally occur in response to sea level rise (SLR) in conjunction with other coastal processes. Coastal squeeze affects habitat on the seaward side of existing structures."*

#### Method

We developed a 2-stage method for assessing historic and future impacts of coastal squeeze:

- **scoping stage** - defines the study area, the habitats to be included, and the period of interest
- **screening stage** - allows a rapid assessment of whether or not coastal squeeze is likely to be a potential cause of habitat change

The method outlines how to quantify these changes, the relevant data sources to use and the causes of uncertainty that apply to each step of the method. The final stage of the assessment requires expert judgement to assess whether the observed/predicted changes represent coastal squeeze.

#### Outputs

The main outputs of this project are:

- a new definition which clarifies the habitats that can be affected by coastal squeeze;
- a standard method and guidance for consistently assessing coastal squeeze; and
- four case studies that demonstrate how the method can be applied to mudflats, saltmarshes and sand/shingle beaches.

This guidance will be used as Shoreline Management Plans and associated strategies are reviewed. There is no plan for a full review of coastal squeeze assessments in England and Wales.

This summary relates to information from project FRS17187, where a webinar is available (<https://youtu.be/NGZos24piKw>) and it is reported in detail in the following output:

**Report:** FRS17187

**Title:** What is coastal squeeze?

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