

Dynamic Coast has shown that coastal erosion rates are increasing, presenting clear risks to a significant proportion of Scotland's links courses. Scotland's golf courses generate £319M per year, plus £130M indirectly. The combined threats of coastal flooding and coastal erosion have increased in recent decades and are expected to worsen with climate change. Planning and action is needed now to increase resilience and business continuity. Dynamic Coast allows clubs to better appreciate increasing risks and to plan and act now to increase resilience.

### Who will this impact?

- Two fifths of Scotland's golf courses are coastal, by area and by number of courses.<sup>1</sup>
- Directly these two fifths generate >£127M/yr, plus £52M/yr indirectly.<sup>2</sup>
- 10% by area is at risk from coastal flooding (temporary threat).
- 0.4% by area is at risk from erosion by 2050 (permanent threat). This area is spread across 109 courses, or 18% of all Scottish courses.
- £1.3M of annual revenue (0.4% of £319M) is at risk of erosion by 2050.
- Climate change is increasing the risks to golf course assets.

### How can Dynamic Coast help you?

- Dynamic Coast provides detailed interactive [maps](#) of how your coastline has changed over the last 100 years, and how this will affect coastal golf courses as rates of erosion increase toward 2050.
- 109 golf courses have been identified as at risk of erosion by 2050 under a high sea level rise and 'do nothing' management scenario.
- 34 Scottish Golf clubs acknowledge they have a coastal erosion problem, with a further 11 acknowledging they are at risk.<sup>2</sup> Across the UK, of the 78 club responses to an R&A survey, 52 report coastal erosion effects.<sup>3</sup>
- The Dynamic Coast maps allow early action to address the risks identified, allowing courses to adapt and enhance resilience whilst there is still time.

### What can you do to improve future resilience?

- ✓ To understand how your coast has changed and may change – [view the erosion maps here](#) and SEPA's [flood maps here](#).
- ✓ Dynamic Coast can help you design your own monitoring to establish the latest changes at your course.
- ✓ Consider the implications for your course and plan ahead to ensure investments are future-proofed, prudent and climate resilient.
- ✓ Read [Scot Golf Guidance](#) and take advice on options to reduce exposure and increase resilience. Consider how you can adapt your course to avoid ongoing and costly future defence work.
- ✓ Assess commercial impacts to create a business case for adaptation and integrate this into future business plans.
- ✓ Early adaptation has the potential to greatly reduce future costs.

### A window of opportunity

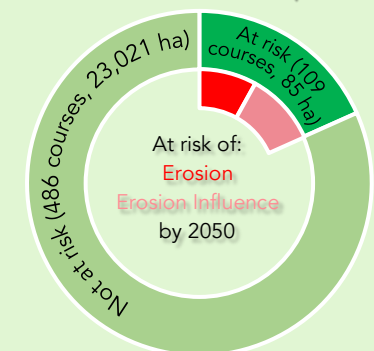
- The science is clear, we have a window of opportunity to put in place plans to adapt and improve the resilience of our links courses before coastal erosion and flooding worsens.
- Some leading golf courses are using [DynamicCoast.com](#) to plan and Build with Nature to increase their resilience.

### Find out more at:

[DynamicCoast.com](#), [nature.scot](#), [SEPA.org.uk](#), [ScottishGolf.org.uk](#), [nfm.scot](#), [StAndrews.com](#), [RoyalDornoch.com](#), [Interreg Building With Nature](#)

At risk of erosion by 2050:

 **48** courses (54 ha)  
**61** courses (31 ha)



### What does this show?

'Erosion' figures (red) reflect assets that lie seaward of anticipated 2050 high water mark. 'Erosion Influence' figures (pink) reflect assets within the next 10m inland which may also be affected by erosion, storm damage and disruption.

### What impacts on assets?

Direct risks from storm waves include temporary flooding issues and/or permanent erosion issues. These may damage, erode or undermine tees, fairways, greens and surrounding rough areas. **Existing artificial defences** are increasingly threatened by rising sea levels, increased storm impact and flood frequency. Adjacent beaches are likely to erode, due to wave reflection and sediment loss. **Existing natural defences** (beaches, dune & saltmarsh) will move, narrow & retreat inland.

### Good practice:

St Andrews Links Trust and Royal Dornoch Golf clubs are "**Building with Nature**" to ensure their courses remain naturally resilient in the face of increased climate change risk.

**Find out [here](#) how building with nature is being used by leading clubs.**

### Let's be 'sea level wise'

Many sectors are using risks assessments like this to transition towards a resilient 'climate-proof' future.

1 Dynamic Coast (2021) National Risk Assessment & Fitton, J.M. (2015) A national coastal erosion risk assessment for Scotland. PhD thesis, University of Glasgow.

2 KPMG (2013) The Value of Golf to Scotland's Economy

3 Scottish Golf Survey (2015) <https://scottishgolf.org/club-support/environment/>

4 The R&A (8<sup>th</sup> March 2021) Coastal Management Survey