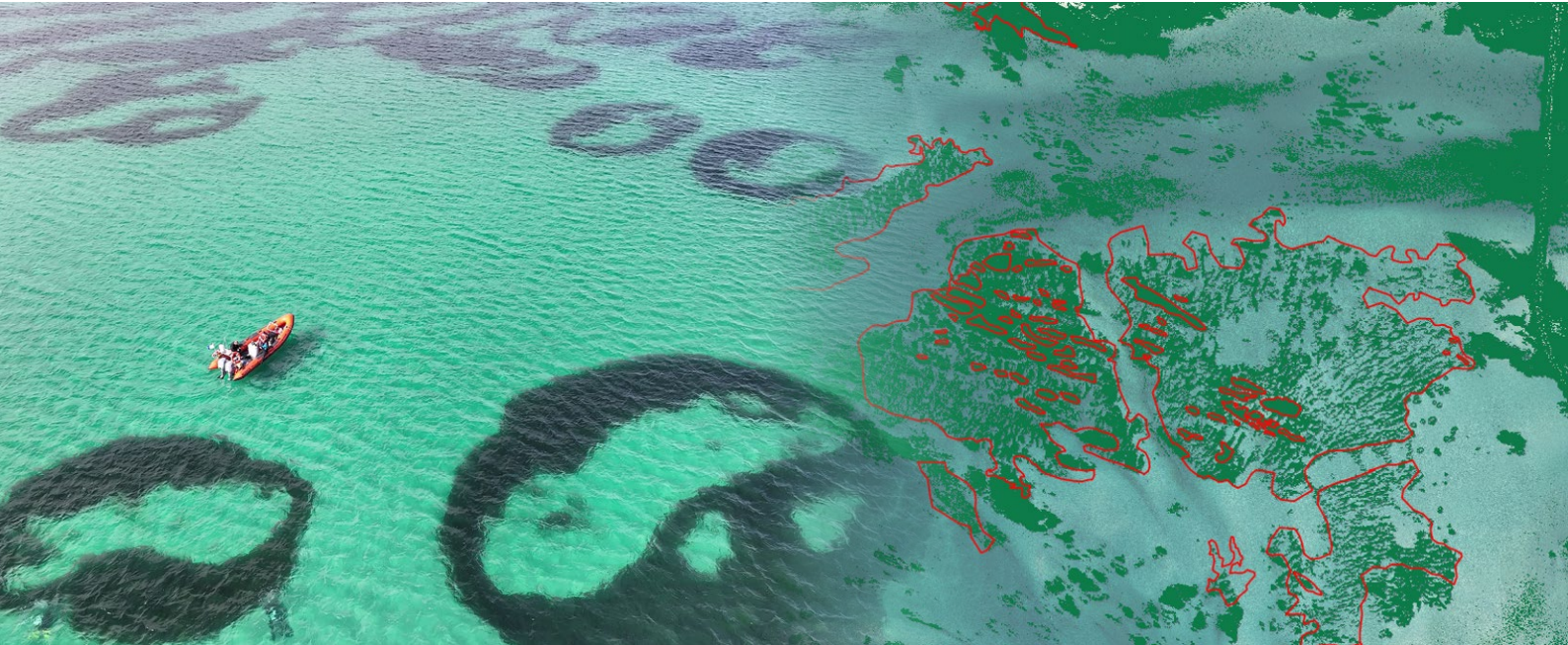


Case Study



NatureScot



Client:

NatureScot (previously Scottish Natural Heritage) is Scotland's nature agency, promoting care for the natural heritage, wildlife, habitats, rocks and landscapes of Scotland. It aims to ensure all nature across Scotland, including biodiversity, geodiversity and the natural elements of the landscapes and seascapes, is maintained, enhanced, and brings benefits.



Industry:

Environmental Management

Product:

Aerial Photography

// The use of APGB aerial image data has been invaluable for understanding changes to seagrass beds overtime in the Sound of Barra. We really appreciated working with Bluesky on this project and their willingness to provide offshore images that are not routinely included in the APGB product. It would be great to explore further opportunities for mapping other shallow sea habitats in future. //

Chris Nall,

Marine Habitat Ecologist & Surveyor, NatureScot

Summary:

NatureScot is using high resolution aerial photography, available through the APGB contract, to monitor seagrass coverage in the Sound of Barra, a Special Area of Conservation (SAC) in Scotland's Outer Hebrides. Noting a decline in seagrass, NatureScot required accurate and current data to quantify seagrass extent and assess changes. Other data sources such as satellite photography and diver surveys proved either unreliable or resource intensive, prompting the use of Bluesky's current photography via image classification techniques to support efficient analysis.

Challenge:

The Sound of Barra is a designated SAC managed by NatureScot, which is responsible for monitoring and protecting the site’s marine features, including the seagrass beds. A 2015 Site Condition Monitoring (SCM) survey revealed that seagrass coverage was in decline, prompting NatureScot to prioritise continued monitoring to assess whether the habitat is recovering or deteriorating and identify potential causes of change.

Seagrass beds are a shallow water habitat and the contrast with the white sands of the Sound of Barra mean that they can be visible in aerial images. Up to date and accurate aerial data can therefore be used to monitor and compare habitat extent changes over time with appropriate ground truthing to confirm habitat. However, freely available 10m satellite data provided poor resolution and proved inconsistent as the clarity was often impacted by weather related visibility issues, and whilst other methods like diver surveys and acoustic mapping using echo sounders offered detailed insights, their high cost and resource demands made them impractical for use across the whole of the area.

Solution:

To address these challenges, NatureScot turned to high resolution aerial photography available through the APGB Mapshop, including both historical photographs and Bluesky’s current 2024 photography. Using ArcGIS Pro, NatureScot trained image classification models to detect seagrass across photographs of six key sites around the Sound of Barra, enabling automated identification and spatial analysis. The 2024 photography, captured on clear days with minimal cloud cover, provided exceptional clarity at 12.5cm resolution, enabling precise comparison with earlier photography. This helped to identify areas of decline, regeneration, and also prioritised areas for survey in 2025 SCM to ground truth seagrass identification where it may have been mistaken for kelp beds.

Results:

The clarity and currency of Bluesky’s photography enabled NatureScot facilitated detailed spatial analysis of the Sound of Barra, helping to quantify and compare seagrass extent, while keeping costs low (APGB photography is free at the point of use for members). The analysis confirmed a continued decline in seagrass in certain locations, such as areas to the east of the causeway. Encouragingly, some areas also showed signs of recovery, suggesting natural regeneration.

The use of aerial photography for desktop-based image classification significantly improved extent mapping of seagrass beds in the Sound of Barra and e enabled a more focused approach to in-person surveys during the 2025 SCM for areas where classification confidence was low or further investigation was required. This targeted approach saved substantial time and resources, and the insights gained from the spatial analysis will directly inform the next round of fieldwork and support more effective management decisions.

	Imagery Specification	
Resolution	12.5cm	25cm
Coverage	Great Britain	Great Britain
Accuracy XY	± 30cm rmse	± 60cm rmse
Formats	Include: JPG, TIFF, ECW	Include: JPG, TIFF, ECW
Standard Projection	British National Grid	British National Grid
Tile Size	1km x 1km (8,000 x 8,000 pixels)	1km x 1km (4,000 x 4,000 pixels)
Metadata	Gemini 2.3	Gemini 2.3

Get in touch today at support@apgb.co.uk