

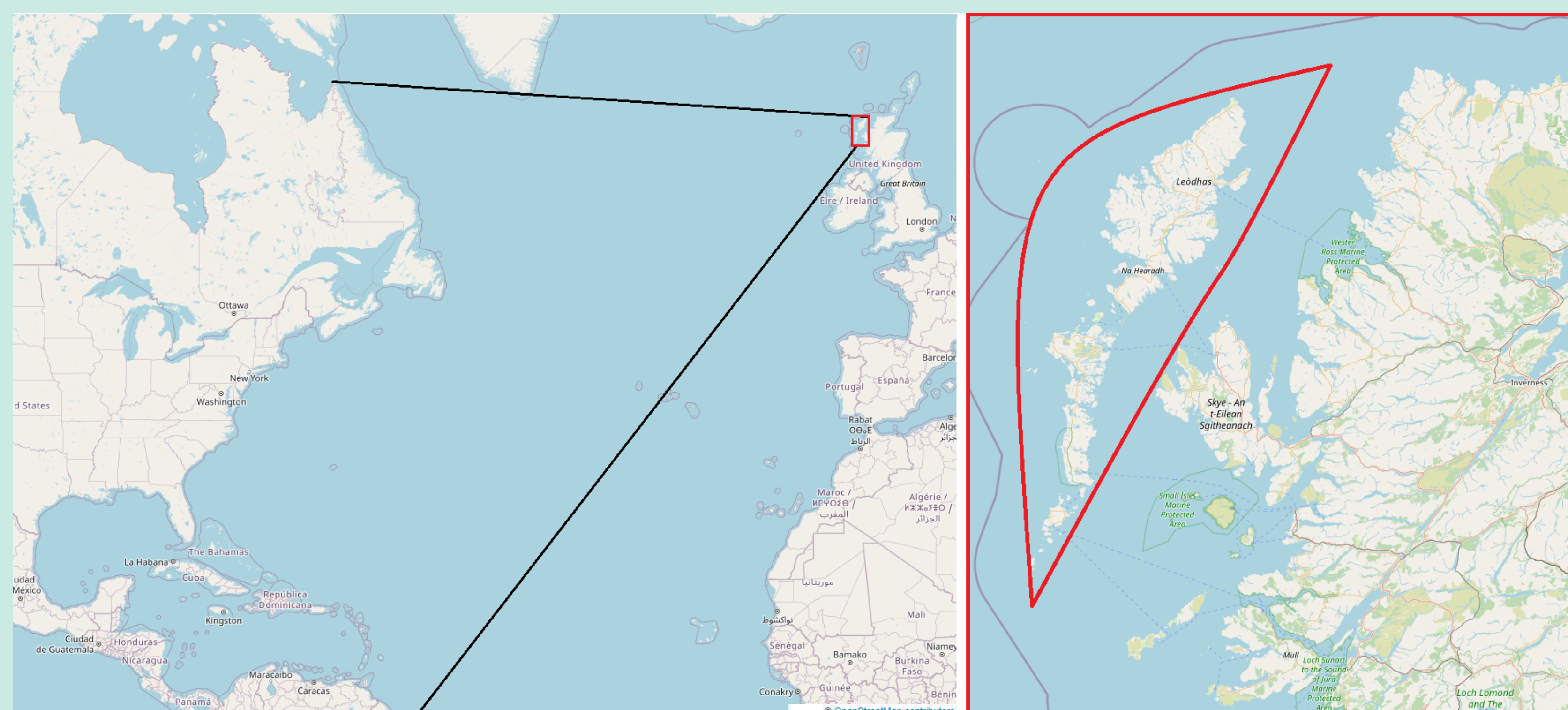
Poster Precis

When a community is experienced with having to cope with the vagaries of the British weather impacting on every facet of their daily lives, how do you engage them with conversations about future changes in that weather due to climate change? Their local knowledge is required to ensure that proper adaptations are made, and their engagement with the process is vital to ensuring its success in the near and far term. To explore this, a project was created to develop a storyline to communicate climate change information to the Outer Hebrides community. Collaborating with a local artist, “Tuil is Geil” (Gaelic for “Flood and Wind”) was created through a combination of sonified climate data, local voices and field recordings of local weather. This poster outlines the goals of our work, the underpinning science, the creation and use of the music and what we learned from the project.

1. Introduction & Goals

The Outer Hebrides are a chain of 5 major and 10 minor islands about 200 km in length located 80 km off the west coast of Scotland, and particularly exposed to North Atlantic low-pressure systems (Fig. 1). The Islands are connected to each other by causeway roads or intra-island ferries, and to mainland Scotland by ferry and aircraft connections. Therefore the day-to-day weather is an integral part of island life, with a poor spell of weather leading to reduced produce in shops, the inability to visit family or friends, and across a range of industrial activities (notably in the agricultural and fishing sectors). There are also cultural memories of significant events, such as the 11th-12th January 2005 storm which claimed the lives of 5 family members fleeing from the storm surge.

Fig. 1. The location of the Outer Hebrides in the context of the North Atlantic and British Isles (left) and the islands with respect to north-west Scotland (right). Red lines denote the boundary of the Outer Hebrides in both maps. The black lines highlight the sector where there is (predominantly) open fetch for any Atlantic storms reaching the islands.



The UK Climate Projections (UKCP) headline findings indicate that the UK can expect “warmer, wetter winters” and “hotter, drier summers”, while research combining UKCP data with static weather patterns indicates an increase in the number of winter low pressure events. Building on the relationship between the Met Office and Adaptation Scotland, and Adaptation Scotland with the Outer Hebrides Community Planning Partnership’s (OHCPP) Climate Change Working Group (CCWG), the initial focus was on providing climate change information around future changes in winter storms for the islands, but there was also a desire to produce a community engagement piece. The CCWG in conjunction with the Làn Thìde Climate Beacon devised a project to develop a bespoke storyline to communicate the impact of winter storms and the future changes in storminess due to climate change. The aim of the project was to raise awareness of projected future changes in winter storms and stimulate discussion amongst members of the community as to the need for adaptation. This was to be achieved by bringing cutting edge climate science together with lived experiences to explore how we could make climate projections and trends more accessible and aid people to understand the impacts for their local community and location; and thus feel more engaged with taking action on climate resilience.

Listen Here!



Tuil Is Geil
Sandra Kennedy

Would You Like to Know More?

A paper with the same title as this poster, going into more detail about this project can be found in Climate Services journal.

For more information on continuing climate adaptation work in the Outer Hebrides using art, science and other community engagement techniques please check out:

www.climatehebrides.com

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2. Underpinning Science & Making Music

An analysis of all Amber & Red weather warnings plus any Named Storm that impacted upon the Outer Hebrides identified that six of the Met Office 30 static weather patterns (Fig. 2) were predominantly associated with the worst weather to affect the islands. An analysis of their current frequency and their projected future changes by the 2090s was undertaken using these six patterns, providing the scientific basis for the narrative.

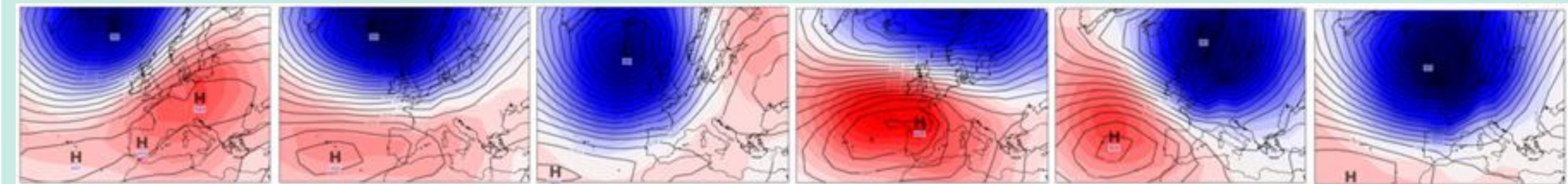


Fig. 2. Surface pressure contours (black lines) and pressure anomalies (colours) for the six weather patterns (l-r: 15, 20, 21, 23, 26, 30) identified as most impactful Outer Hebrides winter storms

A competitive tender, seeking a Hebridean artist to create art that would sit at the centre of adaptation engagement events was advertised. Sandra Kennedy was awarded the commission having proposed to turn climate model data from UKCP into music using data sonification techniques and combine this with the voices of local people. Using one-on-one interviews and widely advertised open Zoom sessions, a range of voices were gathered, in both English and Gaelic. For the music, model output from UKCP Regional for temperature, precipitation and wind speed were assigned to the violin, harp and wind instruments respectively, while field recordings of wet and windy weather were taken by the artist to be included in this backing music. Three pieces (Historic Storms, Everyday Life, and Working Life) were produced and published on SoundCloud (accessible via the QR code in the bottom left of this poster).

3. Community Engagement

A brace of trial engagement events were run in Spring 2022, the first in-person and the second virtually. For the in-person event, users gathered around maps of the islands, while virtually a map was shared on the screen. Participants were asked:

- What/who do you want to protect in future?
- Where is it/are they located?
- Why is it/are they vulnerable?

And (when relevant) to highlight strengths of the island(er)s, actions required and areas for adaptation. An example of the collated results can be viewed in Fig. 3.

Interestingly, the in-person event focussed on “holistic mindset” of the community and the flora and fauna of the islands. The virtual event was more focussed on large scale transport and infrastructure concerns and general island logistics. Both sessions however focussed on the positive actions (things that could be done and the solutions that existed), rather than a focus on the problems.

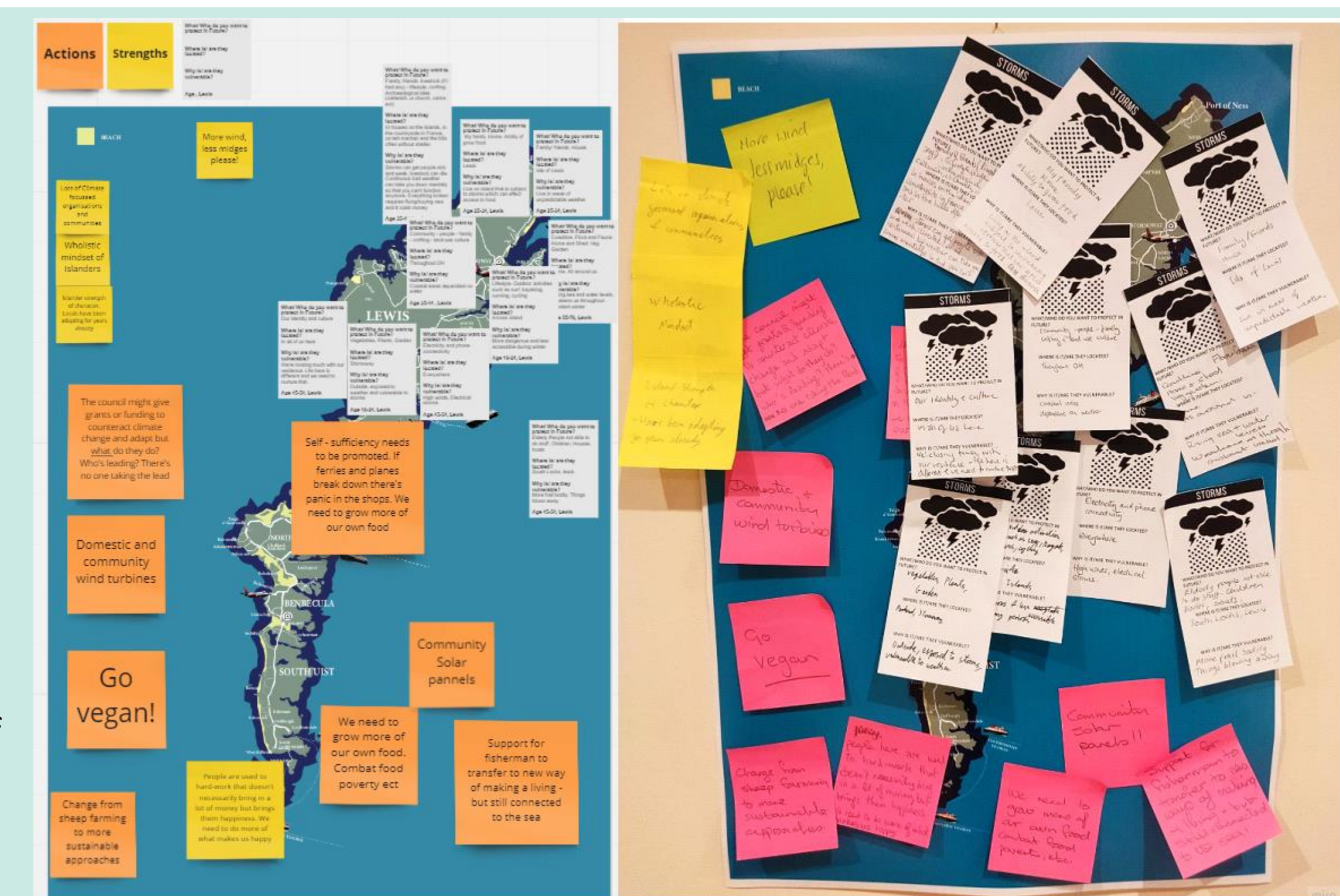


Fig. 3. A digitised version (left) and original (right) of the responses from the in-person discussion session (note the pink post-it notes are orange in the digitised version).

4. Learnings & Future Ideas

On reflection, four key learnings were taken from this project to create an Outer Hebrides storyline.

1. **Manging expectations & scope** – It is important to set a specific scope to the work, one that is not too broad as to allow the project to wander, nor too specific to constrain the creativity, (diluting the impact of the storyline).
2. **Working with local partner networks** – From advertising the tender, to the Zoom interview sessions to the events themselves; local partner networks such as Làn Thìde were critical to the completion of the project. This was especially important in a sparsely populated areas and reduced our reliance on social media channels.
3. **Bridging between science and art** – This project combined climate science and art. To achieve a good outcome, the artist and the scientist had to work well together, understanding what each wanted to achieve and what each could not provide. It was a two-way process that required give and take from each other, to give the artist creative freedom while maintaining scientific rigor!
4. **Collaborating with the local community** – While our scope and underpinning science was a top-down decision, it was vital for the artist to have the freedom to develop the project with the local community, so that they would help the project to evolve. That way we avoided the project team both setting and answering their own questions. If community engagement is lost, then the project will be less effective in supporting community adaptation.

Going forwards events have continued across the Outer Hebrides. An April 2022 event focussed on people gathering to write poetry inspired by the pieces, while the pieces and the science have supported “Climate Ceilidhs” run by Climate Hebrides C.I.C (since March 2023) and at the Barra & Vatersay Science Festival (July 2023). Adaptation Scotland are interested in running similar projects across other areas in Scotland, working with different artists to turn climate science into community engagement activities across the different environments of Scotland.

Acknowledgements

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Fig. 1 base maps created using Open Street Map (copyright Open Street Map and its contributors) and reproduced under Creative Commons Attribution-ShareAlike 2.0 licence (CC BY-SA 2.0)



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