NICRE
National Innovation Centre
Rural Enterprise

NORTHUMBERLAND
RIVERS TRUST

Coastal Streams Climathon

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1. Introduction

1.1.1. Coastal Streams Climathon overview

How might we enhance the water quality and climate resilience of Northumberland's coastal streams?

In November 2024, NICRE colleagues at Newcastle University and Countryside and Community Research Institute (CCRI) delivered the Northumberland Coastal Streams Climathon in partnership with the Northumberland Rivers Trust.

The Climathon provided a platform for participants to explore and design solutions to the challenges faced by Northumberland's coastal streams. It aimed to generate innovative, achievable project ideas that could be taken forward by attendees and the Northumberland Rivers Trust.

The CCRI team have held several successful Climathon events in the South West of England, adapting Climate KIC's methodology for use in rural settings. Hosting an event in Northumberland enabled CCRI to apply the Climathon approach in another rural region, and to share knowledge and skills with the NICRE team.

The event highlighted how landowners, farmers, land managers, businesses, researchers, policymakers and communities can work together to create climate resilient, sustainable waterways with high water quality, through better collaboration, knowledge exchange and community involvement.

Participants visiting a nearby coastal stream

2. Event structure and organisation

The Coastal Streams Climathon comprised two events: a webinar on 18 November 2024, followed by an in-person event on 21 November 2024. The event was collaborative, organised by NICRE and the Northumberland Rivers Trust, co-delivered by the organisers and the CCRI team, and funded through the NICRE.

The Climathon Playbook served as a guide throughout the event, providing structure to the problem-solving process. Some adaptations were made for rural settings, including incorporating a walk to a nearby coastal burn, hosted by a local farmer and Northumberland Wildlife Trust trustee, John Baker Cresswell, to contextualise some of the key challenges facing Northumberland's streams.

2.1.1. Part 1: Webinar

The webinar, which took place in the afternoon of 18 November included a range of speakers who provided vital insights into ongoing work relating to Northumberland's coastal streams, land use, farming, and community engagement:

- **Melanie Thompson-Glen,** Head of Business and Innovation at NICRE, introduced the Climathon process and the aims for the session.
- **Duncan Glen**, CEO of the Northumberland Rivers Trust, spoke about ongoing efforts in waterways management and strategies within the region.
- **John Baker Cresswell**, local farmer, landowner and a trustee of Northumberland Wildlife Trust, introduced the local context and the role of agriculture in climate resilience.
- **Clare Deasy,** from Northumbrian Water, shared insights from the Thriving Catchments initiative which takes a collaborative approach to improve water quality and river health.
- **Jenny Holmes**, from the TweedWATCH project, discussed the role of youth engagement as a way to develop communities' environmental stewardship of rivers and waterways.
- **Jane Davies**, from Coquet River Action Group (CRAG), explained an ongoing, community-led, citizen science project to investigate the health of the River Coquet.

The webinar also featured a breakout group session halfway through. The breakout activity usually takes place at the end of the session, but this change was made due to the high number of speakers. The timing of the activity resulted in a more question-generating discussion than was observed in previous events. In their breakout rooms, participants shared initial questions and ideas about the climate resilience and water quality of Northumberland's coastal streams. These questions and ideas were noted in

real-time by NICRE colleagues using the MIRO online tool. They were grouped into themes after the session. Key themes included:

1. **Public engagement and outreach**, including community engagement, education for young people, domestic sewage advice, and leveraging existing community action groups.

2. **Making use of existing organisations and programmes**, such as water quality monitoring, farming advice and financial incentives, research projects, and developing more peer-to-peer advice.

3. **Making use of existing data** through increased availability and accessibility of modelling and research project data to make sure it is useable and shareable.

4. **A need for clear messaging around shared goals** that are properly resourced, achievable, aligned across organisations, and supported by accessible, neutral information.

5. **Gaps in existing data and information** that could be addressed include an one-stop-shop for relevant information, water flow maps and the development of wetlands on farms.

6. **Engaging with farmers and landowners** to break down barriers to implementing environmental solutions and, where possible, incentivise these activities.

7. **Pressures and barriers to address** included balancing yields and sustainability with soil health, temperature rises, changes in sea level, storage, cultural barriers, and economic pressures including a need for funding and investment.

8. **"How might we…?" questions** started to be developed, such as around managing polluted water, cooperating with and involving farmers, future-proofing challenges and solutions, and engaging and supporting landowners and publics.

2.1.2. Part 2: In-person event – solution development

The in-person event, held on 21 November at Ellingham Village Hall, focused on developing actionable solutions through collaborative work. Participants were taken on a walk to a coastal burn which provided an understanding of the local environment and current management practices. Challenges such as flooding, agricultural run-offs, and efforts to enhance biodiversity were discussed.

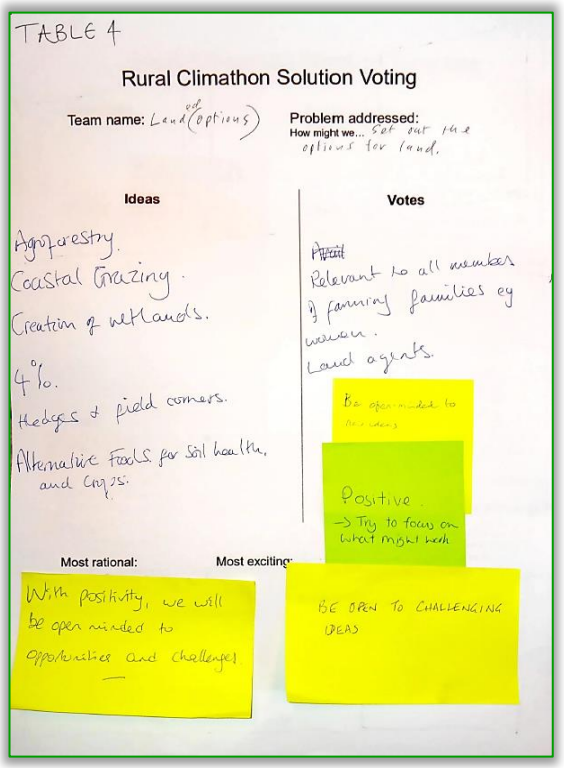
On their return to the village hall, the event entered its solution development phase. Participants were asked to develop a list of priorities for the coastal burns. These priorities were clustered into themes by the organisers, and participants were asked to vote for the most important.

The top six ideas were each allocated to a table, and participants could move to the one on which they most wanted to work. This provided a structure for further idea development. The themes chosen were:

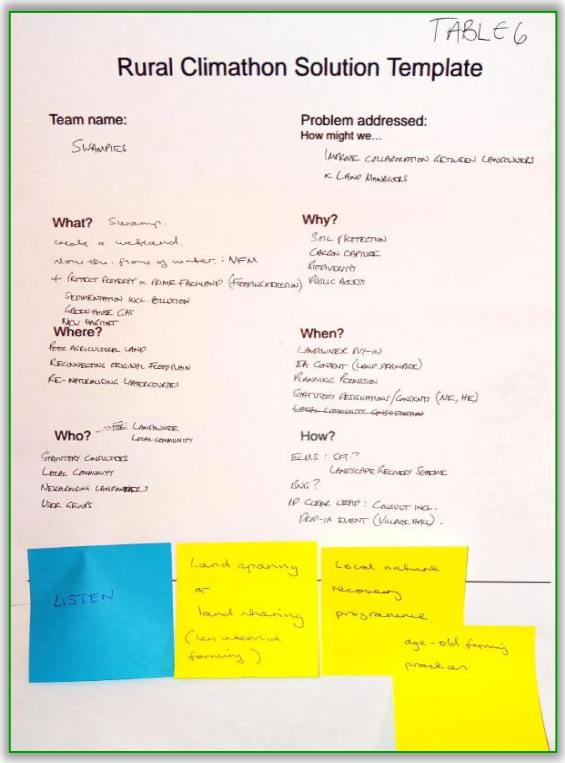
1. Influencing, advice and support
2. Coordinating data and information
3. Community catchment voice and education
4. Multi-functional land use
5. Domestic septic tanks
6. Farmer and land manager collaboration.

Participants begin working in groups at Ellingham Village Hall, Northumberland

2.1.3. Examples of idea development



Early-stage development of a handbook and board game for information-sharing about multifunctional land use



Early-stage development of a wetland creation project intended to improve collaboration between stakeholders

2.1.4. Solutions development – team presentations

Six teams, each focused on one of the thematic areas above, worked together to develop detailed solutions to enhance the climate resilience and water quality of the coastal streams. These solutions were then presented to a panel, which provided feedback on the feasibility and potential impact of each solution. Below are summaries of the six solutions presented:

1. **Climate resilient action planning – developing a nutrient neutrality advisory network to deliver influence, support and advice.**

This presentation focussed on providing farmers with tailored, locally relevant advice on nutrient neutrality, biodiversity, and climate change through a network of trusted, independent advisors. These advisors would offer bespoke guidance, with the support of relevant local and national agencies, but always focused on the specific catchment areas in which the farmers are based.

One key challenge identified was ensuring that engaging with the advisory network would be worthwhile for farmers. This would likely require significant funding and buy-in from the various agencies, to ensure that their advice is aligned. The network would also promote engagement through a combination of workshops, forums, and one-on-one sessions, involving 'translators', acting as information brokers, who could tailor and simplify complex scientific and legislative information in a way that is useful for individual farmers.

The presentation highlighted the importance of having trusted, independent advisors who are not commercially motivated, and who provide advice at a farm scale rather than a landscape scale.

The panel's feedback suggested that, in addition to being farmer-facing, this solution could contribute to the professional development of environmental advisors, creating a community of practice through which knowledge could be shared. The next steps for developing the solution would be identifying known, local, trusted advisors, and securing the buy-in of local agencies.

2. **Improve landowner and land manager collaboration – working together to create a wetland on poor agricultural land to provide natural flood management.**

This presentation discussed improving collaboration between landowners and land managers to create wetlands for natural flood management on suboptimal agricultural land. Creating wetlands for this purpose could help to protect property and prime farmland from flooding and erosion. Other benefits of wetland creation would include soil protection, sedimentation (reducing downstream pollution), carbon capture, habitat creation, and potential improvements to public access to land.

The solution focussed on a range of co-benefits: using poor agricultural land for wetland areas, reconnecting regional floodplains, and 're-naturalising' watercourses, and improving biodiversity.

Collaboration between landowners, land managers, statutory agencies, user groups such as angling clubs, community organisations and local communities would need to be facilitated. Local consultation (e.g., through village hall drop-ins) would play a central role in this.

Funding for wetland projects could be provided through existing government schemes.

The panel's feedback highlighted the importance of linking wetland creation with local nature recovery strategies, noting that identifying the most suitable areas for wetland development would be essential to maximise environmental and community benefits. The panel also mentioned the importance of finding ways to (financially) incentivise collaboration among neighbouring farmers, who tend not to coordinate activities unless there is a particular motivation to do so.

3. **Multifunctional land use advice – producing a handbook and 'coastopoly' game to provide high-quality, practical advice on multifunctional uses of land like agroforestry.**

This solution was a land managers' handbook that would provide practical advice on improving water quality within catchment areas. The handbook would include chapters covering agroforestry, such as fruit and nuts in hedgerows, as well as hedge and field corners, coastal grazing and marsh, alternative food and fibre, creation of wetlands, and the notion of 'the 4%', which is the theory that every farm has a 'worst 4%' of their land which could be used for environmental benefit.

The aim of the handbook would be to provide high-quality, practical advice for protecting the catchment, and to promote practices that supported carbon sequestration, biodiversity, and natural capital while maintaining (or even increasing) food production. The handbook was intended to be used by farmers, land managers, land agents, environmentalists, and non-governmental organisations (NGOs).

Feedback from the panel suggested that including case studies and real-world examples would make the handbook particularly valuable, and would highlight successes and failures experienced by other farmers. The panel felt that the 'coastopoly' game could be used as a tool for wider community engagement, as board games have been developed as deliberative tools in areas such as rural planning.

4. **Upgrading and maintaining domestic septic tanks – local authorities and developers working together to provide a package of replacements, upgrades and quality outlet improvements to septic tanks in domestic settings.**

This team presented a catchment-wide scheme to reduce off-mains pollution and achieve nutrient neutrality in property developments. The scheme could be coordinated by an organisation such as the Rivers Trust, with involvement from a range of experts and suppliers that they would nominate. Local authorities and Natural England would also need to be involved.

The initiative would involve a number of strands: (1) raising awareness about septic tank maintenance, (2) coordinating a register for nutrient credits, connecting developers with septic tank improvement providers and (3) providing maintenance and repairs, upgrading septic tanks to improve water quality and ensure compliance with nutrient neutrality requirements.

The scheme would benefit people who own septic tanks, who would receive an upgrade. Property developers would also benefit as they are often unable to make mitigations for nutrient neutrality, and thus are unable to develop. It would also result in environmental benefits, financial benefits to the property owner and the developer, social and economic benefits to local communities through tourism, and would support those with septic tanks to meet their legal responsibilities not to pollute the environment.

The panel felt that this was a robust solution, but also suggested extending the informational campaign to target off-mains holiday lets. This could consist of an additional educational piece rolled out through holiday homeowners to help inform people who might be visiting the area and using a septic tank for the first time.

5. **Community engagement for catchment health – supporting communities along a river to engage and build a single voice through intergenerational, multifaceted community hubs.**

This presentation outlined a replicable model for mobilising communities to take an active role in improving catchment health, building on the successful CRAG. The model would involve the creation of community hubs within a catchment area, where local stakeholders, including landowners, farmers, and agencies, could come together to collaborate on environmental issues and develop 'one voice'.

The initiative would require a whole-community buy-in to leverage local expertise, build intergenerational stewardship of an area, and invest in a whole area. The approach would be flexible and multifaceted, with some groups focussing on community engagement and communications, others having greater involvement with schools, others focussing on fishing, and so on.

The team felt that any citizen science activity that falls under the initiative would need to be standardised and coordinated by an umbrella group (e.g., the Environment Agency). However, strategies of deploying citizen science could still be determined at group-level, such as a group adopting a burn.

Benefits of the initiative would be significant knowledge exchange, which in turn creates a supportive community, opens dialogue, reduces climate anxiety and can empower local individuals, organisations, farmers and groups to showcase positive activities to their communities.

The panel felt that, often, community groups operated in parallel with landowners and farmers, despite working towards similar objectives. A single community entity focused on a specific environmental issue (e.g., a river, a coastal stream, or local food production) could be a focal point to bring stakeholders together.

6. **Improving catchment-wide coordination – increasing communications between actors in the catchment areas through an online forum for data sharing, collaboration and news**

The final presentation proposed the creation of an online forum for sharing information and data related to catchment health. Many stakeholders, including universities, NGOs, local government bodies, and community action groups, collect data on various aspects of environmental management. However, much of this work, and the data resulting from it, are not communicated widely. A more open approach would deliver efficiencies by avoiding replicating data, facilitating collaboration and sharing ideas, highlighting gaps in data, types of research activities, and areas that are understudied.

The forum – intended to be open access – would enable stakeholders to share their research methods, data, local knowledge, and ongoing projects. It would not be solely focussed on scientific data, but would showcase ongoing work, including citizen science, and share opportunities to get involved.

This solution would be useful to universities, NGOs, local government bodies, and community action groups. It would be locally adopted national infrastructure, possibly delivered through the Rivers Trust, which already have coastal data hubs.

The panel agreed that the forum should collect and showcase locally-derived data, combining citizen science and scientific expertise. The panel also felt that this solution cross cut every other presentation, as the data could inform and underpin approaches to all the other solutions.

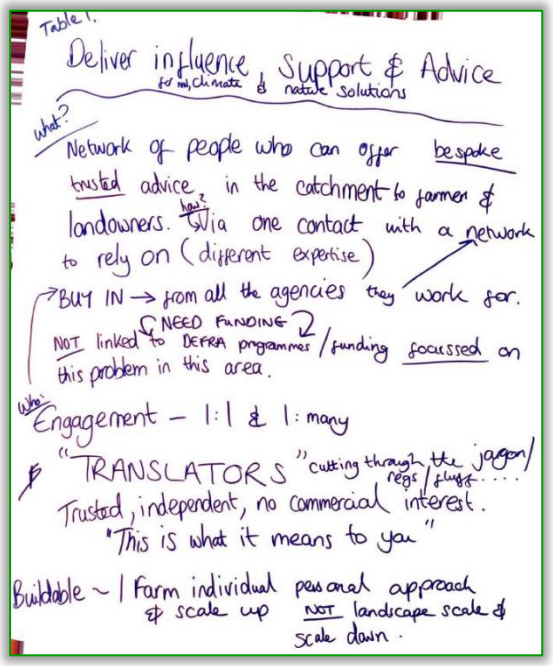
2.1.5. Summary of themes

Overall, as was noted in the webinar, the majority of solutions focussed on the ways in which stakeholders and communities might work better together, through (1) knowledge sharing, and (2) coordinated activities with shared goals.

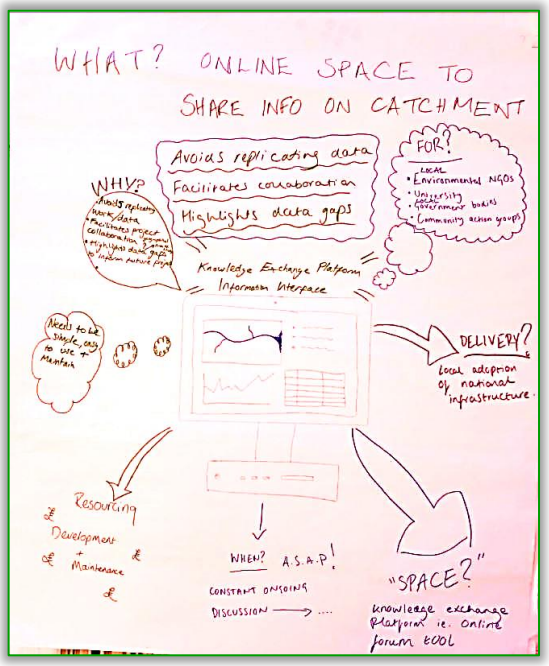
Knowledge sharing was presented as one such approach to improve collaboration between stakeholders, including through networks of trusted advisors. Building infrastructure, like a national forum to host local-level knowledge exchange, was seen as a way to streamline research on catchments. Participants felt that this would empower researchers to share more data, avoid 'reinventing the wheel' where similar research has already been carried out, and also help researchers to identify opportunities to maximise use of data. Knowledge exchange through games, a handbook and informational campaigns, were designed as a way to promote community members and practitioners in the field to make changes in practice and develop environmental stewardship over their local waterways.

The coordination of activities, guided by shared goals, was viewed as a way for organisations involved with coastal streams to deliver influence and advice in a targeted way. One element of this was coordinated incentivisation for activities such as septic tank maintenance and upgrades. Another possibility was to facilitate wetland creation through better collaboration between land managers, landowners, developers, and local researchers or agencies interested in wetlands as a mechanism for improving biodiversity and slowing nutrient run-offs into waterways, thereby maximising the use of poor-quality agricultural land.

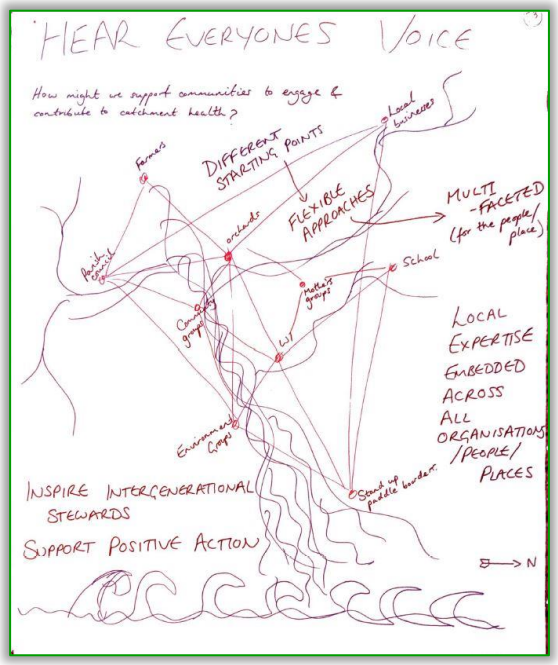
2.1.6. Example team posters



Delivering influence, support & advice through a network of trusted advisors and agency cooperation



An online forum for data sharing, news, project updates and resourcing developments



Catchment-wide community engagement for flexible, community-led catchment health activities

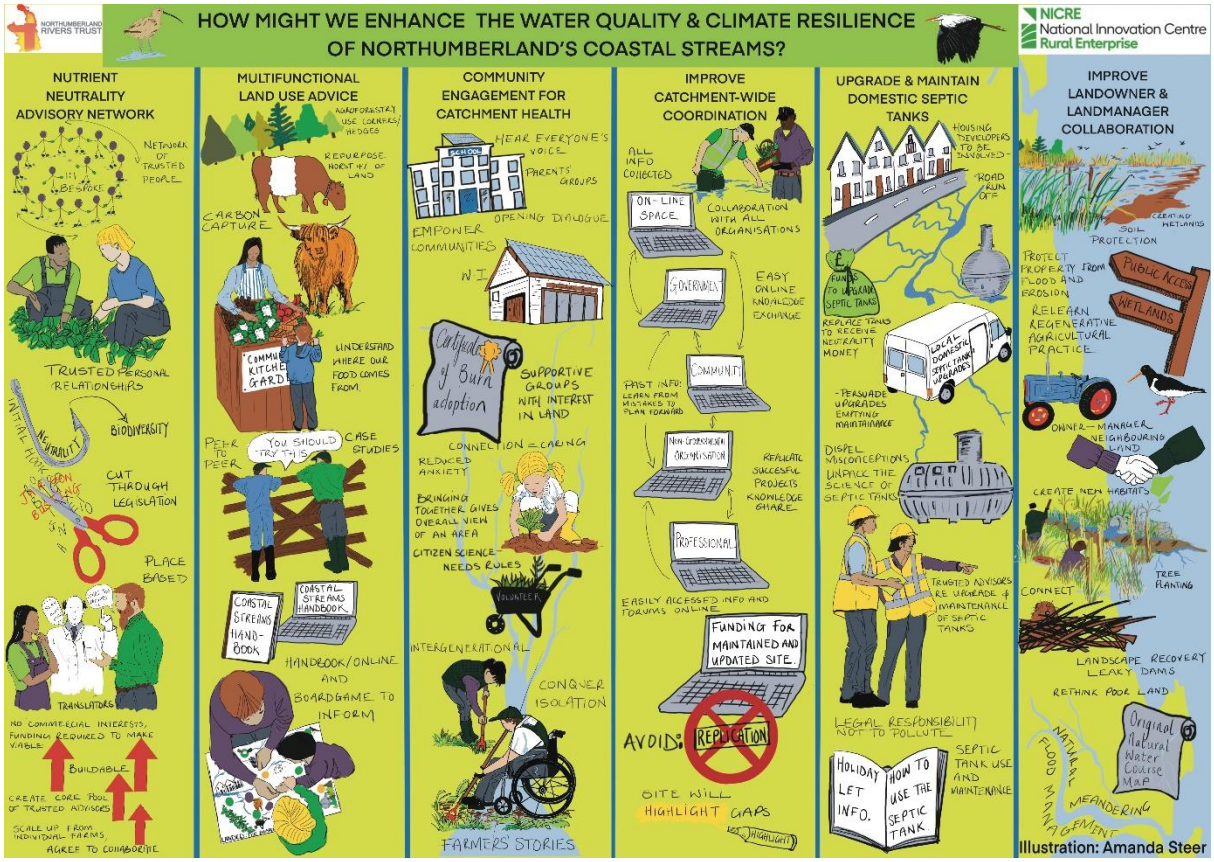
Reducing off-mains pollution through a programme of septic tank replacements, upgrades and an educational campaign

3. Summary and future plans

The Coastal Streams Climathon built upon prior NICRE work to demonstrate the potential of collaborative problem-solving in rural settings. Participants developed a range of innovative solutions to enhance the climate resilience of Northumberland's coastal streams.

There was a clear focus on collaboration, knowledge exchange, advice, and community engagement in all of the teams' solutions. This emphasises the importance of both technical and social innovation, and provides ideas for ways in which stakeholders and communities can work together to drive meaningful change.

The next steps involve continuing engagement with the Northumberland Rivers Trust and the participants to implement the ideas generated during the Climathon. The insights from the event will inform broader strategies at Northumberland Rivers Trust, and we hope that the connections made will deliver a range of funded projects across the county.



4. Acknowledgements

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This Climathon was registered with Climate KIC, a global Knowledge and Innovation Community dedicated to advancing the transition towards zero-carbon, climate-resilient societies.

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