

Place attachment, flood risk and adaptation

FCERM Research & Development Programme
Research paper

Date: January 2023

Authors: Patrick Devine-Wright and Tara Quinn

Keywords:

flooding; coastal erosion; place attachment; adaptation

Research contractor:

University of Exeter

Environment Agency's Project Managers:

Kate Kipling and Peter Bailey

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Acknowledgements

This work was funded by the Environment Agency. It was commissioned by Peter Bailey (Social Science team) and project managed by Kate Kipling (Flood Research team). The material was discussed at an online workshop with staff from the Environment Agency and Defra in May 2021 and informed the drafting of this report.

Executive summary

Flooding and coastal erosion is one of the most significant impacts of climate change. The recently published UK CCRA3 (The UK's third Climate Change Risk Assessment) details the number of ways in which flooding poses a risk to the UK population. While the financial consequences of floods and flood risk have received extensive research and policy attention, it is a more difficult task to fully identify the complex emotional and psychological processes that relate to flood risk perception and response.

For more than 5 decades, social scientists have researched the emotional ties that bind individuals and groups to particular places in the world. This research has focused on the strength of this bond, the different types of bond and the ways in which it can relate to places at different scales. Central to this body of research is the concept of 'home', referring to a place of safety, security and control, and attempts to understand the consequences for wellbeing, identity and belonging when home is threatened or disrupted by events such as burglary, technology projects, environmental change and forced relocation or migration.

Attachment to place of residence is important in feelings of safety and can affect flood risk perception. Strong attachments to residences, towns and landscapes have been found to be related to reduced perception of risk, although findings do vary on this relationship. For populations at risk of flooding or land loss there is often a tension between the risk and difficulty of staying in place, and the attachment to local areas and community. The desire for a sense of safety at home can cause people to reject adaptation interventions such as raised wall sockets and changed flooring, as they can serve as a daily reminder of an external threat that means one's home is not secure.

Public agency action and place attachment both shape decisions to stay in place. Forced relocation following disaster events has a detrimental impact on wellbeing. But the difficulty of rebuilding and interactions with insurance companies and public agencies can also cause distress during and following flood events. Communications with insurance companies can cause people to reconsider their homes where lack of control over household items and rebuilding materials result in their home feeling unfamiliar. Examples of buyout schemes have demonstrated that support from public agencies can help processes of relocation, with consequences for wellbeing and long-term security of residents.

There are several aspects of flood risk management that place attachment research can help to inform. Going forward, further research is needed to understand how place attachment compares with other processes such as financial markets in shaping decision-making for at-risk residents. There is a methodological challenge here in successfully combining different research approaches, philosophies and types of data. Particular attention is needed to more fully understand what public agencies can do to help populations negotiate different types of adaptation through to the most disruptive action of relocation.

Main report

What is place attachment?

In this section, we present some fundamental ideas about place and place attachment that have emerged from research across the social and spatial sciences over the past 50 years.

To understand place attachment is to begin with the idea of 'place'. Place is a concept that is central to a range of academic disciplines, including geography, environmental psychology, architecture and spatial planning. It is multi-dimensional, encompassing material/physical aspects of a given location (for example, topography, geology), social relations (for example, trust among neighbours) and emotional aspects (such as feelings of attachment and identity processes). Places are dynamic, unbounded and politicised, involving multiple and often contested visions and agendas held by different groups and interests. Place is also a way of thinking about the world. Seeing the world in terms of places puts geographical context centre stage when considering policy challenges such as climate change, migration and urbanisation.

Place attachment refers to “positively experienced bonds, sometimes occurring without awareness, that are developed over time from the behavioural, affective and cognitive ties between individuals and/or groups and their sociophysical environment” (Brown and Perkins, 1992: 284). While primarily focusing on the bonds people have with a place, it can also refer to the meanings that people associate with that place, meanings that change over time and are not fixed: What kind of place is it? What kind of people live there? How does it compare with other places? What kind of past or future might it have? There are similarities between place attachment, which has become prevalent within environmental psychology (Lewicka, 2011), and related concepts developed by human geographers such as topophilia¹ and sense of place (for example, Tuan, 1974). Therefore, an array of terms is used to describe the emotional bonds that people hold with places, and there remains no single unified perspective. Instead, many theories and methods can be identified across disciplinary boundaries.

¹ Topophilia stems from a concept used in ancient Greece to refer to 'love of place'

Place attachment is an important concept for several reasons. First, it emphasises the spatial context of people's subjective, lived experiences, which contrasts with approaches or disciplines that overlook context and adopt more abstract or generic perspectives (Clayton and others, 2015). Second, place attachment emerged since it provided a useful way to understand feelings of grief and mourning among 'slum' communities affected by forced relocation in US cities during the 1960s (for example, Fried, 2000), making visible emotional ties to place, often taken for granted in the course of everyday lives (see Brown and Perkins, 1992). Third, psychological research suggests that place attachment is good for you. Empirical research has shown that individuals with strong attachments to place have greater life satisfaction, stronger ties with neighbours, a greater interest in family history and greater trust in others (Lewicka, 2011), as well as an increased sense of belonging, self-esteem and meaning (Scanell and Gifford, 2017).

What makes place attachment especially interesting is that its aspects and consequences are not always as positive as the earlier literature would suggest. Manzo (2014) emphasised that place attachment has a 'shadow side', pointing to the contribution of feminist scholars in making visible how residence places could represent both 'home as trap' as well as 'home as haven' (Cooper Marcus, 1995). In contrast to the Brown and Perkins definition, Manzo viewed place attachments as complex bonds that may be positive, negative or ambivalent and evolve over time, distinct from the more typically positive view of place attachment in the literature as a whole (see Lewicka, 2011).

Research has also shown that place attachments are implicated in social and territorial conflicts (Dixon and Durrheim, 2000) and in the consequences of environmental change. Marshall and others (2012) studied the impacts of climate change on peanut farmers in Australia. The authors concluded that bonds with places that were rooted in occupational identities could be maladaptive (i.e. actions that may lead to increased risk of adverse climate-related outcomes) if they prevented voluntary relocation and resettlement in other areas. Also linked to climate change, research has shown that community objections to the siting of renewable energy projects are often rooted in attachments to place when new technology projects are viewed as spoiling the character of sea, coast or landscape contexts (Devine-Wright and Howes, 2010).

We can summarise these aspects of place attachment in 4 main dimensions. Firstly, place attachments, while mainly positive, can also be characterised by negative feelings or ambivalence (Manzo, 2014). Secondly, people can form attachments to multiple types of places at diverse scales, from the intimacy of a bedroom to a neighbourhood, region or beyond. Thirdly, place attachments are dynamic. While the term can suggest a relatively static phenomenon, in fact it is necessary to view place attachment as a dynamic process that is continually unfolding over time (Devine-Wright, 2014), just as places themselves are said to be in a continual process of change (Massey, 2005). Research on intensity of place attachment reflects the fact that the strength of the attachment bond can vary between people and over time, becoming more or less intense depending on circumstances. Fourthly, people can have attachments to multiple places at once, even if much of the research literature tends to focus on relationships with the current residence

place (Gustafson, 2014). These diversities outline why place attachment is both an interesting and challenging concept for research.

Globally, how we relate to important places in our lives has been both magnified and disrupted by the Covid-19 pandemic (Devine-Wright and others, 2020). The importance of access to outdoor space (balconies, yards, gardens) and changing space use (for example, living rooms as gyms and bedrooms as offices) are ways in which familiar domestic spaces have taken on new meanings and significances arising from lockdown restrictions on mobility, underscored by socio-economic inequalities. Restricted access to nature and public open spaces has challenged people's wellbeing, although there is also evidence that relations with nature and with localities have been strengthened (Soga and others, 2021, Armstrong and others, 2021).

What is the role of place attachment in experience of flood risk across scales?

In this section, we review research on the consequences of flood-driven disruption to homes and, in particular, how interactions with different stakeholders, including public and private agencies, can affect wellbeing and shape decisions on how to adapt to flood risk.

Place attachment, flood risk and adaptation

Risk decision-making is only partially driven by calculations based on probability. The importance of emotions and emotional approaches to decision-making in shaping how people assess risks has been demonstrated across a range of scenarios, including in response to climate-driven uncertainty (Jaeger and others, 2013; Quinn and others, 2018). Attachment (or not) to different types of places and how these places are valued has implications for how related risks are perceived and people's willingness to carry out or support associated adaptation interventions. As Jaeger and others set out in their 2013 book, risk is "a situation or event in which something of human value (including humans themselves) has been put at stake and where the outcome is uncertain" (2013:17). Therefore, understanding the way in which people value places can help us identify when different types of uncertainty are ultimately experienced as a risk that may need to be adapted to.

There is a rich body of research on the importance of home for people's sense of self, and of having a secure place to live in and return to each day. Flood events can cause people to feel anxious and uncertain about their homes, with a significant impact on mental health. In the face of such a threat to residences, and the psychological and financial implications, it would seem rational to take adaptive measures to improve flood resilience. Tim Harries' series of studies on flooding in England and adaptation at the household scale draws attention to the importance of safety and continuity in the meaning of home, and how this

shapes wellbeing for residents at risk of flooding. He describes how flood resilience measures implemented in the interviewees' homes in the form of raised sockets, tiled floors and new furniture make residents aware on a daily basis that their home is at risk. Therefore, the decision not to take adaptive measures reflects a rational desire to maintain everyday wellbeing at the expense of adapting to the possible future risk (and ill-health) of a flooding event. These findings demonstrate how place-related wellbeing can contribute to adaptation decision-making and show that, as well as considerations such as financial and information constraints, emotional processes can shape how people adapt to flood risk.

The stress of having to move home for reasons outside of one's control is well documented in the forced relocation literature. More recent work on hurricane and flood-driven relocation reveals interesting nuances in this process. Work by Koslov and others (2021) on the post disaster context of Hurricane Sandy in the US and decisions by residents to relocate or build back supported by government funded financial packages, shows that the stress of rebuilding can sometimes be greater than relocating. Their work shows that, although the impact of the hurricane on homes and communities resulted in a sense of lack of control, successful buyouts or relocation packages (to nearby areas) contributed to residents re-establishing a sense of control. People who took up buyout options were happier than those who stayed in place and rebuilt. This work echoes findings from New Orleans (Merdjanoff, 2013) after Hurricane Katrina, where people whose houses were completely destroyed reported less emotional distress than those rendered uninhabitable.

Work by Carroll and others (2009) on flood recovery in Cumbria details the influence of interactions with insurance companies on the wellbeing of residents following floods, as much of the impact is related to uncertainty and lack of control over how homes are assessed and furnished. Mulchandani and others' 2019 study of flood and psychological health on flood affected populations in England shows that a lack of insurance is linked to an increased likelihood of negative mental health outcomes. Also, those who reported stress due to interactions with insurance companies had increased odds of probable depression, anxiety and post-traumatic stress disorder (PTSD). While Mulchandani's study does not identify reasons for the negative impacts of interactions with insurers, the Carroll and others' study finds that a lack of control over choices of how a residence is rebuilt and furnished can change the meaning of home, making it feel unfamiliar and having a direct impact on psychological health. Attachment to home often causes distress when it is disrupted during and following a disaster event, with serious consequences for wellbeing. This distress is bound up in the uncertainty about what was previously a domain, over which most residents have a certain amount of control. Actions and policies that can provide security in this context are able to reduce place-related insecurity, with positive consequences for wellbeing.

Ageing and home

In the gerontological literature, there are a number of studies that address how people age in place, especially the importance of place of residence as we reach older adulthood (Peace

and others, 2007; Wiles and others, 2009). Older adults who have a good relationship with place are more likely to experience a sense of control and stronger sense of self. As we age and become less physically able, places of residence play an important role in supporting the achievement of everyday activities, becoming primary living spaces where people spend most of their day (Oswald and Wahl, 2005). This makes disruption to home spaces (for example, in the form of a flood or evacuation from risk) particularly distressing, and can have significant consequences for how people see themselves and their ability to cope with difficult events. This is not to say that all older adults are vulnerable, indeed there is evidence that life experience and direct experience of previous stressors can provide an ‘inoculating’ effect against the psychological impacts of stressful situations (Eysenck, 1983). However, this psychological resilience can be overwhelmed when a personal residence becomes unliveable, or when an individual has been forced to relocate temporarily or permanently following a flood.

In the UK, we have an ageing population, which will bring particular challenges with climate change. While there is evidence on the vulnerability of older adults to heat and flood risk, less is known about their preferences and engagement with different types of adaptation. Given the documented importance of home and place for older adults, further attention is required to understand exactly what adaptation interventions at the household scale improve or are detrimental to wellbeing for this group in the population. Beyond a focus on older adults, there is less research on how experience of home changes at different life stages and what this means for experience of hazards. For example, a household of university students will have a different set of flood risk-related concerns to a family with young children. A more nuanced understanding of home across the life course could inform more effective deliberation and communication approaches for flood risk management.

Transformative adaptation

Currently, much managed retreat and relocation processes prioritise continuity and focus on re-establishing communities in somewhat similar communities or configurations on safer ground. Work by Mach and Siders (2021) and others is challenging this assumption and asks if retreat can provide space for transformative climate adaptation. Their most recent paper states that “Consideration of retreat raises tensions about what losses are unacceptable and what aspects of societies are maintained, purposefully altered, or allowed to change unaided” (ibid, 2021:372). The authors go on to suggest a number of ways in which retreat can be reimagined, and highlight a number of societal goals driving retreat, including economic, disaster risk reduction, social cohesion and environment.

As emphasised in this report, Mach and Siders argue that adaptation planning should consider why remaining in place is a core value, what values need to be maintained, and what losses communities are able to endure. Planning processes that incorporate the attachments of affected populations can broaden the futures that are considered and developed in adaptation planning. Although not directly referred to by Mach and Siders, research on place attachment can contribute usefully in planning for sustainable and healthy

settlements and residents, and can provide useful entry points for engaging vulnerable populations in conversations about planning for the future. An important element of this could be engaging affected communities in conversations about multiple possible narratives of place futures and related identities, and attending to matters of culture and justice in so doing.

The role of place attachment in experience of flood risk: main questions

Does attachment explain why people stay in place despite risks?

Attachments to place can play a role in whether people decide to remain in place in the presence of hazards. Where people do choose to live in areas at risk, the object of risk such as the sea or river can be part of the meaning of a place, and so risks associated with these particular landscapes are to some extent an accepted part of living in that locality (Quinn and others, 2019). A study in the Faro Beach area in Portugal finds that stronger place attachment is associated with lower perceptions of coastal risk (Dominigues and others, 2021). A similar relationship is found in populations located near to volcanoes, where the meaning of the volcano in daily life is bound up with the risks associated with it (Donovan and others., 2012) and may reduce the propensity to evacuate. Being attached to a place therefore has been found in several instances to be related to reduced perception of environmental risks. Reduced risk perception is then likely to impact on preventative behaviours. Research in Somerset gives an indication as to why higher place attachment may relate to lower perceptions of risk. McEwen and others (2017) found that residents who have lived with flood risk for a long time and have directly experienced flood events are also more likely to develop 'watery senses of place'. This is where narratives of place integrate the hazardous aspect of place, building stories of resilience that are also linked to learning to live with uncertainty. Such connections to place are likely to shape how residents receive information about flood risk and their opinions about potential proposed adaptations (McEwen and others, 2017, Kelly and Kelly, 2019).

In terms of returning to at-risk areas, as described earlier and in research carried out in New Orleans following Hurricane Katrina in 2005, it is clear that attachment to place was significant for people returning to the city after the event. Residents described New Orleans as a unique place, and in particular the ninth ward, an area particularly hard hit by the hurricane, was considered to possess a unique bundle of characteristics (Chamlee-Wright and Storr, 2009). The decision to rebuild or relocate is a complicated one, and in their study of returnees to New Orleans, the authors find that the return of important stakeholders like schools, supermarkets and churches are important markers that a community will be viable, encouraging the return of the broader population. The presence of these stakeholders reduces the perceived risk of returning to the city.

Of course, place attachment is not the only driver of risk perception and adaptation decision-making, with other socioeconomic drivers contributing to barriers and opportunities in responding to flood risk (Grothman and Patt, 2005). There is a lack of research directly comparing the role of place attachment to other drivers of adaptation, but there is evidence that place attachment can be higher for long-term residents (Brown and others, 2003) and lower in economically deprived neighbourhoods due to weaker social cohesion (Bailey and others, 2012). However, Chamlee-Wright and Storr (2011) show in their research in New Orleans following Hurricane Katrina, that the role of place and its link to social capital in capacity to rebuild is important for people with fewer financial resources. Their findings provide an insight into how relationship with place, in this case analysed through narratives, can play a varying role in adaptive capacity across different sections of the population.

What is clear is that there is often a tension between place attachment and the risk of flooding/land loss. People are aware of environmental change and experience it through social connections, work and recreation, but are constrained in the action they can take themselves (Lambert and others, 2021). It is a complicated context in which to plan for the future, and decisions to stay in place will be different depending on financial capacity and relationships with community and place.

How does state and public agency action shape household views of where they live?

Action by state and public agency bodies plays a role in how people view where they live, both in proactive adaptation and in response and recovery from flooding.

Increasingly, governments and communities are having to navigate the process of managed retreat. Fairbourne in west Wales is one of the first examples in the UK where public agencies have decided that maintaining flood risk infrastructure is untenable, and have communicated a timeline to residents for the village to be 'decommissioned' by 2054. Seminal place attachment work by Fried in 1963 and 2000 showed how disastrous forced relocation was for communities affected by slum clearances. Looking to the US response to climate-driven managed retreat, there are multiple examples of relocation processes and buyout of at-risk or flooded properties. Following Hurricane Sandy, many households took up government buyout schemes. Research shows that those who relocated or lived in areas with buyout options experienced less stress than those who built back in place. Rebuilding, and all the additional stressors that come with it, including temporary relocation, managing construction and dealing with insurers create stress around an individual's home. Given the research that demonstrates the importance of home in feeling secure and in control, it is not surprising that the uncertainty involved in rebuilding is associated with stress, which can be reflected in mental health years after the event (Mulchandani and others, 2019). This work shows that, in certain circumstances, managed retreat that is carefully planned, financed and co-created can reduce some of the distress-associated forced relocation.

As Kelly and Kelly suggest in their 2019 Environment Agency report, where loss is certain, and keeping places the same is no longer viable, what successful adaptation may look like is a complicated challenge. Public agencies and insurers can help provide clarity and consistency during a period of significant uncertainty. Place-based distress is closely linked to power and autonomy over how flood events are described, and the ability of residents to shape future plans for managing risk (Askland and Bunn, 2018). During flood events homes become to a certain extent public spaces (during evacuation and recovery), and sites of contest in negotiating with other stakeholders. The stress of dealing with recovery, insurance agencies and replacing items is a long process as well as living with the uncertainty of potential future flood events. Action by public agencies, such as guidance and financial support can provide some certainty for affected residents, shape how people feel about their homes and communities, and, importantly, contribute to levels of wellbeing.

Place meanings and flood management

As mentioned, place attachment encompasses both the emotional bonds people have with a place and the meanings associated with that place. These meanings are always changing and can be disturbed by events and how those events are managed. If places are labelled using negative language and narratives, in effect, stigmatised by institutions or the media as part of managing and responding to environmental hazards, people who have strong and positive bonds with those places can react negatively to this. Such labelling could include using narratives that present the place as inherently 'bad' in terms of being dangerous, hazardous or polluted.

For example, research conducted in England during the 1990s showed that people with strong local ties resisted attempts by the European Union to label a local beach as having low levels of water quality (Bonaiuto and others, 1996). The psychological mechanism identified in the research was the need people felt to protect identity processes – in effect, to conserve self-esteem associated with a cherished place in the face of an external threat.

The main lesson for flood management and managers is to avoid labelling certain places, if at all possible, 'from the outside'. An important part of working with place-based communities should be to engage with them to identify how those residents view and talk about their own place; what meanings, memories or histories are associated with it, and what are the potential futures for the place. Only following this should any labelling take place, and in ways that are open to consistency and continuity of meanings if at possible, to minimise any sense of threat.

Are there differences between homeowners and tenants in responding to risk?

This is a complicated question when considering place attachments. There are, of course, different financial commitments between renters and homeowners, but this is not necessarily reflected in types of attachment to place, as renting is not always by choice.

Structural constraints such as high property prices may prevent individuals who are attached to a location from buying a house there. They may prefer to rent in the place that they feel attached to instead of buying a property elsewhere, despite potentially higher financial costs. Therefore, assuming different kinds of place attachments purely on the basis of tenure is simplistic.

There is evidence that second homeowners tend to have different types of attachments to their home and area than long-term residents. Higher level attachment in this population has been found to be associated with lower levels of environment risk perception. Rey-Valette and others (2015) show that in the south of France second homeowners are less likely to perceive flood risk than people who have lived in the area a long time. It is not identified in this study why second homeowners perceive lower levels of risk, but work by Stedman (2006) in lakeshore settlements in the US has shown that second home owners tend to think of places differently to the local community. For example, in their study, year-round residents' attachment was more rooted in social networks and community, whereas for second homeowners, attachment was more linked to the environment, beauty of the location and escape from day-to-day cares. Such differences in place meanings may shape how risks are perceived, as different sets of values will be threatened by floods and other hazards.

How can place attachment research contribute to flood risk management going forwards?

Given projected climate change and anticipated increases in the number and extent of floods, governments and communities are faced with stretching limited resources further and further. Extending flood risk management beyond financial metrics is difficult, but research on place attachment and other social processes suggests that a more holistic approach can lead to effective and sustainable planning decisions (Adger and others, 2021). We highlight here some interesting future areas of research developed from our review of the literature and a webinar with representatives from the Environment Agency and Defra.

How do financial market conditions shape householders' preparations and response to flooding compared to other factors such as attachment to community and locality?

This is an interesting question given that most policy around flood risk management is framed by financial considerations. A direct comparison may be challenging, requiring the interpretation of findings from qualitative as well as quantitative research, but examining how financial markets relate to and interact with place attachment for at-risk populations will give a deeper understanding of the opportunities and barriers for households to make effective adaptation decisions. This research has yet to take place.

How can we consider place detachment or relocation?

This is an area of research that is gaining increased attention. In particular, work by AR Siders in the US is exploring how relocation can possibly be framed and operationalised as an opportunity for transformation for affected communities. The role of public and private agencies is crucial in how residents will experience relocation. Future research could consider the best mechanisms to support discussions and action on relocation in the UK. Building on insights from place identity theories (that is, ideas about preserving a sense of continuity, distinctiveness, self-esteem, self-efficacy and belonging over time, irrespective of disruptive events) could be informative here.

How does place attachment at different life stages affect preferences for adaptation?

There is evidence that place attachment changes across the life course, with most research focused on young people leaving home and place in older adulthood. Broader research on place attachment shows that how people use their residences and local areas shapes their attachment, and the meaning of local areas change if, for example, you are a school student, a new mother or an older adult. Assessments of vulnerability to flooding tend to focus on financial metrics, with some attention on social indicators. Investigation of relationships with place at different life stages, what households need from their home and local area and, therefore, which aspects of their lives are particularly vulnerable to flood risk, could generate more detailed knowledge on attitudes and behaviour towards flooding across different groups within the population.

How could communities and agencies draw on the concept of settlement identities to enable relocation with minimal threats to place-related identities?

Settlement identities refers to stable beliefs that some people come to hold about the type of person that they are, in relation to where they live and have a connection to (Feldman, 1990). One example is when a person declares that they are a 'city person' who enjoys the buzz and noise of urban living. Another example is a 'sea person' who enjoys living in coastal environments for leisure activities or livelihoods. As a first step, engagement activities could be designed with residents and communities, to identify and take account of these settlement identities in scoping potential solutions such as managed retreat. If this was to occur, more beneficial outcomes may be possible that are less disruptive to the health and wellbeing of individuals involved, and less likely to threaten identities.

Conclusion

Where people's sense of home is concerned, it is clear that understanding emotional responses to environmental risk is necessary to better inform management and

communication of flood risk. Work by the Environment Agency and Defra already considers the psychological construction of risk, and consequences of flood events. In this report, we go beyond this, to emphasise a place-based perspective that focuses on relations with place as a foundation for understanding people's feelings of safety, security, identity and belonging. In some instances, the role of place informs behaviour, and certainly contributes to wellbeing for at-risk populations. This research shows that a focus on rationalist, economic policies is insufficient to fully address how residents perceive and manage risks. Going forward, opportunities to develop new methods and metrics that more fully capture the lived experience of risk in place will contribute to a more holistic understanding of how individuals and communities are choosing to respond and adapt to climate-driven changes in the places they live in. For agencies and governments working with populations at risk of flooding, place-based research and engagement can provide a more nuanced and comprehensive approach for communication of risk and for adaptation planning.

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