Reconciling place attachment with catchment-based flood risk management: What can we learn from film?

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Abstract

A catchment-based approach to flood risk management (FRM) is gaining prominence in the United Kingdom. It is undertaken with wider awareness of multiple stakeholders, as part of a catchment scale understanding, and, as with other approaches, can visually re-shape place. Land cover and land management change at this scale also has the potential to reconfigure landscape values and place attachment. Researchers have used qualitative, quantitative and mapping approaches to understand place attachment. Here we explore secondary data, specifically, we transcribe and code the stories of five Mytholmroyd, West Yorkshire residents from the short film, *Calder* about the December 26, 2015 floods. We find place attachment, identity and social capital are interconnected and feature strongly in the

mitigation and prevention phase, post-disaster. Our findings suggest better understanding of place attachment can support a more catchment scale approach to FRM policy and practice.

1. Introduction

> "First it was the messengers with their tears of mizzle, then a moor gallop and the sound of a horn. Veins of water cascade from moor to valley where canal and river are wed. Down it came. It was kelching, hossing, henting, plothering, siling, teaming, raining. It was raining." (Opening narration of *Calder*)[1]

Flooding is a significant threat in the UK and climate change is projected to increase the intensity and frequency of winter and summer storms increasing the exposure of communities, farms, businesses and infrastructure to the risk of flooding (Thorne, 2014; HM Government, 2016; CCC, 2017). A national government response to increased flood risk has been to foster solutions at the catchment scale which contrasts to targeted single investments on a river reach and to cross-catchment basin scale management under the European Union's Flood Directive 2007/60/EC. The catchment scale is the smallest geographic unit of the nested scales of Environment Agency river management (River Basin District, Management Catchment and Operational Catchment).[2]

In 2013 the Department for Environment, Food & Rural Affairs (DEFRA) launched the Catchment Based Approach (CaBA) which "embeds collaborative working at a river catchment scale to deliver cross-cutting improvements to our water environments".[3] CaBA necessarily reinforces a focus on people in their catchment and reminds authorities and

[1] This poem is the opening narration of *Calder*. It is written by and spoken in *Calder* by Paula Sutherland.
[2] See the Environment Agency's Catchment Data Explorer, https://environment.data.gov.uk/catchment-planning/
[3] See the Catchment-Based Approach website, https://www.catchmentbasedapproach.org/about

researchers of the centrality of place and community, what Carbaugh and Cerulli (2013:5) describe as their emplacement "somewhere, not just anywhere", in FRM discussions. It also highlights a critical role for social capital in disaster recovery and resilience (Cai, 2017) which Aldrich and Meyer (2015) argue is often neglected by authorities who preferentially invest in levees and other engineered flood control infrastructure.

In cases where restoration of natural defences or working with natural processes (WwNP) shows potential to adapt to environmental change, local communities can hold essential local knowledge and understandings of interconnections between social, economic and cultural foundations of the vitality of place(s). In other settings, communities with strong place attachment have had a central role in new industry development, e.g. coal seam gas, and environmental change policy, e.g. coastal restoration (McCrea et al., 2016; Burley et al., 2007). Given a legacy of failed flood defences and lack of confidence in agencies (Cologna et al., 2017) new approaches to FRM will require new ways of working with flood-prone communities, that otherwise might resist adopting measures that visually change landscape and place. In a different context, Davenport and Anderson (2005) found attitudes towards landscape change in communities in Nebraska were dependent on the type of changes and not change per se.

Considering funding is limited and as adaptation to climate change will, in many cases, be localised to particular places, policy makers and planners need to understand this local scale in order to support local adaption. In some cases, this may involve supporting processes of detachment. Agyeman et al. (2009: 509) argue that as climate change disrupts people and places, and leads in some places ultimately to managed retreat, it is important to understand not only the "*physical* aspects of relocation….(but also the oft) neglected important

psychological, *symbolic*, and particular *emotional* aspects of ….'place attachment'". Understanding how to do this sympathetically and practically is a challenge for FRM policy and practice.

In arguing for a better understanding of place-based relationships to support environmental planning, Lin and Lockwood (2013) developed a conceptual framework that identifies three core sources, each of which has several dimensions, that together describe sense of place. Of interest for this paper is one of these core sources, sense of place, where emotional attachment is associated with identity, and functional attachment is associated with place dependence, see Table 1. The authors evaluate different research methods and conclude that neither qualitative interviews nor photo elicitation allows a full understanding of sense of place. Therefore alternative methodological approaches or a mixed approach is required.

Table 1. Source and dimensions of sense of place (Lin and Lockwood, 2013)

Core sources	Dimensions
1. Place characteristics	a. individual physical features b. locality with multiple features c. associated historic events d. multiple localities with physical features and/or histories in common
2. Responses to place	a. sensory response b. social experience c. cultural association d. biophysical appreciation
3. Sense of place	a. emotional attachment: presence b. emotional attachment: relative strength c. functional attachment: presence d. functional attachment: strength

In this paper, we are interested in reconciling place attachment with catchment-based FRM. The ecosystem services (ES) approach has attracted widespread policy interest as it aims to connect natural ecosystems and the ES flows they support with human wellbeing (MEA,

2005; Fisher et al., 2008) of which flood attenuation is a key element. Chan et al. (2012a; 9) focus on cultural ES (CES) and describe a more active relationship between natural ecosystems and human wellbeing, where "*services* are the production of *benefits* (where benefits may take the form of *activities*), which are of *value* to people". These activities might be subsistence activities which themselves may be culturally valuable (Chan et al., 2012a) or activities around collaboration, negotiation and celebration (Bark et al., 2016; 2017). Better understanding of activities and their connection to place attachment, might suggest ways to engage communities in FRM.

Bark et al. (2015) used Chan et al.'s (2012a) categories of benefit to identify which cultural benefits/activities of importance to members of the Ngemba Ngemba Aboriginal community in New South Wales, Australia, are being met by water plans. Each benefit category was considered in water planning but the community had aspirations for more co-management, capacity building and knowledge sharing to achieve each. In a different context, Bark et al. (2016; 2017) used the categories to track cultural benefits during a 2014 river restoration event in the Colorado River delta in Mexico. The analysis highlighted the sequencing of different cultural benefits, pre, during and post restoration.

Somewhat obscured in the application of the Chan et al. (2012a) benefit categories is the inherent challenge of finding relevant data. Bark et al. (2015) overcame this data challenge using a mixed approach with interviews and photo elicitation and data for Bark et al. (2016; 2017) comprised in-person interviews, newspaper articles and blogs. Others have used informant-directed interviews or questions that explicitly did not follow the ES framework (Horton et al., 2016; Bieling et al., 2014). Satterfield (2001) writing on different techniques to elicit stakeholders' values of nature finds that indirect elicitation tasks provide stakeholders

opportunity to articulate a broader range of values. An objective in using the film *Calder,* a 30-minute film[4] shot in 2015 and 2016, by filmmakers Geoff Brokate and Paula Sutherland, as a secondary data source was the desire to find data on place attachment of flood-prone communities, where the voices of local people are not framed by the researcher's questions. As a collection of stories, *Calder* allows those in the film to express their "sources and forms of sense of place" (Lin and Lockwood, 2013: 1445) "in their own words" (Davenport and Anderson, 2005; 629).

In the sections that follow, we describe the data and the adaptation of the Chan et al. (2012a) framework. We then discuss what insights our case study has for advancing catchment-scale FRM, concluding that place attachment can support intervention policy and practice at this scale through CaBA.

2. Method

This section is divided into a description of the research process, data and coding protocol.

Research process

The research reported in this paper was not planned, rather, the first author followed a research process of exploring unplanned events. Krumboltz's Happenstance Learning Theory (HLT) developed for career advice, proposes that unplanned events can be planned. Here, the three steps in HLT were applied to the discovery of an artist-researcher collaboration:

1. "Before the unplanned event, you take actions that position you to experience it.
2. During the event, you remain alert and sensitive to recognize potential opportunities.

[4] See *Calder* here, https://vimeo.com/162076350

3. After the event, you initiate actions that enable you to benefit from it." Krumboltz, 2009: 144).

In research, similar steps of curiosity, receptivity and follow-up apply. Step 1: Walking is recognised as a method in urban geographical research (Pierce and Lawhon, 2015) and as a cherished activity in relation to emplacement (Carbaugh and Cerulli, 2013). Curiosity about place was piqued when the first author walked in the Calder valley, West Yorkshire, prior to the 2015 floods. After the floods, (June 14 to 20, 2016) the first author walked the long-distance footpath, The Dales Way, which traverses the Calder catchment.

Step 2: Receptivity to the idea of researching cultural benefits in the Calder catchment was kindled during unstructured, un-noted conversations with other walkers and residents. Listening during these encounters, in what is a subtle form of elicitation (Satterfield, 2001), revealed that people openly discussed the benefits they receive, and the values they attach to the catchment. A question arose about how to collect such information.

Step 3: An openness to exploring secondary data, including more novel forms of data, led to a discussion about artistic expression post-flood with The Chair of the Upper Calder Valley Renaissance organisation, Mr. Stephen Curry. He recommended *Calder* to the first author and provided an introduction to Paula Sutherland. A week later, an interview was arranged (October 15, 2016) at which the making of *Calder* was discussed. In follow-up meetings Paula Sutherland alone was interested in a possible research collaboration using *Calder* as data and insights from making the film to explore CES.

Data and coding

In September 2015 the filmmakers were commissioned, and funded by, Mytholmroyd Arts Festival, to make a film about the *community* of Mytholmroyd. In response to this brief, the filmmakers asked three questions: *What is community? Where is community? Who is community?* and talked to Mytholmroyd residents to understand place and their stories. The events of December 26, 2015 led the filmmakers to focus the film on a community that had lived through a flood. *Calder* features the personal stories of five Mytholmroyd residents who agreed to share their story.

PageSix Transcription Services Ltd transcribed *Calder*. This transcript then formed secondary data. Coding is a qualitative method used to identify themes in a text (Corbin and Strauss, 2008; Bernard and Ryan, 2010). The first author coded phrases, from words to sentences, in the transcript and for quality control repeated the entire coding exercise.

Following Chan et al's (2012a) benefit categories, a coding framework was chosen to understand *Activity* (Ac), *Aesthetics* (As), *Employment* (Em), *Existence/bequest* (Ex/B), *Identity* (I), *Inspiration* (Insp), *Knowledge* (K), *Material* (M), *Option* (O), *Place/heritage* (P/H), *Social capital and cohesion* (SKC) and *Spiritual* (Sp).

The coding scheme mapped well to the data, however, through observation of the transcript, we added a new code for *Time* (T) and, following Bark et al. (2015), for *Aspiration* (Asp). To enable a more nuanced understanding of these benefit categories sub-codes were developed drawing on three of the five discourse hubs – action, emotion, and relating – of cultural discourse analysis (Carbaugh and Cerulli, 2013). Examples are *Activity*-thanks and *Spiritual*-loss, where the latter shows that benefits can be negative. The identity and dwelling discourse hubs were unused as they are explicit in the *Identity* and *Place/heritage* core codes. No sub-

codes were developed for *Aspiration, Existence/bequest*, *Knowledge, Option* and *Place/heritage*.

The individual stories in *Calder* follow a narrative arc with a beginning, middle and end. The authors divided the transcript into these three phases which mirror phases of a disaster, from emergency response and recovery, through rehabilitation and reconstruction, and finally to early considerations around prevention, mitigation and preparedness. The code data by phase was normalised to account for the length of each phase (16, 6 and 8 minutes of film, respectively) and the associated number of codes (61%, 15% and 24%, of the total).

3. Results

The results consist of counts of core and sub-codes by narrative arc and association between codes, specifically with *Identity, Place/heritage* and *Social capital and cohesion*. Quotes from the transcript, coded for a code/sub-code are highlighted in grey.

The coding framework fit the data with each code used at least once. Sub-codes accounted for all coding for *Employment* and *Material*, i.e. the sub-code modified the meaning of the core code, e.g. *Employment*-volunteer, and *Material*-loss:

> "You know, we lost a washing machine, we lost a fridge/freezer, we lost other things, but it's the things you can't replace."

Whereas, for the *Activity, Aesthetic, Identity, Inspiration* and *Spiritual* codes the sub-codes provide greater detail. For example, the *Aesthetic* code had two sub-codes, visual and audio. In some instances, the *Aesthetics*-audio sub-code was positive:

"And you can, you... There's been summers that I haven't eaten inside, I'll just sit out here every meal. You can just sleep out here. Sound of the river, bats, fantastic."

and in a number of cases, the absence of sound was also coded with the *Spiritual*-unease sub-code:

"It was deadly quiet, you can imagine, just eerie, an eerie kind of silent outside, but you could hear the water."

The most coded code, *Activity,* in the first phase was for rescue, clean up and thanks.

"And I was working alongside some housewives from Slough, they'd travelled up from Slough, and some men from Gainsborough, they'd come up. They'd heard about it on the news and they'd come up to have a look that morning, started off at six o'clock. …because if it hadn't have been for these people the estate wouldn't be like it is now."

As well as those patrolling the town (at night):

"There were all the different biker groups from obviously around West Yorkshire and further that just came and did night patrols, on foot, a lot of them, and it were cold."

Relevant to the final phase of a disaster, the five residents speak of the 'work' of memory and change recognition:

> "But I live right next to the river which some people might think's not good but living right next to the river I can see what it's doing and I'm out the building this time, you know, like I know exactly when it... Like I'll see it and I'll know when it's going to flood. It's just tales of yore that it wouldn't flood and now we know."

The normalised data displayed in Figure 1 by phase in the narrative arc focuses attention on different coding combinations and absent codes. The two most coded codes by phase, *Activity* and *Spiritual*, *Activity* and *Place/heritage*, and *Identity* and *Social capital and cohesion*, respectively, illustrate the changing nature of benefits as the film proceeds from disaster response through rehabilitation to prevention. Further, *Time* was only prominent in the first phase, the telling of the disaster, where it was highly specific, e.g. "it was a quarter to ten in the morning". This time specificity is resonant of that portrayed in University of Manchester's Professor Stephen Bottom's one-man storytelling performance, *Too Much of Water*,[5] which is also about the same December 26, 2015 floods, but in Shipley, West Yorkshire.

[5] *Too Much of Water* was first performed at the Saltaire Festival, Shipley, West Yorkshire on September 10 and 11, 2016.

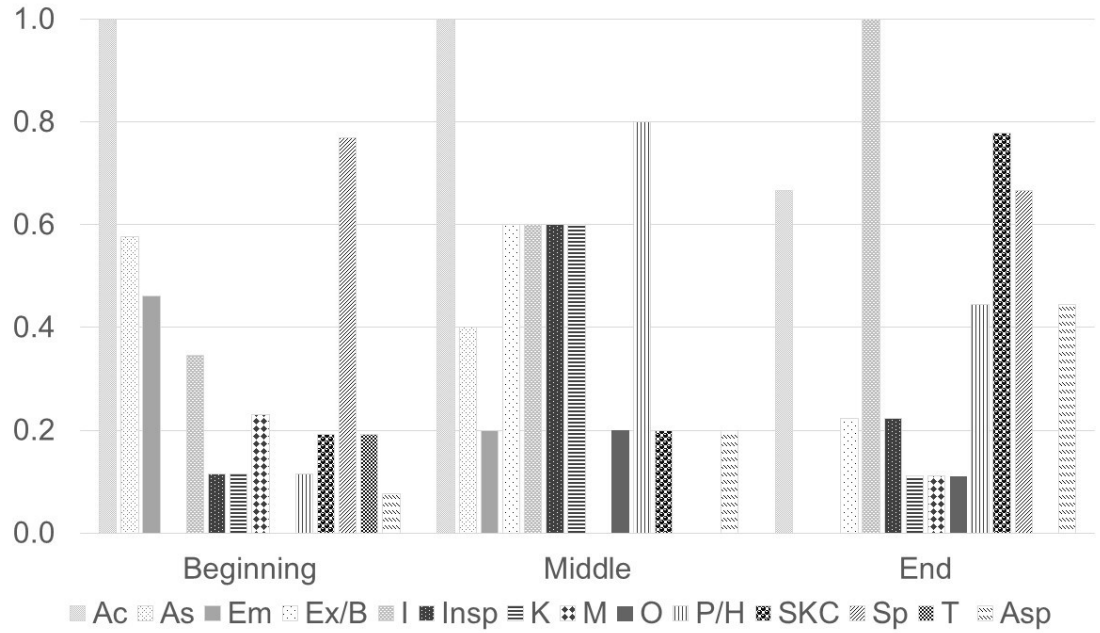

Figure 1. Normalised data showing CES benefit coding by narrative arc. CES, cultural ecosystem services

Running through the five stories, are expressions of *Social capital and cohesion*, framed as community identity and pride, and of *Inspiration* received from the river and its catchment.

> "People pay hundreds, maybe thousands of pounds to come and rent a cottage round these places just to do what I can do by just leaving my front door; I feel very proud to live in Mytholmroyd."

Exploring this further, Figure 2 shows the combinations of codes, including sub-codes, with respect to *Place/Heritage, Identity,* and *Social capital and cohesion* (P/H, I, SKC). The line thickness shows the strength of the association between codes. All three codes are most strongly associated with each other and then with *Inspiration. Social capital and cohesion* is strongly associated with the *Activity* of preparedness and with *Aspiration* for the future.

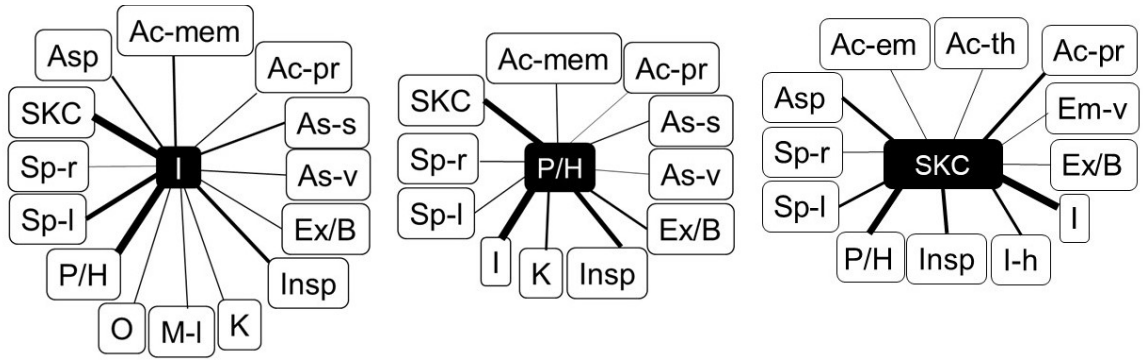

Figure 2. Identity, Place/Heritage and Social capital and cohesion interactions with sub and core codes (width of line shows number of phrases coded)

Bieling (2014) who used stories in CES research about landscape in Germany also found Identity is connected to sense of place, inspiration and aesthetic (beauty). However, here by examining Figures 1 and 2 we can see how place attachment shifts from focus on actual *Place/heritage* to one on *Identity* and *Social capital and cohesion*.

4. Discussion

This section is organised around four themes, place attachment, social capital (and cohesion), reconciliation of place attachment with CaBA and film as secondary data.

Place attachment: Amsden et al. (2010: 32) note that "place attachment can serve as a factor in the development "of" community, defined as a heightened engagement in collective actions that help people meet their day-to-day needs. It could also influence one's development "in" community, directing the behaviors that affect how people both participate in communities and seek to change their position within them." We find evidence from all five residents that their place attachment was central to their understanding of their development "in" community. Furthermore, for one, it galvanised personal growth and their

development "of" community through their new flood warden position, see Figure 2 P/H –I and p/H –Insp (*pers. comm.* Paula Sutherland). [6]

> "Now, for me, I do believe the floods were the kick-start, that's what I needed to kick start my self-confidence going, because I was always ready but not ready and when the floods came I thought, "Something needs to be done," and I thought, "Just go with the flow," I didn't even question, "What are you doing?" because whatever you're doing's... "You're doing alright here, kiddo, just carry on doing.""

This experience suggests that flood risk managers need to recognise and provide opportunities for residents to act on this imperative arising from strong place attachment. In another setting, Hinojosa et al. (2016) find that high-mountain farmers in the French Southern Alps with strong positive place attachment have lower land abandonment than other mountain farmers. They suggest that policy could support individuals and community activities and in so doing support farming permanence in marginal environments for the betterment of those environments. Analogously grant funding and policy, including flood insurance policy that supports flood proofing of homes, businesses and infrastructure and local flood risk reduction activities (Surminski, 2015) could contribute to the longer-term resiliency of flood-prone communities.

Surviving and living with hazard can reinforce place attachment (Burley et al., 2007). Mytholmroyd is an at-flood-risk community; it has an extensive history of flooding, with 42

[6] Flood wardens are the first line of a community's defence in a flood hazard situation charged with preparing the community, warning the community prior to a flood and coordinating with first responders during a flood incident.

flooding incidents recorded in Calderdale by the Environment Agency[7] since 1900. Yet we find that strong place attachment preceded hazard experience:

> "It's that sense of community matters, that sense of belonging matters. …. "This is why we live here". And that's a huge part of why people stay and why people move to this area, because a lot of places don't have it and we've always had it but it's just getting better and bigger."

Policy makers must understand this distinction for policy development, for instance in prohibiting floodplain development, accepting that the conditions for strong place attachment – identity, social capital and cohesion and inspiration – might be absent and without which such communities are more vulnerable. Equally, policies of managed retreat or abandonment in communities of belonging may undermine social fabric and support for agencies.

Social capital (and cohesion): Aldrich and Meyer (2015) describe three types of social capital. Bonding and bridging social capital describe the connections between homogenous and heterogeneous groups, respectively. Critical to building or reinforcing relationships for preparedness is the third type, linking social capital that connects individuals with government officials and elected leaders. Residents in communities with strong place attachment are motivated to work for the community and to adapt to future flood risk. In *Calder* the residents discuss bonding and bridging social capital in the recovery phase of the disaster, i.e. helping their community (bonding) and in describing the help they received from outside groups for clear-up and patrolling (bridging), see Figure 2, SKC–EM-v and SKC–I-h. We also observe that, linking connections between residents and those in power began in the

[7] See http://eyeoncalderdale.com/history-of-flooding-in-calderdale

disaster response phase, when residents worked with emergency services personnel to evacuate vulnerable residents. These positive examples of community-authority working built trust, later strengthened through engagement with regeneration plans, see Figure 2, SKC–AC-em, SKC–AC-pr, respectively; which Aldrich and Meyer (2015) propose is another approach to increase social capital.

> "And the future plans what the councillors and what Royd Regeneration have got going for Mytholmroyd, it's going to be a very exciting place to live, *very* exciting, I feel proud to be part of it, I do."

Whereas, the impetus for linking social capital in the literature is often from communities building ties with authorities, we believe it is also important for authorities to proactively improve their engagement with flood-prone communities. The Calderdale Council disseminated community-level information, through the *Flood Recovery Update – Mytholmroyd* (Calderdale Council, March 2016) on: volunteering opportunities; how to engage with longer-term adaptation through local flood groups, the flood warden programme and in river stewardship; and how to access local authority administered national Community Recovery Scheme funds and grants (Priestly, 2016). The objective was to speed up recovery and to facilitate the return of displaced residents and businesses. Other policy recommendations to build linking social capital from Aldrich and Meyer (2015) are to support community efforts around time banking – where time becomes a community currency that can be exchanged around a shared purpose, e.g. flood recovery – and social events. Along these lines, the idea of re-opening of the flooded Mytholmroyd Community Centre was significant to one of the residents:

"I think the day we reopen will be a good party, definitely. And we've still got the 1970s disco ball which is the heart of the centre to be re-hung on the opening day."

Reconciliation with CaBA: There is a tension between the scale of the personal stories in *Calder* and the policy shift to catchment-based FRM. Reconciliation of these scales likely requires new ways of working and engaging with the public(s) as is being trialled through CaBA partnerships. We suggest consideration of this catchment scale is less of a cognitive shift after the floods. The floods have demonstrably reminded residents of the hydrological (and social) connection of 'their' river with its catchment. In *Calder*, there are signs of an appreciation for the need of a new approach to FRM:

"…my appreciation of the power of water, that's something I didn't understand, you know, just you can't stop it. It'll go where it goes, you can't stop it, and if you try to stop it... You know, in a battle between us and the river the river will always win, you know, and that's not just... You know, however many flood defences you build, you know, whatever you try to do, however you try to divert it, if the water wants to go, the water will go, *and we have to find a way of living with it*." (our emphasis)

CaBA provides opportunity to embed budding post-flood linking social capital into policy and practice. The approach encourages communities, interested groups and the authorities, to engage, partner and collaborate, not only around issues of FRM, but also around other issues of important to communities, such as biodiversity, recreation, and regeneration. This is where CES research is valuable in that it emphasises a more active relationship with nature and can illustrate the types of local activities that can support CaBA. For example, residents can become involved in *Activity* such as Citizen Science surveillance of river levels and drains for

blockages, as well as sharing local *Knowledge* about lessons learned, the antecedents of previous floods, vulnerable community members, or those temporarily or permanently displaced by the flood, i.e. to better understand thresholds of displacement. Residents can also offer their volunteer *Employment* for WwNP initiatives. Supporting such activities and knowledge transfer with funding, training and partnership working in the periods between floods could grow linking social capital. Furthermore, such activities could build bridging social capital with other at-risk communities within a catchment and across catchments, e.g. with Shipley on the River Aire, enhancing a more coordinated approach to adaptation.

Putting "what people need", at the centre of new ways of working was a centrepiece of the independent and comprehensive review of the lessons learned from the widespread UK floods in summer 2007 (Pitt Review, 2008: see figure page viii). We believe film can be a poignant communication medium that can engage authorities in "what people need" and moreover can provoke emotion and engagement (Burke, no date; Edwards et al., 2016) in the emotional and psychological aspects (Agyeman et al., 2009) of trauma, recovery and resilience. Indeed *Calder* was screened at the Fifth International Festival of Public Health, University of Manchester, July 1, 2016. It can also engage new leaders and researchers in the emotional aspects of flooding, e.g. at the University of Bradford since 2016/17 it has been a case study in the BA Peace Studies and International Development and in 2018/19 was added to the new MA Peace, Resilience and Social Justice.

Film as secondary data: There are many genres of film. *Calder* is an example of community filmmaking that is sensitive and sympathetic to the subject matter. Trust is an essential element of the process of community filmmaking. The filmmakers spent time getting to know people and place. Furthermore, unlike the immediacy of news, which often sensationalises

disasters and focuses on blame-gaming (Cologna et al., 2017) and the first phase of a disaster, residents featured in *Calder* had time to reflect on their and the community's experience of the flood, its aftermath and future plans and therefore film may provide a more reliable data source. Further, there is an emergent appreciation of narratives in creating "vivid, compelling and accessible" science communication for the public and policy makers (Coates, et al., 2014: 37). *Calder's* narrative reveals values that were previously implicit (Kenter et al., 2016: 270), around humanity, gratitude and the work 'of' and 'in' community, as well as deep connections to place.

Film, art and humanities more generally are recognised as approaches important in understanding community (Coates et al., 2014). Key to this research, *Calder* reveals stories of place attachment in a disaster-affected community that might otherwise not be forthcoming through other types of researcher-subject interactions (Cai, 2017). Indeed other CES researchers have collaborated with artists (Edwards et al., 2016).

Furthermore, more participatory approaches to CES research are time consuming and costly (Kenter, 2016) and with film the researcher is another observer and cannot bias the 'collection' of data. Of course, the researcher does choose which film to use as data and the voice of the filmmakers lies beneath *Calder,* and in this way it is similar to the arts-led dialogue approach of Edwards et al. (2016: 321) with its own "1) purpose and goals; 2) representation and audience; 3) format and content, and 4) the processes involved."

A consequence of using film as secondary data rather than qualitative interviews is that the underlying process of filmmaking, including editing, is unlikely to be a perfect fit with place attachment research. Furthermore, the sample size in *Calder* is small and therefore the

findings may not be generalisable (Burley et al., 2007; Amsden et al., 2010; Lin and Lockwood, 2013). However, although *Calder* features just five residents it provides a broad set of views as of the five, three were not displaced and two were temporarily displaced.

Since the release of *Calder* in April 2016 two other films have been released that also represent community responses to the 2015 floods and attitudes to new approaches to FRM. *Waving, not Drowning* by Jason Elliott and Shanaz Gulzar (December 2016) is a community film about the 2015 flood in Mytholmroyd and nearby Hebden Bridge.[8] *High Water Common Ground* by Andy Clark (2017) is a series of films, featuring local stakeholders, about WwNP including initiatives in Calder valley.[9] Both films reflect an interest in representing community and place as something important for those in decision- and policy-making positions to understand.

5. Conclusions

This artist-researcher collaboration considered place attachment and current approaches to FRM using a community film as secondary data. Advantages of using a community film are its independence from the researcher and its reflective nature that covers all three phases of a disaster. In terms of policy, CaBA is dependent on the strength of communities to co-deliver it and support from authorities to develop local communities' capability through equipment, training and local events. Here we find that place attachment was strong before the flood, i.e. independent of hazard experience and that there is evidence of individuals' development "in" and "of" community, through CaBA. While linking social capital could be strengthened through the practice of CaBA, which provides top down, and bottom up engagement between

[8] See, https://www.youtube.com/watch?v=JoEZ2p0g2JU.
[9] See, http://www.highwaterfilm.co.uk and https://www.youtube.com/watch?v=JoEZ2p0g2JU.

authorities and communities on a range of catchment-based issues, place attachment is independent of it. For FRM policy, agencies need to recognise the importance of place in discussions around FRM and preparedness activities as well as for retreat and abandonment.

Chan et al. (2012b: 745) note that "one of the most powerful aspects of an ES approach is that it focuses decision-making and research specifically on what people care about". Indeed the coding of a community film reminds researchers and flood managers of deeply held values (Kenter, 2016), not only relational values around *Place/heritage,* but transformative values, around *Inspiration* and *Aspiration* and shared values around *Social capital and cohesion* and *Identity*. Flood-prone communities that exhibit strong place attachment may be more likely to accept the types of changes, e.g. to the landscape and increased participation inherent in a CaBA to FRM policy and practice. Researchers could test this in other contexts including through exploration of new data sources, of which film offers much scope.

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