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RESEARCH ARTICLE

Nature on screen: The implications of visual media for human–nature relationships

Nature documentaries as catalysts for change: Mapping out the 'Blackfish Effect'

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Abstract

1. It is essential for us to understand what drives human behaviour if we want to tackle anthropogenic damage to the environment. Popular media can play an important role in shaping public attitudes, behaviours and norms towards wildlife, and documentaries in particular have become an increasingly prominent tool for social change. There is, however, a need for robust impact evaluation both in documentary-making and in conservation, to refine future interventions.
2. The 2013 documentary *Blackfish* portrayed human–orca interactions at the US-based marine park, SeaWorld. Following its release, SeaWorld suffered financial difficulties and the company underwent structural changes, including a cessation of its orca breeding programme. These impacts have often been attributed to the *Blackfish* documentary, but little evidence has been provided to justify these claims. We combined an analysis of stock market data and semi-structured interviews with 26 key informants to build an in-depth contribution analysis. We used General Elimination Methodology, a qualitative impact evaluation methodology to build an understanding of the impact of *Blackfish*.
3. We found a consensus among stakeholder groups that *Blackfish* induced negative publicity for SeaWorld and a change in people's perceptions of captivity. As a result, attendance at the park decreased and the market value of the company dropped. *Blackfish* catalysed a whole movement against marine mammal captivity. There were three key factors that led to its impact: the support from major distribution channels which allowed it to reach major audiences, emotional impact of the content and timing of its release. *Blackfish* benefitted from a perfect storm, building upon decades of activism to create an appropriate cultural climate for its release in 2013.

KEYWORDS

animal welfare, behaviour change, complex systems, conservation social science, consumer research, impact evaluation, marine mammal captivity, qualitative

1 | INTRODUCTION

Environmental researchers increasingly recognise the pressing need to understand the cognitive, social and motivational processes that influence human behaviours contributing to issues such as climate change or the illegal wildlife trade, to achieve effective behaviour change (Reddy et al., 2017; Schultz, 2014). As empathetic perspectives towards the environment can contribute to the adoption of pro-environmental behaviours, it is essential for us to understand what shapes public perceptions of nature (Berenguer, 2007; Wright et al., 2015).

Popular media plays an important role in shaping public understanding and social norms. It can set public agendas and promote pro-environmental behaviours (Entman, 1993; Östman, 2014). Documentaries in particular have become an increasingly effective tool for social change (Barrett & Leddy, 2008; Whiteman, 2004). Nature documentaries have the potential to shape public perceptions of the environment (Jones et al., 2019; Litchfield, 2013). They create an emotional bond with viewers as an initial step to prompt environmentally friendly behaviours and can improve knowledge (Barbas et al., 2009; Berenguer, 2007; Thomas-Walters et al., 2019). Watching nature documentaries is positively correlated to the performance of pro-environmental behaviours, compared to other entertainment-related programmes, and may increase donations to environmental protection organisations (Arendt & Matthes, 2016).

There is, however, a need for greater evidence-based evaluation both in documentary-making and in conservation (Baylis et al., 2016; Sutherland et al., 2004; Whiteman, 2004). The lack of robust impact evaluation limits the accountability of a documentary, as well as the ability of practitioners—be it film-makers or conservationists—to learn from past works (Veríssimo et al., 2017). While calls for evaluation in the conservation field often focus on quantitative evaluation methods, documentaries have the potential to inspire change at the societal level (Barrett & Leddy, 2008; Baylis et al., 2016; Margoluis et al., 2009). As such, a coalition model of evaluation may be more suitable, which considers the full range of impacts on producers, activists and decision-makers, in addition to the typical focus on individual citizens (Whiteman, 2004).

1.1 | Blackfish documentary

The 2013 nature documentary *Blackfish* is considered to be a key example demonstrating the ability of nature documentaries to effect change (Sperb, 2016). It narrates the story of Tilikum, a performing orca at SeaWorld, who killed several people while in captivity. *Blackfish* highlights the negative impacts of captivity on orcas, including a reduction in life spans, the collapse of male orcas' dorsal fins, aggression, toothaches and the separation of calves from their mothers (Karenina et al., 2013). The documentary also stresses the high level of risk posed by human–orca interactions.

Footage of orca shows illustrate that the spectacle is intended as entertaining both for the public—by footages of cheering audiences—and the orcas themselves—as a trainer says 'Namu doesn't do it because she has to, but because she really wants to' (Cowperthwaite, 2013). In contrast, the footage of wild whale populations presents nature as pristine (Mitman, 1999). This dichotomy of nature as commodity versus nature as 'Edenic' is intended to make the viewer reject captivity (Cronon, 1996; Snow et al., 1986).

Anthropomorphism in *Blackfish* serves to create an emotional bond with the viewer, which is necessary for the audience to support the documentary's activist message against captivity (Hastings, 1996; Sperb, 2016). Tilikum is both the protagonist and antagonist of the documentary, presented as a sympathetic character despite having been involved in three human fatalities (Sperb, 2016). Tilikum's capture from the wild and his confinement reinforce the metaphor of Tilikum as a prisoner (Cowperthwaite, 2013; Schutten & Burford, 2017; Sperb, 2016). He suffers from a 'psychosis', suggesting his aggressive behaviours are symptoms of posttraumatic stress disorder induced by life in captivity, which contradicts with SeaWorld's narrative that orcas cooperate willingly during each show (Burford & Schutten, 2017; Cowperthwaite, 2013).

This portrayal of Tilikum as a victim clashes with the detailed account of Dawn's attack—*Blackfish*'s opening scene is a transcription of the emergency call given by SeaWorld, reminding the viewer of the nature of orcas as apex predator (Burford & Schutten, 2017). *Blackfish* makes the case that one reason orca captivity should cease is because orcas are too dangerous to be kept under control.

1.2 | The Blackfish crisis

Blackfish premiered at the Sundance Film Festival on 19 January 2013 and its rights were acquired by Magnolia Pictures and CNN Films in the USA (Marine Science Today, 2013). On its first airing on CNN on 24 October 2013, *Blackfish* was watched by 472,000 viewers aged between 25 and 54 years, far more than other contemporaneous documentaries such as Sole Survivor and Dinosaur 13 which had 289,000 and 218,000 CNN viewers, respectively (CNN, 2014; O'Connell, 2014). In just one month, *Blackfish* had nearly 21 million viewers (Waller & Iluzada, 2020). *Blackfish* was also made available for online streaming through Netflix on 12 December 2013 (Marek, 2015).

Following its release, a series of major events occurred (Figure 1). [Correction added on 11 June 2021, after first online publication: sentence has been removed here.] Public reactions to *Blackfish* started online: on its first airing, CNN started a Twitter conversation which comprised more than 67,000 Tweets seen by 7.3 million people (Rogers, 2014). A grassroots anti-captivity movement manifested itself as a 'Tweet storm' with hashtags such as '#EmptyTheTanks' (Brammer, 2015). *Blackfish* developed a 'loyal following' which pressured artists to cancel their shows at SeaWorld or corporate sponsors like Southwest Airlines to drop their partnerships with the company (Raab, 2004; Wright et al., 2015). It also sparked physical protests against SeaWorld, often orchestrated by the animal rights organisation People for the Ethical Treatment of Animals

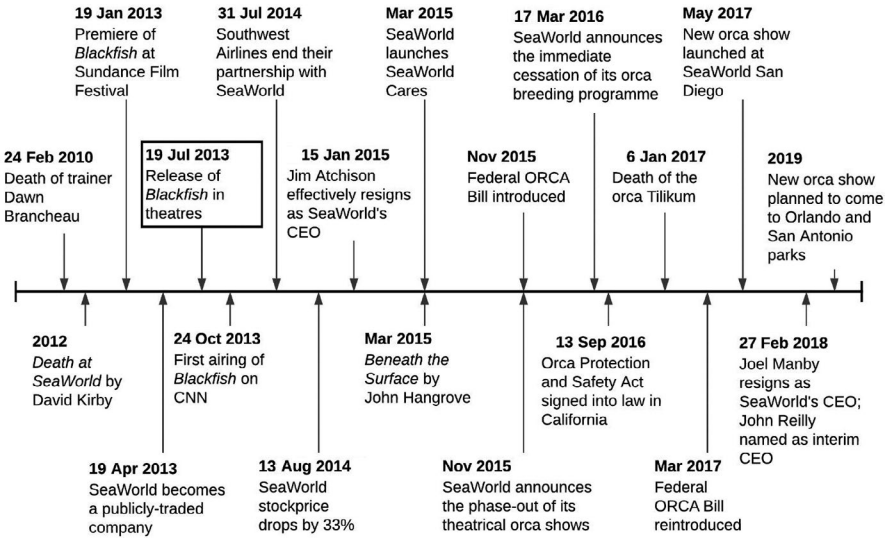

FIGURE 1 Timeline of key events pre- and post-release of *Blackfish*. [Correction added on 11 June 2021, after first online publication: 19 January 2012 date changed to 19 January 2013]

(PETA) which explicitly promoted the documentary (Newman, 2014; SeaWorld of Hurt, 2018).

The documentary's impacts have been widely reported in popular media and academic papers (Brammer, 2015; Newman, 2014; Schoen & College, 2016; Vigars, 2017; Wassermann et al., 2018). *Blackfish* has notably been presented as a key driver in SeaWorld's stock market fall and changes in orca captivity policy (Parsons & Rose, 2018; Wright et al., 2015). Initially a privately held company since its opening in 1964, SeaWorld became publicly traded in April 2013, which required its financial reports to be made public (Alden, 2013). In its Full Year 2014 report, SeaWorld (2015) outlined a decrease in attendance of 1 million visitors compared to 2013, attributing it to 'the seasonal nature of the business' (p. 2).

In its 2015 Second Quarter Report, SeaWorld (2015b) announced a 84% drop in income in 2015 compared to the same time frame in 2014 while attendance dropped by more than 100,000 visitors. Such a decrease was again attributed to seasonal variables—the 'timing of Easter, record levels of rainfall in Texas and continued brand challenges in California' (p. 1)—and 'competitive challenges' (p. 1) in Florida, since other theme parks Disneyland and Universal Studios are also located in Orlando.

Alongside this drop in revenues, SeaWorld experienced a 'sinking' in its share price, with a 33% fall on 13 August 2014, largely attributed to *Blackfish* in the media (Cohen, 2014; Lewis, 2013). In September 2014, SeaWorld's shareholders launched a lawsuit against the company, claiming it had been misleading investors about the impact of *Blackfish* on attendance and mistreating its orcas (Kosman, 2014). The resignation of SeaWorld's CEO Jim Atchison, effective in January 2015, was also interpreted in the media as fallout from *Blackfish* (Tadeo, 2014).

SeaWorld deployed an 'aggressive brand restoration campaign' following *Blackfish* (Arthur W. Page Society, 2016). SeaWorld released an open letter in December 2013 to correct 'inaccurate reports', before calling the documentary 'propaganda' (Amusement Today, 2013; SeaWorld Cares, 2017b). SeaWorld highlighted their role in animal care, education and conservation. In March 2015, the company started a long-term advertising campaign including TV and print ads, online videos and the website 'SeaWorld Cares' to underscore its commitment to 'protect whales both in human care and in the wild' (SeaWorld Entertainment Inc., 2015a). Moreover, in November 2015, SeaWorld announced a new orca show to be launched in May 2017 in SeaWorld San Diego, using a stronger conservation message (Manby, 2015). Presented as inspiring and educational, this orca encounter focuses on 'orca enrichment, exercise and overall health', breaking away from SeaWorld's tradition of theatrical, 'razzle dazzle' shows (SeaWorld Cares, 2017a; SeaWorld Entertainment Inc, 2016). This shift to a more naturalistic-looking show included a change in the set-up of the stage, mimicking orcas' natural habitats.

Regulatory instruments aiming to ban captive orca breeding programmes are also presented as a consequence of *Blackfish*, as attempts to modify regulations surrounding captive orcas were made in the United States (Wright et al., 2015). In February 2014, Assembly Member Richard Bloom put forth the California Assembly Bill (AB) 2140 which would have made it illegal to 'hold in captivity, or use, a wild-caught or captive-bred orca for performance or entertainment purposes' (S.4502(a)(1)), thus banning captive orca breeding programmes and theatrical orca shows. Bloom cited *Blackfish* as one of his inspirations for the bill, and the initiative was dubbed the 'Blackfish Bill' (Sneed, 2014). Bloom reintroduced the amended bill as AB-2305 in March 2016 and the 'Orca Protection Act' was signed into law in September 2016: compared to the initial proposal, this new bill did not stipulate the removal of orcas currently in captivity to sea pens but specified that they could only be used 'for educational presentations' (Hugo, 2016; AB-2305, 2016:S.4502(a)(1)(B)). While SeaWorld opposed the bill in 2014, the company adopted a neutral position in 2016, which may have been instrumental in its adoption (Parsons & Rose, 2018).

In March 2016, SeaWorld announced the immediate cessation of their captive orca breeding programme, effectively making the 22 orcas currently at SeaWorld the 'last generation' (Groves, 2016; McManus, 2018; SeaWorld Entertainment Inc., 2016a). SeaWorld

explained its decisions to change both its orca show and breeding policy by saying that the company 'has been listening' and adapting to its time: since 'society is changing', SeaWorld is 'changing with it'. Media and animal welfare organisations were quick to attribute such decisions to years of pressure by campaigners (Grimm, 2016). *Blackfish* is often invoked as having contributed to SeaWorld's changes (Chan, 2016; George et al., 2016). The goal of this paper is to effectively evaluate what may have been the role of the documentary.

1.3 | Evaluating the Blackfish effect

The impact of *Blackfish* is widely touted not only in grey literature but also in a number of academic articles and reports (Doc Society, 2014; Fernández-Bellon & Kane, 2019; Waller & Iluzada, 2020). Yet, the overwhelming focus has been on output indicators such as the number of viewers, social media engagement or press coverage. These indicators, while strong evidence of wide reach, are not able to tell us anything about whether change occurred and what caused it. For this, an impact evaluation needs to be carried out.

Impact evaluations focus on causality and attribution, seeking to answer the question: 'what is the impact of an intervention on an outcome of interest?' (Gertler et al., 2016). Compared to 'black box' evaluations which are only interested in knowing whether the desired change occurred, theory-based qualitative approaches examine the assumptions underlying the causal chain from inputs to long-term impacts (White, 2009; White & Phillips, 2012). They are a methodologically rigorous alternative to quantitative methods and enable a better understanding of the mechanisms led to the outcome of interest, especially when interventions take place in a complex system (Baylis et al., 2016). General elimination methodology (GEM) is one such theory-driven evaluation method, which sheds light on cause-and-effect relationships by systematically ruling out alternative explanations for the outcome of interest (Scriven, 2008). It has been used in several conservation contexts to substantiate causal claims where relationships between cause and effect are complex and appropriate counterfactuals are not available (Salazar et al., 2019; Scriven, 2008). Here we use GEM to evaluate the wider impacts of the documentary *Blackfish*.

2 | METHODS

Numerous cultural, political and institutional changes have been attributed to *Blackfish* (Parsons & Rose, 2018). For this study, we identified three key changes affecting SeaWorld as outcomes of interest:

(i) SeaWorld's decision to end its orca breeding programme
(ii) SeaWorld's new design of its orca show
(iii) SeaWorld's market value change

To establish SeaWorld's market value change, we retrieved the company's stock market data from the NASDAQ website and compiled them in an Excel table. To build a credible counterfactual, indicating what would have happened in the absence of *Blackfish*, we compared the stock market data to other companies listed in the same category as SeaWorld in the NASDAQ stock exchange—entitled 'Services Miscellaneous: Amusement and Recreation'. We calculated its median value using Excel. Figure 2 shows the different trajectories of the stock market values of both SeaWorld—abbreviated 'SEAS' on NASDAQ—and the median value of other companies listed in the same category as SeaWorld.

2.1 | Selecting market drivers

It is important to consider the likelihood of other factors than *Blackfish* affected the three outcomes of interest. We compiled a list of 15 potentially important causes through a review of the literature, documented in Supporting Information 1.

1. Legislation in California banning captive orca breeding programmes (2016)
2. Documentary *Blackfish* (2013)
3. Loss of purchasing power from guests to come to the park
4. Campaigns launched against marine mammals in captivity

FIGURE 2 SeaWorld's (SEAS) stock market value from April 2013 (SEAS Initial Public Offering) to April 2018; for the same time frame, the median stock value of other companies listed in the same category as SEAS on NASDAQ

5. Book *Beneath the Surface* (2015) by John Hargrove (former SeaWorld trainer)
6. Change of leadership at SeaWorld (former CEO Jim Atchison resigns in 2014)
7. Documentary *The Cove* (2009)
8. Death of the orca Tilikum (January 2017)
9. Altered relations with investors
10. SeaWorld's decision to stop its orca breeding programme (March 2016)
11. Competition from other marine parks
12. Film *Free Willy* (1993)
13. Competition from other theme parks (Disneyland and Universal Studios in Orlando)
14. Lack of awareness about SeaWorld's Animal Rescue and Rehabilitation Programme
15. Documentary *Inside The Tanks* (2017)
16. Any other factor?

2.2 | Sampling strategy

As our aim was to explore relevant actors' understanding of *Blackfish*'s impacts, we used a targeted sampling method. Our key informants were stakeholders who could provide informed opinions, knowledge and expertise on marine conservation, training with marine mammals, zoological and aquarium collections, animal welfare and narrative studies/media communication. Getting respondents from a wide range of backgrounds was crucial to apply GEM, since this method is built upon the premise that a mechanism is more likely to be true when interviewees from multiple, diverse stakeholder groups support it (Patton, 2008). Key informants came from a range of sectors:

A Zoos/aquaria community representative
B Marine parks employee
C Animal welfare organisation employee
D *Blackfish* cast member
E Marine science expertise
F Narrative expertise

Our aim was to get at least three interviewees for each stakeholder groups, to build a more robust Theory of Change (ToC). While preserving interviewees' anonymity, it remains important for this study to provide the reader with a sense of each interviewees' backgrounds, to assess possible competing explanations. We use letters to indicate the stakeholder groups to which each respondent belongs.

2.3 | Interview process

Data were collected through individual semi-structured interviews. We used mostly open-ended questions, which could be adapted to each interviewee's background (interview guide in Supporting Information 2). All interviews contained questions about the impacts of *Blackfish* on the stakeholder's specific field of work. Participation was not dependent on having watched *Blackfish*, although all respondents were aware of the documentary and its content. We did not ask questions directly about *Blackfish* until after the stock market exercise.

The stock market graph formed a central part of the interview process. Respondents were presented with the graph in Figure 2 and asked to rank the 16 possible causes according to their level of importance in altering SeaWorld's stock market price (Figure 3). We used a 5-point scale:

1. Very likely to have been important
2. Likely to have been important
3. Neutral
4. Unlikely to have been important
5. Very unlikely to have been important to SeaWorld's stock price.

Interviewees were informed that the initial number associated with each factor was randomly generated using Excel to allow them to rank the causes by order of importance. Interviewees were not guided on where to place the factors on the axis, although if a factor was unknown to the interviewee, they were recommended to put it as 'not important'. We prompted interviewees to describe causal pathways impacting SeaWorld's market value and reputation.

All 26 interviews were conducted via phone or video call, after being initially contacted through email or LinkedIn. Interviewees were currently located in the United Kingdom, the United States or Spain at the time of the study. All interviews were recorded, and then transcribed by hand by LB. We reached out to staff members at SeaWorld Orlando and the Public Relations department of SeaWorld, but they refused to take part in this study. We obtained informed consent from all interviewees, who were provided with an information sheet and signed a consent form prior to participation in the study. This research was approved by the University of Oxford's Research Ethics Committee (18A-61).

2.4 | Data analysis

Our theoretical approach was primarily inductive, in which detailed readings of interview transcripts are used to derive themes through interpretations made from the raw data. Field notes made during a visit at SeaWorld were also used to identify key themes, namely the current focus SeaWorld places on their conservation and educational mission in the narration of orca shows and on park signage. The coding framework was not predefined prior to analysing interview transcripts, but rather stemmed from an iterative process, alternating between reflections on interview transcripts and field notes of a visit at SeaWorld. The coding structure chosen was both descriptive—detailing the impacts of SeaWorld—and analytical—assessing how

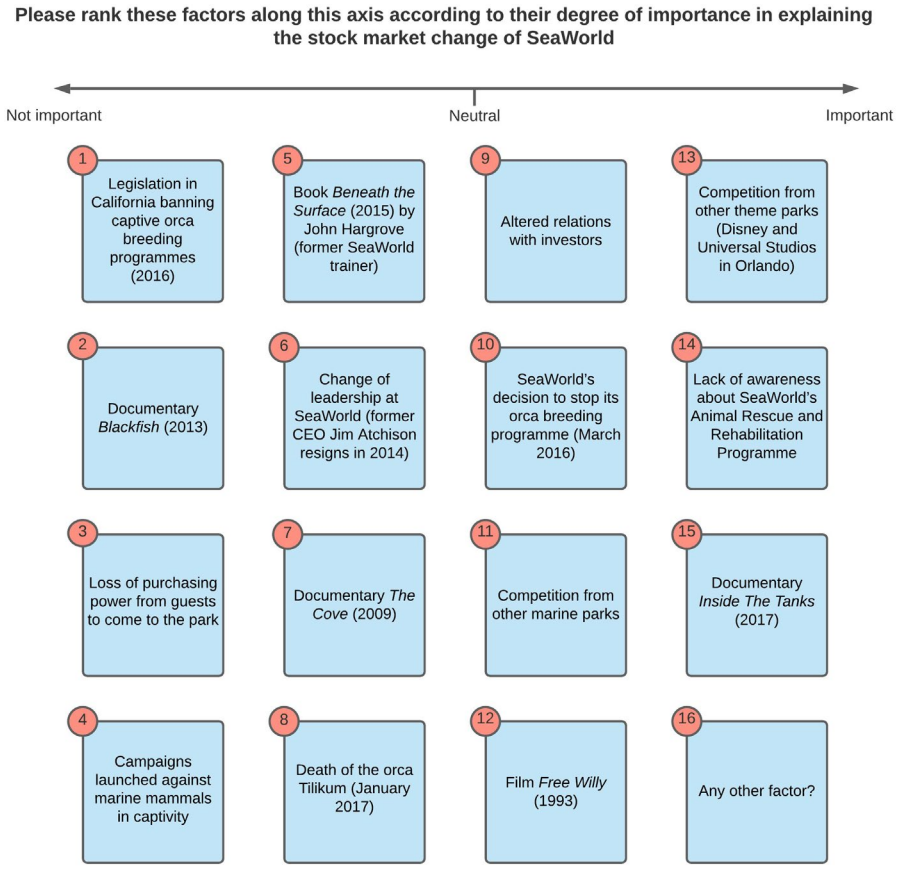

FIGURE 3 Stock market exercise presented to each interviewee

different factors, in addition to *Blackfish*, interacted to produce causality. All coding was carried out by LB in NVivo (12.1.0).

2.5 | General elimination methodology process

General elimination methodology relies on the perspectives of a diverse array of stakeholder groups with specific relevant expertise, rather than a large number of individuals who have limited knowledge or experience of the target phenomenon. When multiple interviewees from different stakeholder groups support a potential causal explanation for the outcome of interest, our confidence in it is increased. When there is disagreement, we assess the coherence of the reasoning supplied by interviewees and the existing literature and data to judge the likelihood of impact. For this reason, overall sample size has limited importance, beyond ensuring that the key perspectives around an intervention are being adequately represented. What is critical is the diversity of expertise included in the study, and continued sampling until theoretical saturation of coding has been reached.

In this study, a factor was considered influential overall for a stakeholder group if it was supported by at least half of the respondents within that group. We compiled a list of possible causes for the observed impacts experienced by SeaWorld based on the analysis of the stakeholder interviews and supporting evidence. We then constructed potential causal pathways for each of these possible causes. As causal mechanism is more likely to be true when different sources provide the same evidence, we triangulated responses within and across stakeholder groups (Patton, 2008). To analyse the stock market exercise, we synthesised ratings for each factor into one of two categories:

(i) Influential: includes the two first categories on the initial scale, that is, 'very likely' and 'likely' to have been influential
(ii) Not influential: encompasses the three remaining categories on the scale, that is, 'neutral', 'unlikely' and 'very unlikely' to have been influential.

Causal pathways were considered valid if they were supported by a plurality of interviewees and four out of the six stakeholder groups. This threshold of four stakeholder groups was chosen to account for more than half of the groups. We refined the remaining causes into an overall theory of change.

3 | RESULTS AND DISCUSSION

3.1 | Participants

We interviewed 26 participants between June 2018 and August 2018. Interviews averaged 43 min in length and ranged from 32 min to 107 min. We had at least three interviewees from each stakeholder group. Table 1 summarises the background of participants.

TABLE 1 Breakdown of the key informants interviewed according to their professional affiliation [Correction added on 11 June 2021, after first online publication: CSI abbreviation corrected.]

Stakeholder groups	Organisation	Position
Zoos/aquaria community representative		
A1	International Marine Animal Trainers' Association (IMATA)	Leadership position
A2	World Association of Zoos and Aquariums (WAZA)	Leadership position
A3	European Association of Aquatic Mammals (EAAM)	Leadership position
A4	Association of Zoos and Aquariums (AZA)	Leadership position
Marine park employee		
B5	Loro Parque, Tenerife, Spain	Education department
B6	SeaWorld, San Diego, CA	Former employee in animal care
B7	SeaWorld, Orlando, FL	Former employee in animal care
B8	SeaWorld, Orlando, FL	Current animal trainer
Animal welfare organisation		
C9	Cetacean Society International (CSI)	Leadership position
C10	World Cetacean Alliance (WCA)	Leadership position
C11	Whale and Dolphin Conservation (WDC)	Campaigns
C12	World Animal Protection	Campaigns
C13	Animal Welfare Institute (AWI)	Campaigns
Blackfish cast member		
D14	*Blackfish* film-making crew	Production
D15	*Blackfish* film-making crew	Advertisement
D16	*Blackfish* film-making crew	Production
D17	*Blackfish* film-making crew	Participant
D18	*Blackfish* film-making crew	Participant
D19	*Blackfish* film-making crew	Participant
Marine science expertise		
E20	Atlantico Experience	Leadership position
E21	University of Manchester	Researcher
E22	Centre for Whale Research	Researcher
E23	Marine Mammal Laboratory (MML), Alaska Fisheries Centre	Researcher
Narrative expertise		
F24	Portland State University	Professor, researcher
F25	University of Idaho	Professor, novelist
F26	University of Idaho	Professor, researcher

3.2 | The role of Blackfish

All groups considered *Blackfish* influential and 15 interviewees across all stakeholder groups ranked it first compared to other factors. There was a consensus among stakeholder groups that *Blackfish* induced negative publicity for SeaWorld and a change in people's perceptions of captivity. As a result, attendance at the park decreased and the market value of the company dropped. Two interviewees stressed that *Blackfish* in particular affected 'mums' (C13; D17) who decide how to spend 'entertainment dollars' (D17). In fact, *Blackfish* 'picked up a conversation that had been stagnant' (C12) and 'catalysed a whole movement' (D16) against marine mammal captivity. We were able to identify four main variables which could explain why *Blackfish* had such an impact.

3.2.1 | SeaWorld's slow response

SeaWorld's response to the documentary, regarded as slow and inadequate, was also influential. The 'apparent denial' (F24) of the

impact of *Blackfish* on the company, also bluntly called 'lies' (D19), made SeaWorld lose credibility (F24). One current SeaWorld employee recognised that SeaWorld did not react on time as it did not 'do any kind of media or campaigning or a lot of fight back on it' (B8), thus allowing people 'who had never had an opinion before' to form one and 'share it all over on social media'.

3.2.2 | Distribution

Interviewees across stakeholder groups A, B, C, D and F highlighted that the documentary's impact was facilitated *via* its airing on CNN. The documentary was screened 'over and over' (C11), approximately 40 or 50 times. This CNN boost gave *Blackfish* 'a life beyond what documentaries often have' (C9). It not only gave *Blackfish* a platform of distribution but also lent it 'credence' (B7), as a 'trusting source' (B8) 'vetted for its objectivity' (A1), CNN made people believe that *Blackfish* is 'news' (B7) rather than 'a propaganda piece' (B7). The role of internet and social media in relaying the documentary was also paramount. Viewings of *Blackfish* increased when it was acquired by Netflix, and social media enabled the sharing of information about the documentary. This was amplified when celebrities, 'very loud voices with millions of followers' (C12), took public positions on *Blackfish*.

3.2.3 | Emotional impact of content

All groups acknowledged *Blackfish* affected viewers' emotions, which sometimes led to activism. A combination of 'anger' (C13; F26) and 'powerful empathy' (F25) 'hit a nerve' (D18) and 'struck the right chord' (C9) with viewers. Marine park employees were more critical of this impact of *Blackfish*, claiming the documentary 'played on people's emotions' (B7) in a way that 'misled' (B6) them. Emotionally impacting the viewer was presented as the sole objective of the 'movie, it wasn't even a documentary' (B6).

Although the documentary as a whole was not graphic compared to *The Cove*, it was constructed as a 'thriller' (E22; F26), depicting the seriousness of Dawn's death. Strong anthropomorphism was used in *Blackfish*. Orcas are 'deeply charismatic' and the focus is more on Tilikum than Dawn. While it is common for nature documentaries to incite empathy towards threatened species, *Blackfish* differed by also revealing 'corporate malfeasance'. Viewers realised that SeaWorld had not been honest, prompting them to be more vocal about *Blackfish*. The public felt 'manipulated' (F26) by a 'shady' (E23) industry, causing a sense of 'betrayal' (C13).

3.2.4 | Timing

Many participants thought *Blackfish* benefitted from a perfect storm. The documentary came out in a 'particular climate' (D18), identified as the 'right time' (F24; F25). It built upon decades of activism, and the various filmed and written works that were released prior to the documentary and contributed to changing public attitudes towards captivity. *Blackfish* is dependent upon 'all these variables that came together to give it that extra power' (D19), and it is likely that none of the other factors, such as Tilikum's death, would have provoked such changes at SeaWorld independently. It is possible that these effects would not have been the same if *Blackfish* had come out earlier or more recently (C9; F24).

Respondents from all groups underscored the existence of animal welfare and animal rights campaigns prior to the release of *Blackfish*. F24 even suggested that it is 'foolish to look at the impacts of *Blackfish* without contextualising it within decades of labour'. *Blackfish* 'gave a new platform' (B7) and a sense of 'renewed energy' (F26) to these campaigns, and non-governmental organisations (NGOs) promoted *Blackfish* after its release (E22). Some interviewees saw *Blackfish* as a catalyst accelerating change for these campaigns. It also gave rise to new campaigns, such as the Empty The Tanks campaign, which is committed to ending dolphin and whales captivity around the world.

Other popular media, such as *Free Willy* and *The Cove*, also paved the way for *Blackfish*. Before Tilikum, Keiko—the orca playing Willy—was 'unquestionably the world's most famous killer whale' (Kirby, 2012), and the film 'awakened the awareness of people that marine mammals belong to the wild' (C10) while *The Cove* 'set a good backdrop' for *Blackfish*. Although *The Cove* failed to gain the same traction as *Blackfish*, as it focuses on the capture of wild dolphins for marine parks, the two documentaries 'go hand in hand' (E22). [Correction added on 11 June 2021, after first online publication: C22 changed to E22.] Several interviewees suggested that the book *Death at SeaWorld* (2012), written by journalist David Kirby, should be added to the list of factors in the stock market exercise, as it explores the question of captivity and risks related to marine mammal training (Kirby, 2012). Considered another 'tool to educate the public' (C13), it mobilised *Blackfish*'s audience and was a 'nail in the coffin' (D18) for SeaWorld. The book *Beneath the Surface* (2015) by John Hargrove, a former SeaWorld trainer, was also believed to have fuelled the activism resulting from *Blackfish* (Hargrove & Chua-Eoan, 2015).

3.3 | Other influential factors

Aside from *Blackfish*, there were several other significant concurring events that had an impact on SeaWorld.

3.3.1 | Legislation

The California Orca Protection and Safety Act was entered into law 6 months after SeaWorld announced its immediate cessation of its orca breeding programme, so did not induce any institutional changes at SeaWorld. However, the ban was passed due to campaigns and animal welfare concerns raised by the public. Such campaigns leading up to the legislation and their media coverage

affected SeaWorld more than the adoption of the legislation itself. Rather than the act of approving the legislative text, the 'process' (D15) of getting it done is more important: the 'communications and campaigns around it' (A3) culminate in an 'important milestone' (C11) as a result of 'public opinion changing toward captivity' (C11). Without affecting SeaWorld practices, the ban created 'awareness and publicity' (E20), amplified by *Blackfish* (D16), about the issues of captive cetaceans. Interviewees from groups A and B use a more critical framing: the law passed as a result of 'public outcry' (A4) and captive breeding programmes became a 'hot topic' (B7) politically.

3.3.2 | The death of the orca Tilikum

All stakeholder groups acknowledged that the death of Tilikum did not directly affect the stock market value of SeaWorld, but rather brought *Blackfish* back in the media and thus was detrimental to SeaWorld's reputation. The event would not have been significant without *Blackfish* (C12). It may not have changed anybody's minds in itself (B7) but it 're-energised' people who had been campaigning since *Blackfish* (C13). It is also possible that the publicity surrounding Tilikum's death prompted further action from the original viewers of *Blackfish*, or generated a new audience for the documentary.

3.3.3 | Change of leadership at SeaWorld

Jim Atchison's resignation as CEO of SeaWorld was due to the financial difficulties of the company. It was an indirect outcome of *Blackfish* and caused further negative publicity for SeaWorld, reflecting a 'lack of confidence' (A4). Atchison's resignation 'kept *Blackfish* in the news' (D18) and 'empowered the NGO community (…) to remain involved in the campaign against SeaWorld' (C12). The change in CEO was actually beneficial for SeaWorld's stock value, since investors hoped the successor would be different. Following Atchison's resignation, SeaWorld's market value rose from 16.50 USD (on the day his resignation was effective) to 19.11 USD on 19 March 2015, when Joel Manby replaced him as CEO, with a peak value of 20.77 USD on 24 February 2015.

3.3.4 | Altered relations with investors

Interviewees from all stakeholder groups agreed that investors care more about profits than about the conservation status or welfare of orcas. Relations between SeaWorld and its investors deteriorated after the release of *Blackfish*. Investors considered SeaWorld a 'losing business model' (C12) and decided to sell their shares, leading to the fall in the company's stock value. SeaWorld's shareholders went on to launch a lawsuit against the company, directly mentioning *Blackfish* in the filing documents.

3.4 | Factors disputed between stakeholder groups

For three factors mutually exclusive competing explanations were put forward by multiple stakeholder groups.

3.4.1 | Drop in attendance due to a loss of purchasing power by potential visitors

Interviewees from stakeholder groups A and B claimed the drop in attendance at SeaWorld could be attributed to a loss of purchasing power. As one said, 'the world economy was not doing so great' (A1). However, groups C, D, E and F disputed any loss of purchasing power from guests. D16 explained that when *Blackfish* was released in 2013, people were starting to recover from the 2008 financial crisis, and 'other theme parks were doing great' (C13). We compared these competing claims with attendance numbers at the other theme parks Disneyland and Universal Studios, which are located in Florida and California like SeaWorld, to help determine the validity of the explanations. In 2013, the SeaWorld Orlando and California parks experienced a decreased in attendance by 5% and 3%, respectively, compared to 2012 numbers. Over the same time frame, attendance at both Universal Studios Florida and California increased by 14% and 4%, respectively, and all five Disney parks reported an increased in attendance that same year (Themed Entertainment Association (TEA), 2014). Similarly, in 2014, attendance at SeaWorld Florida and California continued to drop while attendance at Universal Studios and Disneyland rose (Themed Entertainment Association (TEA), 2014). The increased attendance at other theme parks than SeaWorld in 2013 and 2014 shows that customers had enough disposable income to dedicate to leisure. We concluded that a loss of purchasing power was unlikely to have been influential on the drop in attendance at SeaWorld.

3.4.2 | Competition with other theme parks

Stakeholders from groups A and B claimed the direct competition with Disneyland and Universal Studios could also have explained the drop in attendance at SeaWorld. SeaWorld is located in a 'highly competitive area' (A3) and while these parks got new attractions, SeaWorld was not able to innovate due to structural reasons. While recognising that SeaWorld has competitors, other stakeholder groups emphasised the reputational damage that SeaWorld suffered. The drop in attendance was due to competition with other theme parks combined with a *conscious* choice of visitors *not* to attend SeaWorld. D16 explained that a lot of people go to Orlando 'without any particular loyalty to SeaWorld'; having heard of the controversy prompted by *Blackfish* and the 'negative connotation' (E21) of keeping captive orcas, tourists preferred less controversial destinations.

We examined the theme park's pricing schemes as an indicator of competition. Daily admission to SeaWorld has always been less expensive than its closest competitors, Disneyland and Universal Studios (Heather, 2014). A lower admission price represents a competitive advantage for SeaWorld; however, attendance reports show that attendance at SeaWorld has always been lower than at other theme parks (AECOM, 2019). Although Universal Studios added their major new Harry Potter attraction in June 2014, SeaWorld added its ride Mako in 2016 and several new attractions in 2017 (Attraction Tickets, 2018; SeaWorld Entertainment Inc., 2016b). As attendance was lower at SeaWorld despite the park's efforts to align itself with other brands by adding new attractions, we concluded competition alone would likely not have been enough to cause the drop in attendance without the reputational damage ensuing from *Blackfish* (Kang, 2019).

3.4.3 | Lack of awareness about SeaWorld's Animal Rescue and Rehabilitation programme

Stakeholders from groups A and B asserted that part of the reputational damage from *Blackfish* was because SeaWorld had not sufficiently promoted its conservation work. A SeaWorld former employee stated that the public 'had no idea' (B7) that SeaWorld was so active in terms of conservation and that if the park had promoted its rescue work better, 'the public would not have believed *Blackfish*' (B5). However, other interviewees disputed this, claiming the public 'had always been aware' (C13) of SeaWorld's role as the company advertised its conservation work early on, but that the public got 'disillusioned' (D18) after watching *Blackfish*. We examined SeaWorld's promotional material prior to 2013 and found constant effort to broadcast their conservation work, but it is unclear whether the public was overall aware of SeaWorld's conservation efforts prior to the release of

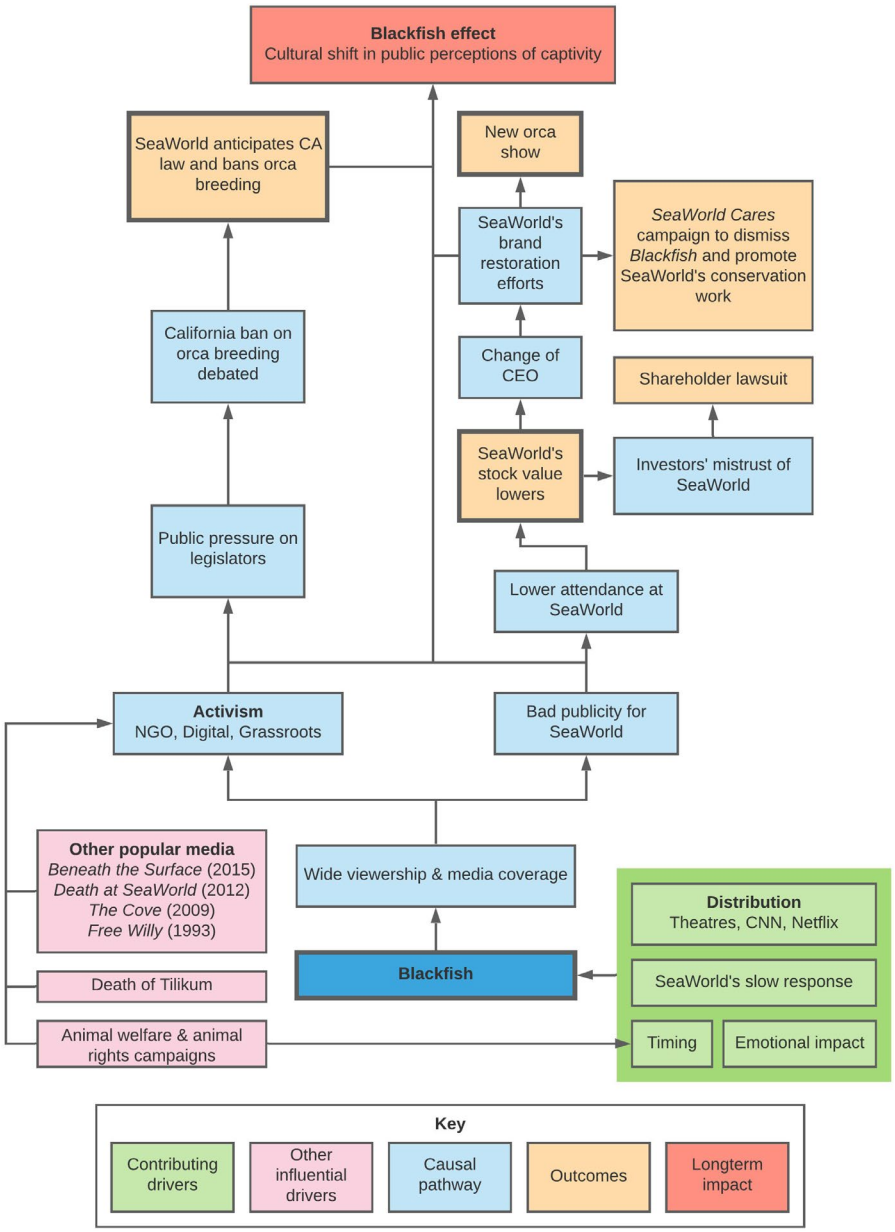

FIGURE 4 Overall theory of change depicting the impacts of *Blackfish*, including the contributing drivers that explain how *Blackfish* came to be so influential. The thick outlines denote the original intervention (*Blackfish*) and outcomes of interest in the study

Blackfish. Indeed, none of the themes associated with 'SeaWorld' on Google Trends between 2006 and 2013 were associated with conservation, but rather referred to park's attractions (Google Trends, n.d.). We therefore included the potential lack of awareness in the overall Theory of Change, bearing in mind that its influence is uncertain.

3.5 | Overall theory of change

Given the complex system of interacting variables, attributing a direct cause–effect relationship is difficult. Rather, General Elimination Methodology allows us to identify likely influences 'beyond reasonable doubt' (Scriven, 2008). Overall, *Blackfish* had an influence, sometimes indirectly, on the three outcomes of interest—SeaWorld's orca breeding policy, its new orca show and its market value. We triangulated responses across a wide range of stakeholders in an attempt to reach an informed judgement based on 'cumulative evidence'. The interaction of these factors and their influence on SeaWorld is illustrated in Figure 4. We included factors added by interviewees that were mentioned by multiple interviewees from different stakeholder groups, namely, Kirby's book *Death at SeaWorld* and a 'change in public attitudes with regards to captivity'. We summarise the short- and medium-term outcomes, and the longer-term impacts prompted by *Blackfish*. Arrows represent the causal mechanisms that were validated through this study.

3.6 | The 'Blackfish Effect'

Blackfish changed public perceptions of captivity, effecting a 'huge cultural change' (E22). [Correction added on 11 June 2021, after first online publication: (E22) added.] Indeed, the 'Blackfish Effect' is a key theme that emerged from the interviews. *Blackfish* has now become a 'shorthand for every animal issue' (F24) [Correction added on 11 June 2021, after first online publication: (F24) added.], giving momentum to the anti-captivity movement in general. The 'Blackfish Effect' refers to an 'exponential growth of knowledge and information' (D19). It is underpinned by learning and 'turning on the light of truth' (D18). Activism is implied in the term, and it may be used more broadly to 'mean any movement that gets going' (E22). Several interviewees stressed that the 'Blackfish Effect' is still unfolding; it is an 'ongoing influence' (F26) which will remain 'a touchstone in activist documentary' (F22).

Three interviewees underscored the 2015 decision by the circus Ringling Bros. to release its elephants as an indirect outcome of *Blackfish*, since the documentary fuelled the cultural shift against captivity (B8; E21; D16). [Correction added on 11 June 2021, after first online publication: 'recent' changed to '2015' and 'as a direct outcome' removed.] *Blackfish* is said to have 'opened the eyes of a nation' (C9) by making the public 'reconsider the ethics of captivity itself' (D16). The public has become more sensitive to the welfare of animals in captivity—in the words of one interviewee 'the next generation of park-goers don't want to see smart social wide-ranging animals doing dumb tricks' (D16). These statements illustrate the broader cultural questioning of the role of zoos and aquaria, marked by a growing concern for animal welfare (George et al., 2016; Maynard, 2018). Throughout history, zoos and aquaria have fulfilled various roles (Packer & Ballantyne, 2010). Traditionally considered as sites of entertainment, modern zoos and aquaria purport to have four key aims: conservation, research, education and recreation (Carr & Cohen, 2011; Ogden & Heimlich, 2009). Yet, our results suggest that this shift may not be enough and that zoos and aquaria will need to do more to address growing concerns around the welfare of animals kept in captivity. Ignoring these changes can not only negatively impact individual institutions regardless of size, as showcased by SeaWorld, but could also affect wildlife conservation more broadly, as it may curtail the important contributions that zoos and aquaria can make to biodiversity conservation (Che-Castaldo et al., 2018; Gilbert & Soorae, 2017).

4 | CONCLUSION

A comparative analysis of 26 key informant interviews revealed that the impacts of *Blackfish* are multifaceted, complex and ongoing, and helped us understand *why* the documentary was so influential. Cumulative evidence shows that *Blackfish* played a critical role in SeaWorld's financial difficulties, its new orca show and the cessation of its breeding programme, acting as a catalyst for the already existing anti-captivity activism. Rather than directly causing all these changes, *Blackfish* benefitted from a perfect storm, which had been building up to create an appropriate cultural climate for its release in 2013. A confluence of factors, fuelled by animal welfare and rights activism and aided by its distributional strategies, enabled the documentary to resonate with a wide public. *Blackfish* acts as a potent reminder of the capacity of nature documentaries to spark activism. The resulting 'Blackfish Effect' reinforces the notion that documentaries should be considered as one point in a continuum, with a life before and after broadcast (Whiteman, 2004). From its initial anti-captivity focus, the documentary created a spill-over 'Blackfish Effect' which now rallies crowds campaigning on both welfare and conservation issues.

Zoos and aquaria frequently promote their role in conservation and education as mission-orientated institutions. However, to survive financially, they need to continually attract members of the public, which they set out to do by promoting animal-based shows and entertainment (Carr & Cohen, 2011; Whitworth, 2012). The existence of zoos and aquaria depends on the continued public acceptability of wild animal captivity, and the use of these animals to entertain human audiences (Wassermann et al., 2018). Therefore, zoos and aquaria are forced to navigate the increasingly difficult tension between generating revenue through animal entertainment and retaining public approval. *Blackfish* demonstrates the power of documentaries to change public attitudes towards wild animal entertainment and animal suffering, and there is continued interest in such documentaries.

Zoos and aquaria should monitor trends in public perceptions' of captivity and animal-based entertainment to quickly adapt their business model to changing societal sentiment (George et al., 2016; Hutchins, 2003). This will require flexibility, and

above all a commitment to honesty and clarity in their communications with the public. The lack of transparency around orca killings highlighted by *Blackfish*, and the delayed and inadequate reaction by SeaWorld, contributed to the documentary's impact on the public. Although these trade-offs between financial sustainability through entertainment and a commitment to conservation and welfare are complex and rarely have a clear answer, zoos and aquaria must make a genuine effort to engage with them. As a first step, they could develop a set of publicly available guidelines justifying their choice in the species they keep, breed and display. This may mean no longer keeping species, such as orcas, when there is evidence that their welfare needs have not been met in captivity (Lott & Williamson, 2017; Marino et al., 2020). Furthermore, zoos and aquaria may decide to only keep threatened species which will ultimately benefit from the conservation work they fund. This would require finding new ways to generate revenue, especially in the aftermath of COVID-19 which has imposed park closures in many countries worldwide (Briggs, 2020; Rodriguez, 2020).

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CONFLICT OF INTEREST

We have no conflicts of interest to declare.

AUTHORS' CONTRIBUTIONS

L.B. and D.V. conceived the ideas and designed the methodology; L.B. collected and analysed the data; L.T.-W. led the writing of the manuscript. All authors contributed critically to the drafts and gave final approval for publication.

DATA AVAILABILITY STATEMENT

As the interviews contain sensitive information that could identify study participants, they cannot be made available.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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