

Sustainability in whale-watching: A literature review and future research directions based on regenerative tourism

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ABSTRACT

There is scientific consensus that human activity through whale-watching is causing an increasing amount of damage to the natural environment, which poses critical challenges to the goal of sustainability. Based on a quantitative *and* qualitative assessment of the scientific literature, this study calls for urgent rethinking in regards to whale-watching sustainability. A new, integrative framework for research actions built upon the concept of regenerative tourism is provided so as to lead to a more balanced evaluation of environmentally and socially responsible whale-watching tourism. The assessment of the literature review leads to three main research areas that have driven the research field in whale-watching tourism: the ecological responses of cetaceans due to human disturbance, the determinants of whale-watching tourism demand, and the impact of tourism on sustainability from macro-cultural and political perspectives. The new integrative framework, which additionally considers *innovation* and *external drivers* as prominent research areas, proposes future guidelines for studying the interplay between some of the more specific research topics: social change, economic drivers, gender perspective, co-creation, social responsibility, technology, climate change and long-term cumulative effects, among other issues of concern.

1. Introduction

Whale-watching tourism involves encountering whales, dolphins, and other species of cetacean in their natural habitat for human recreational purposes (Hoyt, 2002). The fact that the activity emerged as a non-extractive, conservation-oriented use of natural resources (Duffus & Dearden, 1990; Wakamatsu, Shin, Wilson, & Managi, 2018) led to its wide consideration as a sustainable activity commonly framed within the broader market of (eco)tourism. However, its overwhelming growth and the associated negative impacts on valued environmental systems urgently call for a balanced sustainability assessment (Higham, Bejder, Allen, Corkeron, & Lusseau, 2016). There have been recognisable efforts to put into place some guidelines that move the whale-watching industry towards a more respectful form of interaction between human beings and the natural world, such as the recommendations on how operators should manage the negative interactions between boats and the affected cetacean species (Amerson & Parsons, 2018; Higham, Bejder, & Lusseau, 2009; Hoyt, 2007; Lambert, Hunter, Pierce, & MacLeod, 2010). In so doing, some authors have also suggested that to address sustainability,

whale-watching must enhance scientific and educational development, contribute to long-term financial management and provide widespread social benefits across destinations (Hoyt, 2007; O'Connor, Campbell, Cortez, & Knowles, 2009).

However, the provision of effective management solutions is still a challenging hurdle. The sustainability of whale-watching is being compromised by its careless expansion at many tourist destinations and the resulting pressure on whale species and ecosystem services (Bejder et al., 2006; Curtin, 2010; Finkler & Higham, 2020; Orams, 2000; Parsons, 2012; Senigaglia et al., 2016; Wearing, Cunningham, Schweinsberg, & Jobberns, 2014). As pointed out by Gleason and Parsons (2019) in their regular digest of whale-watching research, there is a need to persuade stakeholders to behave in more respectful ways (Amerson & Parsons, 2018; Gleason & Parsons, 2019). From a broader perspective, the earlier calls for new forms of recreation based on integrative human-environment relationships and the worldwide 'pause' due to the Covid-19 pandemic also reveal the need for new imaginaries to move tourism away from the 'business as usual' mentality if the industry is to avoid collapse (Cave & Dredge, 2020; Higham et al., 2016).

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Therefore, the principal objectives of this article are to assess the state of research on the sustainability of whale-watching tourism and to set out a research agenda that calls for a transition within the more integrative concept of regenerative tourism. That is, based on the research gaps encountered during the literature review, we conclude that a ‘challenge-led’ approach based on the ideas of *regenerative tourism* may be paramount for addressing the externalities of whale-watching and (eco)tourism, and reconciling their development with “all well-beings as societal values, including environmental, social, cultural, and economic” (Becken & Kaur, 2021). The adoption of the regenerative paradigm could contribute to moving whale-watching towards a more proactive regeneration of the industry, tourist destinations, local communities, and coastal and marine environments rather than simply focusing on reducing its impacts (Day, Sydnor, Marshall, & Noakes, 2021; Duxbury, Bakas, Vinagre de Castro, & Silva, 2020; Reed, 2007).

Regenerative tourism is a novel concept that, in departing from the traditional ideas of sustainability, goes beyond the ‘sustainable development’ paradigm in order to transform the social-ecological systems where tourism takes place and adopts an innovative approach to elevating human and non-human well-being (Cave et al., 2022). It relies on social awareness building and the co-creation of meaningful tourism experiences, promotes local involvement and genuine community benefits, as well as a ‘restorative relationship’ with nature in all dimensions and at all scales (Cave et al., 2022; Hussain & Haley, 2022; Reed, 2007). From this perspective, the whale-watching sector would be able to contribute to the welfare of cetaceans and their recovery by collaborating with a science-based conservation policy. Furthermore, the principles of regenerative tourism would help consumers understand and accept that animal welfare needs to be at the centre of their whale-watching experiences. It would also guide authorities to promote an informed consensus on ‘good practices’ and keep on top of surveillance and regulation enforcement (Cave & Dredge, 2020; Day et al., 2021; Fumagalli et al., 2021; New et al., 2015; Pacheco, Sepúlveda, & Corcheron, 2021).

In order to put forward a research agenda framed in the regenerative paradigm, this article explores the knowledge on whale-watching tourism gleaned from scientific research carried out over the last 50 years. A blended review approach was conducted utilising quantitative and qualitative analyses. The results highlight those research efforts directed at overcoming the existing seminal gaps. By pinpointing the urgent need for a ‘rethink’ on whale-watching (Constantine & Bejder, 2008; Gleason & Parsons, 2019; Higham et al., 2016), this assessment is followed by a proposal for a new integrative framework for research actions that suggests *transboundary* and *transformative* routes to: i) fomenting changes in human behaviour, taking into consideration consumer heterogeneity, the actions of operators, the gender perspective, etc.; ii) reducing the (less-visible and cumulative, long-term) effects on cetaceans due to the direct impacts from human activity, but also from external drivers such as climate change; iii) innovative practices based on social responsibility, co-creation and technology. This new agenda will assist in encouraging whale-watching management towards implementing a full-blown environmentally and socially responsible policy (Fumagalli et al., 2021; Lissner & Mayer, 2020; New et al., 2015). This will be achieved first by providing orientation towards more integrative research efforts and, second, through the adoption of innovative practices for sustainable development pathways.

The present article is structured as follows. Section 2 describes the methodology used to identify the key research areas and the causes of the ‘lags’ encountered in the process of trying to reach the objective of whale-watching sustainability. Section 3 presents the main results obtained through the application of *scientometrics* and carries out a qualitative evaluation in order to raise questions about research achievements from the sustainability perspective. Section 4 proposes future lines of research by presenting an integrative framework built upon the regenerative paradigm. By combining the systematic interplay of key research areas with this novel concept, valuable actions and

responses would be provided rather than the mere declaration of good intentions and half-hearted suggestions on what should be done to move the industry towards true sustainability. Finally, Section 5 presents the conclusions of the study.

2. Methodology

2.1. Scope delimitation and methods

This paper poses the following research questions looking for yielding responses for sustainable whale-watching tourism pathways:

(RQ1) What are the main areas and interests of scholarly research in whale-watching?

(RQ2) To what extent has past and current research contributed to the sustainable management of whale-watching?

(RQ3) What would a feasible, future research framework aimed at regenerating sustainable whale-watching tourism look like?

A review was conducted utilising a blended methods approach of quantitative analysis and qualitative meta-evaluation so as to display a more insightful and balanced appraisal of the literature (see Fig. 1). Through scientometrics (quantitative assessment), a broad overview of the underlying knowledge domain and potentially significant - but currently overlooked - connections were identified (Bai, Bai, & Wang, 2021; Khanra, Dhir, Kaur, & Mäntymäki, 2021), responding to the primary research question. Then, a qualitative meta-evaluation was performed to address RQ2. The qualitative assessment contributed to a more interpretative analysis of the evidence (Weed, 2006), enabling us to describe and interpret the existing knowledge domain (Dinçer, 2018; Park & Gretzel, 2007). Finally, this blended review approach provided significant insights that helped us respond to the third research question

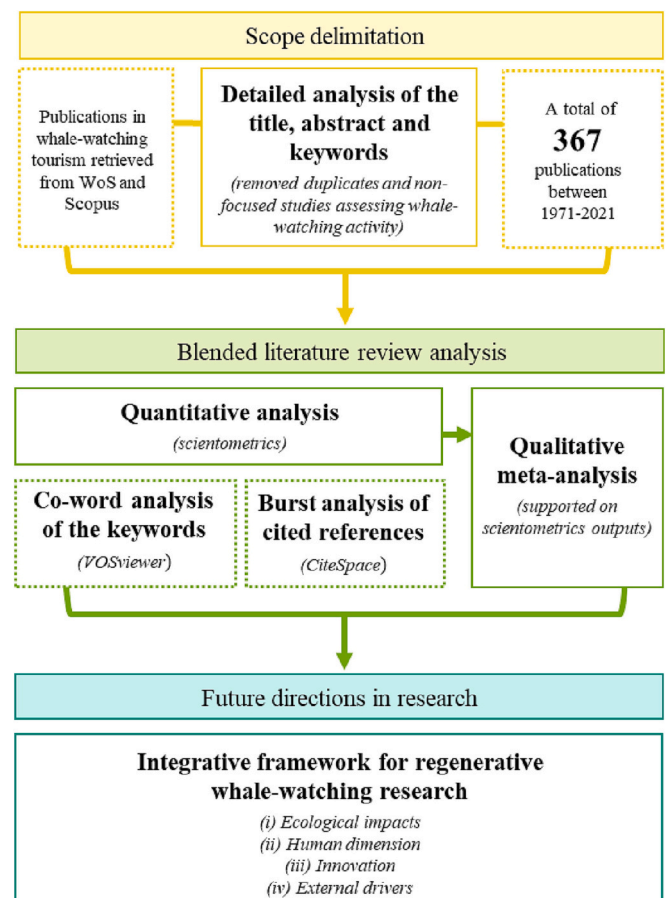


Fig. 1. Study roadmap.

of this paper (RQ3). It is hoped that the proposal of a new framework will facilitate the bridging of the existing research gaps, help overcome the challenges, and identify and exploit opportunities for reconciliation in whale-watching sustainability. This would have real and significant implications for research, for the industry - operators and consumers - and for the political sphere. These future lines of research are built upon the paradigm of *regenerative tourism* as a new way to understand sustainability, which is also a more integrative, resilient and proactive framework (Cave et al., 2022; Cave & Dredge, 2020).

2.2. Data processing

The publications consulted in this review were retrieved from the Web of Science (WoS) and Scopus repositories within the period from 1971 (the first recorded document) to 2021 (see Fig. 1). 'Whale-watching tourism', 'dolphin-watching tourism', and 'cetacean-watching tourism' - collectively known as *whale-watching tourism* - delimited the first scope of the search. A second exploration was also conducted, considering other complementary keywords that closely fit the research aims, such as 'sustainability', 'management', 'impacts', 'tourists', 'whale-watchers', 'operators', 'firms', and 'economic value'.

The title, abstract and keywords of the records were analysed in detail before they were included in the final database. After removing the duplicates and excluding some studies in which whale-watching tourism activity was not the principal focus of research - such as in the cases of scientific data collection and citizen science -, the definitive database ended up being composed of 367 publications. Notably, hand-curation processing of keywords was done to reduce 'noise' and obtain more accurate results. Thus, from the initial 1147 keywords, the final sample comprised 1042 - e.g., 'tour boat', 'boat/s', 'ship', 'vessel/s', were grouped under 'tour boat'.

2.3. Data analysis and mapping

The database was first analysed and mapped employing VOSviewer (Van Eck & Waltman, 2010) and CiteSpace (Chen, 2006). According to Moral-Muñoz, Herrera-Viedma, Santisteban-Espejo, and Cobo (2020),

the employment of one visualisation tool or another is down to the researcher's decision regarding the option that best fits his or her aims. Thus, while the former provides one of the best visualisations, CiteSpace facilitates the analysis of emerging trends in a knowledge domain (Moral-Muñoz et al., 2020).

Specifically, a co-word analysis and a burst analysis were selected for the quantitative approach (Fig. 1). The content analysis of keywords (co-word analysis) was conducted to explore the main research areas of the literature and their interlinkages (Sigala, 2021). Meanwhile, a burst analysis of the cited references was run to identify studies that have attracted scholars' attention within a certain period, regardless of how many times they were cited, and show predictors of research frontiers (Bai et al., 2021; Chen, 2006).

3. Results

3.1. Scientometric insights

This section is focused on identifying the main areas and interests of scholarly research in whale-watching, responding to RQ1. Figs. 2 and 3 depict VOSviewer's visualisation maps. The keyword map in Fig. 2 shows that whale-watching domain themes rely on i) cetaceans' ecological responses (corresponding to the cluster in the green), ii) consumer behaviour (blue cluster) and iii) the impact of tourism on sustainability (cluster in bluish green).

Tracking the evolution of the top-occurring keyword, shown in Fig. 3, enabled us to understand how the research field has progressed in response to whale-watching growth. For instance, in the early 1990s, the activity was still recognised as a form of 'ecotourism' since it contributed towards stopping commercial whale hunting - Canada being the main pioneer in this regard (Hoyt, 2001; O'Connor et al., 2009). In the 2000s, due to the exponential growth of the activity worldwide (O'Connor et al., 2009), concerns about the 'conservation status' of cetaceans led scholars to focus on assessing the 'behavioural responses' of whales and dolphins to the development of the activity with the aim of providing 'management guidelines'. As is shown in this second period (2001–2010), the broader concept of 'tourism' seems to overshadow

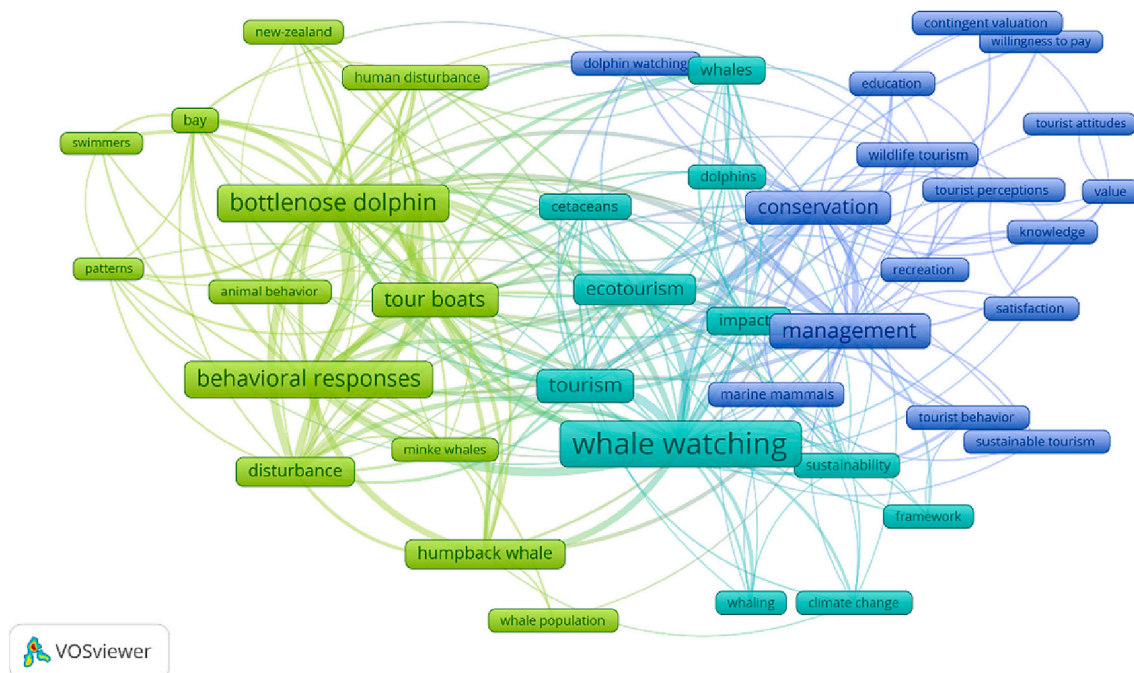


Fig. 2. Keyword map of whale-watching tourism research. Visualisation based on the strength with which two keywords occur in a publication.

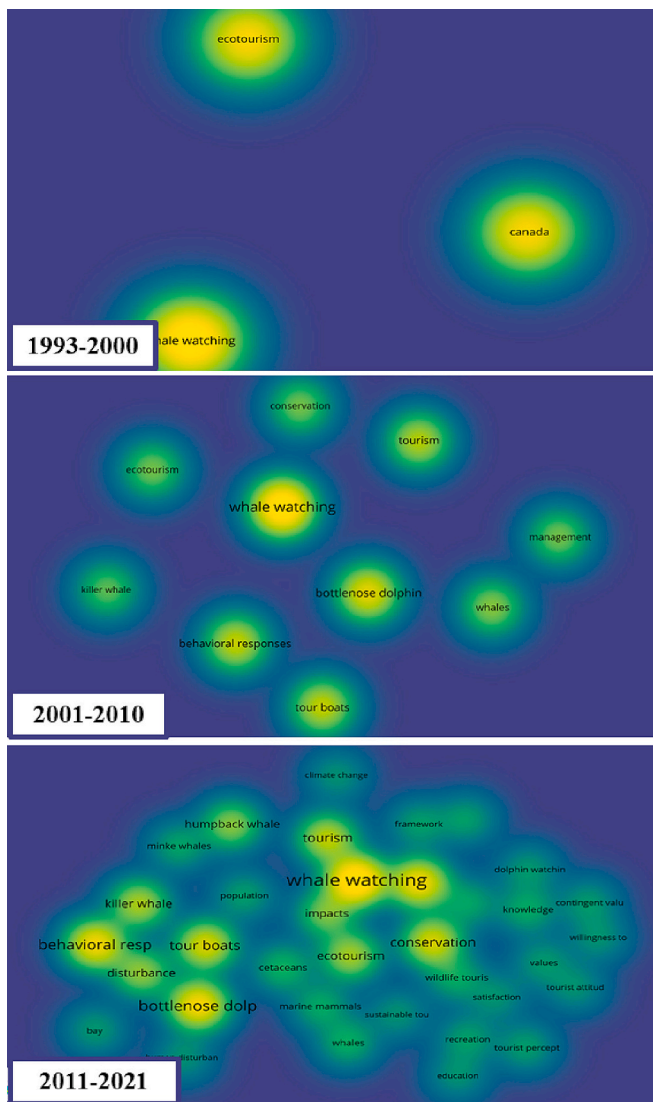


Fig. 3. Keyword evolution map.

Notes: Density view of the keywords by periods; colours range from blue (lowest item density) to yellow (highest density). 1993 corresponds with the first year where publications began to include keywords in their description.

1993–2000: threshold = 3 minimum keyword occurrences; 3 / 77 meet the threshold; 2001–2010: threshold = 5 min. occurrences; 10/175 meet;

2011–2021: threshold = 5; 39/1042.

Note that within 1993–2000, VOSviewer did not identify keywords meeting a threshold larger than three occurrences, probably due to the low number of keywords during this period ($n = 77$).

‘ecotourism’. By then, participation in the activity was becoming increasingly widespread, tempting some in the industry to adopt inappropriate practices now that they were no longer exclusively under the watchful eye of conscientious and responsible eco-tourists (Finkler & Higham, 2004; Malcolm & Duffus, 2008; Orams, 2000). Hence, between 2011 and 2021, scholars expanded their research to include consumer behaviour - ‘satisfaction’, ‘tourist perception’, ‘tourist attitudes’, etc. - as a critical aspect for reconciling the development of the activity with cetacean ‘conservation’. Similarly, ‘climate change’ became another research ‘hotspot’ in response to policy concerns over oceans’ vulnerability (Lambert et al., 2010).

Table 1 displays the top 12 references with the strongest citation burst, indicating that research interest has primarily focused on studies analysing the impacts on cetaceans, with three exceptions: Corkeron (2004), Hoyt (2001) and O’Connor et al. (2009). Corkeron’s study

(2004) confirms the attention given to macro-cultural discourse around the development of the activity, while the other two (Hoyt, 2001; O’Connor et al., 2009) report on the state-of-the-art developments contributing to the industry’s growth during their respective time periods.

3.2. A qualitative review of the literature

This section responds to the second research question (RQ2). Qualitative evidence explores, in detail, the extent to which research has been able to respond to and support the following: i) the conflict between the development of the activity and cetacean welfare (supported by the keyword cluster regarding cetaceans’ ecological responses in Fig. 2); ii) the determinants of whale-watching tourism demand (the consumer behaviour cluster); iii) the macro-cultural and political effects on sustainability (the bluish-green cluster related to tourism’s impact on sustainability).

3.2.1. The conflict between the development of the activity and cetacean welfare

The need to overcome the conflict between the (non-sustainable) development of the industry and cetacean conservation has stimulated great research interest in: i) the human subjects causing the pressure (tour boats, swimmers, etc.); ii) the vectors of disturbance (vessel manoeuvring, time interacting, noise, feeding animals, etc.) and their exposure levels (e.g., distance, angle, time, decibels...); iii) cetacean behavioural responses (foraging, resting and socialisation time, swim speed, respiration rates and energetic costs, etc.); iv) the different cetacean species (e.g., killer whales, humpback whales, bottlenose dolphins...) and type of individuals affected (males, females or calf pods); v) the impacts at different whale-watching sites (see, e.g., Argüelles, Coscarella, Fazio, & Bertellotti, 2016; Avila, Correa, & Parsons, 2015; Chalcofsky, Crespo, & Coscarella, 2020; Currie, McCordic, Olson, Machernis, & Stack, 2021; Di Clemente et al., 2018; Kassamali-Fox, Christiansen, May-Collado, Ramos, & Kaplin, 2020; May-Collado, Quiñones-Lebrón, Barragán-Barrera, Palacios, & Gamboa-Poveda, 2014; Noren, Johnson, Rehder, & Larson, 2009; Schuler et al., 2019; Stamatton, Croft, Shaughnessy, Waples, & Briggs, 2010; Weinrich & Corbelli, 2009).

Likewise, the development of more accurate research methodologies, more sensitive tools and lower-cost monitoring techniques have bridged some of the major research gaps, addressing the misinterpretation of cetacean species’ behaviour and the complexity of ecosystem dynamics (see Bejder, Higham, & Lusseau, 2022; Bejder & Samuels, 2003; Bejder, Samuels, Whitehead, & Gales, 2006; Bejder, Samuels, Whitehead, Gales, Mann, et al., 2006; Burnham, Duffus, & Malcolm, 2021; Chen & Lin, 2019; Erbe et al., 2019; García-Cegarra, Villagra, Gallardo, & Pacheco, 2019; Lusseau, 2003; Meissner et al., 2015; Radeta, Nunes, Vasconcelos, & Nisi, 2018). For instance, evidence shows that cetaceans decrease their energy reserves in response to the intrusive ‘swim-with’ activity (Constantine, 2001; Hoarau & Hjalager, 2020; Sprogis, Bejder, Hanf, & Christiansen, 2020; Stack et al., 2021) and take less predictable paths when vessels come too close (Williams et al., 2002). Meanwhile, exposure to (excessive) vessel noise significantly alters cetaceans’ communication, rest time, respiration rate, and swim speed (Arranz, de Soto, Madsen, & Sprogis, 2021; Au & Green, 2000; Erbe, 2002; Jensen et al., 2009; Sprogis, Videsen, & Madsen, 2020); other stressors on cetaceans’ health are found in CO and NO₂ vessel emissions (Lachmuth, Barrett-Lennard, Steyn, & Milsom, 2011).

From a sustainability perspective, all these studies have underscored the importance of following the existing whale-watching guidelines - or even developing more conservative ones - if the industry is to ensure the long-term survival of cetaceans. However, the transfer and implementation of research-based recommendations has not fully succeeded in practice. As Bejder et al. (2022) point out, the irresponsible behaviour of the tourism industry is threatening the conservation status of 21% of

Table 1
Publication citation network.

Reference	PY	Strength	Begin	End	1971–2021
Hoyt (2001), WW 2001, V0-P0	2001	11.13	2003	2011	
Bejder, Dawson, & Harraway (1999), https://doi.org/10.1111/j.1748-7692.1999.tb00840.x	1999	6.84	2003	2009	
Williams, Trites, and Bain (2002), https://doi.org/10.1017/S0952836902000298	2002	8.24	2004	2011	
Lusseau (2003), https://doi.org/10.1111/j.1523-1739.2003.00054.x	2003	5.73	2004	2013	
Constantine, Brunton, and Dennis (2004), https://doi.org/10.1016/j.biocon.2003.12.009	2004	8.88	2006	2013	
Bejder, Samuels, Whitehead, Gales, Mann, et al. (2006), https://doi.org/10.1111/j.1523-1739.2006.00540.x	2006	7.63	2006	2016	
Corkeron (2004), jstor.org/stable/3589096	2004	6.10	2006	2014	
Bejder & Samuels (2003), MAR MAMM FISH TOUR MANG, V0-P0	2003	5.78	2006	2013	
Williams, Lusseau, and Hammond (2006), https://doi.org/10.1016/j.biocon.2006.06.010	2006	6.50	2008	2016	
O'Connor et al. (2009), WW WORLD, V0-P0	2009	8.72	2012	2019	
Parsons (2012), https://doi.org/10.1155/2012/807294	2012	6.94	2015	2021	
Senigaglia et al. (2016), https://doi.org/10.3354/meps11497	2016	5.51	2017	2021	

Note: Co-citation analysis parameters: look back years = 10; top N per slice = 100; top N% = 50%; threshold burst = 2 years.

marine mammals, including cetaceans. For now, the first research question of this study remains unsolved. Factual research evidence is failing in its valuable role in encouraging the industry to behave in a balanced, resilient and respectful manner in order to ensure the desirable welfare status of cetaceans (Bejder et al., 2022; Fumagalli et al., 2021; Higham et al., 2016).

3.2.2. The determinants of whale-watching tourism demand

The intense emotions cetaceans evoke in people have led whale-watching to focus heavily on meeting tourists' expectations and desires (Cisneros-Montemayor, Sumaila, Kaschner, & Pauly, 2010; Orams, 2000; Orams & Forestell, 1995). In so doing, the search for satisfaction has been equated with the wish of tourists for close and prolonged encounters with cetaceans, pressuring operators to behave accordingly and increase the level of harassment of whales and dolphins (Duffus & Dearden, 1993; Meyer et al., 2021; Orams, 2000). However, Orams (2000) called for more research efforts to understand the effects of consumer behaviour on the development of the activity, thus revealing other factors influencing tourist satisfaction.

The responses to these efforts have delivered extensive research analysing i) tourists' expectations and motivations, ii) their opinions about the service provided (boat comfort, crowding, close encounters, trip duration, interpretative elements, etc.), and iii) other desires that form the basis of satisfaction (see Ávila-Foucat, Vargas, Jordan, & Flores, 2013; Bentz, Lopes, Calado, & Dearden, 2016a; Cárdenas et al., 2021; Fraser, McWhinnie, Canessa, & Darimont, 2020; Malcolm, Dagostino, & Ortega, 2017; Valentine, Birtles, Curnock, Arnold, & Dunstan, 2004). For instance, it has been proved that boat safety and comfort, onboard information and operators' 'good practices' are significant contributors to tourist satisfaction (Cárdenas et al., 2021; García-Cegarra & Pacheco, 2017). This evidence demonstrates that operators can positively comply with existing regulations while still meeting tourists' demands (Filby, Stockin, & Scarpaci, 2015; Finkler & Higham, 2020; Tkaczynski & Rundle-Thiele, 2019). In the long run, education and interpretation are the most widely-studied elements that will mediate human pro-environmental attitudes and behavioural changes (Ballantyne, Packer, & Sutherland, 2011; Bentz et al., 2016a; Finkler, Higham, León, & Aitken, 2019; García-Cegarra & Pacheco, 2017; Hoberg, Kannis-Dymand, Mulgrew, Schaffer, & Clark, 2021; Maguire, Kannis-Dymand, Mulgrew, Schaffer, & Peake, 2020; Zeppel, 2008).

However, the question regarding the determinants of consumer demands and how the activity may lead to a behavioural change is still to be successfully answered (Tkaczynski, 2021). It has been found that, for instance, whale watchers are not all equally receptive to, nor always interested in, learning about environmental conservation (Malcolm et al., 2017; Zeppel, 2008). As another example, research has also pointed out that women are generally more concerned with animal welfare than men and thus their willingness to pay for whale protection

tends to be higher (Bertella, 2019; Malinauskaite, Cook, Davíðsdóttir, & Ógmundardóttir, 2021). The complex dynamics of tourist behaviour challenges the design of management solutions for environmentally sound whale-watching experiences.

3.2.3. The macro-cultural and political effects on sustainability

Initially, whale-watching development succeeded in promoting whales as icons for the international environmental movement and represented a viable alternative way of making a living for populations of whaling destinations (Lawrence & Phillips, 2004; Orams, 2002; Orams & Forestell, 1995). However, from this (socioeconomic) perspective, extensive debate regarding the sustainability of the activity has been prompted in the literature, sparking various currents of knowledge, as the following presents.

3.2.3.1. The macro-cultural discourse. Assuming that 'whales are worth more alive than dead', the capitalisation of whale-watching as an alternative in the face of political pressure to stop whaling was at some point feasible - except in Norway, Iceland and Japan, partly due to their high cultural resistance (Ris, 1993). Academics have highlighted the potential to increase economic profitability if whale-watching management strategies are adequately addressed (Cunningham, Huijbens, & Wearing, 2012). This has been justified, for instance, by the stronger preference of tourists for whale protection over banning whaling or limiting whale-watching (Wakamatsu et al., 2018).

However, other academics have questioned the simplistic argument about the 'goodness' of whale watching. They argued that the real motivation behind the 'save the whales' movement and tourist development was based on capitalist economic and political interests (Corkeron, 2004; Singleton, 2018). In this vein, Neves (2010) critically concluded that whale-watching and whaling were two different business models, suggesting more analytical and practical approaches to connecting the former with the goals of environmental conservation (Higham & Lusseau, 2008; Neves, 2010). Moreover, regarding the coexistence of both activities, Singleton (2018) evidenced a market niche of tourists demanding whale meat, which contrasts with the 'non-extractive' approach of whale-watching tourism.

3.2.3.2. The human-ecological and management discourse. Whale-watching has grown within a complex and highly fragmented regulatory context (Garrod & Fennell, 2004; Mallard, 2019). It has been widely reported by academics that the existing measures do not consistently prevent disturbances to cetaceans or that operators, to some extent, do not fully comply with the time restrictions - swim time, time in proximity to the animals -, nor employ appropriate manoeuvring techniques (Constantine et al., 2004; Meissner et al., 2015; Scarpaci, Dayanthi, & Corkeron, 2003; Whitt & Read, 2006; Williams et al., 2002). Likewise, the inadequate resources of authorities to monitor operators'

compliance with legislation - or their poor leadership - compromise the enforcement of viable management practices in responsible whale-watching (Parsons & Woods-Ballard, 2003).

Based on these considerations, the urge for a paradigm shift (Constantine & Bejder, 2008) has driven academics to recommend i) the development of unified, multidisciplinary strategies to manage the negative externalities of whale-watching (Higham et al., 2016; Stamation, 2008), ii) the involvement of operators and consumers to plug gaps in the limited monitoring capacity of authorities (Cárdenas et al., 2021; Soto-Cortés, Luna-Acosta, & Maya, 2021), and iii) the design of alternative monitoring strategies (e.g., declaring protected areas) to limit the growth of the industry (Ku, Chen, & Ying, 2014; Lusseau, 2003; Tseng, Huang, Kyle, & Yang, 2011; Williams et al., 2006).

However, research has yet to succeed in contributing to the sustainable management of whale-watching tourism from the macro-cultural and political perspective. According to Bejder et al. (2022), Fumagalli et al. (2021), Higham et al. (2016) and Pacheco et al. (2021), no sustainability achievements will be observed at most destinations if the actual whale-watching business model does not move away from the single-minded focus on 'economic-prosperity' and the site-specific, short-term thinking and governmental idiosyncrasies.

4. An integrative framework for research actions towards regenerative whale-watching

The present review calls for a proposal to move towards a comprehensive scientific engagement with whale-watching management practices according to the various knowledge gaps and unsolved research issues. Thus, this section responds to the third and final question of the present study (RQ3). An integrative framework building upon the ideas of regenerative tourism is presented, calling for a feasible future research agenda for sustainability pathways in whale-watching. This framework is suitable for understanding how the various elements and issues that make up the tourist experience can be integrated in order to improve the management of whale-watching destinations. Suggestions are made to reconcile the diverse interests of tourism, including economic prosperity and social well-being, with the protection of cetaceans and the enhancement of their welfare.

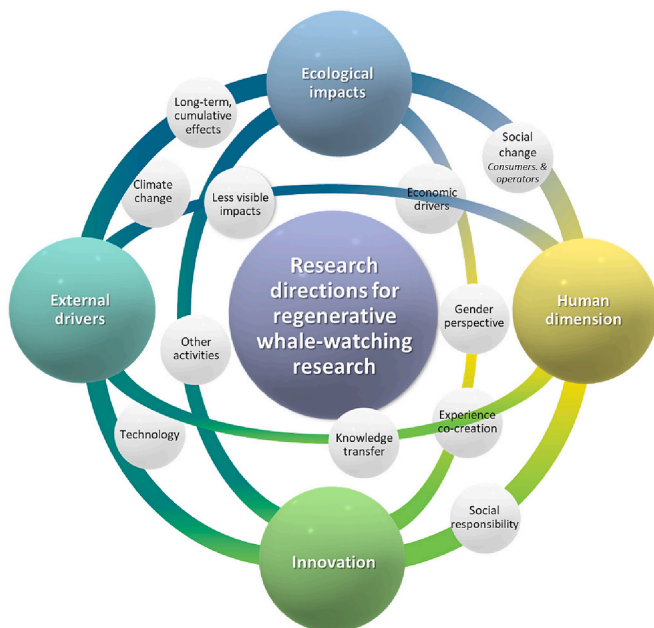


Fig. 4. Integrative research framework towards sustainable and regenerative whale-watching.
Source: Authors.

Fig. 4 illustrates the proposed framework, which places the pillar focus on four major research areas - (1) ecological impacts, (2) the human dimension, (3) innovation, and (4) external drivers - and how they relate to one another in a 'three-dimensional' circularity motion of the elements involved, including social change, economic drivers, knowledge transfer, technology, climate change, and less visible impacts. To better understand how this holistic scheme works, the following aspects need to be considered:

(1) Holistic theoretical background

The design of our framework is grounded on a holistic set of approaches: i) McKinsey's 7S model, in which the different elements interact to achieve an effective collaboration (Waterman Jr, Peters, & Phillips, 1980); ii) Clarke's framework of converging approaches to sustainable tourism (1997), which considers ecotourism as a continuum; iii) the evolutionary and dynamic approach of *regenerative tourism* through the lens of Bellato, Frantzeskaki, and Nygaard (2022) and Sheldon (2022), which captures the ongoing evolution of human and non-human rights and seeks to balance the relationships - in the context of tourism regeneration - in a recurring adaptation to the learning cycles of tasks, resources and activities, and the development of capabilities, among other things (Bellato et al., 2022; Sheldon, 2022).

(2) A design based on orbiting connections

Secondly, the framework follows a three-dimensional orbiting design in which all the elements are harmoniously interconnected so as to reconcile the ecological and human dimensions of whale-watching tourism. These orbiting connections allow for the outputs of one or more elements (whether the four big spheres or the small grey spheres) to act as inputs to others, and any potential change or improvement (or adverse effect) in them may have an impact (positive or negative) on another element of the system.

(3) Innovation and external drivers as primary research areas

In addition, the framework also incorporates two pillars focusing on innovation and external drivers as major research areas (big spheres) with the aim of enhancing the development and application of operational and policy decisions. That is, the pillar *external drivers* enables us to understand those aspects that influence the activity but are not controlled by it - climate change, bycatch fishing, international shipping traffic, (micro)-plastics, other forms of terrestrial pollution and so forth - while *innovation* investigates progress led by creativity, original problem-solving, and new ways of thinking and applying knowledge (Moscardo, 2008).

(4) A blended qualitative and scientometrics selection of research topics

The proposed framework also values the emerging outcomes from the scientometrics analysis, particularly those keywords in Fig. 2 that are decentralised from the leading scholars' concerns and research (i.e., the visualisation map) and, therefore, require further research efforts (Teixeira & Pocinho, 2020). For instance, in the context of the human dimension, we encourage the prioritisation of *economic drivers* since 'value', 'willingness to pay' and 'contingent valuation' are positioned in the extremes of the keyword map. Likewise, other academic challenges highlighted in the qualitative review (such as the *gender perspective*) are included in the framework aimed at regenerating whale-watching tourism holistically. Worth noting is the integrative structure of this framework, which will allow the inclusion of as many research concerns and practical needs as may be further required.

Hereof, the following subsections discuss the research priorities revolving around the proposed pillars for regenerative whale-watching tourism. A description of each of the specific topics (grey spheres) is

presented and their potential relationships are also highlighted. The discussion is intended to provide more concrete and helpful recommendations alongside a holistic research perspective for (re)designing the whale-watching experience based on regenerative tourism.

4.1. Social change

4.1.1. Consumers

The efforts to understand the different tourist interests and preferences have confirmed that whale watchers are a heterogeneous market with varying consumption-related behaviours in the context of environmental responsibility and wildlife protection (Bentz, Lopes, Calado, & Dearden, 2016b; Malcolm & Duffus, 2008). However, the literature is still limited on how to move tourists towards more sustainable interests, behaviours, and practices, particularly when destination-specific idiosyncrasies affect their travel motivations and decisions (Senigaglia, New, & Hughes, 2020). As earlier studies found, specialisation in whale-watching tourism pertains to specific destinations and is influenced by their popularity (Bentz et al., 2016b; Pacheco et al., 2021). According to some scholars, social media content analysis may be utilised by researchers in re-shaping consumer behavioural patterns at whale-watching destinations (Bandara & Bandara, 2019; Pagel, Orams, & Lück, 2020).

Research has also not paid sufficient attention to emotional and aesthetic values as persuasive approaches to bringing about a structural transformation in tourism services provision. This is despite their tried and tested potential to induce attitudinal and behavioural social changes and encourage more ethical practices related to animal welfare protection (Ballantyne et al., 2011; Cloke & Perkins, 2005; Finkler et al., 2019; Fraser et al., 2020; Hoberg et al., 2021; Hughes, 2001; Maguire et al., 2020; Orams, 2000). As Finkler and Davis (2021) suggested, one feasible approach in this regard could be to include affective communication messages in educational and 'interpretation' programmes by, for example, projecting emotive film messages (Finkler & Davis, 2021).

Both forms of communication (social media analysis and invoking emotions) work well and may be considered as powerful, 'bottom-up' management tools. That is to say, well-informed and motivated consumers and tourists could help in the promotion of responsible practices by reporting those which are irresponsible, thereby contributing to the industry's market positioning as a regenerative (eco)tourism industry (Finkler & Higham, 2020).

4.1.2. Operators

As with the aforementioned communication messages, the analysis of the impact of operators' marketing strategies and how they project the activity's image has also been neglected so far in the literature, especially from the point of view of animal welfare. This is critical in the internet era where information is rapidly spreading through social media platforms (e-WOM) (Lenzi, Speiran, & Grasso, 2019). As Judge, Penry, Brown, and Witteveen (2020) suggested, misleading advertising about spectacular animal behaviours - e.g., dolphins jumping or doing impressive pirouettes, a whale's tail as it dives, etc. - can 'viralise' unrealistic and exaggerated images of the whale-watching experience, inciting tourists to demand the provision of the activity as advertised.

The inadequate and/or inappropriate practices of operators have been extensively reported worldwide: in the North-Western Mediterranean Sea (Tepsich, Borroni, Zorgno, Rosso, & Moulins, 2020), the North-East of the Atlantic Ocean (IWC, 2020b), the Pacific coast of North America (Amerson & Parsons, 2018), and the Caribbean coasts of Panama (Sitar et al., 2016), to cite a few examples. Despite a large number of guidelines and regulations to ensure 'good practices', this evidence is urgently calling for a total rethink of management formulas. According to some academics, operators' actions directly affect not only their profit, but also the wellbeing of cetaceans, consumers and residents (Becken & Kaur, 2021; Curtin, 2010).

Thus, operators should become more responsible by balancing their

actions and communication messages with the potential adverse effects on the welfare of stakeholders and the natural environment, thereby complying with a sound regenerative approach to the management of the industry (Cave et al., 2022; Cave & Dredge, 2020).

4.2. Economic drivers

Academics still need to provide a closer understanding of tourists' preferences and their willingness to pay for a broader range of aspects of the experience in order to support a cost-effective, high-quality and ecologically sustainable whale-watching industry in the long run (Cheung et al., 2019; Cook, Malinauskaite, Davíðsdóttir, Ögmundardóttir, & Roman, 2020; Mayer et al., 2018; Suárez-Rojas, González Hernández, & León, 2021). From the traditional contingent valuation methods and discrete choice experiments, studies still need to move towards more accurate models to include and understand, among other things, the role of consumers' emotional and aesthetic values in the context of their 'purchasing decision' regarding more committed whale-watching tours (Cook et al., 2020; Lee, Mjelde, Kim, Lee, & Choi, 2019; Malinauskaite et al., 2021).

Likewise, research should also be directed towards how to provide reliable insights into the industry so as to tailor experiences with economically sound plans according to the heterogeneous group of customers' expectations. Hence, there is a need to estimate the value of potential 'substitution relationships' in order to encourage operators to reallocate investments to more sustainable actions that compensate for the 'less environmentally-friendly' preferences of some consumers. The findings along this line of research would potentially add value to the product and increase its market competitiveness, thereby working towards a more regenerative tourism economy.

4.3. Gender perspective

Women are involved differently than men in tourism consumption (Rasoolimanesh, Khoo-Lattimore, Md Noor, Jaafar, & Konar, 2021; Swain, 1995). They generally make more ethical and 'environmentally-aware' consumer choices, while men tend to be more interested in the thrill of engaging in challenging experiences in nature (Chauvat, Granquist, & Aquino, 2023; Rizzolo, Delie, Carlson, & Dietsch, 2023; Rosa, Larson, Collado, Cloutier, & Profice, 2020; Suárez-Rojas, León, & Lam-González, 2023). However, in the whale-watching field, there is, as of yet, no strong consensus about the role of gender (see Ávila-Foucat, Gendron, Revollo-Fernandez, Popoca, & Ramírez, 2017; Cook et al., 2020; Lissner & Mayer, 2020; Suárez-Rojas et al., 2021; Tortolini, Degradi, & Coscarella, 2021). As tourism is a crucial arena in the fight for gender equality (Alarcón & Cole, 2019; Figueroa-Domecq & Segovia-Perez, 2020), there is a need for more in-depth studies that elucidate the link between whale-watching tourism consumption and gender.

Differences between women's and men's perspectives also have implications for natural resource management and wildlife issues, as earlier demonstrated in the (eco)tourism management context (Chauvat et al., 2023; Miller & Jones, 2006; Sanborn & Schmidt, 1995). Indeed, women have a more refined 'ethic of care' (eco-feminism) and are more likely to engage in animal welfare and rights initiatives (Bertelle, 2018; Fennell, 2011; Mkonu, Rastegar, & Ruhanen, 2021). Likewise, Cave et al. (2022) underlined the predominance of women in supporting a regenerative shift and a move away from the male-oriented values of the capitalist domain towards values based on justice, inclusivity, and ethics of care. However, to our knowledge, there is no evidence yet of *ecofeminist pedagogy* and *gender empowerment* within academia and management decision-making in tourism general, or in the whale-watching activity in particular (Je, Khoo, & Yang, 2022), even though it may imply a sound critical turn towards achieving the sustainability paradigm shift (Alarcón & Cole, 2019; Figueroa-Domecq & Segovia-Perez, 2020).

4.4. Experience co-creation, social responsibility and knowledge transfer

The challenges of sustainability cannot be achieved if there is no cooperation between stakeholders - government, industry, community, and academia - or if no attention is paid to collective interests and constructing relationships of trust (Perkins, Khoo, & Arcodia, 2022). Although this may constitute a great challenge in the context of whale-watching tourism due to its complex regulatory and macro-cultural scenario, some cases have demonstrated a factual chance when creative and innovation-based participation plays a role in it (Hoarau & Hjalager, 2020). For example, tourists will be more satisfied and willing to support regulations when they feel privileged to be in a whale-watching area declared under a multi-stakeholder, co-creation process (IWC, 2020a; Xie, Tkaczynski, & Prebensen, 2020). Likewise, it has been demonstrated that knowledge transfer and co-creation between researchers and whale-watching firms allow operators to organise their learning and innovation processes while seeking differentiation within the competitive market (Hoarau & Eide, 2019; Hoarau & Kline, 2014). However, further efforts need to be directed towards providing sounder theoretical and practical insights into the opportunities these active and collaborative approaches may provide within the various whale-watching scenarios at destinations worldwide.

On the other hand, even though there is a market niche demanding tourist experiences that are engaged with ethical issues, such as those involved with corporate social responsibility initiatives (Lissner & Mayer, 2020; Suárez-Rojas et al., 2021), the existing ones signalling tourist firms' sustainability efforts seldom encourage science-based conservation strategies or contribute to the socio-economic development and regeneration of the destination (Bertella, 2019; Fraser et al., 2020; Garrod & Fennell, 2004; Moscardo, 2008). Hence, whale-watching requires advances in scientific research towards innovation in social responsibility strategies and the potential to reconcile responsible custodianship of natural resources and employee wellbeing with consumer satisfaction, economic returns and market differentiation. Further, in-depth, empirical analysis is also needed in order to ascertain the impact of this holistic approach in practice.

4.5. Technology

Innovation in applied technology has assisted scientific research development, particularly in measuring the (direct) ecological impacts on whales and explaining environmental issues (Alves et al., 2019; Hays et al., 2019). However, these tools potentially have broader implications for efficiently promoting *sustainable* and *regenerative* tourism management (Nunes, Radeta, & Nisi, 2020; Perles-Ribes & Ivars-Baidal, 2018). Technologically speaking, efficient boat engines may constitute a good example that could help in working towards a regenerative framework. Apart from reducing fuel consumption by over 60%, which also implies the reduction of pollution emissions and an increase in financial returns (Chuang, Chen, Kung, & Shih, 2020; Hoarau & Eide, 2019), they would add value to the tourism experience and contribute towards market differentiation. Moreover, it has been recently demonstrated that the employment of global positioning system (GPS) and other mapping tools can help to monitor regulation compliance on the cetacean-watching routes (speed, encounter duration and boat distance from the shore) in addition to locating animal spots or registering previous routes (de Freitas, dos Santos, da Silva, de Oliveira Lunardi, & Lunardi, 2021). Similarly, the new App developed by Nunes et al. (2020) is expected to track cetaceans based on sound signalling while contributing to satisfying tourists' expectations of the experience without disturbing the wildlife.

Despite evidence of the benefits of regenerative tourism in whale-watching, the extent to which these green technological solutions would be cost-efficient for operators is still under-studied. Similarly, there is a need to ascertain the impacts of sustainable innovations on consumers' preferences for higher-quality experiences based on

regenerative technologies. Besides, this would increase both tourists' 'experience value' and the industry's adherence to social responsibility.

4.6. Climate change, long-term and cumulative effects, and less visible impacts

The transversal impacts of climate change on whale populations and marine ecosystems calls for the urgent pursuit of regenerative tourism and merits urgent attention. Climate change places future human-wildlife relationships in question and creates deep uncertainties within the macro-cultural and political discourses with respect to the industry's sustainability and the need to become regenerative (Cui, 2021). The displacement of cetaceans from the traditional breeding and feeding sites due to climate change is unfavourable for whale-watching destinations - e.g., in terms of their attractiveness and their ability to adapt to damages (Albouy et al., 2020; Cornejo-Ortega, Chávez-Dagostino, & Ivanova-Boncheva, 2014; Meynecke, Richards, & Sahin, 2017; Richards, Meynecke, & Sahin, 2021; Salvadeo et al., 2013; Sousa et al., 2022). Thus, academia is challenged to successfully help the whale-watching industry towards mitigating the effects of climate change on wildlife by i) providing valuable evidence to implement practical adaptive responses, ii) helping them to understand tourists' choices around whale-watching in the context of changing conditions, as well as answering other questions such as their willingness to pay for the cost of carbon offset measures, and iii) identifying the pattern of causal linkages within which the industry operates in order to assess the multiple impacts constraining its development.

Nevertheless, cetaceans' longevity and their migratory patterns (among other things) make it difficult to monitor cumulative and less visible effects - such as sound modulation and stress. This challenge can be addressed i) by taking advantage of the open-source availability of extended data series from years of studies which may be supported on online platforms, ii) by implementing recent advances in technology to reduce efforts on tracking and decode whales' stress signals during encounters, iii) by utilising the innovations in analysis methods and models, and iv) through the adoption of data sampling standardisation methods worldwide (see Arranz et al., 2021; Bandara & Bandara, 2019; Barra et al., 2020; Burnham et al., 2021; Erbe et al., 2019; IWC, 2020a; Pérez-Ortega, Daw, Paradee, Gimbrere, & May-Collado, 2021). Knowledge and data sharing between different research disciplines and sites would also be critical to achieving these challenges within the regenerative framework.

5. Conclusions

Whale-watching is a complex and highly dynamic tourist activity that still faces many unanswered challenges in regards to successfully achieving a balance between human wellbeing and the natural world. Therefore, it requires new theoretical and empirical approaches so as to tackle the existing shortcomings head on and make comprehensive progress towards a *regenerative* and *sustainable* activity in the near future.

Whale-watching is, by its very nature, a consumptive (recreational) activity. This has led academics to centre their attention on the following three research areas: i) the assessment of the ecological responses of cetaceans to human disturbance, ii) the behavioural determinants of the tourism demand shaping whale-watching consumption, and iii) the issues around the macro-cultural, political and management discourses that question the 'goodness' of whale-watching tourism. However, a curated qualitative analysis of the literature shows that evidence has not succeeded in assisting the industry towards designing and implementing straightforward, adaptive solutions for balancing whale-watching development and sustainability.

Therefore, we propose a research agenda for whale-watching tourism following from the major research concerns identified in the literature review - ecological impacts, human dimension, innovation and external drivers - and how these are interconnected. The proposed

framework is grounded on the ideas of *regenerative tourism* by carefully looking at creating positive and restorative outcomes for all forms of wellbeing - social, economic and ecological (Becken & Kaur, 2021; Day et al., 2021; Duxbury et al., 2020; Reed, 2007). The research agenda is also in line with the suggestions in the field of whale-watching tourism regarding the urgent need to adopt transformative methods of tourism management in order to avoid an eventual industry collapse (Bejder et al., 2022; Cave & Dredge, 2020; Clarke, 1997; Fumagalli et al., 2021; Higham et al., 2016; Pacheco et al., 2021).

Thus, the active pursuit of an integrative and regenerative framework revolves around four pillars concerned with i) the activation of the processes of innovation, ii) wellbeing in the human dimension, iii) vigilant attention to ecological impacts, and iv) the impulse of external drivers. A set of key research areas emerge when working out the potential interactions between these pillars, based on the accumulated research stemming from the 'scientometrics' and qualitative analyses: i) social change, paying particular attention to reconciling tourists' interests and operators' behaviours with more responsible practices; ii) innovation in whale-watching elements and practices based on new technology, co-creation process and corporate responsibility; iii) the preservation of cetaceans and enhancement of their wellbeing from a broader perspective, such as when taking climate change into consideration; iv) the collective involvement of the different stakeholders in the decision making process, with particular consideration for the vision of women and their caring attitudes and ethics concerning animal rights.

This framework is original in providing academics with the opportunity to follow up a road map for future research in whale-watching tourism with practical, managerial implications. Furthermore, it can be applied to other tourism contexts such as *wildlife ecotourism* and *active tourism* (Caparrós-Martínez, Martínez-Vázquez, & de Pablo Valenciano, 2022; Dertien, Larson, & Reed, 2021). The research schedule grounded on the 'regenerative' perspective may be also useful for understanding tourists' behaviour and their relationships with natural environments, generating opportunities for the implementation of full-blown responsible practices aimed at reconciling the aims and interests of all stakeholders involved (Esfandiari, Pearce, Dowling, & Goh, 2022; Fredman & Margaryan, 2021; Tejado et al., 2022).

Finally, despite the efforts of this article to contribute with an integrative assessment of the latest whale-watching sustainability research and moving towards a regenerative framework, some limitations are presented. First, the focus on the academic community as the leading player or actor may be misguided and may not be sufficient in terms of the joint efforts that are needed from both the industry and the academics. Further research should consider the potential roles of other actors to raise a feasible and consensual regenerative change: industry, academics, government, and civil society. According to the ideas of regenerative tourism, the role of stakeholders needs to be rethought in order to contribute to a more resilient and healthier socio-ecological environment (Laurent & Martin-Rios, 2023). Lastly, although the framework proposal of this article points out the potential of *innovation* as a key driver for regenerative whale-watching tourism, there is a need for a more in-depth analysis of the proactive and enhancing interactions of social and technological innovations.

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References

- Alarcón, D., & Cole, S. (2019). No sustainability for tourism without gender equality. *Journal of Sustainable Tourism*, 27(7), 903–919. <https://doi.org/10.1080/09669582.2019.1588283>
- Albouy, C., Delattre, V., Donati, G., Frölicher, T. L., Albouy-Boyer, S., Rufino, M., & Leprieux, F. (2020). Global vulnerability of marine mammals to global warming. *Scientific Reports*, 10(1), 1–12. <https://doi.org/10.1038/s41598-019-57280-3>
- Alves, F., Alessandrini, A., Servidio, A., Mendonça, A. S., Hartman, K. L., Prieto, R., & Aguilar de Soto, N. (2019). Complex biogeographical patterns support an ecological connectivity network of a large marine predator in the north-east Atlantic. *Diversity and Distributions*, 25(2), 269–284. <https://doi.org/10.1111/ddi.12848>
- Amerson, A., & Parsons, E. C. M. (2018). Evaluating the sustainability of the gray-whale-watching industry along the Pacific coast of North America. *Journal of Sustainable Tourism*, 26(8), 1362–1380. <https://doi.org/10.1080/09669582.2018.1449848>
- Argüelles, M. B., Coscarella, M., Fazio, A., & Bertellotti, M. (2016). Impact of whale-watching on the short-term behavior of southern right whales (*Eubalaena australis*) in Patagonia, Argentina. *Tourism Management Perspectives*, 18, 118–124. <https://doi.org/10.1016/j.tmp.2016.02.002>
- Arranz, P., de Soto, N. A., Madsen, P. T., & Sprogis, K. R. (2021). Whale-watch vessel noise levels with applications to whale-watching guidelines and conservation. *Marine Policy*, 134, Article 104776. <https://doi.org/10.1016/j.marpol.2021.104776>
- Au, W. W. L., & Green, M. (2000). Acoustic interaction of humpback whales and whale-watching boats. *Marine Environmental Research*, 49(5), 469–481. [https://doi.org/10.1016/S0141-1136\(99\)00086-0](https://doi.org/10.1016/S0141-1136(99)00086-0)
- Avila, I. C., Correa, L. M., & Parsons, E. C. M. (2015). Whale-watching activity in Bahía Málaga, on the Pacific coast of Colombia, and its effect on humpback whale (*Megaptera novaeangliae*) behavior. *Tourism in Marine Environments*, 11(1), 19–32. <https://doi.org/10.3727/154427315X14398263718394>
- Ávila-Foucat, V. S., Gendron, D., Revollo-Fernandez, D., Popoca, E. I., & Ramírez, A. (2017). Determinants of the potential demand for whale watching in Loreto Bay National Park. *Marine Policy*, 81, 37–44. <https://doi.org/10.1016/j.marpol.2017.03.006>
- Ávila-Foucat, V. S., Vargas, A. S., Jordan, A. F., & Flores, O. R. (2013). The impact of vessel crowding on the probability of tourists returning to whale watching in Banderas Bay, Mexico. *Ocean & Coastal Management*, 78, 12–17. <https://doi.org/10.1016/j.ocecoaman.2013.03.002>
- Bai, B., Bai, X., & Wang, C. (2021). Mapping research trends of temporomandibular disorders from 2010 to 2019: A bibliometric analysis. *Journal of Oral Rehabilitation*, 48, 517–530. <https://doi.org/10.1111/joor.13143>
- Ballantyne, R., Packer, J., & Sutherland, L. A. (2011). Visitors' memories of wildlife tourism: Implications for the design of powerful interpretive experiences. *Tourism Management*, 32(4), 770–779. <https://doi.org/10.1016/j.tourman.2010.06.012>
- Bandara, T., & Bandara, T. P. (2019). Whale watching in Sri Lanka: Understanding the metadata of crowd-sourced photographs on FlickrTM social media platform. *Sri Lanka Journal of Aquatic Sciences*, 24(2), 41–52. <https://doi.org/10.4038/sljas.v24i2.7566>
- Barra, T., Bejder, L., Dalleau, M., Delaspre, S., Landes, A. E., Harvey, M., & Hoarau, L. (2020). Social media reveal high rates of agonistic behaviors of humpback whales in response to swim-with activities off Reunion Island. *Tourism in Marine Environments*, 15(3–4), 191–209. <https://doi.org/10.3727/154427320X15960647825531>
- Becken, S., & Kaur, J. (2021). Anchoring "tourism value" within a regenerative tourism paradigm—a government perspective. *Journal of Sustainable Tourism*, 30(1), 52–68. <https://doi.org/10.1080/09669582.2021.1990305>
- Bejder, L., Dawson, S. M., & Harraway, J. A. (1999). Responses by Hector's dolphins to boats and swimmers in Porpoise Bay, New Zealand. *Marine Mammal Science*, 15(3), 738–750. <https://doi.org/10.1111/j.1748-7692.1999.tb00840.x>
- Bejder, L., Higham, J. E., & Lusseau, D. (2022). Tourism and research impacts on marine mammals: A bold future informed by research and technology. In *Ethology and Behavioral Ecology of Marine Mammals: The Evolving Human Factor* (pp. 255–275). Cham, Switzerland: Springer Nature.
- Bejder, L., & Samuels, A. (2003). Evaluating the effects of nature-based tourism on cetaceans. *Marine Mammals: Fisheries, Tourism and Management Issues*, 1, 229–256.
- Bejder, L., & Samuels, A. (2003). Evaluating the effects of nature-based tourism on cetaceans. *Marine mammals: Fisheries, tourism and management issues*, 1, 229–256.

- Bejder, L., Samuels, A., Whitehead, H., & Gales, N. (2006). Interpreting short-term behavioural responses to disturbance within a longitudinal perspective. *Animal Behaviour*, 72(5), 1149–1158. <https://doi.org/10.1016/j.anbehav.2006.04.003>
- Bejder, L., Samuels, A., Whitehead, H., Gales, N., Mann, J., Connor, R., & Krützen, M. (2006). Decline in relative abundance of bottlenose dolphins exposed to long-term disturbance. *Conservation Biology*, 20(6), 1791–1798. <https://doi.org/10.1111/j.1523-1739.2006.00540.x>
- Bellato, L., Frantzeskaki, N., & Nygaard, C. A. (2022). Regenerative tourism: A conceptual framework leveraging theory and practice. *Tourism Geographies*, 1–21. <https://doi.org/10.1080/14616688.2022.2044376>
- Bentz, J., Lopes, F., Calado, H., & Dearden, P. (2016a). Enhancing satisfaction and sustainable management: Whale watching in the Azores. *Tourism Management*, 54, 465–476. <https://doi.org/10.1016/j.tourman.2015.11.016>
- Bentz, J., Lopes, F., Calado, H., & Dearden, P. (2016b). Managing marine wildlife tourism activities: Analysis of motivations and specialization levels of divers and whale watchers. *Tourism Management Perspectives*, 18, 74–83. <https://doi.org/10.1016/j.tmp.2016.01.004>
- Bertella, G. (2018). Sustainability in wildlife tourism: Challenging the assumptions and imagining alternatives. *Tourism Review*, 74(2), 246–255. <https://doi.org/10.1108/TR-11-2017-0166>
- Bertella, G. (2019). Participatory action research and collaboration in CSR initiatives by DMOs. *Journal of Ecotourism*, 18(2), 165–173. <https://doi.org/10.1080/14724049.2018.1482904>
- Burnham, R. E., Duffus, D. A., & Malcolm, C. D. (2021). Towards an enhanced management of recreational whale watching: The use of ecological and behavioural data to support evidence-based management actions. *Biological Conservation*, 255, Article 109009. <https://doi.org/10.1016/j.biocon.2021.109009>
- Caparrós-Martínez, J. L., Martínez-Vázquez, R. M., & de Pablo Valenciano, J. (2022). Analysis and global research trends on nautical tourism and green coastal infrastructures: The case of coral reefs and seagrass meadows. *Environmental Sciences Europe*, 34(1), 1–13.
- Cárdenas, S., Gabela-Flores, M. V., Amrein, A., Surrey, K., Gerber, L. R., & Guzmán, H. M. (2021). Tourist knowledge, pro-consumption intentions, and tourist concern for the impacts of whale-watching in Las Perlas Archipelago, Panama. *Frontiers in Marine Science*, 8, Article 627348. <https://doi.org/10.3389/fmars.2021.627348>
- Cave, J., & Dredge, D. (2020). Regenerative tourism needs diverse economic practices. *Tourism Geographies*, 22(3), 503–513. <https://doi.org/10.1080/14616688.2020.1768434>
- Cave, J., Dredge, D., van't Hullenaar, C., Koens Waddilove, A., Lebski, S., Mathieu, O., ... Zanet, B. (2022). Regenerative tourism: The challenge of transformational leadership. *Journal of Tourism Futures*, 8(3), 298–311. <https://doi.org/10.1108/JTF-02-2022-0036>
- Chalcobsky, A., Crespo, E. A., & Coscarella, M. A. (2020). Short-term effects of whale watching boats on the movement patterns of southern right whales in Península Valdés, Patagonia, Argentina. *Marine Environmental Research*, 157, Article 104927. <https://doi.org/10.1016/j.marenvres.2020.104927>
- Chauvat, C. M., Granquist, S. M., & Aquino, J. (2023). Gender difference in biospheric values and opinions on nature management actions: The case of seal watching in Iceland. *Ocean & Coastal Management*, 235, Article 106483. <https://doi.org/10.1016/j.ocecoaman.2023.106483>
- Chen, C. (2006). CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature. *Journal of the American Society for Information Science and Technology*, 57(3), 359–377. <https://doi.org/10.1002/asi.20317>
- Chen, C. M., & Lin, Y. L. (2019). The weather and macroeconomic determinants of whale-watching tourism: A Markov regime-switching analysis. *Current Issues in Tourism*, 22(4), 476–485. <https://doi.org/10.1080/13683500.2017.1293620>
- Cheung, L. T., Ma, A. T., Chow, A. S., Lee, J. C., Fok, L., Cheng, I. N., & Cheang, F. C. (2019). Contingent valuation of dolphin watching activities in South China: The difference between local and non-local participants. *Science of the Total Environment*, 684, 340–350. <https://doi.org/10.1016/j.scitotenv.2019.05.276>
- Chuang, L. Z., Chen, C. L., Kung, C. W., & Shih, Y. C. (2020). A nuisance at sea: Decoding tourists' comfort on whale watching vessels. *Ocean & Coastal Management*, 184, Article 104915. <https://doi.org/10.1016/j.ocecoaman.2019.104915>
- Cisneros-Montemayor, A. M., Sumaila, U. R., Kaschner, K., & Pauly, D. (2010). The global potential for whale watching. *Marine Policy*, 34(6), 1273–1278. <https://doi.org/10.1016/j.marpol.2010.05.005>
- Clarke, J. (1997). A framework of approaches to sustainable tourism. *Journal of Sustainable Tourism*, 5(3), 224–233. <https://doi.org/10.1080/09669589708667287>
- Cloke, P., & Perkins, H. C. (2005). Cetacean performance and tourism in Kaikoura, New Zealand. *Environment and Planning D: Society and Space*, 23(6), 903–924. <https://doi.org/10.1068/d57j>
- Constantine, R. (2001). Increased avoidance of swimmers by wild bottlenose dolphins (*Tursiops truncatus*) due to long-term exposure to swim-with-dolphin tourism. *Marine Mammal Science*, 17(4), 689–702. <https://doi.org/10.1111/j.1748-7692.2001.tb01293.x>
- Constantine, R., & Bejder, L. (2008). Managing the whale-and dolphin-watching industry: Time for a paradigm shift. In *Marine Wildlife and Tourism Management: Insights from the Natural and Social Sciences* (pp. 321–333). Oxfordshire, UK: CABI Publishing.
- Constantine, R., Brunton, D. H., & Dennis, T. (2004). Dolphin-watching tour boats change bottlenose dolphin (*Tursiops truncatus*) behaviour. *Biological Conservation*, 117(3), 299–307. <https://doi.org/10.1016/j.biocon.2003.12.009>
- Cook, D., Malinauskaitė, L., Davíðsdóttir, B., Ögmundardóttir, H., & Roman, J. (2020). Reflections on the ecosystem services of whales and valuing their contribution to human well-being. *Ocean & Coastal Management*, 186, Article 105100. <https://doi.org/10.1016/j.ocecoaman.2020.105100>
- Corkeron, P. J. (2004). Whale watching, iconography, and marine conservation. *Conservation Biology*, 18(3), 847–849. <https://www.jstor.org/stable/3589096>
- Cornejo-Ortega, J. L., Chávez-Dagostino, R. M., & Ivanova-Boncheva, A. (2014). Climate change and whale watching: Tourist's perception in Islas Marietas, Nayarit, México. *International Journal of Sustainable Development and Planning*, 9(4), 553–567. <https://doi.org/10.2495/SDP-V9-N4-553-567>
- Cui, Q. (2021). Wildlife tourism in (un) sustainable futures. In *Wildlife Tourism Futures* (pp. 9–23). Channel View Publications.
- Cunningham, P. A., Huijbens, E. H., & Wearing, S. L. (2012). From whaling to whale watching: Examining sustainability and cultural rhetoric. *Journal of Sustainable Tourism*, 20(1), 143–161. <https://doi.org/10.1080/09669582.2011.632091>
- Currie, J. J., McCordic, J. A., Olson, G. L., Machernis, A. F., & Stack, S. H. (2021). The impact of vessels on humpback whale behaviour: The benefit of added whale watching guidelines. *Frontiers in Marine Science*, 8, 72. <https://doi.org/10.3389/fmars.2021.601433>
- Curtin, S. (2010). Managing the wildlife tourism experience: The importance of tour leaders. *International Journal of Tourism Research*, 12(3), 219–236. <https://doi.org/10.1002/jtr.747>
- Day, J., Sydnor, S., Marshall, M., & Noakes, S. (2021). Ecotourism, regenerative tourism, and the circular economy: Emerging trends and ecotourism. In *Routledge Handbook of Ecotourism* (pp. 23–36).
- Dertien, J. S., Larson, C. L., & Reed, S. E. (2021). Recreation effects on wildlife: A review of potential quantitative thresholds. *Nature Conservation*, 44, 51–68.
- Di Clemente, J., Christiansen, F., Pirotta, E., Steckler, D., Wahlberg, M., & Pearson, H. C. (2018). Effects of whale watching on the activity budgets of humpback whales, *Megaptera novaeangliae* (Borowski, 1781), on a feeding ground. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 28(4), 810–820. <https://doi.org/10.1002/aqc.2909>
- Dinçer, S. (2018). Content analysis in scientific research: Meta-analysis, meta-synthesis, and descriptive content analysis. *Bartın University Journal of Faculty of Education*, 7(1), 176–190. <https://doi.org/10.14686/buefad.363159>
- Duffus, D. A., & Dearden, P. (1990). Non-consumptive wildlife-oriented recreation: A conceptual framework. *Biological Conservation*, 53(3), 213–231. [https://doi.org/10.1016/0006-3207\(90\)90087-6](https://doi.org/10.1016/0006-3207(90)90087-6)
- Duffus, D. A., & Dearden, P. (1993). Recreational use, valuation, and management, of killer whales (*Orcinus orca*) on Canada's Pacific coast. *Environmental Conservation*, 20(2), 149–156. <https://doi.org/10.1017/S0376892900037656>
- Duxbury, N., Bakas, F. E., Vinagre de Castro, T., & Silva, S. (2020). Creative tourism development models towards sustainable and regenerative tourism. *Sustainability*, 13(1), 2. <https://doi.org/10.3390/su13010002>
- Erbe, C. (2002). Underwater noise of whale-watching boats and potential effects on killer whales (*Orcinus orca*), based on an acoustic impact model. *Marine Mammal Science*, 18(2), 394–418. <https://doi.org/10.1111/j.1748-7692.2002.tb01045.x>
- Erbe, C., Marley, S. A., Schoeman, R. P., Smith, J. N., Trigg, L. E., & Embling, C. B. (2019). The effects of ship noise on marine mammals—A review. *Frontiers in Marine Science*, 6, 606. <https://doi.org/10.3389/fmars.2019.00606>
- Esfandiari, K., Pearce, J., Dowling, R., & Goh, E. (2022). Pro-environmental behaviours in protected areas: A systematic literature review and future research directions. *Tourism Management Perspectives*, 41, Article 100943. <https://doi.org/10.1016/j.tmp.2022.100943>
- Fennell, D. (2011). *Tourism and Animal Ethics*. Routledge.
- Figuerola-Domecq, C., & Segovia-Perez, M. (2020). Application of a gender perspective in tourism research: A theoretical and practical approach. *Journal of Tourism Analysis: Revista de Análisis Turístico*, 27(2), 251–270. <https://doi.org/10.1108/JTA-02-2019-0009>
- Filby, N. E., Stockin, K. A., & Scarpaci, C. (2015). Social science as a vehicle to improve dolphin-swim tour operation compliance? *Marine Policy*, 51, 40–47. <https://doi.org/10.1016/j.marpol.2014.07.010>
- Finkler, W., & Davis, L. S. (2021). Filmmaking, affective communication, and the construction of tourism imaginaries: Putting the WOW into sustainable whale watching. *Tourism Culture & Communication*. <https://doi.org/10.3727/109830421X16296375579651>
- Finkler, W., & Higham, J. (2004). The human dimensions of whale watching: An analysis based on viewing platforms. *Human Dimensions of Wildlife*, 9(2), 103–117. <https://doi.org/10.1080/10871200490441757>
- Finkler, W., & Higham, J. E. (2020). Stakeholder perspectives on sustainable whale watching: A science communication approach. *Journal of Sustainable Tourism*, 28(4), 535–549. <https://doi.org/10.1080/09669582.2019.1684930>
- Finkler, W., Higham, J. E., León, B., & Aitken, R. (2019). Bridging the void: Science communication videos for sustainable whale watching. *International Journal of Science Education, Part B*, 9(4), 312–326. <https://doi.org/10.1080/21548455.2019.1671636>
- Fraser, M. D., McWhinnie, L. H., Canessa, R. R., & Darimont, C. T. (2020). Compliance of small vessels to minimum distance regulations for humpback and killer whales in the Salish Sea. *Marine Policy*, 121, Article 104171. <https://doi.org/10.1016/j.marpol.2020.104171>
- Fredman, P., & Margaryan, L. (2021). 20 years of Nordic nature-based tourism research: A review and future research agenda. *Scandinavian Journal of Hospitality and Tourism*, 21(1), 14–25. <https://doi.org/10.1080/15022250.2020.1823247>
- de Freitas, D. C., dos Santos, J. E. A., da Silva, P. C. M., de Oliveira Lunardi, V., & Lunardi, D. G. (2021). Are dolphin-watching boats routes an effective tool for managing tourism in marine protected areas? *Ocean & Coastal Management*, 211, Article 105782. <https://doi.org/10.1016/j.ocecoaman.2021.105782>
- Fumagalli, M., Guerra, M., Brough, T., Carome, W., Constantine, R., Higham, J., ... Dawson, S. (2021). Looking back to move forward: Lessons from three decades of

- research and management of Cetacean Tourism in New Zealand. *Frontiers in Marine Science*, 8, 7. <https://doi.org/10.3389/fmars.2021.624448>
- García-Cegarra, A. M., & Pacheco, A. S. (2017). Whale-watching trips in Peru lead to increases in tourist knowledge, pro-conservation intentions and tourist concern for the impacts of whale-watching on humpback whales. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 27(5), 1011–1020. <https://doi.org/10.1002/aqc.2754>
- García-Cegarra, A. M., Villagra, D., Gallardo, D. I., & Pacheco, A. S. (2019). Statistical dependence for detecting whale-watching effects on humpback whales. *The Journal of Wildlife Management*, 83(2), 467–477. <https://doi.org/10.1002/jwmg.21602>
- Garrod, B., & Fennell, D. A. (2004). An analysis of whalewatching codes of conduct. *Annals of Tourism Research*, 31(2), 334–352. <https://doi.org/10.1016/j.annals.2003.12.003>
- Gleason, C., & Parsons, E. C. M. (2019). Recent advances in whale-watching research: 2018–2019. *Tourism in Marine Environments*, 14(3), 199–210. <https://doi.org/10.3727/154427319X15645796379985>
- Hays, G. C., Bailey, H., Bograd, S. J., Bowen, W. D., Campagna, C., Carmichael, R. H., ... Sequeira, A. M. (2019). Translating marine animal tracking data into conservation policy and management. *Trends in Ecology & Evolution*, 34(5), 459–473. <https://doi.org/10.1016/j.tree.2019.01.009>
- Higham, J. E., Bejder, L., Allen, S. J., Corkeron, P. J., & Lusseau, D. (2016). Managing whale-watching as a non-lethal consumptive activity. *Journal of Sustainable Tourism*, 24(1), 73–90. <https://doi.org/10.1080/09669582.2015.1062020>
- Higham, J. E., Bejder, L., & Lusseau, D. (2009). An integrated and adaptive management model to address the long-term sustainability of tourist interactions with cetaceans. *Environmental Conservation*, 35(4), 294–302. <https://doi.org/10.1017/S0376892908005249>
- Higham, J. E., & Lusseau, D. (2008). Slaughtering the goose that lays the golden egg: Are whaling and whale-watching mutually exclusive? *Current Issues in Tourism*, 11(1), 63–74. <https://doi.org/10.2167/cit335.0>
- Hoarau, H., & Eide, D. (2019). Values and concern: Drivers of innovation in experience-based tourism. *Tourism and Hospitality Research*, 19(1), 15–26. <https://doi.org/10.1177/1467358416683768>
- Hoarau, H., & Hjalager, A. M. (2020). Safeguarding sustainable futures for marine wildlife tourism through collaboration and innovation: The utopia of whale-watching. In Bertella (Ed.), *Wildlife Tourism Futures: Encounters with Wild, Captive and Artificial Animals*. Bristol, UK: Blue Ridge Summit, PA.
- Hoarau, H., & Kline, C. (2014). Science and industry: Sharing knowledge for innovation. *Annals of Tourism Research*, 46, 44–61. <https://doi.org/10.1016/j.annals.2014.01.005>
- Hoberg, R., Kannis-Dymand, L., Mulgrew, K., Schaffer, V., & Clark, E. (2021). Humpback whale encounters: Encouraging pro-environmental behaviours. *Current Issues in Tourism*, 24(13), 1918–1929. <https://doi.org/10.1080/13683500.2020.1808597>
- Hoyt, E. (2001). *Whale Watching 2001: Worldwide Tourism Numbers, Expenditures, and Expanding Socioeconomic Benefits*. Yarmouth Port, USA: International Fund for Animal Welfare.
- Hoyt, E. (2002). Whale watching. In W. F. Perrin, B. Würsig, & J. G. M. Thewissen (Eds.), *Encyclopedia of Marine Mammals* (pp. 1305–1310). San Diego: Academic Press.
- Hoyt, E. (2007). *A Blueprint for Dolphin and Whale Watching Development*. Washington DC: Humane Society International.
- Hughes, P. (2001). Animals, values and tourism—Structural shifts in UK dolphin tourism provision. *Tourism Management*, 22(4), 321–329. [https://doi.org/10.1016/S0261-5177\(00\)00070-4](https://doi.org/10.1016/S0261-5177(00)00070-4)
- Hussain, A., & Haley, M. (2022). Regenerative tourism model: Challenges of adapting concepts from natural science to tourism industry. *Journal of Sustainability and Resilience*, 2(1), 4.
- IWC. (2020a). *Case Study*. Argentina: Península Valdés, Chubut. <https://wwhandbook.iwc.int/en/case-studies/argentina-ptagonia> (accessed March 2, 2021).
- IWC. (2020b). *Case Study*. Spain: Canary Islands. Sustainability Charter in Tenerife. <http://wwhandbook.iwc.int/es/case-studies/canary-islands-spain> (accessed November 25th, 2021).
- Je, J. S., Khoo, C., & Yang, E. C. L. (2022). Gender issues in tourism organisations: Insights from a two-phased pragmatic systematic literature review. *Journal of Sustainable Tourism*, 30(7), 1658–1681. <https://doi.org/10.1080/09669582.2020.1831000>
- Jensen, F. H., Bejder, L., Wahlberg, M., Soto, N. A., Johnson, M., & Madsen, P. T. (2009). Vessel noise effects on delphinid communication. *Marine Ecology Progress Series*, 395, 161–175. <https://doi.org/10.3354/meps08204>
- Judge, C., Penry, G. S., Brown, M., & Witteveen, M. (2020). Clear waters: Assessing regulation transparency of website advertising in South Africa's boat-based whale-watching industry. *Journal of Sustainable Tourism*, 29(6), 964–980. <https://doi.org/10.1080/09669582.2020.1844723>
- Kassamali-Fox, A., Christiansen, F., May-Collado, L. J., Ramos, E. A., & Kaplin, B. A. (2020). Tour boats affect the activity patterns of bottlenose dolphins (*Tursiops truncatus*) in Bocas del Toro, Panama. *PeerJ*, 8, Article e8804. <https://doi.org/10.7717/peerj.8804>
- Khanra, S., Dhir, A., Kaur, P., & Mäntymäki, M. (2021). Bibliometric analysis and literature review of ecotourism: Toward sustainable development. *Tourism Management Perspectives*, 37, Article 100777. <https://doi.org/10.1016/j.tmp.2020.100777>
- Ku, K. C., Chen, T. C., & Ying, T. C. (2014). A collaborative reference model for monitoring whale-watching quantity in the Hualien coastal area, Taiwan. *Ocean & Coastal Management*, 95, 26–34. <https://doi.org/10.1016/j.ocecoaman.2014.04.013>
- Lachmuth, C. L., Barrett-Lennard, L. G., Steyn, D. Q., & Milsom, W. K. (2011). Estimation of southern resident killer whale exposure to exhaust emissions from whale-watching vessels and potential adverse health effects and toxicity thresholds. *Marine Pollution Bulletin*, 62(4), 792–805. <https://doi.org/10.1016/j.marpolbul.2011.01.002>
- Lambert, E., Hunter, C., Pierce, G. J., & MacLeod, C. D. (2010). Sustainable whale-watching tourism and climate change: Towards a framework of resilience. *Journal of Sustainable Tourism*, 18(3), 409–427. <https://doi.org/10.1080/09669581003655497>
- Laurent, M., & Martin-Rios, C. (2023). Stakeholder engagement and regenerative hospitality: Leading question: What is the role of stakeholders in advancing sustainability and regeneration in tourism and hospitality?. In *Critical Questions in Sustainability and Hospitality* (pp. 277–291). Routledge.
- Lawrence, T. B., & Phillips, N. (2004). From Moby Dick to Free Willy: Macro-cultural discourse and institutional entrepreneurship in emerging institutional fields. *Organization*, 11(5), 689–711. <https://doi.org/10.1177/1350508404046457>
- Lee, C. K., Mjelde, J. W., Kim, T. K., Lee, E., & Choi, Y. (2019). Willingness-to-pay for whale tour attributes using a choice experiment. *Asia Pacific Journal of Tourism Research*, 24(6), 606–617. <https://doi.org/10.1080/10941665.2019.1610001>
- Lenzi, C., Speiran, S., & Grasso, C. (2019). "Let me take a selfie": Reviewing the implications of social media for public perceptions of wild animals. *Preprints*, 2019.
- Lissner, I., & Mayer, M. (2020). Tourists' willingness to pay for Blue Flag's new ecolabel for sustainable boating: The case of whale-watching in Iceland. *Scandinavian Journal of Hospitality and Tourism*, 20(4), 352–375. <https://doi.org/10.1080/15022250.2020.1779806>
- Lusseau, D. (2003). Effects of tour boats on the behavior of bottlenose dolphins: Using Markov chains to model anthropogenic impacts. *Conservation Biology*, 17(6), 1785–1793. <https://doi.org/10.1111/j.1523-1739.2003.00054.x>
- Maguire, P., Kannis-Dymand, L., Mulgrew, K. E., Schaffer, V., & Peake, S. (2020). Empathy and experience: Understanding tourists' swim with whale encounters. *Human Dimensions of Wildlife*, 25(2), 105–120. <https://doi.org/10.1080/10871209.2019.1695024>
- Malcolm, C., & Duffus, D. (2008). Specialization of whale watchers in British Columbia waters. In J. E. S. Higham, & M. Lück (Eds.), *Marine Wildlife and Tourism Management: Insights from the Natural and Social Sciences* (pp. 109–129). Oxfordshire, UK: CABL.
- Malcolm, C. D., Dagostino, R. M. C., & Ortega, J. L. C. (2017). Experiential and learning desires of whale watching guides versus tourists in Bahía de Banderas, Puerto Vallarta, Mexico. *Human Dimensions of Wildlife*, 22(6), 524–537. <https://doi.org/10.1080/10871209.2017.1367442>
- Malinauskaitė, L., Cook, D., Davíðsdóttir, B., & Ögmundardóttir, H. (2021). Socio-cultural valuation of whale ecosystem services in Skjálfandi Bay, Iceland. *Ecological Economics*, 180, Article 106867. <https://doi.org/10.1016/j.ecolecon.2020.106867>
- Mallard, G. (2019). Regulating whale watching: A common agency analysis. *Annals of Tourism Research*, 76, 191–199. <https://doi.org/10.1016/j.annals.2019.04.011>
- May-Collado, L. J., Quiñones-Lebrón, S. G., Barragán-Barrera, D. C., Palacios, J. D., & Gamboa-Poveda, M. (2014). The dolphin watching industry of Bocas del Toro continues impacting the resident bottlenose dolphin population. In *International Whaling Commission, SC/65b/WW06*.
- Mayer, M., Brenner, L., Schauss, B., Stadler, C., Arnegger, J., & Job, H. (2018). The nexus between governance and the economic impact of whale-watching. The case of the coastal lagoons in the El Vizcaíno Biosphere Reserve, Baja California, Mexico. *Ocean & Coastal Management*, 162, 46–59. <https://doi.org/10.1016/j.ocecoaman.2018.04.016>
- Meissner, A. M., Christiansen, F., Martínez, E., Pawley, M. D., Orams, M. B., & Stockin, K. A. (2015). Behavioural effects of tourism on oceanic common dolphins, *Delphinus sp.*, in New Zealand: The effects of Markov analysis variations and current tour operator compliance with regulations. *PLoS One*, 10(1), Article e0116962. <https://doi.org/10.1371/journal.pone.0116962>
- Meyer, L., Barry, C., Araujo, G., Barnett, A., Brunnschweiler, J. M., Chin, A., ... Huveneers, C. (2021). Redefining provisioning in marine wildlife tourism. *Journal of Ecotourism*, 1–20. <https://doi.org/10.1080/14724049.2021.1931253>
- Meynecke, J. O., Richards, R., & Sahin, O. (2017). Whale watch or no watch: The Australian whale watching tourism industry and climate change. *Regional Environmental Change*, 17(2), 477–488. <https://doi.org/10.1007/s10113-016-1034-z>
- Miller, K. K., & Jones, D. N. (2006). Gender differences in the perceptions of wildlife management objectives and priorities in Australasia. *Wildlife Research*, 33(2), 155–159. <https://doi.org/10.1071/WR05036>
- Mkono, M., Rastegar, R., & Ruhanen, L. (2021). Empowering women to protect wildlife in former hunting tourism zones: A political ecology of Akashinga, Zimbabwe. *Journal of Sustainable Tourism*, 1–21. <https://doi.org/10.1080/09669582.2021.1900205>
- Moral-Muñoz, J. A., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. J. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. *Profesional de la Información*, 29(1). <https://doi.org/10.3145/epi.2020.ene.03>
- Moscardo, G. (2008). Sustainable tourism innovation: Challenging basic assumptions. *Tourism and Hospitality Research*, 8(1), 4–13. <https://doi.org/10.1057/thr.2008.7>
- Neves, K. (2010). Cashing in on cetourism: A critical ecological engagement with dominant E-NGO discourses on whaling, cetacean conservation, and whale watching 1. *Antipode*, 42(3), 719–741. <https://doi.org/10.1111/j.1467-8330.2010.00770.x>
- New, L. F., Hall, A. J., Harcourt, R., Kaufman, G., Parsons, E. C. M., Pearson, H. C., ... Schick, R. S. (2015). The modelling and assessment of whale-watching impacts. *Ocean & Coastal Management*, 115, 10–16. <https://doi.org/10.1016/j.ocecoaman.2015.04.006>
- Noren, D. P., Johnson, A. H., Rehder, D., & Larson, A. (2009). Close approaches by vessels elicit surface active behaviors by southern resident killer whales. *Endangered Species Research*, 8(3), 179–192. <https://doi.org/10.3354/esr00205>
- Nunes, N. J., Radeta, M., & Nisi, V. (2020, November). Enhancing whale watching with mobile Apps and streaming passive acoustics. In *International Conference on Entertainment Computing* (pp. 205–222). Cham: Springer.

- O'Connor, S., Campbell, R., Cortez, H., & Knowles, T. (2009). *Whale Watching Worldwide: Tourism Numbers, Expenditures and Expanding Economic Benefits, A Special Report from the International Fund for Animal Welfare* (p. 228). Yarmouth MA: USA, prepared by Economists at Large.
- Orams, M. B. (2000). Tourists getting close to whales, is it what whale-watching is all about? *Tourism Management*, 21(6), 561–569. [https://doi.org/10.1016/S0261-5177\(00\)00006-6](https://doi.org/10.1016/S0261-5177(00)00006-6)
- Orams, M. B. (2002). Humpback whales in Tonga: An economic resource for tourism. *Coastal Management*, 30(4), 361–380. <https://doi.org/10.1080/089207502900264>
- Orams, M. B., & Forestell, P. H. (1995). From whale harvesting to whale watching: Tangalooma 30 years on. In *Recent Advances in Marine Science and Technology '94 Conference. Townsville, Australia*.
- Pacheco, A. S., Sepúlveda, M., & Corkeron, P. (2021). Whale-watching impacts: Science, human dimensions and management. *Frontiers in Marine Science*, 1126. <https://doi.org/10.3389/fmars.2021.737352>
- Pagel, C. D., Orams, M., & Lück, M. (2020). # BiteMe: Considering the potential influence of social media on in-water encounters with marine wildlife. *Tourism in Marine Environments*, 15(3–4), 249–258. <https://doi.org/10.3727/154427320X15754936027058>
- Park, Y. A., & Gretzel, U. (2007). Success factors for destination marketing web sites: A qualitative meta-analysis. *Journal of Travel Research*, 46(1), 46–63. <https://doi.org/10.1177/0047287507302381>
- Parsons, E. C. M. (2012). The negative impacts of whale-watching. *Journal of Marine Biology*, 2012. <https://doi.org/10.1155/2012/807294>
- Parsons, E. C. M., & Woods-Ballard, A. (2003). Acceptance of voluntary whalewatching codes of conduct in West Scotland: The effectiveness of governmental versus industry-led guidelines. *Current Issues in Tourism*, 6(2), 172–182. <https://doi.org/10.1080/13683500308667950>
- Pérez-Ortega, B., Daw, R., Paradee, B., Gimbrere, E., & May-Collado, L. J. (2021). Dolphin-watching boats affect whistle frequency modulation in bottlenose dolphins. *Frontiers in Marine Science*, 102. <https://doi.org/10.3389/fmars.2021.618420>
- Perkins, R., Khoo, C., & Arcodia, C. (2022). Stakeholder contribution to tourism collaboration: Exploring stakeholder typologies, networks and actions in the cluster formation process. *Journal of Hospitality and Tourism Management*, 52, 304–315. <https://doi.org/10.1016/j.jhtm.2022.07.011>
- Perles-Ribes, J. F., & Ivars-Baidal, J. (2018). Smart sustainability: A new perspective in the sustainable tourism debate. *Journal of Regional Research*, 42, 151–170.
- Radeta, M., Nunes, N. J., Vasconcelos, D., & Nisi, V. (2018). Poseidon-passive-acoustic ocean sensor for entertainment and interactive data-gathering in opportunistic nautical-activities. In *Proceedings of the 2018 Designing Interactive Systems Conference* (pp. 999–1011).
- Rasoolimanes, S. M., Khoo-Lattimore, C., Md Noor, S., Jaafar, M., & Konar, R. (2021). Tourist engagement and loyalty: Gender matters? *Current Issues in Tourism*, 24(6), 871–885. <https://doi.org/10.1080/13683500.2020.1765321>
- Reed, B. (2007). Shifting from 'sustainability' to regeneration. *Building Research & Information*, 35(6), 674–680. <https://doi.org/10.1080/09613210701475753>
- Richards, R., Meynecke, J. O., & Sahin, O. (2021). Addressing dynamic uncertainty in the whale-watching industry under climate change and system shocks. *Science of the Total Environment*, 756, Article 143889. <https://doi.org/10.1016/j.scitotenv.2020.143889>
- Ris, M. (1993). Conflicting cultural values: Whale tourism in northern Norway. *Arctic*, 156–163. <https://www.jstor.org/stable/40511507>.
- Rizzolo, J. B., Delie, J., Carlson, S. C., & Dietsch, A. M. (2023). Gender differences in wildlife-dependent recreation on public lands. *Frontiers in Conservation Science*, 4, 14. <https://doi.org/10.3389/fcsc.2023.1006150>
- Rosa, C. D., Larson, L. R., Collado, S., Cloutier, S., & Profice, C. C. (2020). Gender differences in connection to nature, outdoor preferences, and nature-based recreation among college students in Brazil and the United States. *Leisure Sciences*, 1–21. <https://doi.org/10.1080/01490400.2020.1800538>
- Salvadeo, C. J., Lluch-Cota, S. E., Maravilla-Chávez, M. O., Álvarez-Castañeda, S. T., Mercuri, M., & Ortega-Rubio, A. (2013). Impact of climate change on sustainable management of gray whale (*Eschrichtius robustus*) populations: Whale-watching and conservation. *Archives of Biological Sciences*, 65(3), 997–1005. <https://doi.org/10.2298/ABS1303997S>
- Sanborn, W. A., & Schmidt, R. H. (1995). Gender effects on views of wildlife professionals about wildlife management. *Wildlife Society Bulletin*, 583–587. <https://www.jstor.org/stable/3782984>.
- Scarpaci, C., Dayanthi, N., & Corkeron, P. J. (2003). Compliance with regulations by 'swim-with-dolphins' operations in Port Phillip Bay, Victoria, Australia. *Environmental Management*, 31(3), 0342–0347. <https://doi.org/10.1007/s00267-002-2799-z>
- Schuler, A. R., Piwet, S., Di Clemente, J., Steckler, D., Mueter, F., & Pearson, H. C. (2019). Humpback whale movements and behavior in response to whale-watching vessels in Juneau, AK. *Frontiers in Marine Science*, 710. <https://doi.org/10.3389/fmars.2019.00710>
- Senigaglia, V., Christiansen, F., Bejder, L., Gendron, D., Lundquist, D., Noren, D. P., & Lusseau, D. (2016). Meta-analyses of whale-watching impact studies: Comparisons of cetacean responses to disturbance. *Marine Ecology Progress Series*, 542, 251–263. <https://doi.org/10.3354/meps11497>
- Senigaglia, V., New, L., & Hughes, M. (2020). Close encounters of the dolphin kind: Contrasting tourist support for feeding based interactions with concern for dolphin welfare. *Tourism Management*, 77, Article 104007. <https://doi.org/10.1016/j.tourman.2019.104007>
- Sheldon, P. J. (2022). Regenerative tourism. In *Encyclopedia of Tourism Management and Marketing* (pp. 646–650). Edward Elgar Publishing.
- Sigala, M. (2021). A bibliometric review of research on COVID-19 and tourism: Reflections for moving forward. *Tourism Management Perspectives*, 40, Article 100912. <https://doi.org/10.1016/j.tmp.2021.100912>
- Singleton, B. E. (2018). Making a meal of it: A political ecology examination of whale meat and tourism. In *Tourism Experiences and Animal Consumption* (pp. 87–101). Routledge.
- Sitar, A., LJ, M.C, Wright, A. J., Peters-Burton, E., Rockwood, L., & Parsons, E. C. M. (2016). Boat operators in Bocas del Toro, Panama display low levels of compliance with national whale-watching regulations. *Marine Policy*, 68, 221–228. <https://doi.org/10.1016/j.marpol.2016.03.011>
- Soto-Cortés, L. V., Luna-Acosta, A., & Maya, D. L. (2021). Whale-watching management: Assessment of sustainable governance in Urumba Bahía Málaga National Natural Park, Valle del Cauca. *Frontiers in Marine Science*, 8, 71. <https://doi.org/10.3389/fmars.2021.575866>
- Sousa, A., Coelho, R. E., Costa, H., Lourenço, T. C., Azevedo, N. M. J., & Santos, C. F. (2022). Integrated climate, ecological and socioeconomic scenarios for the whale watching sector. *Science of the Total Environment*, 159589. <https://doi.org/10.1016/j.scitotenv.2022.159589>
- Sprogis, K. R., Bejder, L., Hanf, D., & Christiansen, F. (2020). Behavioural responses of migrating humpback whales to swim-with-whale activities in the Ningaloo Marine Park, Western Australia. *Journal of Experimental Marine Biology and Ecology*, 522, Article 151254. <https://doi.org/10.1016/j.jembe.2019.151254>
- Sprogis, K. R., Videsen, S., & Madsen, P. T. (2020). Vessel noise levels drive behavioural responses of humpback whales with implications for whale-watching. *Elife*, 9, Article e56760. <https://doi.org/10.7554/eLife.56760>
- Stack, S. H., Sprogis, K. R., Olson, G. L., Sullivan, F. A., Machernis, A. F., & Currie, J. J. (2021). The behavioural impacts of commercial swimming with whale tours on Humpback whales (*Megaptera novaeangliae*) in Hervey Bay, Australia. *Frontiers in Marine Science*, 1112. <https://doi.org/10.3389/fmars.2021.696136>
- Stamation, K. (2008). Understanding human-whale interactions: A multidisciplinary approach. In D. Lunney, A. Munn, & W. Meikle (Eds.), *Too Close for Comfort: Contentious Issues in Human-Wildlife Encounters* (pp. 211–224). Mosman NSW, Australia: Royal Zoological Society of New South Wales.
- Stamation, K. A., Croft, D. B., Shaughnessy, P. D., Waples, K. A., & Briggs, S. V. (2010). Behavioral responses of humpback whales (*Megaptera novaeangliae*) to whale-watching vessels on the southeastern coast of Australia. *Marine Mammal Science*, 26(1), 98–122. <https://doi.org/10.1111/j.1748-7692.2009.00320.x>
- Suárez-Rojas, C., González Hernández, M. M., & León, C. J. (2021). Do tourists value responsible sustainability in whale-watching tourism? Exploring sustainability and consumption preferences. *Journal of Sustainable Tourism*, 1–20. <https://doi.org/10.1080/09669582.2021.1999966>
- Suárez-Rojas, C., León, C. J., & Lam-González, Y. E. (2023). What drives you to the sea? Animal rights, environmental protection and sensation seeking. *Marine Policy*, 147, Article 105348. <https://doi.org/10.1016/j.marpol.2022.105348>
- Swain, M. (1995). Gender in tourism. *Annals of Tourism Research*, 22(2), 247–266. [https://doi.org/10.1016/0160-7383\(94\)00095-6](https://doi.org/10.1016/0160-7383(94)00095-6)
- Teixeira, S. J., & Pocinho, M. (2020). Hotel industry and regional competitiveness: The bibliometric perspective of web of science. *Journal of Tourism, Sustainability and Well-being*, 8(2), 129–147.
- Tejedo, P., Benayas, J., Cajiao, D., Leung, Y. F., De Filippo, D., & Liggett, D. (2022). What are the real environmental impacts of Antarctic tourism? Unveiling their importance through a comprehensive meta-analysis. *Journal of Environmental Management*, 308, Article 114634. <https://doi.org/10.1016/j.jenvman.2022.114634>
- Tepsich, P., Borroni, A., Zorgno, M., Rosso, M., & Moulins, A. (2020). Whale watching in the Pelagos sanctuary: Status and quality assessment. *Frontiers in Marine Science*, 7, 1047. <https://doi.org/10.3389/fmars.2020.596848>
- Tkaczynski, A. (2021). I can't get no satisfaction: Or can I? Satisfying Australian whale watching tourists. In *Tourism in Marine Environments*. <https://doi.org/10.3727/154427321X16268695372998>
- Tkaczynski, A., & Rundle-Thiele, S. (2019). Identifying whale-watching tourist differences to maximize return on investment. *Journal of Vacation Marketing*, 25(3), 390–402. <https://doi.org/10.1177/1356766718814083>
- Tortolini, V. M., Degradi, M., & Coscarella, M. A. (2021). Framing and communicating southern right whale-kelp gull biological interaction in Peninsula Valdés, Argentina: The effects of attribute frames on human's perceptions and decision-making policies. *Marine Policy*, 124, Article 104314. <https://doi.org/10.1016/j.marpol.2020.104314>
- Tseng, Y. P., Huang, Y. C., Kyle, G. T., & Yang, M. C. (2011). Modelling the impacts of cetacean-focused tourism in Taiwan: Observations from cetacean watching boats: 2002–2005. *Environmental Management*, 47(1), 56–66. <https://doi.org/10.1007/s00267-010-9567-2>
- Valentine, P. S., Birtles, A., Curnock, M., Arnold, P., & Dunstan, A. (2004). Getting closer to whales- passenger expectations and experiences, and the management of swim with dwarf minke whale interactions in the Great Barrier Reef. *Tourism Management*, 25(6), 647–655. <https://doi.org/10.1016/j.tourman.2003.09.001>
- Van Eck, N. J., & Waltman, L. (2010). Software survey: 978 VOSviewer. A computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
- Wakamatsu, M., Shin, K. J., Wilson, C., & Managi, S. (2018). Exploring a gap between Australia and Japan in the economic valuation of whale conservation. *Ecological Economics*, 146, 397–407. <https://doi.org/10.1016/j.ecolecon.2017.12.002>
- Waterman, R. H., Jr., Peters, T. J., & Phillips, J. R. (1980). Structure is not organization. *Business Horizons*, 23(3), 14–26.
- Wearing, S. L., Cunningham, P. A., Schweinsberg, S., & Jobbins, C. (2014). Whale watching as ecotourism: How sustainable is it? *Cosmopolitan Civil Societies: An Interdisciplinary Journal*, 6(1), 38–55.

- Weed, M. (2006). Sports tourism research 2000–2004: A systematic review of knowledge and a metaevaluation of methods. *Journal of Sport & Tourism*, 11(1), 5–30. <https://doi.org/10.1080/14775080600985150>
- Weinrich, M., & Corbelli, C. (2009). Does whale watching in Southern New England impact humpback whale (*Megaptera novaeangliae*) calf production or calf survival? *Biological Conservation*, 142(12), 2931–2940. <https://doi.org/10.1016/j.biocon.2009.07.018>
- Whitt, A. D., & Read, A. J. (2006). Assessing compliance to guidelines by dolphin-watching operators in Clearwater, Florida, USA. *Tourism in Marine Environments*, 3(2), 117–130. <https://doi.org/10.3727/154427306779435265>
- Williams, R., Lusseau, D., & Hammond, P. S. (2006). Estimating relative energetic costs of human disturbance to killer whales (*Orcinus orca*). *Biological Conservation*, 133(3), 301–311. <https://doi.org/10.1016/j.biocon.2006.06.010>
- Williams, R., Trites, A. W., & Bain, D. E. (2002). Behavioural responses of killer whales (*Orcinus orca*) to whale-watching boats: Opportunistic observations and experimental approaches. *Journal of Zoology*, 256(2), 255–270. <https://doi.org/10.1017/S0952836902000298>
- Xie, J., Tkaczynski, A., & Prebensen, N. K. (2020). Human value co-creation behavior in tourism: Insight from an Australian whale watching experience. *Tourism Management Perspectives*, 35, Article 100709. <https://doi.org/10.1016/j.tmp.2020.100709>
- Zeppel, H. (2008). Education and conservation benefits of marine wildlife tours: Developing free-choice learning experiences. *The Journal of Environmental Education*, 39(3), 3–18. <https://doi.org/10.3200/JOEE.39.3.3-185>



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