



Review

A systematic review of equity perceptions and outcomes in marine conservation

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ABSTRACT

Both social and ecological dimensions of conservation success are thought to depend, at least in part, on stakeholders perceiving conservation as equitable. However, the evidence base supporting this assumption remains unclear. To this end, we conducted a systematic review of studies examining equity perceptions in marine conservation, including identifying those that examined the relationship between equity perceptions and social and ecological outcomes. We identified 38 peer-reviewed studies that examined equity perceptions in marine conservation, of which 26 examined how those perceptions were related to outcomes. Our review revealed four key findings: 1) Research originating from the Global North dominates; 2) people perceived inequity much more frequently than equity; 3) equity perceptions are significantly related to the research method employed, and the conservation intervention's location, governance, and management arrangements; and 4) most studies examining relationships between equity perceptions and outcomes found a relationship, with inequity leading to negative outcomes, and equity leading to positive outcomes. The predominance of perceptions of inequity and their association with negative social and ecological outcomes revealed in our review emphasises the critical need for greater attention to equity perceptions in conservation practice. Further, our review highlights important avenues for further research, particularly the examination of equity perceptions to elicit what is considered fair by different groups and determine the mechanisms linking equity perceptions to conservation outcomes.

1. Introduction

The moral and instrumental importance of equity in marine conservation is increasingly recognised, with a burgeoning number of global policies calling for attention to equity in the conservation implementation (Dawson et al., 2018; Gurney et al., 2021a; Hampton-Smith et al., in review). For example, the Convention for Biological Diversity (CBD) explicitly referenced equity in the 2020 area-based conservation target, with Aichi Target 11 calling for protected areas and other effective conservation measures to be “effectively and equitably managed” (Convention on Biological Diversity, 2010). Emphasis on equity is greatly increased in the newly adopted CBD Kunming-Montreal Global Biodiversity Framework (Convention on Biological Diversity, 2022), with equity considerations evident throughout the

goals, targets, implementation advice and monitoring framework (Gurney et al., 2023). Similarly, attention to equity issues in the conservation literature has increased considerably in the last twenty years (Friedman et al., 2018).

The conceptualisation of equity¹ increasingly employed in conservation is rooted in the literature on environmental justice (e.g., Schlosberg, 2007) and social justice more broadly (e.g., Fraser, 2009). This literature saw an initial focus on distribution as the underpinning of justice (Rawls, 1971), which was later criticised for ignoring key inequities involving who may participate (Fraser, 1998; Young, 1990). This critique gave rise to a more multidimensional understanding of equity (Schlosberg, 2004; Sen, 2006), which is often broken down into the dimensions of recognition, procedure, and distribution (Schlosberg, 2004). Recognition equity concerns the acknowledgement and respect

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¹ We note that the terms equity, justice, and fairness tend to be used interchangeably in the conservation literature (Friedman et al., 2018), and often in the broader social sciences (Finkel et al., 2001). In keeping with this literature we hereafter use these terms synonymously in our analysis of perceptions of fairness and unfairness with regards to the three equity dimensions of recognition, procedure, and distribution.

of rights and socio-cultural diversity, in particular the identities and cultures of marginalised groups (Schreckenberg et al., 2018). Procedural equity relates to how decision-making is undertaken and by whom (Ruano-Chamorro et al., 2021). Distributional equity focuses on the division of benefits and burdens among actors according to principles of equality, need, or proportionality, for example, according to merit (Deutsch, 1975). This tri-dimensional framework has been widely adopted in the conservation equity literature (Franks et al., 2018; Pascual et al., 2014; Schreckenberg et al., 2016) and is thus what we refer to here. However, other frameworks also include elements such as contextual equity which acknowledge the political and cultural conditions under which equity is enacted (McDermott et al., 2013), or environmental equity which points to the quality of natural resources that people depend on for their wellbeing (Bennett et al., 2021). While equity has tended to be examined from a normative standpoint, recent conservation literature has taken an empirical approach that involves identifying people's perceptions of fairness and unfairness. This approach acknowledges that rights- and stakeholders (hereafter stakeholders) can hold different notions of fairness depending on the socio-cultural context and the situation at hand (Dawson et al., 2017b; Gurney et al., 2021b; Lau et al., 2021; Martin et al., 2013).

There is a substantial body of literature from philosophy (Rawls, 1971), criminology (Tankebe, 2009; Tyler, 2003), economics (Sen, 2010), and psychology (Lind, 2001), which shows how an individual's perception of fairness can affect their wellbeing, the achievement of organisational goals, and cooperation. In the conservation literature, perceptions of equity are hypothesised to influence social and ecological outcomes through reduced opposition to conservation initiatives (Bennett, 2018; Christie et al., 2017; De Santo, 2013). For example, perceived unfairness can undermine resource stewardship and lead to social conflict over the management of marine resources (Bavinck et al., 2018). Likewise, perceptions of unfairness have been associated with noncompliant behaviours which can disrupt ecological conservation goals (Dawson et al., 2017a; Gurney et al., 2014; Mariki et al., 2015). However, ethically unacceptable "fortress conservation" may persevere despite social injustices, the production of negative social outcomes, and a lack of local support (Brockington, 2004). The understanding of the degree of evidence demonstrating a link between equity and outcomes, including what those outcomes are, is limited, and particularly in the context of marine conservation (Friedman et al., 2018; Gill et al., 2019).

Here, we conduct a systematic review of the peer-reviewed literature on equity in marine conservation to examine the nascent body of work on equity perceptions. We ask: 1) when, where, and how are perceptions of equity in marine conservation being studied?; 2) is marine conservation perceived as equitable and how are those perceptions related to conservation initiative and study attributes?; and 3) what is the relationship between equity perceptions and marine conservation outcomes?

2. Methods

We undertook a systematic review following protocols from the Collaboration of Environmental Evidence (CEE) Pullin et al. (2018) and Joanna Briggs Institute (JBI) (2015). We organised the literature using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (Page et al., 2021), an evidence-based set of items for reporting in systematic reviews. Our searches were conducted between January and December 2022 in Web of Science (WOS) and Scopus databases. We first identified peer-reviewed literature on equity in marine conservation and management (hereafter marine conservation), and then screened each result to identify empirical evidence on equity perceptions and conservation outcomes. Our initial search string (Table 1A) was developed over an iterative process whereby we: (1) developed an initial search string and a test-list of required papers ($n = 10$, Table 2A) based on key literature; (2) ran the string in both databases and checked for presence of required papers;

and (3) modified the string until all test papers were included in search results.

We excluded non-English language studies due to our own language limitations (Fig. 1, reason 1). As our aim was to review peer-reviewed empirical evidence, we excluded book chapters, review articles, and conference proceedings (Fig. 1, reason 2). We excluded studies that examined equity in relation to issues other than marine conservation initiatives (Fig. 1, reason 3) and studies that did not include the keywords of perception and perceive (Fig. 1, reason 4). We excluded studies that did not include empirical evidence of equity perceptions (Fig. 1, reason 5) or did not provide sufficient information to determine which equity dimensions had been examined (Fig. 1, reason 6).

We categorized the studies using a list of conservation initiative and study attributes, including first author institute location, study location (by GPS coordinates and continent), governance and management of the marine conservation initiative, research method, and equity dimensions studied. Drawing on Worboys et al. (2015), we defined governance as decision-making frameworks encompassing authority, responsibility, and accountability, and management as the actions by which these decisions are realised. We divided research methods into qualitative, quantitative, and mixed methods. Qualitative methods included interviews, participant and non-participant observation, focus groups, and ethnographic fieldwork, whereas quantitative studies used data derived from surveys and other sources to count and measure conservation initiative and study attributes (CASP, 2023). We defined equity dimensions using key papers from the literature, and classified studies into one or more of the three dimensions using codes derived from the literature (Table 3A).

To categorise the thematic scope of each article, we first assessed whether respondents perceived particular contexts or situations pertaining to equity dimensions as fair or unfair. Perceptions were identified by searching for the keywords – fairness, equity, justice, equality – in conjunction with the keyword – perception. We analysed the full-text of each study to contextualise reported perceptions. We identified the four most frequently reported outcomes in our sample, and used bodies of literature in psychology and marine conservation to develop four outcome categories: human wellbeing (Ban et al., 2019; Betley et al., 2021), level of compliance (Bergseth et al., 2015; Sutinen and Kuperan, 1999), ecological status (Campbell et al., 2018; Pollnac et al., 2010), and governance legitimacy (Turner et al., 2016; Tyler, 2003).

We determined the frequency of conservation initiative attributes, study attributes, and the perceptions and outcomes reported by each study. We performed chi-squared analyses to identify significant associations between conservation initiative and study attributes and fairness perceptions. To contextualise these quantitative data, we qualitatively summarised key findings from the studies. We used the software programs Microsoft Excel, Endnote and Nvivo to collate, organize, and analyze the studies. Figures were created in R using the ggplot2 package (v3.4.1, Wickham, 2009) with the ggalluvial extension (v0.12.5, Brunson and Read, 2023).

3. Results

3.1. Academic literature on equity perceptions in marine conservation

We identified 38 peer-reviewed studies providing empirical evidence of equity perceptions in marine conservation. Since the first appearance of empirical studies on equity perceptions in the literature in 2000, there has been steady growth in the field, with most studies examining procedural and distributional dimensions more often than recognition (Fig. 2a, Fig. 2b). Most studies examined two dimensions (45 %), followed by those examining only one dimension (37 %) and then three dimensions (18 %). Nearly half of all studies examined perceptions of procedural equity (47 %), followed by distributional equity (40 %) and recognitional equity (13 %) (Fig. 2b).

Of the 38 studies identified, 68 % ($n = 26$) took place in non-OECD

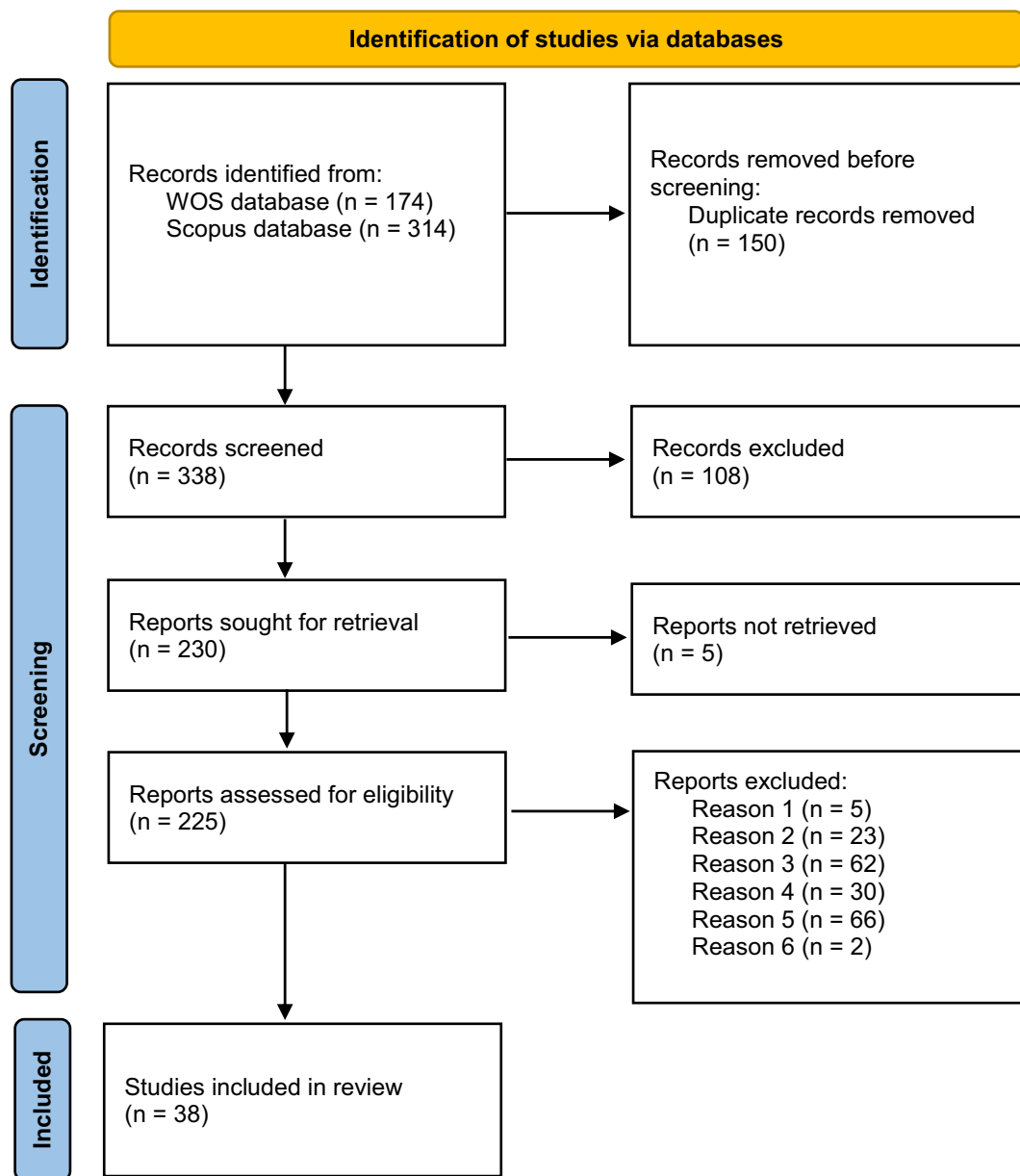


Fig. 1. PRISMA flow diagram showing the identification of studies via databases and the screening process. PRISMA flow diagram derived from Page et al. (2021).

countries or territories, whereas first authors affiliated with institutes from OECD member countries accounted for 82 % ($n = 31$) of the sample (Fig. 3a). Six continents were covered in the research, with Asia dominating the literature (32 %), followed by South America (18 %), Europe (18 %), Africa (11 %), Oceania (11 %) and North America (5 %) (Fig. 3b). The equity literature covered three broad types of governance arrangements: 47 % of studies examined government-led initiatives, 42 % examined co-management (whereby governments and communities/NGOs collaboratively manage resources), and 11 % examined community-based governance (Fig. 3b). Three broad types of management were evident in the literature: multiuse marine protected areas (MPAs) were by far the most commonly examined management approach (76 %), followed by no-take MPAs (18 %), and managed fisheries (5 %) (Fig. 3b). Qualitative research methods were used in half of the studies, followed by mixed methods (29 %) and quantitative methods (21 %) (Fig. 3b).

3.2. Equity perceptions and attributes of conservation interventions and studies

Perceptions of unfairness (70 %) were more frequently documented in the literature than perceptions of fairness (30 %) (Fig. 4). Chi-squared tests indicated that equity perceptions were significantly associated with continent ($\chi^2 = 41.99$, $df = 5$, $p < 0.001$), governance ($\chi^2 = 21.62$, $df = 2$, $p < 0.001$), management ($\chi^2 = 26.04$, $df = 2$, $p < 0.001$), and research methods ($\chi^2 = 61.65$, $df = 2$, $p < 0.001$), but not with equity dimension ($\chi^2 = 5.45$, $df = 2$, $p = 0.066$). Specifically, the literature reported only perceptions of unfairness in North America and Africa, far more perceptions of unfairness than fairness in Europe and South America, and approximately equal perceptions of fairness and unfairness in Asia and Oceania (Fig. 4a). Studies examining community-based governance and managed fisheries found more perceptions of fairness than unfairness; all other governance and management approaches were found to be more unfair than fair (Fig. 4b and c). Quantitative studies displayed the most perceptions of fairness in contrast to the qualitative studies which overwhelmingly found perceptions of unfairness (Fig. 4d). Fairness

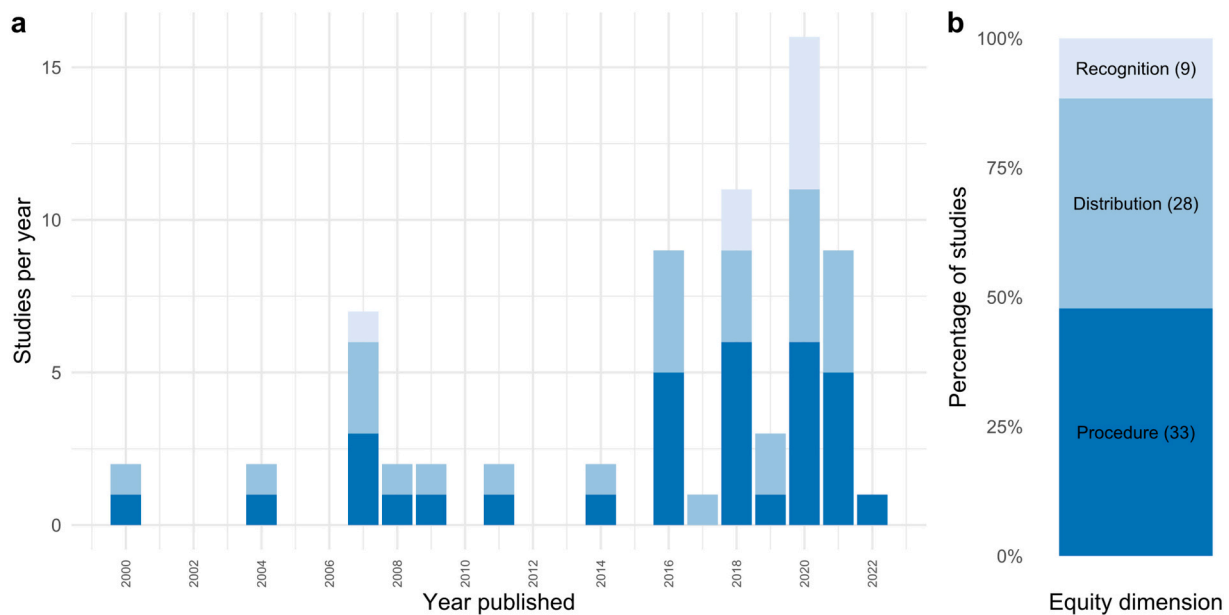


Fig. 2. Empirical studies identified in our review examining perceptions of the three dimensions of equity in marine conservation. a) Number of studies by year of publication (total $n = 38$). Some studies examined multiple dimensions; y-axis displays number of studies per year by dimension, not absolute number of studies. b) Percentage of studies examining the equity dimensions recognition, distribution, and procedure. Some studies examined multiple dimensions; numbers in parentheses indicate total number of studies.

perceptions revealed by studies using a combination of qualitative and quantitative methods (i.e., mixed methods) fell between the two. For all equity dimensions, perceptions of unfairness far outweighed perceptions of fairness, particularly in the case of recognition (Fig. 4e).

3.3. Equity perceptions and conservation outcomes

The majority (68 %) of the 38 identified studies examined and found empirical evidence of a relationship between equity perceptions and key conservation outcomes (the remaining 12 studies did not examine the relationship). These studies identified four key outcomes associated with perceptions of fairness and unfairness (Fig. 5; Table 4A). In all studies we reviewed, all perceptions of fairness were linked to positive effects and all perceptions of unfairness to negative effects on outcomes. Overall, the most frequently documented outcome was a negative effect on human wellbeing ($n = 24$), whereas only one study reported a positive effect on human wellbeing (Fig. 5). Negative effects on outcomes were more diverse than positive effects (Table 4A).

When studies about relationships between equity perceptions and outcomes were broken down by equity dimension, recognitional equity was the least studied ($n = 9$; Fig. 5). A negative effect on human wellbeing was the most common outcome associated with perceived recognitional unfairness. These negative effects stemmed universally from the loss of sense of place and culture through the restriction or removal of traditional statutory rights. Traditional resource users were either subject to restricted access and reported an accompanying spiritual or cultural loss (Gollan and Barclay, 2020; Mow et al., 2007; Sowman and Sunde, 2018), or were entirely excluded from the marine area (Rambaree, 2020). Traditional ecological knowledge was ignored (Mow et al., 2007) and tenure rights were eroded (Sowman and Sunde, 2018), leading to loss of access to sacred sites and feelings of identity fragmentation, marginalization and alienation. In the most extreme case, these perceptions of unfairness led to violent protests against MPA authorities (Sowman and Sunde, 2018).

Studies examining procedural fairness perceptions found the most frequent negative effects on level of compliance (Fig. 5). Perceived inequitable zoning and regulations were associated with overfishing and subsequent ecosystem degradation (Burbano and Meredith, 2020;

Glaser et al., 2018; Hogg et al., 2021). In one extreme case, local fishers attacked an MPA official enforcing a perceived unfair regulation (Bavinck and Vivekanandan, 2011). Negative effects on human wellbeing were fostered by perceived opaque and misleading behaviour from authorities during so-called “participatory” conservation decision-making processes (De Santo, 2016; McNeill et al., 2018). In one example, perceived procedural unfairness promoted not only feelings of despair and frustration, but also led to legal action against MPA governing bodies and the obstruction of conservation policy goals during participatory planning processes (McCreary et al., 2016). Conversely, positive perceptions of transparent and effective inter-management collaboration and fair enforcement were associated with increased perceived compliance (Christie et al., 2009) and governance legitimacy (Turner et al., 2016). Procedural equity perceptions were also found to impact other equity dimensions, where inequitable processes fostered a lack of recognition (Sowman and Sunde, 2018) and perceived inequity in the distribution of conservation costs (Glaser et al., 2018). However, causal links were not examined.

As with recognition and procedure, perceptions of distributional unfairness outweighed perceptions of fairness (Fig. 5). Negative effects from perceptions of distributional unfairness centred on the financial costs of conservation, under which local fishermen were forced to bear the double burden of reduced access and increased regulation (Bavinck and Vivekanandan, 2011; Burbano and Meredith, 2020). This was in stark contrast to external actors, including large-scale fishing operators, tourist operators or fish carriers (Cavada-Blanco et al., 2021), who were perceived as having excessive influence over the economic benefits available to local fishers. Fishers associated perceived unfair zoning and licensing processes (procedural inequity) with a perceived unfair reduction in income (distributional inequity), leading to noncompliant behaviour and consequently undermining conservation goals (Mow et al., 2007; Sowman and Sunde, 2018). The perceived unfairness encouraged noncompliance such as illegal fishing and overfishing as a means of righting the perceived imbalance, despite awareness of the accompanying environmental degradation (Bavinck and Vivekanandan, 2011). Such actions were justified on the grounds that locals were ill-equipped to bear the costs, and that external actors should not unfairly receive benefits. In contrast, perceived fair distribution of MPA

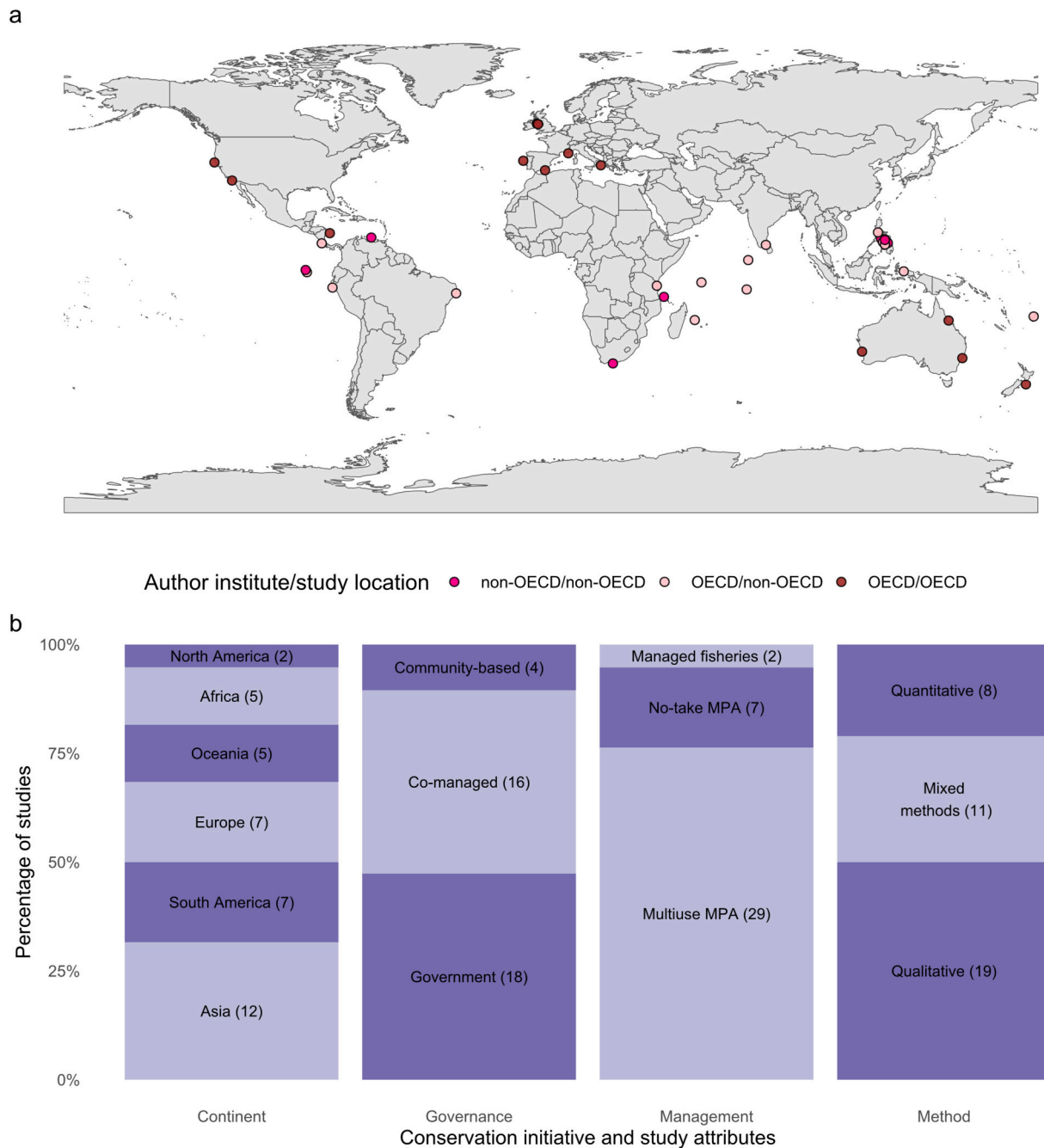


Fig. 3. Geographic distribution and attributes of the conservation initiatives described in the studies we identified in our review of equity perceptions in marine conservation. a) Geographic distribution of study locations (n = 38); points display GPS coordinates of study sites where data were collected. b) Attributes of the conservation initiatives and studies in this review. Numbers in parentheses indicate the number of studies (out of a possible 38).

benefits was associated with compliance (Christie et al., 2009; Glaser et al., 2018), governance legitimacy (Turner et al., 2016), and improved perceived procedural fairness (Glaser et al., 2018).

4. Discussion

Equity is thought to promote positive social and ecological conservation outcomes, though the evidence base supporting this assumption remains unclear. We reviewed the literature on marine conservation to reveal four key findings: 1) studies originating from the Global North dominate the literature; 2) perceptions of unfairness are much more frequent than fairness; 3) equity perceptions are significantly related to location, governance and management arrangement of the conservation

intervention and the method of investigation; and 4) most studies found a relationship between equity perceptions and outcomes.

Our first key finding is that clear gluts and gaps are present in the literature on equity perceptions in marine conservation. The dominance of studies originating from Global North institutions could imply a bias in the literature toward certain assumptions about what constitutes fairness because cultural background may influence perceptions of what is fair (Martin et al., 2019). This is particularly problematic considering the majority of these studies were conducted in Global South locations, with certain Asian regions receiving disproportionate attention while North America was underrepresented. It is therefore essential that researchers explicitly acknowledge and account for the situated and plural nature of fairness (Sikor et al., 2014) and ensure more equal geographic

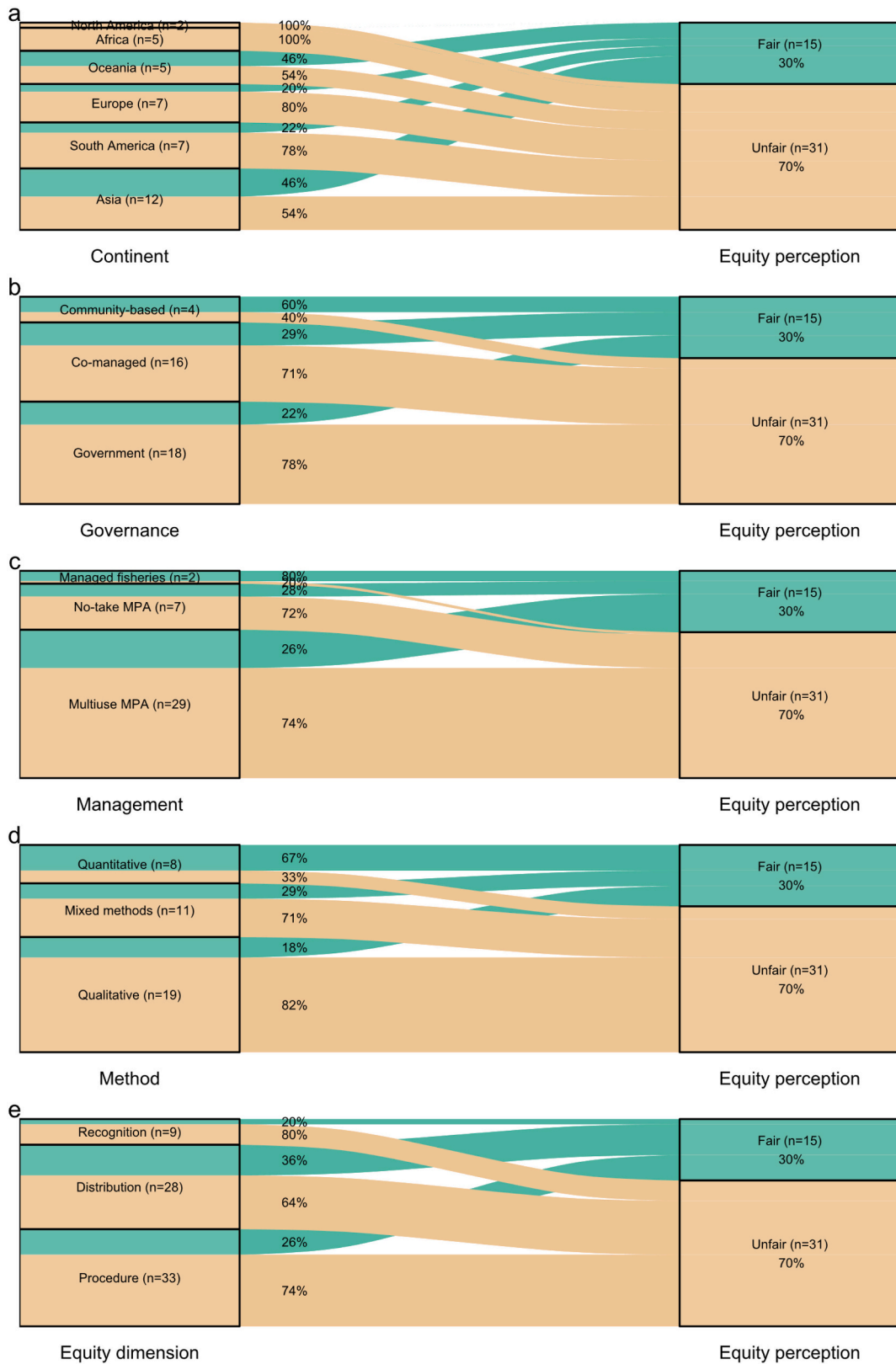


Fig. 4. Alluvial plots showing how attributes of the study and marine conservation initiative described within are associated with perceptions of (un)fairness, including (a) continent, (b) governance, (c) management, (d) research method, and (e) equity dimension. Numbers in parentheses for continent, governance, management, and research method show absolute number of studies. Because some studies studied multiple dimensions or found both perceptions of fairness and unfairness, numbers in parentheses for equity dimension and equity perceptions show number of occurrences and percentages on alluvial flows show proportions.

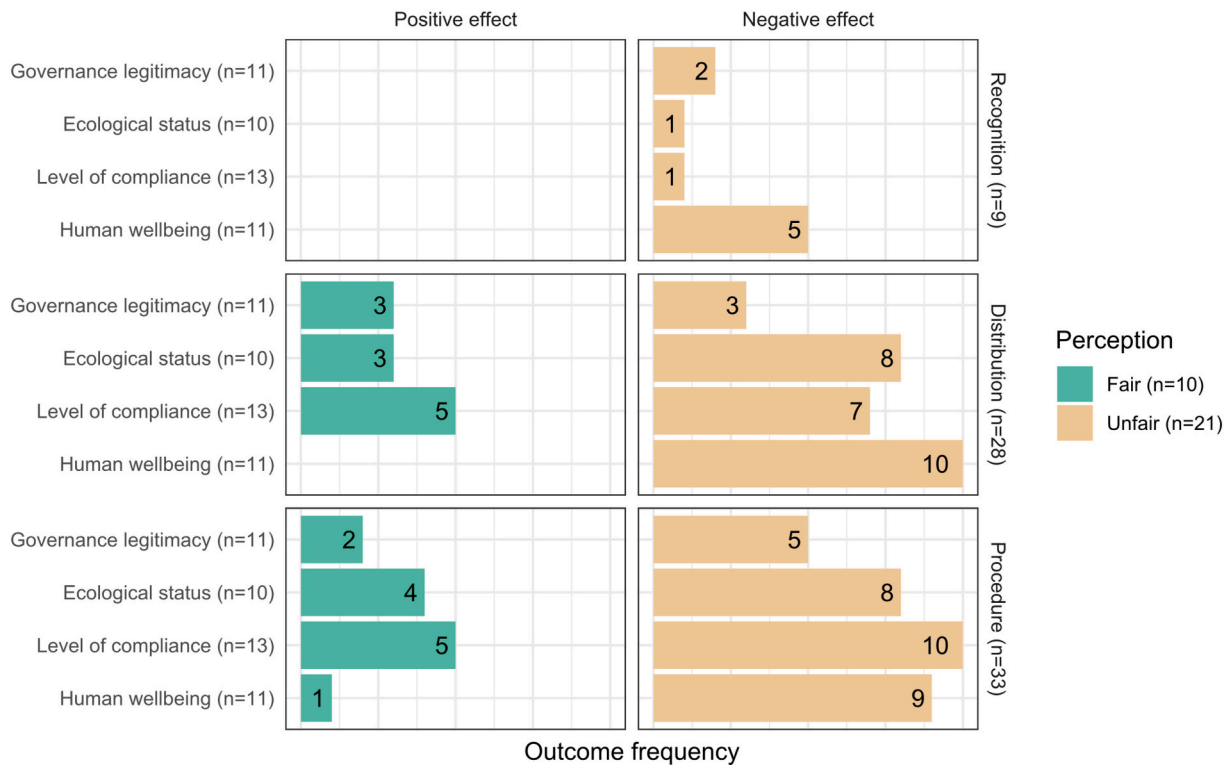


Fig. 5. Social and ecological outcomes displayed by equity dimensions and perceptions of (un)fairness. Only studies that examined the relationship between perceptions and outcomes ($n = 26$) are shown. Some studies studied multiple dimensions or found multiple outcomes; therefore numbers in parentheses show number of studies and numbers on bars display number of occurrences.

representation to allow for more diverse perspective of fairness. To combat these issues, we recommend researchers maintain a conscious awareness of these potential sources of bias when designing studies, building author teams, and selecting study locations.

Our second key finding is that the studies in our review found far more perceptions of unfairness than perceptions of fairness. This is likely due to two broad reasons. First, despite good intentions, conservation efforts have produced deeply inequitable outcomes for many stakeholders involved, including land dispossession, reduction in livelihoods, and loss of cultural heritage (Brockington et al., 2006). Second, the plural nature of equity, in which individuals can hold differing notions of what constitutes fairness (Sen, 2010), may lead to misalignment between the notions of equity embedded in conservation policy and governance frameworks and those held by local stakeholders (Martin et al., 2014a). It remains to be seen whether a recent focus on equity in conservation policy (Dawson et al., 2018; Gurney et al., 2023; Hampton-Smith et al., in review), including the CBD Global Biodiversity Framework and the UN intergovernmental treaty on Biodiversity in Areas Beyond National Jurisdiction (BBNJ), will be reflected in management practice and ultimately, fewer perceptions of conservation unfairness. Increasing attention to monitoring of fairness perceptions in conservation practice – for example in regards to protected and conserved areas (Franks and Pinto, 2021) and coral reef conservation (Gurney et al., 2019) – will help further this goal.

Thirdly, our review revealed that characteristics such as governance, management, and research method are related to whether a conservation initiative is found to be perceived as fair or unfair. Among the governance and management approaches included in the review, only community-based governance and managed fisheries were perceived as fair by respondents (Baticados and Agbayani, 2000; García Lozano and Heinen, 2016). This aligns with the literature in which community-based MPAs produced more positive outcomes than those governed under other approaches (Ban et al., 2019; Dawson et al., 2021), including greater perceived benefits by resource users (Cinner and

Huchery, 2014). Previous research suggests that local governance tailored to the local context is more likely to result in equitable conservation (Christie et al., 2009; Gurney et al., 2015), so it is therefore unsurprising but encouraging that equity perceptions of resource users reflect this. The breakdown by research method showed that qualitative studies dominate the field. This is likely because some aspects of equity are not suited to quantitative operationalization (Zafra-Calvo et al., 2017). In comparison to mixed methods and quantitative studies, qualitative studies revealed far fewer perceptions of fairness. Conversely, quantitative studies found more perceptions of fairness than unfairness. This suggests that results could be biased by method choice, or that disciplines employing specific method types are predisposed to investigate or uncover certain types of outcomes.

Finally, our review showed that all 26 studies that examined the relationship between equity perceptions and outcomes found evidence of the relationship. Although there may be publication bias at play here (where null results are not published), our review highlights that equity perceptions can be related to a range of conservation outcomes (Friedman et al., 2020; Martin et al., 2014a). The relationships between perceptions of procedural and distributional equity and compliance concur with research from social psychology emphasising the importance of perceived fairness in motivating human behaviour in group situations (Sutinen and Kuperan, 1999; Tyler, 1990). Further, we suggest that the positive effects of perceptions of equity on level of compliance, legitimacy, and ecological status may be the pathway through which previous studies have found equity to promote ecological success (e.g., the reduction of illegal fishing and consequent increased fish biomass in an equitably managed MPA (Kettunen et al., 2021)). Although based on a small sample size, our review highlighted that perceptions of equity are key to understanding how equity may influence human wellbeing and ecological conservation goals.

5. Proposed future directions

We suggest three broad areas for future research: 1) equity perceptions; 2) the causal relationships between equity perceptions and outcomes; and 3) operationalization of recognitional equity. First, many of the literatures in related disciplines (e.g., environmental justice) have taken a normative approach by seeking to elucidate universal concepts of equity and basing analyses on tacit assumptions about what constitutes fairness (Walker, 2014). In contrast, the use of the empirical approach in social conservation research to examine perceptions of equity is relatively recent and would benefit from a broader evidence base. Although some studies included in our review did identify mixed fairness perceptions (e.g., Glaser et al., 2018 reported perceptions of procedural unfairness mixed with perceptions of distributional fairness), no studies reported mixed perceptions on a single issue, in which some stakeholders perceived fairness and others unfairness. This limitation of the literature should be addressed by examining stakeholders' perceptions of whether they consider a conservation initiative is equitable (e.g., Dawson et al., 2017b; Zafra-Calvo et al., 2017) as well as what constitutes equity for them (e.g., Gurney et al., 2021b; Martin et al., 2014b). This would aid in developing a more nuanced and potentially inclusive understanding of equity in conservation. For example, the recently developed Site-level Assessment of Governance and Equity monitoring framework adopted by the CBD provides an opportunity to conduct standardized and relatively low-cost assessments of stakeholder equity perceptions (Franks and Pinto, 2021).

Second, given that no study fitting our inclusion criteria attempted to establish causal links between equity perceptions and outcomes, there is a clear need to move away from exploratory and correlational studies toward determining causality. The data thus far were often derived from small samples (Rambaree, 2020), anecdotal in nature (Bavinck and Vivekanandan, 2011) or included some degree of conjecture on the part of the authors (Glaser et al., 2018), thus reducing the robustness of any identified associations. There are numerous ways in which causality can be explored, including impact analysis (Ferraro and Hanauer, 2014), experimental games (Aswani et al., 2013), and even using observational data (Arif and MacNeil, 2023). Each of these methodologies has its challenges (e.g., conducting impact analysis on equity issues has ethical dilemmas, the external validity of experimental games can be difficult to establish, etc.). However, if conducted ethically and rigorously, these methods could provide greater evidence for the role of equity in conservation outcomes.

Third, recognitional equity has received markedly less (about one-third) the attention than other equity dimensions. This is a problem because some scholars suggest a hierarchy of equity dimensions, whereby recognition underpins procedure (Martin et al., 2016; Ruano-Chamorro et al., 2021), and procedure underpins distribution (Agrawal, 2001). A lack of attention to recognition is therefore potentially undermining our understanding of all three dimensions. This dimensional hierarchy has not been investigated in the conservation equity literature to our knowledge. Moreover, untangling the intermingling of dimensions and their effect on equity perceptions is made more challenging by the lack of understanding of recognition. To address this gap in knowledge, future research should focus more on recognition, especially with regards to how cultural and social group may influence perceptions of recognition and respect (Martin et al., 2014a), and through which channels recognition intersects with other dimensions of equity (Martin et al., 2016). Further, a potential line of future work could entail postulating possible causal links among variables associated with recognition that could be assessed through the comparison of case studies, and then designing theoretically motivated case analyses to test these assumptions. Contributing in this manner to the theoretical understanding of equity in conservation would have the added benefit of bolstering the currently sparse evidence base on conservation equity generally.

6. Conclusion

The urgent need for greater equity in conservation is increasingly emphasized (e.g., Gurney et al., 2023; Obura, 2023) in light of the recent adoption of the world's most ambitious area-based conservation target to date – the so-called “30 × 30” target under the CBD Global Biodiversity Framework, which calls for the protection of 30 % of the planet by 2030. We explored the literature to examine perceptions of equity in marine conservation and evidence for the hypothesis that equity perceptions can influence social and ecological outcomes. We found only 38 studies empirically examining equity perceptions in marine conservation which met our criteria, of which 26 examined and found a relationship between perceptions and outcomes. Our findings revealed far more perceptions of inequity than equity, significant relationships between equity perceptions and study or intervention characteristics, and relationships between perceptions of equity and outcomes. The predominance of perceptions of inequity and their association with negative social and ecological outcomes revealed in our review is concerning. However, that some forms of conservation governance and management (i.e., community-led governance and managed fisheries) were significantly more likely to be perceived as fair highlights opportunities for more equitable conservation. A greater focus on empirical equity approaches that examine perceptions, including the plural nature of equity, and use of methodological approaches designed to establish causality could provide a more comprehensive understanding of equity in the context of conservation, thus bolstering the likelihood of achieving conservation that delivers benefits to people and nature.

CRedit authorship contribution statement

Melissa Hampton-Smith: Conceptualization, Formal analysis, Methodology, Visualization, Writing – original draft, Writing – review & editing. **Georgina G. Gurney:** Supervision, Writing – review & editing. **Joshua E. Cinner:** Supervision, Visualization, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data is available in the supplementary materials.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.biocon.2023.110395>.

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