

**Neither hope nor fear: Empirical evidence should drive biodiversity conservation strategies**

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**Abstract**

In biodiversity conservation, the prevailing consensus is that optimistic messages should be used to inspire people to change their behaviour. But there is scarce empirical evidence that optimistic messages lead to favourable conservation behaviour change.

**Communicating conservation**

For almost a decade, debate has raged as to whether optimistic or pessimistic messages are better at inspiring the behavioural change needed to halt biodiversity loss. Optimists claim that negative messages can lead to disempowerment, resulting in a failure for people to take conservation action, while others counter that focusing on good news creates an illusion that there is no biodiversity crisis. Yet there is scarce empirical evidence backing either argument. Indeed, the number of papers advocating for either optimism or pessimism in conservation substantially outweighs the volume of empirical research in this area. We call for the development of an evidence base, including through empirical research, to inform how best to communicate about

conservation, either through positive or negative messages. We unpack the central arguments for both cases and draw on evidence from other disciplines to progress our understanding of biodiversity conservation communication strategies.

### **The rise of optimism**

While conservation is considered a crisis discipline, almost a decade ago, researchers called for a shift away from the “doom and gloom” message of conservation [1]. Since then, optimism has emerged as a dominant paradigm in biodiversity conservation and communication [2]. Many global movements—for example, Conservation Optimism ([www.conservationoptimism.com](http://www.conservationoptimism.com)) and Ocean Optimism ([www.oceanoptimism.org](http://www.oceanoptimism.org))—have pushed ahead with a positive and optimistic approach. While authors acknowledge that unbridled optimism would be “foolish in the extreme” [2], the main justification for an optimistic approach is the need to balance out the historic negativity associated with conservation messages, and to inspire hope as a motivator for engagement and action.

### **What is optimism?**

Despite its increasing prevalence, *optimism* has never been defined in the context of biodiversity conservation. It is usually presented in contrast with *pessimism*, and optimistic messaging may use a range of appeals to evoke positive feelings such as hope or empowerment, as opposed to negative appeals which may evoke fear or guilt. Within the public health messaging literature, this contrast is often described as a *gain* (positive message) or *loss* (negative message) frame, where either the benefits of engaging in a behaviour, or the consequences of not engaging, are emphasised. *Fear appeals* are a common and well-studied type of loss frame; less is known about other emotional appeals, such as guilt or shame. *Hope*, a commonly used term by conservation optimists [1], should be considered a distinct theoretical construct to optimism: hope can exist

only when the future is uncertain, and has only recently been defined in the context of climate change communications [3].

Optimism has never been conceptualized and operationalized in the context of biodiversity conservation. As such, there is no clear articulation of what an optimistic message is or what it should include to evoke hope or motivation. Difficulties arise when conservationists use optimism and hope, and pessimism and fear interchangeably, without considering the theoretical basis of each term, as this confounds empirical comparison of communication strategies. Mixing terminology also makes it harder to clearly explain what 'optimism' means in the biodiversity conservation context. Optimistic messages can vary substantially, and different optimistic approaches might be more effective in different contexts. For example, research shows that messages that inspire hope in one individual might leave another emotionally untouched, or could even provoke anger [4].

### **Evidence for optimism**

Evidence from other disciplines, including public health, medicine, and road safety, has been used to justify the need for an optimistic approach [5]. However, a broader and more expansive literature search reveals a contradictory and uncertain picture. Hundreds of studies across a range of fields have tested the effectiveness of negative or positive messages for influencing specific types of behaviours. When considering the strength and direction of the signal in well-studied disciplines, results are mixed. One consistent finding is that the success of either positive or negative messages depends upon context, and further, that the efficacy of messages varies depending on the type of behavioural change the message is intended to inspire (Table 1). For example, a meta-analysis of public health literature revealed that positive, gain-framed messages work when seeking to engage people in preventative behaviours (e.g., applying sunscreen), but

negative, loss-framed messages are more effective at motivating people to engage in detection behaviours (e.g., getting a mammogram) [6]. Further highlighting the contextual complexity of strategic communications, health message framing studies have repeatedly demonstrated that there is no significant advantage for either positive or negative messages if the behaviour and characteristics of the recipient are not considered [7].

The purported efficacy of optimistic approaches within climate change research has been used to bolster the need for conservation optimism. Recent analyses call this into question. A major criticism of previous research into optimistic messaging within climate change is that conclusions are largely based on correlation, not causation [8]. Recent experimental work contrasts with previous findings, suggesting that hopeful messages about climate change can lower motivations to engage in mitigation efforts [9]. There is no strategic review yet of climate change messaging literature, and research is still in the experimental phase.

### **Lack of conservation-specific evidence**

Findings from other fields may—or may not—be relevant to conservation. Regardless, approaches to message framing for biodiversity conservation should be evidence based. Despite advanced understanding about the efficacy of messaging strategies from other disciplines, evidence for the effectiveness of positive or negative messages in conservation is scarce: a literature search for papers investigating positive and negative framing in conservation revealed three peer-reviewed articles. Of these, one study showed that advertisements promoting biodiversity which evoke positive emotions are more likeable and appealing to consumers, but this study did not directly investigate behavioural change [10]. A second study found fearful messages were not effective at encouraging conservation-related behavioural change [11]; but this study did not investigate optimistic messages, rather messages that connected people to nature. A third study concluded

that positive messages are more effective in policy documents, although results depended on whether messages appeared in local or national policies [12]. While these studies have contributed toward a critical knowledge base for strategic conservation messaging, definitive conclusions about the effectiveness of positively- or negatively-framed messages cannot yet be drawn. Moreover, these studies do not investigate how optimistic or pessimistic appeals impact behavioural change over time. Empirical evidence is needed to determine the difference between optimistic and pessimistic, or hopeful and fearful messages in conservation, and to tease apart the nuances in constructing such messages.

### **Informing a strategic approach to conservation messaging**

Research into effective messaging for conservation behaviour change is an emerging field, but approaches should be informed by evidence-based, systematic approaches from other disciplines. It is well known that behavioural change is complex. Modern messaging campaigns in other fields take this complexity into account and use multiple theories to develop strategies. For example, the Comprehensive Messaging Strategy for Sustained Behaviour Change is a persuasive communication strategy outlining the what information should be conveyed in a message [7]. This, and other persuasive communication approaches have one thing in common: they require that the intended audience is clearly identified at the outset. Positive conservation appeals might have very different, even opposite, impacts on individuals who are concerned about biodiversity loss compared to those with little interest in the issue. There are multiple pathways by which people may be inspired to act for biodiversity (Figure 1) but limited conservation-specific evidence to know which pathways are likely to ensue. There exists an exciting opportunity for conservation communicators to expand on the knowledge developed in other disciplines to build an evidence base for how and in what circumstances, optimistic (and pessimistic) messages inspire motivation and action.

## **Conclusion**

We do not intend to make claims about the efficacy of optimistic or pessimistic approaches for communicating biodiversity conservation, but rather highlight that there is insufficient evidence for practical recommendations for either. We currently have limited understanding about how to create optimistic appeals to evoke hope or action, or under what circumstances such an appeal is the best persuasive strategy. Furthermore, blanket statements about the need for either optimism or pessimism in conservation risk oversimplifying a very complex topic; there is no one-size-fits-all solution to changing people's behaviours. We call for conservation communicators to think carefully about their objective and intended audience. Conservation is an evidence-based discipline, and we should compile empirical evidence upon how best to communicate effectively. Conservation scientists might start by building on, and establishing new collaborations with communications, marketing, and psychology researchers, to improve the theoretical underpinnings of conservation messaging research. By improving our messaging strategies, we will be better equipped to evoke desired behavioural changes necessary for effective biodiversity conservation. We must use evidence, not blind optimism, to guide our conservation strategies.

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**Table 1.** Debate exists as to the relative effectiveness of optimistic or pessimistic messages for changing behaviour to benefit biodiversity, but there is limited empirical evidence to support either approach. Evidence from other disciplines, in which messaging strategies have been well studied, show mixed support for or against the efficacy of optimistic messages for encouraging behavioural change. Here we present summary findings from reviews of optimistic versus pessimistic messaging in public health and medicine.

Discipline	Type of paper	Reference	Support for or against optimism	Key finding	Theoretical basis of optimism or pessimism
Public health (general)	Review	[7]	Inconclusive	The health framing literature presents contradictory results. The literature has repeatedly demonstrated that there is no advantage for gain- or loss-framed messages when the behaviour or characteristics of the message recipient is not considered.	Loss or Gain
Public health (general)	Review	[13]	Inconclusive	In advocacy of disease detection behaviours using loss-framed rather than gain-framed appeals is unlikely to substantially improve message persuasiveness.	Loss or Gain
Public health (vaccination rates)	Review	[14]	Inconclusive	The effectiveness of vaccine messages depends on characteristics of the message recipient, their perceived risk, or other situational factors.	Loss or Gain
Medicine	Review	[15]	Inconclusive	No studies identified an influence of framing on compliance with health recommendations, and different studies demonstrate different orientations of the framing effect.	Loss or Gain Positive or Negative



Figure 1. A conceptual model of the evidence-based pathways by which optimistic and pessimistic message framing may lead to action or inaction. There is a current focus on conservation optimism which aims to inspire action through hope and motivation, but there is insufficient evidence to know whether this approach is effective. In other well-studied disciplines, each pathway is known to be affected by individual values, attitudes, knowledge, social context, risk perception and personal efficacy. As well as the type of behaviour that is being elicited.

