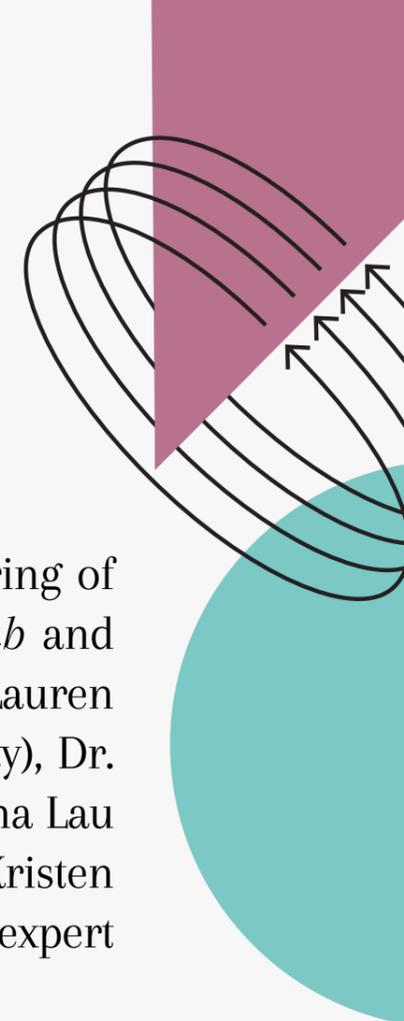
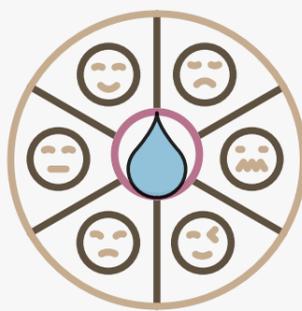


How emotions and gender shape water stewardship

Communications Handbook

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About the Handbook

The *Handbook* was created from expert insights and research stemming from a gathering of water scholars and policy-makers in November 2025, funded by the *Geneva Water Hub* and organized by the *Science Policy Incubator Grant on Water Diplomacy* recipient, Dr. Lauren Smith (Royal Roads University). Dr. Smith was joined by Dr. Julia Baird (Brock University), Dr. Gillian Dale (Brock University), Dr. Leila Harris (University of British Columbia), Samantha Lau (Canada Water Resources Association), Dr. Lucy Rodina (Canada Water Agency), Dr. Kristen Schell (Carleton University), and Dr. Melania Zurba (Dalhousie University). Additional expert insights were provided by Stephanie Shouldice (Royal Roads University).

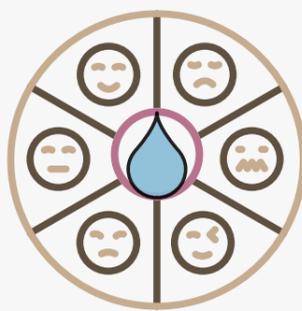
Handbook Goals

We have designed this *Handbook* to provide: (1) a background on how emotions function in water stewardship and communication; (2) a guide for how and when certain emotions can arise; and (3) a plan for managing how to avoid or encourage emotions in your audience when designing water stewardship calls to action. We have chosen several common, well-researched emotions to provide key examples, but recognize there are many others which can emerge when thinking about water and its protection. While this guide informs emotions' role in water stewardship, we are not advocating for manipulation via use of emotions. Rather, we are encouraging awareness and intention around emotions in equitable water communication and stewardship.

About the Geneva Water Hub

Anchored in the University of Geneva and the Geneva Graduate Institute, the Geneva Water Hub (GWH) is firmly situated at the interface of science and policy. We are a committed team of professionals who operate according to strict principles and a unique way of working. The GWH hold four Principles:

- Respect for the existential qualities that water can elicit from society: dignity, equality, and life.
- Moral commitment to the principles of international law and solidarity. GWH is not neutral on all issues; it fights for peace and social justice.
- Ethical commitment to partners, riding-out trends and changes in context as it nourish processes and relations.
- Intellectual commitment to critical thinking, and avoiding over-simplification of complex issues even as we integrate these into less expert audiences.



Key Insights

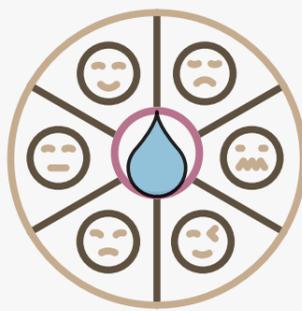
- **Emotions are deeply intertwined within water stewardship**, behaviour, and life. Working with and thinking about water means considering an intimate substance required for many aspects of life.
- **Water availability, accessibility, and security is under pressure** due to climate change, urbanization, socioeconomic inequities, and geopolitical stressors.
- **Emotions influence positive policy outcomes**, increasing collaboration or exacerbating differences, depending on the emotion, audience, context, and specific message components.
- **Certain emotions**, such as fear, **can increase polarization** which can interfere with water stewardship efforts.
- Research shows that **groups with diverse members make more sustainable, effective, and equitable decisions**, but merely bringing women or other marginalized voices to senior water management is insufficient without ensuring they can be heard and taken seriously in these presently male-dominated and elite spaces.
- **Emotions are not limited to women or necessarily linked with feminine traits** but are rather embedded in all decision-making spaces and practices.
- **Intentional, careful engagement with specific emotions** (e.g., awe, empathy) in water communications and stewardship can **help foster collaboration** and **decrease polarization** in an intensely divided political climate.

How emotions shape water stewardship



When we think about Canada, we often think of vast nature and plentiful, pristine water availability. Surrounded by oceans and filled with hundreds of thousands of freshwater lakes, the region may appear a water secure safe haven. However, where people live in Canada is not always aligned with an adequately safe and available drinking supply. Roughly 30% of Canadians (around 10 million people) rely on finite groundwater sources¹ and 85% of the population lives near the southern border where only 40% of surface water streamflow is available². Many rural and Indigenous communities have been under multi-year boil-water advisories to make their drinking water safe for consumption³. As climate change, urbanization, inequities, and geopolitical strains increase stressors on water availability, reliable, safe water access is increasingly threatened for those living and working in Canada.

The short paragraph above opened with a brief appeal to calm, positive emotions but quickly introduced concerning facts about water security in Canada. With these facts, you likely felt some worry and apprehension, perhaps a tightening in your chest or slight increase in heart rate. Depending on your identity (whether you're Canadian or connected to Canada; your personal concern about water issues), your response may have felt more or less intense. Even the presentation of facts, what we might term 'rational arguments', has emotional connections and consequences. The emotions that are evoked have differing impacts and responses in an audience. If we want to encourage sustainable, equitable water stewardship, we need to be intentional about what emotions are engaged in communications to be sure we encourage the desired responses from our audiences and avoid inadvertently increasing stress and polarization. This becomes particularly important when working to enhance equitable representation in the male-dominated, often highly technical field of water management.



Emotions, Gender, and Water Stewardship

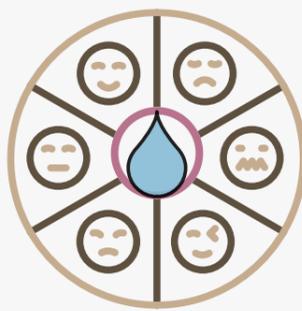
Before we continue, take a moment to imagine yourself next to a large, calm lake in a peaceful, remote setting. Maybe there's a lake you visit often or have visited in the past that you can draw from. Maybe it's surrounded by forest or mountains and clear, blue skies. The water glimmers in the warm sunrise as gentle waves lap at the shore. The water is clear and cool to the touch; you can just make out the opposite shore in the distance. You listen to the sound of the water slowly rippling on the shoreline as you sit at the water's edge.



As above, you likely experienced some physical and mental responses as you read the introductory paragraph. Perhaps you feel a bit more calm, maybe even more connected to nature, than you did before reading that text and imagining yourself beside a lake. This example is a much more obvious appeal to emotions, but both create responses that can influence how decisions are made. **We experience emotions all the time:** when travelling to work or school, scrolling social media, talking with friends and family, and thinking about choices we have to make, including water stewardship decisions.

There is a tendency to think that emotions and rationality are mutually exclusive and that emotions have no place in the serious, technical world of water management. Undoubtedly, **emotions influence policy** and can complement - rather than act against - deliberate, rational thought⁴. Emotional valence and intensity, or arousal, can motivate people to act or engage with particular topics, such as water stewardship, in desirable and undesirable ways.

We define water stewardship as “*the use of water that is socially and culturally equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process*”⁵. We provide a brief explanation of emotions and their influence on behaviour below, followed by the importance of gender in water stewardship, and then provide several key examples of specific emotions and emotional contexts. We conclude with recommendations for recognizing emotions within equitable and inclusive water stewardship.



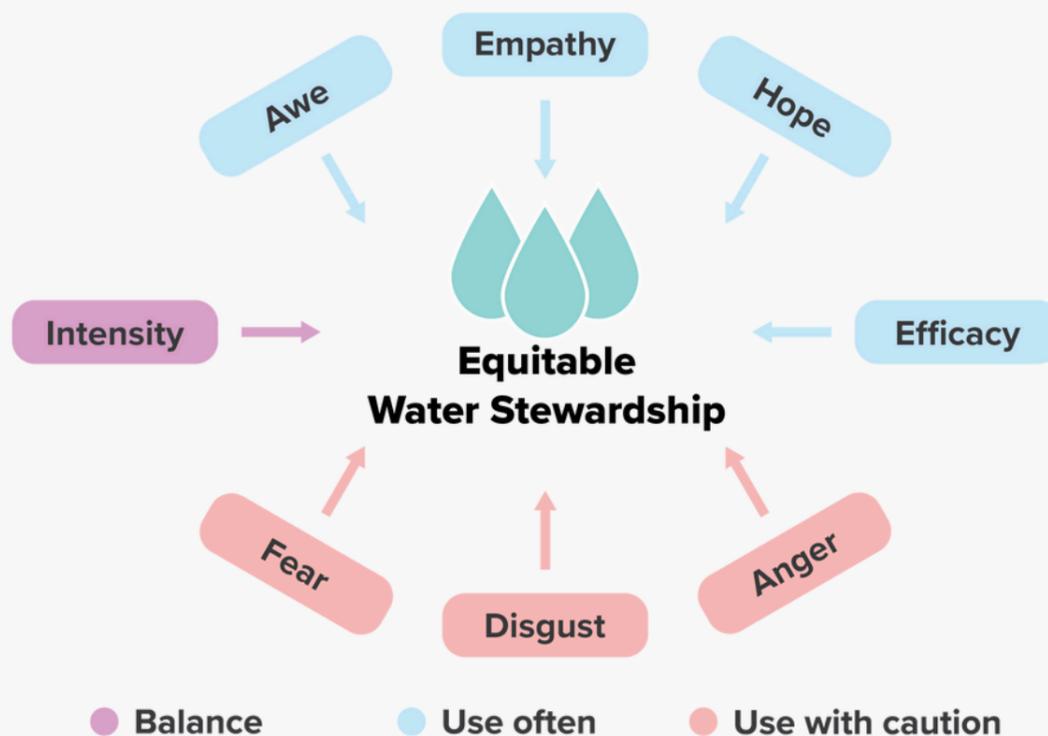
Emotions

Emotions are highly complex and wide-ranging, and can be categorized in a variety of ways.

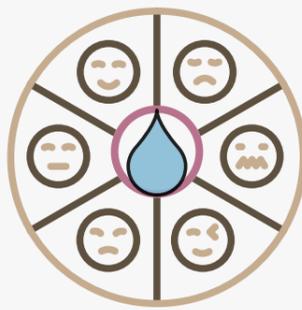
STATE VERSUS TRAIT: State emotions are more **fleeting** and in response to a specific context or experience, but we also carry baseline levels of emotions that are largely enduring across the lifespan, called trait or dispositional emotions. Trait emotions can be thought of as aspects of an individual's personality (e.g., optimist vs. pessimist) and can inform how **open or likely** someone is to experience or seek out particular state emotions⁶. As such, state and trait emotions work in concert to shape our experiences.

INTENSITY: The intensity of the emotion **influences whether and what behavioural responses occur**. Certain emotions are higher in intensity (e.g., anxiety, fear, joy) whereas others are lower (e.g., boredom, calmness, contentment).

VALENCE: Emotions can be grouped as **positive** (e.g., happy, joy, awe), **negative** (e.g., fear, anger, sad), or **neutral** (e.g., calm, content, bored) valence.



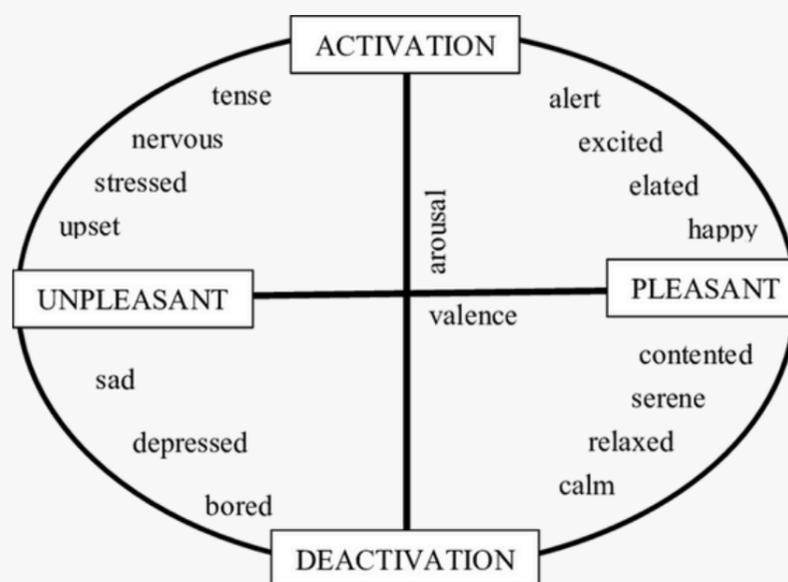
The figure above summarizes the emotions explained throughout this handbook. **Emotions involve a subjective experience** (a stimulus that evokes the emotion), a **physiological reaction** (e.g., activity in the brain), and a **behavioural response**. The combinations of these various emotional categories have created several models that explain emotional experience and responses, illustrated on p. 7. Greater activation is more likely to lead to a more intense behavioural response.



Emotions

When emotional activation, stress, or **intensity is low**, individuals are **less likely to act**. If activation levels are increased, such as through an emotional appeal, performance and their ability to take action also increases.

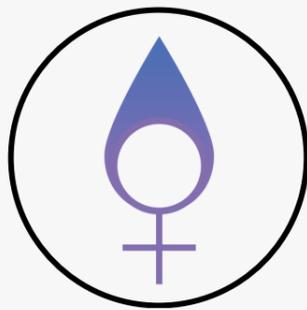
However, if **intensity is increased too much**, individuals become **paralyzed** and unable to act. Therefore, while emotional appeals can be powerful motivators for action, inducing an excessive amount of negative emotions can paradoxically lead to inaction, particularly if already experiencing high-activation emotions such as anxiety.



Representation of Russell's (1980) Circumplex Model of Affect

Another important factor in determining whether emotions can lead to action involves **efficacy**; the belief in ability to perform the behaviour needed for a specific outcome. This can be the belief in one's own ability (self-efficacy) or in one's group (collective-efficacy). **If we believe we are capable of making a difference** through our water stewardship efforts, that our actions to use less water will have an impact, for example, **we are more likely to follow through on intentions**.

The **combination** of *trait* emotion within an individual and the *state* emotion of a particular *valence*, along with the activation *intensity* and the *self-* and *collective-efficacy* present, **determines what behavioural outcomes result** (e.g., water conservation behaviour, water stewardship support). Our key examples below help illustrate this process and demonstrate how emotions can influence equitable water stewardship.

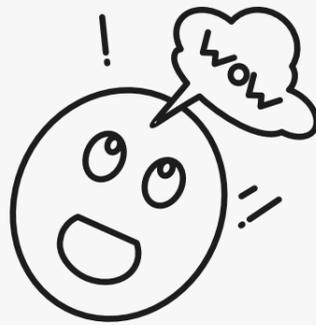


A Note on Gender

Historically, and into the present, the water management field has generally been male-dominated⁷. This is compounded by the fact that technologies and expertise associated with water is often coded as masculine, though this varies in specific contexts.⁸ Historically, and in various Indigenous societies today as well as in other cultural contexts, women have played and continue to play a larger role in water stewardship^{9,10}. Yet, women, and other marginalized groups, remain largely absent from many roles and positions with the most power over water decisions. This persists despite research showing that diverse groups make more equitable and sustainable decisions¹¹ and despite repeated calls for equity in water stewardship^{12,13}. Further complicating efforts to increase diversity in water stewardship involves responses to certain emotional framing of water problems. Often, fear is evoked when describing water problems which can lead to ingroup preferences - we prefer people most like us when fearful and distance ourselves from those who are different^{14,15}. In homogeneous groups working with fear-inducing concepts, this may make it particularly difficult to increase diversity.

Gender and feminist works that have challenged key dichotomies, such as rationality versus emotions, have highlighted ways that emotions have been marginalized in scientific debates that value objectivity and 'facts'. In contrast, these approaches have offered tools to engage with embodied, emotional, and affective aspects of social and environmental issues^{9,16}. These dynamics of water politics, activism, and diplomacy remain gendered. While women have long been marginalized and under-represented in formal water policy and diplomacy^{7,17}, women remain at the forefront of water related activism⁹. Emotional responses to water issues might emphasize building relationships, care work, and social reproductive tasks, such as domestic house work, childcare (often coded as feminine), rather than solutions, facts, and engineering infrastructural approaches (often coded as masculine⁸).





Awe

A sense of vastness, attention shifts beyond the self when experiencing the sublime or incomprehensible.

Recall our earlier example imagining being next to a large, peaceful lake. Psychologists have found that when asked to imagine similar, awe-inspiring nature scenes, the feeling of awe experienced can **help increase connection to nature and pro-environmental behaviours**¹⁸⁻²⁰. Awe, like compassion and gratitude, is a self-transcendent emotion: emotions that lead one to think of and care about issues, concerns, and needs beyond the self and increase empathy. These self-transcendent emotions can **reduce perceived barriers** between people and **increase a sense of connection** to others who may not be immediately seen as part of one's ingroup **motivating prosocial behaviours**. This extension of self can also encourage pro-environmental behaviours²¹. By extending our sense of self, awe could help broaden our identity to include humanity and nature in general, rather than a certain subset we typically identify with. Awe, then, can **help encourage collective social goals**, such as action on climate change or water stewardship - complex problems that require action from many to make a difference.

Awe can also be threatening; a thunderstorm or natural disaster can evoke a similar small-self feeling but paired with fear or anxiety. This sub-type of awe is less well-researched but may not be as powerful as positive awe for encouraging pro-environmental behaviour²². Given the potential drawbacks from fearful experiences (see Fear, p. 11), it would be beneficial to **avoid threatening-awe in water stewardship communications**.

In Water Stewardship Activities: Water and nature are common awe 'elicitors', and people frequently report feeling awe when being in or thinking about nature^{23,24}. In water stewardship, awe may emerge when talking about a water body needing protection - provided focus is not on the damage or polluted state of that water body, which could evoke threatening-awe. Instead, the desired state for the water body could be the focus if we want awe to be encouraged.

Within water stewardship communications, awe can be **encouraged through positive, vivid descriptions or images of vast water bodies and nature scenes**. Focusing on positive, rather than threatening, awe-inspiring water is most likely to have positive environmental benefits. In deliberations or discussions about water, **an opening ask to think about an awe-inspiring water body** (as we demonstrated above) could encourage awe among those gathered. This can help increase openness to collaboration or cooperation by expanding one's sense of self and increasing the feeling of being connected to nature.



Empathy

The reflexive ability to understand and share the feelings of another without pity.

Empathy can involve recognizing others' emotions (cognitive empathy), feeling others' emotions (affective empathy), and feeling a response in yourself in relation to others' emotions (empathetic concern). Often, it involves and can be encouraged by taking someone else's perspective - purposefully imagining how they feel. Empathy has been found to **increase altruism, collectivism, prosociality, and can predict greater pro-environmental attitudes, including those specific to water**^{21,25}. In addition, working to understand someone else's perspective can help reduce intergroup biases²⁶, but may not be as effective for reducing stereotypes about ethnic groups as it is for individuals²⁷. Fostering empathy can increase one's likelihood and ability to feel empathy for others (it is something we can improve at!) and can be incredibly useful for water stewardship efforts that require greater compassion for others (or waterways).

It is important to **avoid asking individuals to express empathy for something they cannot understand**, for example, knowing what someone else's trauma feels like. We cannot know someone else's lived experience and claiming to do so can cause more harm than good. Similarly, there is a difference between imagining how someone else feels and imagining ourselves in their situation - while both create empathy, the latter also causes distress²⁸.

In Water Stewardship Activities: In various charity marketing, you've likely encountered appeals to empathy and perspective-taking. Think of advertisements asking you to think of an unhoused family in your community or those who have experienced a recent natural disaster. These materials often include vivid descriptions of what these individuals are experiencing in effort to share perspectives of those they are trying to help. To best encourage empathy in water stewardship, **intentional perspective-taking to imagine how someone else feels may be most effective**. This could be included in public-facing materials but also within water stewardship dialogues.

To increase empathy in water stewardship dialogues, **perspective-taking activities could be included at discussion start to allow members to consider how those with differing values feel**. This may be particularly effective after an awe-inspiring experience or recall activity as research shows that awe can increase empathy²¹. Further, greater empathy may be useful when working for equitable and inclusive water stewardship, especially in situations where diversity is limited. Empathy may help majority group members better understand perspectives of those that may be seen as outgroup members and identify barriers that prevent equity-deserving groups from fully participating. This enhanced understanding may **help reduce biases or stereotypes that could otherwise interfere with cooperation and trust within water stewardship efforts**.



Fear

An intense emotional response to a perceived danger.

Fear serves to keep us safe: our senses heighten and we can avoid or combat the perceived danger quickly. If we know how to cope with the danger, the fear can lessen. With greater intensity, fear can become terror. Fear is frequently evoked in environmental communications; often, a problem is described in vivid detail, outlining the severity of the problem at hand, as our introductory statistics demonstrated. This fear may **increase intensity and attention, potentially increasing likelihood of action, but it is not without consequences**²⁹.

When we think about a water problem, we are reminded that our access to a life-sustaining substance can be threatened³⁰. To manage and cope with the intense fear, we may deny that the problem exists or that we are at risk. **When an issue is framed in a fearful way repeatedly, we may become apathetic in effort to control our internal fear when we cannot control the external danger**³¹. We may also cope with this fear by **reinforcing ingroup values**; we may engage in behaviours that are important to and valued by our social groups to leave a lasting impact and contribution to what we believe is important. This could be supporting a legacy fund, large infrastructure, or a major water project - depending on impacts, these may be helpful or harmful for water stewardship outcomes. If the ingroup values water conservation, for example, a fear message may reinforce commitment to these projects. If the in-group values economic growth above all else, water stewardship may be at risk when fear is engaged.

In Water Stewardship Activities: Despite the temptation to describe the negative impacts of water problems in detail, this may not be the most effective path for increasing equitable, long-term water stewardship. While fear can lead those who value the environment to more intensely commit to environmental values, **an extremely fearful approach may lead even these same individuals to shut down**. Furthermore, pro-environmental individuals are likely already highly engaged in desirable water behaviours and receptive to water stewardship messages. As such, this emotional tactic “preaches to the choir” while driving away the less-engaged individuals we actually need to reach and inadvertently prompting unsustainable coping behaviours (e.g., shopping as a distraction). **A more tempered description, paired with a specific action that the individual can immediately take** (perhaps even emphasizing efficacy) **could help ensure that descriptions of water problems can result in positive water actions**. Relatedly, it is important to know your audience’s values (whether in public-facing communications or within water stewardship teams) when deciding if a fear-based approach is appropriate.



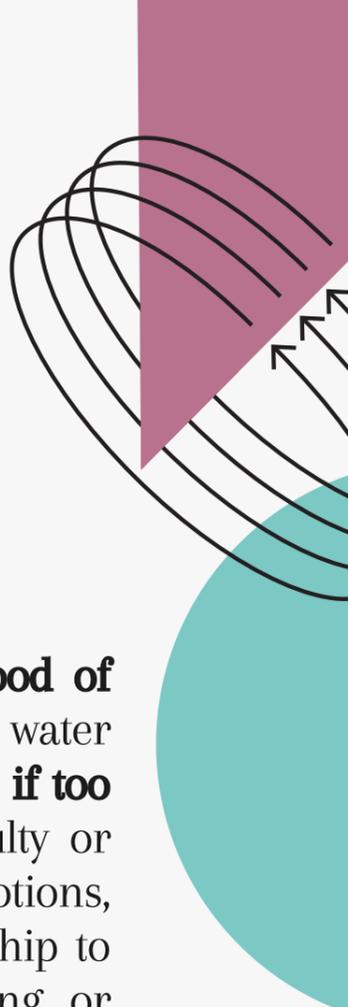
Self- and Collective Efficacy

Belief in one's self and group's ability to perform a desired behaviour.

When we believe that our behaviour or that of our group is able to have an impact on a specific outcome, we are more likely to engage in that behaviour. **Self-efficacy helps people feel more capable and able to create change** - they are more likely to engage in conservation behaviours when they feel able to make a difference or be successful in their efforts. Research has found that **collective efficacy can be an even stronger predictor of pro-environmental behaviours and water policy support**^{32,33}. Self-efficacy develops from succeeding at challenging tasks, recalling past success, seeing others we identify with succeed, receiving supportive appraisal from those close to us, and positive emotional state³⁴. Similarly, collective-efficacy stems from prior experiences with one's group, both personally experienced and observed; persuasion from other group members; and positive affect³³. **Collective-efficacy can increase self-efficacy and, in turn, pro-environmental action**³⁵. If we can include prompts that promote self- and collective-efficacy in water stewardship, we may be able to reach more effective outcomes.

In Water Stewardship Activities: If focused on individual behaviour within water stewardship, efforts to increase self-efficacy may be helpful. When a specific behaviour (e.g., individual water use) is a target of a water stewardship campaign, appealing to individual self-efficacy may be a strategic approach. For example, a campaign that **emphasizes one is capable of the desired action** (e.g., using less water), and that these actions are part of social norms, can be particularly effective³⁶. Incorporating strategies from **community-based social marketing** - gathering early, small commitments; setting behavioural goals; communicating social norms; visible, social engagement; prompts and reminders to act; appropriate incentives; reduction of barriers; providing feedback - are also helpful when specific, individual behaviours are of focus³⁷.

Collective-efficacy beliefs can become collective action when group belief and action norms align, and with the presence of hope^{35,38}. **Hope and efficacy are highly related:** hope involves the belief that a goal is attainable, efficacy involves the belief that the self or group can perform a specific action. **Including hopeful, solutions-based messages and communicating belief in the group** within team meetings or public communications could be helpful for obtaining collective-efficacy and water stewardship goals^{39,40}. **Highlighting group membership** - that we are in this together - rather than individuality can help us feel better equipped and capable of having an impact on complex problems that require action from many, such as climate change and water stewardship⁴¹.

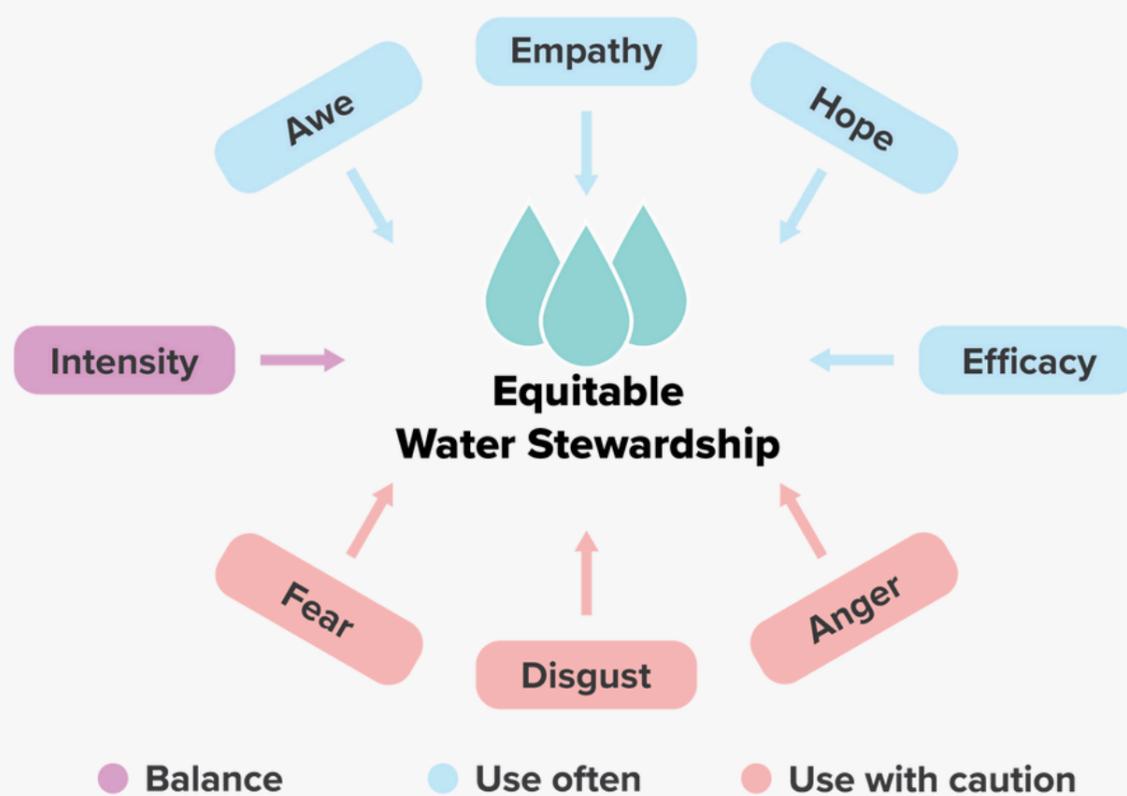


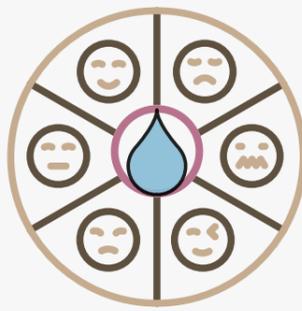
Intensity

State of excitement or energy expenditure related to an emotion.

The intensity (also termed, arousal) of an emotional experience **influences the likelihood of engaging certain behaviours based on that emotion - to an extent.** A vivid description of the water problem at hand could be helpful to create activation in water stewardship scenarios, **but if too great, we risk high anxiety or shut-down** in conditions of over-intensity^{42,43}. The difficulty or complexity of the specific situation, combined with existing individual differences in emotions, can influence individual experiences of arousal. It may be helpful within water stewardship to **limit the use of negative, high-intensity emotions** such as terror or anxiety in messaging, or temper it by adding in messages of hope or emphasizing self and group efficacy. By **combining messages of hope and emphasizing the ability** of individuals and groups to make a positive change, the negative effects of fear messaging can be limited while still retaining the motivating aspects of fear-based appeals.

In Water Stewardship Activities: To maximize equitable water stewardship, we want a moderated emotional intensity - those involved should be engaged enough to promote action but not to the extent that they become overwhelmed or shut down. Given individual differences in intensity, it may be helpful to **build in emotional ‘check-ins’ within water stewardship dialogues.** For example, a facilitator can check-in on intensity and engagement levels of the group and determine if intensity should be increased or decreased to moderate optimal engagement. When approaching over-intensity, **a break can help ‘reset’.** Planning for breathing or mindfulness activities within these breaks may further help manage intensity⁴⁴ and increase empathy and awe^{19,45}.



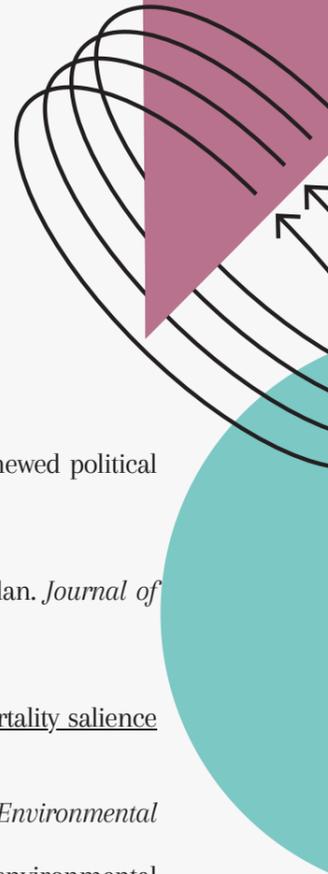


Final Recommendations

When considering the role of emotions in water stewardship, there are clear opportunities to better understand how emotions influence engagement and uptake of action on water. Given the complexities of emotions in various water messages, conversations, and descriptions, we have some closing, general recommendations.

- First, it may be useful to first **map out how a planned conversation or message may evoke certain emotions** within your audience, whether you want to enhance or reduce that emotion for your desired outcome, and how you might do so. **Consider the intensity and possible outcomes** for those with **different values** that might be in your audience. Plan for how you can best manage the positive and negative emotions and intensity level in order to work towards the best water outcomes.
- Second, opening water stewardship conversation and activities with **gratitude, recognition** of the emotions that can emerge, and **an emotional prompt** (to evoke awe or empathy, for example) to encourage openness, cooperation, trust, and relationship building. **Art can be a powerful tool** to demonstrate emotions at play in water issues and how they can influence how people feel and act about water concerns (see [Our Living Waters](#), for examples).
- Third, **including successful water stewardship examples** could be helpful to encourage collective-efficacy, hope, and empathy through perspective-taking. By showing that water stewardship is possible, **we can help others believe in the impact and possibility** of their work as well - on an individual and institutional scale. For instance, river rights granted in New Zealand inspired others in Ecuador and India to work with Indigenous communities and develop, advocate for, and grant rights to rivers in these countries⁴⁶. While rights on paper do not translate automatically to conservation actualities, the awareness of progress by one group of water stewards provided enough hope and sense of efficacy for others to act as well.

We have provided an overview of emotions' influence on equitable, inclusive, and effective water stewardship. We hope the examples help you recognize **emotions**, their **importance**, and **consider what responses they might foster** when speaking about and working with water. There are many more examples and emotions than we can cover in one document and have focused on what we feel are essential and what we know best. We encourage you to seek out experts on other emotions where relevant. Given water's physical, psychological, and symbolic importance, we need to use the tools available to help foster sustainable, equitable water stewardship. Recognizing emotions in water work provides a powerful opportunity to ensure water is protected and available for generations to come.



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