Exploring a Momentary Eco-Anxiety Induction Technique Using a Mixed-Methods Approach

by

Jess Tingley

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Jess Tingley
Abstract

Concern surrounding climate change and other global environmental issues is very high. For many people, this means a subsequent rise in feelings of eco-anxiety. Presently, little research methodology surrounding eco-anxiety is aimed at investigating momentary feelings of eco-anxiety. This study at hand empirically tested a state eco-anxiety induction technique and quantitatively and qualitatively explored self-reported coping techniques associated with eco-anxiety. Three hundred ninety-three MTurk participants watched one of seven randomly assigned videos intended to evoke feelings of eco-anxiety. A mixed ANOVA revealed successful induction of increased state eco-anxiety at post-test compared to pre-test. Thematic analyses revealed coping themes, with top suggestions being pro-environmental behaviour, use of informational support, emotional or social support, and self-distraction. The findings of this study will aid in future research concerned with momentary feelings of eco-anxiety, and how it relates to coping behaviours.
Dedication

To my late Uncle Derek, who has inspired me to approach the field of Psychology with compassion and curiosity.
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Nearly half of Canadians report experiencing progressive worry about the effects of climate change, with 25% rating themselves as “really anxious” and often thinking about climate change (Abacus Data, 2019, as cited in Berry & Schnitter, 2022). This concern is likely related to eco-anxiety, a term for the feelings of distress caused by an awareness of climate change, as well as other contributing environmental crises like overfishing or deforestation (Usher et al., 2019). Although eco-anxiety can develop into a more longstanding and debilitating form, it is typically thought of as a momentary feeling (Kurth & Pihkala, 2022). Despite general emphasis in the literature that eco-anxiety occurs as both state and trait experiences, much of the present research focuses on testing and measuring eco-anxiety as a more chronic or trait experience. This gap presents two main issues: (1) most of what researchers know about eco-anxiety and how to cope with it is not based on studies that directly test eco-anxiety as it is frequently understood and experienced (i.e., a state event) and (2) all of the methods and tools developed to study eco-anxiety thus far are insufficient to study it as a state phenomenon. For instance, several qualitative and correlational studies have found a relationship between pro-environmental attitudes and behaviours and eco-anxiety or similar emotions (Bright & Eames, 2021; Schwartz et al., 2022; Verplanken et al., 2020; Whitmarsh et al., 2022). However, it is unclear what is driving this relationship due to the lack of experimental study of momentary eco-anxiety and coping that is required to draw causal inferences. Therefore, the present research was developed with the intent to empirically investigate eco-anxiety as a state feeling by experimentally inducing eco-anxiety and by exploring coping strategies as suggested by the participants post-induction. It is my hope that this study will
assist in methodologically broadening the literature on eco-anxiety and provide further insight into how people think they can cope with such feelings.

**Nature & Psychological Well-Being**

Biophilia theory (Wilson, 1984) posits that interest in life-like, healthy, resource-rich components of nature is an innate human predisposition that developed due to the evolutionary significance of nature for human survival. Not only does the natural environment provide functional resources, like clean drinking water and fresh air, it has also been robustly linked to psychological well-being. Research has displayed the importance of both nature exposure and nature connectedness. Nature connectedness, or nature relatedness, is differentiated from nature exposure in that it is a person’s level of feeling emotionally, physically, and cognitively connected to the natural environmental (Nisbet et al., 2009).

Barragan-Jason et al. (2023) conducted a systematic review of meta-analytic research and found that physical contact with nature and being mindful during it can lead to many well-being benefits, such as feeling more psychologically connected to nature, improved socio-cognitive abilities, and enhancing various aspects of health. As well, a correlational study by Nisbet et al. (2020) found feeling connected to trees was associated with positive (but not negative) well-being and health perceptions. Additionally, they found that nearby tree density for participants’ living environments were positively related to nature connectedness, better psychological mood, and less distress. As is displayed in the review by Barragan-Jason et al. (2023), experimental research further supports the relationship between nature or nature connection and well-being, by determining causal effects. For example, experimental studies have revealed that nature exposure predicts positive mood resilience and decreases in negative mood.
(Bratman et al., 2014) and stress (Morita et al., 2006). Studies such as these demonstrate the value of nature in terms of human well-being, as well as the distinct, yet interrelated and difficult to distinguish, roles of nature exposure and nature connectedness.

Clearly, nature appears to provide great solace for humans, so what happens when the natural environment is under threat? With human survival and flourishing being highly entrenched in the state of the natural environment, it is logical that climate change and environmental issues may evoke unpleasant feelings or mental processes. Researchers have begun studying several of these ecological-related emotions, such as anxiety, grief, guilt, depression, and anger (Coffey et al., 2021; Cunsolo & Ellis, 2018, 2017; Pihkala 2022; Stanley et al., 2021). Galaway and Beery (2022) examined survey data on climate emotions in Canadians and found that over 50% of participants displayed moderate to strong eco-emotional responses, with worry (82%) and frustration (71%) being the most frequently reported. Not only are people experiencing high levels of eco-emotions, but emotions like eco-anxiety and eco-depression have been associated with poorer well-being, in terms of experiences of general stress, depression, and anxiety (Stanley et al., 2021). Additionally, Whitmarsh et al. (2022) found that climate change anxiety was associated with higher climate concern, higher generalized anxiety, and lower mindfulness. Further, climate change anxiety has been positively correlated with symptoms of mental health disorders, such as major depressive disorder and generalized anxiety disorder (Schwartz et al., 2022). Although it is not possible to determine causal direction from these findings, they do highlight the interrelatedness between eco-emotions and overall psychological well-being and, thus, the importance of this area of study.
Although eco-anxiety is of primary interest for this thesis, I will include brief measurement of other eco-emotions to assist in protection from erroneous conclusions.

**Eco-Anxiety: What’s in a Name?**

As is indicated above, eco-anxiety is one of many terms used to describe anxious emotional responses to climate change and environmental disaster. Presently, there is much ongoing discourse among eco-anxiety researchers regarding the various operationalizations of eco-anxiety. There is an ever-growing list of words that are often used interchangeably with eco-anxiety (Coffey et al., 2021). Aside from eco or ecological there are other descriptors for this form of anxiety, such as environmental or climate change anxiety. Additionally, the word anxiety itself extends to other variations of similar feelings, such as distress, concern, or worry. When combined, these terminological diversions produce many terms akin to eco-anxiety including environmental anxiety, climate change anxiety, and climate change distress (Coffey et al., 2021). However, these terms do typically have slightly different meanings. For instance, climate change anxiety is more focal to climate change specifically, whereas eco-anxiety may more broadly relate to general environmental issues that may be tied, but not necessarily equated, to climate change (e.g., overpopulation, deforestation). As well, Searle and Gow (2010) differentiated climate change distress and anxiety by measuring distress as a category of which anxiety was a subcategory, along with other distressing feelings such as sadness or hopelessness. These authors argued that anxiety is more distinct, where distress can have broader meaning. Additionally, terms like environmental stress that could appear to be interchangeable with eco-anxiety are problematic in that they have already been claimed to describe more general distress related to environmental conditions like crowding and noise.
All that to say, it is important to be aware of these variations in defining eco-anxiety or similar terms and to select an operationalization that fits the project at hand. Thus, eco-anxiety has been selected as a reasonable term for the purpose of this study, as it has become one of the most widely accepted terms to describe worry that is caused by an awareness of prospective environmental issues or doom (Usher et al., 2019; Clayton et al., 2007).

Additionally, using the term eco-anxiety is useful in providing a potential way to understand the experience of eco-anxiety, based on literature regarding anxiety. Anxiety is primarily an emotion that arises in the face of uncertainty for the future and also involves cognitive components thought to be aimed at aiding in some form of resolution (Ojala et al., 2021). Thus, a person experiencing eco-anxiety may be prompted, randomly or by some stimuli, to feel emotional about environmental doom and find themselves thinking about environmental issues or coping strategies for their feelings. The cognitive and emotional processes of eco-anxiety may occur simultaneously or with one preceding the other. Thus, including measurement of both is likely pertinent. As per the behavioural approach and inhibition systems, the cognitive processes involved in anxiety facilitate behaviour by considering which behaviour is most appropriate in a given scenario (Gray, 2008). As is indicated by the names of these systems, anxiety may result in a desire to approach the situation with a solution or inhibit action altogether, depending on the circumstances. In other words, cognitive and emotional processes of eco-anxiety may work together to prompt a person to manage their eco-anxiety via behavioural engagement with the issue. However,
depending on the depth of these feelings and thoughts, a person may at some point feel too overwhelmed to take action.

**Coping with Eco-Anxiety**

Due to a lack of empirical research regarding coping with eco-anxiety, we must rely on anxiety and coping literature to draw inferences about how people may cope with these feelings. Different forms of anxiety are often related to specific coping techniques. For instance, whether anxiety is caused by something malleable or fixed may affect whether a person opts for problem- or emotion-focused coping (Lazarus & Folkman, 1984). If the threat causing anxiety is changeable, a person may feel more inclined to attempt to engage in behaviours to solve the problem, whereas if it is more fixed and there is no solution a person may resort to regulating their feelings about the problem. This distinction poses an issue with eco-anxiety as the problem can often feel too overwhelming, which may prevent action-based coping. With that said, some studies do connect eco-anxiety or related emotions to pro-environmental attitudes or behaviours, which may indicate that in certain instances eco-anxiety could be considered adaptive, i.e., if eco-anxiety is causing useful pro-environmental behaviours (Bright & Eames, 2021; Schwartz et al., 2022; Verplanken et al., 2020; Whitmarsh et al., 2022).

These theories of how problem- and emotion-focused coping may affect coping behaviour are slightly limited in that they assume these types of coping only occur exclusively. It is possible that problem- and emotion-focused coping may occur simultaneously. For instance, perhaps a person joins an activist group and this action both makes them feel better, because they are surrounded by likeminded people and happy they are involved in meaningful action (i.e., emotion-focused coping), as well as making a difference toward the issues itself
(i.e., problem-focused coping). The way people understand their coping behaviours, specifically the intention behind it and what they are aiming to alleviate, is key to pulling these differences apart.

These ideas display how coping is quite complex. To recognize this complexity, Stanisławski (2019) proposed the coping circumplex model, which keeps problem- and emotion-focused coping as independent strategies but recognizes that these may occur simultaneously. For example, reaching out for social support may be used to regulate anxious feelings, but it may also be useful in gaining information that can assist with problem solving. The coping circumplex model classifies eight different forms of bipolar coping: problem solving vs. problem avoidance, preoccupation with the problem vs. hedonic disengagement, efficiency vs helplessness, and positive emotional coping vs. negative emotional coping (Stanisławski, 2019). These categories cover a variety of coping techniques, like humor, substance use, denial, religiosity, planning, active coping, and more. It is likely that people experiencing eco-anxiety may resort to many of these different techniques.

There is limited research on other coping strategies associated with eco-anxiety. Based on theory and qualitative research, some eco-anxiety researchers have suggested three potential pathways for coping with eco-anxiety: acknowledgement, action, and connecting with nature (Clayton, 2020; Kelly, 2017; Passmore et al., 2022). Acknowledgement and action were derived from acceptance and commitment therapy (Hayes et al., 2006), which proposes the way through crises is to accept, rather than avoid, concerns and behave in ways that align with values, like pro-environmentalism. Agosten et al. (2022) interviewed participants to qualitatively explore coping techniques for eco-emotions generally (i.e., eco-anxiety, -grief, and
There were 6 main categories: (1) planning and taking action, (2) confrontation with others’ anti-environmental attitudes and behaviours, (3) thinking optimistically about the situation and engaging in positive reappraisal, (4) withdrawal from triggers or acceptance of the situation, (5) avoidance or denial, and (6) seeking social support. This compilation demonstrates the use of both problem-focused and emotion focused coping strategies. However, this data is more anecdotal due to the interview style, and it does not parse apart which strategies are more or less common for each of the three eco-emotions. Therefore, it cannot be assumed that eco-anxiety is associated with any of these, but it will be interesting to further investigate how data focused specifically on eco-anxiety compares. Cunsolo et al. (2020) suggested that coping with eco-anxiety and -grief could involve techniques that are aimed to improve environmental, physical, and mental wellness (e.g., being in nature, connecting with others, validation of feelings, environmental action).

Indeed, one trend that frequently comes up in the literature on eco-anxiety and coping is an association between eco-anxiety to pro-environmental attitudes and behaviour. For instance, a survey study by Whitmarsh et al. (2022) provided evidence that climate anxiety predicts certain types of pro-environmental action (e.g., buying second hand, encouraging others to save energy). As well, Verplanken et al., 2020 found positive correlations between anxiety and global warming worry and pro-environmental behaviour determinants (e.g., a green identity, past pro-environmental behaviour). Although not necessarily equated to eco-anxiety, climate change distress was more likely to be felt by participants with a pro-environmental orientation (Searle & Gow, 2010). Finally, a survey study revealed that self-reported collective environmental action attenuated the association between climate change
anxiety cognitive emotional impairment and depressive symptoms (Schwartz et al., 2022). The authors argue that relationship could indicate that anxiety prompts action, which then works to reduce the likelihood of long-term mental health issues. In a qualitative study, Bright and Eames (2022) reported a trend in the eco-emotional responses that interviewees discussed moving through, which was apathy, awareness, anxiety, anger, and then action. However, this finding also suggests that anger may be a key predecessor to action, which has been supported by another study by Stanley et al. (2021). They tested eco-anxiety, -depression, and -anger, and only eco-depression and -anger were positively associated with adaptive responses. However, this is only one study against many that show a positive connection between eco-anxiety and pro-environmentalism. Still, it does highlight the importance of developing effective state measures for the many eco-emotions to deepen understanding on the topic. It also raises the question of how well we can truly distinguish eco-emotions from each other. Finally, one study failed to show a relationship between climate anxiety and pro-environmental behaviour, though they argued this may have been because the measure they used assessed climate anxiety levels associated with functional impairment (Clayton & Karazsia, 2020). Aligning with this idea, Lutz et al. (2023) argued that eco-anxiety responses exist upon a continuum and demonstrated that only certain severities of eco-anxiety were associated with pro-environmentalism.

There are a couple major issues with the present body of literature on the topic of coping with eco-anxiety. The research discussed above uses a variety of terminology and operationalizations, which do not target and distinguish momentary feelings of eco-anxiety, creating two challenges. First, these studies may be studying slightly different severities and/or
eco-emotions due to these variations. Second, it is difficult to understand how eco-anxiety relates to pro-environmentalism without studying people as they are actively feeling eco-anxious. This method results in findings that are primarily correlational, making it unclear whether pro-environmental attitudes and behaviours are promoted by eco-anxiety, or whether people with more pro-environmental attitudes are more likely to feel eco-anxious or turn to this type of behaviour when feeling eco-anxious. Further, these relationships are likely complex and multidirectional with caveats as to when and where certain tendencies play out. For example, another survey study found that people who reported greater concern for nature tended to be more likely to report eco-stress and -coping (Helm et al., 2018), indicating the importance of individual differences in environmental concern when evaluating the relationship between eco-emotions and coping. Thus, more empirical study is required to disambiguate the causes, mechanisms, and contexts of both eco-anxiety and pro-environmentalism. The idea for the proposed study was conceived out of a desire to specifically investigate the consequences of eco-anxiety when manipulated. After reviewing the limited literature on this topic, it became apparent that testing an induction method of eco-anxiety would be more pertinent, as there is a lack of research to build from in terms of measurement and induction of eco-anxiety. However, the study at hand still included some exploration of coping to see whether pro-environmentalism comes up post-induction.

Measuring Eco-Anxiety

As discussed, limited measures have been specifically designed to assess eco-anxiety that is experienced as a momentary emotional state. To my awareness, this has only been done by some researchers in aggregate form, where eco-anxiety is measured in general across many
moments. One such case is the climate emotions scale, where participants were asked how strongly they feel certain emotions, including anxiety, when they think about climate change (Galaway & Beery 2022). As well, Stanley et al. (2021) simply asked participants how anxious and afraid climate change makes them feel on sliding scales that measured extent. In both instances, these questionnaires could be adapted to measure momentary eco-anxiety, but they were not explicitly designed to do so.

More thorough and well-recognized eco-anxiety measures do exist, but they are not ideal for studying momentary eco-anxiety. For instance, Ojala et al. (2021) explain that Clayton and Karazsia’s (2020) climate change anxiety scale is more ideal for assessing eco-anxiety associated with prolonged problematic or unconstructive outcomes, as it looks at more severe impairments (e.g., anxiety resulting in frequent lack of sleep or crying, reduced school or work performance, lack of sustainable behaviour). Additionally, Hogg et al. (2021) developed a scale more broadly focused on measuring eco-anxiety, rather than just climate change anxiety, with the intent to keep it similar in design to Clayton and Karazsia’s (2020) scale, posing similar issues. Therefore, these questionnaires not ideal for testing and exploring short-term, momentary eco-anxiety.

Interestingly, Hogg et al. (2021) explained the importance of including items that measure eco-anxiety in terms of ruminative thoughts, as they are thought to be a critical fuel source for eco-anxiety. This concept aligns with the idea that eco-anxiety is both emotional and cognitive. Thus, while my investigation focuses on eco-anxiety as a momentary emotion, I assessed cognitive aspects of eco-anxiety as well.

**Study Overview**
To summarize, nature can provide humans with many physical and psychological benefits and the threat of environmental collapse threatens our ability to meet these needs. This disparity can lead to many related emotions and mental health concerns, one of which being eco-anxiety. At present the research on eco-anxiety and coping is in early stages and quite limited. First, there is much variation regarding terminology, which places the responsibility on researchers to be clear when operationalizing eco-anxiety in a way that fits their particular study. For this study, eco-anxiety was defined as the momentary feeling, and possibly cognitive experience, of worry caused by an awareness of prospective environmental issues or doom (Usher et al., 2019; Clayton et al., 2007). Secondly, much of the present research regarding coping behaviours and eco-anxiety is mainly correlational in nature. Thus, it is impossible to differentiate whether and when eco-anxious people engage in certain coping techniques to relieve their feelings of eco-anxiety or if people who are more inclined toward pro-environmentalism or other coping strategies have differences in how much they experience eco-anxiety. The study at hand sought to empirically investigate whether we could effectively induce momentary feelings of eco-anxiety and which coping behaviours people suggested after the induction. This study is the first to explore coping with eco-anxiety in this way and provides useful insight into how people think they would cope with eco-anxiety.

Little is known about what exactly triggers eco-anxiety, especially as a momentary phenomenon. Thus, in designing this project, I primarily based my eco-anxiety induction on prior research and discussions with my research lab. For instance, a manuscript currently being prepared by a lab member and colleagues includes qualitative findings that one prominent way eco-anxiety can be instigated is via media reports regarding climate change. In addition, I felt
that video format would be more immersive and less cognitively taxing compared to reading or viewing photographs. Where possible, I was attempting to keep the survey short and simple by implementing an induction that required less cognitive effort. I was concerned that an induction requiring more cognitive effort (e.g., reading an excerpt) may have resulted in less participant engagement. When searching for videos I selected videos that had various qualities, including imagery of environmental destruction, news report clips, and spoken commentary. The study had each participant watch one of several videos as an attempt to induce eco-anxiety. I decided to implement multiple videos as a form of stimulus sampling, which is argued to be important for construct validity (Wells & Windschitl, 1999). In the instance of this study, stimulus sampling would afford more certainty that any effect found could be consistently induced across multiple videos and that the effect is not due to unique properties of just one video. Participants were also be asked to provide three ways think they might cope with eco-anxiety and rank them in terms of likelihood of use. Finally, they completed a set of questionnaires aimed at assessing mood, state eco-anxiety, and trait qualities (e.g., nature relatedness, personality). This mixed-design study furthers present research on eco-anxiety by studying it as a momentary experience and provides insight on how people think they might cope with these feelings.

Main Questions & Hypotheses

Hypothesis 1: Participants will report significantly higher state eco-anxiety levels after viewing the eco-anxiety induction video, compared to pre-test responses.

Hypothesis 2: Participants who report higher levels of trait nature relatedness and chronic eco-anxiety will show higher levels of state eco-anxiety on pre-post-induction difference scores and
suggest more and rate higher likelihood of use of pro-environmental coping mechanisms in their lists.

*Research Question 1:* What coping themes arise in the context of managing momentary feelings of eco-anxiety?

*Exploratory Research Questions:* I conducted a procedure check test to assess whether all videos elicited a similar effect on state eco-anxiety. If there were differences between different videos abilities to produce eco-anxiety, I explored how the videos compared and contrasted to infer why. Additionally, I considered the potential roles of other variables, such as mood, other state eco-emotions, and political standing, though these are not of primary concern.

**Methods**

**Participants**

I aimed to recruit 400 participants from Amazon’s Mechanical Turk (MTurk) research participant pool. I opted to utilize the MTurk participant pool as it allowed me to gain a more diverse sample than what would typically be found in an undergraduate student research participant pool (i.e., SONA). In terms of feasibility, I expected that data collection via MTurk would occur more rapidly, which allowed additional time for coding and analyses of responses.

As my design was mixed methods and I was unaware of any studies that have investigated momentary eco-anxiety experimentally, it was challenging to determine an ideal sample size. One of the more effective ways to ascertain sample size is to run an a-priori power analysis. This analysis often necessitates a determination of what effect size is expected to be important. Popularly, researchers base this on what effects have been found in past relevant research, which are unfortunately lacking for this study. Alternatively, researchers may consider
using the smallest effect size of interest (Lakens, 2022). However, as this study focused on assessing the usefulness of a potential induction technique, I was hoping to see a medium-large effect \((d = .50;\) Cohen, 1988). This anticipated effect size aligns with meta-analysis of mood induction procedures estimated a mean effect of \(r_m = 0.481\) across 250 experimental inductions (Westermann et al., 1996). An a-priori power analysis was conducted via G*Power 3.1.9.6 (Faul et al., 2007). This analysis revealed that in order to achieve 95% power and an effect size of .50, with a 5% margin of error, I required a minimum of 45 participants. However, since I wanted to be able to assess effectiveness of each video as well, I knew I would likely need more than that. As well, Schönbrodt and Perugini suggest approximately 250 participants are needed for stabilized correlations, which was useful for certain analyses. In order to leave room for exploratory analyses and potential issues with the MTurk sample, I determined that 400 participants should be sufficient for the purpose of this study.

Participants were recruited in June 2023. As listening to and viewing videos was a key component of the study, the recruitment notice explained that participants were required to be able to see and hear video components of the study. Participants were financially compensated with a $3.00 (USD) payment. Ethics approval was acquired from the Carleton Research Ethics Board-B prior to data collection (\#119387).

After removing participants who had completed less than 95% of the study, a total of 393 participants (43% female, 57% male) remained for analyses. Participants ranged from ages 21 to 76 \((M = 40, SD = 11.21)\). In terms of ethnic or cultural heritage, 80.7% of participants identified themselves as White, 11.7% as Black, 4.1% as Asian, 3.8% as Latin American, 1.8% as Southeast Asian, 0.8% as Arab or West Asian, 0.8% as Indigenous, and 0.5% as South Asian.
**Procedure**

The entire study occurred online via MTurk and Qualtrics. The use of MTurk was facilitated by CloudResearch (Litman et al., 2017), which is a service that can ease the process of data collection on MTurk and assist in screening for high-quality participants. Potential participants found a recruitment notice on MTurk. Upon signing up participants were directed to a Qualtrics survey through a link provided on MTurk. The survey began with a consent form to thoroughly inform participants of what their participation would involve. Participants were informed that they would be randomly assigned to watch a video and that some of the videos or reflection on this topic may create negative feelings or anxiety. Although this disclosure may have created some demand effects, I thought it was important that participants were aware of what they may experience, since the anxiety they experience could be distressing. After informed consent was acquired (i.e., participants agreed to consent via a checkbox option at the end of the consent form), the study began.

Participants started by filling out a measure to assess pre-test state eco-anxiety, as well as other eco-emotions and general state mood. Qualtrics automated technology was implemented to randomly assign participants to watch one of 7 eco-anxiety induction videos, which were embedded into the survey. Participants were informed of the approximate length of the video, reminded that it may cause some negative emotions, and asked to ensure their sound was on and set the video to full screen. After watching the video, participants were presented with two quality check questions, which asked them to briefly describe the video they watched and whether they were able to hear sound during the video. Next, participants completed the post-test state eco-anxiety, eco-emotions, and mood measurements. Initially, I
had planned that following these measures participants would then be asked a qualitative, open-ended ranking question about how they believe they would cope if they were to experience eco-anxiety (regardless of whether the induction was successful). The ranking involved participants considering which suggested coping techniques they would be most to least likely to use. However, technological error resulted in this question being moved to the end of the survey. Thus, after post-test measurements, participants completed a series of questionnaires intended for exploration of coping questionnaire items, trait characteristics (i.e., climate change anxiety, nature relatedness, personality) and demographic information. Afterwards, they completed the qualitative coping question and then were debriefed.

Materials

Eco-Anxiety Induction

As mentioned, participants saw one of seven videos intended to increase feelings of eco-anxiety (see Appendix B). These videos were selected to vary slightly in terms of characteristics, such as length, content, and presenter qualities. Videos were selected to include a variety of modalities, such as imagery of natural disasters, news report clips, and spoken commentary. I aimed to keep the videos relatively short and around a similar amount of time, with some variance to see if shorter and longer videos worked similarly. The induction lasted between approximately 2 to 5 minutes, with the majority of the videos being around 4 minutes long. I attempted to include a diverse set of speakers, including men, women, Indigenous peoples, educational professionals, and laypeople. As I was searching for videos on YouTube, I included search terms such as “environmental issues”, “climate change”, and “eco-anxiety”. I was seeking hard hitting videos with more intense imagery and doom-related
language. I also actively excluded videos or edited out portions that specifically promoted action-based behaviours so as to not prime participants for the coping assessment. Comparing videos with a diverse set of characteristics allowed for assessment of the generalizability of the induction. My hope was that all of the videos would be similar enough to induce significant eco-anxiety. However, I planned to explore what characteristics may be contributing to differing effects should any arise.

**Measures**

Please see Appendix C for the full questionnaires.

**State Eco-Anxiety**

Presently, there are no measures designed to assess momentary eco-anxiety. Thus, I adapted Hogg et al.’s (2021) measure in a few ways to fit this project and assess state momentary eco-anxiety. The prompt and items focused on thoughts and feelings have been retained, but I modified the phrasing for a more present moment assessment (e.g., changing ‘worrying too much’ to ‘worried’). Items that focused on behaviours or impairment that occurs over time (e.g., difficulty sleeping) were removed. The resulting questionnaire consisted of six items, which were rated on a 5-point Likert scale from 1 (strongly disagree) to 4 (strongly agree). Instructions asked participants to rate how much they momentarily related to the statements, in terms of climate change and environmental conditions. Items participants will rate include statements such as ‘I feel nervous, anxious, or on edge’ and ‘I am thinking about losses to the environment’. I also included items from Stanley et al. (2021) to assess eco-depression (i.e., ‘I feel depressed or miserable) and eco-anger (i.e., ‘I feel angry or frustrated’).
This measure was found to be highly reliable (8 items; $\alpha = .93$). Pre-post difference scores were calculated by subtracting pre-test scores from post-test scores (i.e., $post - pre = \text{difference}$).

**State Affect**

Momentary affect was assessed with scales derived from Brandstatter (2007) and Feldman Barrett and Russell (1998). This questionnaire asked participants how strongly they were presently feeling each of 12 emotions, such as ‘at ease’, ‘sad’, and ‘delighted’. The items were rated on a 7-point Likert scale ranging from 1 (do not feel this way at all) to 7 (feel this way strongly). This particular measure of affect can be scored with both valence and activation in mind. Each subscale of 3 items, including positive activated affect, positive deactivated affect, negative activated affect, and negative deactivated affect, had Cronbach’s alphas of .86, .90, .93, and .92, respectively.

**Coping Techniques**

To supplement the qualitative coping portion, which is discussed in detail below, I added a modified version of the Brief COPE questionnaire from Carver (1997). Typically, this measure is 28 questions long with two questions per sub-categories, such as active coping, use of informational support, emotional support, humor, religion, and more. All subcategories fall under the three primary categories of problem-focused, emotion-focused, and avoidance coping types. To shorten the survey, as it was not of primary concern, I only included one item for each subcategory, making the questionnaire a total of 14 questions long. Participants were informed that this portion included a list of potential coping techniques they may use to cope with eco-anxiety and asked to rate each of them in terms of how likely they think they would be to use it. Items were rated on a 5-point Likert scale ranging from 1 (very unlikely) to 5 (very
likely). Example items include, ‘look for something good in what is happening’ and ‘use alcohol or other drugs to try to make myself feel better.’ Cronbach’s alphas for the 4 problem-focused, 6 emotion-focused, and 4 avoidance coping items were .77, .65, and .72, respectively.

Another key aspect of this study is to begin investigating what types of coping techniques participants anticipate they would select if they were feeling eco-anxious, regardless of whether the eco-anxiety induction was successful for them. As eco-anxiety may not be effectively induced for all participants, this portion began by asking them to imagine what it feels like to be in such a state, if the video did not make them feel eco-anxious. Thus, I asked participants an open-ended question to address this (i.e., ‘Please list and rank three ways you might cope with feelings of anxiety about climate change or global environmental issues. Rank the answers you provide in terms of how likely you feel you would be to use them.’) Ranking as 1 was coded as ‘most likely’ and ranking as 3 was coded as ‘least likely’. I also coded the number of responses that are related to pro-environmentalism, from 0 (lowest) to 3 (highest).

Two research assistants volunteered to code qualitative data into numerical codes to represent the primary and sub-categories of the Brief COPE, while also paying attention to patterned unique themes that presented themselves. First, the research assistants coded whether each suggested coping mechanism was problem-focused, emotion-focused, or avoidance coping. Next, they coded them within subcategories, such as active coping, use of informational support, emotional support, humor, religion, and more. Finally, they coded each suggested coping technique for whether it was a pro-environmental behaviour or not and counted the total number of pro-environmental behaviours suggested. Pro-environmental
behaviours included any behaviour that could contribute to positive environmental change (e.g., voting in alignment with values, joining an activist group, or reducing waste). A kappa statistic was calculated to be .753, which indicated a moderate level of interrater agreement (McHugh, 2012). After the research assistants had completed their independent coding, I cleared up any disagreement by making an educated judgement call on which category each best fit. In this process, I also added a few categories that came up frequently (e.g., writing, mindfulness).

**Trait Eco-Anxiety**

I implemented Clayton and Karazsia’s (2020) Climate Change Anxiety Scale to measure trait level eco-anxiety of a more chronic, impairing nature, as well as how often they engaged in certain environmental-related behaviours. This scale consists of 22 items rated on a 5-point Likert scale ranging from 1 (never) to 5 (almost always). Participants rated how often the following statements are generally true for themselves. General climate change anxiety was scored from a set of 13 items (α = .98), which are intended to measure cognitive-emotional (e.g., ‘I think, “why do I react to climate change this way?”’) and functional (e.g., ‘my concerns about climate change interfere with my ability to get work or school assignments done’) impairment, which can also be determined individually as subscales. The cognitive-emotional impairment subscale had 8 items (α = .96) and the functional impairment subscale had 5 items (α = .94). There are also two other subscales that represent the person’s experience with climate change impacts (e.g., ‘I have been directly affected by climate change’; 3 items; α = .88) and their engagement with and endorsement of sustainable behaviours (e.g., ‘I recycle’; 6 items; α = .74).
**Trait Nature Relatedness**

Nature relatedness can be thought of and assessed as a trait characteristic, regarding the level of connection one typically feels with nature, which may interplay with eco-anxiety and coping behaviours. I utilized the shortened Nature Relatedness Scale from Nisbet and Zelenski (2013), which involves six questions rated on a 5-point Likert scale ranging from 1 (disagree strongly) to 5 (agree strongly). Participants were asked about how much they generally agree with statements, such as ‘I feel very connected to all living things and the earth’. Cronbach’s alpha for these 6 nature relatedness items was .83.

**Personality**

I used Soto and John’s (2017) Big Five Inventory-2-XS to explore links between my findings and participants’ general personality characteristics (i.e., extraversion, agreeableness, conscientiousness, negative emotionality, and open-mindedness). Participants were presented with 15 items that ask how much they agree or disagree that they match the descriptor (e.g., tends to be quiet). These responses were rated on a 5-point Likert scale that ranges from 1 (disagree strongly) to 5 (agree strongly). Cronbach’s alpha for each of the 3 items for extraversion, agreeableness, conscientiousness, negative emotionalist, and open-mindedness were .66, .49, .78, .75, .58, and .69, respectively.

Although not a key component of this particular study, I also included two items (i.e., tends to be able to adapt to change and tends to bounce back after challenges) from the short version (Vaishnavi et al., 2007) of the Connor-Davidson Resilience Scale (2003). This addition is based on my interest in developing an eco-anxiety induction tool that can be used in future
research on climate change resilience and adaptation (e.g., pro-environmental behaviour).

These two items had a Cronbach’s alpha of .69.

**Demographics**

Participants were also asked to provide common demographic information, such as age, gender, and ethnic or cultural heritage. As well, there were two questions to assess what types of environments participants grew up and presently live in, with response options such as cities or rural areas. Finally, political affiliation was assessed using a range response options from ‘very liberal’ to ‘very conservative’, and an additional option for ‘other, don’t know, or not political’. Questions inquiring about gender, ethnic or cultural heritage, and environments included an open-ended response option for participants to specify if their answer was not captured by the options presented.

**Results**

**Main Analyses**

To reiterate, Hypothesis 1 was that participants would report significantly higher state eco-anxiety levels after viewing the eco-anxiety induction video, compared to pre-test responses. A repeated measures ANOVA was conducted to test Hypothesis 1. The eco-anxiety video induction procedure had a statistically significant effect on post-test state eco-anxiety, \( F(1, 386) = 228.76, p < .001, \eta^2 = .372 \). This result indicates that we can accept the hypothesis that eco-anxiety can occur as a momentary state experience and be manipulated by the video induction created for this study. Tukey’s post hoc comparisons further revealed this difference was an increase from pre-test state eco-anxiety scores (\( M = 3.64, SD = 1.71 \)) to post-test state eco-anxiety scores (\( M = 4.71, SD = 1.53 \)), where mean difference was significant, \( MD = 1.06 \),
95% CI [.93, 1.20], \( p < .001 \). Additionally, Tukey’s post hoc comparisons also confirmed no significant differences between the videos ability to influence eco-anxiety (\( p = .445 \)), indicating that similar effects were found between the videos, despite some variation across included videos. Figure 1 visually represents these findings.

**Figure 1**

*Changes in State Eco-Anxiety from Pre-Induction to Post-Induction by Video*

![Graph showing changes in state eco-anxiety from pre-induction to post-induction by video.](image)

*Note.* A corresponding numbered list of video details and links is provided in Appendix B.

Hypothesis 2 stated that participants who reported higher levels of trait nature relatedness and chronic eco-anxiety would show higher levels of state eco-anxiety on pre-post-induction difference scores and suggest more and rate higher likelihood of use of pro-environmental coping mechanisms in their lists. Pearson’s correlations coefficients were computed to Hypothesis 2 (see Table 1). Trait nature relatedness was not significantly
correlated with pre-post-test state eco-anxiety difference scores, \( r(391) = -0.03, p = .548 \). Also, trait nature relatedness was not correlated with total number of pro-environmental behaviours (PEBs) suggested, \( r(320) = .06, p = .288 \), or with whether participants suggested a PEB as their most likely to use coping technique, \( r(320) = .08, p = .175 \). Chronic eco-anxiety (i.e., scores on the climate change anxiety measure) was slightly negatively correlated with pre-post-test state eco-anxiety difference scores, \( r(391) = -0.23, p < .001 \). Similarly to nature relatedness, chronic eco-anxiety was not significantly correlated with total number of PEBs suggested, \( r(320) = .07, p = .224 \), or whether participants suggested a PEB as their most likely to use coping technique, \( r(320) = .04, p = .528 \).

### Table 1

**Correlations for Hypothesis 2 Analyses**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Eco-anxiety difference</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Nature relatedness</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Chronic eco-anxiety</td>
<td>-0.23*</td>
<td>0.29*</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Total PEB</td>
<td>0.04</td>
<td>0.06</td>
<td>0.07</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>5. PEB ranked first</td>
<td>0.09</td>
<td>0.08</td>
<td>0.04</td>
<td>0.70**</td>
<td>—</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05. **p* < .01.

Next, I had stated a research question regarding what coping themes would arise in the context of momentary feelings of eco-anxiety. For this question, thematic analysis of qualitative ranked responses was conducted. As well, I supplementarily assessed quantitative measurements of coping responses via the Brief COPE questionnaire. The exploration of this research question will begin with a summary of my findings from the qualitative data. Please see Table 2 as a summary of these results. In order of most to least frequent, the four most
common responses were pro-environmental behaviour (31%), use of informational support (13%), emotional or social support (12%), and self-distraction (11%).

Table 2

Thematic Categories of Suggested Coping Behaviours for Eco-Anxiety

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-Focused Coping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Action Techniques</td>
<td>231</td>
<td>24%</td>
</tr>
<tr>
<td>Use of informational support</td>
<td>125</td>
<td>13%</td>
</tr>
<tr>
<td>Positive reframing</td>
<td>59</td>
<td>6%</td>
</tr>
<tr>
<td>Planning</td>
<td>47</td>
<td>5%</td>
</tr>
<tr>
<td>Action Techniques</td>
<td>305</td>
<td>31%</td>
</tr>
<tr>
<td>Pro-environmental behaviours</td>
<td>305</td>
<td>31%</td>
</tr>
<tr>
<td>Emotion-Focused Coping</td>
<td>246</td>
<td>25%</td>
</tr>
<tr>
<td>Connection Techniques</td>
<td>134</td>
<td>14%</td>
</tr>
<tr>
<td>Emotional/social support</td>
<td>114</td>
<td>12%</td>
</tr>
<tr>
<td>Venting</td>
<td>20</td>
<td>2%</td>
</tr>
<tr>
<td>Mindset Techniques</td>
<td>23</td>
<td>2%</td>
</tr>
<tr>
<td>Acceptance</td>
<td>12</td>
<td>1%</td>
</tr>
<tr>
<td>Self-compassion</td>
<td>8</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Humor</td>
<td>3</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Stress Management Techniques</td>
<td>58</td>
<td>6%</td>
</tr>
<tr>
<td>Meditation</td>
<td>17</td>
<td>2%</td>
</tr>
<tr>
<td>Mindfulness</td>
<td>8</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Writing/journaling</td>
<td>7</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Breathing exercises</td>
<td>5</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Exercise</td>
<td>5</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Other self-care activities</td>
<td>16</td>
<td>2%</td>
</tr>
<tr>
<td>Time with Nature</td>
<td>17</td>
<td>2%</td>
</tr>
<tr>
<td>Spirituality or Religion</td>
<td>14</td>
<td>1%</td>
</tr>
<tr>
<td>Avoidance Coping</td>
<td>182</td>
<td>19%</td>
</tr>
<tr>
<td>Active Avoidance</td>
<td>111</td>
<td>11%</td>
</tr>
<tr>
<td>Self-distraction</td>
<td>111</td>
<td>11%</td>
</tr>
<tr>
<td>Passive Avoidance</td>
<td>60</td>
<td>6%</td>
</tr>
<tr>
<td>Behavioural disengagement</td>
<td>37</td>
<td>4%</td>
</tr>
<tr>
<td>Denial</td>
<td>23</td>
<td>2%</td>
</tr>
<tr>
<td>Either/Or</td>
<td>11</td>
<td>1%</td>
</tr>
<tr>
<td>Substance use</td>
<td>11</td>
<td>1%</td>
</tr>
</tbody>
</table>
Note. Percentages were rounded to the nearest whole number. Percentages are of the total amount of each category across all three responses, minus unclear (n=10) or missing (n=198) values.

The majority of the categories seen in Table 2 are derived from the Brief COPE measures categories. However, some adaptation was made based on themes that arose during thematic analyses. One major adjustment was to include sub-categories between the Brief COPE main categories of problem-focused, emotion-focused, and avoidance coping, and the subcategories provided in the measure (e.g., for problem-focused coping these are use of informational support, positive reframing, planning, and action). In other words, to organize the data I analysed more clearly, I implemented intermediary categories to bridge categories specific to my data and categories from the Brief COPE (e.g., for problem-focused coping I added pre-action and action techniques). In a similar vein, likely due to the nature of the study and the topic at hand, 31% responses fell under the category of pro-environmental behaviours, so this was added as a distinct category. Akin to the addition of pro-environmental behaviours as a category, I also found self-compassion, time in nature, and all stress management techniques to be common enough to warrant their mention. In terms of other self-care activities, some coping behaviours like listening to music or reading were mentioned less frequently and categorized together. Finally, avoidance coping was categorized into active and passive forms of avoidance. Suggested coping techniques that related to avoidance (i.e., substance use) could fall under either category depending on the intent. Intentional and temporary techniques aimed at recuperating, such as self-distraction, were categorized as active. In contrast, techniques that would likely involve little awareness and intent were categorized as passive (i.e., behavioural disengagement, denial).
As mentioned, for comparison, I also measured coping tendencies via the Brief COPE questionnaire and have displayed a summary of descriptive statistics in Table 3.

Table 3

Descriptive Statistics of Brief COPE Responses

<table>
<thead>
<tr>
<th>Category</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Problem-Focused Coping</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>3.57</td>
<td>1.08</td>
</tr>
<tr>
<td>Use of informational support</td>
<td>3.12</td>
<td>1.28</td>
</tr>
<tr>
<td>Positive reframing</td>
<td>3.27</td>
<td>1.33</td>
</tr>
<tr>
<td>Planning</td>
<td>3.65</td>
<td>1.24</td>
</tr>
<tr>
<td><strong>Emotion-Focused Coping</strong></td>
<td>2.73</td>
<td>.79</td>
</tr>
<tr>
<td>Emotional support</td>
<td>2.88</td>
<td>1.32</td>
</tr>
<tr>
<td>Venting</td>
<td>3.23</td>
<td>1.17</td>
</tr>
<tr>
<td>Humor</td>
<td>2.40</td>
<td>1.34</td>
</tr>
<tr>
<td>Acceptance</td>
<td>3.15</td>
<td>1.24</td>
</tr>
<tr>
<td>Religion</td>
<td>2.58</td>
<td>1.50</td>
</tr>
<tr>
<td><strong>Avoidance Coping</strong></td>
<td>2.40</td>
<td>.94</td>
</tr>
<tr>
<td>Self-blame</td>
<td>2.13</td>
<td>1.24</td>
</tr>
<tr>
<td>Self-distraction</td>
<td>3.31</td>
<td>1.25</td>
</tr>
<tr>
<td>Denial</td>
<td>2.07</td>
<td>1.33</td>
</tr>
<tr>
<td>Substance use</td>
<td>1.94</td>
<td>1.25</td>
</tr>
<tr>
<td>Behavioural disengagement</td>
<td>2.28</td>
<td>1.30</td>
</tr>
</tbody>
</table>

From Table 3, problem-focused coping was on average rated the highest for likelihood to use as a coping technique for eco-anxiety. This finding coincides with a similar finding from the qualitative coping data where problem-focused coping was most frequently suggested as most likely to use. Another notable similarity is that Table 3 shows the average ratings for active coping and self-distraction were quite high, as was pro-environmental behaviour (i.e., action-based behaviours) and distraction in the qualitative data. However, one major difference is that in the Brief COPE questionnaire, participants rated planning as quite high, while emotional support was rated as relatively lower. This result differs from the qualitative data where
emotional and social support were suggested as the third most likely to use (although quite a bit lower than active coping) and planning was suggested less than half as much as emotional and social support.

**Exploratory Analyses**

In terms of exploratory analyses, I completed multiple correlations tables to test for associations between pre-post differences in state mood variables and trait variables (see Tables 4 and 5). There are also some less essential correlations tables placed in Appendix A that indicate big five trait and eco-emotion intercorrelations. Next, I will discuss some highlights from these exploratory analyses in text.

**Table 4**

<table>
<thead>
<tr>
<th>Nature relatedness</th>
<th>Political standing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco-Anxiety</td>
<td>-.03</td>
</tr>
<tr>
<td>Eco-Anger</td>
<td>.04</td>
</tr>
<tr>
<td>Eco-Depression</td>
<td>.07</td>
</tr>
<tr>
<td>PAA</td>
<td>-.05</td>
</tr>
<tr>
<td>PDA</td>
<td>.07</td>
</tr>
<tr>
<td>NAA</td>
<td>.06</td>
</tr>
<tr>
<td>NDA</td>
<td>.12*</td>
</tr>
</tbody>
</table>

*Note. Rows use state pre-post-test difference values, columns use trait values. PAA = positive activated affect, PDA = positive deactivated affect, NAA = negative activated affect, and NDA = negative deactivated affect. *p < .05. **p < .01. n = 322.

Political standing (i.e., higher leans more conservative, lower leans more liberal) had small negative correlations to pre to post differences in eco-anxiety, eco-anger, and eco-depression. This means that participants who leaned more conservative tended to see slightly smaller changes in eco-related emotions from pre to post induction. Related to more general
mood states, political standing was slightly positively correlated with pre to post differences in positive deactivated affect (i.e., at ease, calm, peaceful), and negatively correlated to pre to post differences in negative activated affect (i.e., nervous, tense, stressed) and negative deactivated affect (i.e., sad, depressed, gloomy). To reiterate, these findings indicate that participants who leaned more liberal tended to leave the induction feeling less positively (especially in relation to indications of calmness) and more negatively.

The level to which participants felt a sense of nature relatedness was not significantly correlated with any pre to post differences in mood states, related to eco-anxiety or otherwise, aside from a small positively correlation to negative deactivated affect (i.e., sad, depressed, gloomy). This finding indicates that participants who were more nature related also felt more negative in a deactivated way after the eco-anxiety induction. As this finding was a bit surprising, further correlations were conducted to tease this relationship apart. Nature relatedness was significantly positively associated with pre-test state eco-anxiety, $r(391) = .38$, $p < .001$, and post-test state eco-anxiety, $r(391) = .39$, $p < .001$.

**Table 5**

*Correlations Between State Pre-Post Differences and Trait Eco-Anxiety, with Categories*

<table>
<thead>
<tr>
<th></th>
<th>Chronic Eco-Anxiety</th>
<th>Cognitive &amp; Emotional Impairment</th>
<th>Functional Impairment</th>
<th>Personal Experience</th>
<th>Behavioural Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco-Anxiety</td>
<td>-.23**</td>
<td>-.22**</td>
<td>-.22**</td>
<td>-.07</td>
<td>.15**</td>
</tr>
<tr>
<td>Eco-Anger</td>
<td>-.13**</td>
<td>-.13**</td>
<td>-.13*</td>
<td>-.02</td>
<td>.14**</td>
</tr>
<tr>
<td>Eco-Depression</td>
<td>-.02</td>
<td>-.01</td>
<td>-.03</td>
<td>.02</td>
<td>.17**</td>
</tr>
<tr>
<td>PAA</td>
<td>.11*</td>
<td>.11*</td>
<td>.12*</td>
<td>.06</td>
<td>-.08</td>
</tr>
<tr>
<td>PDA</td>
<td>.25**</td>
<td>.24**</td>
<td>.26**</td>
<td>.12*</td>
<td>-.06</td>
</tr>
<tr>
<td>NAA</td>
<td>-.09</td>
<td>-.07</td>
<td>-.12*</td>
<td>.03</td>
<td>.19**</td>
</tr>
<tr>
<td>NDA</td>
<td>-.14**</td>
<td>-.12*</td>
<td>-.16**</td>
<td>.03</td>
<td>.22*</td>
</tr>
</tbody>
</table>
Note. Rows use state pre-post-test difference values, columns use trait values. PAA = positive activated affect, PDA = positive deactivated affect, NAA = negative activated affect, and NDA = negative deactivated affect. *p < .05. **p < .01. n = 322.

Chronic eco-anxiety, as well as the cognitive and emotional and functional impairment sub-categories, were most strongly correlated negatively with pre to post differences in eco-anxiety and positively with positive deactivated affect (i.e., at ease, calm, peaceful). In other words, participants who reported more chronic eco-anxiety, and impairment from such, expressed lower eco-anxiety difference scores and greater increases related to calmness from pre to post induction. As this finding was a bit surprising, further correlations were conducted to tease this relationship apart. Chronic eco-anxiety was significantly positively associated with pre-test state eco-anxiety, \( r(391) = .48, p < .001 \), and post-test state eco-anxiety, \( r(391) = .34, p < .001 \). Additionally, behavioural engagement with sustainability-related behaviours was most strongly correlated with negative deactivated and activated affect changes from pre to post induction. This correlation indicates that participants who felt more negatively after the eco-anxiety induction were more likely to report being a person who engages in sustainable behaviours. These participants also did have slightly smaller, but still significantly correlated increases in eco-related emotions post-induction.

Aside from these exploratory correlations, I also conducted two paired t-tests to assess the effect of the eco-anxiety induction on other eco-emotions. Findings indicated that there was a significant difference between pre-test and post-test eco-anger, \( t(392) = -10.35, p < .001 \), Cohen’s \( d = -.52 \). Post-test eco-anger was greater \( (M = 3.45, SD = 2.05) \) compared to pre-test eco-anger \( (M = 4.41, SD = 2.02) \). In terms of eco-depression, there was also a significant difference between pre-test and post-test, \( t(392) = -8.39, p < .001 \), Cohen’s \( d = -.42 \). Post-test
eco-depression was greater \((M = 2.94, SD = 1.92)\) compared to pre-test eco-depression \((M = 3.59, SD = 1.99)\). These findings indicate that the induction did influence other eco-emotions as well. However, Cohen’s \(d\) for the effect of the induction on state eco-anxiety from pre-test to post-test was \(-.76\), which means the effect of the induction was comparatively greater for state eco-anxiety.

**Discussion**

Although researchers argue that eco-anxiety is often understood and experienced as a momentary experience, little prior research has focused on studying it as such. As a result, there are no tools or methods geared towards studying state eco-anxiety, especially in an experimental context, which is necessary to derive causal conclusions. Thus, at present, very little is conclusively known concerning momentary eco-anxiety and how people cope with it. The study at hand was developed with these issues in mind. I aimed to create an effective state eco-anxiety induction procedure, and to contribute further knowledge regarding how people believe they would cope when experiencing these momentary feelings. Of special interest was whether pro-environmental behaviour would play a notable role in coping. Data revealed that the eco-anxiety induction technique was effective. This means that future studies could have some confidence in implementing this study’s state eco-anxiety measure and induction method. The four most popularly suggested coping techniques from qualitative entries were: (1) pro-environmental behaviour, (2) use of informational support, (3) emotional or social support, and (4) self-distraction. Pro-environmental behaviour was suggested as a coping behaviour 31% of the time, indicating that people tended to believe they would use this form of active, problem-focused coping most.
There are a few potential reasons why pro-environmental behaviours were not connected to pre-post changes in eco-anxiety or trait characteristics like nature relatedness or chronic eco-anxiety. The lack of relationship between pro-environmental behaviours and these variables may have in part been due to pro-environmental behaviours being suggested so frequently. In other words, maybe so many people are likely to suggest pro-environmental behaviour for coping with eco-anxiety, regardless of individual differences in how eco-anxious they feel in that moment or typically, as well as how nature related they are. This idea somewhat aligns with research by Stanley et al. (2021) which found that individual differences in eco-anxiety were not associated with adaptive behavioural responses. In this case, pro-environmental behaviour may be an effective coping mechanism for a more diverse group of people, which is beneficial in terms of simplifying suggestions for coping and encouraging sustainable behaviours. Much research does show a relationship between eco-emotions and pro-environmentalism (Bright & Eames, 2021; Verplanken et al., 2020; Whitmarsh et al., 2022), so it is possible that this result is more so to do with the study at hand and how it was conducted (i.e., having focused specifically on state eco-anxiety in an experimental setting meant to induce such feelings and then measuring anticipated coping behaviours). In the context of this study, it makes sense that findings may not fully align with prior studies, as there have not really been any of this sort. One way to disambiguate this question further would be to specifically compare differing levels of state and trait eco-anxiety and how they may or may not relate to pro-environmental action, which aligns with the perspective of Lutz et al. (2023) that eco-anxiety may occur on a continuum where only certain levels are associated with pro-environmentalism. Ultimately though, from the study at hand and many that suggest a
relationship between pro-environmentalism and coping, it appears that pro-environmental behaviour is a common and positive coping option for most.

In general, coping categories revealed by thematic analyses aligned with the limited prior research regarding coping with eco-emotions and stress. All categories fell under the three commonly known coping categories of problem-focused, emotion-focused, and avoidance coping (Lazarus & Folkman, 1984). Further, most of the categories in Stanislawski’s (2019) coping circumplex model came up. In both cases, it would have been useful to know more about the intent behind suggested coping techniques, as it was at times difficult to predict what the aim of the coping behaviour would be (e.g., whether taking a walk was meant to improve emotional state or to avoid the issue). One interesting difference between the open- and closed-ended responses was that self-blame was an option in the questionnaire provided and some participants thought they would use this technique, whereas in the qualitative responses participants did not suggest self-blame, but they did suggest placing blame onto others. Partly this could be due to a bit of social desirability bias. Possibly if participants were provided with both options in a questionnaire, it would be found that they would opt for blaming others more than blaming themselves. As well, in terms of finding ways to feel better about a problem, blaming oneself is likely not the most effective as it inherently carries a negative connotation with it. Compassion was also a relatively common coping technique response, which may indicate that people are shifting toward a more self-compassionate perspective where self-blame is less appealing as a category. However, inherent in the need for self-compassion may be an implication of feeling some sense of self-blame. So perhaps these two concepts are two sides of the same coin, denoting shifting popularized lingo.
Other researchers have suggested other coping techniques for eco-emotions, such as connecting with nature, acknowledgement of the issue, confrontation with others’ anti-environmental attitudes and behaviours, which also came up in the data from this study (Agosten et al., 2022; Clayton 2020; Kelly 2017; Passmore et al., 2022). Overall, the responses from my data were not overly surprising, but have confirmed that these types of coping can apply to eco-anxiety specifically, providing pathways forward for future research on managing momentary feelings of eco-anxiety, alongside other eco-emotions.

Exploratory analyses provided some interesting insights as well. First, not only did the induction successfully increase eco-anxiety, but it also increased levels of eco-anger and eco-depression. Still, a comparison of effect sizes did show that eco-anxiety was most strongly affected. Either way, this finding is not surprising, as it would be difficult to create an induction using videos of environmental issues and disaster and only target eco-anxiety specifically. At this point, future researchers would likely benefit from measuring several types of eco-emotions to be able to ensure they are making correct predictions about what eco-anxiety is and is not impacting. For instance, if one was interested in experimentally inducing eco-anxiety and then measuring whether it impacted choices during a pro-environmental behaviour prompt, it would be important to measure several eco-emotions to ensure it was indeed eco-anxiety predicting that behaviour. Researchers have already highlighted that there may be differences in which eco-emotions may prompt action and argue that anger is potentially key (Bright & Eames, 2021; Stanley et al., 2021). On the other hand, it may be that it is difficult to distinguish between various eco-emotions as they could come together and predict similar outcomes. In both cases, further research is needed to find out whether eco-emotions are
distinguishable and, if so, to which extent different levels of eco-emotions impact coping behaviours.

Aside from the comparison of different eco-emotions regarding the induction, I also explored relationships between state and trait variables with some notable findings. Political conservativism being slightly negatively correlated with pre-post differences in eco-anxiety may indicate that beliefs and values tied to political standing can influence momentary eco-anxiety levels. Prior research has suggested similar ideas, whereby right-leaning individuals experience less climate change worry (Gregersen et al., 2020). This research appears to align with what I have found in my study. It suggests the importance of assessing climate change beliefs when trying to understand how eco-anxiety affects people.

It is also worth circling back to the exploration done around the apparently surprising relationship between chronic eco-anxiety and state eco-anxiety and mood. My findings revealed that participants who reported higher scores on the climate change anxiety scale tended to show less of a difference in their eco-anxiety from pre to post induction, while also feeling more calm, peaceful and at ease. At first glance this may appear to be surprising because of research that associates eco-anxiety (or similar feelings) and poorer mental health outcomes (Schwartz et al., 2022; Stanley et al., 2022; Whitmarsh et al., 2022). However, all of this research is primarily focused on long-term mental health issues and not necessarily focused on state eco-anxiety specifically, versus our study which is the first to investigate more momentary feelings of eco-anxiety. Thus, it is very possible that people who experience greater levels of high-level trait eco-anxiety may have a different experience in the face of triggers for eco-anxiety. For instance, perhaps watching these videos was validating in a way. If one is
constantly walking around feeling eco-anxious and worried about the planet, it may be comforting to see it being acknowledged. This also aligns with acknowledgement being one of the coping techniques I found in my data and that has been discussed in prior research (Clayton, 2020; Kelly 2017; Passmore et al., 2022). Additionally, in looking at these associations further, I found that pre-test and post-test eco-anxiety were both significantly related to chronic eco-anxiety, as well as nature relatedness. This may indicate that people high in these traits are already at a relatively high level of momentary eco-anxiety and small triggers like the videos of this study are not sufficient enough to cause much different fluctuations in those feelings that we saw in our general participant sample. More experimental and long-term research would be necessary to fully confirm the insights drawn from the findings of these correlations.

**Limitations & Future Directions**

With this study being rather novel, in terms of studying more momentary eco-anxiety and coping, there is a lot of opportunity for future research to build on this work. This study did have some strengths, such as a larger and somewhat diverse sample (compared to typical university psychology student participant pools). It was also the first to test eco-anxiety in an experimental context, where casual conclusions were possible to some extent for state eco-anxiety, although not for coping. Finally, the combination of quantitative and qualitative data collection allowed for exploration of both structured and non-structured responses from participants to gain a fuller picture of momentary eco-anxiety and coping.

Inherent in these strengths lies some amount of limitation. For example, the way individuals respond in an experimental context may not generalize to real-life scenarios. One finding that suggests some promise for cross-methodological generalizability is that trait
behavioural engagement (e.g., how much people say they recycle) was associated with the suggestion of pro-environmental behaviour as coping in this study. This means that participants who said they behaved more sustainably in their day to day, were more likely to say they thought they would be likely to use a pro-environmental behaviour to cope. This relationship may indicate that the findings from our short-term study could relate to more general, real behaviours. In addition to a lack of comparison regarding lab versus natural settings, there may also be a lack of cross-cultural generalizability as my sample was predominantly white. Typically, white Americans and Canadians have more of their social determinants of well-being met (e.g., sufficient income and job security, contenting housing and environments), which can act as a protective mechanism when dealing with adversities like climate change (Raphael et al., 2020). Thus, having less resources to draw on in terms of coping, may alter the way people are able to cope with feelings of eco-anxiety. Undoubtedly, people with lower income and experiencing other stressful social factors, may not be able to afford certain techniques. As a society, it is imperative to find ways to support communities that may not have the same resources, such as provision of low-cost therapy or sustainable products. Ensuring all communities have equitable access to greenspaces may be important to fostering that connection with nature that can be helpful as a coping technique for eco-emotions. It is common for researchers to use easily accessible participant pool tools, but this often means that the sample is less diverse. However, the Intergovernmental Panel on Climate Change (IPCC, 2022) notes that minority populations, such as Indigenous peoples, are often more inequitably vulnerable to the effects of environmental issues, despite not having contributed to nearly the same extent as other populations. Thus, in this line of research it is of extreme importance to
focus in on these populations and how eco-anxiety affects them and how they can cope with it. This caveat may mean that researchers will have to make more of an effort to actively seek out and study different populations. Doing so will allow confirmation of how social factors influence coping and the best ways forward in terms of supporting vulnerable populations. All in all, future studies should consider conducting more research using different methodology (i.e., beyond videos), such as more naturalistic or longitudinal forms, as well as including more diverse samples.

While I was able to collect good preliminary data to work from regarding coping behaviours for eco-anxiety, it would likely be beneficial to investigate these more deeply. For instance, testing participants in-lab with an actual pro-environmental behaviour opportunity and comparing to a control condition, or asking what the reason behind suggested coping techniques is to more confidently tease apart the role it is serving in their coping. Also, investigating the connection between eco-anxiety and pro-environmental behaviour may be an avenue for increasing pro-environmentalism, and subsequently care for the earth. Finally, with formatting the qualitative coping questionnaire at the end, I cannot make assumptions that the induction influenced these responses as the effect may have faded by then, or the administration of other questionnaires that discussed coping techniques prior to the qualitative question may have influenced responses. Thus, looking into coping behaviours more experimentally where these issues are not present would also be of benefit to draw more causal conclusions. These ideas for future study would also allow for more exploration into which coping techniques are the most effective for eco-anxiety. As this study is quite novel, it
leaves much need for future study to draw stronger conclusions and direct research efforts appropriately.

**Conclusion**

The study at hand achieved its goals of testing out an eco-anxiety induction method and exploring coping techniques for eco-anxiety. I found that it is possible to measure and influence momentary feelings of eco-anxiety, and these appear to be distinct from more chronic eco-anxiety. It also appears that people believe they would cope with momentary feelings of eco-anxiety in ways that have been anticipated by past research on eco-emotions and anxiety. Beliefs and values may be of particular importance when considering factors that influence triggers of momentary eco-anxiety. Finally, pro-environmental behaviour appears to be a strong consideration for coping with eco-anxiety for most people in this study and is possibly an important avenue when considering adaptive responses to increasing effects of climate change and global environmental issues. With these issues on the rise, eco-anxiety and other eco-emotions are likely to become more and more of a concern. Thus, it will be important for helping professionals and the general public to understand how to cope with such feelings and their effects. Additionally, managing momentary eco-anxiety may be a way to prevent or reduce more chronic levels of eco-anxiety that may impair cognitions, emotions, and daily function.
References


Appendix A
Additional Tables

Table 6

*Correlations Between State Pre-Post Differences and Personality Traits*

<table>
<thead>
<tr>
<th></th>
<th>Extraversion</th>
<th>Agreeable</th>
<th>Conscientious</th>
<th>Negative Emotionality</th>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco-Anxiety</td>
<td>-.09</td>
<td>.20**</td>
<td>.24**</td>
<td>-.13*</td>
<td>.15**</td>
</tr>
<tr>
<td>Eco-Anger</td>
<td>-.02</td>
<td>.18**</td>
<td>.23**</td>
<td>-.17**</td>
<td>.13**</td>
</tr>
<tr>
<td>Eco-Depression</td>
<td>-.03</td>
<td>.08</td>
<td>.16**</td>
<td>-.05</td>
<td>.01</td>
</tr>
<tr>
<td>PAA</td>
<td>-.04</td>
<td>-.19**</td>
<td>-.17**</td>
<td>.14**</td>
<td>-.10</td>
</tr>
<tr>
<td>PDA</td>
<td>.04</td>
<td>-.17**</td>
<td>-.27**</td>
<td>.15**</td>
<td>-.08</td>
</tr>
<tr>
<td>NAA</td>
<td>-.08</td>
<td>.12*</td>
<td>.15**</td>
<td>-.05</td>
<td>.07</td>
</tr>
<tr>
<td>NDA</td>
<td>-.09</td>
<td>.17**</td>
<td>.19**</td>
<td>-.03</td>
<td>.08</td>
</tr>
</tbody>
</table>

*Note.* Rows use state pre-post-test difference values, columns use trait values. PAA = positive activated affect, PDA = positive deactivated affect, NAA = negative activated affect, and NDA = negative deactivated affect. *p < .05. **p < .01. n = 322.

Table 7

*Correlations Between State Pre-Post State Eco-Emotions & Other Moods*

<table>
<thead>
<tr>
<th></th>
<th>PAA</th>
<th>PDA</th>
<th>NAA</th>
<th>NDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco-Anxiety</td>
<td>-.35**</td>
<td>-.47**</td>
<td>.47**</td>
<td>.49**</td>
</tr>
<tr>
<td>Eco-Anger</td>
<td>-.24**</td>
<td>-.36**</td>
<td>.39**</td>
<td>.36**</td>
</tr>
<tr>
<td>Eco-Depression</td>
<td>-.26**</td>
<td>-.29**</td>
<td>.45**</td>
<td>.48**</td>
</tr>
</tbody>
</table>

*Note.* Rows use state pre-post-test difference values, columns use trait values. PAA = positive activated affect, PDA = positive deactivated affect, NAA = negative activated affect, and NDA = negative deactivated affect. *p < .05. **p < .01. n = 322.
Appendix B  
Eco-Anxiety Induction

1. PBS Terra. (2021, April 26). Alaskan Native Elders tell their climate change story | After the ice. [Video]. Vimeo. [Video]. https://vimeo.com/828406716/629b2c9abf?share=copy


Instructions:

Next, you will watch a video of ~ minutes. Please pay attention to the information presented as it will be important for the remainder of the study.

This video may cause some negative emotions. Please know you can withdraw from the study at any point.

Before starting the video, please ensure your sound is on and put the video in full screen (icon at bottom right of video thumbnail). Once the video is finished press escape on your keyboard to exit full screen.
Appendix C
Questionnaires

State Eco-Emotions
Derived Hogg et al. (2021) and Stanley et al. (2021)

In terms of climate change and other global environmental conditions (e.g., global warming, ecological degradation, resource depletion, species extinction, ozone hole, pollution of oceans, deforestation), please rate how much you agree or disagree that the following statements apply to you.

While rating these items, please consider your how you feel presently, in the moment just before beginning these questions.


1. I feel nervous, anxious, or on edge
2. I feel worried
3. I feel afraid
4. I feel angry or frustrated
5. I feel depressed or miserable
6. I am thinking about future climate change and other global environmental problems
7. I am thinking about past events related to climate change
8. I am thinking about losses to the environment
**State Affect**  

Please indicate how strongly you feel each emotion presently, **in the moment just before beginning these questions.**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Do not feel this way at all</td>
<td>Feel this way moderately</td>
<td>Feel this way very strongly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>At ease</td>
<td>2</td>
<td>Sad</td>
<td>3</td>
<td>Calm</td>
<td>4</td>
<td>Delighted</td>
</tr>
<tr>
<td>5</td>
<td>Happy</td>
<td>6</td>
<td>Nervous</td>
<td>7</td>
<td>Depressed</td>
<td>8</td>
<td>Tense</td>
</tr>
<tr>
<td>9</td>
<td>Peaceful</td>
<td>10</td>
<td>Gloomy</td>
<td>11</td>
<td>Excited</td>
<td>12</td>
<td>Stressed</td>
</tr>
</tbody>
</table>
Post-Video Quality Check

Please provide a short description of the video you just watched:

When watching the video, did you hear sound?
- Yes
- No

Coping Techniques: Qualitative Question

The video you watched may have produced some feelings of anxiety about the environment, but if it did not, please imagine what it feels like to be in such a state.

Please list three ways you might cope with feelings of anxiety about climate change or global environmental issues.

The answers have been numbered to indicate the ranking of the answers you provide in terms of how likely you feel you would be to use them (i.e., the option you would be most likely to use should be typed in the box ranked as a 1, versus least likely to use in the box ranked as a 3).

1. 
2. 
3. 
**Brief COPE**  
Carver (1997)

Below is a list of potential coping techniques you may use to cope with eco-anxiety. Please rate each of the following in statements in terms of how likely you think you would be to use it.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Very Unlikely</td>
<td>Unlikely</td>
<td>Neutral</td>
<td>Likely</td>
<td>Very Likely</td>
</tr>
</tbody>
</table>

1. Take action to make the situation better  
2. Think hard about what steps to take  
3. Look for something good in what is happening  
4. Learn to live with it  
5. Make jokes about it  
6. Find comfort in my religion or spiritual beliefs  
7. Get emotional support from others  
8. Get help and advice from other people  
9. Turn to work or other activities to take my mind off things  
10. Refuse to believe that it has happened  
11. Express my negative feelings  
12. Use alcohol or other drugs to make myself feel better  
13. Give up trying to deal with it  
14. Blame myself for things that happened
Trait Eco-Anxiety
Clayton & Karazsia (2020)

Please rate how often the following statements are generally true of you.


1. Thinking about climate change makes it difficult for me to concentrate
2. Thinking about climate change makes it difficult for me to sleep
3. I have nightmares about climate change
4. I find myself crying because of climate change
5. I think, “why can't I handle climate change better?”
6. I go away by myself and think about why I feel this way about climate change
7. I write down my thoughts about climate change and analyze them
8. I think, “why do I react to climate change this way?”
9. My concerns about climate change make it hard for me to have fun with my family or friends.
10. I have problems balancing my concerns about sustainability with the needs of my family
11. My concerns about climate change interfere with my ability to get work or school assignments done
12. My concerns about climate change undermine my ability to work to my potential
13. My friends say I think about climate change too much
14. I have been directly affected by climate change
15. I know someone who has been directly affected by climate change
16. I have noticed a change in a place that is important to me due to climate change
17. I wish I behaved more sustainably
18. I recycle
19. I turn off lights
20. I try to reduce my behaviors that contribute to climate change
21. I feel guilty if I waste energy
22. I believe I can do something to help address the problem of climate change
### Trait Nature Relatedness
Nisbet & Zelenski (2013)

Please indicate the extent to which you *generally* agree or disagree with each of the following statements.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disagree</td>
<td>Disagree</td>
<td>Neutral;</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td>strongly</td>
<td>a little</td>
<td>no opinion</td>
<td>a little</td>
<td>strongly</td>
</tr>
</tbody>
</table>

1. My ideal vacation spot would be a remote, wilderness area
2. I always think about how my actions affect the environment
3. My connection to nature and the environment is a part of my spirituality
4. I take notice of wildlife wherever I am
5. My relationship to nature is an important part of who I am
6. I feel very connected to all living things and the earth
Personality
BFI-2-XS; Soto & John (2017)

Here are a number of characteristics that may or may not apply to you. Please select how much you agree or disagree with each statement.

1. Tends to be quiet
2. Is compassionate, has a soft heart
3. Tends to be disorganized
4. Worries a lot
5. Is fascinated by art, music, or literature
6. Is dominant, acts as a leader
7. Is sometimes rude to others
8. Tends to bounce back after challenges
9. Has difficulty getting started on tasks
10. Tends to feel depressed, blue
11. Has little interest in abstract ideas
12. Is full of energy
13. Assumes the best about people
14. Is reliable, can always be counted on
15. Is emotionally stable, not easily upset
16. Is original, comes up with new ideas
17. Tends to be able to adapt to change
Demographics

1. What is your gender?
   - Gender fluid
   - Man
   - Nonbinary
   - Two spirit
   - Woman
   - Not captured – please specify: _____________

2. What is your age? ____ years

3. How would you describe yourself in terms of ethnic or cultural heritage? Check any that apply.
   - White/Caucasian (e.g. British, German, Italian, Russian, Israeli, etc.)
   - Asian (e.g., Chinese, Japanese, Taiwanese, Korean, etc.)
   - South Asian (e.g., East Indian, Pakistani, Sri Lankan, Indo-Guyanese, etc.)
   - South East Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese, etc.)
   - Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan, etc.)
   - Black (e.g., African-American, Caribbean, Haitian, Jamaican, Somali, Nigerian, African)
   - Native/Aboriginal People (e.g., First Nations, Métis, Inuit, etc.)
   - Latin-American (e.g., Cuban, Puerto Rican, Salvadorian, Mexican, Argentinean, etc.)
   - Not captured – please specify: _____________

4. When it comes to politics, do you think of yourself as liberal, moderate, conservative, or something else?
   - Very liberal
   - Liberal
   - Slightly liberal
   - Moderate/middle of the road
   - Slightly conservative
   - Conservative
   - Very conservative
   - Other, don’t know or not political

5. Where did you spend the most time while growing up?
   - City (downtown)
   - City (suburbs)
   - Exurban (development beyond suburbs)
   - Small town
   - Rural or farm

6. Where do you live now?
   - City (downtown)
   - City (suburbs)
   - Exurban (development beyond suburbs)
   - Small town
   - Rural or farm